Problem Set #1

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Problem 1 Classify a Model from a Journal

Part (a - b). Ryan, Timothy J. "How Do Indifferent Voters Decide? The Political Importance of Implicit Attitudes." *American Journal of Political Science* (2017).

Part (c). Write down the model

$$\begin{aligned} Obama\,Vote = \beta_0 &+ \beta_1 Implicit\,Attitude + \beta_2 Explicit\,Attitude \\ &+ \beta_3 Ambivalent + \beta_4 Implicit\,Attitude \times Ambivalent \\ &+ \beta_5 Explicit\,Attitude \times Ambivalent + \beta_{6-11} Partisanship \\ &+ \beta_{12-14} Region + \beta_{15-18} Education + \beta_{19} Gender \\ &+ \beta_{20-22} Race + \beta_{23} Income + \epsilon \end{aligned} \tag{1}$$

Part (d). The left side of the above model is the endogenous variable, namely, one's voting choice on the November 2008 election. And the exogenous variables are the variables on the right side of the equation: Implicit attitude, explicit attitude, whether one is ambivalent about the candidates, partisanship, region, education, gender, race, and income. As mentioned in the article, the exogenous variables ambivalent, partisanship, region, education, gender, race and income are dummy variables.

Part (e). First, the model is static since there is no time component that influences the performance of this model; Secondly, this model is nonlinear. It is clear from the fifth and the sixth term of the model on the right-hand side that two exogenous variables are being multiplied together, which causes the nonlinear nature of this model. Lastly, this model is stochastic. It has the ϵ error term.

Part (f). I think that one variable that might be helpful for this model is the voting choices of voters' parents or spouse if the voter has any. While one may argue that this proposed variable can be considered as a component of implicit attitude, it is an important influence since a voter's family members may be in the voter's vicinity when he or she is making up their mind on their voting choices. Thus I think that the voting choices of a voter's family members could be considered on its own.

Problem 2 Make Your Own Model

Part (a). Write down a model of whether someone decides to get married.

$$\begin{aligned} Marital\,Status = \beta_0 &+ \beta_1 Presence\,of\,a\,Willing\,Candidate \\ &+ \beta_2 Legality\,of\,Marriage + \beta_3 Age + \beta_4 Gender + \beta_5 Race \\ &+ \beta_6 Nationality + \beta_7 Gender \times Nationality + \beta_8 Education \\ &+ \beta_9 Income + \beta_9 Belief\,in\,Marriage + \beta_{10} Religion \\ &+ \beta_{10} Parents\,Marital\,Status \\ &+ \beta_{11} Psychological\,or, Physical\,Abuse\,History + \epsilon \end{aligned} \tag{2}$$

Part (b). The endogenous variable $Marital\,Status$ is either 1 or 0 to indicate whether the individual is married or not.

Part (c). Assuming that information for all exogenous variables in the righthand side is accurately collected and recorded, this model will be able to simulate the data generating process correctly.

Part (d). I think that the key factors that influence the outcome are 1) whether the individual has someone that is willing to get married to him or her, 2) whether it is legal for the two people to get married. For instance, there are states in the U.S., and countries in the world, that same-sex marriage is illegal. 3) Gender and nationality together as a revealing factor of whether certain culture have historical expectations that influences the individual's expectation about marriage and 4) whether one believes in the concept of marriage or not. If one do not believe in marriage, then it is less realistic that one would want to get married.

Part (e). I have chosen the above mentioned factors based on three major criteria: first, a variable has to be quantifiable so that it can be put in the model. The variables I've chosen, such as $Presence\,of\,a\,Willing\,Candidate$, $Gender$ and $Nationality$, can be measured unequivocally. Secondly, I considered the legal possibility of marriage for the individual. Marriage is not only a personal choice but also a legal matter that requires the confirmation from the constitution. For example, whether same-sex marriage is legal and whether the individual is at the legal age for marriage are both important factors in one's decision. Lastly, I explored major elements that belong to an individual's background information, which I think are crucial to this decision of getting married or not. In this category, I included one's gender, race, education, one's parents' marital status as well as one's possible abuse history. Since these variables have been influencing and shaping the way in which one values intimacy, family bonds and commitment, I think that they play important roles when one is making up one's mind on whether or not to get married. Needless to say that there are many possible factors that may influence one's decision to get married, this model emphasizes the legal aspect of marriage, one's personal history, as well as the nature of marriage as a two-people activity that may influence one's decision heavily. Factors such as , whether one is in a relationship or whether one's friends are married or not are not included in this model mainly because I think that their influences are minor in comparison to the variables listed above. However, it is possible that they have negligible influences. During the testing stage, I think that this model should be played around with more with different variables or different combination of variables to address issues of possible confounding variables.

Part (f). A preliminary test can be conducted by first conducting a large-scale survey that asks individuals questions on the above mentioned variables, and then one can randomly divide the data into training data and testing data to train and test the predictive power of the model. One could further use a logistic regression model to test for the statistical significance of the β estimates.