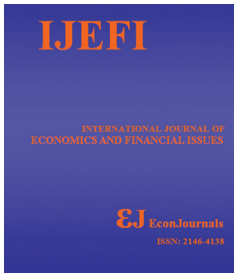

International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2025, 15(6), 796-802.

Innovation Determinants in Morocco: A Quantitative Analysis

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Received: 17 June 2025 **Accepted:** 17 September 2025 **DOI:** https://doi.org/10.32479/ijefi.21090

ABSTRACT

Innovation is a major economic and social development cornerstone, boosting productivity, creating jobs and strengthening the competitiveness of nations and organizations. This paper explores the determinants of innovation in Morocco through a quantitative analysis, combining a literature review and statistical analysis via Autoregressive Distributed Lag (ARDL) modeling. The results reveal that R&D expenditure (% of GDP), the number of R&D researchers and the number of patent registration have a positive and significant impact on Morocco's innovation index. a 1% increase in Morocco's GDP from R&D expenditure could boost its global innovation index (GII) by more than 19 points, while each additional 1,000 researchers per million people and each 1,000 patents registered could add 5 and 6 points respectively. These results underline the importance of R&D investment, human capital and intellectual property protection. However, variables such as public spending on education, the number of ISO-certified organizations and enrolment in higher education show no significant effect, revealing a misalignment between current policies and national needs for innovation promotion. To realize its potential, Morocco needs to adopt effective measures and national strategy, could make Morocco a major innovator at regional and international level.

Keywords: Innovation, Research and Development (R&D), Human Capital, Patents, Innovation Policies
JEL Classifications: O31, O33, O57

1. INTRODUCTION

Innovation plays a fundamental role in the development of countries and organizations. It affects all sectors of activity and contributes to the economic growth of nations by boosting productivity, creating new job opportunities and strengthening their position on the international stage. As such, innovation is an essential factor in the competitiveness of companies and the development of nations. However, the many complex variables influencing innovation require a more detailed analysis to better understand their impact and interdependence.

In this paper, we develop a quantitative study of the determinants of innovation in Morocco. As a first step, we focus on the determinants of innovation in Morocco. We then identify the data relevant to our study. Thereafter, we develop an adapted statistical model to analyze the most significant determinants of innovation in the Moroccan context. The aim of this approach is to identify the main factors that promote or hold back innovation, considering Morocco's economic and social specificities. The final objective of this work is to formulate strategic recommendations based on the results obtained, to support the development of innovation in Morocco.

2. LITERATURE REVIEW

Nowadays, innovation is a fundamental component of global progress in all sectors. It has a major role in economic development, business competitiveness and social progress. In 2002, the Organization for Economic Co-operation and Development (OECD, 2002) highlighted the importance of innovation in the economic recovery process, and it's role is becoming increasingly important in the development strategies of enterprises and nations. The literature review shows that innovation is not simply a

linear process. According to Ntererwa et al. (2020), *"innovation opportunities, and consequently the obtaining of sustainable competitive advantages, can happen at any level in the business' complex world, without any need for a sequential process."* This point underlines the diversity of pathways that can lead to innovation, emphasizing the need for firms to embrace adaptable strategies tailored to their specific environment.

Moreover, it can be observed that economists and researchers are not entirely unanimous on how to define innovation. This flexibility explains in part the diversity of R&D strategies adopted by companies and governments, depending on the specific dimensions of their creative projects. However, it is important to note that contemporary definitions of innovation are mainly based on two essential criteria: (1) The degree of newness of a proposed change, and (2) How successfully or usefully it can be applied to something new (Granstrand and Holgersson, 2020). These two dimensions help to differentiate truly disruptive innovations from incremental improvements.

The determinants of innovation have also evolved under the influence of several factors, divided into two main categories: internal and external ones. These different factors continually interact to make up the innovation capacity of companies and nations. The Figure 1 illustrates the multidimensional determinants of innovation, both internal resources such as financial resources, human capital and organizational culture. It also identifies the underlying contribution of public policies, competitive environment and research institution-firm collaboration in inducing innovation. So, understanding the determinants of innovation and their optimal use requires a multidimensional approach integrating technological, strategic and social aspects.

