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Microenterprise Peso Acceptance in El Paso, Texas

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Abstract:

Utilizing a unique sample of 253 microenterprise border retailers from El Paso, Texas, this paper explores the possibility of cash payment from cross-border shoppers using Mexican pesos. We find that one-fifth of microenterprise retailers in El Paso accept payment in Mexican pesos. Increased peso acceptance rates are associated with retailer proximity to Mexico and business segment in which the retailers compete. El Paso microenterprises are also more likely than their medium- to large-business counterparts to allow payments to be made using Mexican pesos. The opportunity cost of currency substitution is examined for accepting and yet-to-accept firms.

JEL Classification**:** M21, F31, D22.
Keywords**:** Microenterprises; Currency Substitution; Reverse Dollarization, Cross-Border Shoppers; El Paso, Texas.

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Resumen

Mediante una muestra exclusiva de 253 micro-empresas dedicadas a las ventas al por menor en El Paso, Texas, este artículo explora la posibilidad de que los compradores que cruzan la frontera para realizar compras paguen en pesos mexicanos. Se encuentra que un quinto de las micro-empresas dedicadas a las ventas en El Paso aceptan pagos en pesos mexicanos. El incremento en la tasa de aceptación de pesos se asocia con la proximidad del vendedor a México y al segmento del comercio en el cual los vendedores compiten. Resulta más probable, que las micro-empresas de El Paso realicen transacciones en pesos mexicanos que las empresas medianas y grandes dedicadas al comercio al por menor. También se examina el costo de oportunidad de la sustitución del tipo de cambio para las empresas que aceptan y para las que todavía no aceptan el peso, como moneda de cambio.

***Clasificación JEL*:** M21, F31, D22.
Palabras Clave: Las microempresas; sustitución de monedas, Dolarización inversa; compradores transfronterizos, El Paso, Texas.

Introduction

The El Paso (Texas, U.S.) - Ciudad Juárez (Mexico) borderlands metroplex region is a busy place. On average, during the 2008 study time frame utilized, 14,643 cars and 19,097 pedestrians would cross daily from Mexico into the United States (Texas Center, 2012). While the international boundary physically separates the two communities, cultural and commercial links bind them together. Much of this northbound flow revolves around the daily routines of life—school attendance, work, entertainment, and shopping—where Mexicans cross the border to augment consumer choices[1] (Alegría, 2002; Ghaddar and Brown, 2005).

For example, it is common to see Mexican cross-border shoppers in a variety of retail spaces throughout El Paso, including malls, grocery stores, and gasoline stations. Less understood is the economic interaction and exchange that takes place between Mexican shoppers and El Paso retailers. Generally at a more macro level, [2] U.S. border communities recognize the importance of retail sales to Mexican shoppers[3] (Ghaddar and Brown, 2005) and of the

[1] There is also a robust southern flow of people and goods; however, this paper is focused on cross-border Mexican shoppers.
[2] The Dallas Federal Reserve Bank sponsored a conference in 2006 that centered on the macro environment of cross-border retailing (Cañas, Coronado, and Phillips, 2006).
[3] Ghaddar and Brown (2005, p. 49) estimate 12.7% of all retail sales in El Paso are attributable to Mexican cross-border choppers.

ups and downs of the Mexican economy's impact on retail sales in the borderlands (Coronado and Phillips, 2007; Patrick and Renforth, 1996). Under these circumstances, it is not surprising that many businesses allow customers to purchase products using Mexican pesos in lieu of U.S. dollars. In fact, a large number of commercial enterprises in south central El Paso directly market to customers from Mexico. Yet there is little research focusing on the micro-level economic interactions between Mexican shoppers and border retail merchants, even less so for U.S. microenterprises situated along the U.S.-Mexico border.

This paper seeks to fill a partial void in this knowledge arena through the investigation of one aspect of the cross-border exchange process for microenterprises in a regional economy: the payment mechanism. Cross-border shoppers from Mexico coming to the U.S. typically pay in U.S. dollars, with a major credit card, or with Mexican pesos. Nearly all U.S. retailers are set up to handle U.S. dollar and credit card payment transactions in the course of normal business operations. The use of non-U.S. dollar payment, on the other hand, is a special circumstance with a higher incidence of occurrence in U.S. border zones (Pisani and Yoskowitz, 2006; Yoskowitz and Pisani, 2007). For a brief moment in 2007, the use (and acceptance) of Mexican pesos in a Dallas based pizza chain made national headlines (MSNBC, 2007). The national stir resulted in death threats, outrage, and curiosity (MSNBC, 2007) for the pizzeria "Pizza Patrón",[4] but the practice of accepting either the Mexican peso or Canadian dollar in U.S. border environments has a long tradition, dating back many decades (Pisani and Yoskowitz, 2006; Yoskowitz and Pisani, 2007).

