

Protein Power vs Sugar Shock: The Prepared Meal Showdown
Which prepared meal brands give you more muscle and less sugar at reasonable prices?

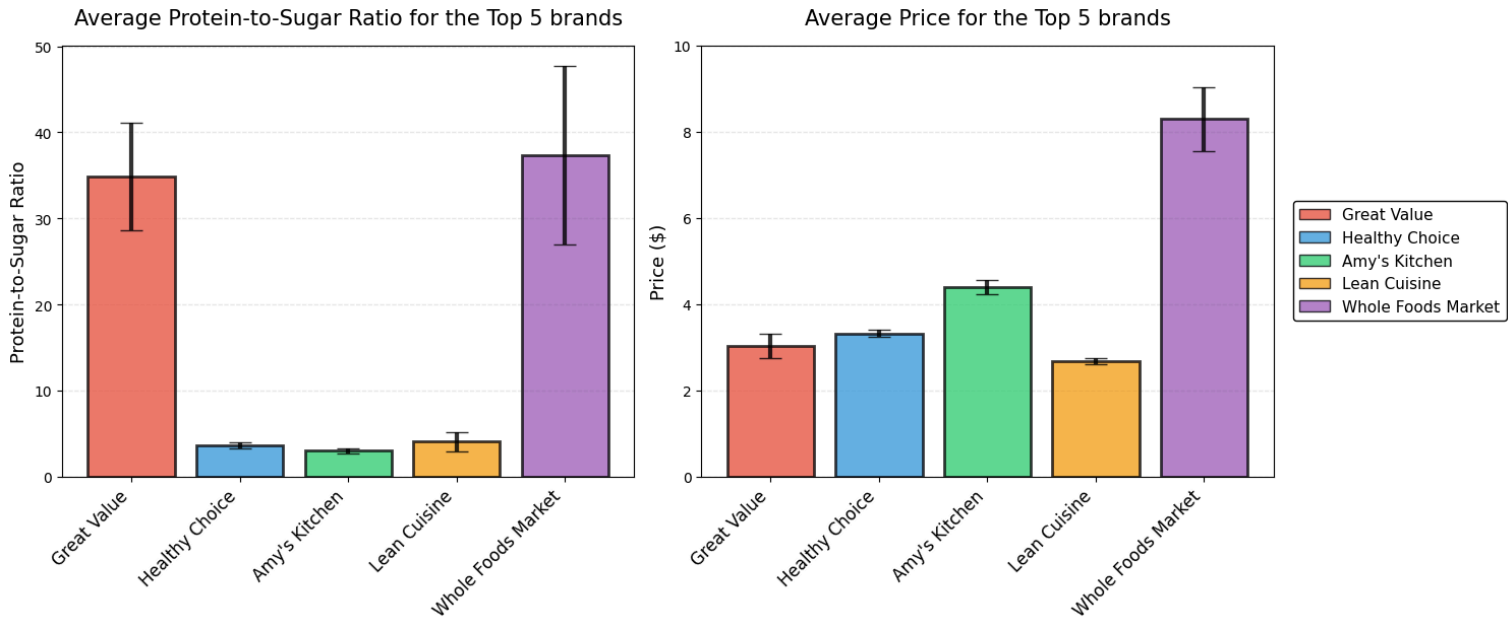


Figure 1. Comparison of protein-to-sugar ratio and pricing across the top 5 most popular prepared meal brands.

Project 1 Write-Up

When shopping for prepared meals at stores, consumers often seek products with balanced nutritional quality and affordability. High protein and low sugar content are considered desirable for health-conscious buyers, but premium brands usually come at a steep price. The visualization I created addresses the question: Which prepared meal brands offer the best nutritional value (high protein-to-sugar ratio) at reasonable prices? By comparing the top 5 most popular brands, I aim to identify options that deliver both nutritional benefits and cost-effectiveness.

To create this visualization, several data transformations were applied. Missing values in the protein and sugar columns were replaced with 0 to ensure all data were numeric and suitable for calculations. The dataset was then filtered to include only products in the "prepared-meals-dishes" category to focus the analysis on relevant items. The protein-to-sugar ratio metric was created by dividing protein content (grams) by sugar content plus 0.1 (grams of sugar + 0.1) to avoid division by zero for sugar-free products. The top 5 brands were identified by counting the number of products per brand and selecting those with the highest product counts, representing the most popular brands. For each of the selected brands, the mean, standard deviation (std), and standard error of the mean (SEM) were calculated for both the protein/sugar ratio and price. These statistics enable comparison of average values and variability across brands.

The visualization uses a side-by-side dual bar chart layout. The left panel displays protein-to-sugar ratios, and the right panel shows prices. This separation allows each metric to use its own appropriate scale, avoiding the misleading visual comparisons that can occur with overlaid dual y-axes. Bar charts were chosen because they effectively facilitate categorical comparisons across brands. Bar height displays the average values, making differences immediately apparent. Error bars extending from each bar represent the SEM (standard error of the mean), providing insight into the accuracy of each brand's average values in representing the true population mean. Each brand is assigned a distinct color (shown in the legend on the right side of the plots) that remains consistent across both panels. This color consistency enables readers to easily track a single brand across the two metric plots. Brands are arranged in descending order by product count (popularity), with the most popular brand (Great Value) on the left. This ordering provides context about market presence and consumer preferences while facilitating comparison. The title states the central analysis question, making the visualization's purpose clear. Subtitles on each panel specify what metric is being displayed. Axis labels include units (unitless ratio on the left, dollars on the right) for clarity and interpretability.