```
. use "/Users/gokarndhaliwal/Downloads/Data- Exercise 4.dta"

. ttest iq == 101

One-sample t test
```

Variable	Obs	Mean	Std. err.	Std. dev.	[95% conf.	interval]
iq	935	101.2824	.4922738	15.05264	100.3163	102.2484

```
    mean = mean(iq)                                           t =   0.5736
H0: mean = 101                              Degrees of freedom =      934

   Ha: mean < 101               Ha: mean != 101                Ha: mean > 101
 Pr(T < t) = 0.7168         Pr(|T| > |t|) = 0.5664          Pr(T > t) = 0.2832

. reg wage iq
```

Source	SS	df	MS	Number of obs	=	935
				F(1, 933)	=	98.55
Model	14589782.6	1	14589782.6	Prob > F	=	0.0000
Residual	138126386	933	148045.429	R-squared	=	0.0955
				Adj R-squared	=	0.0946
Total	152716168	934	163507.675	Root MSE	=	384.77

wage	Coefficient	Std. err.	t	P>|t|	[95% conf.	interval]
iq	8.303064	.8363951	9.93	0.000	6.661631	9.944498
_cons	116.9916	85.64153	1.37	0.172	-51.08078	285.0639

```
. test iq = 8.1

 ( 1)  iq = 8.1

       F(  1,   933) =    0.06
            Prob > F =    0.8082
```

A. Test the hypothesis that the mean IQ is 101.

Hypotheses

H_0: $\mu = 101$

H_1: $\mu \neq 101$

Results

The sample mean IQ is 101.2824. The test statistic is t = 0.5736 and the p-value is 0.5664.

Conclusion

Because the p-value (0.5664) is greater than $\alpha = 0.05$, we fail to reject H_0. There is insufficient evidence to conclude that the mean IQ differs from 101.

B. Regression of wage on IQ.

The estimated regression equation is:

$$\text{Predicted Wage} = 116.9916 + 8.3031(iq)$$

The intercept coefficient is 116.9916 and the coefficient on IQ is 8.3031.

C. Test H_0: $\beta_1 = 0$ versus H_1: $\beta_1 \neq 0$.

Results

The t-statistic for IQ is 9.93 and the p-value is 0.000.

Conclusion

Because the p-value is less than 0.05, we reject H_0. IQ has a statistically significant effect on wage at the 5% significance level.

D. Test H_0: $\beta_1 = 8.1$ versus H_1: $\beta_1 \neq 8.1$.

Results

The F-statistic is 0.06 and the p-value is 0.8082.

Conclusion

Because the p-value (0.8082) is greater than 0.05, we fail to reject H_0. There is insufficient evidence to conclude that the coefficient on IQ differs from 8.1.