Convergence or divergence? An econometric analysis of the role of culture on consumer purchase patterns

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ABSTRACT

The study aims to analyze the influence of national culture on purchasing patterns. We use footwear sales and compare the results with those of apparel gathered in another study. We perform a multiple regression analysis using national retail sales data from Puerto Rico and the United States, paying particular attention to the effects of seasonality. The results confirm that culture influences purchase and that special occasions can predict variations in sales. By comparing the results with those of apparel, we identify common behaviors and differences between categories. Our study contributes to the limited amount of empirical research available about the influence of national culture on consumer behavior, offering helpful information to retailers interested in entering these markets.

Keywords: convergence, divergence**,** culture**,** consumer behavior, purchase patterns

¿Convergencia o divergencia?
Análisis econométrico del rol de la cultura en los patrones de compra

RESUMEN

El propósito de este estudio es analizar la influencia de la cultura nacional en patrones de compra. Utilizamos las ventas de calzado, y comparamos los re-

sultados con los de ropa, recopilados en otro estudio. Realizamos un análisis de regresión múltiple con datos nacionales de ventas al detal de Puerto Rico y Estados Unidos, prestando particular atención al efecto de la estacionalidad. Los resultados confirman que la cultura influye en la compra, y que ocasiones especiales pueden predecir variaciones en ventas. Comparando los resultados con ropa, identificamos tanto conductas en común como diferencias entre categorías. Nuestro estudio contribuye a la limitada cantidad de investigaciones empíricas disponibles sobre la influencia de la cultura nacional en conductas del consumidor, ofreciendo información útil a minoristas con interés en ingresar en estos mercados.

Palabras clave: convergencia, divergencia**,** cultura**,** conducta del consumidor, patrones de compra

Introduction

The influence of culture on consumer behavior has been an important topic in the international marketing literature. Levitt's (1983) argument about the globalization of markets suggests the standardization of marketing strategies. Other authors support the notion that technological advances will result in the convergence of consumer preferences (Assael, 1998; Bullmore, 2000; Czinkota & Ronkainen, 1998; Jain, 1990). The idea of consumer convergence has evolved into the concept known as the Global Consumer Culture (GCC), and according to Magnusson & Westjohn (2019), the literature on GCC assumes that there is a homogenizing global consumer segment.

De Mooij (2003, 2015, 2019) questions this idea as it seems to put consumers in a cultural void. It does not consider the effect of national culture and institutional and social structures on consumer behavior (Melnyk et al., 2022; Sandikci & Ger, 2010). While cultural practices may be found in the global marketplace, the underlying reasons for the purchases are not global (De Mooij, 2015). This notion is reinforced by Bashar et al. (2023), who argue that culture has a vital role in consumers' buying behavior, particularly impulse purchases. Most notably, little empirical evidence supports cultural convergence (De Mooij, 2019; Usunier, 1997).

To address this issue, Nieves Rodríguez et al. (2017) analyzed culture and gender's influence on the United States and Puerto Rico apparel purchases, considering seasonality's varying impact. Using Samli's (2013) international consumer behavior model as the theoretical framework, the authors developed a consumer behavior model for the apparel industries in Puerto Rico and the United States. The study considered seasonality as a purchase pattern factor.

Puerto Rico and the United States are examples of two countries with a strong political and economic relationship and an interwoven history and cultural landscape. Puerto Rico functions as an American state in many ways while remaining an unincorporated U.S. territory (Gómez, 2017). Based on this relationship, convergence in consumer behavior would be expected.

Following Samli's (2013) theoretical framework and the methodology used by Nieves Rodríguez et al. (2017), in the present study, we analyze the influence of culture on the purchase patterns of shoes in Puerto Rico and in the United States (see Figure 1). Our purpose is to compare the results of apparel and shoes and provide empirical evidence of national culture's influence[1] on consumer behavior. As has been emphasized by Khan et al. (2024), apparel and accessories are a major sector of the global economy, and according to Hockey et al. (2013), shoes are not only an everyday practical item but also a status and identity marker.

The shoe market in the United States has experienced growth in recent years and is the largest globally, partly due to the number of buyers and consumers' purchasing habits (MarketLine, 2021a). Puerto Rico's consumer base is just a fraction of that of the United States due to its population size. However, Doug Hayes, vice president and general manager of Americas for Crocs, says, "Puerto Rico is a great market for Crocs and a very strong footwear market" (Kantrow Vázquez, 2010, párr. 2).

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[1]   Hereafter we will use the term culture to refer to the cultural built-in values of a nation, following Samli's terminology as cited in the text.

This study is pertinent because several other countries have relationships like Puerto Rico and the United States in North America, such as Hong Kong and China in Asia, and the British Virgin Islands and the UK in Europe.

