

Hispanic Consumers' Preferences and Willingness-to-Pay for Pasture-Fed Beef in Virginia

Jie Luo¹, Denise Mainville¹, Wen You, and Rodolfo M. Nayga Jr.²

¹ Virginia Polytechnic Institute and State University

² University of Arkansas

Problem Statement

- There is increasing interest in pasture-fed beef (PFB) in the U.S. beef market due to health and nutrition concerns, food safety and environmental preservation issues.
- Mainstream Consumers are hesitant of PFB because of its distinct sensory attributes and eating quality from conventional grain-fed beef (GFB).
- The Hispanic/Latino population is hypothesized as a potential market for PFB due to
 - PFB production and consumption in many Hispanic /Latin countries;
 - Remarkable beef consumption and spending among Hispanics/Latinos (more than other ethnicities);
 - Fast growth of the Hispanic population in the U.S., becoming the biggest ethnic minority;
- Existing studies on PFB are focused on mainstream consumers, but no known research has been done to understand Hispanic /Latino consumers' preferences and valuations on PFB;

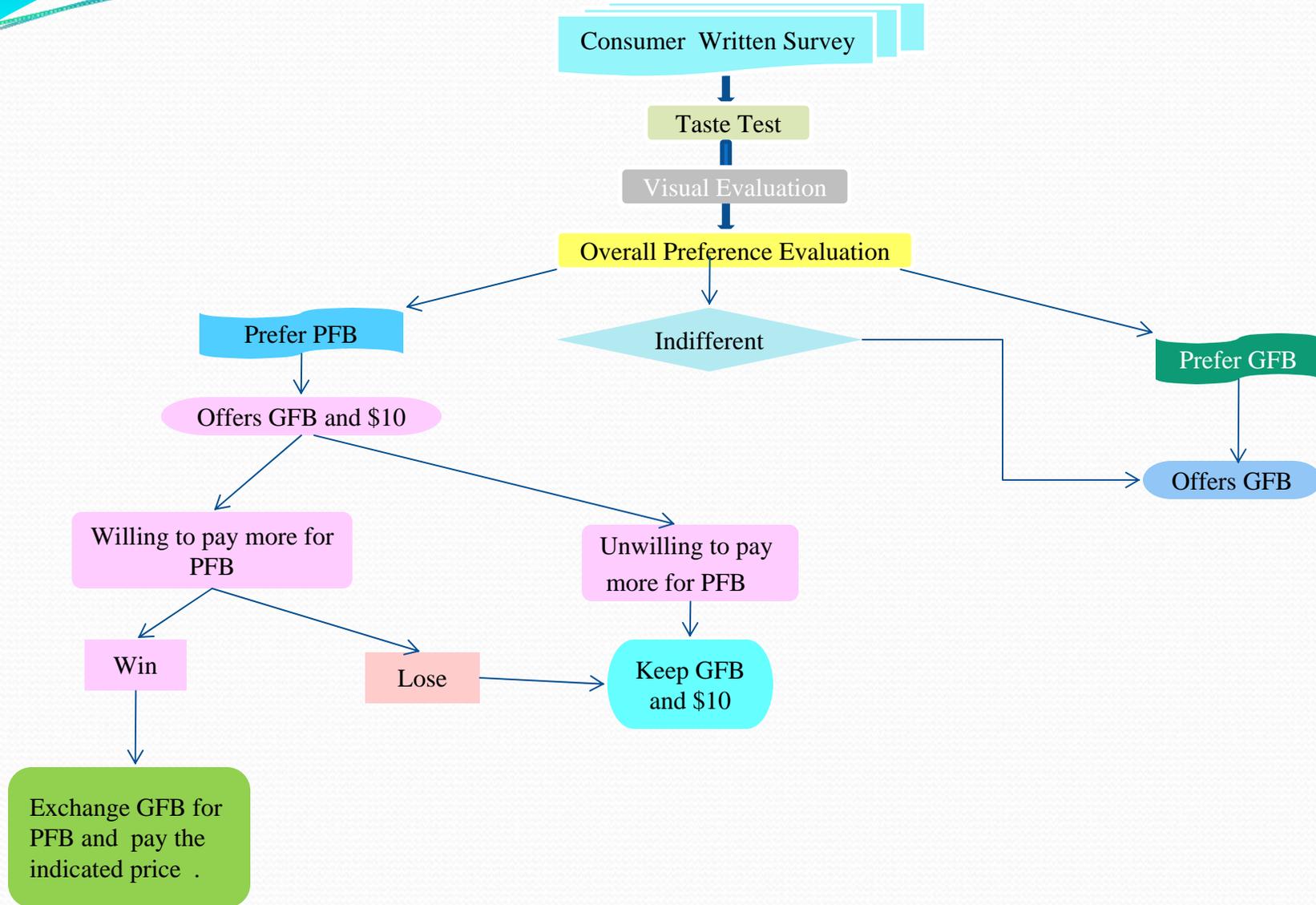
Research Objectives

- Explore the potential Hispanic market of PFB using Experimental Economics methods;
- Evaluate the sensory preferences for PFB vs. conventional GFB by Hispanic/Latino consumers;
- Measure the willingness to pay (WTP) for PFB by Hispanic/Latino consumers using experimental economics methods;
- Investigate the effects of visual and taste acceptability on Hispanic/Latino consumers' preferences and WTP.

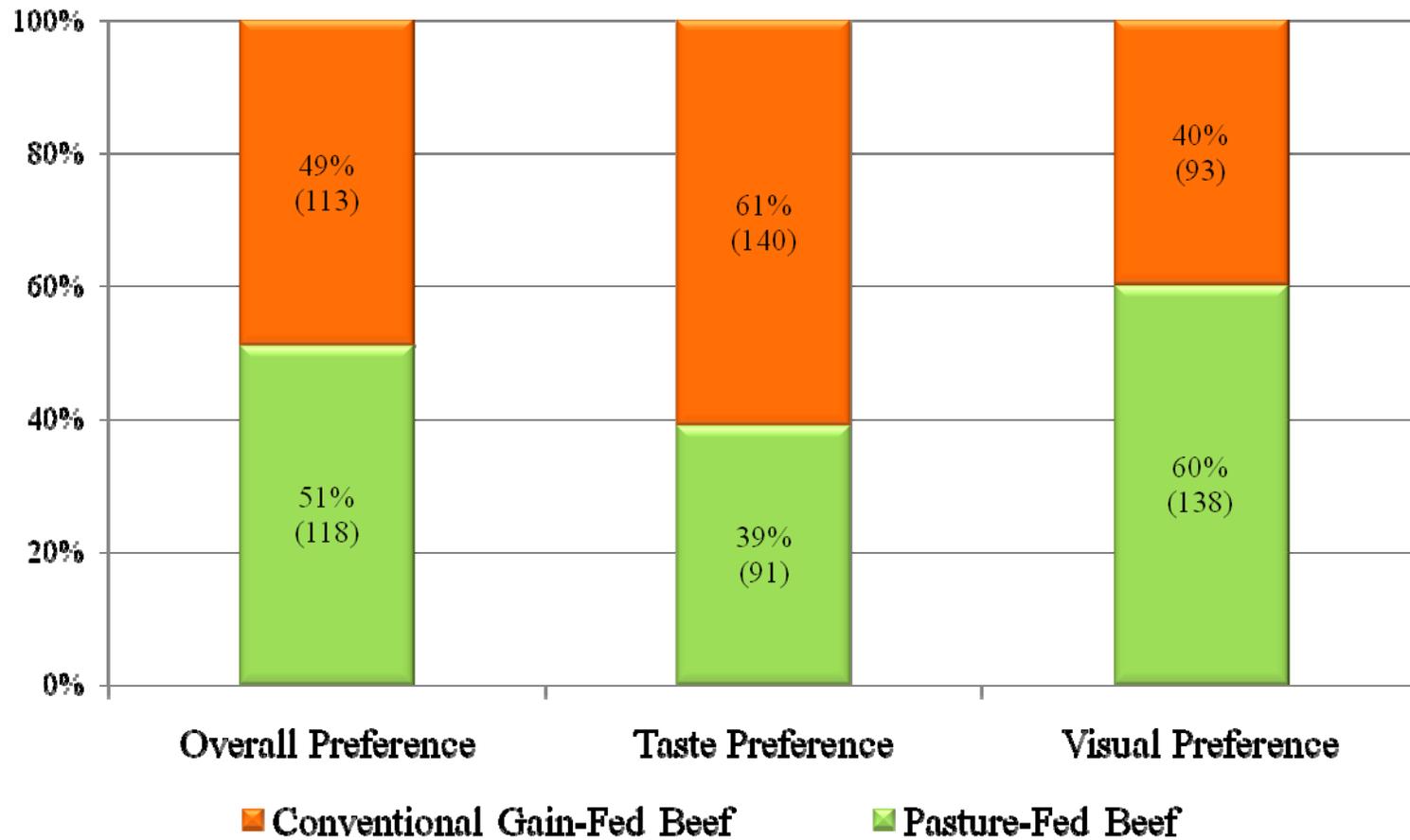
Experimental Setup

- Experiment sites: Galax, Roanoke, Richmond, and Blacksburg (all in Virginia).
- Two types of beef samples: PFB and conventional GFB.
 - Both are Strip steaks
 - Marbling degree: USDA Select

