Econ 675 Assignment 3

Nathan Mather

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2 Question 2: Weak Instruments Simulations

Results for $n\gamma^2 = 0$

reg_type	variable	mean	st.dev	quant .1	quant .5	quant .9
ols	estimate	1.00	0.01	0.99	1.00	1.01
ols	std.error	0.01	0.00	0.01	0.01	0.01
ols	rej	1.00	0.00	1.00	1.00	1.00
2sls	estimate	0.66	20.76	0.68	1.00	1.32
2sls	std.error	3248.34	182231.00	0.07	0.22	4.95
2sls	rej	0.69	0.46	0.00	1.00	1.00
2sls	f_stat	1.00	1.39	0.01	0.44	2.65

Results for $n\gamma^2 = 0.25$

reg_type	variable	mean	st.dev	quant .1	quant .5	quant .9
ols	estimate	1.00	0.01	0.99	1.00	1.01
ols	std.error	0.01	0.00	0.01	0.01	0.01
ols	rej	1.00	0.00	1.00	1.00	1.00
2sls	estimate	0.28	31.08	-0.97	0.65	2.64
2sls	std.error	1630.89	91246.48	0.15	0.89	23.65
2sls	rej	0.32	0.47	0.00	0.00	1.00
2sls	f_stat	1.26	1.81	0.02	0.57	3.44

Results for $n\gamma^2 = 9$

reg_type	variable	mean	st.dev	quant .1	quant .5	quant .9
ols	estimate	0.96	0.02	0.94	0.96	0.98
ols	std.error	0.02	0.00	0.01	0.02	0.02
ols	rej	1.00	0.00	1.00	1.00	1.00
2sls	estimate	-0.31	6.73	-0.77	-0.01	0.29
2sls	std.error	15.57	713.82	0.17	0.34	1.06
2sls	rej	0.08	0.27	0.00	0.00	0.00
2sls	f_stat	9.99	6.34	2.83	8.88	18.34

Results for $n\gamma^2 = 99$

reg_type	variable	mean	st.dev	quant .1	quant .5	quant .9
ols	estimate	0.67	0.03	0.62	0.67	0.71
ols	std.error	0.03	0.00	0.03	0.03	0.04
ols	rej	1.00	0.00	1.00	1.00	1.00
2sls	estimate	-0.01	0.11	-0.15	-0.00	0.11
2sls	std.error	0.10	0.02	0.08	0.10	0.14
2sls	rej	0.05	0.21	0.00	0.00	0.00
2sls	f_stat	100.93	24.69	71.05	99.09	133.35

Weak instroments make it difficult if not impossible to infer anything from our estimates. The standa

3 Question 3: Weak Instrument - Empirical Study

3.1 Question 3.1

Results from R

model	term	estimate	std.error
OLS 1	educ	0.06	0.00
OLS 2	educ	0.06	0.00
2sls 1	educ	0.09	0.02
2sls 2	educ	0.06	0.03

3.2 Question 3.2

Results from R

model	mean	std.dev
2sls 1	0.05	0.03
2sls 2	0.06	0.03