The following section examines the literature review related on culture and consumer behavior research. Subsequently, we describe the methodology, including the data, variable operationalization, and modeling equations. This is followed by the presentation of the results, discussion of the findings, and conclusions.

Figure 1

International Consumer Behavior Model
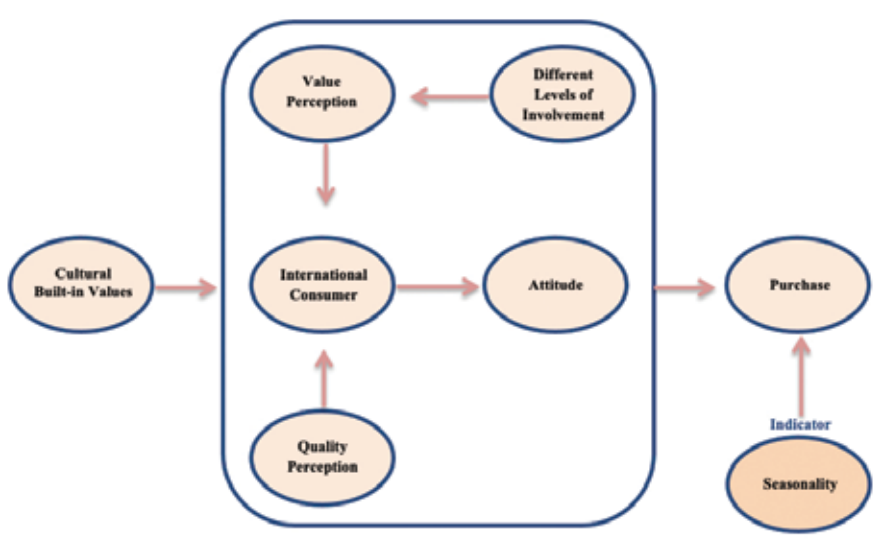
Source: Samli's (2013) International Consumer Behavior Model, adapted by Nieves Rodríguez et al. (2017).

Literature Review

Cleveland & Bartsch (2019) support the idea of a global consumer culture and believe that the importance of the nation in international marketing segmentation and research is declining.

De Mooij (2019) argues that international marketers usually rely on national consumer behavior and consumption statistics. While the global media, the Internet, and the increase in travel and the use of the English language are said to be the drivers of the global consumer culture, statistics show that the use, interpretation, frequency, and fluency vary across countries.

Other scholars agree that it is beneficial to adapt to cultural values for an effective international marketing strategy (Kongsompong, 2006; Luna & Gupta, 2001; Nicholls et al., 2003; Samli, 2013), and Steenkamp (2019) suggests that globalization might be hindering, leading to a renewed interest in local consumer culture. De Mooij (2019) states that most nations share a dominant language, mass media, a national education system, and national product markets.

Consumer behavior has been empirically analyzed across different countries using behavioral intention models, but researchers recognize the need to separate and understand the effect of culture on consumer behavior (Malhotra & McCort, 2001).

Empirical Research of Culture's Effect on Consumer Behavior

A correlation analysis using as independent variables the national wealth from 15 European countries and Hofstede's cultural dimensions, as well as product consumption and ownership of mineral water, cars, and the Internet as dependent variables, was carried out by De Mooij (2000). The results indicated that when countries converge in terms of national wealth, consumer behavior is better explained by cultural variables. Subsequently, De Mooij and Hofstede (2002) expanded this previous study by using additional product categories and obtained the same results.

Using Hofstede's cultural dimensions, de Bellis et al. (2015) conducted a study that analyzed the effect of the uncertainty avoidance dimension on consumer behavior as potential buyers customized their car of preference. Japan, Taiwan, China, and Singapore were considered for this purpose. A second part of the study tested the effect of the same cultural dimension on

conversion rates and social sharing behavior in Japan and China. The findings showed that ignoring the differences between the two countries in uncertainty avoidance puts consumers at risk of having a more difficult customization experience and a lower conversion for the businesses.

Similarly, Sheldon et al. (2017) compared the motives for Instagram usage among participants from Croatia, a highly collectivistic culture according to Hofstede's' cultural dimension score, and the United States, a highly individualistic culture. The results showed that the motivations for using Instagram do not vary across countries but that culture moderates the behavioral outcome, as reflected in the time spent on Instagram, the number of followers, and the frequency of *hashtagging*.

Likewise, Bombaij et al. (2022) conducted a comparative study to analyze the effect of temporary loyalty programs on redemption rates, using data from 45 countries, considering several retailer and country characteristics, including Hofstede's individualism and long-term orientation dimensions. Some of their findings indicate that retailer characteristics are more relevant for temporary loyalty programs. Additionally, permanent and temporary loyalty programs are more effective in individualistic countries, while long-term orientation is only significant for permanent loyalty programs.

