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Innovation Activities and Their Impact on Product Innovation Results: Evidence from a Sectorial Study

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Abstract: In the current competitive context, innovation has become a necessity, to the point that it seems that no company can survive without developing innovation processes. One of the great concerns of small and medium-sized companies is about the investment of resources in innovation activities and their success. Therefore, this article analyzes the influence of different innovation activities performed by small and medium-sized enterprises (SMEs) of the Colombian Caribbean region on their product innovation outcomes and thereby provides a solid groundwork for the design of innovation strategies. To achieve this objective, a data collection instrument was first validated in 56 SMEs, followed by the application of a reflective measurement model with convergent validity analysis. The results of the model application revealed that investment in Research and Development (R&D) and innovation, knowledge transfer, technology adoption, and financial aspects explain to a greater extent the introduction of new products to the market.

Keywords: product innovation; PLS-SEM; small and medium-sized enterprises (SMEs); innovation activities; competitive advantage

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1. Introduction

Companies are facing new and increasingly fragile and incomprehensible scenarios in their constant search for opportunities and challenges that will enable them to achieve business survival. Because of its strategic conception, innovation management seems to generate the transformations required in the current competitive environment, so that they can expand into new markets and develop new employment opportunities [1,2]. Small and medium-sized enterprises (SMEs) make up between 70% and 85% of businesses in the Caribbean and contribute between 60% and 70% of gross domestic product (GDP) [3], generating around 50% of jobs, thus contributing to the achievement of Sustainable Development Goals 8: Decent Work and Economic Growth and 9: Industry, Innovation, and Infrastructure [1].

The importance for companies to know whether they have the necessary human, financial, technological, or operational resources and capabilities to be able to develop new products has been widely recognized, and increasingly companies must evaluate all options to achieve this. Previous research has verified the direct effect of product innovation on business performance [1,4]. The literature on innovation in SMEs has witnessed an increasing number of studies, particularly around the antecedents of product innovation, focusing mainly broadly on its relationship with innovation activities [5–9]. So far, studies have focused on the effect of external sources of information and articulation with the development of innovation processes [10]. However, the theory still lacks evaluations that allow demonstrating the effect of these sources of knowledge and information on the results

of innovation [11], nor has it specifically analyzed which are the innovation activities that these types of companies focus their capabilities and resources on, with a direct effect on product innovation and their performance [12–14].

This work has shown that companies focus their resources and efforts mainly on the technological component and the results of this study highlight the variable corresponding to the introduction of new products in the market as the most significant data. Specifically, this study focuses on which innovation activities have a direct relationship with product innovation in SMEs in the Colombian Caribbean, where the findings will allow these types of companies to improve their innovation management model, thus contributing to filling this gap with new knowledge in the field and more evidence on this phenomenon.

Taking into account the above, this article attempts to answer the following questions: (1) What are the innovation activities on which SMEs are concentrating their efforts? (2) Do SMEs focus on the development of new or improved products? (3) Do SMEs focus on the development of the technical or functional characteristics of their products? The data analyzed come from the application of a structured questionnaire with 34 questions addressed to management personnel related to innovation management in a sample of 56 exporting SMEs in the Colombian Caribbean, selected based on their size or level of revenue from ordinary activity in the manufacturing macro-sector, corresponding to 18 small and 38 medium-sized companies. The main economic sectors of these companies are Chemical, fertilizers, and pesticides, Pharmaceuticals and medicines, Plastics and their manufactures, Iron and steel and their manufactures, Minerals, Oils, Vegetables and animals, and Bituminous materials.

The study uses a reflective measurement model. For its evaluation, we defined two constructs, one on ACTIVITIES and the other on PRODUCT, to determine how the variables or questions are related to the constructs. Then, we evaluated the composite reliability (CR) to subsequently carry out the analysis of convergent validity (AVE) and analyze the extent to which a construct converges in its indicators when explaining the variance of the items. Once the composite reliability and convergent validity of the constructs had been analyzed, we assessed discriminant validity using the heterotrait–monotrait correlation ratio (HTMT), which is a statistical method to reduce the data and find homogeneous groups and thereby carry out a more in-depth analysis of the behaviors.

