

PCR and Measurement Error

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Application: Government Share of Healthcare Spending and Life Expectancy

In the left column in the table below I first regress the life expectancy at birth for all individuals in a given country and year on a measure of government spending as a share of total health expenditure. In the middle column I include the economic controls/covariates of GDP per capita (PPP), GNI per capita (PPP), Survey Mean Income/Consumption Per Capita, ILO GDP per person employed, and Net Foreign Assets Per Capita, all from the World Bank. In the rightmost column I instead use the first principal component combining these covariates.

I standardize all variables by subtracting the mean and dividing by the standard deviation, linearly interpolate data between known observations, and remove country-years with missing values for any of the economic indicators.

	<i>Life Expectancy at Birth (Years)</i>				
	(1)	(2)	(3)	(4)	(5)
Govt. Share of Health Exp.	0.613*** (0.019)	0.308*** (0.020)	-0.016 (0.019)	0.343*** (0.019)	-0.012 (0.018)
Covariates	None	Econ Indicators	Econ Indicators	PCs	PCs
Fixed Effects	No	No	Yes	No	Yes
Observations	1,799	1,799	1,799	1,799	1,799
R^2	0.376	0.586	0.987	0.536	0.987
Adjusted R^2	0.375	0.582	0.985	0.535	0.985
Residual Std. Error	0.791	0.646	0.122	0.682	0.123
F Statistic	1081.530***	168.157***	922.656***	1036.417***	1114.735***

Note:

*p<0.1; **p<0.05; ***p<0.01
All variables are standardized.

With Ginis instead of econ controls

	<i>Life Expectancy at Birth (Years)</i>				
	(1)	(2)	(3)	(4)	(5)
Govt. Share of Health Exp.	0.697*** (0.034)	0.652*** (0.040)	0.028 (0.024)	0.692*** (0.037)	0.026 (0.023)
Covariates	None	Ginis	Ginis	PCs	PCs
Fixed Effects	No	No	Yes	No	Yes
Observations	322	322	322	322	322
R^2	0.566	0.596	0.999	0.566	0.999
Adjusted R^2	0.565	0.583	0.998	0.564	0.998
Residual Std. Error	0.596	0.583	0.040	0.597	0.040
F Statistic	417.382***	45.905***	1421.063***	208.238***	5197.564***

Note:

*p<0.1; **p<0.05; ***p<0.01
All variables are standardized.

Health share of gdp

	<i>Life Expectancy at Birth (Years)</i>				
	(1)	(2)	(3)	(4)	(5)
GDP Share of Health Exp.	0.258*** (0.023)	0.184*** (0.019)	-0.024 (0.031)	0.144*** (0.017)	-0.020 (0.030)
Covariates	None	Econ Indicators	Econ Indicators	PCs	PCs
Fixed Effects	No	No	Yes	No	Yes
Observations	1,799	1,799	1,799	1,799	1,799
R^2	0.067	0.553	0.987	0.467	0.987
Adjusted R^2	0.066	0.549	0.985	0.467	0.985
Residual Std. Error	0.967	0.672	0.122	0.730	0.123
F Statistic	128.396***	146.946***	772.041***	787.819***	384.737***

Note:

*p<0.1; **p<0.05; ***p<0.01

All variables are standardized.

