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**Is It More Than Coincidence of the Presence of Food Deserts, Pre-School Age
Native American Indian Children, and Childhood Obesity?**

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Introduction and Objectives

- Childhood obesity is a leading public health concern that disproportionately affects low-income and minority children.
- Native American Indians and Alaska Natives have highest obesity rates (exceeding 21%) and are the only races or ethnic groups with increasing obesity rates during the past five years.
- For decades, the goal of US food and nutrition assistance programs was to make sure low income Americans could afford enough food by protecting program participants from hunger and by supporting demand for farm products.
- The Native American population benefited from the Food Distribution Program on Indian Reservations (FDPIR), which provides monthly supplemental food packages to low-income households living on Indian Tribal reservations and to eligible American Indian households living in approved areas near reservations.
- Some low-income neighborhoods have been dubbed “food deserts” because there are few sources of healthy, nutritious and affordable foods and low access to supermarkets or grocery stores.
- Indian Tribal counties also experience the same fates of lower incomes, higher unemployment, higher poverty, lower access and fewer food choices.
- Native American counties tend to be thinly settled and far from major population centers, creating non-competitiveness among food businesses.

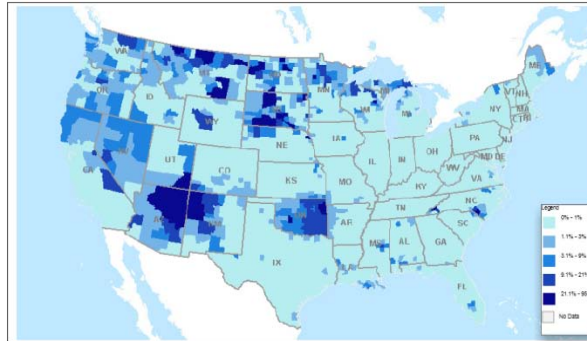
The primary objective of the research is to address the question:

“Is it more than mere coincidence of the simultaneous presence of food deserts, pre-school age Native American Indian children, and childhood obesity?”

Methodologies Employed

- The methodologies used are both visual and analytical.
- Overlaying several USDA-sourced atlases, including the Food Environment Atlas and the Food Desert Locator, plus the U.S. Census Bureau map of the American Indian and Alaska Native population as a percentage of county population in 2010, suggests a high visual coincidence of obesity in Native American counties recognized for food deserts and low-incomes.
- Applying analyses of interdependency, namely factor analysis and cluster analysis, to summarize the information in the whole set of observed interdependent relationships by using some smaller sets of linear composite variates leads to a grouping of input variables that measure or is a relative indicator of the same underlying concepts or redundancies in the data – the apparent coincidence of food deserts, Native American Indian pre-school age children, and childhood obesity.

Percent Native American, 2005-2009



Food deserts in low-income (red) and high-poverty (blue) areas are highlighted in red and blue. Food deserts are in a supermarket or large grocery store.



Food Environment Atlas



Cluster Analysis

Attribute Profile of Native American Indian Food Purchaser Clusters

Attribute	Eating Habit Clusters							
	Nutrition	Calorie	Meal	Culture	Anything			
Conscious	Counters	Planners	Bound	Goes	Grazers	Junkies	Foodies	
Price								
Availability								
Convenience								
Prepared, ready-to-eat								
At-home								
Away-from home								
Fresh, local								
Single serving size								

Factor Analysis

Native American Indian Tribal Community/Organization Food

Environment Factor Structure

Food Deserts

- Restaurants/cafes/diners (excluding fast food)
- Grocery/dollar-genre food stores (excluding gas/convenience)
- Local foods
- Population center > 5,000 people
- Employment
- Personal transit/transportation
- Licensed preschools/day care, 4-month – 6-years
- Consolidated school district, K-12

Childhood Obesity

- Grocery/dollar-genre food stores (excluding gas/convenience)
- Licensed preschools/day care, 4-month – 6-years
- Employment
- Population center > 5,000 people
- Local foods
- Restaurants/cafes/diners (excluding fast food)
- Personal transit/transportation
- Consolidated school district, K-12

Results, Discussion, and Conclusion

Availability is not the cause and effect source of obesity, although the social consequences of more abundant but limited foods selections from local sources, and limited competitiveness among food businesses (food deserts) in rural communities may contribute to obesity.

Although validated in occurrence, the presence of food deserts, preschool age Native American Indian children, and childhood obesity can only be declared coincidental as perfect correlations did not occur.

Selected References

- U.S. Census Bureau. 2011. 2010 Census Redistricting Data. www.census.gov/prod/cen2010
- USDA/ERS. 2009. Food Desert Locator. www.ers.usda.gov/Data/FoodDesert/
- USDA/ERS. 2011. Your Food Environment Atlas. www.ers.usda.gov/FoodAtlas/