

Gender and Sustainability in Latin American Artisan Family Businesses

ABSTRACT

We have observed the need to study how sustainability terms relate to changes that globally affect not only the business environment but also their family environment. In this paper, we consider the relationship between gender and artisan family business sustainability through the lens of the sustainable family business theory (SFBT). We propose a new way to measure sustainability based on need satisfaction while considering, within the artisan context, business activities and family functioning. We found that for female artisans, business sustainability will be achieved as long as it covers their family's physiological needs, whereas for male artisans, sustainability will be achieved as long as their business includes their sense of belonging; it must allow them to have a respectable position in the community.

Key words: Gender, sustainability, Latin America, family businesses

INTRODUCTION

Considering the current advancements in the environmental management literature, one would expect that the research on sustainability achievement and the factors explaining it would be clearer; however, this is not the case. Moreover, the environmental problems that families are facing are becoming increasingly diverse. A present challenge is to obtain a better understanding of the role gender plays in meeting business and family sustainability demands.

Sánchez-Medina, Domínguez-Hernández, & Hernández-Girón (2010) have argued that male and female genders are both responsible for planetary climate shifts, either because of poor environmental management or lack of environmental laws. Rochelau, Thomas-Slayter & Wagnari (1996) suggest that gender differences are reflected in nature-related interests and responsibilities; a social interpretation of biology and social gender contributions that vary depending on the cultural context possibly cause these differences. The gender and environment literature identifies a variety of results. Some papers suggest women have greater environmental interest than men (Kassinis, Panayiotou, Dimou, & Katsifaraki, 2016; Nadeem, Zaman, & Saleem, 2017; Post, Rahman, & McQuillen, 2015). Others find that men show greater environmental interest than women (Amran, Periasamy, & Hadi, 20014; Glass, Cook, & Ingersoll, 2016; Mostafa, 2007).

Others suggest men and women play complementary roles (Meinzen-Dick, Kovarich, & Quisumbing, 2014). These results reveal inconsistency and little clarity in terms of the environmental interest of women and men.

Danes, Stafford, & Teik-Cheok (2007) argue that in sustainable family business theory (SFBT), the management practices of business owners have been scarcely studied, and less so when considering family businesses with different types and degrees of family involvement. Moreover, there has been little research on gender differences in the family/business system, especially in the Latin American artisan sector. In fact, to speak of gender equality in different indigenous cultures usually results in a contradiction between their ideology and their convictions. According to Forero & Andrés (2002) and Zamudio, Ayala, & Arana (2014), gender roles assigned by indigenous cultural patterns determine gender inequality. Female artisans face very similar problems to those female workers in other sectors of the subsistence market: low schooling, extreme poverty, and gender discrimination. All these factors create a barrier to changes, including those related to the environment. Under this context—family businesses in the artisan sector—female and male artisans perform their activities in serving their profoundly rooted family system, ideas, customs, and traditions. Authors such as Li, Zhao, Chen, Jiang, Liu, & Shi (2017) suggest that gender is an essential factor in achieving environmental changes. These authors emphasize the importance of having a balanced gender proportion in a company's board of directors—such diversity will produce a positive relationship with the company's environmental policy.

Furthermore, the literature on corporate sustainability is scarce, which could be attributed, in good measure, to the difficulty in dealing with the term, its measurement, and the formulation of a strategy to achieve it. The complexity of the term itself may contribute significantly to the barriers that exist to achieve it (Guimaraes & Barcena, 2003; Sánchez-Medina, 2012). Other factors include the lack of a measurement method (Atkinson, 2000; Lee & Saen, 2012) and the overvaluation of male capabilities, which has caused males to dominate decisions related to public policy and sustainability-oriented programs (Casimir & Dutilh, 2003; Meriläinen, Moisander, & Pesonen, 2000). The purpose of our study is to understand how gender differences affect sustainability goals in artisan family businesses.

The contribution of the present study develops around three central axes, as follows:

1. We approach the relationship between gender and sustainability and seek to contribute with elements that may clarify said relationship and to determine which gender contributes the most to sustainability.

2. We analyze gender differences within family/business systems in the Latin American artisan sector, which is comprised mostly of indigenous people. Our study deals with two interesting themes: 1) gender issues in a population with deeply rooted convictions and traditions; 2) the complexity of business decision-making is affected by resistance to change, marked equally by strong convictions, traditions, customs, and ideologies.

3. We propose both a definition and measurement for the term *sustainability*, in which the satisfaction or fulfillment of specific human needs in the family system determines the artisan's labor performance and the operation of the family business.

The rest of the study is structured in the following manner: section 2 shows the theory supporting our investigation; section 3 explains the model, data measurements, and treatment; section 4 details the obtained results; section 5 presents a discussion on the results; section 6 includes the concluding remarks, limitations, and implications of our research.

