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INSTITUTIONS AND EMPLOYEE INTRAPRENEURSHIP: DOES GENDER MATTER?*

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Abstract. Innovation within an organization may depend on Intrapreneurship employee-related antecedents. This research draws upon institutional theory to investigate whether the external environment, in terms of formal or informal institutions, affects the likelihood of employee Intrapreneurship and to what extent gender can benefit from each side of institutions. Exploratory factor analysis and binomial logistic regression were applied to understand the relationship between institutions and employee Intrapreneurship among Genders. The findings conclude that organizations should proactively engage with and adapt to the formal institutional context to cultivate an intrapreneurial culture that encourages employee creativity, innovation, and entrepreneurial behavior. At the same time, gender plays a significant moderating role in establishing a robust connection between formal institutional factors and intrapreneurship. These findings can potentially develop intrapreneurship within organizations by tailoring the institutional environment accordingly.

Keywords: intrapreneurship; innovation; gender; institutions; Saudi Arabia

Reference to this paper should be made as follows: Aljarodi, A. M. 2025. Institutions and employee intrapreneurship: does gender matter? *Entrepreneurship and Sustainability Issues*, 13(2), 143-159. <http://doi.org/10.9770/w2448994246>

JEL Classifications: M21, L26

1. Introduction

Researchers, practitioners, and policymakers continue to be interested in how the creation of something new from existing organizations by using synonymous words: Intrapreneurship, Intrapreneuring, Corporate Entrepreneurship, or Strategic Renewal (Kraus et al., 2019; Turro et al., 2020). Some authors have focused on how internal factors such as manager leadership style, organizational culture, or job design can impact employee Intrapreneurship (Badoiu et al., 2020; Kraus et al., 2018; Mustafa et al., 2018; Rigtering et al., 2019). Others have focused on external factors that have a relationship to employee Intrapreneurship, such as society rules (Elert and Stenkula, 2022), institutions and contexts (Bogatyreva et al., 2022), or the digital era (Wan and Liu, 2021). Taking as a whole, this esteemed work - whether focused on theory implications, organizational development, or policymaker facilitations - has created a foundation for this phenomenon. However, the theoretical models in corporate entrepreneurship recognize the significance of environmental factors, but there is a notable absence of quantitative studies investigating the precursors of Intrapreneurship within the context of developing countries or regions (Urbano et al., 2023). The previous literature remains somewhat focused on intrapreneurship in well-developed nations or compares it to developing nations. At the same time, the effect of external institutions on Intrapreneurship are still difficult to understand within emerging nations (Urbano et al., 2023). It is clear that Intrapreneurship is a developing topic, but it is less clear how Intrapreneurship activities work among genders and in a nation where the government heavily invests in empowering women to be in the

* This research was funded by the Deanship of Scientific Research (DSR) at King Abdulaziz University, Jeddah, Saudi Arabia, under grant no. (GPIP:1926-849-2024). The authors, therefore, acknowledge with thanks DSR for technical and financial support.

workforce, such as in the case of Saudi Arabia (Aljarodi et al., 2022a, 2023). Contextual studies on the effect of formal and informal institutions within the entrepreneurship field in demand (Ivy & Perényi, 2020; Webb et al., 2020). A more profound understanding of intrapreneurship activity within a nation such as Saudi Arabia presents an understandable way to adapt to the fast-changing environment. It also should explain the influence of external institutions on each gender to be more creative and innovative employees. While there are some commonalities across investigating the influence of institutions on Intrapreneurship activity among gender (Chappell & Waylen, 2013; Turro et al., 2020), there are almost as many factors to investigate within institutions as there are influential in providing national theoretical and practical implications. While previous studies have examined the role of institutions in intrapreneurship and innovation within the business across developed nations (Turro et al., 2020), there is a clearly a gap in understanding the distinctive dynamics of the external environment's role in terms of formal and informal institutions on the development of intrapreneurial activity, specifically from emerging economies (Basingab et al., 2023). This article fills the available literature by investigating and responding to the call to empirically examine the effect of organization external environments on the development of intrapreneurial activity in the context of Saudi Arabia that considers evolved significantly, driven by Vision 2030 initiatives that promote economic diversification, and foster a culture of entrepreneurship and innovation (Aljarodi et al., 2024). The purpose of this research is to investigate whether the external environment, in terms of formal or informal institutions, affects the likelihood of employee Intrapreneurship and to what extent gender can benefit from each side of institutions in Saudi Arabia. The use of institutions theory (North, 1990; North, 2005) facilitates the study to understand the constraints that structure human interaction in terms of formal institutions (written constitutions) and informal institutions (unwritten constitutions). This framework can be applied to understanding the innovation of Intrapreneurship employees at an individual level and from each gender to be reflected on a national level of emerging economies (Turro et al., 2020). Nevertheless, this study application can assist researchers in understanding the effect of each side of institutions on each gender, organizations to promote intrapreneurship activity, and policymakers to invest in more friendly policies that create a favorable intrapreneurial environment for organizations within its nation. Also, it can add substantial value to comparative international entrepreneurship research, as it aligns with the discussions and insights presented by Terjesen et al. (2016). The paper presented is divided into six parts. The following part presents the literature review of institutions' direct and indirect effects on each gender intrapreneurship. The third section explains the methodology and sample used for the study, followed by the result. Section five discusses the topic and adds the implications of the findings. The last section summarizes the paper and presents the limitations and future research lines.

