

EconEnv

One Notebook. Multiple Econometric Engines.

Python, R, Stata and EViews in a single Jupyter workflow

Installation and User Guide

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About this guide. It assumes nothing. Chapter 3 starts from a computer with no Python on it and finishes with all four programs talking to each other in one notebook. If you already have Python and Jupyter, skip to Section 3.3.

EconEnv does not contain, bundle or redistribute Stata or EViews. Those are commercial products which you must install and license yourself. R and Python are free and open source. EconEnv only connects to what is already on your machine.

Repository: <https://github.com/merwanroudane/econenv> · Package:
<https://pypi.org/project/econenv/>

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Chapter 1

What EconEnv is, and why

1.1 The problem

An applied econometrics paper rarely lives inside one program. The unit-root test is done in EViews because that is where the output is readable. The panel estimator is in Stata because `xtreg` is the reference implementation. The plots are in R because `ggplot2` is better. The data cleaning is in Python because `pandas` is better.

So the working day looks like this:

```
Python → to_csv() → Stata → export delimited → R → write.csv → EViews
```

Four programs open, four windows, four copies of the same data slowly drifting apart. A missing value that meant `.a` in Stata arrives as an empty cell in R. A quarterly index becomes a string. And when a referee asks why your robust standard error differs from theirs, there is no way to answer without redoing the whole chain by hand.

1.2 What EconEnv does

EconEnv turns the four programs into *execution engines behind one Python kernel*. You write:

```
%load_ext econenv
```

```
df = pd.read_csv("data.csv")          # Python, as usual
```

```
%%R -i df
fit <- lm(y ~ x1 + x2, data = df)
summary(fit)
```

```
%%stata
regress y x1 x2, robust
```

```
%%eviews -i df
equation eq1.ls y c x1 x2
eq1.output
```

One notebook. One kernel. One dataset. No CSV round-trip.

And then the part that is genuinely hard to do any other way:

```
econenv.compare_ols(df, "y ~ x1 + x2")
```

which estimates the same specification in every engine you have and puts the results side by side — reporting where they differ, and why, instead of quietly picking one.

1.3 What it is not

- It is **not** a new Jupyter kernel. It is a Python package and an IPython extension. Your notebook stays a normal Python notebook.
- It does **not** reimplement `%%stata`. Stata 17 and later ship official IPython magics, and EconEnv loads those rather than writing worse ones.
- It does **not** ship any commercial software, licence file or binary.
- It does **not** try to make the programs agree. Where their defaults differ, it says so.

Chapter 2

Requirements

2.1 Minimum

Component	Version	Needed for
Python	3.9 or newer	everything
pandas, numpy, IPython	installed automatically	everything
statsmodels	installed automatically	the Python engine
JupyterLab or Notebook	any recent	running notebooks

2.2 Optional engines

Install only what you use. None of these is required to install EconEnv.

Engine	Version	Notes
R	4.0+	Free. EconEnv finds it automatically; no PATH setup needed.
Stata	17 or newer	Commercial. PyStata ships with Stata 17+; earlier versions cannot be driven this way.
EViews	12, 13 or 14	Commercial. Windows only — automation is COM-based.

2.3 Operating systems

	Windows	Linux	macOS
Python	yes	yes	yes
R	yes	yes	yes
Stata	yes	yes	yes
EViews	yes	no	no

EViews automation uses Microsoft COM, which exists only on Windows. On Linux and macOS EconEnv installs and runs normally; the EViews engine simply reports itself unavailable and everything else works. Linux and macOS are supported by design but have not yet been exercised by the author — reports are welcome.

Chapter 3

Installation from zero

This chapter assumes a Windows machine with nothing installed. Adapt the paths if yours differ.

3.1 Step 1 — Python

Two reasonable routes.

Route A: python.org (simplest)

1. Go to <https://www.python.org/downloads/> and download Python 3.11 or 3.12 for Windows.
2. Run the installer. **Tick “Add python.exe to PATH”** on the first screen — this is the single most common thing people miss.
3. Open a new Command Prompt and check:

```
python --version
```

Route B: Anaconda / Miniconda

Convenient if you also want conda packages. Download from <https://www.anaconda.com/download>, then create a dedicated environment so you do not disturb the base one:

```
conda create -n econ python=3.12
conda activate econ
```

Whichever route you choose, remember *which* Python it is. If you install EconEnv into one interpreter and start Jupyter from another, the extension will not be found — and the error will not obviously say why. Section 9.1 covers this.

3.2 Step 2 — Jupyter

```
pip install jupyterlab
```

Start it with:

```
jupyter lab
```

3.3 Step 3 — EconEnv

```
pip install econenv
```

That is the whole core installation. It pulls in pandas, numpy, IPython and statsmodels, and nothing commercial.

