
FACTORS WHICH FAVOR THE EXPORTS OF COCOA GRAINS FROM ECUADOR

Daniela Marina Ureta Santana, Luna María Santos Roldán and Beatriz Palacios Florencio

SUMMARY

Ecuador is well-known for its important contribution to the world market of highest quality cocoa, fine or flavor cocoa. The aim of this work is to analyze how labor, capital, and governmental programs and policies condition the export appeal of organizations of smallholder farmers of cocoa grains from Ecuador which they export directly. To do so, a relational model based on structural equations including five hypotheses is proposed. The data used come from 388 questionnaires filled out by producers, employees and managers belonging to two of the largest organizations of exporting Ecuadorian producers of cocoa grains. The proposed model was analyzed via

the partial least squares (PLS) technique. The results indicate that capital and labor directly and positively influence the factors which favor the internationalization of cocoa exporting organizations. Likewise, the favorable factors have a positive and significant effect on the exporting appeal of the organizations of cocoa producers, and governmental actions have a significant moderator effect on this relationship. Contrary to all this, it was found that the actions of Ecuadorian public administrations do not have a significant role in the exporting appeal, not enabling a corroboration of what the literature has presented.

Introduction

Cocoa is one of Ecuador's most emblematic and traditional export products (UNCTAD, 2015). Cocoa farming in Ecuador goes back a long way, dating from the pre-Columbian era. This farming has been strongly linked to the country's economy since more than a century ago, cocoa grains having always been a significant export reference (Purcell *et al.*, 2018). In spite of the crisis which the industry underwent during the first decades of the 19th century due to the appearance of two unknown diseases which decimated cocoa farming, and the entrance of other large producers in the market such as the Ivory Coast, Ghana and Cameroon, Ecuador still has an important position as a cocoa grain

exporting country (Melo and Hollander, 2013).

Around 86% of the national production of cocoa is exported, the United States and the European Union being the traditional destinations of Ecuador's cocoa exports (TradeMap, 2020). Smallholder and medium-sized farmers play an important role in Ecuador within the exportable offer of cocoa. Of the national production, 90% comes from such farmers who, in general, do not cultivate more than 5ha of cocoa (Lehmann and Springer-Heinze, 2014). Barrera *et al.* (2019) reported that somewhat over 73% of the cocoa producers sold their product to retailers, this being the main traditional business channel. Although the number of intermediaries involved between the producer and the exporter tends to vary, it is a channel generally

recognized as being of high intermediation.

There is relevant literature that suggests that human resources and capital are factors which favor exports, as well as is the facilitating role of the governmental programs and policies tending to foster exports (Alshiqui and Bekteshi, 2020; Amadu and Danquah, 2019). In spite of the diversity of the literature in this field, it is limited in the cocoa sector and, more specifically, concerning associations of cocoa producers of an important global exporter such as Ecuador. In this sense, the aim of this work is to analyze how favorable factors, such as work, capital, appeal to buyers and programs and policies condition the exporting of the production of Ecuador's smallholder cocoa farmers who operate in non-conventional markets.

Literature Review and Hypotheses

At the firm level (micro), the literature links human resources and capital, represented in innovation and investment in physical capital, as factors which favor exports by firms (Amadu and Danquah, 2019). Given that the skills and individual knowledge of the workers affect the performance of firms (Liu *et al.*, 2017), it is to be expected that human resources have an effect on the propensity and intensity of exports, and this is corroborated in the literature (Amadu and Danquah, 2019; López-Rodríguez and Serrano-Orellana, 2020). Within human capital, the literature differentiates between general human capital and specific human capital (López-Rodríguez and Serrano-Orellana, 2020). While

KEYWORDS / Cocoa Producers / Fine Cocoa / Internationalization of Firms /

Received: 02/16/2021. Modified: 07/07/2021. Accepted: 07/08/2021.

Daniela Marina Ureta Santana. Master en Administración de Empresas, Universidad Técnica de Manabí, Ecuador. Professor, Universidad Técnica de Manabí, Ecuador. e-mail: damaursa@yahoo.com.

Luna María Santos Roldán (Corresponding author). Doctor in Economic Sciences and Business, Universidad de Córdoba, Spain. Professor, Universidad de Córdoba, Spain. Address: Department of Statistics,

Econometry and Applied Economy, School of Law and Economic Sciences and Business, Universidad de Córdoba, Spain. e-mail: Tdlsarol@uco.es.
Beatriz Palacios Florencio. Doctor Business Economics, Universidad

de Sevilla, Spain. Professor, Universidad Pablo de Olavide, Sevilla, España. e-mail: bpalacios@upo.es.

