Package 'BsplineQuantRegGui'

October 20, 2026

Type Package

Title Interactive 'Shiny' Interface for 'BsplineQuantReg'

Version 0.2.3

Language en-GB

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Description A user-friendly interactive Shiny interface for the 'BsplineQuantReg' package, enabling quantile regression using B-splines with shape constraints,
based on the method described in Abbes (2025). Almost all parameters of the main function 'quantile_spline()' can be tuned. Features include interactive
knot placement, per-region constraint specification, 'CSV' data import, direct demo access, reproducible R code generation, and solver selection.
From version 0.2.2 it handles knots multiplicity, Bspline basis visualisation, mean-square regression, pp form visualisation under human readable form, in local or canonical bases,
The version 0.2.3 allows regression with spline of any degree, with constraints implemented for degrees 0 to 5.
The GUI provides two modes, basic (compatible with 'BsplineQuantReg' >= 0.2.2)
and advanced (requires 'BsplineQuantReg' >= 0.2.6 for stable multiplicity features).
This GUI is an R (improved) version of the 'Python Tk' version of 'BsplineQuantRegPy'.

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Encoding UTF-8

Depends R (>= 4.4.0)

Imports BsplineQuantReg (>= 0.2.2), shiny, shinyjs, DT, plotly, png, shinythemes, colourpicker, png, ECOSolveR

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`run_gui` *Launch 'BsplineQuantReg' Shiny Interface (Wrapper Function)*

Description

Unified launcher for both basic and advanced versions of the application.

Usage

```
run_gui(
  level = "advanced",
  brow = TRUE,
  rstudio = FALSE,
  host = "127.0.0.1",
  port = 3674
)
```

Arguments

`level`	Character or numeric. Specify which version to launch: `1` or `"basic"`: Basic version `2` or `"advanced"`: Advanced version (default)
`brow`	Logical. If TRUE, launches the app in the system's default browser.
`rstudio`	Logical. If TRUE, launches the app in RStudio's viewer pane.
`host`	Character. Server address. Default is '127.0.0.1'.
`port`	Integer. Port to run the app on. Default is 3674.

Value

Launches the selected Shiny application.

Examples

```
## Not run:
# Launch advanced version (default)
run_gui()
run_gui("advanced")
run_gui(2)

# Launch basic version
run_gui("basic")
```

```
run_gui(1)

## End(Not run)
```

---

run_gui1 *Launch the 'BsplineQuantReg' Shiny Interface - Basic Version*

Description

Opens an interactive Shiny application for quantile regression using B-splines with shape constraints. This is the basic version with standard features.

Usage

```
run_gui1(brow = TRUE, rstudio = FALSE, host = "127.0.0.1", port = 3674)
```

Arguments

brow	Logical. If TRUE, launches the app in the system's default browser.
rstudio	Logical. If TRUE, launches the app in RStudio's viewer pane. If FALSE, uses the system default.
host	Character. Server address. Default is '127.0.0.1'.
port	Integer. Port to run the app on. Default is 3674.

Details

Features:

- Standard quantile regression with B-splines
- Shape constraints (monotonicity, convexity)
- Region-based constraints
- Interactive knot placement
- Data import (CSV)
- Demo examples

Not included:

- Knot multiplicity management
- Advanced basis visualization
- Derivative plots
- Human-readable polynomial display

Version Compatibility:

- Fully works with `BsplineQuantReg` >= `0.2.2`

Value

Launches a Shiny application. The function returns invisibly when the app stops.

See Also

run_gui2 for the advanced version

Examples

```
## Not run:
# Launch basic version
run_gui1()

## End(Not run)
```

---

run_gui2 *Launch the 'BsplineQuantReg' Shiny Interface - Advanced Version*

Description

Opens an interactive Shiny application for quantile regression using B-splines with shape constraints. This version includes advanced features such as:

- Knot multiplicity management
- Basis visualization and derivatives
- Human-readable polynomial display
- Advanced constraint handling

Usage

```
run_gui2(brow = TRUE, rstudio = FALSE, host = "127.0.0.1", port = 3674)
```

Arguments

brow	Logical. If TRUE, launches the app in the system's default browser.
rstudio	Logical. If TRUE, launches the app in RStudio's viewer pane. If FALSE, uses the system default.
host	Character. Server address. Default is '127.0.0.1'.
port	Integer. Port to run the app on. Default is 3674.

Details

Version Compatibility:

- Fully works with BsplineQuantReg >= 0.2.5
- Partially works with BsplineQuantReg >= 0.2.4 (some features may be limited)
- Basic features work with BsplineQuantReg >= 0.2.2

Value

Launches a Shiny application. The function returns invisibly when the app stops.

See Also

run_gui1 for the basic version

Examples

```
## Not run:
# Launch in default browser
run_gui2()

# Launch in RStudio viewer
run_gui2(rstudio = TRUE)

# Launch on custom port
run_gui2(port = 8080)

## End(Not run)
```

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