No study has yet focused on U.S. microenterprises and Mexican peso payment. In this study, survey responses from 253 small retail establishments in El Paso are analyzed with regard to payment and Mexican pesos. As this research is still exploratory, it seeks to answer the following research questions:

1. At what rate do retail oriented microenterprises engage in the practice of accepting Mexican pesos as an alternative currency payment mechanism?
2. What are the determinants of retail microenterprises engaging in the practice of accepting Mexican pesos as an alternative currency payment mechanism?
3. Are microenterprises different than larger firms in the practice of accepting Mexican pesos as an alternative currency payment mechanism?

[4] Pizza Patrón is a national (U.S.) pizza chain targeted to Latino consumers (see http://www.pizzapatron.com) and accepts pesos as a form of payment in all of its stores. Pizza Patrón is currently located in seven states in the U.S. southwest and south.

Oftentimes "context" is left out of business and economic studies in the search for generalizable phenomena. The elusive search for universals in a world of differences begets theory without contextual application. Context does matter, be it firm size or location, and this study attempts to credibly account for it. The remainder of this paper is organized as follows. Section 1 surveys the literature review. Section 2 details the methodology. Section 3 provides results and addresses the research questions. The last section concludes the paper.

1. Literature Review

The payment mechanism investigated in this paper is the use of the Mexican peso[5] for retail purchases with El Paso microenterprise retailers. The use of an alternate currency in place of the standard national currency at the retail level has been referred to as currency substitution (Yoskowitz and Pisani, 2002) and may be observed in many parts of the world. Scholars have been interested in currency substitution at the macroeconomic level for some time and a significant literature exists on the topic.[6] As a microeconomic phenomenon, currency substitution is prominently visible as a retail feature of border regions and duty free stores in port areas, but is nearly devoid of study. Melvin (1989, p. 177) suggests that currency substitution may serve "as a medium of exchange used for transactions" that "is particularly pronounced in border areas."

Handa and Bana (1990) argue that only when the absolute values of the yields on these payments exceed the transaction costs of handling foreign currency is there an enticement to switch between currencies. Similar points regarding the role of transaction costs as determinants of currency substitution are also made by Williamson (1975, 1996) and Uribe (1997). Inflation differentials and information asymmetries about foreign currencies can also influence business decisions in this regard. In both cases, exchange rate and transaction cost uncertainty result, complicating the pricing decisions faced by managers. Partial dollarization of the Mexican economy allows U.S. consumers to make purchases in Mexico without using pesos in border communities (Pisani, Yoskowitz, and Brusa, 2008). To a lesser extent, reverse dollarization currency substitution also allows consumers to buy retail goods in El Paso without using dollars, the focus of the present study.

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[5] Mexican pesos refers to paper currency rather than coins.

[6] See, for example: Girton and Roper (1981), Brand (1993), Clements and Schwartz (1993), Selcuk (1994) Sturzenegger (1997), Uribe (1997), Alami (2001), Selcuk (2003), Prock, Soydemir and Abugri (2003).

For cross-border retail trade, exchange rates play a prominent role in influencing consumer flows (Patrick and Renforth, 1996). De Leon, Fullerton, and Kelley (2009) document a significant relationship between peso to dollar exchange rate fluctuations and international border crossings between Ciudad Juárez, Mexico and El Paso, Texas. Business managers are aware of this relationship and adjust prices in response to currency market developments (Fullerton and Coronado, 2001; Blanco-Gonzalez and Fullerton, 2006). Because payments are allowed in both currencies, arbitrage pressures from consumers likely also cause these price adjustments to occur more rapidly than is the case in non-border areas (Fullerton, Fierro, and Villalobos, 2009).