First, the results of the study show that in this type of organization there is a commitment to investing resources in the development of R&D and innovation activities. Secondly, for SMEs, the technological component is of greater significance. Thirdly, the organizational culture favors the development of innovative ideas through the establishment of cooperation mechanisms with different stakeholders [4,6,10]. Among the contributions of this paper to the literature, we can mention that, up to now, studies have focused on the effect of external sources of information and articulation with the development of innovation processes [10]. However, the theory still lacks evaluations that allow evidence of the effect of these sources of knowledge and information on the results of innovation [11]. This paper showed that companies focus their resources and efforts mainly on the technological component and the results of this study highlight the variable corresponding to the introduction of new products to the market as the most significant data.

The remainder of this paper is developed as follows. Section 2 provides a comprehensive review of the literature and related studies. Section 3 describes the materials and methods used. Section 4 presents our results. Section 5 discusses the debate: Activities and product innovation. Finally, we present the results and discussion and the conclusions and implications with limitations and possible future research directions of the study.

2. Literature Review

2.1. Thematic Analysis of Product Innovation

Technological advances are increasingly speeding up, life cycles are getting shorter, and startups are rapidly filling the voids that incumbents fall short of filling. In this scenario,

new product development and product innovation are vital for survival, growth [15], and long-term success [16].

Innovation is important to achieving and maintaining a sustainable competitive advantage for start-ups and established businesses alike [17–19]. It fosters progress and has inherent economic, health, and environmental benefits. SMEs can innovate by leveraging their absorptive capacity (AC) and external knowledge, namely that of suppliers, customers, competitors, universities, and government agencies. Thus, external knowledge has a direct effect on the product and process innovation of SMEs. Therefore, the incoming knowledge from universities and government agencies has a significant impact on the innovation of processes and products, respectively [20,21]. As a result, customers and government agencies contribute to improving the capabilities of companies.

Innovation is a process that involves the creation or transformation of new knowledge into products, processes, or services that meet changing consumer needs, which is achieved through learning, linkage, and investment. However, R&D alone cannot guarantee the success of innovation [19]. Firms also need coordination, integration, and transfer of knowledge within and across industries to innovate [22]. Globalization has ushered in greater competition, and new product development is one of the main strategies to increase competitiveness in companies [23]. Another study of economies in transition that supports the literature review is the one by Portuguese entrepreneurs (Micro/SMEs) that considers innovation as a crucial factor in the internationalization process; in particular, "access to new technologies or resources" is considered the third most fundamental factor after "favorable growth prospects in a new market" and "customer follow-up" in companies of all sizes [24]. To achieve this, it is necessary to look for added value in each product or incremental innovation cycle [25].

Whereas large companies focus their efforts on diversification by adding new inputs, attributes, and technology, SMEs focus on improving product quality through innovation. Product innovation of all food and agribusiness companies, including SMEs, is significantly influenced by internal R&D, cooperation for innovation, collaboration with suppliers and membership in a trade association, trade regulations, and internal market externalities [26]. The association of product innovation with the dimensions of Total Quality Management (TQM), namely benchmarking, product quality/conception, design, and continuous improvement, makes it possible to achieve significant improvements in several dimensions of companies and in effect keep them competitive and responsive [27]. This way, SMEs can offer better products or services that meet customer needs, requirements, and expectations.

Studies show statistically significant differences in the degrees of importance of the factor "access to new technologies or resources", with the manufacturing sector having a higher propensity to innovate [28]. Innovative product management in knowledge-intensive companies not only reduces unproductive costs, but also increases product quality thanks to the use of scientific resources, technological reserves, development, and production potential. In addition, it enables timely and strategic decision making, as well as the acquisition of information about the current development process and the business as a whole [29].

Successful new product development (NPD) can lead to large business sales, profits, and the creation of a competitive advantage [30]. Product innovation and new product development are often a source of new sales and profits [31] and can bring internal benefits for the company, such as in-house-developed technology and its associated cost reductions [32]. Thus, determining how to apply rigorous analyses of NPD and the product innovation process to minimize development risks and maximize the success rate of products has become a challenging and vital issue for business development [33,34].

