

Analysis of the Annual Growth of Hispanic Participants in *Food Stamps* Program in South Carolina Over A Four-Year Period (2000-2003)

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Abstract

Research was conducted on the participation of the Hispanics within the age of 12-65 years in the Food Stamps program of 23 selected counties in South Carolina for the period of 2000 to 2003. Twenty-three counties were divided into four regional groups (Piedmont, Midland, Pee-Dee, and Coastal), to test if there was a significant difference in the Hispanic participation in the Food Stamps program of each of the four regions across the repeated measures over a four-year period. Results showed that the percentage of Hispanics who participated in the Food Stamps program was significant over the period of 2000-2003 for all four regions. Further testing was done on each of the four regions to find if Hispanic participation in the Food Stamps program in each year was significantly different from that in its previous years. Results showed a significant increase in Hispanic participation in all years 2001, 2002, and 2003 as compared to year 2000, and also in year 2003 as compared to year 2002, in Piedmont and Midland regions. Furthermore, there was a significant increase in Hispanic participation in years 2002 and 2003 as compared to year 2001 in Piedmont, Midland, and Coastal regions. These results will be useful to the state agencies to evaluate the progress of the counties regarding the Food Stamps program over the period of 2000-2003 in order to improve the nutrition and health of the Hispanics in South Carolina.

Introduction

Food Stamps program in the United States of America was born in the late 1930s, with a limited program in effect from 1939 to 1943. It was revived as a pilot program in 1961 and was extended nationwide in 1974. Current program structure was implemented in 1977 with a goal of alleviating hunger and malnutrition by permitting low-income households to obtain a more nutritious diet through normal channels of trade. Such a program is targeted toward those most in need. The 2002 Farm Bill's nutrition title reauthorized the *Food Stamp* Program for five years, restored food stamp eligibility for many legal immigrants, and made other program improvements. Of all food stamp households in FY 2003, 55 percent contain children; households with children receive 79.3 percent of all food stamp benefits. Eighteen percent of food stamp households contain an elderly person and 23 percent contain a disabled person. Eligibility for the *Food Stamp* Program is based on financial and non-financial factors. Legal immigrants with disabled children and legal immigrants who have legally resided in the United States for at least 5 years are eligible for food stamps. Other legal immigrants and any undocumented immigrants are ineligible for food stamp benefits. Furthermore, the House Agriculture Committee passed a bill on October 28, 2005 to cut about 300,000 people off the Food Stamp Program. The USDA report shows that the number of individuals facing food insecurity increased by almost two million people between 2003 and 2004. Under the Agriculture Committee bill, the Food Stamp Program bears almost a quarter of the cuts. Currently, legal

immigrants are banned from eligibility for food stamps for their first *five* years in the United States (Dean, 2005; Romero et al, 2002; Kuthilia, 2001).

According to Census data, the population of the Hispanic immigrants in the United States (U.S.) has grown rapidly over the last decade, increasing from 22.3 million (9% of the U.S. population) in 1990 to over 35.3 million (13.2% of the U.S. population) in the year 2000 (U.S. Census Bureau 2000; U.S. Census Bureau 2001). Representing the fastest growing minority group in the nation, between 1990 and 2000, their population was increased by 57.9%. South Carolina's Hispanic population has increased by 2.4% within a ten year span (U.S. Census Bureau 2000), causing the state to adjust and rethink its strategies toward providing social and educational services to meet the growing needs of the Hispanic population. In South Carolina over 100,000 households depend on the *Food Stamp* Program each month to get the food they need for good health (South Carolina Department of Social Service, 2006). Hence, the research was done to evaluate the *Food Stamps* program for Hispanics in the selected counties of the State of South Carolina conducted during the period of 2000-2003.

Purpose

Purpose of this research paper is to analyze the annual growth of the Hispanic participation in the *Food Stamps* programs in the four regional groups of the state of South Carolina over the period of four years from 2000 to 2003.

Procedures

This research study consisted of 23 counties out of 46 counties in State of South Carolina were selected, which had a total population of more than 1000 Hispanic residents, according to the Census 2000 data. These 23 counties were grouped into four distinguished regions: ***Piedmont***: Anderson, Cherokee, Greenville, Laurens, Oconee, Spartanburg, Pickens, and York; ***Midland***: Aiken, Greenwood, Lexington, Newberry, Orangeburg, Richland, and Saluda; ***Pee-Dee***: Florence, Horry, and Sumter; and ***Coastal***: Beaufort, Berkeley, Charleston, Dorchester, and Jasper. Data on the total Hispanic population and the number of Hispanic people within age of 12-65 years in each county, who participated in *Food Stamps* program for four years from 2000 to 2003, was made available by the U.S. Bureau of the Census and Census of the Population and Housing 2000; and the percentages of the participation in each county were computed by the researcher using the Hispanic participation and the total Hispanic population in each county (Mathis et al, 2005).

