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Entrepreneurial innovation: The sustainable ventures of human development credit beneficiaries

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Abstract

This research article is developed in the socioeconomic context of the province of Chimborazo where the beneficiaries of the Associative Human Development Credit (HDC) present entrepreneurial intentions. The methodology used presents a quantitative research design of an explanatory type, with a causal and cross-sectional approach since it aims to measure the degree of a causal relationship between the indicators that influence the construction of entrepreneurial behavior and the entrepreneurial intention that arises in people who receive the HDC in the province of Chimborazo; a questionnaire was applied to a sample of 260 beneficiaries and subsequently, a structural equation model was implemented with the theory of planned action (TPA). The findings support each hypothesis, demonstrating their relevance and validity in the context of the study. Personal attitude emerges as a determining factor, with a considerably high t-statistic (4.563) and a p-value of 0.000, indicating a robust and significant relationship with entrepreneurial intention. Perceived control also shows a significant influence on entrepreneurial intention with a t-statistic of 2.157 and a p-value of 0.015. In contrast, social norms do not seem to have a significant impact, as indicated by the low t-statistic (0.401) and a p-value of 0.641. This result points to the fact that beliefs about social approval are not determinant in the decision to undertake in this specific context of sustainable ventures. It is concluded that the TPA structural equation model is suitable for predicting the factors influencing entrepreneurial intention.

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Keywords: Personal attitude, Perceived control, Human Development Credit, Structural equations, TPA Model

1. Introduction

Entrepreneurial innovation has become a fundamental component in the search for sustainable solutions to address economic and social challenges on a global scale. In the specific context of Ecuador, a diverse and contrasting nation, the intersection between sustainable entrepreneurship and the Credit for Human Development program granted by the government presents itself as fertile ground for academic research and reflection [1]. Therefore, the principal objective of this research is to measure the degree of a causal relationship

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between the indicators that influence the construction of entrepreneurial behavior and the entrepreneurial intention that arises in people who receive the HDC in the province of Chimborazo.

Over time, Ecuador has witnessed significant alterations in its economic and social framework. In this scenario, the Credit for Human Development program has become an indispensable mechanism to support the most vulnerable segments of society, offering financial opportunities to people who aspire to improve their living conditions. From the position of [2] this program, specifically designed to foster integral development, has aroused great interest in how beneficiaries use the allocated funds to establish sustainable enterprises. Thus, these sustainable enterprises, which are characterized by their commitment to responsible and environmentally friendly business practices, have become catalysts for change in the entrepreneurial landscape.

Therefore, this research will be carried out in Ecuador, with a specific focus on Planning Zone 3 which is an administrative organization that is composed of provinces or joint metropolitan districts, intending to decentralize the administrative activities of the Ecuadorian state [3]. This specific area encompasses the provinces of Chimborazo, Cotopaxi, Pastaza, and Tungurahua; the research will focus specifically on emerging sustainable ventures among the beneficiaries of the Human Development Credit in the province of Chimborazo, Ecuador.

Chimborazo, a province characterized by its distinct geographic and cultural attributes, faces specific economic obstacles that require innovative and lasting solutions. Because of the aforementioned, following [4] the Credit for Human Development emerges as a government-led effort to improve the quality of life of the most vulnerable sectors, as it emerges as a potential catalyst to bring about business transformation in the region, given that, the beneficiaries of this credit not only receive financial assistance, but also have the opportunity to contribute to sustainable progress through the establishment and management of entrepreneurial initiatives.

Therefore, the importance of this study lies in understanding the transformative potential of these sustainable enterprises, supported by the Human Development Credit, to generate significant changes in the province of Chimborazo. Likewise, the purpose of the study is to investigate the transformative role of business innovation in sustainable enterprises promoted by the beneficiaries of the Human Development Credit in the province of Chimborazo, Ecuador. The hypotheses proposed for this research are also presented:

- Hypothesis 1: The personal attitude towards entrepreneurship of HDC recipients in Chimborazo, Ecuador affects entrepreneurial intention directly and positively.
- Hypothesis 2: Perceived behavioral control has a direct and positive influence on entrepreneurial intention among HDC recipients in Chimborazo, Ecuador.
- Hypothesis 3: The social norm directly and positively influences the entrepreneurial intention of HDC recipients in Chimborazo, Ecuador.

Thus, the main objective is to investigate how beneficiaries have used the financial resources provided by the government program to establish and maintain viable enterprises. In addition, the intention is to identify the crucial factors affecting the success or challenges faced by these enterprises, as well as their influence on the economic, social, and environmental development of the province, to provide practical recommendations and guidance for improving public policies; fostering an enabling environment for business innovation and sustainable development in the region.

1.1. Literature review

1.1.1. Theories of human development

Human development is a multifaceted process characterized by the expansion and enhancement of human opportunities, encompassing a wide range of possibilities for growth and progress. These opportunities, by their inherent nature, possess the potential to be limitless and are subject to transformation and evolution as time passes. However, the importance of these opportunities remains steadfast and unchanged at all stages and facets of development [5].

Among the myriad opportunities, three fundamental ones are the most indispensable: the ability to enjoy a prolonged and solid existence, the acquisition and accumulation of knowledge and wisdom, and the possession of unimpeded access to the vital resources indispensable for achieving a respectable and satisfactory standard of living [6]. If these fundamental opportunities become unattainable or remain elusive, an unfortunate consequence occurs whereby many other conceivable alternatives become unfeasible and unattainable, exacerbating the plight of individuals and communities alike.

