HW 4 pt2

2023-04-18

Question 12.22 From Hansen Econometrics

```
# Load packages
pacman::p_load(tidyverse, magrittr, here, haven, magrittr, AER, fixest, cragg, ivmodel, momentfit)

# Load data
ajr_df = read_dta(here("AJR2001/AJR2001.dta"))
```

Part a)

Part b)

Part c)

Part d)

Part e)

Part f)

Part g)

Part h)

Part i)

Part j)

Part k)

Part j)

```
# Efficient Gmm
gmm_mod = gmm4(loggdp ~ risk, ~ mortality0 + mortsquare, type = 'twostep', vcov = 'MDS', initW = "tsls"

summary(gmm_mod)
```

```
## Model based on moment conditions
## *********************************
## Moment type: linear
```

```
## Covariance matrix: MDS
## Number of regressors: 2
## Number of moment conditions: 3
## Number of Endogenous Variables: 1
## Sample size:  64
##
## Estimation:  Two-Step GMM
## Sandwich vcov: FALSE
## coefficients:
##             Estimate Std. Error t value  Pr(>|t|)
## (Intercept)  2.11760    1.07055  1.9781   0.04792 *
## risk         0.91201    0.16048  5.6831 1.323e-08 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
##  J-Test
##                 Statistics  df   pvalue
## Test E(g)=0:       0.63793   1  0.42446
##
##
## Instrument strength based on the F-Statistics of the first stage OLS
## risk : F( 2 ,  61 ) =  8.2  (P-Vavue =  0.00071 )
```

See above for estimates, standard errors.

The J statistic is 0.64

The GMM, and 2SLS are basically identical.