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Values and Vegetarianism: An Exploratory Analysis¹

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ABSTRACT The American diet has changed substantially over the last few decades. These changes provide a test for social theory and have substantial effects on the demand for various food products, thus impacting U.S. agriculture. In this paper a rapidly growing dietary choice—vegetarianism—is explored. Prevalence of various forms of vegetarianism is estimated in a representative sample of a suburban population and factors that influence choice of a vegetarian diet are examined. About 7 percent of the sample report they are vegetarians. The prevalence of vegetarianism is not influenced by age, gender, or education, but individuals holding traditional values are less likely to be vegetarian than others. There also is some evidence that individuals holding altruistic values are more likely than others to be vegetarians.

Introduction

The American diet is undergoing substantial change, the most marked aspect of which is a decline and then leveling off in the demand for beef over the last 15 years (Breidenstein 1988; Haidacher et al. 1982). Of course, rapid change in the American diet is not new. In the 19th century, meat consumption increased as the meat industry restructured itself and contributed to a transformation in American agriculture (Cronon 1991; Levenstein 1988). Some of this historical change was driven by consumer preference but much of it was caused by growing affluence, declining prices, and radical changes in industrial and market structure (Levenstein 1988).

Current changes in diet have different origins. In part, they are the result of changes in price and income (Falese and Unnevehr 1988; Haidacher et al. 1982). But consumer demand for various food types in the United States is driven more by social-psychological factors than by economic ones (Breidenstein 1988; Guseman et al.

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1987); those factors must be examined to understand changes in demand.

The importance of social-psychological factors in food demand is not surprising given the symbolic importance of food in human societies. For example, Sapp and Harrod (1989) and Zey and McIntosh (1992) demonstrated the influence of social acceptability and subjective norms on the propensity to consume beef. But overall, relatively little is known about the social psychology of dietary choice and food demand.

The factors that influence the choice of a vegetarian diet are at issue. Research on vegetarianism is important for two reasons. Although there seems no immediate danger to the beef or pork industry from vegetarianism, these groups clearly are concerned about dietary changes. The social movement arguing for a vegetarian diet is finding increasing support in the nutritional research of the last half century, however. Thus, vegetarianism is likely to persist; if it becomes even more popular, it could have significant impacts on U.S. agriculture. For example, to the extent that soybeans and grains are directly consumed rather than used as feed for animals in beef, dairy, and egg production, the acreage required for this crop would be dramatically reduced even as demand for fruits and some grains might increase. Transformations also may occur as people seek to replace animal-based medications and cosmetics for the same reasons that they change their diet—for health, animal welfare, and environmental reasons. These changes will shift acreage to the new crops and away from older crops.

Second, the limited body of available research indicates that, as Sapp and Harrod (1989) and Zey and McIntosh (1992) have demonstrated for red meat consumption, vegetarianism is driven primarily by psychological factors. While previous shifts in U.S. diet resulted from changing price, income, and marketing strategies, interest in vegetarian diets was in part the result of appeals to personal values made by vegetarian advocates, who articulate rationales for vegetarianism and provide information on how to achieve a healthy and satisfying vegetarian diet. Thus, for many individuals the choice of a vegetarian diet takes place at the intersection between individual social psychology and the discourse of a social movement that can be understood only with insights from multiple social science perspectives.

Vegetarianism and values

Contemporary vegetarianism takes many forms. Beardsworth and Keil (1991a, 1991b, 1992b) suggested six general types of vegetarianism along a spectrum from least restrictive to most restrictive regarding the use of animal products. At one end of the spectrum,

some individuals who eat red meat or poultry still consider themselves vegetarian. Other self-identified vegetarians do not eat red meat or poultry but do eat fish and shellfish. Most vegetarians consume eggs and dairy products, but some avoid one or both of these foods. And some individuals eat rennet-free cheese but avoid eggs and dairy products. The strictest vegetarian practices are adhered to by vegans, who do not use animal products for food, clothing, or other purposes.