1.1.2. Human capital

Human capital is widely regarded as a catalyst for economic progress and expansion. Numerous components contribute to its creation, with education and vocational training being of paramount importance. This is because these means allow for the exploration and cultivation of people's capabilities, talents, skills, and competencies [7]. Human capital presents the distinctive attribute of not being transferable or not saleable to external entities. Significantly, this implies that the holder of such capital supports it incessantly, regardless of its location. Moreover, its value does not diminish with time but remains constant. It lasts as long as the owner remains alive and, to obtain it, a person must invest a part of his time, especially during his youth [8].

1.1.3. Cash transfer programs

According to [9], cash transfer programs (CTPs) are social policy mechanisms that have been implemented in Latin America. These programs emerged in the mid-1990s as a reaction to the consequences of the crisis and neoliberal policies. The main objective of these programs is to improve human capital development through three main areas of intervention: education, nutrition, and health. These interventions target both young people and children, with the additional objective of increasing the incomes of the impoverished population [10].

1.2. Cash transfer programs in Ecuador

1.2.1. Human development bonus

The socioeconomic crisis in Ecuador in the late 1990s served as the impetus for the establishment of the Human Development Bonus. This program was modeled after the popular conditional transfer initiatives in Latin America and was inspired by the historical precedent set with the creation of the " Solidarity Bonus" under the leadership of President Jamil Mahuad [11]. It is worth noting that the main objective of the "Solidarity Bonus " was not to address poverty, but to provide monetary compensation to the impoverished population following the elimination of gas, electricity, and fuel subsidies.

On the other hand, during the mandate of President Lucio Gutierrez in 2002, another program known as "Scholarship" was introduced. This program involved the transfer of US$5 per child (with a maximum of two children per household) on the condition that the children were enrolled in school and maintained a minimum attendance rate of 90 percent [12]. However, according to the author [13], it was not until 2003 where through Executive Decree 347, that the "Solidarity Bonus" and the “Bonus Scholarship" were transformed into the Human Development Bonus, thus establishing a program of monetary subsidies for social protection.

Thus, the main objective of the Human Development Bonus was to improve the effectiveness of previous initiatives and to promote the development of human capital in the most impoverished families. The program consisted of two main components. First, the health component aimed to ensure that children under the age of six attended health centers regularly. Second, the educational component targeted children between the ages of six and fifteen, emphasizing their enrollment in school and compliance with a minimum 90% attendance rate [14].

1.2.2. Human development credit

The Human Development Credit represents an advance on the Human Development Bonus, which is allocated to people whose percentage in the social registry ranges between 0 and 28.20 points, denoting a state of extreme poverty. The objective of this initiative is to encourage entrepreneurship and facilitate the creation of a sustainable nucleus, equipped with the necessary resources to overcome poverty.

The intervention of this credit is based on three main pillars: productive investment aimed at generating independent sources of income, partnerships that promote collective, solidarity-based, and self-managed work, and sustainability as a means to improve inter-institutional support, which is defined in three key components: productive solidarity credit, training, and comprehensive specialized assistance [15]. Thus, this credit specifically targets sectors such as agriculture, commerce, services, minor species breeding, handicrafts, and manufacturing. These areas represent the focus of investments to foster the development of productive small enterprises [16].

1.2.3. Individual human development credit

Individual Human Development Credit refers to a form of financial assistance made available to individuals seeking to engage in productive, service-oriented commercial activities. This credit offers a maximum amount of USD 600, which can be accessed for 12 months [17].

1.2.4. Associative human development credit

The Associative Credit for Human Development, on the other hand, involves the provision of an advance payment equivalent to 12 to 24 months in bonds and pensions corresponding to the Human Development Bond, Human Development Bond with a variable component, My Best Years Pension, and Lifetime Pension; and is aimed at users of the pensions and bonds. To be a beneficiary of this credit, one must attend the Economic Inclusion School Phase 1. Subsequently, it is called associative, since at the end of this phase a group is formed that operates as an association. To qualify for this loan, beneficiaries must establish a real partnership with other people (3 to 10 people) whose common goal is to generate an enterprise that will help improve their income. Subsequently, these beneficiaries will receive training, the objective of which is to provide them with the necessary skills to start businesses that can improve their quality of life. In addition, this training also helps to determine the feasibility of establishing a sustainable business. In addition, the maximum amount distributed for each user that makes up the association will be US$1125, delivered through the public bank Ban Ecuador [5].

1.2.5. Entrepreneurship

Entrepreneurship is perceived as the procedure of recognizing and capitalizing on the prospects of establishing new businesses or improving existing ones. As far as entrepreneurs are concerned, they are characterized by their inclination towards innovative businesses based on original and imaginative concepts, capable of taking risks for the progress of the company, and adaptable to growth-oriented changes for better results [18]. Therefore, possessing innovative qualities must be an inherent part of a person's virtues if he or she aspires to entrepreneurship, along with the acquisition of creativity and skills cultivated throughout his or her life.

1.2.6. Business innovation

Business innovation is the act of an organization implementing substantial alterations or improvements in its products, services, procedures, business frameworks, or internal structure. In business, innovation encompasses the use of innovative concepts and the integration of emerging technologies to create value, maintain competitiveness, and adapt to changing market requirements [19].