Several statistical tests were performed on four regions in the experimental group across the repeated measures of four years from 2000 to 2003. Nonparametric tests (alternative to the parametric tests) were used because the sample sizes of the regional groups were small. Besides, nonparametric tests are most appropriate when the sample sizes are small, and make no assumptions about the distribution of the data. Friedman and Wilcoxon Signed Ranks tests, non-parametric tests, were used to analyze the study data; and *Statistical package for the Social Sciences (SPSS)* software system was used to perform statistical analysis on the data (SPSS Inc).

Friedman test was performed on each of four regions with dependent variable as a percentage of Hispanic participants measured across four years of the period 2000-2003. This test is based on the ranks of the data rather than the raw data. The test statistic for the Friedman's test is a Chi-square with $a-1$ degrees of freedom, where a is the number of repeated measures. When the p-value for this test is small (usually <0.05 for 5% level of significance) there is an evidence to reject the null hypothesis that the distribution of the ranks of percentages of Hispanic participants was same across repeated measures over four years.

Wilcoxon Signed Rank test was performed to compare the percentage of Hispanics within age of 12-65 years participated in the *Food Stamps* program between pairs of years of the period 2000-2003. It is a nonparametric test to compare the paired samples, where ranks were computed based on the differences in percentages of Hispanic participants of two paired years in an ascending order, irrespective of sign, and a sign was then attached to each rank. When the p-value for this test is small (usually <0.05 for 5% level of significance), then the percentages of Hispanic participants in the paired years were significantly different (Levin, 1987; Weiss, 1997).

Results and Discussion

The Friedman test, a non-parametric test, was performed to test if there was a significant difference in the percentage of the needy Hispanics within age of 12-65 years, who participated in *Food Stamps* program, over the period of four years from 2000 to 2003. The test was performed for each of the four regions in the experimental group. The results were significant for all four regions at 5 percent level, which are provided in Table (1). So, the distribution of the percentages of the Hispanics within age of 12-65 years participated in the *Food Stamps* program over the period of four years from 2000 to 2003 was significantly different for each of four regions used in the study.

Table 1
Statistics on Distribution of the Hispanic Participants in Food Stamps Program across Repeated Measures over a Period of Four Years (2000-2003)

Region	N	Chi-Square	Df	P
Piedmont	8	22.595	3	.000*
Midland	7	19.971	3	.000*
Pee-Dee	3	8.379	3	.039*
Coastal	5	13.080	3	.004*

* 5% level of significance (p)

To test further which years significantly differed from each other regarding the Hispanic participation in the *Food Stamps* program, the Wilcoxon-Sign test was performed on each of four regions in the experimental group. Consequently, the percentage of participation of the Hispanics within age of 12-65 years participated in *Food Stamps* program in each year was compared with such percentages in its previous years for the period of 2000-2003, thus resulting into six paired comparisons for each region. Tables (2-5) show the results of the Wilcoxon test

for the *Food Stamps* program for all four regions in the experimental group for the period of 2000 - 2003. The value of “p” indicates whether the result is significant or not, where the results were tested at 5 percent level of significance. Whereas, the value of positive ranks indicates the number of counties with increase in Hispanic participation in the *Food Stamps* program, while the value of negative ranks indicates decrease in participation, and the value of ties indicates number of counties with no change in participation.

Table (2) presents the results for the Piedmont region, where the Piedmont region showed the significant difference in percentages of Hispanics within age of 12-65 years participated in *Food Stamps* program for all years 2001, 2002, and 2003 compared to year 2000. Positive ranks for these comparisons indicate that no county had decrease in the Hispanic participation in years ahead of 2000 during the period of 2000-2003. Percentages of the Hispanics participants in years 2002 and 2003 were also significantly different from the percentage of the Hispanics participants in year 2001; and all counties in this region showed increase in participation for year 2003 over 2001 while all counties except one showed increase in participation for year 2002 over 2001. Moreover, the Piedmont region showed a significant improvement in year 2003 compared to year 2002, as all counties in this region showed increase in the participation in year 2003 compared to year 2002.

Table 2
Statistics on Comparison of the Hispanic Participation in Food Stamps Program between Years for the Period of 2000-2003 in Piedmont Region

Pairs of Years Compared	Test Statistics		Ranks		
	Z	P	Negative	Positive	Ties
Year01 – Year00	-2.366(a)	.018*	0	7	1
Year02 – Year00	-2.521(a)	.012*	0	8	0
Year03 – Year00	-2.521(a)	.012*	0	8	0
Year02 -Year01	-2.380(a)	.017*	1	7	0
Year03 -Year01	-2.521(a)	.012*	0	8	0
Year03 -Year02	-2.521(a)	.012*	0	8	0

a Based on negative ranks

* 5% level of significance

From the results on the Midland region provided in Table (3), it can be noticed that the Midland regional group showed the significant difference in percentages of Hispanics within age of 12-65 years, who participated in *Food Stamps* program, for all years 2001, 2002, and 2003 compared to year 2000, where all counties had positive ranks indicating an increase in Hispanic participation in the period 2001-2003 compared to year 2000. In the Midland region, the

percentages of the Hispanics within age of 12-65 years participated in the *Food Stamps* program in years 2002 and 2003 were significantly different from that in year 2001. All counties in Midland region showed growth in participation for year 2003 over 2001 while all counties except one showed growth in participation for year 2002 over 2001. Furthermore, Midland region showed a significant improvement in year 2003 compared to year 2002, and all counties positive ranks showing increase in the Hispanic participation in the *Food Stamps* program in year 2003 compared to year 2002.