As Beardsworth and Keil (1991a, 1992b, 1993) noted, vegetarianism is a social construction and the rules for self-definition as vegetarian vary from person to person. While this variation complicates efforts to assess the number of vegetarians in a population and to detect trends in dietary practices, some data exist on the prevalence of vegetarianism. According to Krizmanic (1992), a telephone survey indicated that nearly 7 percent of the U.S. population—or 12.4 million people—considered themselves vegetarian. Among the self-reported vegetarians, about 20 percent reported that they consumed red meat, a third ate poultry, and a third consumed fish as often as once a month. Thus, many self-defined vegetarians eat some red meat. Finally, at the strictest end of the spectrum, about 4 percent of the vegetarians in the general population considered themselves vegan. While surveys in Great Britain have documented an increase in the number of self-reported vegetarians—from 2.1 percent of the population over age 16 in 1984 to 3.7 percent by 1990 (Beardsworth and Keil 1991b)—there was no change in the prevalence of vegetarianism between 1979 and 1990 in the United States (White and Frank 1994).

Kandel and Peltó (1980) provided ethnographic evidence of interest in health food and vegetarianism that has a movement-like structure, including gathering places, publications, and a sense of personal identity related to vegetarian practice. The importance of practice to personal identity also has been noted in ethnographic work by Atkinson (1983), Beardsworth and Keil (1991a, 1992b, 1993), James (1993), Lawrence (1993) and others. In a quantitative study that provides a strong precedent for this work, Sims (1978) noted that vegetarians differed from nonvegetarians in a variety of values and beliefs. Advocates of vegetarian diets offered four rationales for a meatless diet: personal health, concern with cruelty to animals, concern for world hunger, and concern with damage to the environment.

A growing number of studies have suggested that fat and cholesterol found in animal flesh, meat, and eggs contribute to a variety of diseases (e.g., Howe 1991; White and Frank 1994). Thus, health benefits to the individual often are cited as a rationale for a vegetarian diet. Qualitative studies of vegetarianism found that vegetarians expressed a personal concern with health as a major motive for

adopting a vegetarian diet (Beardsworth and Keil 1992b, 1993) or consuming organically grown food (James 1993). Indeed, nearly half of the vegetarians responding to a national survey reported that health concerns were their most important motivation in becoming a vegetarian (Krizmanic 1992). Beliefs about the health effects of eating beef did not have a significant effect on attitudes toward eating beef in Sapp and Harrod's (1989) analysis. However, health beliefs multiplied by the importance of health concerns had a significant effect on intentions to consume beef in Zey and McIntosh's (1992) study. Thus, there is ample reason to believe that self-interest in the form of concern about health may be one source of motivation for adopting a vegetarian diet.

Advocates of vegetarianism also have addressed the impact of vegetarianism on food supply, arguing that a shift toward a vegetarian diet will ease the world hunger problem (Lappe and Collins 1978; Robbins 1987). This social altruistic motivation has not been emphasized in other studies but it is hypothesized that a concern with the welfare of other humans might motivate some people to adopt a vegetarian diet.

Concern with the welfare of nonhuman species and with environmental quality are dominant themes of ethical motive in qualitative research on vegetarianism (Beardsworth and Keil 1991a, 1991b, 1992a, 1992b; James 1993). In the one U.S. survey that focused on vegetarianism, nearly a quarter of vegetarians reported that the most important reason they had adopted a vegetarian diet was animal welfare, environment, or ethics (Krizmanic 1992).

While these are reasons an individual may choose a vegetarian diet, the ethnographic literature also suggests a reason people may avoid vegetarianism. As Amato and Partridge (1989), Beardsworth and Keil (1992a, 1992b), and Atkinson (1983) have argued, vegetarianism involves something of a confrontation with the traditional food hierarchy. To the extent that food is symbolic and that meat may be perceived as "good," vegetarianism confronts those values. Thus, it may be expected that those who adhere to traditional values will be reluctant to adopt a vegetarian diet.

The first three of these rationales—self-interest, concern with the welfare of others (social altruism), and concern with nonhuman species or the biosphere itself (biospheric altruism)—are identical to the frames offered by social movements for environmental concern (Merchant 1992; Stern and Dietz 1994; Stern et al. 1993, 1995a, 1995b). Each rationale is identified with a value orientation—individuals may assign importance to effects on themselves and their immediate families, to effects on other humans, and/or to effects on nonhuman species.² In this research, a modification of the value

² In the analyses of environmentalism, we argue that both values and beliefs are

scales developed by Rokeach (1968) and Schwartz (1992) are used to assess individual value orientations.

The Rokeach/Schwartz formulation has found four value clusters that emerge in numerous samples across more than 20 nations. The altruism cluster includes items relating to concerns with other humans and the environment. The literature on environmentalism and vegetarianism makes some distinction between effects on other humans (social altruism) and effects on nonhumans (biospheric altruism). However, previous work with the Rokeach/Schwartz value scales suggests that these clusters are not distinct social-psychologically but combine into a single cluster. The self-enhancement cluster reflects concern with oneself and may parallel arguments for vegetarianism or environmental protection based on self-interest.