FACTORES QUE FAVORECEN LA EXPORTACIÓN DE GRANOS DE CACAO DEL ECUADOR

Daniela Marina Ureta Santana, Luna María Santos Roldán y Beatriz Palacios Florencio

RESUMEN

Ecuador es conocido por su importante contribución al mercado mundial del cacao de la más alta calidad, el cacao fino o de aroma. El objetivo del trabajo fue analizar cómo el trabajo, capital y los programas y políticas gubernamentales condicionan el atractivo exportador de organizaciones de pequeños agricultores de granos de cacao del Ecuador que exportan directamente. Para ello, se propuso un modelo de relación basado en ecuaciones estructurales que incluyó cinco hipótesis. Los datos empleados provienen de la aplicación de 388 cuestionarios a productores, empleados y directivos pertenecientes a dos de las más grandes organizaciones ecuatorianas de productores exportadoras de granos de cacao. El modelo propuesto se analizó

mediante la técnica de partial least squares (PLS). Los resultados indican que el capital y el trabajo influyen directamente y de manera positiva sobre los factores que favorecen la internacionalización de las organizaciones exportadoras de cacao. Asimismo, los factores favorables poseen un efecto positivo y significativo sobre el atractivo exportador de las organizaciones de productores de cacao y las actuaciones gubernamentales ejercen un efecto moderador significativo sobre esta relación. Contrario a todo lo anterior, se encontró que las actuaciones de las administraciones públicas ecuatorianas no ejercen un papel significativo ni positivo sobre el atractivo exportador, no permitiendo corroborar lo expuesto en la literatura.

FATORES QUE FAVORECEM A EXPORTAÇÃO DE GRÃOS DE CACAU DO EQUADOR

Daniela Marina Ureta Santana, Luna Maria Santos Roldán e Beatriz Palacios Florencio

RESUMO

O Equador é conhecido por sua importante contribuição ao mercado mundial de cacau da mais alta qualidade, cacau fino ou de aroma. O objetivo do trabalho foi analisar como o trabalho, o capital e também os programas e políticas governamentais, condicionam a atratividade à exportação para organizações de pequenos agricultores de grãos de cacau do Equador que exportam diretamente. Para isso, foi proposto um modelo de relação baseado em equações estruturais que incluiu cinco hipóteses. Os dados utilizados provêm de 388 questionários aplicados a produtores, empregados e diretores pertencentes a duas das maiores organizações equatorianas de produtores exportadores de grãos de cacau. O modelo proposto foi analisado

aplicando a técnica de Mínimos Quadrados Parciais (PLS). Os resultados indicam que o capital e o trabalho influenciam diretamente e de maneira positiva sobre os fatores que favorecem a internacionalização das organizações exportadoras de cacau. De igual maneira, os fatores favoráveis têm um efeito positivo e significativo na atratividade à exportação para as organizações de produtores de cacau, e as ações governamentais exercem um efeito moderador significativo sobre essa relação. Contrariamente ao anterior, foi constatado que as ações das administrações públicas equatorianas não desempenham um papel significativo ou positivo sobre a atratividade do exportador, o que não permitiu comprovar o exposto na literatura.

general human capital is related with formal education, specific human capital is obtained through practical learning and is linked to a specific work context (Stucki, 2016). In the context of cocoa production, generic human resources can be associated with those who administer and manage the agribusinesses, while specific human resources refer more to the particular work of farming; that is to say, to the farmers themselves. The lack of both generic and specific human resources can be an internal obstacle for exports.

As to generic human resources, in Ecuador's umbrella cocoa associations, which are those which tend to be immersed in the export activity, a

high academic qualification is a common norm of those who do generic work. Likewise, specific human resources are a strength in Ecuador's cocoa production as it is a long-dating culture in the country. Therefore, the first hypothesis is

H1: Work directly and positively influences favorable factors.

There exists empirical evidence at the micro level which highlights the interaction between innovative activity and exporting (Ganotakis and Love, 2011; Tavassoli, 2018). High competitive pressure forces investment in R&D with a view to improving both products and processes (Ganotakis and Love, 2011). While product innovation enables differentiating the

product from the competitors, process innovation can lead to an increase of productivity derived from introducing improvements in the production processes (Wu *et al.*, 2020). The literature suggests that product innovations are more linked to a greater probability of exports than process innovations, due to having a more direct impact on the differentiation of the product in the market. However, at the process level, the need for small firms to carry out processes of adopting technology which allows adapting their products to the market's standards is underscored (Ganotakis and Love, 2011).

As innovation requires investment a priori, at the level

of producers and associations of producers, these improvements in processes to adapt to the standards demanded and thus access international markets should be accompanied by investment in machinery and equipment (updated technology) (Carboni and Medda, 2020). Therefore, investment in R&D and in machinery and equipment in search of an improvement of the production processes or a greater production capacity favors exports (Carboni and Medda, 2020). Our second working hypothesis is

H2: The available capital represented in processes innovation and investment in machinery and equipment favors Ecuador's cocoa exports.