Flow Diagram of Experiment Procedure – Treatment A

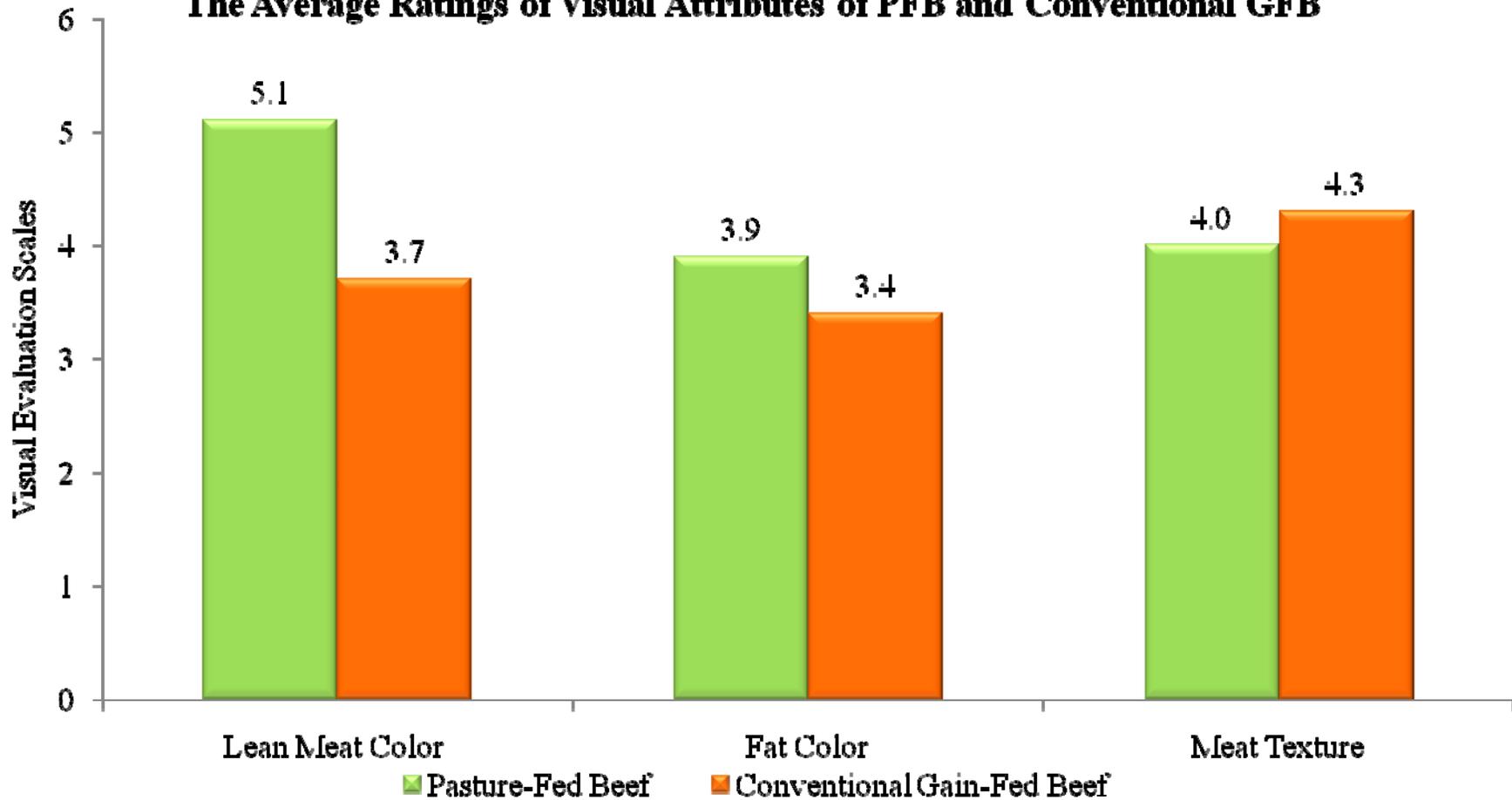


Taste, Visual, and Overall Preferences



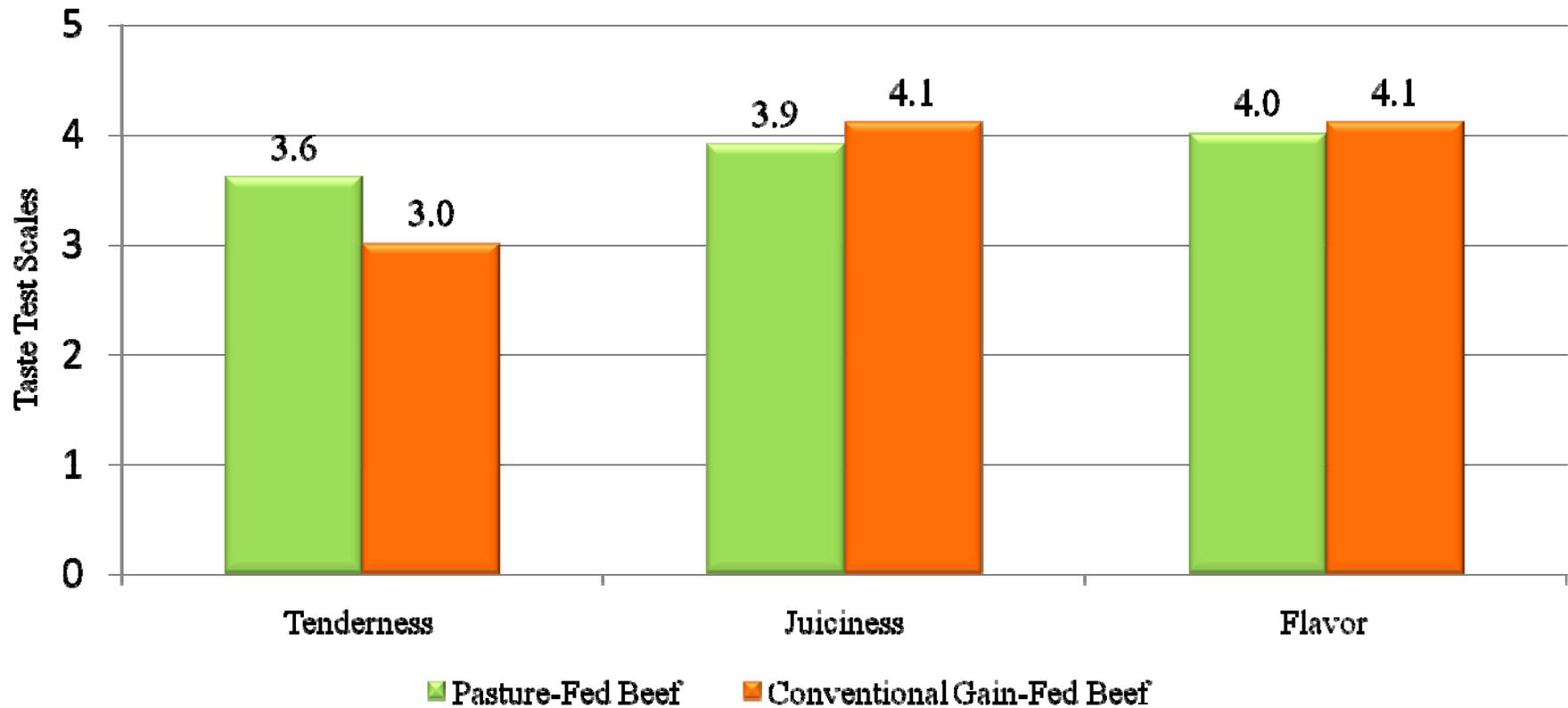
Lean Meat Color	1=Very Pale	2=Pale	3=Pink	4=Neutral	5=Red	6=Dark	7=Very Dark
Fat Color	1= Very White	2=White	3=Somewhat White	4=Neutral	5=Somewhat Yellow	6=Yellow	7=Very Yellow
Meat Texture	1=Very Fine	2=Fine	3=Somewhat Fine	4=Neutral	5=Somewhat Coarse	6=Coarse	7=Very Coarse

The Average Ratings of Visual Attributes of PFB and Conventional GFB



Tenderness	1=Very tender	2=Tender	3=Somewhat Tender	4=Neutral	5=Somewhat Tough	6=Tough	7=Very tough
Juiciness	1=Very Juicy	2=Juicy	3=Somewhat Juicy	4=Neutral	5=Somewhat Dry	6=Dry	7=Very Dry
Flavor	1= Very Intense	2=Intense	3=Somewhat Intense	4=Neutral	5=Somewhat Bland	6=Bland	7 =Very Bland

