**Working with DataStream Data + Alternate Variables**

Github

* <https://github.com/gauts77/pandemic>
  + Can access all the raw data, do/R files and figures for the project here.

Graphs of Time Series:

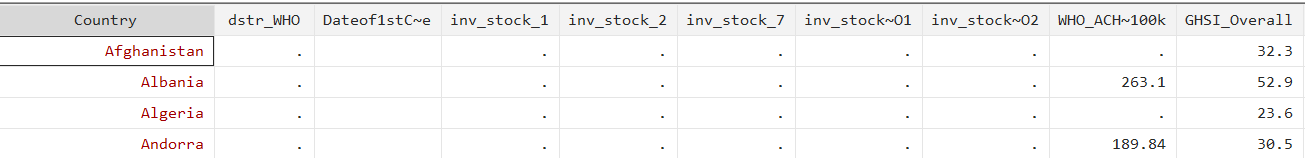
* /figures/stock\_time\_series : contains time series graph for each stock index, from the start of the period (10/01/20) to the end (05/06/20). Y axis is closing price.
  + - Red highlighted area is between 06/03/20 and 13/03/20: the WHO pandemic announcement was on 11/03/20.

**Summary of the graphs:** <https://raw.githubusercontent.com/gauts77/pandemic/main/figures/stock_time_series/grouped_time_series.png>

A picture containing diagram

Description automatically generated

**Current Dataset:**

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Additions:

* : (Datastream) % fall in domestic stock index on the week of the WHO announcement (between 06/03/20 and 13/03/20).
* : (WHO) Acute care hospital beds per 100,000 people.

**Analysis 2: Using the Datastream Data as Y Variable (GHSI as X)**

Scatterplot:



|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| dstr\_WHO | Coef. | | St.Err. | t-value | | p-value | [95% Conf | | Interval] | |  |
| GHSI\_Overall | **.00044** | | .00152 | 0.29 | | .77247 | -.00273 | | .00362 | |  |
| Constant | -.15557 | | .09926 | -1.57 | | .13356 | -.36334 | | .05219 | |  |
|  | | | | | | | | | | | |
| Mean dependent var | | -0.12744 | | | SD dependent var | | | 0.05559 | |
| R-squared | | 0.00727 | | | Number of obs | | | 21.00000 | |
| F-test | | 0.08603 | | | Prob > F | | | 0.77247 | |
| Akaike crit. (AIC) | | -58.94835 | | | Bayesian crit. (BIC) | | | -56.85930 | |
| *\*\*\* p<.01, \*\* p<.05, \* p<.1* | | | | | | | | | | | |
|  | | | | | | | | | | | |

Insignificant but positive effect. More what we’d expect (but coefficient is v insignificant).

**Analysis 3: using acute care hospital beds as X variable**

1. **Y = Stock Fluctuations on the 12th March (data from Investing.com)**



**%Change in Stock Index on 12th March**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| inv\_stock\_WHO2 | Coef. | | St.Err. | t-value | | p-value | [95% Conf | | Interval] | | Sig |
| WHO\_ACHB\_p100k | -.00005 | | .00007 | -0.80 | | .44183 | -.0002 | | .00009 | |  |
| Constant | -.08785 | | .02985 | -2.94 | | .0164 | -.15536 | | -.02033 | | \*\* |
|  | | | | | | | | | | | |
| Mean dependent var | | -0.10965 | | | SD dependent var | | | 0.02734 | |
| R-squared | | 0.09371 | | | Number of obs | | | 11.00000 | |
| F-test | | 0.64726 | | | Prob > F | | | 0.44183 | |
| Akaike crit. (AIC) | | -46.09936 | | | Bayesian crit. (BIC) | | | -45.30357 | |
| *\*\*\* p<.01, \*\* p<.05, \* p<.1* | | | | | | | | | | | |
|  | | | | | | | | | | | |

1. **Y = Fluctuations on the Week of the Announcement (Data from Datastream)**

**%Change in Stock Index between 6th and 13th March**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| dstr\_WHO | Coef. | | St.Err. | t-value | | p-value | [95% Conf | | Interval] | | Sig |
| WHO\_ACHB\_p100k | .00001 | | .00005 | 0.10 | | .91901 | -.00011 | | .00012 | |  |
| Constant | -.16319 | | .02151 | -7.59 | | .00002 | -.21113 | | -.11525 | | \*\*\* |
|  | | | | | | | | | | | |
| Mean dependent var | | -0.16113 | | | SD dependent var | | | 0.02873 | |
| R-squared | | 0.00064 | | | Number of obs | | | 12.00000 | |
| F-test | | 0.01087 | | | Prob > F | | | 0.91901 | |
| Akaike crit. (AIC) | | -48.18982 | | | Bayesian crit. (BIC) | | | -47.22001 | |
| *\*\*\* p<.01, \*\* p<.05, \* p<.1* | | | | | | | | | | | |
|  | | | | | | | | | | | |

**In both cases, n is very low (11 and 12, respectively). Haven’t got a lot of stock data, and the acute care hospital beds data only covers 51 countries (GHSI covers 196).**

* Only 11/12 cases where there is data available for both acute care hospital beds and stock data.

Maybe a higher n would show a significant effect?