2.2. Innovation in SMEs

To produce with differentiating factors and high quality, SMEs require greater investment in modern technology that leads to more radical innovations. However, SMEs focus more on incremental innovations that allow for improvements or modifications to

existing products due to their limited resources. In turn, product quality can be increased through the application of modern quality standards. For this, greater commitment and adequate human and financial resources are crucial [35]. As the innovation process is resource-intensive, small firms lacking resources must decide which type of innovation project to pursue. Studies suggest that the internal project approach, rather than projects involving external collaborations and technology sourcing, increases firm performance significantly [36].

For resource-constrained SMEs to succeed in product innovation, top management must manage innovation and infuse it in the company as a critical internal driver of innovation culture. Therefore, it is essential to establish strategies, build plans, and undertake actions to make internal improvements so that the workforce knows the kind of innovations sought after (currently and in the future) [37] to improve competitiveness. Internal and external sources of knowledge are used for the creation of new innovative products or services. However, although complementary, they do not reinforce each other, probably due to the level of simultaneous intensification of both types of knowledge [38].

Product innovation has a direct positive effect on environmental sustainability in the development of SME performance, and the influence of environmental sustainability as a mediating variable can mediate product innovation on SME performance by 100% (full mediation). Additionally, SMEs can create value and profit by carrying out innovation activities leveraging market innovation to sell different products and services in complex environments [39]. Unlike large companies, SMEs require a different methodological approach to effectively contribute to both decision making and business model innovation (BMI) processes. Past studies recommend the adoption of a dynamic business model (DBM) that provides a lean methodological framework where financial and non-financial resources are correlated, thereby creating a system of causal interdependencies. Furthermore, mapping the key factors underlying the value creation processes of SMEs in a system of causal interdependencies provides insight into the actual functioning of the BM [40].

Therefore, considering the studies in the literature review, we find that companies that carry out improvements to existing products, technological innovation, and new product lines cannot reach efficiency levels as high as those of companies that carry out new product innovation [36]. The results of different studies show that the attitude towards risk taking in SMEs, in the case of Chilean SMEs, is the most preponderant factor that promotes product innovation. Risk propensity acts as a mediator between the development of creativity and innovation. Hence, managers should motivate their workforce to take risks in the introduction of new products. Regarding the generation of novel and useful ideas, managers need to acknowledge the importance of efforts in problem identification, because where there is a problem there is an opportunity and a scalable business model [41].

Finally, SMEs' competitiveness is directly linked to different factors. One of the most important is their export orientation. SMEs' effort to export directly, as opposed to not exporting or exporting indirectly, promotes new product innovation by 11.5% and 11.2%, respectively, given that new product introduction can be encouraged by learning about foreign markets. In contrast, indirect exporters are 12.4% less likely to be innovative because they act as a barrier to exporters acquiring knowledge about the demand, preferences, and market conditions of foreign countries. This study corresponds to exporting firms in 27 transition economies. These are divided as follows. Firms are from 15 transition countries in Central and Eastern Europe (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Macedonia, Poland, Romania, Serbia and Montenegro, Slovak Republic, Slovenia, Estonia, Hungary, Latvia, Macedonia, Poland, Romania, and Serbia and Montenegro), 11 transition countries of the former Soviet Union (Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine, and Uzbekistan), and Turkey [42]. One of the main challenges for SMEs is increasing their competitiveness levels and directly entering foreign markets. The performance of less technologically innovative companies is lower in comparison with those that carry out moderate technological innovation activities, and as a result, the latter obtain

a higher competitive advantage; however, these activities must be carried out with caution because they cannot be above a certain threshold that affects the performance of SMEs and generates an increase in costs that exceeds the profits. Therefore, international managers need to perform a break-even analysis for these activities. Furthermore, managers should have a vision towards international orientation both inward and outward and use both aspects simultaneously to lead to superior performance while the organization prepares for emerging challenges [43–45].

3. Materials and Methods

As previously stated, we have performed an exploratory analysis using a structured questionnaire with 34 questions addressed to the management personnel related to innovation management of a sample of 56 exporting SMEs in the Colombian Caribbean region.

