A Seamless Integration of Gretl and R

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1 About gretlR

gretlR is an R package that can run `gretl` program from R Markdown.

2 Installation

gretlR can be installed using the following commands in R.

```
install.packages("gretlR")

          OR

devtools::install_github('sagirumati/gretlR')
```

3 Usage

Please load the gretlR package as follows:

````
```{r gretlR}
library(gretlR)
```
````

Then create a chunk for `gretl` as shown below:

````
```{gretl gretlR1,eval=T,echo=T,comment=NULL,results='hide'}
nulldata 500
set seed 13
gretl1 = normal()
gretl2 = normal()
setobs 12 1980:01 --time-series
gnuplot gretl1 --time-series --with-lines --output="line.png"
gnuplot gretl2 gretl1 --output="scatter.png"
ols gretl1 const gretl2
modeltab add
tabprint --output="ols.Rmd"
tabprint --output="ols.tex"
eqnprint --output="olsmodel.Rmd"
eqnprint --output="olsmodel.tex"
tabprint --output="ols.csv"
```
````

The above chunk creates an gretl program with the chunk's content, then automatically gretl, which will save gretl outputs in the current directory.

We can *dynamically and reproducibly* fetch the `gretl` graph object we created with the `gretl` chunk using the following R chunk:

For the scatter graph:

```
library(knitr)
knitr::include_graphics("gretlr/gretlr1/scatter.png")
```

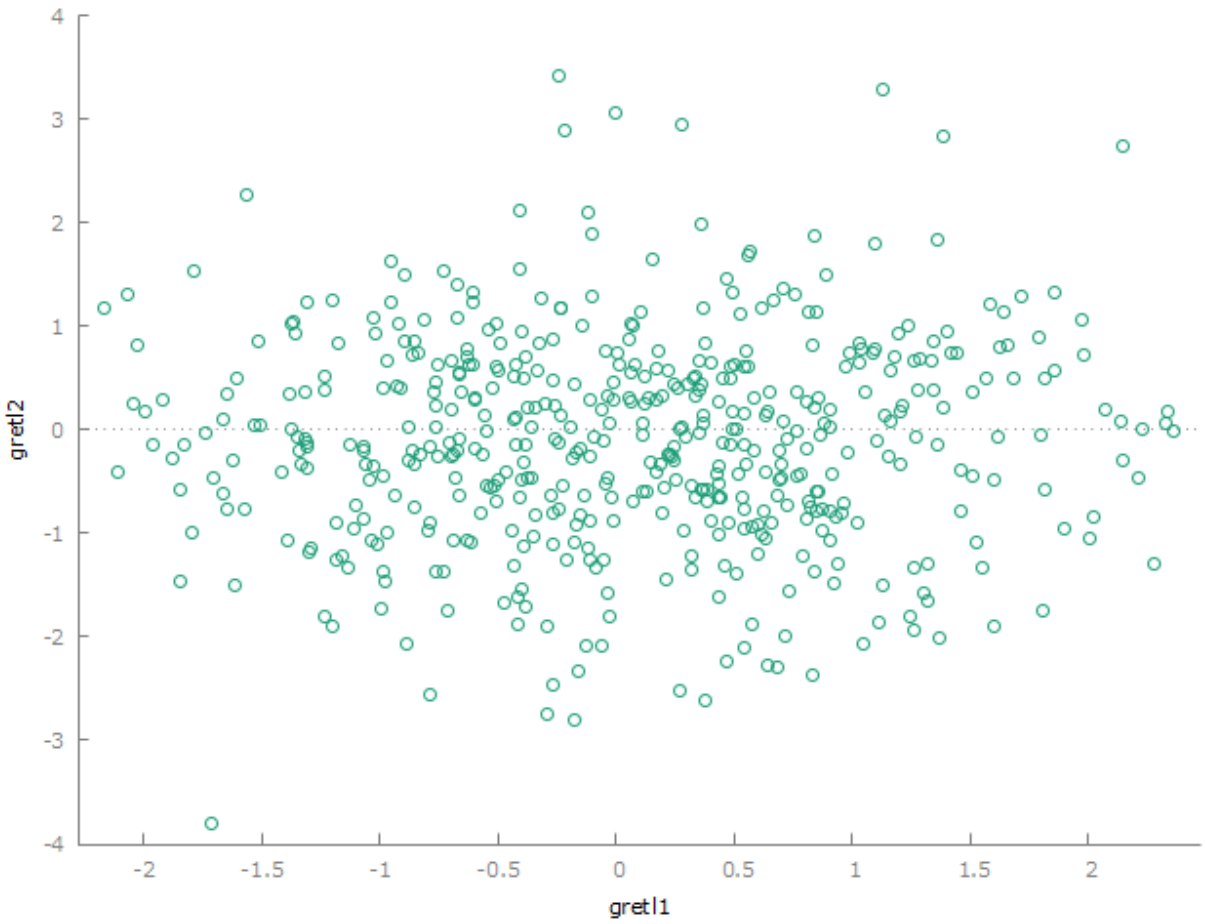

Figure 1: Scatter graph produced by gretl chunk

or the line graph:

```
knitr::include_graphics("gretlr/gretlr1/line.png")
```

we can also include the equation of the OLS generated by the `gretl` chunk using the following R chunk;