The role which governmental policies and programs and the programs of non-governmental bodies aimed at boosting exports play in the performance of exports is indisputable (Alshiqi and Bekteshi, 2020). In line with the resource-based view (RBV), the role of governmental and non-governmental policies and programs aimed at fostering exports can be understood in two ways: i) effects on the advantages of the country/sector; and ii) an effect on the firm's favorable factor. All the public policy in Ecuador has been centered on 'reviving' the production of 'Nacional' cocoa (fine or flavor), due mainly to the social and economic impact that this sector has on thousands of families of small farmers who depend on this crop (Ríos *et al.*, 2017). The idea behind the governmental and non-governmental efforts is to penetrate the special fine or flavor cocoa market which links Ecuador's smallholder cocoa farmers (Lehmann and Springer-Heinze, 2014). Also, bodies such as PROECUADOR have played an important role in promoting cocoa from Ecuador and in bringing the producers and the international customers closer together through their well-known business roundtables (PROECUADOR, 2019). Therefore, the third hypothesis is

H3: Programs and policies directly and positively influence buyer appeal.

Firms which invest in R&D can implement improvements in their products, enhancing the quality or offering more competitive prices that ultimately make them more attractive compared to foreign exporters/importers. There is not a high product innovation in Ecuador's cocoa sector. Although there is increasingly more entrepreneurship centered on the development of more differentiated products in the country, for example, super-premium chocolate bars, cocoa grains continue representing the largest percentage of the sector's exports, 85.5%

(TradeMap, 2020). On the other hand, human resources (general human resources) also play an important role in attracting buyers. The evidence suggests that generic human capital has a greater effect as a promoter of exports than specific human capital (López-Rodríguez and Serrano-Orellana, 2020; Stucki, 2016). Due to export activities involving certain skills such as the use of foreign languages and a greater comprehension of the export process, appropriate generic human capital helps to improve the cultural closeness which in the end appeals to foreign exporters/customers.

There exist large and diverse umbrella producer organizations in Ecuador which directly export cocoa grains from the country (Meza Clark *et al.*, 2018). While some are centered on large amounts of dry cocoa coming from first-level producer associations, others get fresh cocoa covered in mucilage to later be processed under the same production standards. The availability of appropriate infrastructure and equipment, as well as enabling to obtain products with quality standards (greater quality) and more competitive prices derived from a greater productivity, allows attracting buyers via volume offer. The investments in physical capital help the firms to amplify their production capacity (Esaku, 2020) and the availability of greater volumes of product is more attractive for the foreign exporters/customers as it improves their supplier conditions (Chopra and Meindl, 2013). In this sense, the fourth hypothesis is

H4: Favorable factors directly and positively influence buyer appeal.

Governmental actions also seek to improve firms' export capacities (favorable factors) (Ahmed and Brennan, 2019). There are many ways in which governmental and non-governmental programs can positively impact their improvement (Leonidou *et al.*, 2007). In the case of Ecuador, in the last decades there has been an

endless number of support programs coming from governmental and non-governmental bodies to strengthen the marketing capacities of smallholder farmers and cocoa producer associations (Lehmann and Springer-Heinze, 2014; Ríos *et al.*, 2017). As well as programs strengthening the marketing capabilities, the financing of exports is another way of improving the favorable factors (Leonidou *et al.*, 2007; Sugiharti *et al.*, 2020).

Due to the atomized production of cocoa and the farmers' small production capacity, the farmer organizations and cooperatives play an important role, providing the farmers with, among other things, financing and technical aid (Higuchi *et al.*, 2020). In the case of Ecuador, umbrella associations offer short-term micro-credits to farmers through a purchasing of the harvest in advance (Purcell *et al.*, 2018). Barrera *et al.* (2019) identified that one of the main reasons why farmers belong to an association focuses on sales; around 23% of the cocoa farmers sell their product to associations. More liquidity translates into a greater capacity of response to the market volume demands (Chopra and Meindl, 2013) and a greater liquidity has been identified as an aspect that facilitates exports (Kadochnikov and Fedyunina, 2017). As financing can be internal or external and, in line with the RBV, in our case the financing of umbrella associations is seen as external

from the point of view of first-level associations, as are also all the technical training programs that are deployed with a view to strengthening specific human resources, i.e., the farmers (Barrera *et al.*, 2019). However, other bodies, such as the National Association of Cocoa Exporters of Ecuador (ANECACAO), the National Institute of Farming Research (INIAP), the Autonomous Governments and many others of governmental and non-governmental nature, have provided farmers with information, training, knowledge, equipment and production and organizational technical aid (Lehmann and Springer-Heinze, 2014; Ríos *et al.*, 2017) which can be translated as the improvement of favorable conditions. Therefore, the fifth and last hypothesis is

H5: Governmental and non-governmental policies and programs aimed at strengthening the export performance of the cocoa sector moderate the relationship between favorable factors and attracting buyers.

Figure 1 shows the conceptual or relational model proposed.