Table 3
Statistics on Comparison of the Hispanic Participation in Food Stamps Program between Years for the Period of 2000-2003 in Midland Region

Pairs of Years Compared	Test Statistics		Ranks		
	Z	p	Negative	Positive	Ties
Year01 – Year00	-.2366(a)	.018*	0	7	0
Year02 – Year00	-.2366(a)	.018*	0	7	0
Year03 – Year00	-.2366(a)	.018*	0	7	0
Year02 -Year01	-2.028(a)	.043*	1	6	0
Year03 -Year01	-.2366(a)	.018*	0	7	0
Year03 -Year02	-.2366(a)	.018*	0	7	0

a Based on negative ranks

* 5% level of significance

Referring to Table (4) for the results on Pee-Dee region, it did not show any significant difference from either 2001 or 2003 when compared to the year 2000 for Pee-Dee region. Though one county showed increase in participation, one county showed decrease in participation and the other one showed a tie when compared year 2001 with 2000. Furthermore, Pee-Dee region did not show a significant difference in any of years 2002 and 2003 compared to the year 2001 even though all its three counties showed some increase in participation of Hispanics in *Food Stamps* program for both years. Pee-Dee region did not show a significant difference in participation in year 2003 compared to year 2002 even though all its three counties showed some increase in participation.

Results for the Coastal region in Table (5) indicate a significant increase in Hispanic participation in *Food Stamps* program of the Coastal region for years 2002 and 2003 when compared with year 2000, where all five counties had positive ranks indicating growth in such Hispanic participation in these paired comparisons. In this region, the percentages of Hispanics within age of 12-65 years participated in *Food Stamps* program in years 2002 and 2003 were significantly different from such percentage in year 2001, where all counties showed increase in

participation of Hispanics for both years 2002 and 2003 compared to 2001. When the percentage of Hispanics participated in *Food Stamps* program in year 2003 was compared with that in year 2002, Coastal regions showed a significant difference in year 2003 compared to year 2002, where four counties with positive ranks showed increase and one county with negative rank showed decrease in the Hispanic participation in *Food Stamps* program in year 2003 compared to year 2002.

Table 4

Statistics on Comparison of the Hispanic Participation in Food Stamps Program between Years for the Period of 2000-2003 in Pee-Dee Region

Pairs of Years Compared	Test Statistics		Ranks		
	Z	p	Negative	Positive	Ties
Year01 – Year00	-.447(a)	.655	1	1	1
Year02 – Year00	-1.604(a)	.109	0	3	0
Year03 – Year00	-1.604(a)	.109	0	3	0
Year02 -Year01	-1.604(a)	.109	0	3	0
Year03 -Year01	-1.604(a)	.109	0	3	0
Year03 -Year02	-1.604(a)	.109	0	3	0

a Based on negative ranks

* 5% level of significance

Table 5
Statistics on Comparison of the Hispanic Participation in Food Stamps Program between Years for the Period of 2000-2003 in Coastal Region

Pairs of Years Compared	Test Statistics		Ranks		
	Z	p	Negative	Positive	Ties
Year01 – Year00	-1.753(a)	.080	1	4	0
Year02 – Year00	-2.023(a)	.043*	0	5	0
Year03 – Year00	-2.023(a)	.043*	0	5	0
Year02 -Year01	-2.023(a)	.043*	0	5	0
Year03 -Year01	-2.023(a)	.043*	0	5	0
Year03 -Year02	-1.753(a)	.080	1	4	0

a Based on negative ranks

* 5% level of significance

Conclusions

Since the Hispanic population is the fastest growing minority in America and a large number of them are in need of the *Food Stamps* program, the research was conducted on the participation of the Hispanics within age of 12-65 years in the *Food Stamps* program of 23 selected counties in South Carolina for the period of 2000 to 2003, where these counties were divided into four regional groups. When compared with year 2000, the Piedmont and Midland regional groups showed a significant increase in Hispanic participation in *Food Stamps* program for all three years 2001, 2002, 2003, while Coastal region showed a significant increase for years 2002 and 2003. Furthermore, the Piedmont, Midland, and Coastal regional groups showed a significant increase in Hispanic participation in *Food Stamps* program for years 2002 and 2003 when compared with year 2001. In addition, the results showed a significant increase for year 2003 when compared with year 2002 for Piedmont and Midland regions. These results on the annual growth of Hispanic participation in the *Food Stamps* program will be useful to state agencies to evaluate the *Food Stamps* program over the period of 2000-2003 in order to improve the nutrition and health of the Hispanics in South Carolina.

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