

***31 Lec: School academic performance.**

CORR perf size educ lang enrol meal full move year /STAT /MISS = LIST.

	Mean	Std. Deviation	N
perf	595.36	112.242	298
size	18.98	1.348	298
educ	2.4246	.62348	298
lang	37.76	24.114	298
enrol	492.68	240.388	298
meal	72.32	24.166	298
full	81.7517	15.17792	298
move	18.82	7.125	298
year	.30	.460	298

	perf	size	educ	lang	enrol	meal	full	move
size	-.013							
educ	.659	-.136						
lang	-.691	.063	-.606					
enrol	-.440	.087	-.309	.485				
meal	-.821	-.012	-.682	.709	.367			
full	.502	.112	.207	-.418	-.398	-.440		
move	-.137	.100	-.117	-.140	.008	.145	.105	
year	-.457	.108	-.372	.473	.650	.378	-.368	-.044

REGRESS /DEP = perf /ENTER size educ lang enrol meal full move year.

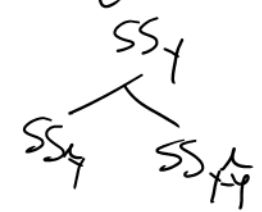
$1 - R^2 = .255 \quad \sqrt{\quad} = .505$

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.863	.745	.738	57.480

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2786865.885	8	348358.236	105.437	.000
	Residual	954840.410	289	3303.946		
	Total	3741706.295	297			

$H_0: \rho_{perf, size, \dots, year} = 0$
 $H_a \neq 0$
 Reg H_0

$P(F \geq 105.437 \text{ if } H_0 \text{ true}) < .001$



Y = ...

Model		Unstandardized Coefficients		Standardized Coefficients		t	Sig.
		B	Std. Error	Beta			
1	(Constant)	631.041	66.184			9.535	.000
	size	1.119	2.576	.013		.434	.664
	educ	29.315	7.859	.163		3.730	.000
	lang	-.679	.232	-.146		-2.921	.004
	enrol	-.015	.019	-.032		-.776	.438
	meal	-2.247	.242	-.484		-9.268	.000
	full	1.212	.267	.164		4.532	.000
	move	-1.409	.520	-.089		-2.711	.007
	year	-16.635	10.012	-.068		-1.661	.098

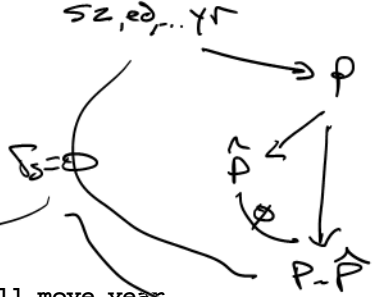
	Mean	Std. Deviation	N
Predicted Value	595.36	96.868	298
Residual	.000	56.701	298

$\bar{y} = \bar{y}$
 $\sum (y - \bar{y}) = 0$
 $\sum (y - \hat{y}) = 0$

VARI LABEL prd ' ' res ' ' .
CORR perf WITH prd res.

	prd	res
perf	.863	.505

$R^2 = .863^2 + .505^2 = 1.0$
 $R = \sqrt{1 - R^2}$



CORR res WITH prd size educ lang enrol meal full move year.

Y-hat

	prd	size	educ	lang	enrol	meal	full	move	year
res	.000	.000	.000	.000	.000	.000	.000	.000	.000

REGRESS /STAT = DEFAU ZPP CHANGE /DEP = perf
/ENTER size educ lang enrol meal move year /ENTER full.

Model	R	R Square	Change Statistics				
			R Square Change	F Change	df1	df2	Sig. F Change
1	.852	.727	.727	110.143	7	290	.000
2	.863	.745	.018	20.541	1	289	.000

$H_0: \rho_{PF, SZ, ed, \dots} = 0$
 $\neq > < ?$

$R^2_{P.F.} - R^2_{P.SZ} = \frac{SS_{CH}}{SS_P}$ $F = \frac{SS_{CH}}{1}$

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2718999.839	7	388428.548	110.143	.000
	Residual	1022706.456	290	3526.574		
	Total	3741706.295	297			
2	Regression	2786865.885	8	348358.236	105.437	.000
	Residual	954840.410	289	3303.946		
	Total	3741706.295	297			



$SS_{CH} = SS_{PF, SZ, ed, \dots} = SS_{P.F, SZ, ed, \dots}$
 $SS_{P, SZ, ed, \dots}$

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	747.392	63.024		11.859	.000			
	size	2.518	2.642	.030	.953	.341	-.013	.056	.029
	educ	23.132	7.997	.128	2.893	.004	.659	.167	.089
	lang	-.740	.240	-.159	-3.089	.002	-.691	-.178	-.095
	enrol	-.030	.020	-.064	-1.526	.128	-.440	-.089	-.047
	meal	-2.568	.240	-.553	-10....	.000	-.821	-.533	-.329
	move	-1.110	.533	-.070	-2.084	.038	-.137	-.121	-.064
	year	-21.701	10.279	-.089	-2.111	.036	-.457	-.123	-.065
2	(Constant)	631.041	66.184		9.535	.000			
	size	1.119	2.576	.013	.434	.664	-.013	.026	.013
	educ	29.315	7.859	.163	3.730	.000	.659	.214	.111
	lang	-.679	.232	-.146	-2.921	.004	-.691	-.169	-.087
	enrol	-.015	.019	-.032	-.776	.438	-.440	-.046	-.023
	meal	-2.247	.242	-.484	-9.268	.000	-.821	-.479	-.275
	move	-1.409	.520	-.089	-2.711	.007	-.137	-.157	-.081
	year	-16.635	10.012	-.068	-1.661	.098	-.457	-.097	-.049
	full	1.212	.267	.164	4.532	.000	.502	.258	.135

$t = \frac{1.212}{.267} = \dots$
 \sqrt{F}
 $\sqrt{.018}$

```
REGRESS /DEP = full /ENTER size educ lang enrol meal move year
/SAVE RESI(resf.all).
```

Model	R	R Square
1	.570	.325

$\sqrt{\frac{MSE}{(1-R^2_{F, S_{2,0}}) \cdot D.F.}}$

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22203.202	7	3171.886	19.903	.000
	Residual	46216.422	290	159.367		
	Total	68419.624	297			

```
VARI LABEL resf.all '' .
CORR resf.all WITH perf size educ lang enrol meal move year.
```

	perf	size	educ	lang	enrol	meal	move	year
resf.all	.135	.000	.000	.000	.000	.000	.000	.000