2. Literature Review

2.1. Context of Intrapreneurship

Studies indicate the phrase “Intrapreneur” refers to employees at any level of the organization who dedicated their time to improve a product or service without leaving their organization with “a bottom-up approach” (Badoiu et al., 2020; Bogatyreva et al., 2022; Turro et al., 2020). Intrapreneurial activity is driven by innovativeness (Turró et al., 2014), risk-taking (Caliendo et al., 2009), and proactiveness (Badoiu et al., 2020). The concept of Intrapreneurs is distinct from “corporate entrepreneurs” and from “entrepreneurs.” Urbano et al. (2022) showed that the activity initiated by a higher level of management and carried out by a lower level of employees in the organization hierarchy is called “corporate entrepreneurship.” Aljarodi et al. (2023) and Gonzalez-Serrano et al. (2018) defined an entrepreneur as someone who initiated a company to extend wealth and make a difference in their societies. Thus, intrapreneurs, corporate entrepreneurs, and entrepreneurs fall under the umbrella of entrepreneurship. They share an essential characteristic: the intrinsic passion and drive to ideate, establish, and manifest new things rather than a detached or passive approach. The consequences of intrapreneurial efforts on the organization's performance are shaped by its environment (Urbano et al., 2022; Zahra & Covin, 1995). Intrapreneurs capitalize on the company's existing resources to exploit future opportunities (Urbano et al., 2024). The intrapreneurial effort undertaken should help the company maintain its innovative edge, which can have a favorable influence on the government by reflecting on the economy in terms of employment and industry development. Despite the potential benefits, intrapreneurs often face substantial challenges in navigating, such as resource limitations, cultural barriers, regional factors, and uncertain market conditions, threatening the organization's innovativeness (Kuratko & Audretsch, 2013). Therefore, deeper insights and analysis are needed into the entrepreneurial process as it unfolds in different constrained

environments. This relevancy of intrapreneurship activities is indeed within developing and emerging economies, especially with market changes (Urbano et al., 2024), which create a solution for companies to stay competitive within a fast-changing environment (Kraus et al., 2012). Compared to organizations in developed nations, firms in developing countries often lack intangible assets (Guillén & García-Canal, 2009). Thus, the research focuses on how the institutional context impacts and informs an employee's choice to become an intrapreneur within the tourism industry. The tourism industry is considered an untapped resource in Saudi Arabia, and the government provides it with priorities and investment (SCEDF Saudi Council of Economic and Development Affairs, 2016). Intrapreneurship in the context of the study is defined as employees developing new activities for their employer (Zahra & Covin, 1995). The rules within regulatory environments, beliefs and values within national culture, and organizational restrictions are the main factors that shape entrepreneurial behaviors (Stam, 2013; Urbano et al., 2024).

2.2. Hypotheses and proposed model

2.2.1. Institutions and Employee Intrapreneurship

Institutions explain the pivotal role of shaping productive activities ultimately connected to economic results (North, 1997). The concept of institutions is founded and connected to explain the economic growth “rules of the game,” which explains the outcome of human interactions (North, 1990). The nation's set of institutions causes differences among each society (Urbano et al., 2024). According to North (2005), open societies establish incentives encouraging individuals to be more productive, while restrictive societies construct barriers that impede productive activities. These incentives and restrictions within societies are called formal and informal institutions. Based on North (1990), formal institutions can be examples of government laws and regulations, and informal institutions can be society's culture. Recent studies used institutions' theory as a lens to understand better environmental factors (Basingab et al., 2023; Bogatyreva et al., 2022; Turro et al., 2020). The theory claims that firm innovations positively reflect economic performance resulting from the entrepreneurial firm adapting its structure, process, regulations, and culture (Bruton et al., 2010; Scott, 1995). In other words, formal and informal institution systems create a favorable environment for firms, and, in turn, this system should reduce the uncertainty within human interactions. In addition, the intrapreneurial incentive results from intrapreneurs' interaction with societies and organizational rules and policies (Urbano et al., 2024). Thus, this study will use the institutional theory as a theoretical framework for two reasons: I) the framework can explain why organizations and individuals tend to conform to established norms, rules, and practices (Urbano et al., 2023), II) it helps to understand the institutional change that is currently happening in the context of Saudi Arabia as a part of the strategic plan called Vision 2030 (SCEDF, 2016). In this regard, we proposed that this theory can explain the institutional condition in terms of an external factor (formal institutions) and (informal institutions) at the country level; therefore, it affects employees' Intrapreneurship at the organizational level, as well as the moderating role of gender in this relationship (See Figure 1).