Optional extras, installed only if you need them:

```
pip install "econenv[views]"    # comtypes, for EViews (Windows)
pip install "econenv[arrow]"    # faster data transfer to R
pip install "econenv[stata]"    # helper for locating PyStata
pip install "econenv[all]"      # all of the above
```

Check it worked:

```
econenv doctor
```

This prints a diagnosis of every layer — Python, Jupyter, R, Stata, EViews — and, for anything wrong, what to do about it.

3.4 Step 4 — R (optional, free)

1. Download R from <https://cran.r-project.org/bin/windows/base/>.
2. Run the installer and accept the defaults. It lands in C:\Program Files\R\R-4.x.x.
3. Nothing else is needed. EconEnv searches the registry and the usual install locations; you do not have to set R_HOME or touch PATH.

If you have several versions installed and want a specific one:

```
%econ config r.home "C:/Program Files/R/R-4.5.2"
```

You do not need rpy2. EconEnv's default R backend is a persistent Rterm child process, which needs no compiler and no R_HOME gymnastics. rpy2 publishes no Windows wheels, so `pip install rpy2` typically leaves you with a broken build. If you want it anyway, use conda-forge — see Section 9.4.

3.5 Step 5 — Stata (optional, commercial)

You need **Stata 17 or newer**, because that is when StataCorp began shipping PyStata.

1. Install and licence Stata normally.
2. Nothing else. EconEnv finds the installation, validates the executable and detects the edition (BE, SE or MP).

To pin a specific installation or edition:

```
%econ config stata.home "C:/Program Files/StataNow19"
%econ config stata.edition mp
```

3.6 Step 6 — EViews (optional, commercial, Windows only)

1. Install and licence EViews normally.
2. **Open EViews once, by hand, and close it.** This registers its COM automation server and validates the licence. Until you have done this, automation will not connect.
3. Install the COM bridge:

```
pip install "econenv[eviews]"
```

If you have more than one EViews version installed, the generic `EViews.Manager` identifier binds to whichever registered *last* — not the newest. On a machine with EViews 12, 13 and 14, it may well be 13 that answers. `%econ status` shows the version actually connected. To pin one:

```
%econ config eviews.progid EViews.Manager.14
```

Note the format: `EViews.Manager.14`, not `EViews14.Manager`.

3.7 Step 7 — Verify everything

In a notebook:

```
%load_ext econenv  
%econ status
```

You should see a table like this:

engine	state	version	edition	backend	location
Python	configured	3.11.0		cpython	C:\...\Python311
EViews	configured	13		comtypes	C:\Program Files\EViews 13
R	configured	4.5.2		subprocess	C:\Program Files\R\R-4.5.2
Stata	configured	19.5	mp	pystata	C:\Program Files\StataNow19

Then the full diagnosis:

```
%econ doctor
```

Every check reports PASS, WARNING or ERROR, and every warning and error carries a suggested fix.

Chapter 4

First steps

4.1 Loading the extension

Once per notebook:

```
%load_ext econenv
```

It prints which magics it registered and who owns each one:

```
EconEnv 0.1.6 loaded - one notebook, multiple econometric engines.
%econ                econenv
%Rec / %%Rec         econenv
%R / %%R             econenv (rpy2 not installed)
%evIEWS / %%evIEWS   econenv
%stata / %%stata     pystata (official)
```

Note the last line. `%%stata` belongs to StataCorp, not to EconEnv. That means it takes *Stata's* options, not EconEnv's: `%%stata --result` is a syntax error. Move data with `%econ push` instead.

4.2 Sending data to an engine

Three equivalent ways:

```
%econ push r df          # line magic
```

```
%%R -i df                # inline, when running R code anyway
summary(df)
```

```
econenv.push("r", "df", df) # from Python
```

4.3 Getting results back

```
back = econenv.pull("stata")      # the current Stata dataset
one  = econenv.pull("evIEWS", "yf") # one EViews series
frame = econenv.pull("r", "mydata") # a named R data frame
```

R has no notion of a “current dataset” the way Stata and EViews do — every data frame is just a variable. `econenv.pull("r")` therefore returns the frame `EconEnv` last transferred; if there is none, it tells you so and lists the frames R actually holds. Name the frame explicitly when in doubt.

4.4 Moving data between two engines directly

```
econenv.move("stata", "eviews", "mydata")
```

No file is written, and no manual step is involved.

