School of Public Health PHPM1100062

Mengcen Qian Spring 2017

Problem Set 3

Due at 6 p.m. on 04/12

1. We use inpatient data from hospitals to study the determinants of total inpatient costs of diagnosed diabetes. We choose the log-level (log-linear) functional form and all regressors are dummy variables. Estimated coefficients and standard errors (in parentheses) are reported in the table below. ***Interpret the regression result on gender***. What is your finding? (*Hint: check your slides to see how to interpret results from a log-level model*)

|  |  |
| --- | --- |
| Y=ln(total costs) | (1) |
|  |  |
| ***Female*** | -0.0265\*\* |
|  | (0.012) |
| Age>=60 | 0.0404\*\*\* |
|  | (0.015) |
| Length of stay > 2 weeks | 0.8552\*\*\* |
|  | (0.014) |
| Type 2 Diabetes | 0.0387\*\* |
|  | (0.018) |
| No complications | -0.0271\* |
|  | (0.015) |
|  |  |
| Sample size | 14,766 |

Note: \*\*\*for significance at 1% level; \*\* for significance at 5% level; \* for significance at 10% level.

1. In September 1998, a local TV station contacted an econometrician to analyze some data for them. They were going to do a Halloween story on the legend of full moons affecting behavior in strange ways. They collected data form a local hospital on emergency room cases for the period from January 1, 1998 until mid-August. There were 229 observations. During this time there were eight full moons and seven new moons (a related myth concerns new moons) and three holidays (New Year’s Day, Memorial Day, and Easter). If there is a full-moon effect, then hospital administrator will adjust numbers of emergency room doctors and nurses, and local police may change the number of officers on duty. We obtain the regression results in the following table. *T* is a time trend (T=1,2,3,…,229) and the rest are dummy variables:

*Holiday* =1 if the day is a holiday; 0 otherwise.

*Friday* =1 if the day is a Friday; 0 otherwise.

*Saturday* =1 if the day is a Saturday; 0 otherwise.

*Fullmoon* =1 if there is a full moon; 0 otherwise.

*Newmoon* =1 if there is a new moon; 0 otherwise.

|  |  |  |
| --- | --- | --- |
|  | (1) | (2) |
|  |  |  |
| T | 0.03\*\*\* | 0.03\*\*\* |
|  | (0.01) | (0.01) |
| Holiday | 13.86\*\* | 13.62\*\* |
|  | (6.45) | (6.45) |
| Friday | 6.91\*\* | 6.85\*\* |
|  | (2.11) | (2.11) |
| Saturday | 10.59\*\*\* | 10.34\*\*\* |
|  | (2.12) | (2.12) |
| Full moon | 2.45 |  |
|  | (3.98) |  |
| New moon | 6.41 |  |
|  | (4.25) |  |
| Constant | 93.70\*\*\* | 94.02\*\*\* |
|  | (1.56) | (1.55) |
|  |  |  |
| Sample size | 229 | 229 |

1. Interpret regression results from column (1). When should emergency rooms expect more calls?
2. The model was re-estimated omitting the variables *Fullmoon* and *Newmoon*, as show in column (2). Comment on any changes you observe.