Methods

Participants

For data collection, questionnaires were distributed among first-level associations of producers and employees (managers and workers) of two large umbrella organizations of

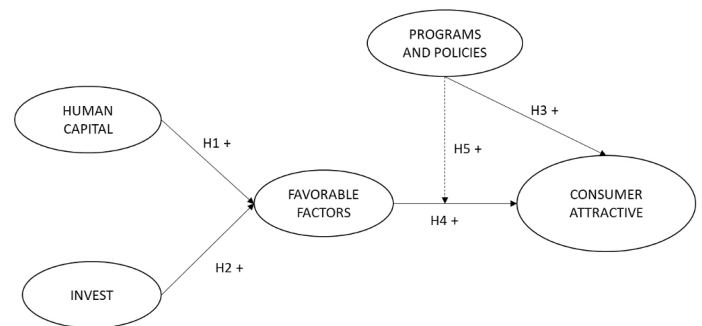


Figure 1. Conceptual model proposed.

producers: *Fundación Maquita Cushunchic* and *Fundación Fortaleza del Valle*. These two large umbrella associations, which group together first level associations, export cocoa beans directly from Ecuador. The measurement instrument was completed by a total of 400 subjects, but in the final analysis only 388 completely valid interviews were used.

Measurements

The measurement instrument designed to compile the information has three differentiated parts. The first part, control variables, gathers general information about the characteristics of the body in which the interviewed people exercise their professional activity. The second is made up of evaluation criteria, that is to say, the central variables of this research and which gather the activities of the firm concerning the production and commercialization of cocoa; these are, therefore, the variables included in the proposed relational model. The third part of the measurement instrument (respondent characteristics) includes three questions to evaluate the respondent's personal characteristics.

Table I shows the data relative to the indicators included in the first part of the interview, those which characterize the firms of the sector. The individual data of the respondents are shown in Table II.

The evaluation criteria of the second part of the questionnaire were measured through a five-point Likert scale, where 1: 'totally disagree' and 5: 'totally agree'. The items were grouped into blocks of questions according to each of the five constructs (work, capital, favorable factors, programs and policies, and buyer appeal) of the relational model proposed. The items included in each of the constructs complied with the previous literature and reviewed papers where they have been used. For example, the items included in the work, capital and policies and programs constructs were partly

TABLE I
ORGANIZATIONAL CHARACTERISTICS

	Absolute frequency	Percentage
<u>Time as a cocoa producer</u>		
<1 year	5	1.3
1 - 3 years	18	4.6
3 - 5 years	73	18.8
5 - 7 years	60	15.5
>7 years	232	59.8
<u>Produces its own cocoa</u>		
Yes	300	77.3
No	88	22.7
<u>Type of cocoa it produces</u>		
ASN	1	0.3
ASE	288	74.2
CCN.51	97	25.0
Lost	2	0.5
<u>Production with a quality standard or not</u>		
Standard INEN 175	72	18.6
Standard INEN 176	4	1.0
Standard INEN 177	3	0.8
Standards ISO 9000	2	0.5
Standards ISO 14000	16	4.1
All of these	10	2.6
Other standards and quality certifications	68	17.5
None	213	54.9
<u>Belongs to a guild or association</u>		
Yes	322	83.0
No	66	17.0
<u>Mode of transport of the production</u>		
Own fleet	269	69.3
Subcontracted	95	24.5
Undertaken by the customer	24	6.2
<u>% production growth in the last 3 years</u>		
0 - 5%	67	17.3
6 -10%	176	45.4
11 - 15%	55	14.2
Over 15%	32	8.2
Has not grown	58	14.9
<u>% sales growth in the last 3 years</u>		
0 - 5%	68	17.5
6 -10%	165	42.5
11 - 15%	57	14.7
Over 15%	39	10.1
Has not grown	59	15.2

obtained from the works of Leonidou *et al.* (2007), Rave-Gómez (2014) and van der Kooij (2013). For their part, the items of the favorable factors construct were built from the works of Botto (2013), Lehmann and Springer-Heinze (2014) and Palacios-Duarte (2013). On the other hand, the items of the buyer appeal construct were obtained from the

works of Lado *et al.* (2014) and of Santos-Roldán (2013).

Data analysis

The descriptive data have been obtained via the use of the IBM SPSS statistical package. The structural equations model proposed has been analyzed with the Partial Least Squares (PLS) variance-based

technique. The measurement model proposed is made up of composite reflective factors (Mode A), which makes the use of traditional PLS viable. We have used the Smart-PLS 3.2.9 software.

Given that the different latent variables have been obtained from individual indicators of a single self-reported questionnaire, it is relevant to determine if there is common variance or not. According to Krosnick and Presser (2018) and Podsakoff *et al.* (2003), all the procedural steps referring to the design of the questionnaire have been carried out. Thus, the different measurements were separated and the anonymity of the respondents was guaranteed. Harman's (1967) test was used to detect the presence of common influence in the answers. The 29 items of the measurement instrument have been grouped into a total of seven factors, and the largest of them explains 30.7% of the variance. Such results, in accordance with Podsakoff and Organ (1986), clearly indicate the absence of a common influence factor among the 29 indicators considered.

The perspective of the model was used when analyzing the relationships between the model's distinct constructs and their indicators. On the other hand, the analysis of the moderator effect was done following the two-step method (Hair *et al.*, 2014).