THEORETICAL FRAMEWORK

The Sustainable Family Business Theory (SFBT) highlights sustainability in a family business system and proposes that the short-term viability of the business is a function of business achievements and family functionality (Stafford, Duncan, Dane, & Winter, 1999; Danes, Lee, Amarapurkar, Stafford, Haynes, & Brewton, 2009). The theory explains family and business as social systems and assumes that sustainability depends on family achievement, business achievement, and transactions between the family and the business (Stafford *et al.*, 1999).

Figure 1 shows the structure of variables in SFBT schematically. There are similarities between the variables that make up both systems (family/business). However, they tend to differentiate themselves when it comes to their purpose for each system. For the family system the variables are: procreation, socialization, and family member development; whereas for the system business, profit maximization is the main variable. Each system has resources and restrictions they frame themselves into, which are rules and roles for family and governance and property for the business.

Resources and restrictions lead to certain processes that may take place in times of stability or change. Resources, restrictions, and processes impact particular achievements for each system, and together they achieve sustainability (Zachary, 2011). The interface between both systems is the overlapping of the family and business systems. Interruptions are changes that occur in this interface. Interruptions can be internal or external to the family and business system. Examples of external interruptions are: changes in public policy, economic shifts, regime change, and technological innovations. Examples of internal interruptions are: childbirth, death, marriage, divorce, and family conflict (Jang & Danes, 2013; Stafford *et al.*, 1999).

It is in the interface where the resources from both systems—family and business—are joined to solve interruptions or unexpected changes; it is where the family and business roles are negotiated, and decision-making patterns are generated. (Danes *et al.*, 2009; Jang & Danes, 2013). Danes *et al.*, (2008) and Hobfoll (1989) define resources as objects, personal traits, conditions or energies valued by their own right or because they allow for the protection or achievement of valued objectives.

In SFBT, gender can be explained as a resource because it is a personal trait of the family business owner. Thus, gender is visualized as a resource of family and business capital. According to Danes *et al.* (2007), it is an element that influences owner management, because gender has socialized perspectives that are the basis of responses to disruptions.

Within the family system, in a sector such as an artisan one, women are visualized as being responsible for the home. In this system, there is a clear division of roles and functions. Women are raised to perform their family mission in their fundamental roles as daughters, wives, and mothers. But they are also taught abilities related to reproduction, childcare, and tending to the elderly and to the well-being of family members. From a young age, artisan women are taught to serve men. Shelton (2006) argues that women managing their businesses are influenced greatly by family matters. In the artisan sector, this might be evident due to the family system traits in which women artisans develop. On the other hand, men are visualized as chiefs of the family system, and therefore are only responsible for providing income to their families. Men represent their families when doing outside deals and are expected to guide the family.

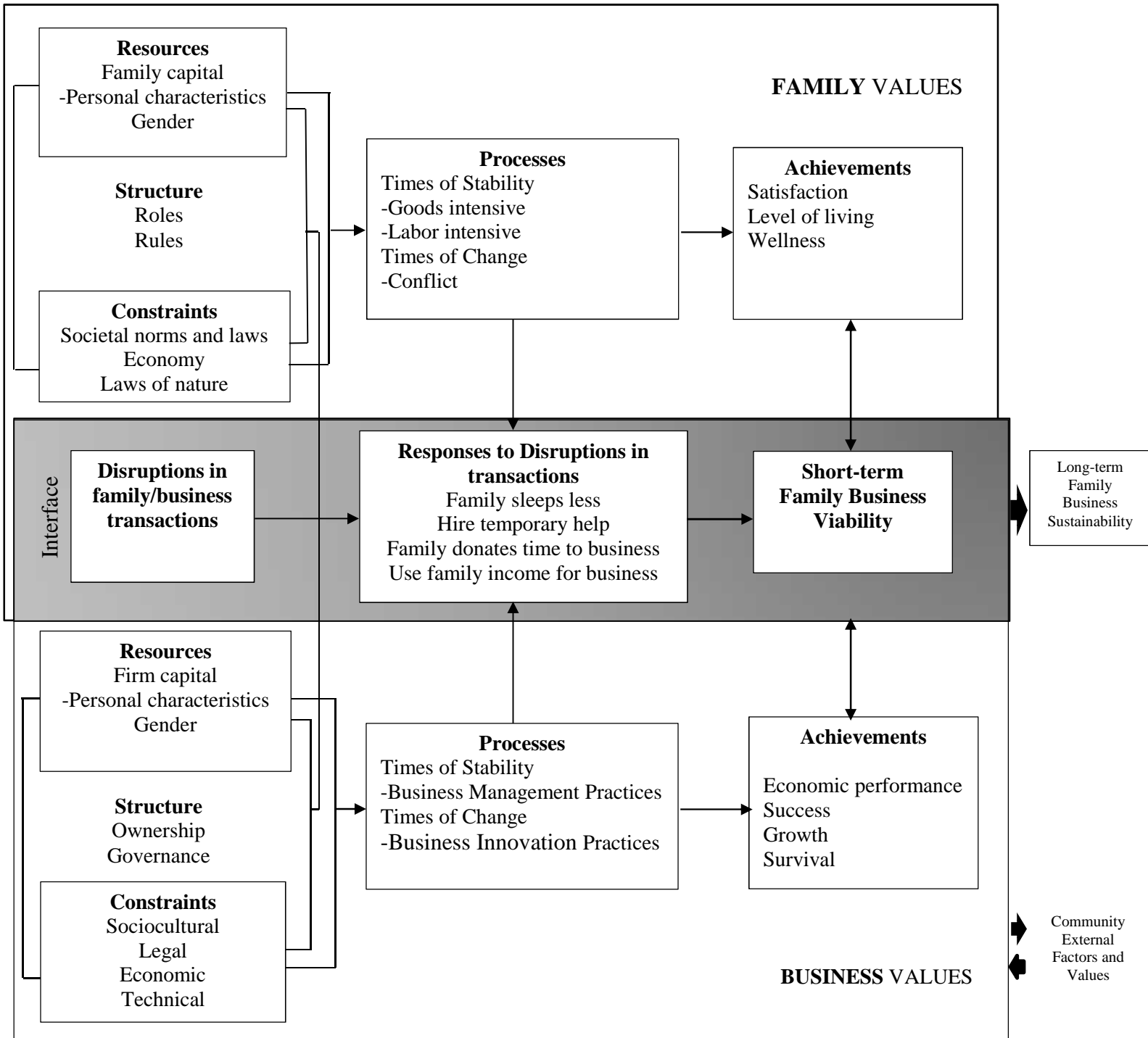
Our research follows Bird & Brush (2002), and Danes *et al.* (2009), who point out that men and women manage their businesses in different ways, and SFBT, which explains business