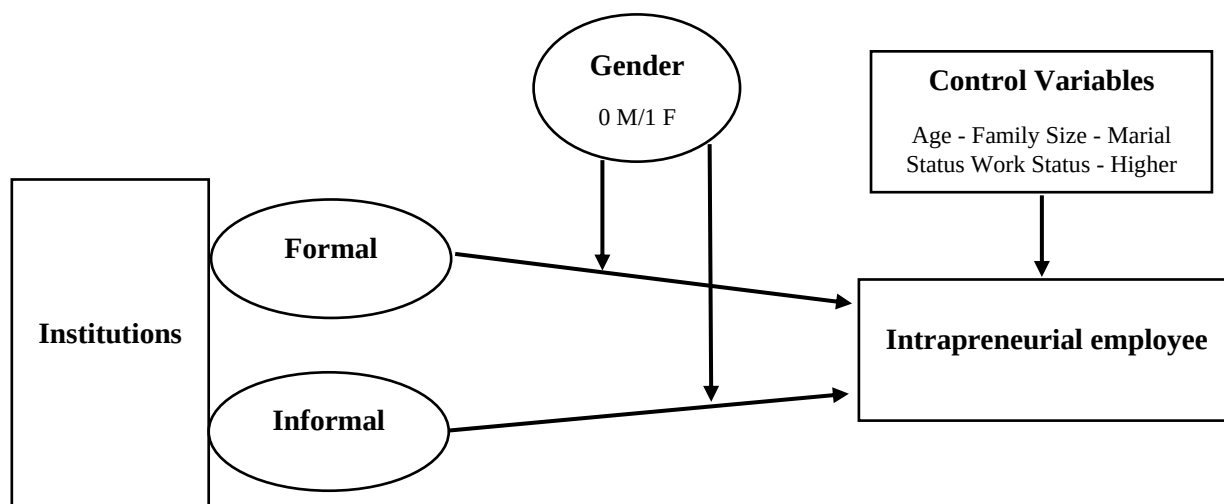


Figure 1. Theoretical Model
Source: Based on the authors' calculation

Prior studies show empirical evidence for the positive impact of institutions on entrepreneurial activity at the country level (Alvarez et al., 2011; Aljarodi et al., 2022; Basingab et al., 2023). Although some studies could not find the same effect (Van Stel et al., 2007), the government increases facilitation by requiring different institutions to reduce bureaucratic burdens; therefore, evidence supports entrepreneurial activity (Aljarodi et al., 2023). Rivera (2017) showed that businesses should adapt to formal institutional changes, such as economic and technological ones, so that intrapreneurs can find new opportunities to stay competitive and create innovative solutions for the company. Similarly, the aspiration of formal institutions through an educational system, a well-functional and fair court, and the ability of small firms to access resources should result positively in employee entrepreneurial activity in reaction to institutional flow (Lajqi & Krasniqi, 2017). A study of 184 firms in Turkey found a significant effect of management support on enhancing intrapreneurial behaviors, which explicitly reflects the positive support at the formal institutional level (Alpkan et al., 2010). Recent evidence from 29 developed and 31 developing countries showed that formal institutional factors such as economic freedom are significant predictors of Entrepreneurship at the organizational level and vary depending on the context of development (Urbano et al., 2023). In Latvia, Valka et al. (2020) anticipate from their findings that institutional support at the economic level affects intrapreneurial behavior directly or indirectly through risk-taking and a degree of trust in superiors and management. Falola et al. (2018) argued that employee intrapreneurial engagement can overcome economic hardship and influence organizational practices, which can be found in management practice policies and resource support. Based on these findings, this study proposes that formal institutions at the country level can enhance employee entrepreneurial activities by providing a better policy to support organizations and create economic stability. In this regard, we hypothesize that:

H1. *The formal institution factors have a positive impact on the likelihood of development of employee Intrapreneurship.*

The positive impact of informal institutions on employee tendencies to innovate and take a proactive role within their organization has been a subject of interest in various studies. Tseng and Tseng (2019) found six factors that increase entrepreneurial behavior within an established organization. These are motivating and educating employees, rewarding and assisting innovative-minded employees to reach their full potential, structuring the organization to accept newly minded ideas and encouraging employees to view an organization as a broad perspective. A Study on micro-enterprises from Turkey confirms the link between leadership style and increased innovation in employee behavior (Staub et al., 2019). An earlier study by Gapp and Fisher (2007) found that creating an innovative product results from having intrapreneurial teams who have already established or developed services within the organization. Other factors associated with employee attendance to be intrapreneurs include work discretion, mutual confidence, and the quality of the relationship between employees and top managers (Badoiu et al., 2020).

However, informal institutional factors encompass unwritten roles that are built inside the organization and can be extended outside of the organization. For example, Urbano et al., (2023) empirically found that fear of failure and media attention can predict intrapreneurial activities. Obschonka (2017) pointed out that intrapreneurial behavior can be similar to entrepreneurial activities by depending on culture, higher levels of individualism and lower levels of uncertainty avoidance. Thus, previous scholars have discovered several factors associated with informal institutions within/outside an organization that develop intrapreneurial behaviors, and this research proposed that informal institutions, such as societal influencer factors, should play an essential role in increasing intrapreneurial behaviors. Accordingly, we hypothesize that:

H2. *The informal institution factors have a positive impact on the likelihood of development of employee Intrapreneurship.*