As the specialists recommend (Hair *et al.*, 2014; Henseler, 2018; Roldán and Cepeda, 2018), the use of the PLS technique requires the validation both of the measurement model and of the structural model. In the case of the measurement model, the procedure consists of evaluating the following aspects: the reliability of the individual indicators of each construct or latent variable, the reliability of each construct, and lastly, the convergent and discriminant validity of the latent variables. For the valuation of the structural model the following aspects must be borne in mind:

TABLE II
INDIVIDUAL RESPONDENT CHARACTERISTICS

	Absolute frequency	Percentage
Sex		
Male	313	80.7
Female	75	19.3
Post		
Director	73	18.8
Middle-level manager	207	53.4
Operational staff	6	1.5
Service assistant	40	10.3
Others	29	7.5
Years of studies		
<10 years	106	27.3
10 - 13 years	193	49.7
>13 years	140	36.1
	55	14.2

TABLE III
INDIVIDUAL, CONSRTRUCT AND COMPOSITE RELIABILITIES, AND AVERAGE VARIANCE EXTRACTED (AVE) FOR THE FIRST-ORDER FACTORS

Construct and indicator	Indiv	Const	Comp	AVE
Invest (INV)		0.835	0.889	0.668
Agronomic and agricultural technical studies are carried out for the production of cocoa	0.856			
Technology is permanently used in the production of cocoa	0.851			
I have infrastructure and equipment to produce on time and with export quality	0.824			
I invest capital and/or profit as a producer in innovation for the growing and harvesting of cocoa	0.736			
Human capital (HCAP)		0.809	0.875	0.636
The work conditions of cocoa producers are currently the most fitting	0.753			
The work conditions that export firms require from cocoa producers are the most fitting	0.823			
There exists financial support for the strengthening of the human resources which work in cocoa production	0.789			
I have appropriate work flows to produce cocoa on time and with export quality	0.822			
Favorable factors (FAV)		0.881	0.919	0.740
Labor, financial and tax law of the country	0.770			
Skilled labor	0.863			
Innovation and technology	0.916			
Infrastructure and equipment	0.884			
Programs and policies (PAP)		0.857	0.911	0.773
Governmental policies and programs through the Ministry for Agriculture, Stockbreeding, Aquaculture and Fisheries (MAGAP) offers technical advice and technology transfer to cocoa producers	0.878			
There exist policies and programs of the private financial sector and other non-governmental organizations to cocoa producers	0.865			
There exist policies and programs of the private business sector and other non-governmental organizations to offer technical advice and technology transfer to cocoa producers	0.895			
Attractive (ATT)		0.883	0.911	0.632
Personal relations	0.755			
Quality	0.754			
Delivery time	0.847			
Price	0.803			
Proximity	0.782			
Payment conditions	0.825			

checking the absence of multicollinearity among the model's constructs, an analysis of the path coefficients, the level of the determination coefficient (R^2), and the test of predictive relevance of the model (Q^2).

Following this order, the results are shown firstly for the measurement model and after for the structural model.

Results

Measurement model

Table III shows the data necessary to determine the individual reliability of the

indicators, the reliability of the model's five constructs and the convergent validity of these constructs. In the case of the individual reliability of the indicators, as they are latent variables (constructs) measured in Mode A it is necessary to check the factor loadings of each individual item in its corresponding construct. The criterion established in the literature (Carmines and Zeller, 1979) is a minimum value of 0.707. Twenty-one the 24 items of the original questionnaire which supposedly correspond to the five latent variables incorporated into the model have been maintained. One item in each of the following constructs has been eliminated: 'invest', 'favorable factors' and 'programs and policies'.

To measure the reliability of the constructs both the Cronbach α and the composite reliability indices (ρ_c) have been calculated. All the constructs of the model show values of the two indices above the minimum proposed in the literature (>0.7) in both cases (Nunnally, 1978). The evaluation of the convergent validity is done noting the values obtained in the AVE indicator for each construct. These data are offered in Table III, and it is seen that all the cases surpass the minimum level of 0.5 (Fornell and Larcker, 1981).

The discriminant validity of the five latent variables has been established based on the Heterotrait-Monotrait (HTMT) ratio. The HTMT ratio data are clearly below the cut-off value of 0.85. It is therefore stated that the model's constructs have divergent validity.

Due to all this, we have a valid measurement model and, thereby, the evaluation of the structural model can be carried out.

Structural model

In the case of the structural model, we have analyzed the sign, size and significance of the path coefficients, the R^2 values and the Q^2 test (Figure 2). In accordance with Hair *et*

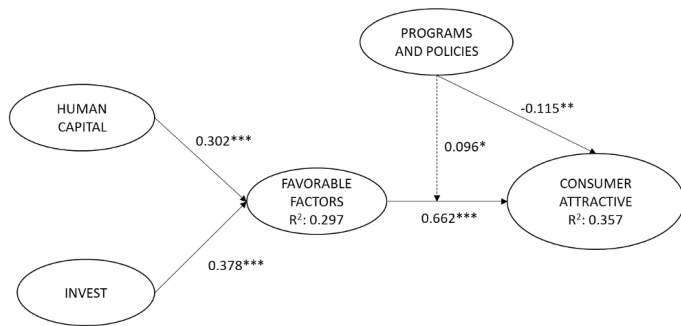


Figura 2. Analysis of the structural model.

al. (2017), we have used the bootstrapping technique with 5000 resamples to determine the t statistics and the confidence intervals and hence the significance of the relationships. Table IV gathers the information necessary to evaluate the structural model and, consequently, the relationships and hypotheses proposed.

