

Problem Set #1

MACS 30100, Dr. Evans

Due Monday, Jan. 9 at 11:30am

1. Classify a model from a journal (5 points).

- (a) Find a theoretical or statistical model from a recently published article (no earlier than 2013) in either the *American Economic Review*, *American Journal of Political Science*, or the *American Journal of Sociology*.
- (b) Give a detailed citation of the article.
- (c) Write down the mathematical or statistical model (write the equations).
- (d) List which variables are exogenous (determined outside the model, assumed) and which variables are endogenous (determined inside the model, the output of the model)
- (e) Classify the model as static vs. dynamic, linear vs. nonlinear, deterministic vs. stochastic.
- (f) List a variable of feature that you think the model is missing that might be valuable.
- (g) You should be able to write this in less than one page using L^AT_EX.

2. Make your own model (5 points).

- (a) Write down a model of how long popular musicians live (e.g., rock, pop, hip hop/rap, country).
- (b) At least one of the dependent endogenous variables (output of the model) must be *predicted lifespan* (in years) of a particular musician.
- (c) Make sure that your model is a complete data generating process. That is, you could simulate data from your model given all the parameters and relationships.
- (d) What do you think are the key factors that influence this outcome?
- (e) Why did you decide on those factors and not others?
- (f) How could you do a preliminary test whether your factors are significant in real life?
- (g) You should be able to write this in one page using L^AT_EX(1.5 pages max).