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1 . do "/Users/imisiaaiyetan/Documents/HW_4_1.do"

2 . *****Name: Imisi Raphael Aiyetan*****
3 . *****Course: Econometrics 512*****
4 .
5 . clear all

6 .
7 .
8 . set more off

9 . **** We define the number of observation  for the uniform distribution*****
10 . set obs 1000
    obs was 0, now 1000

11 .
12 . gen a = _n

13 .
14 . *** We define the distribution in the next line of code*****
15 .
16 . gen t = runiform()

17 .
18 . **** Generate Y varibale assuming mean = 0 and variance = 1*****
19 .
20 . gen y = 10 + rnormal()

21 .
22 . **** Generate t1 varibale assuming mean = 0 and variance = 1*****
23 .
24 . gen t1 = t + rnormal()

25 .
26 . **** Generate t2 varibale assuming mean = 0 and variance = 1*****
27 .
28 . gen t2 = t + rnormal()

29 .
30 . ***** Q1= We run Y on t *****
31 .
32 . reg y t

```

Source	SS	df	MS	Number of obs =	1000
Model	.012585583	1	.012585583	F(1, 998) =	0.01
Residual	948.399348	998	.950299948	Prob > F =	0.9084
Total	948.411934	999	.949361295	R-squared =	0.0000
				Adj R-squared =	-0.0010
				Root MSE =	.97483

y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
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t	-.0125821	.109332	-0.12	0.908	-.2271292	.2019649
_cons	10.00345	.0626328	159.72	0.000	9.880541	10.12636

```

33 .
34 . ***** We define the next line of code how to derive beta1*****
35 .
36 . mat beta1 = e(b)

37 .
38 . svmat beta1, names(matcol)

39 .
40 . scalar beta_endog1 = beta1t * (1/(1+1))

41 .
42 . ***** Q2 = We run Y on t1 *****
43 .
44 . reg y t1

```

Source	SS	df	MS	Number of obs =	1000
Model	.244721406	1	.244721406	F(1, 998) =	0.26
Residual	948.167212	998	.950067347	Prob > F =	0.6119
Total	948.411934	999	.949361295	R-squared =	0.0003
				Adj R-squared =	-0.0007
				Root MSE =	.97471

y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
t1	.01508	.0297128	0.51	0.612	-.0432267 .0733867
_cons	9.989716	.0341464	292.56	0.000	9.922709 10.05672

```

45 .
46 . ***** We define the next line of code on how to derive beta1*****
47 .
48 . mat beta2 = e(b)

49 .
50 . svmat beta2, names(matcol)

51 .
52 . scalar beta_endog2 = beta2t1

53 .
54 . ****Q3 = We run Y on t2 replacing t1 as an IV to estimate beta close beta1****
55 .
56 . reg y t2

```

Source	SS	df	MS	Number of obs =	1000
Model	.055808212	1	.055808212	F(1, 998) =	0.06
Residual	948.356125	998	.950256639	Prob > F =	0.8086
				R-squared =	0.0001

Total		948.411934	999	.949361295	Adj R-squared = -0.0009		Root MSE = .97481	
y		Coef.	Std. Err.	t	P> t	[95% Conf. Interval]		
t2		.007208	.0297432	0.24	0.809	-.0511584	.0655744	
_cons		9.993437	.0344674	289.94	0.000	9.9258	10.06107	

```

57 .
58 . scalar list
    beta_endog2 = .01508002
    beta_endog1 = -.00629106

59 .
60 .
    end of do-file

61 .

```