sustainability as a function of business achievements and family functionality. We assume the interaction between family systems and family functionality outlines the form in which each family business is managed, and consequently, its own sustainability. Therefore, sustainability will be addressed according to the way in which each artisan, male or female, manages his or her business. That is to say, sustainability is a function of how each business uses its own gender resources as a response to disruptions.

The SFBT proposes that family business activity develops according to the social context of the community, because the community provides resources, cultural values, beliefs, traditions, etc., that influence the family and business system (Danes *et al.*, 2008; Sánchez-Medina & Díaz-Pichardo, 2017). Sánchez-Medina & Díaz-Pichardo (2017) describe the relation between family and community as being bidirectional, i.e., the community can adopt certain values from the family, and the family can obtain values from the community context in which it has developed. These values can be framed within a culture that characterizes both community and family. Danes *et al.* (2008) suggest that families transmit their culture to businesses through the interactions between family members and family/business systems, and the interface between both systems.

The above is observed in the Latin American artisan sector. One of the least favored classes, primarily composed of indigenous peoples, belongs to this sector. This social composition implies that their perception, thought, and behavior is based on their values, beliefs, traditions, and customs inherent to their nationality (community) and shared ancestry. According to the Ibero-American Program of Science and Technology for Development (CYTED, 2012), the poverty conditions that characterize artisans are mainly due to their cultural resistance to change processes. Decision-making in the artisan family business is conditioned by their resistance to change, marked by convictions, customs, and ideologies.

Figure 1: Modified from the Danes *et al.* Model (2007) and the Sánchez-Medina & Díaz-Pichardo (2017) Sustainable Family Business Research Model.



GENDER AND SUSTAINABILITY

Numerous studies have explained the relationship between gender and sustainability. Slepian & Jones (2013) found gender differences in aspects related to corporate sustainability. These authors point out that women tend to seek sustainability in more significant measures than men because of their values and ethical orientation, which are highly related to female gender characteristics.

Glass *et al.* (2016) argue that gender diversity is associated with a higher compromise regarding environmental protection. In this sense, Post *et al.* (2015) found that the greater the representation of women on the company's board of directors, the greater the probability of forming alliances related to sustainability.

According to Kassinis *et al.* (2016), companies with gender diversity generate more corporate actions oriented towards environmental protection. They argue that companies with a higher number of women on their board of directors not only have better financial performance, but they take actions more oriented towards another pillar of sustainability, environmental performance. Ben-Amar, Chang, & McIlkenny (2017) found that an increased presence of women in management positions improves corporate awareness of environmental issues and proactive strategies are adopted that respond to the demands of greater public information about climate change effects. Nadeem *et al.* (2017) found that gender diversity has a relation to corporate sustainability practices. Their results suggest that women and men differ in values and practices, especially when it comes to sustainability practices. A higher percentage of women in management positions is associated with a higher capacity to take on commitments to achieve corporate sustainability. Mostafa (2007) suggests that men have more knowledge of environmental issues than women. Men know more about the environment, appreciate the system as a whole and exercise the necessary responsibilities to achieve sustainable development.

Amran, Periasamy, & Hadi (2014) found a negative relationship between the proportion of female members on a board of directors and the level of divulgation of environmental issues. On the other hand, Jeong & Harrison (2017) showed, through meta-analysis, that the inclusion of women has a positive, but weak, relation to long-term corporate performance. Inclusion implies greater attention to sustainability by women.