The economic decisions made by individuals are determined by the institutions operating at the country level (Bogatyeva et al., 2022; Urbano et al., 2023). A country-level condition counts as one factor for disparities between men and women toward Intrapreneurship (Giménez & Calabrò, 2018; Pettersson et al., 2017). For example, the study of gender differences among 60 countries from 2014 to 2016 found that countries with active governments formulating and applying policies to support private businesses have advantages in increasing the likelihood of only male employees intrapreneurial behavior (Turro et al., 2020). Zhu and Zhu (2017) findings

indicate that firms in developed countries are inclined to participate in innovative endeavors due to several factors, including the presence of suitable regulatory systems, minimal government intervention, efficient regulation, and open markets. In Saudi Arabia, Alhammad et al. (2021) found that government interventions regarding procedures complications and ambiguity around some new policies affect many Saudi women to sustain their ventures. Another example of a formal institution is the Guardianship system, which restricts women's participation in employment activities, including signing new contracts or traveling, in certain Arab countries (Syed et al., 2018). However, recent studies have shown changes in countries like Saudi Arabia, where the guardianship system has been modified to grant women the freedom to engage with various government institutions and travel without a guardian (Aljarodi et al., 2023). Furthermore, policies that support women with children, such as maternity leave or the availability of daycare facilities, play a crucial role in motivating women to participate in the workforce rather than solely being homemakers (Al-Asfour et al., 2017; Syed et al., 2018). Despite this, women and men should benefit equally from the regulatory framework, resulting in flourishing employee attendance to Intrapreneurship (Amoroso & Link, 2018; Berglund et al., 2018).

This study assumes that these policies not only enable women to balance their familial responsibilities but also allow them to contribute their unique perspectives and ideas, fostering an environment conducive to innovation. We can conclude that the formal institutional view of intrapreneurship shows that gender differences exist because of government support and facilitation. Therefore, we present the following hypothesis:

H3. Formal institutions increase the likelihood of employee Intrapreneurship for both men and women; however, the effect is stronger for men.

The culture varies among different nations, which causes variation in entrepreneurial activity (Turró et al., 2014). The link of national culture to corporate entrepreneurship activities is noticed in earlier literature. Noting that corporate entrepreneurship is an organization's activities and behaviors that foster innovation, risk-taking, and the pursuit of new opportunities (Provasnek et al., 2017). In their earlier study, Morris et al. (1993) discovered that corporate entrepreneurship tends to be most prevalent in cultures with moderate individualism. Using the Hofstede's approach to define different cultures, power distance and uncertainty avoidance can cause differences among corporate entrepreneurship in different countries (Shane, 1995; Jan et al., 2024). Gender, informal institutions, and intrapreneurship are complex and context-dependent. For example, it found that in countries with lower economic freedom, there is a tendency for political and economic interests to exert control over the information accessible to the public (Bjørnskov, 2018); consequently, stories and information regarding entrepreneurs and intrapreneurs may be limited or unavailable (Urbano et al., 2023). Pia's information hinders employees from taking proactive initiatives (Eijdenberg et al., 2019). Dheer (2017) found that the successful entrepreneurship stories covered by media in developed nations are vital factors in increasing the number of individuals exhibiting intrapreneurial behavior. Alshebami (2021) showed that the presentation and coverage of individuals from both genders across various media channels should enhance psychological motivation. A recent study across developing and developed countries associated with employee intrapreneurship found that fear of failure is another informal institution associated with intrapreneurial behavior and has a higher impact on individuals within developed nations (Urbano et al., 2023).

Nonetheless, Langowitz and Minniti (2007) claimed that men and women have equally relevant perceptions influencing their decision to embark on entrepreneurship and start their businesses. Marlow (2020) argued that societal culture either fosters or discourages specific behaviors, including entrepreneurship, and these perceptions may vary based on the entrepreneur's gender. Aljarodi et al. (2023) found that informal institutions in Saudi Arabia such as stereotypes, can negatively influence the likelihood of females being involved in entrepreneurial activities, unlikely men. Several studies agreed upon the difficulties female entrepreneurs' presence could cause by male-dominated market (Giménez & Calabrò, 2018; Turro et al., 2020; Aljarodi et al., 2023). Thus, the study proposes that national culture impacts organizational cultures, which in turn can influence employee intrapreneurship, particularly when considering gender differences. Based on this understanding, we propose the following hypothesis:

H4. Informal institutions increase the likelihood of employee Intrapreneurship for both men and women; however, the effect is stronger for men.

3. Methodology

The study selected a sample comprised of workers from different government and private sectors who were involved in activities related to the tourism industry. The sample was chosen since the tourism sector reflects a rapidly changing environment, and the Saudi government invests heavily in providing individuals within the tourism industry with workshops and training sessions to become more innovative and create new opportunities (SCEDF, 2016).

3.1. Data collection and sample

The study began with the validation of the English version of the questionnaires. Then, it was translated into Arabic because it is spoken in Saudi Arabia. Next, a pilot test incorporated experts in the entrepreneurship area who are bilingual in both languages. After incorporating the respondents' feedback to enhance the survey's accuracy, the researchers distributed the final version of the questionnaire in July-September 2022. The study follows two techniques: selecting the sample group and others for collecting the data. First, the purposive sampling method was used (Campbell et al., 2020), and objects in the study were used according to the criteria of employees who may take innovative roles within their organizations. The study targeted the workshops advertised on different media channels for tourism workers seeking self-improvement. This assisted the researcher in delivering the survey to significant numbers of the selected target to service the study's objective. Second, the researchers used the "drop off and pick" technique to minimize bias and receive a higher response rate (Junod & Jacquet, 2023). The study targeted workshops at Umm Al Qura University in Saudi Arabia, which the researchers used to drop off the questionnaires and ask the participants to complete the survey voluntarily. As a result, the total number of surveys distributed was 600, and 550 surveys were collected. Out of which 550 surveys, 98 were rejected due to incompleteness. The final sample is 452 completed surveys, representing a 75% response rate. The study followed the rule suggested by the previous study for having at least ten times observations per predictor (Austin & Steyerberg, 2015). Based on this rule, the response rate is considered suitable, and the final sample size is sufficient for analysis.