Remember the OLS equation output is saved by the `gretl` chunk as `olsmodel.Rmd`. The entire OLS equation model:

```{r child, child='olsmodel.Rmd'}

```

%%% the following needs the amsmath LaTeX package

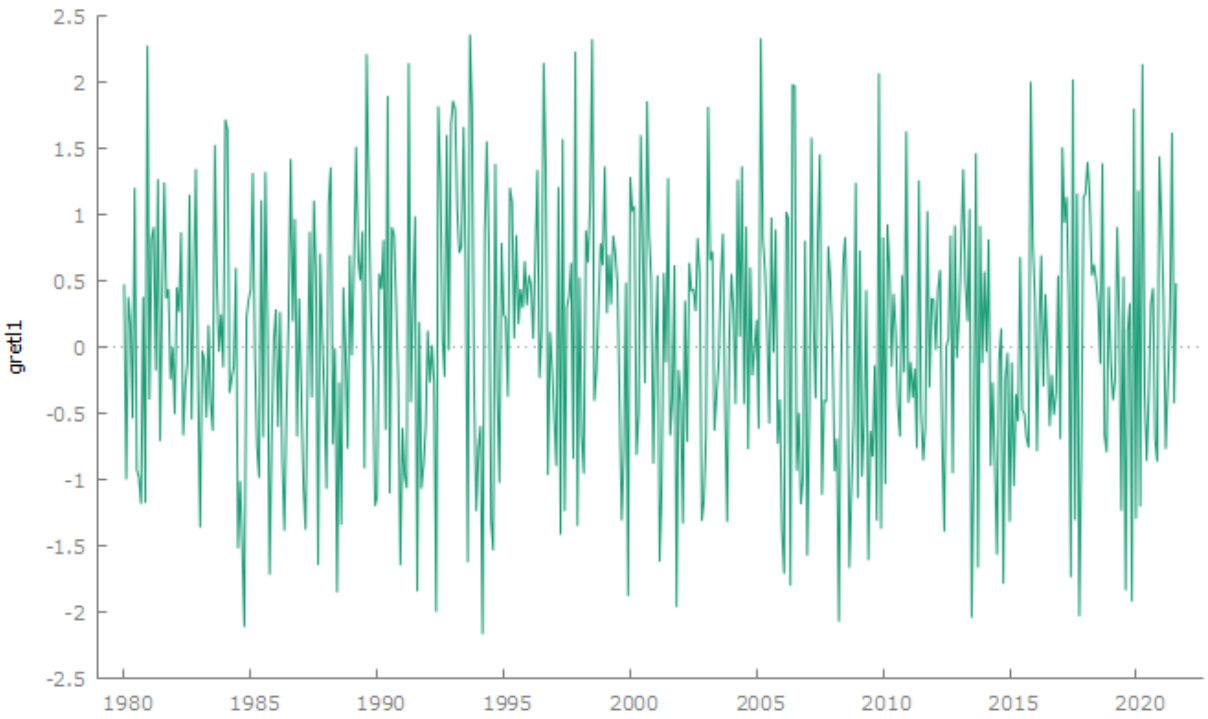

Figure 2: Line graph produced by gretl chunk

$$\widehat{\text{gretl1}} = \underset{(0.043179)}{0.0610266} + \underset{(0.042056)}{0.0239587}\,\text{gretl2}$$

$$T = 500 \quad \bar{R}^2 = -0.0014 \quad F(1, 498) = 0.32454 \quad \hat{\sigma} = 0.96025$$

(standard errors in parentheses)

Remember the OLS table output is saved by `gretl` chunk as `ols.Rmd`. The entire OLS table output:

```
```{r child1, child="ols.Rmd"}

```
```

Model 1: OLS, using observations 1980:01–2021:08 ($T = 500$)
Dependent variable: gretl1

	Coefficient	Std. Error	t-ratio	p-value
const	0.0610266	0.0431785	1.413	0.1582
gretl2	0.0239587	0.0420559	0.5697	0.5691

Mean dependent var	0.058464	S.D. dependent var	0.959598
Sum squared resid	459.1937	S.E. of regression	0.960248
R^2	0.000651	Adjusted R^2	-0.001355
$F(1, 498)$	0.324542	P-value(F)	0.569148
Log-likelihood	−688.1853	Akaike criterion	1380.371
Schwarz criterion	1388.800	Hannan–Quinn	1383.678
$\hat{\rho}$	−0.046001	Durbin–Watson	2.091190

```
include_tex(chunk = "gretlr1",tex = "ols",start = 7,end = 24)
```

	Coefficient	Std. Error	t-ratio	p-value
const	0.0610266	0.0431785	1.413	0.1582
gretl2	0.0239587	0.0420559	0.5697	0.5691

```
include_graph(chunk = "gretlr1",graph = "line.png")
```