In order to understand the underlying business dynamics of the Colombian Caribbean region, the contributing factors to product innovation management, and the innovation activities thereof, we designed a questionnaire that encompasses its context, subtleties, and intricacies. The questionnaire seeks to inquire about innovation activities and product innovation management and to establish the relationship of these variables. With the data obtained, it permits us to test the hypotheses according to [46–48] and to determine to what extent product innovation is a function of, or depends on, many other factors or innovation activities.

Then, our hypothesis to validate is H1: innovation activities have a positive effect on product innovation (See Figure 1).

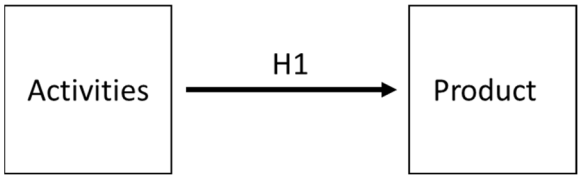

Figure 1. The influence of innovation activities on product innovation (hypothetical model).

Our two constructs were specified reflexively as, in general, the manifestations of the latent variables subject to the natural laws of the field of social sciences present adequate modelling with reflective indicators [49]. We constructed an initial model with an exploratory construct on ACTIVITIES based on questions 30 to 34 and a second exploratory construct based on questions 1 to 13 on PRODUCT. We used the Smart PLS software to perform the PLS-SEM analysis of our exploratory model.

We decided to use a PLS-SEM technique and not a CB-SEM technique. In both cases, the mathematical and statistical procedures followed are rigorous and robust, but the former mathematical model is flexible; it does not set rigorous assumptions on data distribution, measurement scale, or sample size. As explained by Jöreskog Karl G and Sörbom Dag [50], the CB-SEM estimation procedure is theory-oriented, emphasizing the transition from exploratory to confirmatory analysis, while PLS-SEM is mainly oriented for causal-predictive analysis in situations of high complexity but little theoretical information, even with low sample sizes as in our case, allowing the modeling of structural relationships between latent variables (innovation activities) measured by manifest variables (product innovation), seeking a balance between theoretical consistency and predictive power, which shows that innovation activities have a positive effect on product innovation. The use of recent advances in PLS-SEM is designed to ensure the robustness of structural model results in terms of non-linear effects, endogeneity, etc. Partial least squares path modelling (PLS-PM) has become popular in several disciplines to model structural relationships between latent variables measured by manifest variables. For PLS-PM, researchers need to understand the effectiveness of the predictive metrics used [51–53].

According to Hair et al. [54], the distinction when choosing between CB-SEM and PLS-SEM is straightforward. If the research objective is theory testing and confirmation,

then the appropriate method should be CB-SEM. In contrast, if the research objective is prediction and theory development, then the appropriate method should be PLS-SEM. This is because using PLS-SEM is similar to using multiple regression analysis and thus has as the primary objective to maximize the explained variance in the dependent constructs, but additionally to evaluate the data quality based on measurement model characteristics. In Hair's own words [54], "both methods are complementary, not competitive." The choice of the method originates from the goal of the research. If the existing theory needs to be tested and confirmed, CB-SEM is the method chosen. Nevertheless, for theory development as well as prediction purposes, PLS-SEM is better [55,56].

Figure 2 shows the PLS-SEM results for our exploratory model. The number in the path represents the standardized regression coefficient, while the number shown in the circle of the endogenous latent variable represents the value of R2. An initial evaluation shows that innovation activities have a positive effect on product innovation (0.637). Before interpreting the results, we must evaluate the validity of the model.

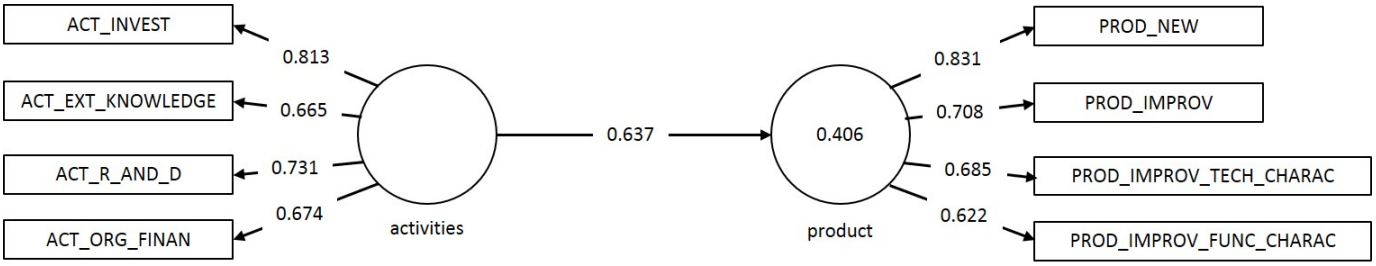

Figure 2. Final reflexive model with two constructs after analyzing composite reliability and convergent validity.