3.2. Discription of variables

Condition	Description	Minimum	Maximum
Dep. Binary Variable:			
Intrapreneurial employee	Take value 1 when the respondent has been developing new activities for his/her employer in the past three years, 0 for no.	0	1
Independent variable			
Formal institutions	Government organizations in this country assist Individuals with starting their own business.	1	5
	The government sets aside government contracts for new and small businesses.	1	5
	Local and national governments have special support available for individuals who want to start a new business.	1	5
	The government sponsors organizations that help new businesses develop.	1	5
	Even after failing in an earlier business, the government assists entrepreneurs in starting again.	1	5
Informal institutions	Turning new ideas into businesses is an admired career path in this country	1	5
	In this country, innovative and creative thinking is viewed as the route to success.	1	5
	Entrepreneurs are admired in this country	1	5
	People in this country tend to greatly admire those who start their own business.	1	5
Control variables			
Age	The respondents were asked to identify their age?	18	67
Gender	Take value zero when the participants selected male gender, one for females	0	1

Family Size	The respondents were asked to identify their family size?	0	16
Marital Status	The respondents were asked to identify their marital status. (harmonized into 1 for being single; and zero otherwise)	0	1
Work Status	The respondents were asked to identify their work status. (harmonized into 1 for having a full or part-time job only; zero otherwise)	0	1
Higher education	The respondents were asked to identify their education. (harmonized into 1 for those who attained secondary education and higher; zero otherwise)	0	1

Table 1. Description of variables.
Source: Based on the authors' calculation

The study established the survey questions based on benchmarking discussed earlier in the literature and operationalized them as follows. Table 1 reports the five statements used to measure the formal institutions and the four statements for informal institutions, which are computed later into latent variables. Also, it includes the description of control variables.

Regarding the dependents factor (Intrapreneurial employee), the paper is measured by binary variables, which takes value 1 when the respondent has been developing new activities for his/her employer in the past three years, 0 for no. This measurement was established earlier by the Global Entrepreneurship Monitor Report "GEM" and has been used by previous research (e.g., Stam, 2013; Turro et al., 2020). Likewise, regarding the independence factors, this research measured the formal institutions and informal institutions dimensions by using Likert scales (1 strongly disagree to 5 strongly agree) and based on earlier findings that assessed the country's institutional profile for entrepreneurial activity (Busenitz et al., 2000) and applied later by (e.g., Manolova et al., 2008; Urban, 2019).

The paper used several control variables because the earlier empirical findings show that individuals entrepreneurial activity might be affected by other factors, such as demographic characteristics (Braunerhjelm et al., 2018). First age: Dilli & Westerhuis, (2018) show that entrepreneurial activity usually starts in the middle of workers' careers. Second is gender, which empirical evidence reveals gender distributional differences between women and men involved in entrepreneurial activity, specifically in career choices (Guerrero and Marozau, 2022); hence, we control for gender to account for this effect. The third concerns family size. Youssef et al., (2021) demonstrated that family support increases the likelihood of young individuals for becoming entrepreneurs. Since Saudi Arabia is considered a collectivist society, and the young generation comprises 60% of the total population, with a common tradition of having a larger family and strong social ties (Aljarodi et al., 2024), the study controls for family size, as it may impact an individual's career choices. The Fourth relates to work status; the study control work status as the earlier findings prove it is relationship for the gender gap in entrepreneurial initiatives and indicating that a person with full or part time job have higher likelihood to involved in entrepreneurial activity (Dilli & Westerhuis, 2018). Lastly, Martiarena (2013) demonstrates that the high numbers of entrepreneurs within their organizations who have a high a level of education. Therefore, the study controls this factor to seek its effect.

3.3. Data quality checks and analysis

The research follows two analysis steps to check the reliability and validation of the data set before computing the final analysis. First, the reliability test (Cronbach's Alpha) and Composite Reliability are determined for internal consistency of the Likert scale variables. A score of 0.7 or higher presents a positive indication to proceed with factor analysis (Gliem & Gliem, 2003; Hair et al., 2010). Table 2 shows the indication numbers of the reliability test above 0.7, which is considered a clear indication that all the items consistently measure their corresponding construct. Next is a validation to strengthen the findings of the hypotheses. Average Variance Extracted (AVE) was calculated, and the result shows that the constructs are equal and above 0.5, which considers the variations in the items can be explained by the latent variables (Fornell & Larcker, 1981). Thus, with all the clear indications above, the study proceeded with EFA Exploratory Factor Analysis (Hair et al., 2006) using STATA 14.

Table 2. Loadings, Reliability and Convergent Analysis

Construct	Loadings	Factor Analysis	Reliability Analysis		Convergent Validity
		KMO	Cronbach's α	CR	AVE
Formal Institutions		.8712	.8789	.8730	.581
Item 1	.7702				
Item 2	.7334				
Item 3	.8380				
Item 4	.7826				
Item 5	.6771				
Informal Institutions		.7130	.7467	.843	.575
Item 1	.6914				
Item 2	.7725				
Item 3	.8253				
Item 4	.7362				

Notes: Source: Based on the authors' calculation

KMO: Kaiser-Meyer-Olkin ≥ 0.70

CR: Composite Reliability ≥ 0.70 (Hair et al., 2010).