Finally, the research of Sánchez-Medina *et al.* (2010) covers only the environmental aspect of sustainability. However, this paper is relevant since it analyzes the relationship between gender

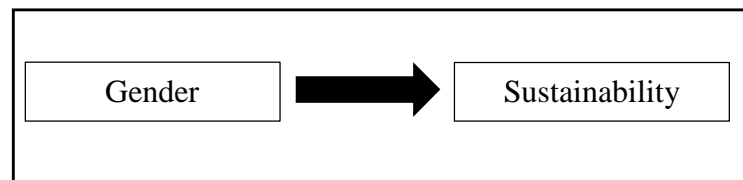
and environmental behavior in the artisan sector. The authors found that male artisans have better environmental behavior than female artisans, and that business environmental behavior is more significant than the environmental behavior of male or female owners. Furthermore, their research points out that environmental conservation among men and women is very different, and their differences are mostly derived from the fact that female artisans have few opportunities to go to school. Better schooling opportunities would improve their innovation capabilities and, consequently, their environmental behavior.

The above allows us to suppose that, even if the literature shows evidence that gender differences explain sustainability, these differences are contingent on several factors, such as the country in which the corporate activity is taking place and the ethnic origin of the artisans.

From the above, we postulate the following research hypothesis.

H1: There is a direct and significant relation between gender and sustainability in artisan family businesses.

Figure 2: Proposed Research Model for Artisan Family Businesses



METHOD

We conducted our research on the artisan industry, mainly pottery businesses. Furthermore, we centered our research on family firms. These firms can be classified, according to Miller, Breton-Miller & Lester (2011), as belonging to the family property type. In this case, the main owner is a member of the founding family and other family members—wife, children, siblings—work for the company. They are especially concerned with satisfying the family’s needs and are focused on subsistence. Considering the descriptions of Miller *et al.* (2011), and Novelo (1976), we have considered the following criteria for family selection:

- Manufacturing and production must take place in the family’s home property.

- The company must employ family labor exclusively.

We selected family-owned pottery companies that met the previously established requirements in the following communities: Ojojona, Francisco Morazán Department, Honduras; Ráquira, Boyacá Department, Colombia; and Santa María Atzompa, State of Oaxaca, Mexico.

We selected these communities because they are emerging economies. Studying these communities can provide the elements necessary to understand how family firms adopt sustainability practices using the restrictions imposed by the environment. These restrictions may impact the development of public policy, seeking to stimulate business growth and permanence. Moreover, artisan activity represents a significant percentage of the local economy.

To determine our target number of samples, we used the following formula:

$$n = (N * Zc^2 * p * q) / (e^2 * (N-1) + Zc^2 * p * q) \quad (1)$$

where,

n = Sample size.

Zc = Z-value (1.96) associated with a 95% confidence level.

e = 3% Margin of error.

N = Population size.

$p = q$ = percentage value (since we do not have data population, we use $p = 0.5$).

Table 1 shows the targeted simple size in each community.

Table 1. Size of targeted sample by community.

	Population	Targeted Samples
Ojojona, Honduras	104	74
Ráquira, Colombia	106	74
Santa María Atzompa, Mexico	90	74
Total Family Firms	280	222

It was impossible for us to reach our targeted number of surveys in Santa María Atzompa because some artisans refused to answer our survey. Table 2 shows the obtained sample by community and its total.

Table 2. Obtained sample size by community

Community	Sample	% of Population
Ojojona, Honduras	70	67.3
Ráquira, Colombia	75	70.7
Santa María Atzompa, Mexico	50	55.5
Total Family Firms	195	69.6

VARIABLE MEASUREMENT, VALIDITY, AND CONFIDENCE

We recollected data by using a structured face-to-face questionnaire. We verified the validity of the scales used in our study in three stages, which improved the questionnaire.

Stage 1: Single-Case Validation. We administered the questionnaire to a single person, making sure he or she met the necessary criteria. We asked them to read out loud each item and its scaled responses and to answer out loud as well. Then we asked them to give their opinion on the questionnaire's readability and length, as well as any other suggestions to improve its comprehension.

Stage 2: Expert Judgement Validation. We shared the questionnaire with an expert to validate its content. We obtained important comments and assessments.

Stage 3: Pilot Testing. We administered 30 surveys to artisan family business owners, making sure they met the previously established criteria. Our purpose was to correct and improve the items and scales to define the final instrument that we would administer to artisan family businesses.

Gender. The term is used to analyze the roles, responsibilities, restrictions, opportunities, and needs of women and men in all areas within a given social context. Gender roles are behaviors learned in a society, community, or social group, and they include activities, tasks, and responsibilities perceived either as masculine or feminine (Thompson, 2008:89). To measure this

variable, we assigned (0) male and (1) female values; we assigned the values based on the interviewer's direct observations.

Sustainability. It is often observed in the sustainability literature that each author presents a different way to measure the variable. Such measurements never stray far from the economic, social, and environmental divisions (Butnariu & Avasilcai, 2015; Sánchez-Medina, Corbett, & Toledo-López, 2011). However, it is crucial in sustainability studies to consider the satisfaction of social, economic, and environmental needs for the present and future generations of artisans, alluding to the Brundtland Report concept of sustainable development. The Brundtland Report defines sustainable development as that which satisfies the present needs without compromising the future generations' ability to meet their own needs (Harris, 2000).