1.2.7. Welfare level

The level of social welfare is closely related to a nation's progress. If the population has access to resources and opportunities, it can improve its living conditions and meet its fundamental requirements. This is precisely why there are various methods for analyzing the quality of life of individuals or vulnerable groups, one of which is the income poverty assessment. By conceptualizing well-being as the potential range of conditions and actions available to people, any feasible transformation or possible action contributes to its facets [20].

1.2.8. Theory of planned action

The theory of planned action (TPA) postulates that the intention to perform a specific behavior is determined by three main elements: the attitude toward the behavior, the subjective norm, and the perceived behavioral control. The existing literature emphasizes that perceived behavioral control often emerges as the most influential factor in this process. Moreover, both perceived behavioral control and intention are considered to be direct predictors of behavior [21]. In this framework, the hypotheses focus on investigating the correlation between each of these TPA components and entrepreneurship.

2. Research method

This study used a quantitative research design of an explanatory type, with a causal and cross-sectional approach. The purpose of this study was to measure the degree of causal relationship between the indicators that influence the construction of entrepreneurial behavior and the entrepreneurial intention that arises in people who receive the Human Development Credit in the province of Chimborazo, Ecuador.

The methodological justification is based on research conducted by [22] entitled "Measuring the Intention of University Entrepreneurs Using Structural Equations". The study addresses an in-depth analysis of the entrepreneurial intentions of students at the University of San Francisco Xavier de Chuquisaca (USFXCH), thus, identifying the various factors that exert a substantial influence on the entrepreneurial intentions of these students. In addition, it used the theory of planned action (TPA) model that specifies a structural model (causal relationships between the variables of the model) and a measurement model (identifies the latent variables formed by observable indicators). The questionnaire was composed of four dimensions: attitude towards entrepreneurial behavior, subjective norm, perceived behavioral control, and entrepreneurial intention, all with a total of 23 items with a Likert-type scale.

The population comprises all the beneficiaries of the Human Development Credit of the Associative Modality in the province of Chimborazo from January 2023 to December of the same year. Therefore, a total of 794 beneficiaries of this type of HDC are used as the population for the calculation of the representative sample through a statistical technique of random sampling. According to [23] this type of sampling involves the selection of a sample from a population where each member has a known and non-zero probability of being included. This method is used to ensure the representativeness of the sample, the accurate generalization of the results to the broader population and responds to the following formula:

$$n = \frac{Z^2 \cdot N \cdot p \cdot q}{e^2 \cdot (N-1) + (Z^2 \cdot p \cdot q)} \qquad (1)$$

Where,

n = Sample size

N = Population size (794 Associative HDCs)

Z = Confidence level (1.96)

e = Maximum accepted estimation error (5%)

p = Probability of success (0.5)

q = 1-p = Probability of failure or non-occurrence of the event (0.5)

Since a sample of 260 was obtained, a total of 260 surveys were applied to the beneficiaries of the HDC Associative in the province of Chimborazo in the period January - December 2023.

2.1. Instrument

Considering that a methodological basis was employed for the present study, as well as [22] modified a questionnaire made by [24] in his work "Study of entrepreneurial intention in the public scientific field", that

aimed to evaluate the entrepreneurial intention of individuals and measure the indicators of TPA (attitude, subjective norm, and behavioral control).

The previously mentioned instrument is called "Application of the TPA to the study of entrepreneurial intention in the life sciences". It is structured by 23 items of nominal scale and Likert type where the minimum value is 1 and is equivalent to "totally disagree", and the maximum value is 7 with its equivalent of "totally agree". The questionnaire is subdivided into 4 scales to be analyzed: attitude towards entrepreneurial behavior (ATEB), subjective norm or social norm (SN), perceived behavioral control (CON and SEF), and entrepreneurial intention or entrepreneurship (ENI).

2.2. Cronbach's alpha

Cronbach's alpha coefficient is a measure of reliability used to evaluate the internal consistency of a set of items or questions in a questionnaire or test. Following the postulates of [25] this statistical measurement technique can vary between 0 and 1, where a value close to 1 indicates greater internal consistency among the items, interpreted as reliability of the scale. When the result obtained is above 0.7 it is generally considered acceptable.

It is calculated from the correlations between the items and provides an estimate of the homogeneity of the items in measuring the same latent variable or construct. Therefore, it responds to the following formula:

$$\alpha\ \alpha = \frac{k}{k-1}\left(1 - \frac{\sum_{i=1}^{k} \Sigma_i^2}{S_T^2}\right) \qquad (2)$$

Where,

α = Cronbach's alpha coefficient

k = number of items in the questionnaire

∑ = summation

Si = standard deviation of each item

ST = total standard deviation of the scores obtained in the questionnaire.

2.3. Structural equations model

This type of model examines the relationships between observed and unobserved variables; it allows you to analyze the underlying structure of the data, model causal relationships between variables, and estimate the magnitude of direct and indirect effects within a specific theoretical framework. In structural equation modeling, also called SEM, its variables can be classified into two main types: observed variables and latent variables. Observed variables are those that are directly measured employing measurement instruments, such as questionnaires or scales. On the other hand, latent variables, also known as unobserved variables or constructs, are underlying variables that cannot be directly measured but are inferred from multiple observed variables that represent them [26].