We begin by examining the loadings of the indicators as shown in Figure 2. Loadings above 0.70 indicate that the construct explains more than 50% of the variance of the indicator, which shows that the indicator exhibits a satisfactory degree of reliability [10]. Internal consistency reliability is generally assessed using composite reliability (CR). For the composite reliability criterion, higher values indicate higher levels of reliability. In our case, this being an exploratory investigation, we can consider values between 0.60 and 0.70 acceptable [54].

The next step in the evaluation of reflective measurement models is to perform convergent validity analysis. We analyze the extent to which a construct converges on its indicators in explaining item variance. Convergent validity is assessed by the average variance extracted (AVE) across all items associated with a construct. The AVE is calculated as the mean of the squared variances of each indicator associated with a construct. An acceptable threshold for AVE is 0.50 and above [20]. This value or higher indicates that, on average, the construct explains (more than) 50% of the variance of its items.

As shown in Figure 2, in order for both the CR and the AVE to meet the validity criteria, we have incorporated four variables in each one of the constructs.

After analyzing the composite reliability and convergent validity of the constructs, we assessed the discriminant validity. This analysis reveals to what extent a construct is empirically distinct from other constructs. The assessment of discriminant validity involves the analysis of [57] using the heterotrait–monotrait relationship (HTMT) of correlations. The HTMT criterion is defined as the mean value of the correlations of indicators between constructs relative to the mean of the mean co-relations of indicators measuring the same construct. High values of HTMT indicate discriminant validity problems. The literature [57] suggests a threshold value of 0.90 if the path model includes constructs that are conceptually very similar. An HTMT value higher than 0.90 suggests a lack of discriminant validity. It has been shown that the Fornell–Larcker criterion has little ability to assess discriminant validity, especially if the loadings of all indicators are in a very narrow range of values (0.65–0.85) [57,58].

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Table 1 shows the constructs and variables proposed under our model. Table 2 shows the internal consistency and reliability of the instrument for measuring the reflective constructs. We analyze the loadings and the composite reliability (CR) and show the values corresponding to the convergent validity, with the values of the variance extracted (AVE). All the indicators meet the criteria set out above; therefore, the items of the proposed instruments have measured the constructs adequately.

Table 1. Variables.

Construct	Variable	Question
Activities	ACT_INVEST (30)	The organization is committed to investing resources in the development of R&D&I activities.
	ACT_R_AND_D (33)	In this organization, the technological component is facilitated by the development of scientific and technological activities.
	ACT_ORG_FINAN (34)	The organizational and financial aspects that facilitate the development of technological innovation activities are clearly defined.
	ACT_EXT_KNOWLEDGE (31)	The organization has a mechanism for acquiring knowledge from external sources (consultants, competitors, suppliers, customers, universities).
Product	PROD_NEW (1)	During the last operational period (one year), the organization introduced new products to the market.
	PROD_IMPROV (3)	During the last operational period (one year), the organization significantly improved the products offered to the market.
	PROD_IMPROV_TECH_CHARAC (6)	During the last operational period (one year), the organization significantly improved the technical characteristics of the product.
	PROD_IMPROV_FUNC_CHARAC (8)	During the last operational period (one year), the organization significantly improved the functional characteristics of its products.

Table 2. Reliability and convergent validity of the measurement instrument.

Construct	Variable	Loadings	t-Value	CR	AVE
Activities	ACT_INVEST (30)	0.813 ***	9.782	0.813	0.523
	ACT_R_AND_D (33)	0.731 ***	9.298		
	ACT_ORG_FINAN (34)	0.674 ***	4.391		
	ACT_EXT_KNOWLEDGE (31)	0.665 ***	6.144		
Product	PROD_NEW (1)	0.831 ***	13.875	0.806	0.512
	PROD_IMPROV (3)	0.708 ***	5.816		
	PROD_IMPROV_TECH_CHARAC (6)	0.685 ***	3.395		
	PROD_IMPROV_FUNC_CHARAC (8)	0.622 ***	3.442		

Note: CR: Composite reliability; AVE: Average extracted variance. *** $p < 0.01$.

