

Geographic Variation in Native American Anthropometrics: A Spatial Analysis of the Boas and Gifford Datasets

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Abstract:

In this seminar I will discuss the application of spatial analysis to large sets of anthropometric data collected from Native Americans in the late nineteenth and early twentieth centuries.

This study was undertaken because previous ones of this type either did not utilize statistical methods or were never published. Therefore, my purpose was to examine these datasets more comprehensively using a spatial analysis method called Moran's I to discover the patterns of variation hidden in the data.

The following questions are addressed. First, is there significant heterogeneity in the anthropometric data? Second, do the data show significant spatial structure? Third, what spatial pattern in the data does the analysis reveal? Fourth, do the patterns revealed by the analysis show evidence of the migration or migrations that brought Native Americans to the New World?

The variables used in the analysis consisted of 12 anthropometric dimensions and 2 additional, calculated dimensions. The head and body measurements were analyzed separately. The sample sizes consisted of 9024 individuals subdivided into 120 tribes for the head dimensions and 8445 individuals spread over 119 populations for the body dimensions.

Overall, the results showed that the head data produced little evidence for inter-continental migrations, but the body data revealed evidence for at least one such migration. In addition, a complex network of gene drift, regional gene flow, and natural selection was mainly responsible for the variation in the data.