In addition, they are illustrated graphically through path diagrams that serve to identify interconnected variables to demonstrate the causal relationship and interdependence between numerous variables. According to [27] modification of a structural equation model may be necessary to include the addition or elimination of relationships between variables, the inclusion of mediating or moderating variables, the specification of alternative models to examine rival hypotheses, or the incorporation of correlated error terms that fit the model to the observed data.

2.4. Information processing

After applying the questionnaire to the 260 beneficiaries of the HDC Associative in the province of Chimborazo, randomly selected as a sample of the target population, the responses obtained were tabulated in the SPSS software to form a data matrix that will serve as a fundamental basis for the analysis of the structural equation model.

Next, the Amos software was used, which allows multivariate analysis, in other words, it creates structural equation models and represents them through graphs or path diagrams. In this way, the 23 items of the questionnaire were distributed in the 4 dimensions, all classified as follows: the first dimension is “personal attitude” (ATEB) and presents 6 items; the second dimension is “social norms” (SN) and has 4 items; the third dimension is “perceived control” which is subcategorized into “controllability” (CON) which has 4 items and “self-efficacy” (SEF) with 6 items; the last dimension is “entrepreneurship" (ENI) which is structured by 3 items. The questionnaire makes it possible to determine through structural equations whether the factors or dimensions influence the entrepreneurship intention of the HDC beneficiaries.

After obtaining the modeling and identifying the categories or dimensions that have a significant influence on the study variable, and also those that are not related, the structural equation model is modified, eliminating variables that are not very significant, and thus, an adjusted model is obtained that leads to the pertinent conclusions that respond to the research hypotheses proposed.

3. Results and discussion

The descriptive results of the website of the Ministry of Inclusion and Social Economy (MIES) are analyzed concerning the beneficiaries of the Human Development Credit in the type of associative credit, where 794 people were obtained in the province of Chimborazo in the year 2023. The following descriptive analysis is made with the totals.

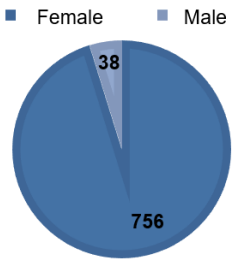

Figure 1. Distribution of HDC beneficiaries by gender

Figure 1 shows the distribution of the Human Development Bonus according to gender, highlighting differences in the amounts allocated between men and women. Although the number of female beneficiaries (756 women) is much higher than the number of male beneficiaries (38 men), the total amount distributed to this group is significantly higher. This suggests that, on average, each female beneficiary receives more funds compared to male beneficiaries.

The total allocated to this male group is found to be considerably lower compared to the female group. This inequality may reflect differences in poverty rates or program eligibility between the genders, which warrants further investigation into the underlying causes.

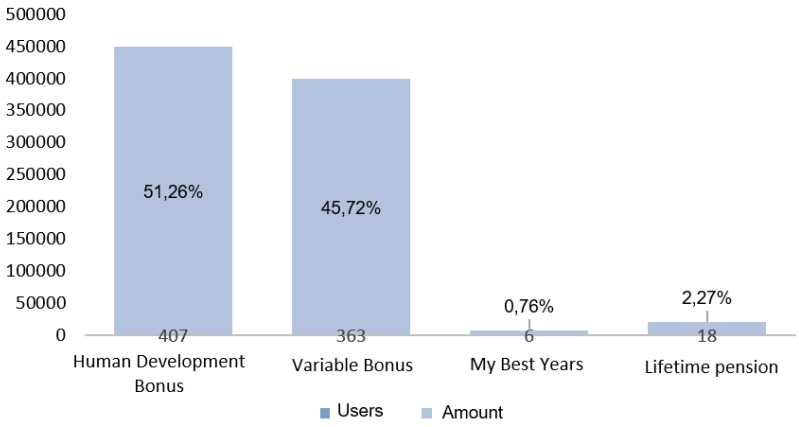

Figure 2. Distribution of HDC beneficiaries by subsidy type

Figure 2 presents data on various types of subsidies, including the number of users and the total amount allocated for each type. The "Human Development Bonus" is the program with the highest number of users, accounting for 407 beneficiaries, and the total amount allocated for this subsidy amounts to $448,835.40. This indicates that it is the most used program and provides the largest amount of funds compared to the other types of subsidies in the table.

The "Variable Bonus" has 363 users and a total allocated amount of $398,846.50. Although the number of users is lower than that of the "Human Development Bonus", the total amount allocated is still considerable. This suggests that the "Variable Bonus" is also a relevant program in terms of fund distribution.

On the other hand, the "My Best Years" program has only 6 users, but the total amount allocated is $6,650.90. Although the number of beneficiaries is limited compared to other programs, the individual amount allocated is relatively high.

Finally, the "Pension for a Lifetime" program has 18 users and a total allocated amount of $19,952.80. This type of subsidy has a lower number of users and total amount allocated compared to the other programs in the table. However, it is still significant in terms of providing financial support to a specific group of beneficiaries.