All the loadings analyzed are significant at 0.01. All constructs show mean extracted variances (AVE) values above 0.5. The observable variables explain more than half of the variance of the factor [59] and present adequate values for the CR. The convergent validity by means of the factor loadings, the CR, and the mean extracted variance values are accepted for the model proposed in our study.

The discriminant validity study is presented in Table 3. The analysis was performed by means of the Fornell and Larcker criterion and the cross-loadings of the observable variables [24]. With the Fornell and Larcker analysis, we found that both constructs are

significantly different according to statistical standards. We calculate the values of the diagonal, corresponding to the square root of the extracted variance (AVE). We show that, for all factors, the AVE of the diagonal is greater than the highest quadratic correlation presented below the diagonal and the HTMT ratio, presented at the top of the diagonal. We affirm that the criteria are met and we verify the discriminant validity in our study.

Table 3. Discriminant validity. Fornell–Larcker criterion and HTMT ratio.

	Activities	**Product**
Activities	0.723	0.750
Product	0.637	0.716

Note: Values on the diagonal are the square roots of the AVE. Below the diagonal: correlations between the factors. Above the diagonal: HTMT ratio.

Table 4 shows the estimation of the structural part of the model obtained via blindfolding. Results confirm for the sample a significant influence of the innovation activities ($\beta = 0.637$, $p < 0.01$) about product innovation.

Table 4. Structural model result.

Proposition	**Standardized Beta**	**t-Value (Bootstrap)**
Activities -> Product	0.637 ***	10.967

R^2 (P) = 0.406. Q^2 (P) = 0.154. *** $p < 0.01$.

In the evaluation of the structural model, we analyzed the predictive ability of the model with the coefficient of determination and the effect size [23]. We evaluated the significance of the structural relationships (bootstrapping), the variance of the latent dependent variables explained by the constructs that predict them (R^2), and the predictive relevance (Q^2 by blindfolding). In the study, we obtained an R^2 greater than 0.1 for the dependent variable motivationally driven entrepreneurship, an acceptable value according to [28].

To deepen the predictive ability of the model, we analyze the redundancy with cross-validation (Q^2) [60,61]. The smaller the difference between the predicted and original values, the higher the Q^2 criterion and the better the accuracy and predictive relevance of the model. As a relative measure, values of 0.02, 0.15, and 0.35 indicate that an exogenous construct has small, medium, or large predictive relevance, respectively.

To ensure that the study does not present biased results, we analyzed possible collinearity problems. Variance inflation factor (VIF) values greater than 5 are indicative of collinearity between the constructs of the predictors. Our results indicate that there are no collinearity problems between the factors of the structural model; VIF values less than five are presented [28].

4. Results and Discussion

4.1. Case Study Context

The innovation project addressed in this article, called Innovation and Competitive Export Performance of Medium-sized Companies in the Industrial Sector, aims to analyze the influence of innovation on the competitive performance of medium-sized companies in the industrial sector and how innovation activities favor innovation processes within these types of organizations. This paper starts from the fundamental premise that innovation activities exert an important influence on the competitive performance of companies. The performance of less technologically innovative companies is lower compared to those that moderately develop technological innovation activities and, as a result, these obtain higher competitive advantages. However, an analysis of the break-even point is required in the development of this type of activity; this point cannot be above a certain threshold that affects the performance of SMEs and generates an increase in costs that exceeds profits [62].

The deterioration of the current economic situation of SMEs in the industrial sector for 2021 was 13%, with a significant increase in their sales, production, and operating costs [63].