Although all the direct effects (path coefficients) are significant, the hypotheses are not supported in all the cases; four hypotheses have been supported. Thus, in accordance with H1, human capital has a significant and positive effect on the favorable factors of the international commercialization of cocoa. It is also noted, in agreement with H2, that the investments of capital of firms also directly and significantly affect the presence of factors favorable to internationalization. In the case of H3 (direct relationship of the programs and policies of the

administration with the product's degree of appeal for consumers), the relationship is significant, but its sign is contrary to that expected, so it is not confirmed. The results indicate that the actions undertaken by public bodies do not help the marketing companies and mean a detriment in their capacity to attract customers. The fourth hypothesis (H4), referring to the relationship between the favorable factors for the production of cocoa and the capacity to appeal to consumers, is supported by the data of the model as its effect is positive and significant.

The last hypothesis (H5) aims to evaluate to what extent the actions of public authorities (programs and policies) moderate the relationship between the favorable factors and the appeal capacity. The sign corresponds with what was expected and at the same time attains a certain level of statistical significance. The effect of

the variable 'programs and policies' on the relationship between 'favorable factors' and 'appeal' means an increase of the path coefficient, which goes from 0.662 to 0.758.

In the case of the R² values, it is to be pointed out that, in accordance with Chin (2010), the level is weak for the variable 'favorable factors' and moderate for 'appeal'. The model's predictive validity is relevant as all the Q² values are >0.

Discussion

The main aim of this research is to fill the gap in the study of the production, commercialization and internationalization of cocoa among Ecuador's producers and distributors. To do so, a relational model has been proposed and analyzed among five variables with four direct hypotheses and a fifth moderator relationship. Although the final objective has been attained, it is necessary to discuss our specific results in the context of those identified in the literature reviewed.

According to the first relationship (H1), in which it is established that the human capital activities of firms directly influence those favorable factors of the internationalization of the Ecuadorian organizations analyzed have a positive and significant relationship. This coincides with the majority of the research reviewed and refers to

very diverse geographic and economic realities (Stucki, 2016; Kadochnikov and Fedyunina, 2017; Amadu and Danquah, 2019; López-Rodríguez and Serrano-Orellana, 2020).

In the case of the relationship between the organizations' capital investments and their effects on their exporting propensity and intensity, the results of our work again corroborate the findings presented in most previous studies, among which we point out: Ganotakis and Love (2011); Lopez-Rodriguez *et al.* (2020); Wu *et al.* (2020). Nonetheless, the results differ from those set forth by Tavassoli (2018), for whom the relationship is positive, as in our work, but not significant.

Unlike what was expected, the actions of the Ecuadorian public administrations (H3) do not have a positive effect on the appeal to consumers of Nacional cocoa. That is to say, this hypothesis is not supported and, furthermore, it is contrary to the findings of the literature consulted, which predominantly indicate a positive relationship, significant in many of the cases and lacking statistical significance in a few (Ahmed and Brennan, 2019).

In the case of the organizational factors which can favor the capacity to attract the interest of consumers toward the firms' commercial offers, the literature does not offer trends as clear as in the preceding relationships. Thus, there are authors (Ganotakis and Love,

TABLE IV
DIRECT EFFECTS ON ENDOGENOUS VARIABLES

Effects on endogenous variables	Direct effects	t Value (bootstrap)	Percentile 95% confidence interval		Explained variance	Supported
Favorable factors (R ² = 0.297 / Q ² = 0.217)						
H1: Human capital	0.302***	5.836	[0.215; 0.385]	Sig	12.44%	Yes
H2: Invest	0.378***	8.115	[0.302; 0.456]	Sig	17.61%	Yes
Appeal (R ² = 0.357 / Q ² = 0.223)						
H3: Programs and policies	-0.115**	2.414	[-0.185; -0.027]	Sig	-1.71%	No
H4: Favorable factors	0.662***	14.603	[0.584; 0.733]	Sig	38.93%	Yes
H5: Programs and policies x Favorable factors (interaction term)	0.096*	2.074	[0.015; 0.166]	Sig		Yes

***p<0.001, **p<0.01, *p<0.05, ns: not significant. t(0.05; 4999)= 1.645, t(0.01; 4999)= 2.327, t(0.001; 4999)= 3.092. One-tailed test.

2011; Carboni and Medda, 2020; López-Rodríguez and Serrano-Orellana, 2020) who identify positive relationships which can be significant or not. Another group of researchers identify a positive and significant relationship, among whom are Esaku (2020) and Chiappini and Jégourel (2021). Other studies (Ganotakis and Love, 2011; Tu and Thanh, 2020), for their part show contradictory results; that is to say, both positive and negative relationships and even ones that are uncertain, irrespective of their statistical significance. The results of our work, however, highlight the relevance that these factors (legislation, technology, infrastructure, etc.) have in fostering the appeal of Ecuadorian cocoa exporting firms.