Our study proposes a sustainability measurement under the perspective of human needs fulfillment, based on SFBT arguments that explain sustainability through family functionality and interactions in the family/business system. Furthermore, we consider artisan activities to not only take place in a family setting, but rather in a communal one. The workshops also function as the artisans' homes and businesspeople are the women and men of the community.

To measure sustainability, we began with Maslow's pyramid of needs, which explains human needs and categorizes them into a hierarchy. Maslow suggests that particular needs must be satisfied before a more rewarding set of needs can be satisfied.

Considering that the artisan context cannot be separated from family functionality, our research defines sustainability as *the capacity of a family business to achieve or satisfy certain human needs in a family system; it will determine the work performance of the female and male artisan, and the family business functioning, with the purpose of providing it permanence and satisfying the needs of future generations.* This way the achievement of family needs will determine the artisan family business's sustainability.

We will now explain each of the basic human needs in Maslow's pyramid.

1. **Physiological Needs:** They are the first category of needs, of biological origin, and must be satisfied to ensure human survival. They are known as the basic needs, i.e., food, water, and shelter.

2. Safety Needs: Once basic human needs are satisfied, a new level arises in the pyramid; it includes personal safety, order, stability, and protection.
3. Love and Belonging Needs: The need to feel reciprocated love and affection arises once safety needs are covered. This necessity shows that a person wants to have a family, be part of a community or member of a church or belonging to some group in society.
4. Esteem Needs: The fourth level is oriented towards recognition of a person, particular achievements, and respect towards others. Maslow includes in this category the needs of status, fame, glory, recognition, attention, reputation, and dignity.
5. Cognitive Needs: Maslow indicates that satisfying this need is indispensable to understanding the hierarchy of needs. It represents human curiosity and is the first growth need.
6. Aesthetic Needs: This need depends on the cultural context of each person. In some societies, exterior beauty has a significant value. Whereas in others, aesthetic experience has great importance.
7. Self-actualization: The last of needs in the pyramid can be described as the fulfillment of personal potential through a specific activity; that is, to do what we like most.

Based on the Maslow hierarchy, we developed five questions to measure sustainability. Using Likert scales where 1 is total disagreement and 5 is complete agreement, we asked the artisans to indicate the degree in which they agreed with the group of phrases related to the satisfaction of their needs. Afterwards, we registered their answers in a database and ran an exploratory factor analysis to identify a reduced number of factors that would explain the data structure. We used EQS 6.2 to run the analysis. By using principal component analysis and varimax rotation, we obtained four factors with eigenvalues greater than 1.

As Table 3 shows, the four factors that explain sustainability are physiological needs, safety or economic needs, legitimacy needs and belonging needs. We can identify three of these factors as clearly belonging to Maslow's hierarchy—physiological needs, safety needs, and belonging needs—but legitimacy needs are not found in Maslow's hierarchy. Because poverty and subsistence usually characterize the artisan family business, it allows us to establish more diverse social relations in which a larger or more formal organization is produced. This trait makes a

greater variety of actions possible because it is no longer possible to explain it from a formal organization or legal authority. Thus, legitimacy plays an important role. It is the right the artisan's community gives a female or male artisan to guide the meaning of their actions, but this right is guaranteed by recognition, which Maslow classifies as esteem needs. However, esteem needs can include more aspects than just recognition or legitimacy, which is emphasized by the three loaded items in this factor. The survey questions are shown in Table 4.

Table 3. Sustainability exploratory factor analysis

Item	Physiological needs	Safety or economic needs	Legitimacy needs	Belonging needs	Communality
3	-0.700	-0.055	-0.083	-0.068	0.504
8	-0.694	-0.012	-0.016	-0.226	0.533
9	-0.628	-0.196	0.170	-0.060	0.465
10	-0.764	0.061	-0.053	-0.219	0.638
1	-0.301	0.735	0.024	0.006	0.631
13	0.286	0.801	0.086	0.230	0.783
19	0.236	0.823	0.171	0.091	0.771
20	0.050	0.149	0.776	0.087	0.634
26	0.091	0.119	0.716	-0.186	0.570
30	-0.132	-0.036	0.668	0.169	0.493
31	0.084	0.026	0.100	0.830	0.707
32	0.179	0.151	-0.020	0.794	0.686
33	0.284	0.115	0.008	0.785	0.710

Varimax rotation with Kaiser normalization. Factor loadings greater than 0.500 appear in bold type.

