# Instructions for using our R code

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## 1 Installing the R package

The code is available in a Github repository and it could be installed using the **devtools** package. We should warn that this package was only tested on Linux machines, as it uses the GNU Scientific Library (GSL) and we could not check whether is working on Windows or not. Before installing our package, one should install the **RccpGSL**.

Code to install our package using **devtools**:

```
> library(devtools)
> install_github('brsantos/baquantreg')
> library(baquantreg)
```

## 2 Using the code

There are a few functions to use in this package with the goal of working with Bayesian quantile regression models, with the assumption of the asymmetric Laplace distribution in the likelihood. We tried to make the Help of our package as complete as possible, but we are happy to solve any doubt it might appear when using the package.

In order to estimate the model for durable goods expenditures in Brazil, one can use the following code

```
> data("BrazilDurableGoods")
> library(dplyr)
> BrazilDurableGoods <- BrazilDurableGoods %>% mutate(
+                                  logExp = ifelse(expenditure > 0,
```

```
+                                          log(expenditure), 0),
+                            education = scale(education),
+                            age = scale(age),
+                            gender = as.factor(gender),
+                            race = as.factor(race),
+                            credit_card = as.factor(credit_card)
+                            )
> modelBrazil <- zitobitQR(logExp ~ age + education, tau=1:9/10,
+                 data=BrazilDurableGoods, itNum=10000,
+                 sigmaGamma=0.10, refresh=20)
> summary(modelBrazil)
```

The function `zitobitQR` is used to estimate the model, while `summary` gives the posterior estimates for all parameters, except the latent variables added for the mixture representation of the asymmetric Laplace distribution. It is possible to use `?zitobitQR` and `?summary.zitobitQR` to get all arguments for these two functions used in this tutorial. While `?Brazil-DurableGoods` gives the description of the dataset.

The other illustration can be analyzed with the dataset `Mroz87` provided by the R package `sampleSelection`.