Alcohol Consumption and Food-at-Home Dietary Quality

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There is no shortage of research in disciplines ranging from epidemiology to wine economics investigating the impacts of alcohol consumption on health. While much discussion and debate remains in identifying the key linkages and causal mechanisms in this area of inquiry, researchers have largely agreed upon two conventions. These are: 1) Wine, particularly red, imparts health benefits to drinkers due to specific biological components that are not found in beer or spirits, and 2) The relationship between wine consumption and health outcomes follows a parabola or “U-shaped curve,” whereby consumption up to a certain moderate amount improves cardiovascular health and possibly other factors, but past that point can damage health due to the well-understood effects of excessive alcohol intake.

Two studies in particular have raised questions regarding the purported health benefits of wine consumption by suggesting that dietary quality may be a confounding factor in understanding alcohol consumption. Gronbaek (2003) performed an extensive review of the literature to date on the health effects of wine and alcohol consumption and argued that wine consumption, more than beer or spirits consumption, is likely to be correlated with the regular consumption of foods generally considered to support cardiovascular health, such as fish, nuts, fruits, and vegetables. Breslow, Guenther, and Smothers (2005) used self-reported consumption data from the National Health and Nutrition Examination Survey (NHANES) and demonstrated a strong link between dietary quality and alcohol consumption patterns. That is, people who report drinking small quantities of alcohol with high frequency typically consumed significantly healthier diets than do people who consume large quantities of alcohol at lower frequencies (consumption approximating binge drinking).

Our study uses the Nielsen Homescan database to investigate the potential relationship between alcohol consumption and dietary quality further. The Homescan data consist of the self-reported purchases of a nationally-representative sample of over 40,000 households from the years 1998 through 2009. While the Homescan database does not include health indicators such as BMI and only include food and alcohol purchases for at-home consumption, it has a number of advantages over NHANES that enable us to advance the literature. The longer time series and repeated participation of many households enables us to exploit the panel nature of the data, thus controlling for time-invariant unobservable characteristics, most importantly household fixed effects. Also Homescan data clearly differentiate between beer, wine, and spirits, allowing for an examination of how food consumption differs by alcohol type as well as by consumption patterns. The Homescan data include extensive demographics at the household level.

The empirical approach of the paper has two stages. In the first stage, we stratify the Homescan households according to both the type of alcohol consumed and by alcohol consumption patterns, focusing the frequency and magnitude of alcohol purchases. We make explicit assumptions as to the relationship between the purchase and consumption of alcoholic beverages and subject these assumptions to a sensitivity analysis to lend robustness to our results. We measure food purchase basket healthfulness in three distinct ways, each drawn from USDA Healthy Eating Guidelines, which, among other factors, emphasize the consumption of fruits, vegetables, and whole grains while penalizing added sugars, refined grains, and packaged snacks. The analysis controls for extensive demographic factors as well as regional and time effects.

The second stage of the analysis, still ongoing at the time of writing, attempts to seek out and identify a causal mechanism driving the relationship between alcohol consumption and dietary

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quality. This stage is rooted in a fixed-effects panel approach, using only those households participating in the Homescan survey for repeated years. Granger causality tests do not sufficiently construe the issue of dual causality linking alcohol and food consumption, one suggested by standing theoretical and empirical evidence as well as the results of the first stage of the analysis. We also identify households that have undergone significant shifts in alcohol (food) consumption and test for resulting shifts in food (alcohol) consumption. Ultimately we construct a highly flexible healthfulness score for alcohol consumption, calculated using both the quantity and variety of alcohol consumed, and merge this with our food quality measures for overall metrics of healthfulness in consumption. We then analyze these while controlling for extensive demographics as well as household, time, and spatial fixed effects.

The results of the study indicate that alcohol consumption and dietary quality are intimately linked. A causal relationship between the two is difficult to pin down, but there is a clear connection between wine consumption and more healthful foods. Heavy beer consumption is linked to the least healthful overall diets. Income and education are strongly linked with improved overall healthfulness in consumption, including more healthful food, low to moderate alcohol intake, and wine chosen over beer or spirits. Significant differences persist across regions, with the South and Midwest consistently underperforming the Northeast and West. We expect our results to contribute to the fields of epidemiology, nutrition, health economics, wine economics, as well as marketing and food retail given the linkages in purchase and consumption.

References: