

# Chapter 10 - Basic Regression Analysis with Time Series Data

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## Exercise 10.3

Upload packages

```
library(lmreg)
library(wooldridge)
```

Upload database

```
data<-wooldridge::prminwge
```

**Add the variable `log(prgnp)` to the minimum wage equation in (10.38). Is this variable significant? Interpret the coefficient. How does adding `log(prgnp)` affect the estimated minimum wage effect?**

```
lm1<-lm(lprepop~lmincov+lusgnp+t+lprgnp, data)
```

```
summary(lm1)
```

```
##
## Call:
## lm(formula = lprepop ~ lmincov + lusgnp + t + lprgnp, data = data)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -0.054679 -0.023653 -0.004039  0.018638  0.076947
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  -6.663432   1.257831  -5.298 7.67e-06 ***
## lmincov       -0.212261   0.040152  -5.286 7.92e-06 ***
## lusgnp         0.486046   0.221983   2.190  0.0357 *
## t            -0.026663   0.004627  -5.763 1.94e-06 ***
## lprgnp         0.285239   0.080492   3.544  0.0012 **
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 0.03277 on 33 degrees of freedom
## Multiple R-squared:  0.8892, Adjusted R-squared:  0.8758
## F-statistic: 66.23 on 4 and 33 DF, p-value: 2.677e-15
```

Yes, the coefficient associated to variable `lprgnp` is equal to 0.28 and has statistical significance to the 1% level of confidence. So, for an increase of 1% in `lprgnp` the `lprepop` increases 0.28%.