Other studies have also analyzed the effect of culture on consumer behavior using alternative approaches. For example, in a comparative study, Nicholls et al. (2003) analyzed consumers' shopping behavior at large-scale shopping centers in Chile and the United States. The study focused on location selection and shopping motivation. The results indicated that while some behaviors may be considered universal, others seem driven by cultural factors. Another study by Spiers et al. (2014) examined the influence of culture on consumer behavior. The study compared how and why Trinidad and Tobago and Jamaica consumers buy products. The authors conducted a multiple regression analysis, and the results revealed differences in consumers' buying behav-

ior due to cultural factors, such as family structure, language, and values and beliefs.

More recently, Melnyk et al. (2022) implemented a meta-analysis to study the influence of social norms on consumer behavior in a comparison between 22 countries. Target behavior characteristics, communication factors, consumer costs, environmental factors, and methodological controls were used as moderators. The results indicated that while the effect of social norms on approved behaviors, such as fruit consumption and donations, is more stable across time and cultures, their effect on disapproved behaviors, such as smoking and gambling, has increased over time and is stronger in traditional cultures.

Empirical Research of Culture's Effect on Apparel Consumer Behavior

Previous empirical studies indicate that culture influences apparel consumer behavior. In one such study, Millan et al. (2013) tested for cultural variations in apparel-related consumer behavior in a comparison between the Czech Republic and Bulgaria. The findings showed differences in consumer interest due to the meanings of the apparel artifacts, preference for well-known brands, brand loyalty, and the perceived importance of the apparel attributes. Separately, Nieves Rodríguez et al. (2017) analyzed the influence of culture and gender on apparel purchases in Puerto Rico and the United States. The results demonstrated that culture influences purchase behavior, and gender has a moderating role. Additionally, the results showed that the annual seasons and special occasions are good predictors of apparel purchases.

In another study, Rahman et al. (2017) analyzed culture's effect on the importance of product-evaluative cues in apparel purchases. The study considered participants from China and Canada. The results indicated that for Canadian consumers, style is a more influential cue when evaluating an apparel product, while for Chinese consumers, comfort plays a more significant role. More recently, Rahman et al. (2021) used the same approach as

the previous study in comparing India and Canada. The results revealed that comfort and fit are the two most important cues for consumers from both countries when evaluating apparel. However, Indians seem to rely more than Canadians on no child labor and no animal skin cues.

Recently, employing data from Italy and Russia, Khan et al. (2024) studied the effect of culture on consumers' willingness to pay more for sustainable fashion using five Hofstede dimensions. The findings suggest that the cultural dimension that drives sustainable fashion purchasing in Italy is collectivism, while in Russia, it is a long-term orientation. Additionally, Hofstede power distance belief, masculinity, and uncertainty avoidance dimensions negatively influence the willingness to pay more for sustainable fashion of the Italian consumer but do not influence the Russian consumer.

Table 1 summarizes the empirical research on culture's effect on consumer behavior.

Table 1

Empirical Research of Culture's Effect on Consumer Behavior

Authors	Countries	Variables	Product category	Methodology approach	Main findings
De Mooij (2000)	15 European Countries	National Wealth Hofstede Cultural Dimensions Consumption and Ownership	Mineral Water Cars Internet	Correlation and Regression Analysis	Cultural variables better explain consumer behavior.
De Mooij & Hofstede (2002)	15 European Countries	National Wealth Hofstede Cultural Dimensions Consumption and Purchase Behaviors	Various Product and Service Categories	Correlation and Regression Analysis	Cultural factors are better predictors of consumer behavior.
Nicholls et al. (2003)	Chile United States	National Culture Location (Shopping Mall / Shopping Plaza) Shopping Motivation	Not Specified Out of the Scope of the Study	Survey (Interviews)	Some shopping behaviors are driven by cultural factors.

Author (Year)	Country	Variables	Platform/Product	Method	Findings
Spiers et al. (2014)	Trinidad & Tobago, Jamaica	Family Structure, Language, Values and Beliefs, Buying Behavior	Not Specified	Regression Analysis	Influenced by their cultural identities, consumers exhibit different buying behavior.
de Bellis et al. (2015)	Japan, Taiwan, China, Singapore	Hofstede Uncertainty Avoidance Dimension, Configuration Duration and Completion, Consequences of Configuration Duration, Conversion Rates, Social Sharing Behavior	Cars	Field Study	Ignoring the differences between countries puts consumers at risk of having a more difficult experience and a lower conversion for the business.
Sheldon et al. (2017)	Croatia, United States	National Culture, Motives for Instagram Use	Instagram	Survey (Questionnaire)	Culture moderates the behavioral outcome (time spent on Instagram, number of followers, and frequency of hashtagging).