4.2. Main Results

Within this study, composite reliability analysis and convergent validity of the constructs were performed, evaluating discriminant validity and examining the loadings of the indicators. We established two constructs, one with the independent variable innovation activities and the other with the dependent variable product innovation. The results of our study show that within the ACTIVITIES construct, the variables of investment in R&D (30) and the technological component (33) are of higher significance, obtaining a CR of 0.813 and 0.731, respectively. When the investment is made specifically in R&D, the sources of ideas have a significant impact on the achievement of innovation results of all types, whether products or processes [57]. R&D investment contributes directly to innovative activity and also improves the absorptive capacity and ability to identify, integrate, and exploit new external knowledge with a higher commercial outcome. Sole-owner firms have lower levels of product innovation than multi-owner firms [64].

It is important to note that, in terms of innovation, SMEs require sources of financing that will enable them to achieve sustainable development with a productive base supported by environmental technologies. Therefore, Latin American and the Caribbean countries need policies that direct investment toward access to technologies that favor the production of goods and services associated with the reduction in the carbon footprint, thus promoting sustainable industries, innovation, and infrastructure, thus contributing to Sustainable Development Goal 9. In internationalization processes, accessing new technologies or technological resources is considered the third most fundamental factor after favorable growth prospects in a new market and customer follow-up [65]. In the same vein, R&D investments contribute heterogeneously to the value of firms and a higher return on the value of the investment [15]. One of the key and fundamental links is scientific activities as central axes and pillars in the promotion of national innovation capacity and competitiveness [60].

Additionally, in the ACTIVITY construct, other variables, such as the acquisition of knowledge through external sources [31] and that organizational and financial aspects facilitate the development of technological innovation activities [34], are the ones that follow, obtaining a CR of 0.665 and 0.674, respectively.

Permanent interaction and closeness with the client in co-creation processes are an essential part of product innovation [66]. In the NPD process, relationships between internal and external stakeholders are essential for the development of joint activities that lead to successful product innovation [67], which is why in SMEs it is more common to acquire new technology and cooperation agreements when innovating.

Efforts to improve and develop new products increase the financial efficiency of SMEs; their implementation can free up financial resources and focus them on the most profitable areas of these companies [68]. Here, eco-friendly innovations play an important role leading to competitive advantages at the cost and recall levels [69]. In the same vein, in this type of firm, organizational and financial aspects (activity 34) play a fundamental role in innovation; SMEs invest to broaden the human talent base and to acquire and exploit new knowledge in a better way [70]. There is growing evidence in the literature that access to internal and external resources (collaboration and training) has a positive effect on innovation performance, but it is also important to take into account the characteristics of the owner-manager [71].

On the other hand, regarding the PRODUCT construct, our study highlights variables (1) and (3), corresponding to the introduction of new and improved products to the market, with more significant data in the composite reliability (CR) of 0.831 and 0.708, respectively. For the development of new or significantly improved products, the literature increasingly shows that knowledge transfer and integration between companies and suppliers is required, whether for simple products or products with a high technological component [65]. It is important to highlight the need for cooperation and greater articulation between actors,

both in the public and private sectors. Likewise, in order to create value and obtain higher returns on investment in markets with fragile and incomprehensible environments through the development of product innovation, these types of companies should have an initial performance in the development of process innovations [72]. Highly market-oriented companies with new or significantly improved products achieve superior performance and their results improve organizational performance. Increasingly, studies show that there is a positive orientation between market orientation, new product performance, and organizational performance [65].

Another important aspect that favors product innovation is the development of open innovation activities or models, which allows adding value with a better innovative performance by using external sources of knowledge and overcoming internal barriers to innovate [71].

4.3. Discussion

The analysis of SMEs in the industrial sector is oriented towards understanding the importance of the activities that this type of organization carries out to develop product innovation processes. Our empirical results show that, among the ACTIVITIES that this type of company undertakes to a greater extent, investment in R&D and innovation are paramount, where the sources of ideas and understanding of problems have an impact on innovation performance. For the conceptualization of ideas and problems that can be materialized in market opportunities, the breadth and depth of external and internal knowledge is fundamental. The exchange of information produces positive effects in the combination of resources and capabilities and the development of different strategies [73]. Another activity we found in the study is the interest in the technological component, showing an orientation towards the development of new products. Additionally, regarding the PRODUCT construct, our study highlights the companies' interest in introducing new and improved products to the market, which demonstrates their interest in increasing their income levels and financial results in order to ensure survival. Findings have important implications for strategic decision making by companies competing in emerging markets. This study broadens the theoretical basis on the type of activities that SMEs undertake to support their innovation processes by analyzing which type of innovation activities they are focusing their resources on, important information for future actions, and orientations that allow a better understanding that allows, for example, an impact of innovation bonds developed in emerging countries, where it is increasingly evident that these tend to increase innovation and improve financial results [74].