2.1. Internal Determinants of Innovation

2.1.1. Financial resources

The recent work on innovation highlights the importance of R&D investment (Research and Development) as a cornerstone of any progress. It is considered by many researchers as the key element of R&D initiatives, both at the microeconomic level (companies) and at the macroeconomic level (countries). This means that adequate financial resources are the cornerstone that enables nations and companies to take on ambitious projects that promote technological advances and creative solutions. That's having a positive impact on total factor productivity (TFP) and, by extension, on economic growth.

Figure 1: Diamond of innovation

Likewise, Ben Ayed and Zouari (2014) highlighted the influence of financial restrictions on the capacity for innovation of companies. Their results reveal a positive and significant relationship between the internal wealth of companies and innovation, which confirms that financing issues represent a major obstacle to the innovation potential of companies. Moreover, these authors emphasized that innovative investments are mainly financed by internal resources, which shows also the importance of funding by equity capital as a suitable solution for the specific characteristics of the innovative projects.

More broadly, the studies conducted by Brown et al. (2012) also highlight the important role of financial markets in innovation dynamics and economic growth. They suggest that *"the further development of capital markets can significantly increase investment in R&D,"* which can boost innovative activity. This clearly demonstrates the importance of economic and financial policies in stimulating innovation through supporting R&D investments.

On the other hand, according to Akcigit (2024), *"empirical data show that just allocating funds is not enough to encourage innovation."* In the USA, for example, big companies have gradually dominated all sectors of the American economy, putting smaller, younger and more innovative companies out of business. This means that the concentration of economic resources in the hands of big companies limits the dynamism of the entrepreneurship network and, as a result, the creativity and positive innovation. Similarly, these authors have highlighted studies that reveal that, in all sectors, the largest economic players have prioritized defending their market positions rather than looking to innovate, thus depriving the economy of potential growth opportunities.

2.1.2. Human capital

The innovation process is not only based on financial resources, but also on human capital, which is also a central lever of the innovation process. As Buisson and al. (2012) indicate that, *"in terms of financial resources, human resources are an essential factor of innovation."* Indeed, the capacity that individuals have to propose new ideas; to develop innovative techniques and to contribute effectively to research and development (R&D) activities is absolutely crucial for the performance of organizations. However, innovation is not limited to R&D activities and companies' internal technical skills, but also results from a mix of several complementary non-tangible assets such as software and new organizational structures (OECD, 2010).

Given this, the technical skills and educational level of human capital are fundamental for promoting innovation and developing creativity within organizations and even nations, most particularly

in such a climate of globalization and technological transfer. Pamukçu and Cincera (2001) make this point when they affirm that *"engineers and technicians effectively make the minor modifications and adjustments that are essential for an efficient use of technologies coming from Western countries."* Therefore, to promote innovation and adapt to technological developments, it is essential to develop a skilled workforce. Hmidou and Binkkour (2022) also point out that "*the education system has a decisive role in the adaptation and reproduction of skills, given that techniques are rapidly evolving in industrial societies, which requires the constant renewal of knowledge."* A qualified staff therefore increases the opportunities for integrating advanced equipment and generates higher productivity gains. Furthermore, lifelong learning and multi-skilling of employees are essential in the highly innovative organizations.

Coutrot (2000) shows that the most innovative organizations distinguish themselves through a high proportion of employees having access to continuous training. The objective is not only to improve the knowledge of the employees but also to increase their employability and their multi-skilling in the organization. This highlights the importance of learning and skills adaptability in the development of innovative activities or products, especially in an economic environment marked by rapid and continuous change.

2.1.3. Organizational culture

Organizational culture is widely regarded as a pivotal factor that strongly contribute to either promoting, or holding back, innovation. Valentin and Călin (2024) highlight the fact that organizational culture can directly influence ways in which organizations generate, refine, and operationalize new concepts, methodologies, and product developments. According to these authors, *"adhocracy cultures, characterized by flexibility, risk-taking, and collaboration, are most conducive to fostering innovation. In contrast, hierarchical cultures, which prioritize stability and control, tend to stifle creativity and limit innovative potential."* This idea is reinforced by Naranjo Valencia and al. (2010), who found results providing evidence to support this proposal. They provide evidence that increasing product innovation moves on flexible, outward-looking cultures. Moreover, their show that *"values, beliefs and assumptions that are coherent with adhocratic culture are key drivers for developing new products or services."*

The studies carried out by Büschgens et al. (2013) provide that *"managerial practice requires an underlying structure in order to decide what culture should be implemented in order to foster innovation, and to assess if a specific culture is an effective and efficient coordination instrument."* Moreover, the authors highlight that the alignment of different organizational cultures with innovative goals can be understood through opposing values, notably between flexibility and control, and between internal and external organizational focus. In addition, Hogan and Coote (2014) emphasize that *"layers of organizational culture, particularly norms, artifacts, and innovative behaviors, partially mediate the effects of values that support innovation on measures of firm performance,"* further highlighting the critical link between organizational culture and innovation outcomes. Therefore, an adaptive culture that recognizes the power of teamwork, good communication and lifelong learning will encourage employees to express their ideas, to take calculated risks and to explore new tactics to overcome both strategic and operational risks.

