

Quiz 5 Answer

(Students must show the 5 steps individual hypothesis testing)

a)

Source	SS	df	MS			
Model	39.3767288	8	4.9220911	Number of obs =	114	
Residual	39.3911662	105	.375153964	F(8, 105) =	13.12	
Total	78.767895	113	.697061018	Prob > F =	0.0000	
				R-squared =	0.4999	
				Adj R-squared =	0.4618	
				Root MSE =	.6125	

Inwi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
age	.0300112	.0047349	6.34	0.000	.0206228	.0393996
dsex	-.5878966	.1452119	-4.05	0.000	-.8758249	-.2999682
de2	.0381515	.1923389	0.20	0.843	-.3432211	.4195241
de3	.3593484	.2114815	1.70	0.092	-.0599803	.7786772
de4	1.757512	.621087	2.83	0.006	.5260109	2.989012
de2_dpt	.399618	.3276193	1.22	0.225	-.2499905	1.049227
de3_dpt	.438133	.3108017	1.41	0.162	-.1781292	1.054395
de4_dpt	-1.199202	.6778215	-1.77	0.080	-2.543197	.1447928
_cons	3.688426	.1757925	20.98	0.000	3.339862	4.03699

Based on the p-values of the new terms, there doesn't really appear to be a significant interaction between the education level and job type (permanent or temporary). The last variable, combining the highest education level with job type, however, is marginally significant with a *p* value of 0.0793.

(b) To assess the difference between workers with an education level up to primary and those without a primary education, we will look at both the dummy variable DE2 and the interaction term DE2_DPT. Neither are significant (based on the high *p* values). For workers with a secondary education, look at DE3 and DE3_DPT *p* values, neither of which are significant at the standard 5% level. For the difference between those with an education level beyond secondary and those without a primary level of education, however, there does seem to be a significant difference in the intercept term (the *p* value for DE4 is 0.0056). This is not surprising considering it represents the most extreme disparity in education levels in this dataset.

(c)

Source	SS	df	MS			
Model	35.3635071	5	7.07270141	Number of obs =	114	
Residual	43.4043879	108	.401892481	F(5, 108) =	17.60	
Total	78.767895	113	.697061018	Prob > F =	0.0000	
				R-squared =	0.4490	
				Adj R-squared =	0.4234	
				Root MSE =	.63395	

Inwi	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
age	.0299581	.0047524	6.30	0.000	.0205381	.0393781
dsex	-.632527	.1487523	-4.25	0.000	-.92738	-.3376741
de2_dpt	.3683329	.2925221	1.26	0.211	-.2114966	.9481623
de3_dpt	.7347649	.2514172	2.92	0.004	.2364123	1.233117
de4_dpt	.515768	.2975022	1.73	0.086	-.073933	1.105469
_cons	3.759603	.1666903	22.55	0.000	3.429194	4.090012

Now we see a slightly different result: the interaction term between the secondary education level and job type (DE3_DPT) is very statistically significant. That between education level past secondary and job type (DE4_DPT) is marginally significant, but that between primary level and job type is not. This is not surprising after having deleted the dummy variables; the differences between the education levels is now being picked up in the interaction terms instead.