

# Package: AGBQR (via r-universe)

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**Type** Package

**Title** Adaptive Generalized Bayesian Quantile Regression

**Version** 0.1.0

**Date** 2026-06-16

**Description** Implements adaptive generalized Bayesian quantile regression with quantile-specific learning rates, HAC-based calibration, Gibbs posterior simulation, posterior summaries, predictive evaluation, and visualization tools. The package builds on the generalized Bayesian composite quantile regression framework of Hardy and Korobilis (2026) [doi:10.2139/ssrn.6618603](https://doi.org/10.2139/ssrn.6618603) by allowing learning rates to vary across quantile levels. The implementation is designed for empirical work with small and moderate time-series samples where posterior calibration and tail-specific inference are important.

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**Encoding** UTF-8

**Imports** quantreg, MASS, stats

**Suggests** testthat

**NeedsCompilation** no

**Author** Khder Alakkari [aut, cre]

**Maintainer** Khder Alakkari <khderalakkari1990@gmail.com>

**Repository** <https://khder90.r-universe.dev>

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agbqr

*Adaptive Generalized Bayesian Quantile Regression***Description**

Estimates adaptive generalized Bayesian quantile regression using a Gibbs posterior, quantile-specific learning-rate calibration, and adaptive Metropolis simulation. The method extends the loss-based generalized Bayesian quantile framework of Hardy and Korobilis (2026) by allowing learning rates to vary across quantile levels.

**Usage**

```
agbqr(y, X, taus = c(0.10, 0.25, 0.50, 0.75, 0.90),
      prior = "normal", prior_var = 100,
      M = 30000, burnin = 10000, seed = 12345)
```

**Arguments**

y	Numeric response vector.
X	Numeric matrix or data frame of predictors.
taus	Numeric vector of quantile levels.
prior	Prior type. Use "normal" or "flat".
prior_var	Prior variance used under the normal prior.
M	Total number of MCMC iterations.
burnin	Number of burn-in iterations.
seed	Random seed.

**Value**

An object of class `agbqr` containing posterior draws, calibrated learning rates, posterior summaries, and estimation settings.

**References**

Hardy, N. and Korobilis, D. (2026). Generalized Bayesian Composite Quantile Regression with an Application to Equity Premium Forecasting. SSRN. [doi:10.2139/ssrn.6618603](https://doi.org/10.2139/ssrn.6618603).

**Examples**

```
set.seed(123)
n <- 50
x1 <- rnorm(n)
x2 <- rnorm(n)
x3 <- rnorm(n)
y <- 0.5 + x1 - 0.5 * x2 + 0.3 * x3 + rt(n, df = 3)
```

```
X <- cbind(LEXR = x1, M2GDP = x2, TRDGDP = x3)

fit <- agbqr(y = y, X = X, taus = c(0.50), M = 1000, burnin = 500)
summary(fit)
```

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