AVE: Average Variance Extracted ≥ 0.5 (Fronell & Larcker, 1981)

Next, the study conducted a Person correlation matrix to analyze the relationships among several independent and control variables to avoid multicollinearity. So, the variance inflation factor (VIF) has been calculated. The result indicates no concern about multicollinearity among the variables that might affect the significance of the main parameters in the regressions; the VIF values were lower than 4, as seen in Table 3 (Hair et al., 2010). Given the nature of the dependent variable, a binominal logistics regression was used with a binary dependent variable with two categories to predict the likelihood of individuals falling into employee intrapreneurial activity. This statistical technique serves the study's objective about the cause and effect of the relationship between independent and dependent variables (Crawford, 2006; Austin & Steyerberg, 2015).

4. Findings

4.1. Descriptive statistics and correlation analysis

Table 3 reports the descriptive analysis and correlation matrix of the applied variables. As a result, 76% of the respondents were categorized as Intrapreneurial employees. Regarding age, the average age of respondents was 35 years old. The gender distributions were 65 % men and 35% women. In terms of family size, the average respondent has two siblings. Further, regarding marital status, 40% of the respondents are single, while the rest are married and widowed. Finally, 76% of the respondents had a full-time or a part-time job, while 87% had a bachelor's degree or higher. Also, the results show that the median value of the newly constructed variables is larger than 3.

Then, the study ran a correlation test to determine the relationship between dependents, independents, and control variables. As noted earlier, the variables used are not highly correlated, and there is no concern of multicollinearity, as the VIF is below 4 (see Table 3). Therefore, based on the guidelines provided by (Cohen, 1988), the correlation coefficients between all factors indicate small at ($0.1 < r < 0.3$) to high correlation at ($r > 0.5$). Table 3 shows that there is a positive correlation between Intrapreneurial employee and formal institutions (.0937), and Intrapreneurial employee and control variables such as age at (.2484), family Size (.1862), work Status (.2734) indicates that there is a small positive relationship between these variables. In contrast, the correlation between Intrapreneurial employee and marital status at (-.1772) indicates a small negative relationship. A moderate correlation was reported between informal and formal institutions (.3512). The strong correlation was among control variables such as family size and age at (.6705) and marital status with age at (-.6601). Thus, these significant results at ($p < 0.10$; $p < 0.01$; $p < 0.001$) build a strange base for the upcoming regression models for finding the relationship between the variables and explaining the cause and effect.

Variables	Mean	SD	1	2	3	4	5	6	7	8	VIF
Intrapreneurial employee	.76	.43	1								
Formal Institutions	3.51	.79	.0937**	1							1.20
Informal Institutions	3.12	.53	.0319	.3512***	1						1.20
Age	35.03	10.32	.2484****	-.1008**	-.0902**	1					2.5
Gender	.65	0.48					1				
			-.0686	.0570	.2165***	.2934***		1			1.25
Family Size	1.69	2.15	.1862***	-.1181**	-.0918*	.6705***	.2792***		1		2.14
Marital Status	.40	.49	-.1772***	.0688	.0693	.6601***	.2771***	.6258***		1	2.05
Work Status	.76	.42	.2734***	.1484***	-.0608	.4632***	.3115***	.2341***	.3733***		1.45
Higher education	.87	.34									
			-.0076	.1864***	-.0733	.0664	.0653	.0407	-.0826*	.1678***	1.08

Table 3. Descriptive statistics and Correlation matrix

Notes: Source: Based on the authors' calculation

* All correlations are significant at the ***Significant at p # 0.01; **significant at p # 0.05, * significant at p # 0.10

4.2. Regression analysis

The hypotheses testing for this research was conducted using binomial regression. The first model explains the direct relationship between the dependent variables (Intrapreneurial employee and independent variables (Formal Institutions and Informal Institutions) along with the control variables (Age, Gender, Family Size, Marital Status, Work Status, and Higher education). The second model adds the same variables as the first model and the interaction effect of gender on the relationship between Intrapreneurial employee and formal institutions. The third model is repeated from the second model but adds the interaction of gender and informal institutions. The model coefficient of R-squared ranges between 0.1099 to 0.1326 (see table 4). According to Hair et al. (2011), there is no general rule for the R-squared value, and it depends on the research area. Also, Several similar studies reported lower R-squared (i.e., Aljarodi et al., 2022; Hacıoglu et al., 2012). Therefore, the study considered the reported R-squared adequate.

Model 1 justifies the earlier assumption about the effect of external factors in terms of formal and informal institutions on employees' likelihood of becoming intrapreneurial. Hypothesis 1 proposed that the formal institutional factors positively impact the likelihood of employee Intrapreneurship development. The marginal effect was positive and significant ($\beta = .49$; $p < 0.001$). This means that a unit increase in formal institutions will result in a corresponding increase of 0.49 units in the likelihood of employee entrepreneurial behavior. Thus, hypothesis 1 is strongly supported. Hypothesis 2 proposed that the informal institutional factors positively impact the likelihood of employee Intrapreneurship development. The result shows a marginal effect is not in line with a prior expectation with a negative sign and non-significant ($\beta = -.01$; $p > 0.10$). Thus, hypothesis 2 is rejected. Regarding the control variables, work status was the only factor from the control variables in the model that showed a positive and significant sign ($\beta = 1.27$; $p < 0.001$), which was expected as being an employee in a full-time job or part-time increases the likelihood to be an intrapreneurial employee.