Finally, the findings related with the fifth hypothesis underscore the positive effect that the actions of public administrations, through their support policies and programs of the sector, can have on the influence of the favorable factors of internationalization on increasing the appeal of cocoa production. The lack of previous works in the matter do not allow to discuss the results obtained in relation to other research, but there is a parallelism with the findings of Amadu and Danquah (2019) about the effect that the interactions of human capital and spending in R+D with innovative investments have on the export propensity.

Conclusions

Our work has enabled demonstrating that cocoa exporting firms can attain a greater capacity of consumer appeal if they decide to invest both in their human capital (H1) and technological and innovation aspects (H2), given that these investments positively influence a set of organizational variables (equipment, technology, skilled labor, etc.) which act as intermediators of this relation. On the other hand, it is necessary to highlight the contradiction of the

effects of the actions of the governmental sector, as these actions directly harm the firm's appeal, although, on the other hand, they improve the effects of the favorable factors.

This work is not free from limitations. The first of them has to do with the size of the sample (388 valid surveys) and with the geographic area (a specific region of Ecuador), which prevents the findings from being generalized. The second limitation refers to the lack of control variables that allow establishing if there exist differences of behavior between distinct groups (production with a quality standard or not; type of cocoa, etc.).

To palliate the limitations presented in the previous paragraph two research approaches are proposed for the future. The first would be to increase the study population, including data from other production regions of Ecuador, and even of other countries of Latin America. The second has to do with including diverse control variables both for the current sample and for future ones, thus comparing the results between firms that work with quality standards and those that do not.

REFERENCES

Ahmed FU, Brennan L (2019) An institution-based view of firms' early internationalization: Effectiveness of national export promotion policies. *Internat. Market. Rev.* 36: 911-954.

Alshiqi S, Bekteshi X (2020) Conceptual paper on external determinants and relationship with export performance of SMES. *Internat. J. Entrepreneursh.* 24(1).

Amadu AW, Danquah M (2019) R&D, human capital and export behavior of manufacturing and service firms in Ghana. *J. Afr. Bus.* 20: 283-304.

Barrera V, Alwang J, Casanova T, Domínguez J, Escudero L, Loo G, Peña G, Párraga J, Arévalo J, Quiroz J, Tarqui O, Plaza L, Sotomayor I, Zambrano F, Rodríguez G, García C, Racines M (2019) La cadena de valor del cacao y el bienestar de los productores en la provincia de Manabí-Ecuador. Instituto Nacional de Investigaciones

Agropecuarias. Arcoiris. Quito, Ecuador. 204 pp.

Botto M (2013) Los alcances de la política de integración productiva regional. El caso del Mercosur en perspectiva comparada. *Perspect. Internac.* 9: 10-46.

Carboni OA, Medda G (2020) Linkages between R&D, innovation, investment and export performance: Evidence from European manufacturing firms. *Technol. Anal. Strat. Manag.* 32: 1379-1392.

Carmines EG, Zeller RA (1979) *Reliability and Validity Assessment*. Vol. 17. Sage. New York, NY, USA. 71 pp.

Chiappini R, Jégourel Y (2021) The buck stops with the executives: Assessing the impact of workforce composition and cultural distance on French firms' exports. *Econ. Modell.* 94: 45-57.

Chin WW (2010) How to write up and report PLS analyses. In Vinzi VE, Chin WW, Henseler J, Wang, H (Eds.) *Handbook of Partial Least Squares: Concepts, Methods and Applications*. Springer. Berlin, Germany. pp. 655-690.

Chopra S, Meindl P (2013) *Administración de la Cadena de Suministro*. 5th ed. Pearson. México. 528 pp.

Esaku S (2020) Investments, export entry and export intensity in small manufacturing firms. *J. Indust. Bus. Econ.* 47: 677-697.

Fornell C, Larcker DF (1981) Evaluating structural equation models with unobservable variables and measurement error. *J. Market. Res.* 18: 39-50.

Ganotakis P, Love JH (2011) R&D, product innovation, and exporting: Evidence from UK new technology based firms. *Oxford Econ. Papers* 63: 279-306. <https://doi.org/10.1093/oeq/gpq027>

Hair JrJF, Hult GTM, Ringle C, Sarstedt M (2014) *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. Sage. New York, NY, USA. 307 pp.

Hair JrJF, Hult GTM, Ringle C, Sarstedt M (2017) *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. 2nd ed. Sage Publications. New York, NY, USA. 384 pp.

Harman HH (1967) *Modern Factor Analysis*. 2nd ed. University of Chicago Press. Chicago, IL, USA. 474 pp.

Henseler J (2018) Partial least squares path modeling: Quo vadis? *Qual. Quant.* 52: 1-8.

Higuchi A, Coq-Huelva D, Arias-Gutiérrez R, Alfalla-Luque R (2020) Farmer satisfaction and cocoa cooperative performance: Evidence from Tocache, Peru. *Internat. Food Agribus. Manag. Rev.* 23: 217-234.