Both dollarization and reverse dollarization occur within the retail segments of the border areas between the United States and Mexico and the United States and Canada (Pisani, Yoskowitz, and Brusa, 2008). In El Paso, reverse dollarization occurs regularly, albeit not as extensively as dollar based currency substitution across the border in neighboring Ciudad Juárez. It is important to note that cross-border shopping is a major element that triggers currency substitution. Key factors that encourage cross-border shopping are lower effective prices, greater product varieties, and quality of goods differences (Ghaddar and Brown, 2005; Yoskowitz and Pisani, 2002). Of course, vacation and business travel may also give rise to incidental foreign currency retail payments.

When northward cross-border shopping occurs in United States - Mexico border areas, firms in the retail sector may cater to Mexican customers by accepting pesos as a means of payment. Firms may accept the pesos at discount rates, breakeven rates, or at premium rates relative to the currency market. The exploration of various retail segments may suggest niche width (from population ecology) as a predictor of involvement in currency substitution. On the one hand, niche width theory suggests that firms with broader scope may be more apt to innovate at the niche boundaries (Sorenson, McEvily, Ren and Roy, 2006), yet do so at the risk of spreading scarce resources even more thinly (Hannan and Freeman, 1977; Hsu, 2006). On the other hand, more specialized retail segments may have more resources available to focus on complementary customer services. Given that, various retail segments are analyzed that not only engage in cash transactions, but also vary across retail breadth and depth.

Prior studies indicate that approximately 20 percent of Texas border retail firms accept pesos, while 70 percent of businesses farther north regularly accept Canadian dollars (Yoskowitz and Pisani, 2002; Pisani and Yoskowitz, 2006). Greater historic monetary instability in Mexico contributes to that difference. Nevertheless, cultural ties, language, proximity to a port of entry,

and business relationships with the bordering country may help reduce uncertainties associated with accepting foreign currency payments (Yoskowitz and Pisani, 2007; Fullerton, Molina, and Pisani, 2009). However, they can also make some retailers more risk averse and cause them to shy away from accepting payments in foreign currency. An example would be U.S. retailers that held pesos during turbulent periods of unexpected currency weakness in Mexico such as September 1976, February 1982, or December 1994. From a microeconomic perspective, awareness of the profit enhancing opportunity of maintaining a premium on exchange helps offset the costs of engaging in dual currency sales operations[7] (Pisani and Yoskowitz, 2006).

The cultural environment (Goldschmidt and Remmele, 2005) may also play a role in the currency substitution phenomena. While distinct, the Texas-Mexico border populations share many cultural attributes including language (i.e., Spanish). As such, the cross-border shopping flow from Mexico may more easily navigate the shopping experience in El Paso and El Paso retailers may be more attuned to the cross-border Mexican shoppers' consumer behavior (Ghaddar and Brown, 2005). Although pesos can be utilized in El Paso, there is relatively little documentation of this phenomenon, especially among small businesses (Yoskowitz and Pisani, 2002). As a case of reverse dollarization along the southern border of the United States, it is something that merits attention since a soft currency is making at least limited inroads into a hard currency market. [8]

2. Methodology

The 253 microenterprises (those with five employees or less) surveyed for this paper is narrowed from a larger sample of 586 respondent firms[9] from El Paso, Texas, all border retailers.[10] A targeted stratified random sample of U.S.-based border retailers based on Pisani and Yoskowitz (2006) and Pisani, Yoskowitz and Brusa (2008) is employed. Ten retail segments are targeted in the survey, including bakeries and tortillerías (tortilla makers);

[7] Interestingly, Yoskowitz and Pisani (2002) found that currency substitution between the U.S. and Mexico is not a one-way street. Yoskowitz and Pisani (2007, 2002) found that roughly one-fourth of U.S. border retailers in Texas accepted the Mexican peso which enabled accepting retailers to enhance sales revenues by 6% as well as margins made (by 2.5%) on the transaction premium associated with the currency substitution.

[8] Hard currencies refer to national currencies that have wide acceptance in global trade (e.g., the U.S. dollar, the euro, and the Japanese yen). Soft currencies refer to national currencies that have little to no mobility in market exchanges across borders.

[9] The response rate for the survey as a whole was 50.7% among all firms.