Table 4. Logit results explaining intrapreneurial employee

VARIABLES	Model 1		Model 2		Model 3	
	Coef.	SE	Coef.	SE	Coef.	SE
Independent variables						
H1: Formal Institutions	.49***	.17	-.37	.31	.48***	.17
H2: Informal Institutions	-.01	.24	-.09	.24	-.38	.43
Control variables						
Age	.03	.02	.03	.02	.03	.02
Gender	-.32	.27	-4.55***	1.34	-2.01	1.68
Family Size	.15	.09	.18*	.09	.16*	.09
Marital Status	.19	.34	.17	.34	0.13	.34
Work Status	1.27***	.31	1.29***	.32	1.27***	.31
Higher education	-.27	.37	-.29	.37	-.23	.37
Moderation						
H3: Formal Inst. # Gender			1.19***	.36		
H4: Informal Inst.# Gender					.53	.52
Observations	451		451		451	
Log-likelihood	-221.99		-216.34		-221.48	
R-squared	0.1099		0.1326		.1120	
Wald χ^2	54.83		66.14		55.87	

Notes: Source: Based on the author's calculation. The reported coefficients are marginal effects. ***Significant at p # 0.01; **significant at p # 0.05, * significant at p # 0.10.

Model 2 was computed to determine if gender matters in the relationship between formal institutions and employee entrepreneurial behavior. Hypothesis 3 proposed that formal institutions increase the likelihood of employee Intrapreneurship for both men and women; however, the effect is stronger for men. The marginal effect reports a positive and significant sign ($\beta = 1.19$, $p < 0.001$). Figure 2 demonstrates that the effect of formal institutions on male workers is higher than that of women in developing entrepreneurial behavior. Thus, hypothesis 3 is strongly supported. The remaining control variables presented a consistent result to the prior model except for the family size, which became positive and significant ($\beta = 0.18$, $p < 0.1$).

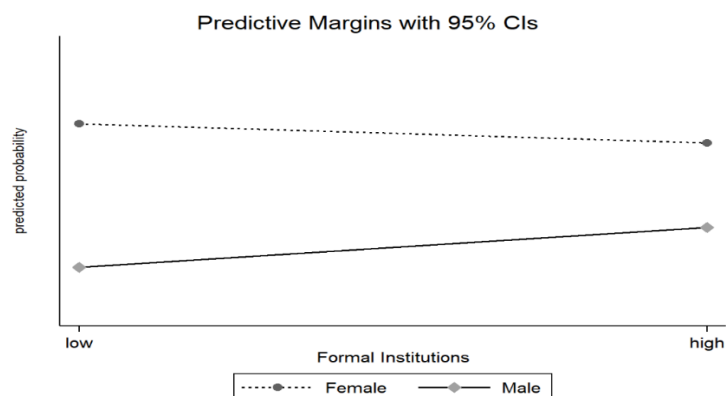


Figure 2. Linear Prediction of Intrapreneurial employees (Formal Institutions)
Source: Based on the author's calculation

Similar to model 2, model 3 determined the proposed hypothesis 4, which is informal institutions increase the likelihood of employee Intrapreneurship for both men and women; however, the effect is stronger for men. The marginal effect is non-significant ($\beta = 0.53$; $p > 0.10$). Therefore, hypothesis 4 is not supported. At the same time, control variables remain consistent with model 2. Table 5 below summarizes the result.

5. Discussion and implications

This study empirically measured employee attendance for innovation within their firms and how it can be differentiated among genders by being linked to the country's institutional environment. To achieve this objective, the study uses different factors that measure formal and informal institutions developed by earlier studies and integrated and contextualized to measure the behavior of employee intrapreneurial activities in Saudi Arabia. The article extends current views of the institutional environment by explaining its relationship to employee entrepreneurship activity among genders in an emerging market context, Saudi Arabia. Overall, the empirical results show the positive effect of formal institutions on Intrapreneurial employee, while informal institutions are negatively not associated with Intrapreneurial employee. We further find that the effect of formal institutions on Intrapreneurial employee is moderated by gender.

The research contributes to the intrapreneurship literature. First, the study extends institutional theory in entrepreneurial research by emphasizing the importance of formal institutions in Intrapreneurial employees. The first main findings show a significant positive relationship between formal institutions and employee entrepreneurial activity, suggesting that supportive formal institutions, such as government policies to support local businesses and government providing special projects to new and small businesses, can favor fostering entrepreneurial behavior within employees. The results are consistent with previous studies highlighting that formal institutions likely provide a conducive environment that encourages and supports innovation (Rivera, 2017), accessible to different resources (Lajqi & Krasniqi, 2017), and risk-taking (Valka et al., 2020). The positive relationship between formal institutions and employee entrepreneurial activity implies that organizations operating in environments with supportive formal institutions experience higher levels of intrapreneurship. However, this empirical evidence can underscore the importance of considering the external environment and formal institutions to increase innovation and improve organizational performance.

In contrast, the second findings show no evidence of societal support for employee entrepreneurial activity. The contrary results of the previous findings (Obschonka, 2017; Urbano et al., 2023) can be explained through Hofstede (2003). Saudi Arabia is under highly collectivist societies, power distance and uncertainty avoidance. These established values were evidence to cause individual behavior anxiety about risk-taking or change (Morris et al., 1993; Shane, 1995; Venaik & Brewer, 2010; Brewer & Venaik, 2011). This implies that the external environment presented by informal institutions limits employee creativity and opportunities to explore new ideas; therefore, employees have not prioritized these factors yet.

