

1. Classify a model from a journal
 - (a) I find an article published on AER: “The China Syndrome: Local Labor Market Effects of Import Competition in the United States”
 - (b) Autor, David H. , D. Dorn , and G. H. Hanson . "The China Syndrome: Local Labor Market Effects of Import Competition in the United States." *Social Science Electronic Publishing* 103.6(2013):2121-2168.
 - (c) The main econometric model for this paper:

$$\Delta L_{it}^m = \gamma_t + \beta_1 \cdot \Delta IPW_{uit} + \beta_2 \cdot X'_{it} + e_{it}$$

This paper wants to estimate the effect of the increased import competition (mainly from China) on the local labor market in US.

ΔL_{it}^m : The decadal change in the manufacturing employment share of the working-age population in commuting zone i. (Autor, D. H. , Dorn, D. , & Hanson, G. H. .,2013, P2133)

ΔIPW_{uit} : The change in Chinese import exposure per worker in a region. (Autor, D. H. , Dorn, D. , & Hanson, G. H. .,2013, P2128)

X'_{it} : Percentage of employment in manufacturing; Percentage of college-educated population; Percentage of foreign-born population; Percentage of employment among women; Percentage of employment in routine occupations; Average offshorability index of occupations; Census division dummies. (Autor, D. H. , Dorn, D. , & Hanson, G. H. .,2013, P2137)

(d) According to this paper, all the control variables represented by X'_{it} are exogenous. The dependent variable, ΔL_{it}^m is endogenous. Also, a concern for this equation is that US imports from China maybe correlated with industry import demand shocks. “Both US employment and imports maybe positively correlated with unobserved shocks to US product demand. (Autor, D. H. , Dorn, D. , & Hanson, G. H. .,2013, P2129)”. In this case the OLS estimate of how increased imports from China, ΔIPW_{uit} , affect US manufacturing employment may understate the true effect. Therefore, the paper also designed IV for ΔIPW_{uit} and used 2SLS to solve this problem.

(e) This model is static, linear and deterministic.

(f) As the paper mentioned, Trade Adjustment Assistance (TAA) is responsible for providing support and income assistance for those workers losing their jobs because of global trading. This policy may have some slight impact on the results. We could consider add some other variables to control for this effect like the change in percentage of the number of workers who received assistance for TAA in this period.

2. Make your own model

(a) I decide to use the logistic model because the dependent variable, whether you choose to get married or not, is a binary variable.

$$Y \begin{cases} = 0, & \text{not get married} \\ = 1, & \text{get married} \end{cases}$$

$$\log\left(\frac{\hat{p}}{1-\hat{p}}\right) = \beta_0 + \beta_1 \cdot \text{age} + \beta_2 \cdot \text{gender} + \beta_3 \cdot \text{inc} + \beta_4 \cdot \text{edu}$$

$$\hat{p} = \frac{\exp(\beta_0 + \beta_1 \cdot \text{age} + \beta_2 \cdot \text{gender} + \beta_3 \cdot \text{inc} + \beta_4 \cdot \text{edu})}{1 + \exp(\beta_0 + \beta_1 \cdot \text{age} + \beta_2 \cdot \text{gender} + \beta_3 \cdot \text{inc} + \beta_4 \cdot \text{edu})}$$

$$\begin{cases} \text{if } \hat{p} > 0.5, & Y = 1 \\ \text{if } \hat{p} \leq 0.5, & Y = 0 \end{cases}$$

(b) As I stated in (a).

(c) *age*: people are more likely to get married when we are older;

gender: gender will have a certain impact on whether a person gets married or not;

inc: which stands for income. Income has an impact on whether people choose to marry (My guess is that women with lower incomes tend to get married).

edu: which stands for education. The education level is also related to whether people choose to marry (My guess is that people with higher education are more likely to get married later).

We could set data generating process to randomly generate number for age, income and education years in a certain range. Also, we could set gender to 0 or 1 representing women or men.

(d) I think these four factors all have some influence on whether people decide to get married or not. Among them, I think the key factor is age. People under the age of 20 have a relatively low probability of choosing to marry. People between the ages of 20 and 35 are more likely to choose marriage. My guess is it's especially suitable for women, because it is related to the fertility status. After 35 years old, the probability of choosing to get married will gradually decrease.

(e) First of all, I think whether choosing to get married is a very important thing for everyone. Therefore, it is very essential for me to make choice based on these four factors. Also, there are many social customs and theoretical literature that support these factors will have an impact on marriage. Of course, there are many other factors, such as the income of parents. Here, I mainly choose the variables that are more determined from my perspective.

(f) We could find some real-world data on the age at which people get married and their background information. Then, we use this econometric model and data to do the regression, observing the regression indexes like R-squared and the significant degree of beta coefficients. If the beta coefficients are statistically significant and R-squared is fairly close to 1, we believe this econometric model has research value.