Furthermore, organizations can not only promote innovative initiatives by developing a strong organizational culture, but can also align employees' motivations with strategic objectives, enabling them to remain competitive, even in fast-changing markets. This interaction between culture and innovation highlights the need for companies to create a favorable cultural environment for sustainable innovation (Naranjo Valencia and al., 2010; Valentin and Călin , 2024).

2.2. External Determinants of Innovation

2.2.1. Public policies

Nowadays, all economic stakeholders are having to face increasing challenges. Financial constraints are intensifying due to strained budgets, while demand for public services continues to grow steadily (Lotfi and Karim, 2016a). The management of these constraints and the mutual dependence of the stakeholders make the situation more complex. In this context, innovation is gradually becoming a central element of political and management strategies (De Vries et al., 2018). As a result, innovation is considered an essential factor for optimizing the impact and cost-effectiveness of government interventions (Damanpour and Schneider, 2006). In addition, it also contributes to improve the public service quality, responding to the growing citizens' expectations (Jung and Lee, 2016).

In fact, political decision-makers must increasingly focus on policies of innovation, mainly due to their potential economic benefits. It is important to highlight, at this point, that innovation policies have a multitude of objectives: Eonomic growth, employment and competitive advantage (Schot and Steinmueller, 2018), but also environmental, social and health issues, as well as defense and security requirements (Borrás and Edquist, 2013). So, innovation does not only benefit the organizations that develop it, but it also assists the economic development, social progress and cultural enrichment (Fagerberg, 2017).

Furthermore, public policies on research and innovation have in recent years been influenced by the National Innovation Systems (NIS) approach, which prioritizes the importance of interaction between academic research and entrepreneurial R&D. This approach led to the creation of research and innovation hubs. At the same time, the growing internationalization of R&D has encouraged governments to adopt policies targeting the brain drain, in order to retain more research skills (Sachwald, 2008). This transformation is based on a new vision of innovation which is no longer perceived as an individual and isolated process, but as the result of interactions between different actors (Fischer, 2001).

2.2.2. Competitive environment

Innovation is a strategic and major challenge for governments at a time of intensified international economic competition and geopolitical tensions. Governments are therefore looking to promote innovation domestically to reduce their dependence on foreign stakeholders. In 2020 and 2021, during the COVID-19

pandemic, several European countries have realized that the public health crisis has made it clear that nations need to strengthen their technological and industrial autonomy (Ashta and Mogha, 2023).

From a strategic approach, innovation also remains a fundamental lever allowing organizations to reinforce their comparative advantage. In the words of Benamar and Cheriet (2012), *"innovation is therefore one of the choices that the organization can prioritize by analyzing competitive forces."* The main objective is to identify a positioning in the market where the company can protect its business from competitive pressures or use them to its advantage. This approach highlights that companies can gain and maintain a competitive advantage through their continuous innovation, by differentiating their products or by optimizing their production costs. In a more specific context, the companies, facing increasing competitive pressure, must constantly innovate to remain competitive (Lotfi and Karim, 2016b).

Furthermore, Aghion et al. (2005) highlight an inverse U-shaped relationship between the relationship between competitiveness and innovation. Through data analysis of the industrial sector, they demonstrate that increased competitiveness can initially stimulate innovation up until a certain critical threshold. Beyond this threshold, too intense competition tends to slow down innovation, as companies are forced to allocate their resources primarily to maintaining their survival rather than to developing new solutions.

2.2.3. Collaboration research and enterprise

The universities have a central position in economic development and innovation. By producing knowledge, training talent and promoting technology transfer, universities are a major driving force for change. In many countries, their strategic importance in strengthening national competitiveness has been recognized by the government (Kitagawa, 2004). However, innovation is not based solely on academic initiatives. It requires close collaboration between different actors, including university structures, research laboratories, teachers, researchers, students, local businesses and government authorities. This multi-stakeholder governance is a major challenge for the implementation of innovative projects, in which effective coordination is essential to guarantee the success of initiatives (Jnah and Hanini, 2024).