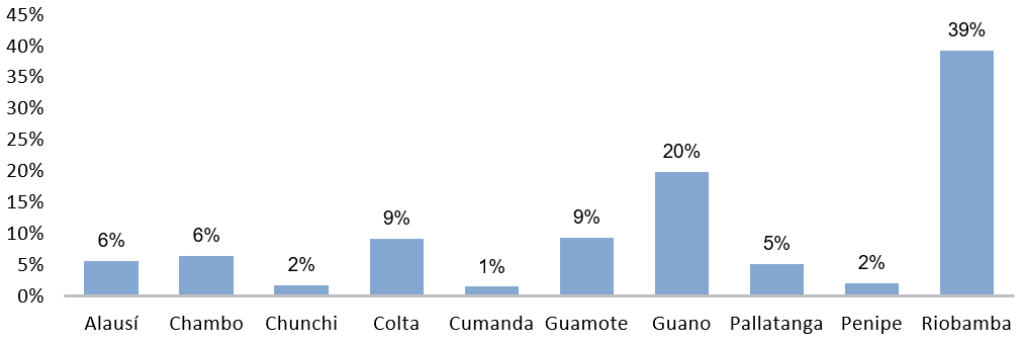

Figure 3. Distribution of HDC beneficiaries by canton in the province of Chimborazo

Figure 3 presents information on the number of Human Development Bonus users in various cantons, along with the corresponding percentage concerning the total number of users in all cantons. Riobamba tops the list with the highest number of users, with 160 people, representing 39% of the total. It is followed by Guano, with 81 users (20%), and Guamote and Colta, with 38 and 37 users respectively.

In terms of percentages, Riobamba leads with 39% of the beneficiaries of the Human Development Bonus, followed by Guano with 20% and Guamote with 9%. On the other hand, several cantons such as Alausí, Chambo, Chunchi, Cumandá, Penipe, and Pallatanga, have a lower percentage of users, each representing between 1% and 6% of the total.

These data suggest an uneven distribution of Human Development Bonus beneficiaries in the different cantons. Riobamba stands out as the canton with the greatest need for social assistance, followed by Guano, while other cantons have a smaller number of beneficiaries, possibly due to their smaller population or lower socioeconomic needs.

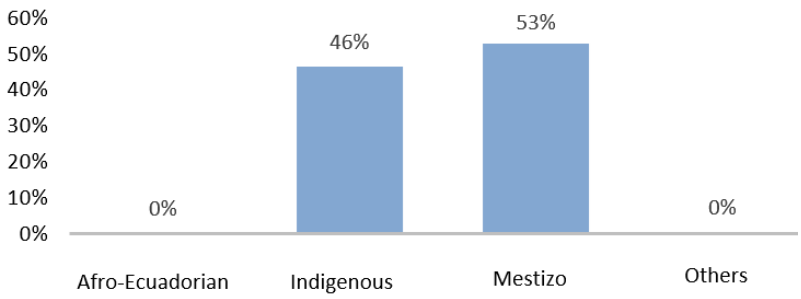

Figure 4. Distribution of HDC beneficiaries by ethnicity

No Afro-Ecuadorian users of the Human Development Bonus were reported in this sample. This could indicate an underrepresentation of this community in the program or simply reflect the specific composition of the sample.

It is observed that 189 people identified as indigenous receive the Human Development Bonus, which represents approximately 46% of the total number of users. This finding suggests a significant proportion of Indigenous beneficiaries in the program, which may reflect the socioeconomic situation of these communities and their need for government support.

216 people identified as mestizos receive the Human Development Bonus, which constitutes approximately 53% of the total number of users. This figure indicates that the majority of the program's beneficiaries are mestizo, which could reflect the general demographic distribution of the country or possibly certain targeting policies of the program.

Only 2 people, representing a small percentage of others, receive the Human Development Bonus and identify themselves as belonging to another ethnicity not specified in the figure. Given the low number of cases, it is difficult to draw meaningful conclusions about this category.

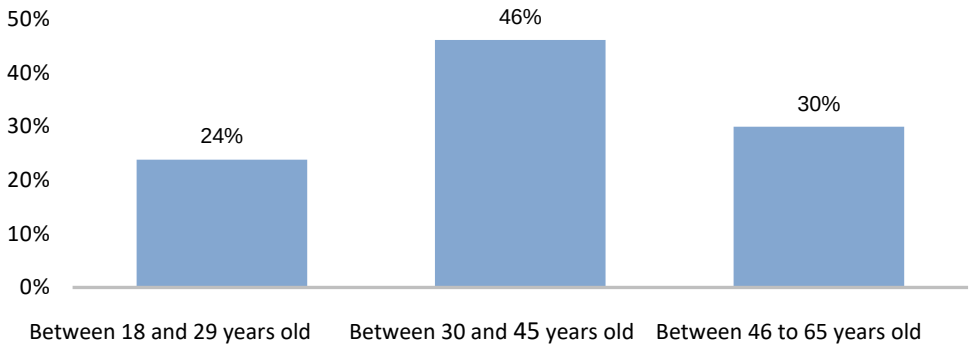

Figure 5. Distribution of HDC beneficiaries by age range

The majority of Human Development Bonus users are in the 30 to 45 age range, representing 46% of the total. The second largest group of users belongs to the age range between 46 and 65 years, constituting 30% of the total. The youngest age group, between 18 and 29 years, has the smallest number of users, representing 24% of the total. It is important to note that most users are concentrated in the two oldest age groups, between 30 and 65 years of age, which represent 76% of the total number of users.