Chapter 5

The magic commands

5.1 %econ — managing everything

Command	What it does
%econ status	Table of every engine: state, version, backend, location
%econ engines	The same, in detail, with capabilities
%econ doctor	Full diagnosis with a fix for every problem
%econ versions	Version of EconEnv and of each engine
%econ capabilities	What each engine can do on this machine
%econ models	Which estimators are available in which engine
%econ start r	Start an engine explicitly
%econ stop / restart / reset	Session control
%econ config r.home "..."	Show or set a configuration value
%econ push <engine> <name>	Send a Python object to an engine
%econ pull <engine> [name]	Fetch an object back
%econ move <from> <to> <name>	Engine to engine
%econ snapshot	Reproducibility snapshot of every version
%econ eviews [topic]	Look up EViews commands (see below)
%econ ols y ~ x	Run one OLS across every engine

5.2 %%R — R

```
%%R -i df -o results
fit <- lm(y ~ x, data = df)
results <- coef(fit)
```

-i sends objects in, -o brings them back. -q suppresses output, --no-graphics suppresses plot capture.

If rpy2 is installed, EconEnv loads *rpy2's own* %R magics rather than shadowing them, and its own are always available as %Rec / %%Rec.

5.3 %%stata — Stata

This is StataCorp's official magic. Use Stata's own syntax and options:

```
%%stata
regress y x1 x2, robust
estat ic
```

5.4 %%eviews — EViews

```
%%eviews -i df
equation eq1.ls y c x1 x2
eq1.output
line y
```

-i pushes a DataFrame in as a workfile, -o pulls series out, -p selects a page, --no-graphs suppresses figures.

Chapter 6

EViews for people who use the GUI

This is the chapter most EViews users need, because in EViews you normally click, and in a notebook there is nothing to click.

6.1 Look commands up without leaving the notebook

```
%econ evIEWS          # the list of tasks
%econ evIEWS graph    # everything about plotting
%econ evIEWS find cointegration # search all of it
```

Each result gives the menu path you already know, the command, what it does, and an example:

```
g.coint(e)
  Johansen system cointegration test - trace and maximum-eigenvalue
  statistics for how many cointegrating relations exist.
  GUI: Group > View > Cointegration Test > Johansen
  e.g. g1.coint(e)
```

The catalogue holds 136 commands, 94 of them verified against EViews 13.

6.2 The one rule that makes EViews commands guessable

EViews objects work like this:

`object_name.what_you_want`

- Anything in an object's **View** menu is `object.thatview`.
- Anything in its **Proc** menu is `object.thatproc`, usually followed by a name for whatever it creates.

So `eq1.output` shows an equation's results, `x.line` plots a series, `v1.impulse` draws impulse responses.

6.3 Three ways to draw the same plot

All three work, and the GUI hides the distinction:

```
line x          % command form - quickest
x.line         % view form    - matches the View menu
graph gr1.line x % object form - keeps the graph so you can edit it
```

6.4 The commands you will need first

You would click	Command	What it does
File > New > Workfile	<code>wfcreate q 1990Q1 2020Q4</code>	Quarterly workfile
Quick > Generate Series	<code>series ly = log(y)</code>	Create or transform
Quick > Sample	<code>smp1 1995Q1 2015Q4</code>	Restrict the sample
Open as Group	<code>group g1 x y</code>	Bundle series
Series > View > Graph > Line	<code>x.line</code>	Plot
Descriptive Statistics	<code>x.stats</code>	Summary table
Correlogram	<code>x.correl</code>	ACF/PACF with Q-stats
Unit Root Test > ADF	<code>x.uroot(adf)</code>	Dickey–Fuller
Cointegration > Johansen	<code>g1.coint(e)</code>	Trace and max-eigen
Estimate Equation > LS	<code>equation eq1.ls y c x</code>	OLS; c is the constant
Estimate Equation > ARCH	<code>equation eq1.arch(1,1) y c x</code>	GARCH(1,1)
Estimate VAR	<code>var v1.ls 1 2 x y</code>	VAR, lags 1 to 2
Equation > View > Output	<code>eq1.output</code>	Results table
Actual, Fitted, Residual	<code>eq1.resids</code>	The first thing to look at
Serial Correlation LM	<code>eq1.auto(2)</code>	Breusch–Godfrey
Heteroskedasticity, White	<code>eq1.white</code>	White’s test
Recursive > CUSUM	<code>eq1.rls(q)</code>	Parameter stability
Recursive > CUSUM squares	<code>eq1.rls(v)</code>	Variance stability
Forecast	<code>eq1.forecast(g) yf</code>	Forecast and plot

The complete reference is in `docs/engines/evIEWS-commands.md`.

If a command runs but you see nothing, that is a bug in EconEnv, not in what you typed. Every display command should produce output, a plot, or a warning saying it could not be read. Silence is never correct — please report it.

Chapter 7

A worked example

The notebook `examples/06-four-engines-real-data.ipynb` works through a complete exercise on **real US quarterly macroeconomic data, 1959Q1 to 2009Q3** — 203 observations, shipped with statsmodels, so it needs no download.

