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1 . do "/Users/imisiaaiyetan/Documents/Problem set 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	.315884812	1	.315884812	F(1, 998) =	0.33
Residual	956.258707	998	.958175057	Prob > F =	0.5660
				R-squared =	0.0003
				Adj R-squared =	-0.0007
Total	956.574592	999	.957532124	Root MSE =	.97886

y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
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t	-.0612854	.1067371	-0.57	0.566	-.2707403	.1481694
_cons	9.998374	.0618335	161.70	0.000	9.877035	10.11971

```

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	.136173782	1	.136173782	F(1, 998) =	0.14
Residual	956.438418	998	.958355128	Prob > F =	0.7063
Total	956.574592	999	.957532124	R-squared =	0.0001
				Adj R-squared =	-0.0009
				Root MSE =	.97896

y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
t1	.0114885	.0304776	0.38	0.706	-.048319	.071296
_cons	9.962787	.0335274	297.15	0.000	9.896995	10.02858

```

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	1.29237378	1	1.29237378	F(1, 998) =	1.35
Residual	955.282218	998	.957196611	Prob > F =	0.2455
				R-squared =	0.0014

				Adj R-squared = 0.0004		
				Root MSE = .97836		
Total	956.574592	999	.957532124			
y	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
t2	.0346435	.0298146	1.16	0.246	-.0238629	.09315
_cons	9.949694	.034579	287.74	0.000	9.881838	10.01755

```

57 .
58 . scalar list
    beta_endog2 = .01148851
    beta_endog1 = -.03064272

59 .
60 .
    end of do-file

61 .

```