Instrumenting Like a Doctor:
Effect of Physician's Affiliation on Practice Patterns

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October 17, 2022

Table 1 shows summary statistics for Medicare spending, claims and total patients. For the 6 year period, Medicare has paid around \$130,000 per physician. In addition, physicians see around 1,000 patients and 1,700 claims on average.

Table 1

Variable	Year	Mean	SD	Min	Max
Claims	2012	2083	3666	11	1063206
	2013	1779	3229	11	1059386
	2014	1769	3056	11	756682
	2015	1784	2831	11	417041
	2016	1791	2776	11	410986
	2017	1761	2704	11	302805
Patients	2012	1259	2185	11	724713
	2013	1040	1923	11	721303
	2014	1041	1819	11	545218
	2015	1062	1639	11	300161
	2016	1071	1634	11	308096
	2017	1058	1558	11	154772
Spending	2012	161509	239604	4	22194169
	2013	131924	211612	5	19647910
	2014	132879	212636	8	18296233
	2015	135811	213489	1	10946235
	2016	137569	218988	1	11176306
	2017	137196	220496	2	14201417

Table 2 shows that integration of physicians with hospitals reduces 25% of claims. Additionally, table 3 shows that the bounds of the coefficient with the sensitivity analysis goes from -0.17 to -0.73.

Table 4 shows the estimation using the change in practice revenue as an instrument for integration of physicians. Using an IV strategy the sign of the effect of integration switches. Integrated physicians increase their claims by 86%. The F-statistic on the first stage is

Table 2

Dependent Variable:	log(Claims)
Model:	(1)
Variables	
Integration	-0.2546***
	(0.0050)
Fixed-effects	
NPI	Yes
Year	Yes
Fit statistics	
Observations	2,203,850
R^2	0.922
Within R^2	0.006

Table 3

	0.5	0.7	0.9	1
0.5	[-0.25, -0.37]	[-0.25, -0.32]	[-0.25, -0.26]	[-0.25, -0.23]
1	[-0.25, -0.49]	[-0.25, -0.38]	[-0.25, -0.27]	[-0.25, -0.21]
1.5	[-0.25, -0.61]	[-0.25, -0.44]	[-0.25, -0.27]	[-0.25, -0.19]
2	[-0.25, -0.73]	[-0.25, -0.51]	[-0.25, -0.28]	[-0.25, -0.17]

highly significant with a value of 4,727. The Durbin-Wu-Hausman test shows a statistic of 448, which gives us concerns of endogeneity for the OLS estimates. Using the Anderson-Rubin test we get a p-value very close to zero, which removes concerns for weak instruments.

Table 4

Dependent Variables:	Integration	log(Claims)
Model:	(1)	(2)
Variables		
Revenue Change	-2.68×10^{-5}***	
	(8.57×10^{-7})	
Integration		0.8621***
		(0.0744)
Fixed-effects		
NPI	Yes	Yes
Year	Yes	Yes
Fit statistics		
Observations	2,203,850	2,203,850
R^2	0.630	0.912
Within R^2	0.002	-0.111
F-test (IV only)	4,727.5	330.35

Table 5 shows the estimation by 2SLS using the recentered version of the instrument, as in Borusyak and Hull (2021). Using the modified instrument does not change the results.

Table 5

Dependent Variable:	log(Claims)
Model:	(1)
Variables	
Integration	0.8606***
	(0.0785)
Fixed-effects	
NPI	Yes
Year	Yes
Fit statistics	
Observations	2,203,850
R^2	0.912
Within R^2	-0.111