Appendix

Figure 1: Correlations Between Covariates and Life Expectancy

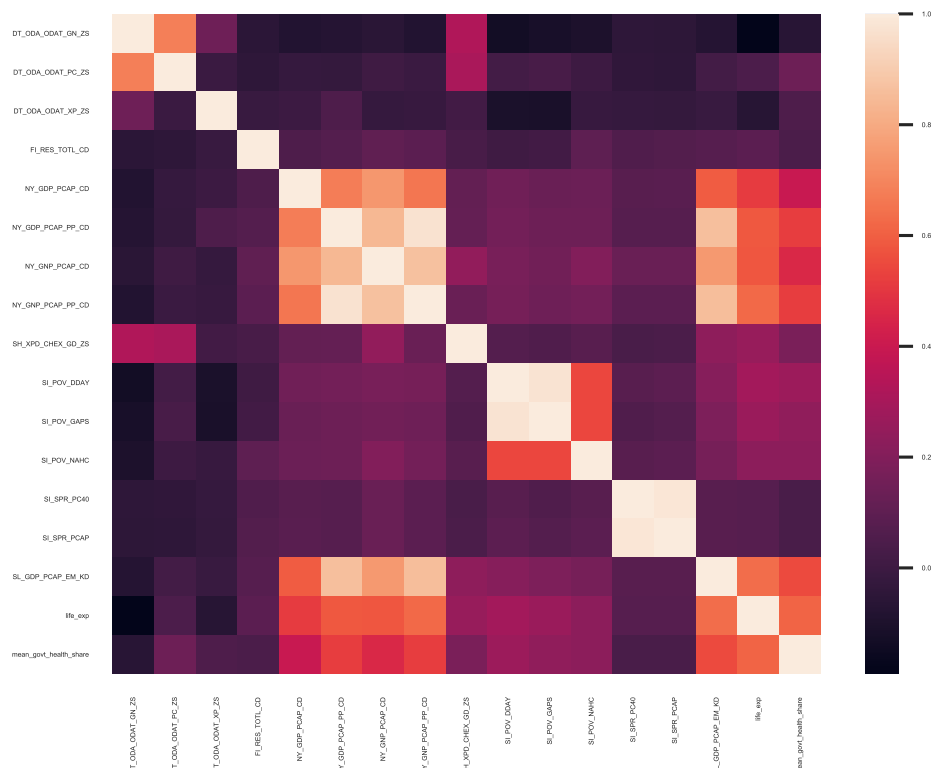


Figure 2: Economic Measures PCA Loadings

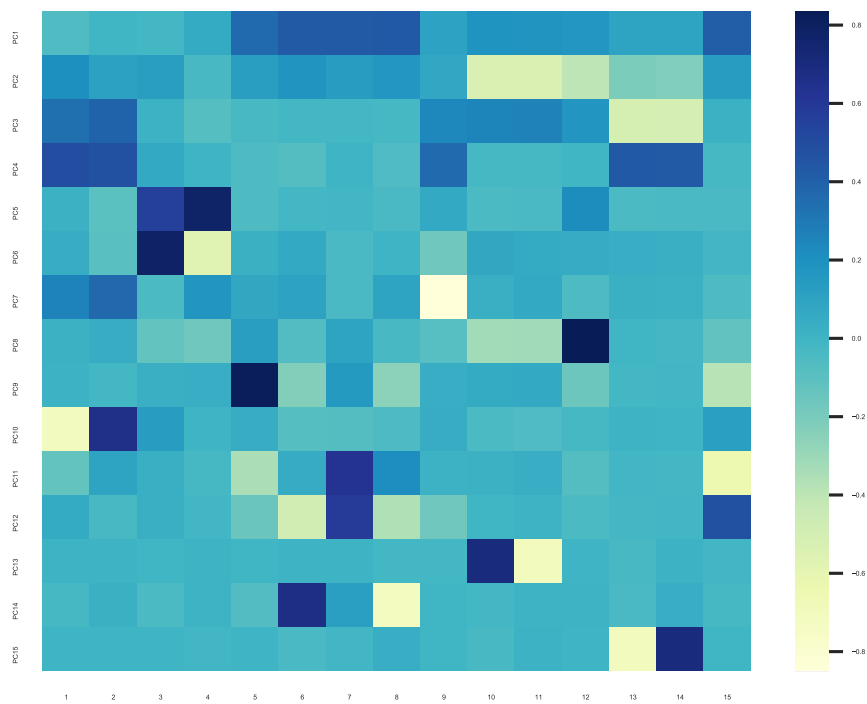


Figure 3: Economic Measures PCA Share of Variance Explained