Neither vegetarians nor the environmental literature offer justifications for vegetarianism based on the two other value clusters. The openness to change cluster is composed of items having to do with variety, excitement, and personal growth. To the extent that vegetarianism is seen as an innovative lifestyle, it may be positively associated with openness to change. The traditional cluster is composed of items dealing with family, interpersonal relations, and social order. If vegetarian diet is seen as a break with a traditional diet, a negative association between this value dimension and vegetarianism would be expected. Those with traditional value orientations may be especially prone to avoid such conflicts.

Data and methods

Sample. Data are from computer-assisted telephone interviews conducted in Fairfax County, Virginia, in late April and early May of 1993. Households were selected using random digit dialing and respondents within households were selected using the most recent birthday method. The response rate was 62.2 percent. Fairfax County is a suburb of Washington DC. Respondents are well-educated and affluent with a median of 16 years of education and a median family income between \$60,000 and \$80,000. The sample had a median age of 39 and was 57 percent female and 84 percent white. These demographics indicate that the survey was reasonably representative of the county as a whole (Fairfax County Office of Research and Statistics 1992). Sample size for the analysis was 194.

Measurement. Respondents were asked: "Are you a vegetarian?" Because previous qualitative studies and marketing research indi-

driving forces. In this exploratory study, only the influence of values is examined because we have no measures of individual beliefs regarding the effects of a vegetarian diet. Thus, the results are those from a reduced-form model that estimates the total effects of values without partitioning them into direct effects and indirect effects mediated by beliefs.

cates that many self-identified vegetarians sometimes eat meat, those answering yes were then asked additional questions to determine whether they ate any fish or shellfish or any chicken, turkey or other fowl. These items allow better comparisons with previous survey research on vegetarianism.

To measure value orientations, items from Rokeach (1968) and Schwartz (1992) plus two additional items that tap the concept of biospheric altruism were used. In 50 percent of the interviews, respondents were asked about their diet before they were asked about the value items; in the other 50 percent the order was reversed. This design balances any question-ordering effects that might bias results. The pooled data are analyzed because no important differences related to vegetarianism were found in the two forms of the survey. The 36 items were factor analyzed using iterated principal factors extraction and oblique promax rotation; four factors including 27 items resulted.³

Gender, education, and age/cohort are included with the value scales as independent variables in a logit analysis.⁴ Age/cohort is a categorical variable that divides the population into those under 35, those between 35 and 50, and those 50 and over. This age division corresponds to cohorts born after 1958, those born between 1943 and 1958, and those born before 1943. Thus, the age/cohort variable should not only differentiate the baby boom generation from the cohorts that came before and after, but also capture age effects.⁵

³ Factor one: altruism (unity with nature, protecting the environment, preventing pollution, respecting the earth, a world at peace, equality, social justice, helpful, a world of beauty, sense of belonging), theta = 0.89; factor two: self-enhancement (authority, social power, wealth, influential), theta = 0.74; factor three: openness (an exciting life, a varied life, curious, enjoying life), theta = 0.77; factor four: tradition (honoring parents and elders, honest, family security, self-discipline, obedient, clean, politeness, social order, loyal), theta = 0.83. Scale correlations: altruism and self-enhancement (0.17), openness (0.55), and tradition (0.50); self-enhancement and openness (0.39) and tradition (0.24), openness and tradition (0.32).

⁴ Because vegetarianism represents a choice or decision, logit analysis is the most appropriate analytical method. But vegetarianism is relatively rare in the general population; thus, there are few cases in one category of our dichotomous dependent variable. It is often erroneously assumed that the validity of logit or related statistical estimates depends on the number of cases in each category of a nominal variable. This is not so. An extreme split on a dependent variable will be reflected in the size of standard errors, but consistent and efficient estimation of population parameters depends on the overall sample size, not the number of cases in a particular category. That is, the Z-tests used in the analysis adequately reflect the probability of a Type I error. The small number of vegetarians will influence the power of the test and thus the probability of a Type II error. When we reject the null hypothesis, the split on the dependent variable is not likely to have distorted results. When we fail to reject, the small number of vegetarians may lead to an error. As a result, we used a 0.1 critical value to increase the power of our analysis and guard against Type II errors.