Bombaij et al. (2022)	45 Countries	Temporary Loyalty Programs (Duration, Discount Offered, Spending Requirement, Reward Depth) Retailer Characteristics (Permanent Loyalty Program, Price Strategy, Market Share) [Moderator] Country Characteristics (Retail Concentration, Temporary Loyalty Program Competition, Hofstede Individualism and Long-term Orientation Dimensions) [Moderator] Redemption Rate	Grocery Retailers	Two-Way Cluster-Robust Standard Errors	Retailer characteristics are more relevant for temporary loyalty programs. Permanent and temporary loyalty programs are more effective in individualistic countries. Long-term orientation is only significant for permanent loyalty programs. Permanent programs may harm the success of temporary programs. Temporary programs are more successful when retail competition is high. The temporary program design impacts its success when program competition is high.

| Melnyk et al. (2022) | 22 Countries | Social Norms Target Behavior Characteristics (Moderator) Communication Factors (Moderator) Consumer Costs (Moderator) Environmental Factors (Moderator) Methodological Controls (Moderator) Consumer Behavior (Socially Approved and Disapproved) | Several Product Categories | Meta-Analysis | Differences in social norms influence consumer behavior, and the effect is stronger on disapproved behaviors and traditional cultures. |

Author	Countries	Variables	Product	Method	Findings
Millan et al. (2013)	Czech Republic, Bulgaria	National Culture, Interest in Apparel, Susceptibility to Normative Social Influence, Preference for Apparel Symbolic and Hedonic Meanings, Preference for Well-Known Apparel Brands, Brand Loyalty and Brand Switching, Apparel Attribute's Importance	Apparel	Survey (Interviews)	There are differences between countries among all the dependent variables.
Nieves Rodríguez et al. (2017)	Puerto Rico, United States	National Culture, Gender (Moderator), Purchase	Apparel	Regression Analysis	Culture influences purchase behavior, and gender is a moderator. Annual seasons and special occasions are good predictors of apparel purchase.
Rahman et al. (2017)	China, Canada	National Culture, Importance of Product-Evaluative Cues	Apparel	Survey (Questionnaire)	Style is more influential for Canadians and comfort for the Chinese.

Author	Country	National Culture	Product Category	Method	Findings
Rahman et al. (2021)	India Canada	Importance of Product-Evaluative Cues	Apparel	Survey (Questionnaire)	Comfort and fit are the most important cues for Indians and Canadians. Indians rely more than Canadians on no child labor and no animal skin cues.
Khan et al. (2024)	Italy Russia	Hofstede Power Distant Belief, Collectivism, Masculinity, Uncertainty Avoidance and Long-Term Orientation Dimensions. Willingness to Pay More for Sustainable Fashion.	Sustainable Fashion (Apparel and Accessories)	Survey (Questionnaire)	The cultural dimension that drives sustainable fashion purchasing in Italy is collectivism. In Russia, the cultural dimension driving sustainable fashion purchasing is long-term orientation. Power distant belief, masculinity and uncertainty avoidance negatively influence the willingness to pay more for sustainable fashion of the Italian consumer, but do not influence the Russian consumer.

Source: elaborated by the authors.

The Shoe Category

The shoe category is considered a part of the broader apparel subsector in Puerto Rico and the United States.[2] Shoes are a product category of vast economic importance (Cruz Cárdenas et al., 2018); they not only provide protection to the feet but also have aesthetic and symbolic functions (Seferin & van der Linden, 2012). According to Hockey et al. (2013), shoes have a salient role in the formation of the identity of an individual. Their use is considered part of a social code (Seferin & van der Linden, 2012).

As mentioned earlier, the United States shoe market is globally the largest. Although it experienced a decline during 2020 due to the COVID-19 pandemic, it is expected to recover and continue its stable growth (MarketLine, 2021a). For JC Penney, a department store in Puerto Rico and the United States, shoes and handbags accounted for 11% of its net sales in 2019 (MarketLine, 2021b). Novus, a Puerto Rico-based shoe retailer with 65 stores throughout Puerto Rico and the Dominican Republic, is growing its presence in the United States by opening its second store (Shopping Centers Today, 2018). These are some examples of the economic importance of the shoe category for Puerto Rico and the United States and the commercial relationship between these two countries.