The Average Ratings of Taste Attributes of PFB and Conventional GFB



Estimation Results of Multivariate Probit Model

Variable	Visual Preference		Taste Preference		Overall Preference	
	Coefficient	S.E.	Coefficient	S.E.	Coefficient	S.E.
GALAX	-.069	.422	-.285	.449	-.111	.451
ROANOKE	.436	.369	-.324	.410	.237	.400
RICHMOND	.664**	.310	.811**	.330	1.313***	.341
TREATMENT	.061	.311	.534*	.321	.260	.325
FEMALE	-.113	.229	.040	.247	-.109	.239
AGE	.007	.008	.005	.009	-.002	.009
LVSTAT	.498	.329	-.726**	.370	.225	.364
EDU	-.104	.078	.083	.086	.020	.081
EMPLOY	.040	.233	.305	.261	.206	.248
INCOME	.012	.046	.035	.053	-.004	.050
HHDSIZE	.156	.114	.291**	.119	.077	.115
CHILD	-.215	.137	-.351**	.145	-.117	.134
MEXCIAN	.709**	.317	-.200	.399	.710**	.360
SALHON	.201	.341	-.563	.435	-.018*	.387
COLOMBIAN	.431	.325	.005	.403	.633	.364
ACLT	.404***	.102	-.176	.112	.155	.106
FHOME	-.191	.136	-.085	.155	-.202	.147
FAWAY	-.083	.094	-.063	.107	.064	.099
BAMNT	-.001	.007	-.003	.007	.005	.007
DONE	-.025	.095	-.153	.102	-.207**	.101
GRADE	.050	.055	-.101	.062	-.041	.059
EPFB	-.029	.224	-.034	.242	.071	.245
MCOLOR	.077	.074	-	-	.105	.077
FCOLOR	-.049	.069	-	-	-.014	.078
TEXTURE	-.231***	.050	-	-	-.029	.051
TENDERNESS	-	-	-.196***	.064	-.160***	.057
JUICINESS	-	-	-.325***	.075	-.216***	.063
FLAVOR	-	-	-.173***	.068	-.085	.058
CONS	-2.952***	1.112	.919	1.224	-1.021	1.161

* , ** , *** denote significance at the 10% , 5% , and 1% levels , respectively .

Estimation Results of The Tobit Model

Variable	Coefficient	S.E.	Marginal Effects			
			Expected Unconditional Values		Conditional on Being Uncensored	
			dF/dx	S.E.	dF/dx	S.E.
TASTE	4.409***	.886	1.606***	.355	1.309***	.277
VISUAL	4.414***	.794	1.974***	.318	1.499***	.248
GALAX	.970	1.501	.418	.601	.318	.468
ROANOKE	1.821	1.329	.774	.532	.592	.415
RICHMOND	1.743	1.161	.763	.465	.577	.362
TREATMENT	.998	1.047	.3782	.419	.301	.327
FEMALE	-.088	.782	-.035	.313	-.028	.244
AGE	-.013	.029	-.005	.012	-.004	.009
LVSTAT	2.583**	1.257	.878*	.504	.733*	.392
EDU	-.299	.274	-.120	.110	-.093	.086
EMPLOY	-.716	.825	-.296	.330	-.228	.257
INCOME	-.058	.166	-.023	.067	-.018	.052
HHDSIZE	-.694*	.395	-.278*	.158	-.217*	.123
CHILD	1.333***	.455	.534***	.183	.416***	.142
MEXCIAN	1.409	1.139	.593	.456	.455	.355
SALHON	1.227	1.269	.533	.508	.404	.396
COLOMBIAN	1.504	1.166	.662	.467	.500	.364
ACLT	.295	.360	.118	.144	.092	.112
FHOME	.030	.479	.012	.192	.009	.150
FAWAY	.948***	.346	.380***	.139	.296***	.108
BAMNT	-.022	.021	-.009	.009	-.007	.007
DONE	-.570*	.311.	-.228*	.125	-.178*	.097
GRADE	-.183	.200	-.073	.080	-.057	.063
EPFB	1.605**	.761	.676**	.305	.518**	.237
CONS	-8.303**	4.173	-3.327**	1.672	-2.592**	1.303

*, **, *** denote significance at the 10%, 5%, and 1% levels, respectively.

Conclusions

- More than 50% of Hispanic/Latino consumers preferred PFB;
- The majority of PFB-preferring consumers were willing to pay a price premium, suggesting a potential market of PFB among Hispanics/Latinos;
- Hispanic/Latino consumers could distinguish the visual appearance and taste of PFB from conventional GFB;
- Consumers' visual and taste acceptability significantly affected their overall preferences and WTP for PFB;
- Inconsistency between visual and taste acceptability of PFB;
- The latter didn't result in negative impact on Hispanic consumers' WTP.