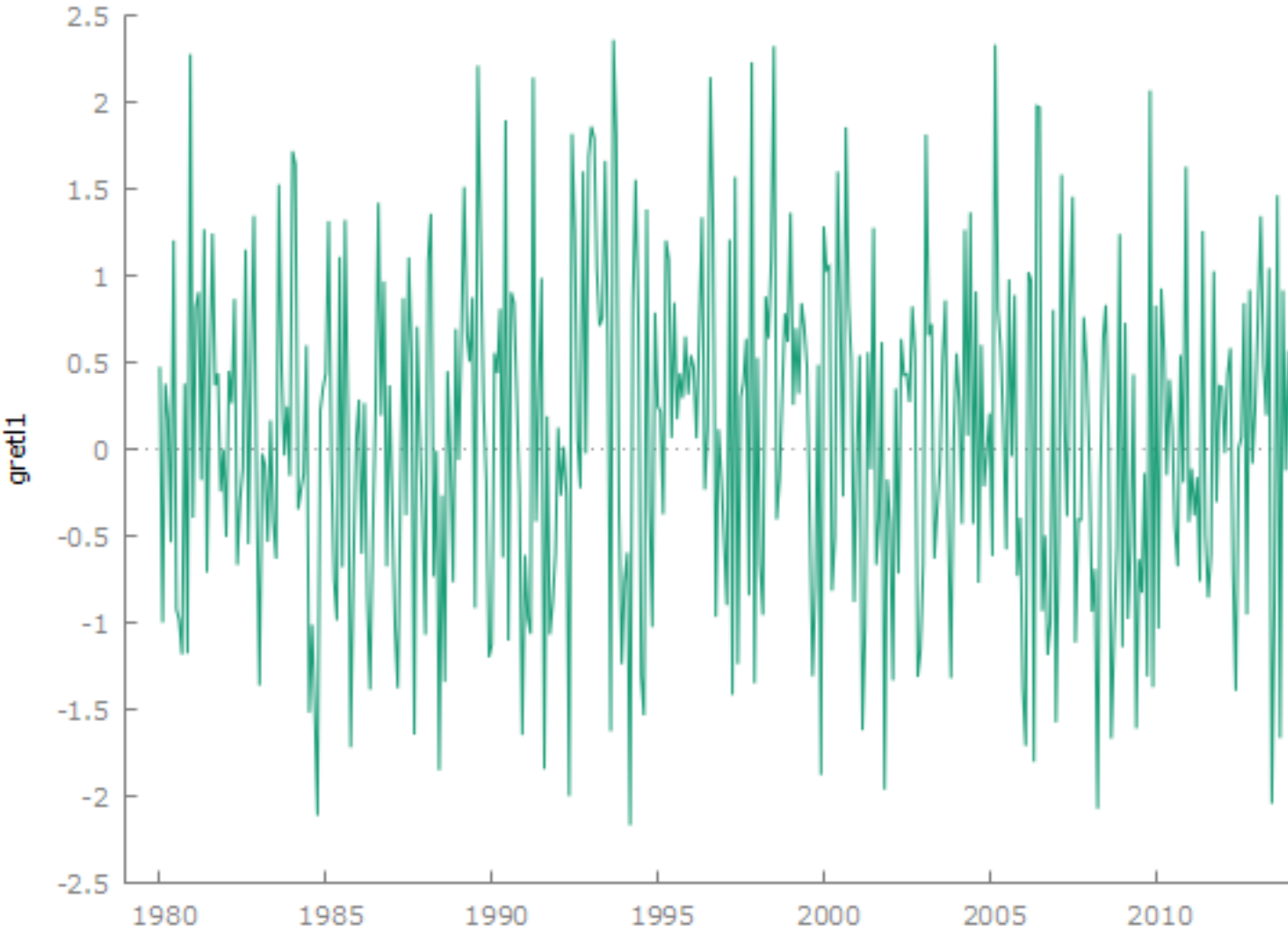

Figure 3: some cap

```
import_kable(chunk = "gretlr1",file = "ols.csv",caption="some table caption")
```

Please visit my Github for a better explanation and example files.

```
cat(paste(c("```{r results='asis'}","$$x^2\\alpha_{t_1}$$","```"),collapse = "\n"))
```

Table 1: some table caption

Model 1: OLS, using observations 1980:01-2021:08 (T = 500)
Dependent variable: gretl1
,coefficient,std. error,t-ratio,p-value
const,0.0610266481635362,0.0431785076222895,1.41335705016431,0.158175505715966
gretl2,0.0239586676119215,0.0420559191662618,0.569685982066032,0.569147581664115
Mean dependent var,0.0584641954142006,S.D. dependent var,0.959597610597147
Sum squared resid,459.193707151256,S.E. of regression,0.960247737394469
R-squared,0.000651266575759979,Adjusted R-squared,-0.00135545778854573
F(1, 498),0.324542118162484,P-value(F),0.569147581664154
Log-likelihood,-688.185277239927,Akaike criterion,1380.37055447985
Schwarz criterion,1388.7997706767,Hannan-Quinn,1383.67816514226
rho,-0.04600111222224,Durbin-Watson,2.09118953376046