[10] For summaries of distinct research endeavors utilizing the larger data set, see Fullerton, Molina, and Pisani (2009), and Muñoz, Pisani, and Fullerton (2011).

beer and liquor stores; beauty salons; convenience stores and gasoline stations; restaurants; grocery stores; pharmacies; clothing retailers; hotels and motels; and general and discount merchandisers. The Yellow Pages phone directory[11] served as the known universe of firms in El Paso (Yellow Pages 2008). Businesses in these retail segments are deemed more likely to have cash transactions, potentially enhancing the dual-currency environment. Within each classification a range of firms are targeted. Accordingly, the sample includes local firms, regional companies, national organizations, and international chains. In addition the proportional distribution of firms in each category generally reflects that distribution in the general population.[12]

Between July and December 2008, seven trained and paid research assistants (graduate students from the University of Texas at El Paso) and one research associate economist were employed to site visit the randomly selected businesses and ask a series of questions in-person to determine whether or not the firm engaged in currency substitution. The research assistants were all bilingual (English and Spanish) representing the unique business milieu of El Paso. Typically, the surveys took 20 minutes to an hour to complete inclusive of a brief tour of the business. This strategy was employed to increase the willingness of participation and accuracy from the firms (Marín and Marín, 1991; Webster, 1996). The survey was constructed and made available in English and Spanish modeled on two previous studies (see Pisani and Yoskowitz, 2006; Pisani, Yoskowitz, and Brusa, 2008). To ensure readability and clarity for the Spanish survey, the survey instrument was translated into Spanish and back translated into English, as suggested by Brislin (1980).

Extending the work of Pisani, Yoskowitz and Brusa (2008), the survey consisted of ten firm-level demographic questions, including such questions as the number of employees, hours of operation, firm type, and firm age. Each firm representative was asked whether their firm accepted Mexican pesos. For firms indicating that they engaged in currency substitution, twenty-two follow-up questions (e.g., "Does accepting Mexican pesos enhance sales?" and "Does the business conduct any type of advertisement or promotion with regards to its acceptance of Mexican pesos?") were asked concerning the mechanics of accepting Mexican pesos. Firms that rejected payment in pesos answered eleven "No" follow-up questions. These questions asked whether the firm had considered accepting pesos, whether they believed accepting pesos was too complicated a process, and where the

[11] The Yellow Pages: http://www.yellowpages.com

[12] In 2008, The U.S. Census Bureau counted 1,071 retailers in El Paso County with five employees or less (U.S. Census Bureau, 2008). Hence, our sample of 253 microenterprises represents 23.6% of the universe of El Paso retailers with five employees or less. Since our sample targeted specific sectors, the coverage is likely much higher for these categories.

decision to reject Mexican pesos originated. Distance [13] to the nearest international bridge was also included for each completed survey location. The average peso-dollar exchange rate for the survey period was 11.63 pesos per dollar with a standard deviation[14] of 1.43.

Parameter estimation is accomplished using logistic regression analysis. Logit models are very useful for samples in which the dependent variables are dichotomous in nature. This approach has been utilized to analyze discounts and premia charged when pesos are used for retail purchases in El Paso (Pisani, Muñoz, and Fullerton, 2012). An alternative approach is provided by probit analysis and that method is employed in a separate effort involving the total sample of firms for El Paso (Fullerton, Molina, and Pisani, 2009). Either method can be employed. The basic difference involves the underlying probability density functions associated with them. The probit approach utilizes the quantile function of the normal density function, while the logit method uses the quantile function of the logisitic distribution (Pindyck and Rubinfeld, 1998).

3. Results and Discussion

This section reports and discusses findings in the context of the three research questions. Descriptive statistics of the sample are first summarized. A comparison of microenterprise characteristics along the acceptance decision is next presented. Determinants of the acceptance decision are then reviewed. Opportunities associated with peso acceptance are then discussed.

3.1 Descriptive Statistics

By definition, the microenterprises in the primary sample for this paper have a maximum of five employees. The number of employees ranges from zero (n=1) to five (n=51) with an average of 3.1 (see Table 1). Microenterprises with two employees is the largest group (n=67). The average age of firms in the sample is 12.8 years with a range between 1 and 100. As El Paso lies on the border with Mexico, the average distance from the retailer to the nearest border crossing (i.e., international bridge) is fairly short, just under six miles.

Nearly all firms in the sample have at least one Spanish speaker on staff and more than 90% of the retail staff at these firms is conversant in Spanish. A

[13] Distance was calculated for each firm using mapquest.