Table 4. Item contents

Items	
Physiological Needs	
3	The temperature your house reaches when the stove is being used is bearable.
8	Your living space is sufficient for all family members.
9	Artisan activities do not disrupt your family activities.
10	Your family property has enough space to accommodate an artisan workshop.
Safety or Economic Needs	
1	Business profits allow you to purchase sufficient food.
13	Earnings for artisan activities are stable.
19	Profits for selling handicrafts are enough to be considered a stable business.
Legitimacy Needs	
20	Being part of an artisan community is important.
26	Artisans need intermediaries to sell their products.
30	Non-artisan neighbors respect and support artisan activities.
Belonging Needs	
31	Neighbors are organized to favor the commercialization of handicrafts.
32	Your business is part of an artisan organization.
33	The artisan organization you belong to encourages exports or certification

It is interesting to observe the negative sign in the factor loadings of physiological needs, given that it is not an inverted scale. The negative sign can be explained if the satisfaction of safety, legitimacy, and belonging needs contributes to the detriment of physiological needs, and vice versa, as a result of the overlapping of the domestic and business spheres in the artisan sector.

We proved the second-order structure for the *sustainability* variable by confirmatory factor analysis in EQS 6.2. We confirmed the first- and second-order constructs, as shown in Table 5. Furthermore, we confirmed a good adjustment for our measuring model, according to Hatcher

(1994: A chi-square value of 76.76, $p < 0.08$; CFI = 0.974; RMSEA = 0.037; and all coefficients statistical significant for $p < 0.01$ and $p < 0.05$).

Table 5. Second-order model

Second-order Factor	First-order Factors (alpha)	Unstandardized path coefficients (significance)	Items	Standardized path coefficients (significance)	Standardized path coefficients (significance)
Sustainability	Physiological needs (0.702)	-0.595 (0.01)	3	0.588 (0.00)	1.000 (0.00)
			8	0.621 (0.01)	1.085 (0.01)
			9	0.496 (0.01)	0.822 (0.01)
			10	0.745 (0.01)	1.302 (0.01)
	Safety or Economic Needs (0.740)	0.716 (0.01)	1	0.373 (0.01)	0.339 (0.01)
			13	0.952 (0.00)	1.000 (0.00)
			19	0.764 (0.01)	0.743 (0.01)
	Legitimacy Needs (0.552)	0.794 (0.01)	20	0.924 (0.00)	1.000 (0.00)
			26	0.422 (0.01)	0.455 (0.01)
			30	0.362 (0.05)	0.273 (0.05)
	Belonging Needs (0.695)	0.279 (0.05)	31	0.695 (0.00)	1.000 (0.00)
			32	0.736 (0.01)	0.359 (0.01)
33			0.801 (0.01)	1.239 (0.01)	

RESULTS

We ran a correlation analysis on our total sample, controlled by location, to observe the relationships between the variables. Table 6 shows that gender is related to sustainability with an $r = 0.280$ value and a $p < 0.01$ significance. Sustainability is related positively and significantly with being a woman. We can also observe a positive and significant relation between being a woman and satisfying belonging needs and being a woman and satisfying safety or economic needs.

Table 6. Partial correlation, controlled by location

	Mean	Standard Deviation	1	2	3	4	5
1. Physiological Needs	3.24	1.08	1.000				
2. Safety or Economic Needs	3.14	1.03	-0.146	1.000			
3. Legitimacy Needs	2.31	1.01	-0.351***	0.209***	1.000		
4. Belonging Needs	3.84	0.91	0.025	0.186***	0.033	1.000	
5. Sustainability	3.13	0.49	0.300***	0.638	0.445***	0.591***	1.000
6. Gender	0.64	0.48	-0.025	0.148**	0.044	0.419***	0.280***

Significance: *** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

To go deeper into the relationship between gender and the different dimensions of sustainability, we ran a qualitative comparative analysis (QCA) on fs/QCA. This allowed us to explore complex causality patterns with Boolean algebra. In our research, we used QCA to observe the relationship between the four possible combinations of the four identified sustainability dimensions and gender.

For this analysis, we considered the belonging thresholds as “fuzzy sets” (Rihoux, 2006). It primarily contemplates three possibilities: nonbelonging to a group, belonging to a group, and an intermediate term. These thresholds allow us to distinguish, to some degree, artisans that have their needs satisfied from those that do not. We established belonging values using the upper sextile as complete belonging, the lower sextile as nonbelonging, and the mean value as an intermediate term, as shown in Table 7. For example, in regard to safety or economic needs, we considered that artisans scoring 3.67 or more were satisfied in this dimension (belonging); artisans with a score higher than 1.67 but lower than 3.67 were reasonably satisfied; and artisans with a score of less than 1.67 were unsatisfied (nonbelonging).

Table 7. Belonging thresholds

Variable	Non-belonging	Intermediate Term (mean)	Belonging
Physiological Needs	$1 \leq x < 3$	$3 \leq x < 5$ (4.75)	$5 = x$
Safety or Economic Needs	$1 \leq x < 1.67$	$1.67 \leq x < 3.67$ (2.33)	$3.67 \leq x$
Legitimacy Needs	$1 = x$	$1 < x < 2.33$ (1.33)	$2.33 \leq x$
Belonging Needs	$1 \leq x < 2.33$	$2.33 \leq x < 5$ (3.67)	$5 = x$

Based on these thresholds, we constructed the truth table (Table 8), which shows the possible combinations between the different dimensions of sustainability, as well as the number of total cases in our sample that can be associated with each combination, following the data structure.