In addition, companies that have strong connections with universities are distinguished by ambitious innovation strategies. They are more open to developing disruptive innovations and mobilize diverse internal and external resources for this purpose. These collaborations optimize performance by combining both academic and industrial expertise, which encourages the emergence of major innovations (Sachwald, 2008). Despite these advantages, there is still some reluctance on the part of the private sector. St-Pierre and Hanel (2005) emphasize that some companies remain reserved about partnerships with universities. In general, industry representatives consider that the primary mission of universities is to educate students. They express their fears regarding an eventual change in academic priorities, where university research would be more oriented towards economic profitability more than its educational vocation.

3. METHODOLOGY

3.1. Data

The literature review highlights six main determinants of innovation: financial resources, human capital, organizational culture, public policy, competitive environment and collaboration between research and business. Some of these determinants, though, are qualitative and cannot be measured directly. We use proxy variables to develop a model that quantifies their impact on innovation. These proxy variables play a key role in econometrics by translating qualitative factors into data that can be used for statistical analysis.

This study covers the period 2004-2023. Several sources are used to analyze the determinants of innovation. First, the level of innovation is estimated by the Global Innovation Index (GII). This annual index, produced by the World Intellectual Property Organization (WIPO), provides a comparative assessment of innovation performance in 132 countries.

Then, the analysis of the determinants of innovation is based on several fundamental variables, measured by a specific proxy and obtained from recognized data sources. Financial resources are represented by research and development (R&D) expenditure as a percentage of GDP (source: World Bank). The human-capital component is measured by two indicators: the number of R&D researchers per million inhabitants and the share of the population with higher education, also from the World Bank. The organizational culture dimension, which reflects the adoption of quality and innovation standards in companies, is proxied by the number of ISO-certified companies, based on reports from the International Organization for Standardization. The impact of public policies on innovation is evaluated by public expenditure on education (% of GDP), the data being provided from the World Bank. The competitive environment is measured by the Global Competitiveness Index (GCI), as reported by the World Intellectual Property Organization (WIPO). Finally, collaboration between research and business is represented by the number of patent requests filed, with data from the World Bank.

3.2. Model

The difficulty in this part is not limited to the choice of dependent variables explaining the development of innovation in Morocco. It is not always possible to identify them clearly using traditional theory. The choice of the appropriate model is also a challenge. In view of this, we have opted for the ARDL (Autoregressive Distributed Lag) model. This model has several advantages: it captures the temporal dynamics of the variables, manages non-stationary data and avoids problems related to permutations between endogenous and exogenous variables. In addition, it can analyze both short- and long-term effects, offering a complete approach to studying complex relationships between the variables in our model.

Based on the variables mentioned above, Innovation ($INNO_t$) is explained by the seven selected determinants. The model proposed for this reason is formulated as follows:

$$INNO_t = \beta_0 + \sum_{i=1}^{p} \beta_i INNO_{t-i} + \sum_{i=0}^{q_1} \gamma_i ERD_{t-i} + \sum_{i=0}^{q_2} \delta_i PEE_{t-i} + \sum_{i=0}^{q_3} \theta_i NPRD_{t-i} + \sum_{i=0}^{q_4} \lambda_i ISO_{t-i} + \sum_{i=0}^{q_5} \mu_i GCI_{t-i} + \sum_{i=0}^{q_6} \nu_i RHE_{t-i} + \sum_{i=0}^{q_7} \xi_i PRR_{t-i} + \varepsilon_t$$

with:

- $INNO_t$: Global Innovation Index (GII) for year t;
- β_0: Model constant;
- β_i: Delayed value coefficients of the dependent variable $INNO_{t-1}$;
- γ_i, δ_i, θ_i, λ_i, μ_i, ν_i, ξ_i: Coefficients of the independent variables and their lagged values;
- *ERD*: Expenditure on Research and Development (% of GDP);
- *PEE*: Public Expenditure on Education (% of GDP);
- *NPRD*: Number of active professionals in research and development (per million people);
- *ISO*: Number of ISO-certified companies;
- *GCI*: Global competitiveness index;
- *RHE*: Registration at school, higher education (% gross);
- *PRR*: *Pa*tent requests, by residents;
- p, q_1, q_2, q_3, q_4, q_5, q_6, q_7: Delay orders for each variable;
- ε_t: Error term at period t.