[14] For the survey period, the median exchange rate was 10.94 pesos per dollar with a high of 13.92 pesos per dollar and a low of 9.92 pesos per dollar. The peso/dollar exchange rate data were retrieved from the *Banco de México* central bank database for the 17 July 2008 - 16 December 2008 sample period of the survey.

handful (n=6) of the firms have no language competency in Spanish. While many firms in border areas have twin locations on both sides of the international boundary, fewer than three percent of the businesses in this sample have cross-border operations. Not surprisingly, most retail microenterprises are local business concerns. Yet some firms, 13.0% of the respondents, have direct links to regional, national or international operations.

Table 1
Descriptive Statistics for Respondent Microenterprises in El Paso, Texas

Variable	**Value**
Mean Number of Employees (std. dev.)	3.1 (1.3)
Mean Years Operating in El Paso (std. dev.)	12.8 (14.4)
Mean Distance from the Border in Miles (std. dev.)	5.8 (1.3)
Percent of Staff Fluent in Spanish – Mean (std. dev.)	90.2 (2.3)
Percent of Firms with at least 1 Staff Member Fluent in Spanish	97.6
Percent of Firms with Cross-Border Operations	2.4
Percent of Survey Interviews Conducted with Owner/Manager in Spanish	68.0
Geographical Scope (%)	
Local	87.0
Regional	2.8
National	8.3
International	2.0
Retail Category (%)	
Bakery/*Tortillería*	7.1
Clothing Store	1.2
Hair Salon	33.2
Gasoline Station/Convenience Store	9.5
General Merchandise Store	7.5
Grocery Store	15.8
Liquor Store	10.3
Motel/Hotel	2.8
Pharmacy	5.1
Restaurant	7.5
Percent of Firms Accepting Mexican Pesos	19.8

Note: n=253
Source: calculations by authors.

Ten retail segments are covered by the survey: bakeries and *tortillerías* (e.g., tortillas, tortilla chips), clothing stores, hair salons, gasoline stations and convenience stores, general merchandise and discount stores, grocery stores, liquor stores, motels and hotels, pharmacies, and restaurants. These retail

segments are chosen because cash is often used to pay for goods and services. In the entire sample, restaurants comprise the largest segment (Muñoz, Pisani, and Fullerton, 2011). However, when classified by employee size, hair salons, grocery stores, and liquor stores comprise nearly 60 percent of the sample.

Table 2
Crosstabulation of Microenterprise Retail Category and Acceptance

	Accept Pesos?		
Retail Category (N)	**Yes**	**No**	**Total**
Bakery/*Tortillería*	3	15	18
Clothing Store	0	3	3
Hair Salon	8	76	84
Gasoline Station/Convenience Store	5	19	24
General Merchandise Store	5	14	19
Grocery Store	26	14	40
Liquor Store	1	25	26
Motel/Hotel	2	5	7
Pharmacy	0	13	13
Restaurant	0	19	19
Total	**50**	**203**	**253**
	Pearson Chi-square = 70.832, df =9, p = .000		

Source: calculations by authors.

Almost one in five (19.8%) surveyed microenterprises accept Mexican pesos in the normal course of their retail operations in El Paso. In fact, microenterprises are significantly more likely to accept Mexican pesos than small businesses (6-20 employees) with an acceptance rate of 9.9% and medium-sized or larger firms (21 or more employees) with an acceptance rate of 4.5% as derived from the larger sample.[15] Among microenterprises, a clear majority (65.0%) of El Paso grocery stores accept the Mexican peso (see Table 2). No other retail segment accepts Mexican pesos as widely as grocery stores. A substantial, though smaller, proportion of motels and hotels (28.6%), general merchandise and discount stores (26.3%), gasoline stations and convenience stores (20.8%), and bakeries and *tortillerías* (16.7%) engage in dual currency retail operations. The differences in proportional acceptance are significant.

[15] A cross tabulation between these three firm sizes as delineated by number of employees and peso acceptance (yes/no) yielded a significance level of .000 and a Pearson Chi-Square value of 19.005. The ratio of accepting firms to total firms in each category is as follows: microenterprises, 50:253; small businesses, 22:222; and medium-sized or larger firms, 5:111.