Table 8. Truth table for total sample

Physiological Needs	Safety or Security Needs	Legitimacy Needs	Belonging Needs	Number of cases (Accumulated %)
1	0	0	0	19 (16%)
1	0	0	1	18 (31%)
0	1	1	0	11 (40%)
1	1	1	1	10 (48%)
0	1	1	1	10 (57%)
0	0	1	0	8 (63%)
1	1	0	1	7 (69%)
0	0	1	1	6 (74%)
0	0	0	1	6 (79%)
1	1	1	0	5 (84%)
0	0	0	0	5 (88%)
0	1	0	1	4 (91%)
1	1	0	0	3 (94%)
0	1	0	0	3 (96%)
1	0	1	1	2 (98%)
1	0	1	0	2 (100%)

For the total sample, the following combinations of different dimensions of sustainability were associated with being a male:

male = *~physiological and belonging + safety or economic and belonging + legitimacy and belonging* (2)

This solution shows a 0.794 consistency and a 0.544 coverage, which are acceptable values. Coverage is an indicator of the empirical relevance of results in terms of the proportion of the data set it represents, with specific characteristics concerning the total sample. Consistency measures

how adequate the proposed relationship in the obtained data is. For both indicators, the closer they are to 1.0 the better. Consistency is acceptable for values of 0.8 or higher (Ragin, 2006).

It is interesting to observe that the satisfaction of belonging needs appears in all three combinations, which allows us to suggest that men are also significantly concerned with these types of needs. The nonsatisfaction of physiological needs in combination with the satisfaction of belonging needs is striking.

By applying the Morgan law, we obtained a solution that shows the combinations between the different sustainability dimensions associated with being female (\sim male):

$$female = (physiological + \sim belonging) \text{ and } (safety \text{ or } economic + \sim belonging) \text{ and } (\sim legitimacy + \sim belonging) \quad (3)$$

After applying Boolean minimization, we obtain the following expression:

$$female = \sim belonging + \sim belonging \text{ and } \sim legitimacy + \sim belonging \text{ and } \sim safety \text{ or } economic + \sim belonging \text{ and } physiological + physiological \text{ and } \sim safety \text{ or } economic + \sim legitimacy \quad (4)$$

We can observe that females are mainly associated with not satisfying belonging needs and, when physiological needs are fulfilled, the satisfaction of belonging, security or economic, and legitimacy needs are not met.

Table 9 shows the same analysis but the databases are arranged independently by country.

Table 9. Combination of variables associated with being female by country

	Mexico	Honduras	Colombia
Solution	<i>~physiological and security or economic and belonging + ~physiological and legitimacy and belonging</i>	<i>~physiological and ~ security or economic and ~ legitimacy + physiological and security or economic and belonging + physiological and legitimacy and belonging + security or economic and legitimacy and belonging</i>	<i>~ legitimacy and belonging + physiological and ~ security or economic and belonging +</i>
Consistency	0.806	0.847	0.748
Convergence	0.408	0.480	0.378

The identification of different combinations by country is striking. In Mexico, we observe nonsatisfaction of physiological needs, whereas in Colombia this condition does not appear. In Honduras, nonsatisfaction of physiological needs is found only in combination with nonsatisfaction of safety or economic needs and legitimacy needs.

DISCUSSION

The results of this investigation suggest significant differences between males and females regarding sustainability. These results match with those reported by Slepian & Jones (2013), Jeong & Harrison (2017) and Nadeem *et al.* (2017), who found gender differences in aspects related to corporate sustainability.

Our study found that woman display more sustainable behavior than men. Our findings are similar to those of Slepian & Jones (2013), who suggest that women seek sustainability more than men because of their ethical values, and to those of Jeong & Harrison (2017), who suggest that women focus on long-term business profitability. This result could be attributed to women having greater risk aversion than men. Likewise, these results agree with those of Post *et al.* (2015), Kassinis *et al.* (2016), and Ben-Amar, Chang, & McIlkenny (2017), who found that the more women that are on a board of directors, the higher the probability of taking sustainable actions.

Our results differ from those reported by Mostafa (2007), and Amran, Peirasamy & Hadi (2014), who suggest men are in a position of taking on a more sustainable attitude, derived from their greater knowledge and disposition to divulge environmental themes more than women. Likewise, our results differ from those found by Sánchez-Medina *et al.* (2010), who suggest male artisans display better environmental behavior than female artisans.

The SFBT considers gender as a resource. This resource affects how persons encounter disruptions, how they define processes, and how they achieve goals. Men seek more satisfaction of belonging needs, while women focus more on physiological needs. Apparently, women believe that their business should satisfy their family's physiological needs while respecting home intimacy; on the other hand, men see their business as an instrument for social positioning, his and his family's prestige are derived from the reputation of his business. The roles men and women play in sustainability could complement each other, in accordance with the findings of Meinzen-Dick, Kovarich, & Quisumbing (2014).