Based on the results of the empirical research on culture's effect on apparel consumer behavior and the relationship between apparel and shoes as part of the broader apparel subsector, the first null hypothesis to test is:

H1: Culture influences the purchase of shoes

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[2]   The North American Industry Classification System (NAICS) is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing data related to the U.S. business economy. The NAICS code are 448, 4481, and 4482 for Clothing and Clothing Accessories Stores, Clothing Stores and Shoe Stores, respectively (U.S. Census Bureau, n.d.).

Seasonality as an Indicator of Purchase Patterns

According to Tong et al. (2012), shoes are considered a seasonal product, where "Seasonality" means yearly patterns in consumption (Wagner & Mokhtari, 2000). Some factors can cause seasonal patterns, such as holidays, government actions, industry traditions, climate, social phenomena, and summer and school years (Radas & Shugan, 1998). Therefore, it is fundamental to model seasonality when analyzing consumption patterns (Osborn, 1988).

While some studies, such as Kirk et al. (2005), show that climate influences seasonality, Scott (1995) found that besides climate variations, seasonal consumption can be influenced by other factors, such as income and interest rates. Meanwhile, according to Swilley & Goldsmith (2013), sociocultural occasions explain the seasonality effect better. The results of Nieves Rodríguez et al. (2017) showed that the annual seasons and special occasions are good predictors of apparel purchases in Puerto Rico and the United States.

Considering the previous findings, the second and third null hypotheses of this study are:

H2: The annual seasons predict the purchase of shoes

H3: The special occasions predict the purchase of shoes

Methodology

Literature

A systematic literature review was done to identify the empirical research about the effect of culture on consumer behavior. The search was done using the databases available at the Library System of the University of Puerto Rico – Río Piedras (ABI – Inform, Emerald Insight, Science Direct, and Business Insights Global) and, additionally, Google Scholar. The keywords used were "culture," "cultural influence," and "consumer behavior," and in some instances, accompanied by "shopping," "clothes," "apparel," and "shoes." The selection parameters were the following:

a) Articles published in peer-reviewed journals
b) Empirical research
c) Analysis centered on the influence of culture on consumer behavior
d) Comparison between two or more countries
e) Full text available

A total of 13 articles were selected and discussed in the Literature Review.

Data

To test the hypotheses of the present paper, we follow the methodology used by Nieves Rodríguez et al. (2017) to analyze the influence of culture on apparel purchases, taking into consideration seasonality's impact.

This study uses national data on the retail sales of shoes in Puerto Rico and the United States. The data for Puerto Rico is from the Export and Trade Company of Puerto Rico; meanwhile, the data for the United States is from the U.S. Census Bureau. The currency is the USD. The data is of monthly frequency and spans from January 2006 to December 2015. In these ten years, the methodology used by both agencies to collect retail sales data has been consistent. After 2016, a new method was implemented by the Export and Trade Company of Puerto Rico, and to date, there are less than ten years of data available. Additionally, Puerto Rico suffered a major hurricane in 2017 and earthquakes in 2020, and both countries were impacted by the COVID-19 pandemic. Significant events have marked the past few years, and combining this data with that of more stable years could provide inaccurate results. For example, Lobato et al. (2022) indicate that the impact of the COVID-19 pandemic was very pronounced in Puerto Rico, causing business closures and a reduction in household incomes.

According to De Mooij (2003), countries are more likely to converge when the economic conditions are similar, while countries with different economic circumstances are expected to diverge. Some variations in consumer behavior can only be perceived af-

ter income differences have disappeared. To isolate the effect of socio-economic factors, this study uses the gross domestic product (GDP) and consumer price index (CPI) for control of the wealth and inflation, and it additionally uses a per capita measure for control of the population.

The GDP data for Puerto Rico and the United States is from the World Bank. The data is of annual frequency and spans from 2006 to 2015. The CPI data for Puerto Rico is from the Department of Labor and Human Resources of Puerto Rico, and the CPI data for the United States is from the U.S. Bureau of Labor Statistics. The CPI for shoes, used for control of the inflation in retail sales, is of monthly frequency and spans from January 2006 to December 2015. The CPI for all articles and services, which is used for control of the inflation in GDP, is of annual frequency and spans from 2006 to 2015. The population data for Puerto Rico and the United States is from the U.S. Census Bureau. The data is of annual frequency and spans from 2006 to 2015.

Isolating the effect of these socio-economic factors gives us a dataset that can be compared. Figure 2 illustrates the real sales per capita of shoes (hereafter denominated as Sales) in both countries.

