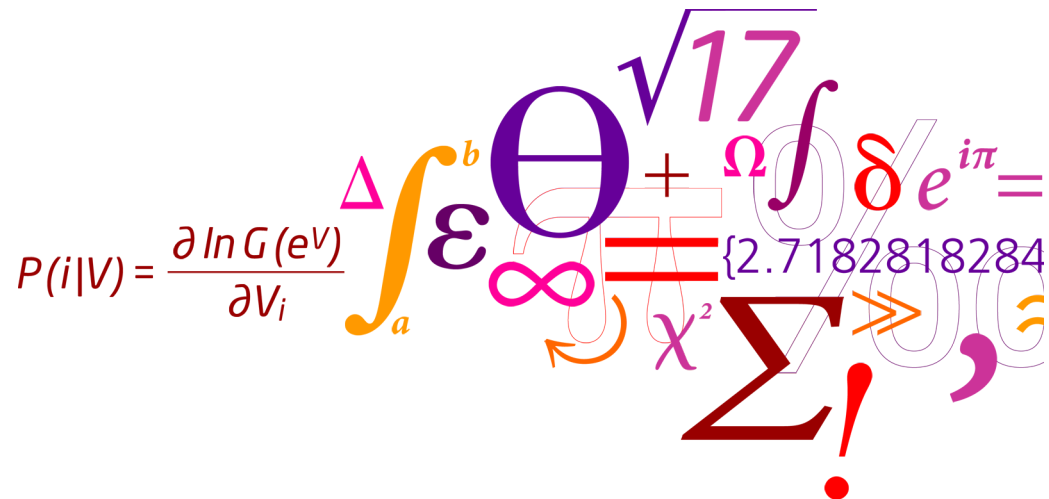


42178 – Transport System Analysis

Comments on PF II

November 16th, 2021



$$P(i|V) = \frac{\partial \ln G(e^V)}{\partial V_i} \int_a^b \varepsilon \Theta^{\sqrt{17}} + \Omega \int \delta e^{i\pi} = \{2.7182818284\}$$

Comments on PF II – exercise 1

- 1.2) Do not compare parameters for variables measured in different units.
 - I get $\lambda = 2.89$ as $E(T)$.
 - Calculate the distribution of each individual and sum the probabilities for each outcome. All individuals do not choose the alternative with the highest probability!
 - I get $E(T^{\text{scen}}) = 2.93$. Similar to the elasticity of 0.058.
- 1.3) Remember that rates do not change in scenario. I get an increase from 2.69 to 2.74 trips per day
 - Cross classification has fewer assumptions than Poisson but can be approximated by Poisson. So if Poisson assumptions make sense this model will be more appropriate. In our case, Poisson has poor fit to observed data. On the other hand cross classification is very dependent on what variables you choose as trip rates vary a lot if some groups get small.

Comments on PF II – exercise 1

- 1.4) Comment on results, e.g. what does different income betas mean. Also do not compare parameters for variables measures in different units.
- 1.5) Simulation of $E(T)$. I get an elasticity of 0.08
 - Calculate the distribution for each individual and sum the probabilities for each alternative. All individuals do not choose the alternative with the highest probability!
- 1.6) Logit is more general than Poisson, e.g. we can have different income parameters. It is also seen to fit data better even though the income elasticity is similar.
 - A benefit of Poisson regression is that it assumes a distribution of residuals around the expectation, which is Poisson. While logit only gives us the expected number of individuals for each alternative.

Comments on PF II – exercise 2

- 2.1 Even though the method is simple, you should briefly describe it and discuss why it is too simple for most applications
 - You can use either IPF with trivial initial solution or use the product of marginal probabilities to find the solution
- 2.2 Here a brief description of the IPF is appropriate
 - The IPF should converge in a few iterations. I get $T_{11}=27.6$
- 2.3 argue for the cost function that you decide to use
 - I decided for the power specification
 - With that specification, I get $T_{11}=30.1$
- 2.4 some forgot $1/9$ in the RMSE formula (probably due to my writing mistake in the first exercise description)
- 2.5 Do not reestimate the cost function. Discuss the results.

Comments on PF II – exercise 2

- 2.4
 - Here the IPF has lower RMSE, however that model is not capable of taking changes in infrastructure into account that is not already included in the initial solution.
- 2.5
 - Do not reestimate the cost function. Apply the model that you prefer of the models you estimated in 2.1-2.3. I get $T_{11}=30.1$. Discuss the results.