Finally, this document makes a third contribution by finding evidence of the strong orientation of this type of company to develop innovation processes in new or improved products, information that serves as a basis, and future orientations for different policies, both public and private initiatives that seek to strengthen the business environment of developing countries.

4.4. Findings

As for the PRODUCT construct, our study highlights variables 1 and 3, corresponding to the introduction of new and improved products to the market, with more significant data in the composite reliability (CR) of 0.831 and 0.708, respectively. Consequently, when new products are launched to the market or existing ones are improved in a disruptive way, they have a significant impact on innovation activities and SMEs' performance.

The results indicated that innovation activities are positively related to product innovation ($\beta = 0.637$, $p < 0.01$). Therefore, it is shown that innovation activities have a positive effect on product innovation. In addition, the value of the coefficient of determination R^2 for the construct performance was high (0.406). The predictive relevance Q^2 of the performance antecedents was assessed using a bandage procedure with an omission distance of 6. The analysis yielded a Q^2 value greater than 0 (0.154), confirming the predictive relevance of the model [28].

Another initiative would be for this type of company to start with the development of frugal innovation (FI) processes characterized by their efficiency, redesigning their products or services and making them more affordable and accessible to consumers [75,76].

5. Conclusions and Implications

R&D investment alone cannot guarantee the success of innovation; therefore, coordination, integration, and knowledge transfer within and across industries are vital for the innovative performance of companies. We have analyzed the orientation of small and medium-sized exporting companies with respect to the decision to focus their process innovation efforts to understand their competitive dynamics and main drivers for entering international markets. We launched a 34-question questionnaire to a sample of 56 exporting SMEs in the Colombian Caribbean. At the end of the survey, the activities and product innovation that are related to the performance of SMEs showed that the activities are related to the following: Investment in Research and Development (30), Acquisition of knowledge from external sources (31), Technological Component (Infrastructure and Investment) (33), Financial and Operational Aspects (34).

Different studies have shown that investment in R&D can help companies to obtain new technologies and products, as well as to increase their productivity, allowing them to respond in advance to changes in market demand [77–79], which can increase profits and therefore support goal achievement in SMEs' innovation efforts.

The results of our study show that within the ACTIVITIES construct, the variables of investment in R&D [30] and the technological component [33] obtain a higher significance, obtaining a CR of 0.813 and 0.731, respectively. Therefore, when R&D investments are made, they have a significant impact on the achievement of product innovation results. The following are related to product innovation: New products launched to the market (1), Significantly improved products (3), Technical Characteristics of the Product (6), Functional Characteristics of the Product (8). Previous studies have shown that the innovativeness of companies' products is a determining factor in meeting customer needs in the development of new products (NPD) [80]. Indeed, a high level of product innovation improves NPD and product innovation, as they reach the point of being able to fully and accurately satisfy customer preferences [81].

Among the three main limitations of our study, we can mention first that given that innovation activities are a fundamental basis for the development of innovation processes, it would be worthwhile to investigate whether these SMEs have a strategic orientation that allows them to focus their efforts on these types of activities and thus direct all public and private initiatives that support the promotion of innovation, for example, through transfer vouchers. Secondly, the size of the company and its financial limitations can be an obstacle to the development of innovation activities. Thirdly, it was not possible to explain more in depth how innovation activities influence not only product innovation processes, but also their financial performance. Finally, a limitation of the article is its reference to companies located in a specific part of the world, even if they are international in nature, especially when it comes to the impossibility of extrapolating its results to any SME in the world.

Future lines of research could look for the relationship between product innovation and innovation activities in different sectors and/or countries, since the environment may vary the results. Future lines of research could address a relationship made taking into account both product innovation and process innovation and innovation activities to impact on the performance of companies; with this, we could have a much broader view of the innovation variables that contribute to the performance of SMEs in Colombia. Finally, it could be tested with large companies.

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