

Public Abstract

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This dissertation consists of three essays related to the adoption of technology. The first essay is about the adoption of manure best management practices (BMPs) such as manure testing. A data set from 2006 of U.S. farmers from the states of Missouri and Iowa was used to ask farmers questions about farming practices and other environmental practices. The innovation was that this paper examined factors that affect manure testing for manure transported off the farm. Factors that increased the probability of manure testing were: individuals with less than high school education compared to those who had high school education, having a contract for the manure transfer, distance manure was transferred, receiving payment for the manure, and soil testing. Also, those whose off-farm income levels ranged from \$0-\$9,999, or \$25,000-\$49,000, versus having no off-farm income, and who had solid or both solid and liquid manure compared to liquid manure were less likely to adopt manure testing.

The second essay dealt with farmers in the district of Mardan in the Northwest Frontier Province of Pakistan, who were asked questions in the fall of 2009 about their use of fertilizer and manure and how they applied it to their crops. The purpose of the essay was to analyze the factors that affect the adoption of phosphorous fertilizer. The results show that farm size, land tenure, distance to the central market, obtaining information about prices, supply, and demand for inputs from other farmers, and obtaining information about agricultural practices from other farmers and from personal contacts with businesses positively affect the adoption of phosphorous fertilizer among farmers living in the district of Mardan. Those farmers who borrowed from the agricultural bank for agricultural purposes were less likely to adopt phosphorous fertilizer than those who did not.

Finally, the third essay used 2007 data from a CBS News/New York Times Monthly Poll to analyze the factors that affect U.S. consumers' adoption of environmental practices such as recycling, mass transit, and the purchase of compact florescent light bulbs. The study found that those who belonged to the Democratic party were more likely to recycle than those in neither party. Furthermore, those who drove SUVs were more likely to recycle than those who drove cars. Individuals living in the central city were more likely to recycle while those living in a rural area were less likely to recycle than those who lived in the suburbs. Furthermore, individuals living in the northeast, north central and western parts of the U.S. were more likely to recycle than those living in the southern part of the U.S.

The use of mass transit was more likely to be adopted by individuals with post graduate education compared to those who had some college education. Individuals with income levels of under \$15,000, \$15,000 to \$30,000, and above \$100,000 were more likely to use mass transit than those whose income was between \$50,000 and \$75,000. Respondents with no cars were more likely to use mass transit than those with cars, since it served as their mode of transportation. Individuals who lived in large central cities were more likely to use mass transit while those in rural areas were less likely than the base category of living in the suburbs. Those living in the northeastern and western parts of the U.S. were more likely to use mass transit than those individuals living in the southern part of the U.S. Furthermore, belonging to the Republican Party was found to negatively affect the adoption of mass transit compared to those of neither party. Those who drove trucks were less likely to use mass transit than those who drove cars. The purchase of compact florescent light bulbs was more likely for those who drove a minivan compared to those who drove cars, as well as for those who lived in the western part of the U.S. versus the south. Those

who were not high school graduates, college graduates, and high school graduates were all less likely to buy fluorescent light bulbs compared to those who had some college education. Finally, individuals with an income from \$15,000 to \$30,000 were less likely to buy fluorescent light bulbs compared to those with an income of \$50,000 to \$75,000.

The analysis of these three environmental practices has helped to show the characteristics of different agents in terms of their adoption choices. Livestock producers in the U.S., Pakistan, and consumers in the U.S. are all driven by a unique set of factors within their environment that influence their decisions.