Third, this study extends the literature on intrapreneurship by investigating the role of gender as an interaction between each side of institutions and employee intrapreneurship. Note that the study investigates the influence of formal institutions with questions that refer to governmental and societal support of entrepreneurial activity (Busenitz et al., 2000; Laužikas et al., 2025). As the institutions existed to be connected to individuals by guiding both behaviors and restrictions (North, 1990), gender within this study represents a contextual institutional factor that influences the relationships between institutions and employee Intrapreneurial, particularly formal institutions. The formal institution's initiatives are more likely to encourage male employees to take an innovative step within their organization than female. Scholars have recently pointed out the value of gender (Alhammad et al., 2021; Turro et al., 2020) and how it is contextual from one nation to another (Mustafa et al., 2018). Gender differences are a necessary condition factor for future research to consider within emerging markets that work to foster the participation of females.

The findings of the research have managerial implications. First, the study shows that employee influence by formal institutions increases their likelihood of having a proactive innovative role. Organizations should be aware of the impact of formal institutions on employee entrepreneurial activity and strategically align their internal practices and structures to leverage these external influences. They can create an organizational culture that values and rewards entrepreneurial behavior, establish mechanisms for idea generation and implementation, and provide resources and support to employees pursuing entrepreneurial initiatives. Second, this study highlights that business owners should build a system to encourage their employees' entrepreneurial spirit. Organizational owners may work towards breaking down silos, promoting open communication channels, and

empowering employees to take ownership of their ideas and projects. Encouraging a culture that embraces experimentation, tolerates failure as a learning opportunity, and rewards entrepreneurial efforts can help mitigate the negative influence of informal institutional factors on Intrapreneurial employee. Gender should also be considered when creating an intrapreneurship system within an organization since both formal and informal factors within the institutional environment represent an equal opportunity for encouraging both genders to increase their entrepreneurial behavior and for business owners to adapt it to gain competitive advantage.

Conclusion

This research provides empirically a deeper understanding of the relationship between the external environment of the organizations represented by formal and informal institutions on each gender to become an intrapreneur by using primary data collated in 2024 from Saudi Arabia. The findings of this paper succeeded in proving hypothesis 1 states that the formal institution factors have a positive impact on the likelihood of development of employee Intrapreneurship. The influence of formal institutions on individuals to become an intrapreneur is positive. Therefore, the increasing government support for organizations significantly and positively encourages employees to become intrapreneurs. The results also succeeded in proving hypothesis 3, which states that formal institutions increase the likelihood of employee Intrapreneurship for both men and women; however, the effect is stronger for men. The influence of formal institutions appears to be significant and positive on males more than females in developing entrepreneurial behavior. Consequently, the traditional gender roles and the supportive legal system that existed before the recent reform policies, which have empowered females over the last ten years, still seem to be reasons affecting females in developing entrepreneurial behavior. The results show no statistical support for hypothesis 2, which states that the informal institution factors have a positive impact on the likelihood of development of employee Intrapreneurship, and hypothesis 4, which states that informal institutions increase the likelihood of employee Intrapreneurship for both men and women; however, the effect is stronger for men. Therefore, the research findings conclude that the influence of informal institutions on the development of employee Intrapreneurship does not differ significantly between males and females.

The contribution of this study to the existing literature is the development of a deeper understanding of the institutional factors that impact the growth of employee intrapreneurship activity between genders and in the context of Saudi Arabia. The findings of this research integrate intrapreneurial behaviors, allowing us to view intrapreneurship as a process influenced by external organizational factors that both formal and informal institutions shape. It provides theoretical and managerial foundations for future research in the field, offering valuable insights and recommendations for policymakers to continue developing policies and for businesses to cultivate an intrapreneurial culture that encourages employee creativity, innovation, and entrepreneurial behavior.

While the study attempts to provide several significant outcomes, it notices several challenges that should alert future studies. First, while the study empirically finds the effect of institutions on each gender to be intrapreneurial employees, the question arose of whether individual backgrounds or geographical area predict their intrapreneurial behavior. Future research can empirically examine this question. Even though, the previous studies discuss the organizational effect of predicting intrapreneurial behaviors, researchers have not yet provided empirical evidence on linking the different individual backgrounds and geographical areas within a single context and related to individual intrapreneurial behavior, which can be an interesting area to discover by future studies. Second, the study data was collected from individuals in their first development stage to take more active roles within their organizations. This result is not generalizable to different industries and employees exposed to different development programs. Future studies could compare this result with samples at different stages of employee development, which should provide a bigger picture of employee intrapreneurial activity. Third, this study focuses on Saudi Arabia, and findings cannot be universal to other countries. Therefore, future studies can replicate the current study and see if the results are similar or different, which would open new areas. Finally, it should be noted that the findings did not consider the size of the organization where that employee works. This factor limited the study from understanding if the organization size would affect employee intrapreneurial behavior. Future research should consider this factor to seek institutions' influence on each gender working in small, medium, or large organizations.

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Acknowledgements

This research was funded by the Deanship of Scientific Research (DSR) at King Abdulaziz University, Jeddah, Saudi Arabia, under grant no. (GPIP:1926-849-2024). The authors, therefore, acknowledge with thanks DSR for technical and financial support.

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