4. RESULTS AND DISCUSSIONS

The results of our analysis, as shown in Table 1 below, reveal important insights about the factors determining innovation in Morocco. At the 5% significance threshold, the innovation level is significantly influenced by several factors: research and development expenditure (% of GDP), the number of R&D researchers (per million people), the number of patent applications, and also by previous years' innovation efforts (measured by the lags of the innovation index, INNO.L1, INNO.L2, INNO.L3). These results underline the importance of investment in both research and the innovation protection to stimulate economic growth.

On the other hand, for Morocco, some important variables have no significant effect on innovation at the 5% threshold. These include public expenditure on education (% of GDP), the number of ISO-certified companies and the rate of enrolment in higher education. These results suggest that those factors, despite their potential importance, do not play a direct and immediate role in explaining innovation in Morocco. Furthermore, the global competitiveness index is significant only at the 10% threshold, indicating a moderate influence on innovation. The Table 1 summarizes the estimated coefficients and its significance levels for each variable, providing a complete overview of the results of our ARDL model.

Table 1: ARDL regression results

Variables	Coef.	Std error	Z	P>|z|
Const	**28.7850**	8.824	3.259	**0.001**
INNO.L1	**0.4763**	0.225	2.116	**0.034**
INNO.L2	**0.4813**	0.119	4.055	**0.000**
INNO.L3	**−0.4384**	0.125	−3.496	**0.000**
ERD	**18.9906**	5.827	3.259	**0.001**
PEE	−0.7540	0.543	−1.389	0.165
NPRD	**0.0047**	0.002	2.336	**0.019**
ISO	−0.0003	0.001	−0.473	0.636
GCI	−0.4581	0.272	−1.684	0.092
RHE	−0.0204	0.019	−1.061	0.289
PRR	**0.0062**	0.003	2.255	**0.024**

Bold coefficients are significant at the 5% level

The level of expenditure on research and development as a percentage of GDP (coef. 18.9906) has a positive and significant impact on innovation. This confirms the importance of R&D investment in stimulating innovation. In fact, if Morocco increases expenditure on research and development by 1% of GDP, innovation has the potential to increase by more than 19 points on GLOBAL INNOVATION INDEX (GII). This conclusion is consistent with international studies showing that R&D investments stimulate innovation significatively. This result is also in line with national policies of innovative countries such as South Korea and Germany. In Morocco, expenditure on R&D represents approximately 0.8% of GDP, which is lower than the world average (2.6%). As a result, Morocco is ranked 67th out of 132 countries in terms of innovation in the Global Innovation Index (GII) in 2022. This demonstrates that Morocco could improve its innovation ranking by increasing its investment in R&D.

Similarly, in Morocco, a higher number of researchers stimulates the generation of innovative ideas. Our study results confirm that the number of R&D researchers per million people (coef. 0.0047) has a positive and significant impact on innovation in Morocco. This highlights the importance of human capital in the innovation process. This means that with every 1,000 R&D researchers per million people, Morocco could increase its position in the GII index by almost 5 points. It should be noted that it has not increased by 5 points since 2010. Currently, the country counts approximately 1,200 researchers per million people. This is relatively low compared to other innovative countries such as South Korea (more than 9,000 researchers per million people).

Finally, the number of patents (coef. 0.0062) also plays an important role in promoting innovation. Its impact on innovation is positive and significant. This shows that patents are an important indicator of innovative activity. The growing number of patents registered is a sign of increasing innovation. Each 1000 patents improves Morocco's ranking in terms of innovation on an international scale, by increasing its innovation index by 6 points out of 100. According to the World Intellectual Property Organization (WIPO), Morocco delivered 644 patents in 2023 with 5,226 patents in force, which gives it 63rd place worldwide. However, 63.3% of these patent requests were from non-residents.

The variables measuring the delayed effect of innovation in years t-1 and t-2 on current innovation (INNO.L1 and INNO.L2) have a positive and significant impact, showing that past innovation positively influences current innovation. Furthermore, the INNO.L3 variable has a negative impact, which could indicate a saturation or negative feedback effect following a highly innovative period.

The constant (coef. 28.7850) is the value of innovation when all the explicative variables are zero. This corresponding to basic level of innovation in Morocco. In other words, the constant coefficient is the level of innovation explained by other variables not captured by our modeling. Statistically, its coefficient is significant at the 5% threshold.