3.2 Characteristics of Microenterprises by Acceptance Decision

As shown in Table 3, it is possible to further distinguish between microenterprises that accept Mexican pesos from those who do not along eight variables (see Table 3). Significant differences exist with distance from the nearest international crossing with Mexico, language in which the interview was conducted, the percent of staff fluent in Spanish, and the geographical scope of the business enterprise. Microenterprises that accept the peso tend to be closer to Mexico (as per an international bridge crossing), have retail staffs with greater fluency in Spanish, and are more closely associated with either the local or international business environments. Somewhat surprisingly, the majority of respondent businesses undertaking the survey in English accept pesos, a healthy sign that these retailers are taking advantage of this means for increasing sales volumes. No univariate differences were uncovered between firm size (by number of employees), age, cross-border operations, and the ability to find someone in the business who could speak Spanish.

Table 3
Microenterprise Demographics by (Mexican Peso) Acceptance Decision

	Acceptance Decision			
Variable	**Yes**	**No**	**F**	**Sig.**
Mean Number of Employees	2.98	3.13	0.512	0.475
(std. dev.)	(1.22)	(1.33)		
Mean Years Operating in El Paso	15.77	12.05	2.685	0.103
(std. dev.)	(18.20)	(13.30)		
Mean Distance from the Border in Miles (std. dev.)	3.47	6.33	28.940	0.000
	(3.44)	(1.34)		
Percent of Staff Fluent in Spanish – Mean (std. dev.)	97.86	87.91	7.624	0.006
	(0.09)	(0.25)		
Percent of Firms with Cross-Border Operations	2.0	2.5	0.037	0.848
			Pearson Chi-squared	**Sig.**
Percent of Firms with at least 1 Staff Member Fluent in Spanish	100.0	97.0	1.514	0.219
Percent of Survey Interview Conducted with Owner/Manager in Spanish	47.9	72.8	11.011	0.001
Geographical Scope (%)			9.992	0.019
Local	92.0	85.7		
Regional	0.0	3.4		
National	2.0	9.9		
International	6.0	1.0		
Total (%)	19.8	80.2		

Note: variables in *italics* are significantly different. Source: calculations by authors.

3.3 Determinants of Mexican Peso Acceptance

Logistic regression analysis is used to estimate the determinants of the acceptance decision. Logistic regression works well with a dichotomous dependent variable (accept pesos: yes [=1] or no [=0]) and multiple independent variables. The independent variables employed in the analysis are distance in miles from the nearest international border crossing (Distance), number of employees (Employees), age of the firm in El Paso (Years in the Community), percent of the retail staff that speaks Spanish (Staff Speak Spanish), the language used to complete the survey (Interview Language [Spanish = 1]), whether or not the firm has cross-border operations (Cross-Border Operations [no = 1]), the geographical scope of the firm (Geographical Scope [Local, Regional, National, International]), and retail category (Bakery/*Tortillería*, Clothing Store, Gasoline Station/Convenience Store, General Merchandise Store, Hair Salon, Grocery Store, Liquor Store, Motel/Hotel, Pharmacy, Restaurant). For categorical variables, the group with the most responses is selected as the reference category.

A lot of foot traffic across the bridges from Ciudad Juárez is comprised by shoppers. Closer proximity to the bridges should, therefore, increase the likelihood of peso acceptance by small retailers and the coefficient for the Distance variable is hypothesized to have a negative sign. A larger number of Employees is expected to improve the ability of the firm to handle the additional steps required to manage payments in pesos, implying a positive sign for the coefficient estimated for this regressor. A greater number of Years in the Community should improve familiarity with customers from Mexico, peso transaction requirements, and peso conversion options. A positive sign is also hypothesized for the parameter estimated for that independent variable. A larger number of Staff that Speak Spanish is also expected to increase the probability of accepting pesos for purchases. Similarly, if the Interview Language for the survey is Spanish, it is hypothesized to be positively correlated with peso acceptance.

Several of the explanatory variables in the sample relate to firm characteristics. If an enterprise does not have Cross-Border Operations [no = 1], then that is expected to decrease the willingness to approve peso transactions. Although International firms are expected to be more likely to accept pesos, it is not known in general how firm geographic scope will affect the currency substitution decision. Similarly, there is no reason to anticipate that microenterprises from different retail categories will all approach this decision in identical manners. It is difficult to anticipate how firms in each segment will regard potential peso payments.