⁵ While there is some evidence for an interaction effect of gender in research on beliefs about health foods (Conner 1994), the small sample size and extreme split on the dependent variable preclude testing for such effects.

Results

About 7.2 percent of the respondents considered themselves vegetarians (95% confidence interval 4.0%–11.8%). But only 2.5 percent (0.9%–5.8%) were self-reported vegetarians who never ate poultry and only 1.5 percent (0.3%–4.3%) ate neither fish nor poultry. Thus, nearly two-thirds of those who considered themselves vegetarian reported sometimes eating poultry and only a fifth of self-identified vegetarians eat neither fish nor poultry.⁶ These estimates are consistent with those reported for the U.S. adult population by Krizmanic (1992), where 7 percent of survey respondents called themselves vegetarian, of whom roughly two-thirds reported eating poultry.

None of the demographic variables have significant effects either on their own or when included in the model with values (Table 1). As expected from previous work on meat consumption and vegetarianism, values play an important role in the individual's self-definition as a vegetarian. Individuals who hold altruistic values are more likely than others to consider themselves vegetarian; but traditional values substantially reduce the probability that an individual will adopt a vegetarian diet.⁷

Conclusions

There was a tendency for altruistic factors to influence vegetarianism in this sample. Thus, these results partially replicate Beardsworth and Keil's (1991a, 1992b) findings that there are altruistic motivations in dietary choice. Traditional values were the strongest predictor of vegetarianism. Vegetarianism may be perceived by many as a nontraditional or even radical life-style choice and those who hold to traditional values avoid a vegetarian diet. Unfavorable images of vegetarians may be more important in determining dietary choice than the arguments in favor of a vegetarian diet.

⁶ The latter two categories represent a stringent criterion for vegetarianism because we ask if individuals ever consumed various food products. The otherwise strict vegetarian who might consume fish or fowl only once or twice a year would be screened by this question. In addition, we did not ask about the specific dietary preferences of those who did not consider themselves vegetarian. Some people who consume no red meat or no fowl but do not think of themselves as vegetarian would not be classified vegetarian in this analysis. Thus, the results probably underestimate the true prevalence of vegetarian diets.

⁷ Standard diagnostics were used to screen for influential observations. Only one case exerts unusual influence. Deleting it increases the effect of self-enhancement values from 0.401 to 0.586 and makes it statistically significant at the 0.05 level but produces no major changes in other coefficients or significance tests. Thus, there is equivocal evidence regarding the effects of self-interest on dietary choice. This may be due to the fact that advocates promote the personal health benefits of a vegetarian diet, while the value items focus on power and wealth rather than health per se.

Table 1. Logit coefficients for value and demographic influences on vegetarianism

Variables	Model 1	Model 2	Model 3
Values			
Altruism	—	0.348*	0.368*
Self-enhancement	—	0.263	0.401
Openness	—	0.133	0.161
Traditional	—	-0.408***	-0.513***
Demographics			
Gender			
Male	^a	—	^a
Female	0.693	—	0.581
Education in years	0.074	—	0.104
Age/Cohort			
Under 35	^a	—	^a
35-50	0.257	—	0.907
50 and over	0.241	—	0.875
Intercept	-4.319***	-2.807***	-5.476***
Pseudo <i>R</i> -square	0.020	0.086	0.126
N	194	188	187

^a Coefficient constrained to zero.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

None of the demographic factors was statistically significant in this exploratory analysis. Of course, with a relatively small sample and a rare behavior, a substantial effect is required to obtain statistical significance. Further, the sample is from a very affluent suburb of Washington, DC. and thus has less demographic variation than might be found in a broader sample. But the relatively modest effects of demographic factors are consistent with previous work. These results reinforce the work of Sapp and Harrod (1989) and Zey and McIntosh (1992) in demonstrating that social-psychological factors—beliefs, attitudes, norms, values—rather than demographic factors are the key to understanding dietary choice. In addition, the social psychology of political and ethical behavior may be understood better if attention is paid to the potential of social movements to frame issues for individuals (Stern and Dietz 1994; Stern et al. 1995b). Core values such as those included in the model tested are probably the result of early socialization and not subject to much change over the life course. But social movements provide critical information about the relation between values and both daily life and the political world. It is the vegetarian movement that provides arguments that dietary choice has implications for things of value, which both attracts some people to a vegetarian diet and apparently rebuffs others.

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