The public spending on education rate (% of GDP) has a negative but not significant impact on innovation (coef. -0.7540), which seems illogical because Morocco spends 5% of its GDP on education. But according to the Programme for International Student Assessment (PISA) ranking of 2022 over 81 countries, Morocco is ranked 71st in maths competence, 76th in scientific knowledge and 79th in reading skills. This could indicate that education spending is not sufficiently focused on innovation skills.

The number of ISO-certified companies (coef. -0.0003) has a statistically negative but not significant impact on innovation in the case of Morocco. This may suggest that ISO certifications do not play a major role in innovation in Morocco. In addition, it may indicate that Moroccan companies adopt ISO standards without integrating them into their innovation strategies. Morocco has around 2,000 ISO-certified companies. However, these certifications do not seem to have a significant impact on innovation, which suggests that they are being formally adopted and not strategically integrated.

Enrolment in higher education, as a percentage of the population (coef. -0.0204), has a negative but not significant impact on innovation. This could indicate a gap between the educational skills and the market needs. The negative but insignificant impact can also be explained by a lack of efficiency in the Moroccan education system. According to the 2021 Human Development Report, Morocco has a higher education enrolment rate of 34%. However, unemployment among graduates is high (19.6%) and also among young people aged 15-24 (36.7%) according to statistics from the High Commissioner's Plan for 2024, which indicates that the educational skills do not correspond to the needs of the labor market.

The Global Competitiveness Index (coef. −0.4581) shows a negative but not significant impact on innovation at the 5% threshold in the case of Morocco. That could reflect a discrepancy between global competitiveness and innovation capacity. A negative effect, even if slightly significant, indicates that current economic competitiveness is not a sufficiently strong promoter of innovation. In 2023, Morocco is 71st out of 141 countries in the Global Competitiveness Index. The negative impact of the competitiveness index on innovation is contradictory. This could mean that the Moroccan economy's competitiveness is focused on sectors that are not very innovative.

5. CONCLUSION AND POLICY RECOMMENDATIONS

In conclusion, this study highlights the main determinants of innovation in Morocco, revealing results that are both encouraging and challenging. Expenditure on research and development (% of GDP), the number of R&D researchers and the number of patent applications emerge as important factors, having a positive and significant impact on the innovation in Morocco. These results underline the importance of investment in R&D and human capital in stimulating innovation, with substantial potential gains: a 1% increase in Morocco's GDP from R&D expenditure could boost its global innovation index (GII) by more than 19 points, while every additional 1,000 researchers per million people could add almost 5 points. Similarly, every 1,000 patents registered could improve Morocco's ranking by 6 points, confirming the crucial role of intellectual property protection.

Nevertheless, some variables, such as public spending on education, the number of ISO certifications and enrolment in higher education, do not show a significant effect on innovation in Morocco. This suggests a gap between current policies and real innovation needs. Moreover, the Global Competitiveness Index has only a moderate influence, reflecting an economy that is still not very focused on innovative sectors.

To fully exploit its potential, Morocco must strengthen its policies in promoting innovation. This requires increased investment in R&D, reform of the education system to align educational skills with market needs, the encouragement of Moroccan researchers and talent with financial support and tax incentives, and a simplification of the procedures for registering patents. At the same time, it is essential to promote public-private partnerships and support innovative start-ups. These measures, combined with a coherent national strategy, could make Morocco a major innovator at regional and international level.

This analysis reveals the importance of establishing national policies to promote innovation and exploit Morocco's potential. To this purpose, several recommendations can be highlighted at different levels:

- Regarding R&D policies: Morocco should increase its investment in R&D to achieve at least 1% of GDP, in conformity with international recommendations. So, public policies should support applied research projects that have a direct impact on innovation. Public-private partnerships in research should also be encouraged;
- Regarding education policy: Education programs should be aligned with the needs of the labor market, with a focus on skills related to innovation, and improving the quality of training for young researchers. To achieve this, it is necessary to introduce programs focused on creativity and innovation in university curricula, and encourage Moroccan researchers and talent with financial support and tax incentives;
- Regarding Intellectual property policies: Morocco should simplify the procedures for registering patents to encourage companies to protect their innovations. In addition, the public authorities should make companies more aware about the importance of patents in protecting their innovations. The administrative burden related to patents should be reduced in order to minimize the process time.

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