The results of the logistic regression appear in Table 4. Four variables in the model are significant: Distance, Interview Language, Geographical Scope, and Retail Category. As firms are located further away from the border, they are less likely to accept Mexican pesos at a diminishing rate of 16.1% per mile away from the border. This finding is as expected because of the large volume of northbound pedestrian cross-border traffic. Respondents completing the survey in English are 1.28 times more likely to accept pesos than respondents completing the survey in Spanish. This result is unexpected, but, as noted below, may simply reflect transaction cost uncertainties associated with sales in pesos.

While there are only a few (n=5) international microenterprises in our sample, 40% accept pesos increasing their odds of accepting pesos to 9.633 times that of local El Paso only firms. International firms are probably more familiar with multiple currencies and will likely find acceptance of Mexican pesos more easily within reach of their existing knowledge terrain. Two retail segments are much more likely to accept pesos than the referent hair salon group—they are general merchandise stores and grocery stores. General merchandise stores and grocery stores are 2.897 and 15.100 times more likely to accept pesos, respectively, than hair salons. Cross-border Mexican shoppers are more likely to be attracted to these retail outlets because they offer better prices and higher quality goods than are typically found on the Mexican side of the border.

The logistic regression equation was also re-estimated with the entire sample of 586 firms under the same framework as described above, except for Employees. In this case, the Employees variable was re-constructed into three groups, microenterprises (0-5 employees), small businesses (6-20 employees), and medium and large businesses (21 employees or more). Focusing only on employee group size, medium and large businesses are found to be significantly less likely—77.5% less likely (p=.015)— to accept Mexican pesos than microenterprises. Hence, the results suggest that microenterprises in the El Paso area are more attuned to commercial opportunities associated with peso acceptance (described below). The result for small business is not significant.

Table 4
Logistic Regression Results For Accepting the Mexican Peso (Yes=1)

Variable^	β Coefficient	S.E.	Wald	Sig.	Exp(β)
Constant	-5.130	2.247	5.214	0.022**	0.006
Distance	-0.175	0.070	6.247	0.012**	0.839
Employees	0.119	0.179	0.443	0.506	1.127
Years in Community	-0.010	0.015	0.462	0.497	0.990
Staff Speak Spanish	3.397	2.161	2.472	0.116	28.877
Interview Language (Spanish = 1)	0.824	0.463	3.167	0.075*	2.280
Cross-Border Operations (No=1)	-1.455	1.347	1.167	0.280	0.233
Geographical Scope			7.727	0.052*	
Regional	-19.376	13173.558	0.000	0.999	0.000
National	-1.807	1.215	2.210	0.137	0.164
International	2.364	1.324	3.188	0.074*	10.633
Retail Category			24.381	00.004***	
Bakery/*Tortillería*	0.447	0.791	0.320	0.572	1.564
Clothing Store	-19.371	20693.489	0.000	0.999	0.000
Gasoline Station/ Convenience Store	1.027	0.958	1.151	0.283	2.794
General Merchandise Store	1.356	0.761	3.713	0.075*	3.897
Grocery Store	2.779	0.629	19.517	00.000***	16.100
Liquor Store	-0.354	1.133	0.098	0.755	0.702
Motel/Hotel	0.656	1.234	0.283	0.595	1.927
Pharmacy	-18.538	10549.276	0.000	0.999	0.000
Restaurant	-19.188	8615.388	0.000	0.998	0.000
			-2 Log Likelihood| significance level:		145.447 | .000
			Cox and Snell R^2| Nagelkerke R^2:		.327 | .524
			Hit Ratio (%): Yes | No | Overall:		56.3 | 94.6 | 87.2

Note: ^referent groups for categorical variables: Interview Language = Spanish; Cross-Border Operations = No; Geographical Scope = Local firms; Retail Category = Hair Salons. Referent groups were selected based upon the largest percentage group within each respective category. Significance at the *P<0.10; **P< 0.05; ***P<0.01 levels.
Source: calculations by authors.

Addressing the three research questions, approximately twenty percent of retail microenterprises in El Paso are found to accept Mexican pesos in normal business exchange. The determinants of peso acceptance include proximity to the border, an international business focus, and well trafficked retail segments. A key outcome uncovered is that microenterprises in this sample are also much more likely to be engaged in peso acceptance (or currency substitution) than larger business concerns.