This pattern may reflect the socioeconomic conditions of the population, where younger adults may be less in need of direct financial assistance compared to older age groups, who may face greater economic challenges, such as unemployment or retirement.

Results of the instrument applied to the beneficiaries of the HDC, to test the different hypotheses that affect the entrepreneurship or small businesses of the people of the province of Chimborazo. Using the methodology of structural equations.

Table 1. Cronbach's alpha reliability

Reliability statistics	
Cronbach's Alpha	N of elements
0.842	23

The results of Cronbach's alpha reliability, as detailed in the methodology covering five dimensions (personal attitude, social norms, perceived control, and entrepreneurship), are particularly encouraging. With a total of 23 questions, a reliability of 0.842 has been achieved. This value, according to [25] is classified as a very strong reliability. This indicator suggests that the questions used to measure the dimensions mentioned are consistent and reliable to accurately assess the constructs in question.

This high level of reliability reinforces the solidity of the data collected and provides a compact basis for continuing with the present investigation. It is relevant to note that a Cronbach's alpha above 0.8 is generally considered an indicator of high internal consistency, which strengthens the validity and credibility of the results obtained so far.

Table 2. Descriptive analysis of the dimensions

Statistics						
		average_ATEB	average_SN	average_CON	average_SEF	average_ENI
N	Valid	260	260	260	260	260
	Lost	0	0	0	0	0
Media		2.2506	3.7500	4.0394	3.9122	4.1026
Median		2.1667	3.5000	4.0000	3.8333	4.0000
Variance		.172	1.310	1.049	.856	1.534
Minimum		1.17	1.00	1.00	1.50	1.67
Maximum		3.50	7.00	6.50	6.33	7.00

Table 2 shows the descriptive analysis of “personal attitude” (ATEB), “social norms” (SN), and the dimension of “perceived behavioral control” which is made up of “controllability” (CON) and “self-efficacy” (SEF), and finally the dimension of “entrepreneurship” (ENI). In the table provided, the descriptive data, specifically the medians, for different dimensions related to entrepreneurship are observed. In the ATEB dimension the median is 2.1667, suggesting that, on average, the population tends to have lower responses in this specific dimension. On the SN dimension, it is 3.5000, indicating a median position on this dimension. Responses tend to be evenly distributed on a scale of 1 to 7. The CON and SEF dimensions are 4.000 and 3.8333 respectively and finally, the median is 4.0000, indicating entrepreneurship. The median for the CON dimension is 4.0000. This median represents the central value when the data are ordered, indicating that half of the participants have scores above this value and half have scores below this value. In the context of perceived control, a median of 4.0000 suggests that most participants perceive a moderate to high level of control over factors that could facilitate or impede starting a business. The median for the ENI dimension is also 4.0000. This indicates that half of the participants have an entrepreneurial intention equal to or higher than this value, and the other half have a lower intention. In the context of entrepreneurial intention, a median of 4.0000 suggests that the population studied has, on average, a moderate entrepreneurial intention.

Table 3. Indicators

Personal attitude (ATEB)	Being an entrepreneur would mean facing new challenges Being an entrepreneur means creating jobs Being an entrepreneur means being creative and innovative. Being an entrepreneur would mean having a high financial income Being an entrepreneur would involve taking calculated risks Being an entrepreneur would mean being my boss
Social norms (SN)	My immediate family (parents, partner, and siblings) My close friends would agree to set up a company. My colleagues would agree to set up a company.
Perceived control (CON)	The academy or institution of study would agree with the creation of a company. If I wanted to, I could easily become an entrepreneur and start my own company. If I created my own company, I would have total control over the situation.

	There are few things out of my control that could prevent me from being an entrepreneur. It is entirely up to me whether or not I decide to create my own company and become an entrepreneur. Would be able to define the business idea and strategy I would be able to write a business and financial plan.
Entrepreneurship (ENI)	Would be able to carry out the administrative formalities for setting up a company Would be able to negotiate and maintain favorable relations with investors and banks. Would be capable of recruiting, selecting, and training employees. Would be able to form partnerships or alliances with other companies Create your own company. If the opportunity arises, I would like to be self-employed. However, considering the current situation, I would like to be self-employed.