7.1 What it does

Step	Engine	Why that one
Load and transform	Python	pandas is the best tool for this
Describe, plot, diagnose	R	<code>plot(fit)</code> and R's diagnostic vocabulary
HAC standard errors	Stata	<code>newey</code> is the reference implementation
Unit roots, cointegration	EViews	this is what EViews is for
Forecast and stability	EViews	CUSUM, forecast bands
Compare all four	EconEnv	one specification, four engines, one table

7.2 The model

A textbook consumption function,

$$\log C_t = \beta_0 + \beta_1 \log Y_t + \beta_2 r_t + \varepsilon_t,$$

with C real consumption, Y real GDP and r the real interest rate.

Both series trend strongly, so the interesting questions — are they non-stationary, are they cointegrated, are the standard errors trustworthy — are exactly the ones each program answers differently. That is what makes it a good test of the whole idea.

7.3 A representative result

EViews, on log real GDP:

```
Null Hypothesis: LRGDP has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=14)

                                t-Statistic   Prob.*
Augmented Dickey-Fuller test statistic   -1.820451   0.3698
```

Test critical values:	1% level	-3.462901
	5% level	-2.875752

and the four-engine comparison of the same regression:

Coefficients				
	python	evIEWS	r	stata
term				
_cons	1.4805338	1.4805338	1.4805338	1.4805338
lrgdp	0.8863268	0.8863268	0.8863268	0.8863268
realint	-0.0936228	-0.0936228	-0.0936228	-0.0936228

Maximum disagreement across the four: of the order of 10^{-15} — floating point noise and nothing more.

7.4 What deliberately does not agree

The information criteria differ, and EconEnv reports why rather than choosing one:

- `statsmodels`: $-2\ell + 2k$
- R: counts σ^2 as a parameter, so $k + 1$
- EViews: divides by n
- Stata: from `estat ic`, with $k = e(\text{rank}) + 1$

None is wrong. They answer slightly different questions, and a comparison that hid that would be worse than useless.

Chapter 8

Reproducibility

8.1 Snapshots

```
econenv.snapshot()
```

records the EconEnv version, the Python version and packages, the R version, the Stata version and edition, the EViews version, the operating system, architecture and timestamp. Export it as JSON and keep it with your results.

8.2 Why this matters here more than usual

A result produced across four programs has four times as many ways to become irreproducible. A snapshot taken at the time of estimation is the difference between “we used Stata” and “we used StataNow 19.5 MP with PyStata, on Windows, in March”.

Chapter 9

Troubleshooting

9.1 The extension will not load

```
ModuleNotFoundError: No module named 'econenv'
```

Almost always: Jupyter is running on a different Python from the one you installed EconEnv into. Check from inside the notebook:

```
import sys; print(sys.executable)
```

then install into exactly that interpreter:

```
!{sys.executable} -m pip install econenv
```

9.2 An engine will not start

```
%econ doctor
```

Every failing check names a fix. The usual causes:

- **EViews**: never opened by hand, so its COM server is not registered. Open it once and close it.
- **EViews**: `comtypes` not installed — `pip install "econenv[eviews]"`.
- **Stata**: version 16 or earlier. PyStata requires Stata 17.
- **R**: installed somewhere unusual — set `r.home`.

9.3 EViews reports the wrong version

With several versions installed, the generic identifier binds to whichever registered last. `%econ status` always shows the one actually connected. Pin a version with `%econ config evIEWS.progid EViews.Manager.14`.

9.4 rpy2 is installed but broken

A typical symptom:

```
ImportError: cannot import name 'SexpVectorCCompatibleAbstract'  
from 'rpy2.rinterface_lib.sexp'
```

This means a version built for an older Python. PyPI has no Windows wheels for rpy2, so `pip install rpy2` cannot fix it. Use conda-forge:

```
pip uninstall -y rpy2
conda install -c conda-forge rpy2
```

conda-forge's rpy2 brings *its own R* with it, separate from any R already installed. Packages in your existing R will not be visible to it. Unless you specifically need rpy2, stay on EconEnv's subprocess backend, which works without any of this.

9.5 A cell runs and shows nothing

Report it. Every display command should produce output, a plot, or a warning. Silence is a bug: <https://github.com/merwanroudane/econenv/issues>

Chapter 10

Licensing and citation

10.1 EconEnv

MIT licence. Free for any use, including commercial.

10.2 The commercial programs

EconEnv's licence says nothing about Stata or EViews. It contains no part of either, and connects only to installations you have licensed yourself. Your obligations under those licences are unchanged.

10.3 Citation

Roudane, M. (2026). EconEnv: One Notebook, Multiple Econometric Engines. Python package. <https://github.com/merwanroudane/econenv>

A CITATION.cff file in the repository is kept up to date, and GitHub will format a citation from it automatically.