3.4 Opportunities Associated with Mexican Peso Acceptance

The rationale for providing the service of accepting pesos in the El Paso retail environment is primarily twofold: to increase sales and profit from the exchange rate transaction. Of the 50 microenterprises that accept Mexican pesos, 54.0% indicated that they are able to increase store sales by providing this foreign cash payment service. Overall, peso accepting firms averaged 4.4% of their total weekly sales transacted in pesos. For most firms accepting the peso, the decision to take pesos is a long standing and early one, on average nearly 15 years, and accounting for more than 93% of the lifetime of the firm's presence in El Paso.

Most microenterprises are able to profit from the exchange transaction on top of making a sale. The calculated exchange rate differential (determined as the firm's stated exchange rate minus the official exchange rate on the day of the survey) indicates that 70.2% of El Paso microenterprises accepting pesos earn a premium on foreign exchange transactions. This result may in part be fortuitous as only 40.0% of accepting firms say they do so purposefully by setting an above market rate. Another 48.0% state they set their rate to be equal to the going exchange rate while 12.0% said they offer a discount on the exchange rate. Overall, the average premium earned per foreign exchange rate transaction is 5.29% with a range from -14.82% to 20.99%. Each stated group of above, below, equal to market rate earned a premium of 8.35%, 4.95%, and 2.60%, respectively (these differences are significant, ANOVA, $F=3.408$, $p=.042$).

A majority of accepting firms have in-store signage indicating that they accept pesos for payment while about one-third rely on word-of-mouth promotion to communicate their willingness to accept pesos. More than half, 54.0%, of these same microenterprises also accept Mexican credit cards. Of these, 57.7% preferred Mexican pesos to credit cards because of the better foreign exchange rate offered in-store rather than provided by credit card companies and cash payment in hand immediately. The cost in time to prepare for, accept and dispose of pesos was minimal, averaging just over an hour per week.

3.5 Opportunity Lost?

For the 203 microenterprises who do not accept pesos, a two-pronged opportunity to enhance the bottom line through increased sales and an advantageous exchange rate is lost. Nearly 80 percent had not thought of accepting pesos in their retail store. Most say that accepting pesos will be inconvenient (63.1%) and complicated (65.5%). For a few (21.2%), accepting pesos will violate company policy. More than a third (37.4%) thinks accepting pesos will increase sales and fewer (27.6%) thought they would lose on the transaction by accepting pesos.

Conclusion

This paper explores the connection between payment mechanisms and retail-oriented microenterprises at the junction of the U.S.-Mexico border in El Paso, Texas. El Paso makes an interesting study site because of the immense volume of cross-border traffic enabling El Paso retailers the opportunity to capitalize upon serving the unique attributes of shoppers from northern Mexico. One such unique retail service is the use and acceptance of Mexican pesos north of the border. Previous studies have suggested that cross-border shoppers do not always carry enough cash or exchange enough cash while on shopping excursions (Pisani, Cal and Cal, 2009). Much time and effort goes into a cross-border shopping trip, especially with the increases in security-related wait times that emerged after the terrorist attacks of 11 September 2001 (Villegas et al., 2006). Hence, the use of pesos as a cross-border Mexican shopper in El Paso when access to U.S. dollars may be limited or exhausted is a most welcome service.

From the vantage point of the retail microenterprise, just fewer than twenty percent offer the cross-border shopper (or the domestic shopper with surplus pesos) the opportunity to redeem pesos in exchange for goods and services. The service comes at a cost for the cross-border shopper, or a premium for the microenterprise, that averages a bit more than five percent per peso transaction. El Paso microenterprises not only report gains from the currency transaction, but also an increase in sales. The likelihood of El Paso retailers to engage in peso acceptance, a form of currency substitution with a long history in border areas, increases with proximity to an international border crossing. Among the various retail categories included in the sample, general merchandise and grocery stores are found to be most likely to allow customers to use pesos for purchases. Microenterprises are also more likely than their larger business counterparts in El Paso to allow foreign currency transactions.

Future research on microenterprises and currency substitution may incorporate a fuller perspective by interviewing cross-border shoppers. A more qualitative survey approach with respect to business managers and entrepreneurs in order to triangulate research approaches may also prove helpful. Finally, even though dollars circulate more widely in northern Mexico, relatively little is known regarding the premia or discounts at which they are accepted for retail transactions.

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