Figure 2

Real Sales per Capita of Shoes in Puerto Rico and the United States
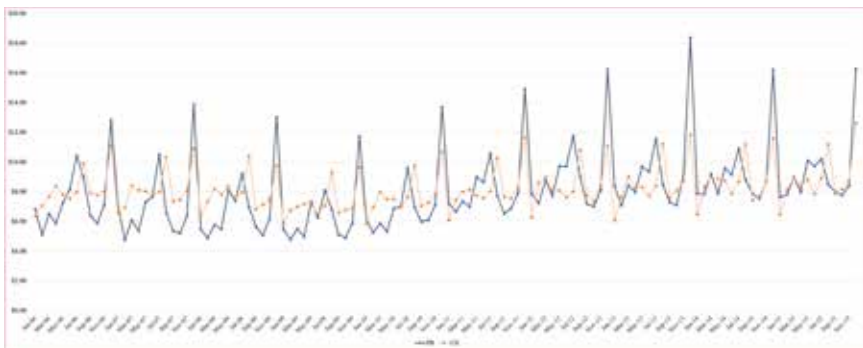
Source: elaborated by the authors.

Operationalization of Variables

To determine the relationship between culture and the purchase patterns of shoes in Puerto Rico and the United States, we perform an OLS regression analysis. This method has been used in previous works for carrying out similar studies (De Mooij, 2000; De Mooij & Hofstede, 2002; Nieves Rodríguez et al., 2017; Spiers et al., 2014). Seasonality is being considered as a factor in the purchase patterns. Following the literature on seasonality and the results of Nieves Rodríguez et al. (2017) for apparel, the annual seasons and certain special occasions are included in the analysis to represent seasonality in the data. Figure 2 shows peaks around July, August, and December; therefore, the two special occasions considered are Back to School and Christmas.

Dummy variables are introduced in model equations: $\{D_{Spring}, D_{Summer}, D_{Fall}, D_{Winter}\}$, $\{D_{Back}$ to School, $D_{Xmas}\}$, and $\{D_{Puerto\ Rico}, D_{United\ States}\}$, to represent the annual seasons, the occasions of Back to School and Christmas, and the country as a proxy for culture, respectively.

Modeling Equations

We consider two modeling environments: 1) Model A, where the annual seasons are used to control for the seasonal component in the retail sales data, and 2) Model B, where the occasions of Back to School and Christmas are regressors representing seasonality in the data. Looking at Figure 2, the months corresponding to the fall season seem more stable. Therefore, the benchmark scenario for Model A consists of the fall season. The benchmark scenario for Model B consists of all calendar months except those representing the occasions of Back to School and Christmas. Back to School is represented by July in Puerto Rico and by August in the United States, and Christmas is represented by December in both countries. Considering the analysis and the results of Nieves Rodríguez et al. (2017), the months' sales data representing these occasions are removed from Model A, as they may be outliers.

The country dummy variables are introduced as regressors in the two modeling environments (Model A and Model B), as well

as the interactions with the annual seasons and special occasions. The benchmark scenarios additionally consist of Puerto Rico. The estimation attribute of the benchmark scenario is included in the constant regressor of the model equation. Equations (A) and (B) represent the two modeling environments, henceforth denominated as the Annual Seasons Model (Model A) and the Special Occasions Model (Model B).

$$Y_t = \beta_1^A + \beta_2^A D_{Spring,t} + \beta_3^A D_{Summer,t} + \beta_4^A D_{Winter,t} + \beta_5^A D_{United\ States,t} + \beta_6^A D_{Spring} D_{United\ States,t} \quad (A)$$
$$+ \beta_7^A D_{Summer} D_{United\ States,t} + \beta_8^A D_{Winter} D_{United\ States,t} + \varepsilon_t^A$$

$$Y_t = \beta_1^B + \beta_2^B D_{Back\ to\ School,t} + \beta_3^B D_{Xmas,t} + \beta_4^B D_{United\ States,t} + \beta_5^B D_{Back\ to\ School} D_{United\ States,t} \quad (B)$$
$$+ \beta_6^B D_{Xmas} D_{United\ States,t} + \varepsilon_t^B$$

Results

Table 2 summarizes the least squares coefficient estimates of Equations (A) and (B), and specifies in parentheses the absolute value of the t-statistics of the coefficient estimates. It also provides the R^2, the adjusted R^2, and the degrees of freedom of each model.

The results of Model A show an R^2 of 24 percent, whereas Model B shows an R^2 of 71 percent, with 5 out of the 6 coefficient estimates having 1 percent significance. These results suggest that the Special Occasions Model is a much better predictor of the retail sales of shoes in Puerto Rico and in the United States when compared to the Annual Seasons Model. Therefore, we center the discussion on the Special Occasions Model.

The results show that the country (culture) dummy variable is statistically significant ($p<0.01$). This indicates that, when controlling for the effect of the special occasions, culture can be considered a good predictor of the retail sales of shoes. Monthly Sales are, on average, $7.20 and $7.68 for Puerto Rico and the United States, respectively.