Kadochnikov SM, Fedyunina AA (2017) The impact of financial and human resources on the export performance of Russian firms. *Econ. Syst.* 41: 41-51.

Krosnick JA, Presser S (2018) Questionnaire Design. In *The Palgrave Handbook of Survey Research*. Palgrave. Cham, IL, USA. pp. 439-455.

Lado N, Martínez-Ros E, Valenzuela A (2004) Identifying successful marketing strategies by export regional destination. *Internat. Market. Rev.* 21: 573-597.

Lehmann S, Springer-Heinze A (2014) Value chain development for cocoa smallholders in Ecuador. In Hernández RA, Martínez-Piva JM, Mulder N (Eds.) *Global Value Chains and World Trade: Prospects and Challenges for Latin America*. Economic Commission for Latin America and the Caribbean. Santiago, Chile. pp. 185-205. <https://repositorio.cepal.org/handle/11362/37181>

Leonidou LC, Katsikeas CS, Paliawadana D, Spyropoulou S (2007) An analytical review of the factors stimulating smaller firms to export: Implications for policy-makers. *Internat. Market. Rev.* 24: 735-770.

Liu G, Pang L, Kong D (2017) Effects of human capital on the relationship between export and firm innovation. *Chin. Manag. Stud.* 11: 322-345.

López-Rodríguez J, Serrano-Orellana B (2020) Human capital and export performance in the Spanish manufacturing firms. *Balt. J. Manag.* 15: 99-119.

Melo CJ, Hollander GM (2013) Unsustainable development: Alternative food networks and the Ecuadorian Federation of Cocoa Producers, 1995-2010. *J. Rural Stud.* 32: 251-263.

Meza Clark JE, Meza Clark TDJ, Durán Salazar GM (2018) Competitiveness in the rural associative companies producing cocoa of the Vinces canton, Province of the Rios - Ecuador. *Espacios* 39(11).

Nunnally JC (1978) *Psychometric Theory*. 2nd ed. McGraw-Hill. New York, NY, USA. 701 pp.

Palacios-Duarte PD (2013) *Desempeño Exportador e Innovador de la Pyme Mexicana como Estrategias de Internacionalización*. Thesis.

- Universidad Autónoma de Madrid. Spain. 403 pp.
- Podsakoff PM, Organ DW (1986) Self-reports in organizational research: Problems and prospects. *J. Manag.* 12: 69-82.
- Podsakoff PM, MacKenzie SB, Lee JY, Podsakoff NP (2003) Common method biases in behavioral research: a critical review of the literature and recommended remedies. *J. Appl. Psychol.* 88: 879-903.
- PROECUADOR (2019) *Aromas del Ecuador*. <http://www.proecuadorb2b.com.ec/ferias/aromas2019/>
- Purcell T, Martínez-Esguerra E, Fernández N (2018) The value of rents: Global commodity chains and small cocoa producers in Ecuador. *Antipode* 50: 641-661.
- Rave-Gómez ED (2014) *Factores Clave en la Internacionalización de las Pymes*. Thesis. Universidad CEU San Pablo. Madrid, Spain. 309 pp.
- Ríos F, Ruiz A, Lecaro J, Rehpani C (2017) Country strategies for the specialty cocoa market: Successful policies and private sector initiatives in Peru, Ecuador, Colombia and the Dominican Republic. Swisscontact Colombia. 136 pp.
- Roldán JL, Cepeda G (2018) *Curso sobre PLS-SEM*. 6th ed. Universidad de Sevilla. Spain.
- Santos-Roldán LM (2013) *Factores de Éxito en la Internacionalización de las Empresas del Mueble en Andalucía*. Thesis. Universidad de Córdoba. Spain. 457 pp.
- Stucki T (2016) How the founders' general and specific human capital drives export activities of start-ups. *Res. Policy* 45: 1014-1030.
- Sugiharti L, Purwono R, Esquivias MA (2020) Analysis of determinants of Indonesian agricultural exports. *Entrepreneursh. Sustainab. Iss.* 7: 2676-2695.
- Tavassoli S (2018) The role of product innovation on export behavior of firms: Is it innovation input or innovation output that matters? *Eur. J. Innov. Manag.* 21: 294-314.
- TradeMap (2020) *Lista de los Exportadores para el Producto Seleccionado (Cacao en Grano, Entero o Partido, Crudo o Tostado)*. <https://www.trademap.org/>
- Tu PA, Thanh TP (2020) Business barriers and degree of internationalization of manufacturing companies in Peru. *Accounting* 6: 931-936.
- UNCTAD (2015) *Política Nacional de Exportación de Productos Verdes del Ecuador*. Ministerio de Comercio Exterior del Ecuador - Organización de las Naciones Unidas. 66 pp.
- Van der Kooij S (2013) *Market Study of Fine Flavour Cocoa in 11 Selected Countries*. Revised version. Royal Tropical Institute. Amsterdam, Netherlands. 109 pp.
- Wu F, Wu H, Zhang X (2020) How does innovation activity affect firm export behavior? Evidence from China. *Emerg. Markets Finance Trade* 56: 1730-1751.