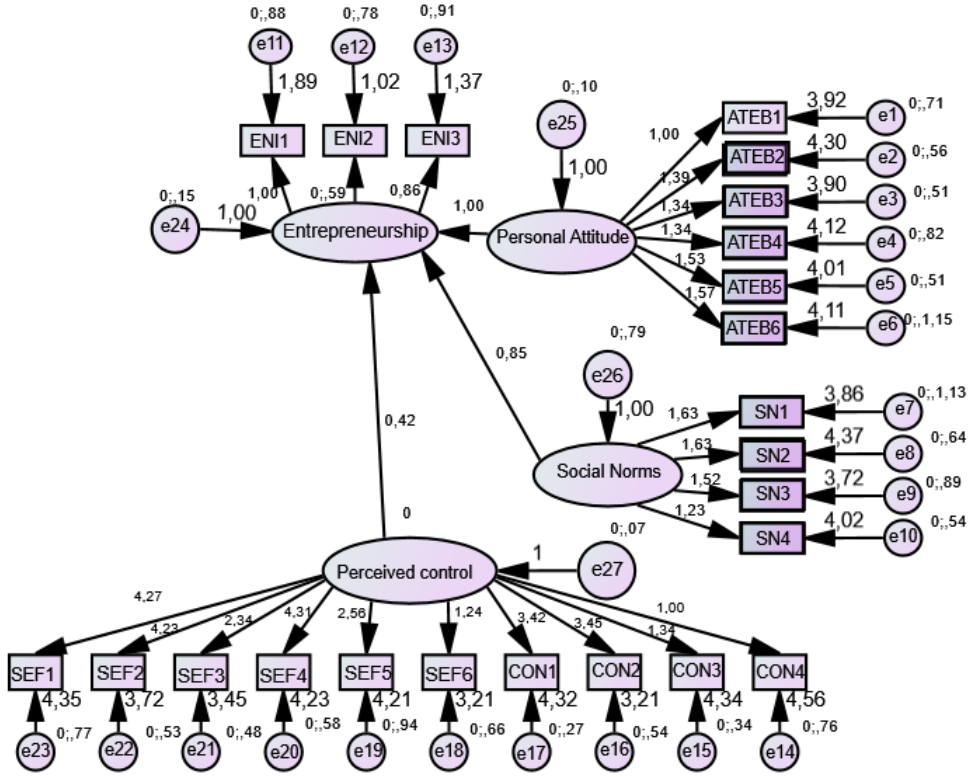

Figure 6. Structural model

Table 4. Structural model results

	T-statistics	P values
Personal attitude>Entrepreneurship	4.563	0.000
Perceived control >Entrepreneurship	2.157	0.015
Social norms >Entrepreneurship	0.401	0.641

The results of the structural model reveal significant patterns in the relationship between the variables studied, providing crucial insights into the sustainable enterprises of the beneficiaries of the Human Development Credit in the province of Chimborazo. The bootstrapping technique was used to determine the significance of the relationships between variables, with a confidence level of 95%.

Personal attitude emerges as a determining factor, with a considerably high t-statistic (4.563) and a p-value of 0.000, indicating a robust and significant relationship with entrepreneurial intention. This finding highlights the importance of individual attitudes in shaping entrepreneurial propensity in this group. Perceived control also shows a significant influence, although in a less intense way compared to "personal attitude". With a t-statistic of 2.157 and a p-value of 0.015, it is evident that perceived control over factors that can facilitate or hinder starting a business plays a relevant role in entrepreneurial intention. In contrast, social norms do not seem to have a significant impact, as indicated by the low t-statistic (0.401) and a p-value of 0.641. This result points to the fact that beliefs about social approval are not determinant in the decision to undertake in this specific context of sustainable ventures. The additional information provided emphasizes that only the personal attitude and behavioral control variables directly influence entrepreneurial intention. It is highlighted that "subjective norms" beliefs do not have a significant impact, suggesting that people focus more on individual factors and perceived control than on social approval when making entrepreneurial decisions.

The two independent variables that, according to the evidence presented, effectively impact entrepreneurship were used. In addition, the two indicators with the highest t-statistic for the attitude and perceived control factors, as well as for the dependent variable, entrepreneurship, were considered.

The two indicators that have reached the highest value in each variable are highlighted:

Personal attitude

- ATEB3, ATEB4, ATEB5, ATEB6

Perceived control

- SEF4, SEF5, SEF6, CON3, CON4

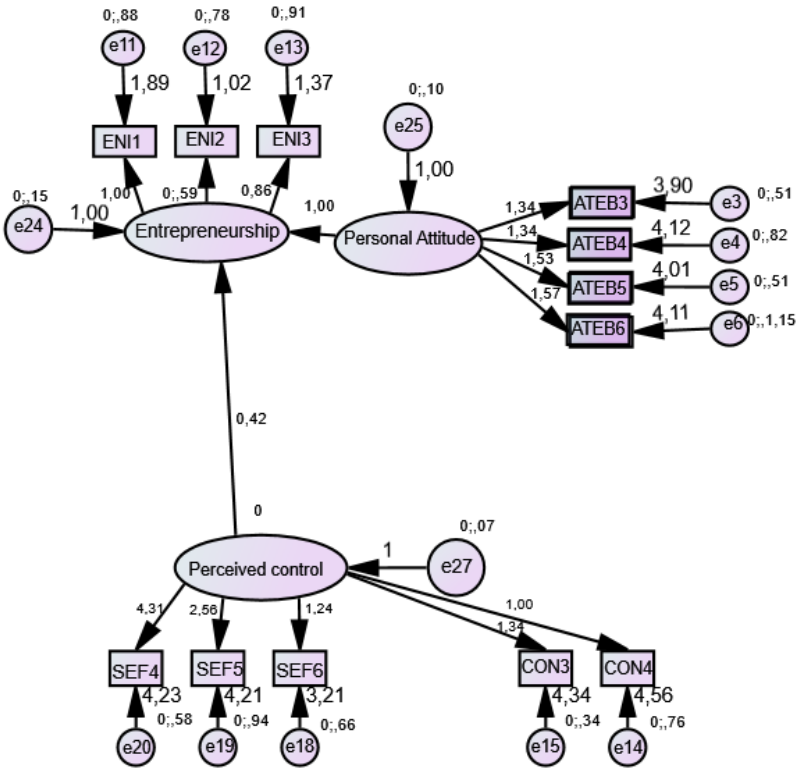

Figure 7. Modified structural model

Table 5. Results of the modified structural model

	T-statistics	P values
Personal attitude>Entrepreneurship	4.563	0.000
Perceived control >Entrepreneurship	2.157	0.015

Table 5 shows the results of the modified structural model, focusing on the variables of personal attitude and perceived control with respect to entrepreneurship. According to the theoretical basis provided, a student's t-statistic value greater than 1.96 indicates a considerable impact of attitude and behavioral control on entrepreneurship.