Table 2

Estimation Results for Equations A and B

|	Model A	Model B
Intercept	**6.80**	**7.20**
	(37.16)***	(63.31)***
DSpring	**0.64**	
	(2.48)**	
DSummer	**1.30**	
	(4.49)***	
DWinter	**-0.24**	
	(0.81)	
DBack to School		**3.08**
		(8.17)***
DXmas		**7.51**
		(19.91)***
DUnited States	**0.89**	**0.48**
	(3.42)***	(3.00)***
D*Spring*DUnited States	**-0.17**	
	(0.46)	
D*Summer*DUnited States	**-1.20**	
	(2.92)***	
D*Winter*DUnited States	**-0.56**	
	(1.38)	
D*Back to School*DUnited States		**-0.33**
		(0.62)
D*Xmas*DUnited States		**-4.09**
		(7.67)***
R^2	**0.24**	**0.71**
Adj-R^2	**0.22**	**0.70**
df	**192**	**234**

Note. ***: 1% significance; **: 5% significance
Source: elaborated by the authors.

The dummy variables representing the special occasions are statistically significant ($p<0.01$) for Puerto Rico. The results indicate that, on average, sales increase by $3.08 (43%) and $7.51 (104%) during the Back to School and Christmas, respectively. The interaction between the dummy variables representing the United States and Christmas is statistically significant ($p<0.01$). The results show that, on average, sales in the United States are $4.09 lower than in Puerto Rico during the occasion of Christmas (Puerto Rico: $14.71; USA: $10.62). This also means that when compared to its own average, sales in the United States increased by $2.94 (38%) during this special occasion. Figure 3 summarizes the most significant results.

Figure 3

Percent Change in Real Sales per Capita of Shoes
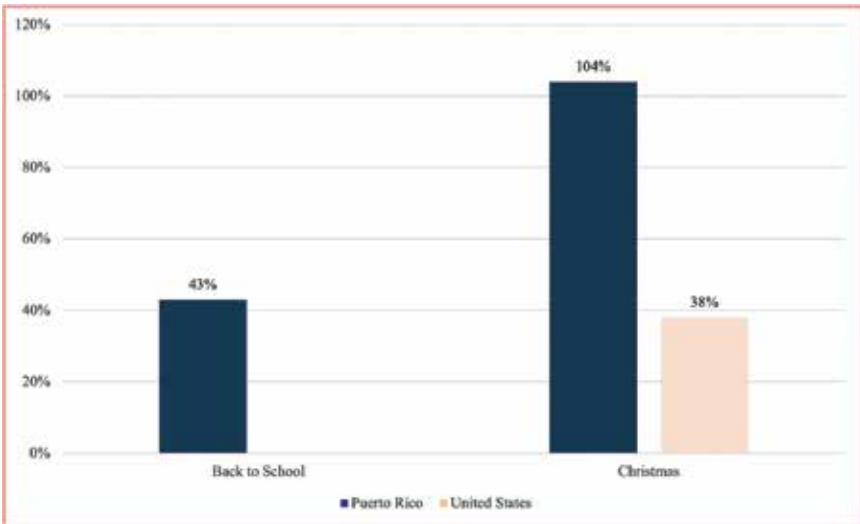
Source: elaborated by the authors.

Discussion

Nieves Rodríguez et al. (2017) results showed that both, the Annual Seasons Model and the Special Occasions Model, are good predictors of the retail sales of apparel in Puerto Rico and

the United States. The results are not the same for the shoe category. The Special Occasions Model better explains variations in sales. The results of this study additionally confirmed that culture influences purchase. Therefore, H1 and H3 are accepted, and H2 is rejected.

Looking at specific similarities and differences between the two countries, it is interesting to note that while the results indicate that, on average, the American consumer spends more on shoes than the Puerto Rican consumer does, Puerto Ricans seem more influenced by special occasions. The special occasions of Back to School and Christmas have an impact on the purchase patterns of shoes in Puerto Rico, whereas, in the United States, it is only Christmas. The results also indicate that while consumers in both countries spend more during Christmas, sales in Puerto Rico surpass those in the United States during this special occasion. This suggests that Puerto Ricans are more festive and might use shoes to express themselves. This would be aligned with Hockey et al. (2013), who mentions that shoes can act as an autobiographical device.

The results for both product categories, apparel and shoes, suggest that culture influences purchase. Additionally, the results indicate that special occasions are good predictors of the retail sales of apparel and shoes in Puerto Rico and the United States. However, a notable difference is that the annual seasons are also good predictors of the retail sales of apparel in Puerto Rico and the United States. However, this is not the case with the shoe category.