For example, biologically speaking, a woman invests a larger amount of time and effort in being a mother, and focuses her attention on what happens inside her home. Social expectations about what it means to be a woman may limit her field of action, restricting her from going to certain places or performing specific tasks. It is expected, for example, for a woman to care for her children and to cook food, which requires her physical presence at home. Likewise, men are expected to do tasks that need greater strength and those that must be done outside of his home. The idea of male and female sustainability could be linked directly to their field of influence and control: home and family intimacy protection for women; community and family functioning in society for men. Of course, it is necessary to recognize that male and female roles can vary according to age, available resources, and other considerations, such as internal and external disruptions of the family/business system.

CONCLUSIONS

Our paper analyzed the relationship between gender and sustainability in artisan family businesses in three Latin American countries—Honduras, Colombia, and Mexico. Our results contribute to the literature in several ways:

1. We empirically demonstrate that artisan women have a more sustainable behavior than men. Likewise, when analyzing the role of gender in the dimensions of sustainability, we observe that male artisans pay more attention to the satisfaction of belonging needs, whereas female artisans are more concerned with satisfying their physiological needs.
2. We studied gender differences in the family/business system in the Latin American artisan sector. We emphasized two very relevant themes in the artisan sector: i) gender in a context characterized by convictions and traditions; and ii) the complexity of business decision making in a context of resistance to change, marked by convictions, traditions, customs, and ideologies. In a context firmly rooted in traditions and convictions inherent to their ethnicity and artisan community, it would not be surprising to visualize a female artisan in her family system as the homemaker. In this system, there is a clear division of activities. There are specific tasks for the female artist in virtue of the education she received to accomplish her family mission. The male artisan, on the other hand, is the one that provides income to the family and is the head of the family system. Our results show that the role given to the female artisan in her family environment affects how she visualizes and manages her business. For the female artisan, it is more important to satisfy physiological needs because of her closeness and relationship to the family system. The female artisan has more knowledge of family needs, which becomes an evident concern for her in the business system; therefore, she manages her business focused on the family aspect. The male artisan is the one that represents the family and the family business in outside relationships. This situation causes a more significant interest in covering belonging needs because it could lead to higher recognition within the community. Even when male and female artisans that oppose changes that imply environmental care in their production, there are also artisan communities that show a great deal of openness to changes that indicate environmental conservation. The concerns that artisans have when encountering different environmental changes and the need to stay in the market may cause this openness. Our results show that both male and female artisans are concerned about the sustainability of their business. It is important to emphasize that environmental change does not imply whatsoever the product loss based on its traits or artisan description. Male and female artisans clearly understand it when they change some aspect of their artisan manufacturing to make them more sustainable. However, those male or female artisans that fail to make changes might

think these changes imply an identity loss for their products and that they go against their customs and traditional processes.

3. A significant contribution to the family business literature was our proposition of a way of measuring sustainability based on our research context and SFBT focus. In our model, sustainability is the result of the family/business system and its interface. Since we consider that the term *sustainability* implies the future, in our research, we define sustainability as the satisfaction or meeting of specific human needs in the family system. This satisfaction will determine the work performance of the male or female artisan, and his or her functioning in the artisan business, looking to foresee their permanence and satisfy the needs of future generations. It is also a significant contribution to sustainability studies. The field lacks previous empirical studies that have measured sustainability as we have proposed here. We used Maslow's hierarchy of human needs (1954) to analyze family needs satisfaction and thus determine sustainability in an artisan family business. We observe that people do not necessarily tend to their needs in Maslow's proposed order, which makes it possible for someone to seek the satisfaction of higher needs, i.e., recognition, even to the detriment of lower needs, i.e., physiological.
4. Finally, our research contributes to SFBT because it empirically demonstrates that gender is a resource that modifies responses to disruptions that happen on the interface of family/business systems. The female artisan seeks the satisfaction of physiological needs as a fundamental dimension of business sustainability and as an answer to how she lives and perceives herself in the family sphere. The female artisan will achieve sustainability as long as her business covers the needs of her family. The male artisan, on the other hand, seeks the satisfaction of belonging needs in response to his role as the head and representative of his family business. Sustainability, for the male artisan, will be achieved as long as his company covers his belonging needs, i.e., his social expectations and provides a respectable place within his community.

LIMITATIONS AND RECOMMENDATIONS

From the seven needs classified by Maslow (1954), we have only been able to observe four of them: physiological, safety or economic, belonging, and legitimacy needs. We recommend for any

future research to try different questions and expand the sample to other artisan communities or other productive sectors to observe different needs.

The results show differences in the possible combinations of satisfied needs by gender in three countries—Mexico, Colombia, and Honduras. Future research could go deeper into these differences and the factors that cause them.

Environmental studies have long neglected the artisan sector. More research could lead to the adoption of public policies focused on achieving sustainability in artisan family businesses. It is urgent to acknowledge the possibilities of integral development in artisan communities while thinking about comprehensive alternative solutions that consider present and future conservation and use of resources.

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