The high t-statistic (4.563) and low p-value (0.000) indicate a significant and positive relationship between personal attitude and entrepreneurship in the modified model. The t-statistic (2.157) and p-value (0.015) suggest a positive and significant relationship between perceived control and entrepreneurship, although with a lower statistical significance than personal attitude.

3.1. Discussion

The present research has concentrated its efforts on analyzing the correlation between attitude, perception of control, and subjective entrepreneurial norms among people who have received benefits from the Human Development Credit. In order to understand the factors that influence entrepreneurship-related decision-making, the theory of planned action has been employed as a conceptual framework. The results obtained from this research have revealed a considerable impact of attitudinal and behavioral control on entrepreneurship, which supports the need to reinforce a positive attitude and perception of control to foster entrepreneurial action.

The importance of attitude towards entrepreneurship has been widely recognized as a fundamental predictor of entrepreneurial behavior, as indicated by the author López Paredes et al. [1] in their particular study, a remarkable correlation has been found between a positive attitude towards entrepreneurship and the success of entrepreneurial projects undertaken by Human Development Credit beneficiaries. This finding is consistent with the idea that a favorable attitude not only influences the decision to undertake entrepreneurial initiatives but also affects the ability to bounce back and persevere in the face of challenges, as proposed by Arroyo et al. [18].

As suggested by [21] the theory of planned action further emphasizes the fundamental role of perceived control in predicting behavior. The results of the present research support this premise by demonstrating that individuals who perceive that they have greater control over their entrepreneurial actions are more likely to ensure the sustainability of their firms. As argued by [14] this perception of control can significantly influence entrepreneurs' ability to adapt to change and make informed decisions.

On the other hand, the impact of a positive attitude and perceived control on entrepreneurship is also consistent with the existing literature on entrepreneurial psychology. The following [6] propose that risk appetite and uncertainty, which are closely related aspects of entrepreneurial attitude, are critical to entrepreneurs' success. In addition, the perception of control has been related to the ability to face and overcome the obstacles encountered along the entrepreneurial path.

Future lines of research can further explore particular interventions aimed at reinforcing affirmative attitudes and perceptions of control in Human Development Credit beneficiaries. It would be worthwhile to investigate the effectiveness of psychological training and mentoring programs that directly target these facets, thus providing invaluable insights. In addition, an effort could be made to study the impact of contextual factors, such as accessibility to complementary resources or community support, on the correlation between attitude and success in entrepreneurship. Exploring how individual characteristics, such as resilience and self-efficacy, interact with the principles of the theory of planned action would also be a conducive avenue to a more complete understanding of the mechanisms underlying sustainable entrepreneurship. The present research has the potential to contribute to the formulation of more specialized and effective interventions that foster entrepreneurial action in populations benefiting from similar programs.

4. Conclusions

Based on the results obtained in the study, it can be concluded that the Associative Credit for Human Development is an advance payment equivalent to 12 to 24 months in bonds that serve as financial assistance for the beneficiaries who seek to undertake economic activities. In the case of the province of Chimborazo, there is a notable presence of women receiving this credit. This trend suggests the importance of promoting female participation in sustainable business initiatives as a strategy for economic growth and social development.

In addition, the fact that the Human Development Bonus is the program with the largest number of users and that most of them are concentrated in Riobamba indicates the need to continue strengthening development policies and programs in urban and rural areas, where a large part of the beneficiary population is concentrated.

The predominance of Indigenous beneficiaries in the receipt of the Human Development Credit highlights the importance of designing inclusive strategies that address the specific needs of this population group, thus promoting equity and diversity in access to economic opportunities.

Additionally, the analysis of the variables of personal attitude and perceived control as predictors of entrepreneurial intention among HDC beneficiaries underscores the relevance of working on strengthening the skills and confidence of potential entrepreneurs, as well as on the creation of favorable environments that facilitate the development of their entrepreneurial initiatives.

Finally, the findings support each hypothesis, demonstrating their relevance and validity in the context of the study. Hypothesis 1: personal attitude emerges as a determining factor, with a considerably high t-statistic (4.563) and a p-value of 0.000, indicating a robust and significant relationship with entrepreneurial intention. Hypothesis 2: perceived control also shows a significant influence on entrepreneurial intention with a t-statistic of 2.157 and a p-value of 0.015. In contrast, Hypothesis 3: social norms does not seem to have a significant impact, as indicated by the low t-statistic (0.401) and a p-value of 0.641. This result points to the fact that beliefs about social approval are not determinant in the decision to undertake in this specific context of sustainable ventures.

Declaration of competing interest

The authors declare that they have no known financial or non-financial competing interests in any material discussed in this paper.

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Author contribution

The contribution to the paper is as follows: X. Granizo: study conception and design; X. Granizo, C. Delgado: data collection; X. Granizo, C. Delgado: analysis and interpretation of results; X. Granizo: draft preparation. All authors approved the final version of the manuscript.

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