Christmas is a special occasion that influences the retail sales of apparel and shoes. Apparel is additionally influenced by Mother's Day and Father's Day special occasions. Shoe sales are additionally influenced by the special occasion of Back to School, but not Mother's Day or Father's Day. However, a fundamental difference between the two countries is that Father's Day and Back to School are only significant in Puerto Rico. Furthermore, even during Mother's Day and Christmas, when spending increases in both countries, the percent change is more substantial in Puerto Rico than in the United States. Table 3 presents the significant benchmark results for Puerto Rico and the United States apparel and shoes.

Table 3

Convergence and Divergence Results for Apparel and Shoes in Puerto Rico and in the United States

	Puerto Rico	United States
Apparel	The Annual Seasons are good predictors of the purchase patterns.	The Annual Seasons are good predictors of the purchase patterns.
	These Special Occasions are good predictors of the purchase patterns: • Mother's Day (*) • Christmas (*) • Father's Day	These Special Occasions are good predictors of the purchase patterns: • Mother's Day • Christmas
Shoes	These Special Occasions are good predictors of the purchase patterns: • Christmas (*) • Back to School	These Special Occasions are good predictors of the purchase patterns: • Christmas

Note. The asterisk (*) indicates that the percent change in sales during that special occasion is more substantial for that country when compared to the other.
Source: elaborated by the authors.

The results of this study, when compared to those of apparel, indicate that while Puerto Rico and the United States are two countries that converge in many aspects, they still show divergence in consumer behavior due to cultural factors. In the United States, the winter effect on shoes might be captured during Christmas. Meanwhile, in Puerto Rico, most schools require uniforms, which could explain the increase in shoes sales but not apparel during that special occasion. It seems that Puerto Ricans are more influenced by special occasions and could be using shoes in place of apparel to express themselves. This would be aligned with Hockey et al. (2013), who indicate that shoes have a salient role in the formation of the identity of an individual, and with Seferin and van der Linden (2012), who indicate that their use is part of a social code. On the other hand, shoes might not be relevant during Mother's Day and Father's Day because these occasions are related to gifting, and shoes are probably an item consumers want to try on before purchasing due to fitting and comfort preferences.

Theoretical Contributions and Implications

Our study contributes to the few empirical research available about the influence of culture on consumer behavior, offering some insights into the international marketing literature. Second, it validates the utility of the econometric models developed by Nieves Rodríguez et al. (2017) to analyze apparel purchase patterns in Puerto Rico and the United States, suggesting that they could be effective for analyzing other product categories as well as retail sales data from other countries. Finally, it compares the results for two different but related product categories in two countries with many commonalities, including a strong commercial relationship. Therefore, it provides pertinent information to apparel and shoe retailers in Puerto Rico and the United States and those interested in entering these two markets.

Managerial Implications

The implications would mainly be for the business consumer, benefiting store managers in the estimation of sales, managing inventory and scheduling salespeople, and, additionally, in developing a promotion strategy that allows the company to manage and take advantage of the variations in sales in each product category and country. This is even more relevant for retailers that sell both apparel and shoes and have a commercial presence in Puerto Rico and the United States, as the marketing strategy should consider the similarities and differences between product categories and countries.

Limitations and Future Research Directions

One limitation of our study is that the analysis is centered on two product categories and two countries. Additionally, a limitation from a methodological standpoint is the use of linear regression and dummy variables. Further research could address these issues by extending the analysis to include other product categories and countries and using other statistical methods. Efforts are encouraged to broaden research to test the theories of convergence/divergence in other countries with similar relationships or among countries that have formed trade blocks. Additionally, further research could analyze and compare the results of the purchasing patterns during different periods, such as those that are more stable, against those marked by significant events.

Conclusions

In this study, we have analyzed the effect of culture on the purchase of shoes and compared the results to those of apparel gathered from another study. Both studies use Puerto Rico and the United States as examples of two countries that share an economic, political, and even cultural landscape, where Puerto Rico functions mainly as an American state but remains an unincorporated U.S. territory (Gómez, 2017).

Using Samli's (2013) international consumer behavior model as a theoretical framework, we have carried out a multiple regression analysis using national data of the retail sales of shoes from Puerto Rico and the United States, with particular attention to the effects of seasonality on the purchase. The results confirm that culture influences the purchase of shoes and that special occasions are strong predictors of variations in sales.

When the results are compared to those of apparel, commonalities in consumer behavior can be identified. However, there are crucial differences between product categories and between countries. This is an example of two nations that share many aspects but still show divergence in consumer behavior due to cultural factors.

The results of the present work contribute to the limited amount of empirical research available on the influence of culture on consumer behavior, which, on the one hand, can offer helpful information to retailers interested in entering these two markets and, on the other, pave the way for further research along similar lines in other contexts.

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