park-test-R.R

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```
park_test <- function(x, y){

  # Combine the independent variables into a matrix
  x_matrix <- cbind(1, x)

  # Perform a linear regression of y on x and store the residuals
  model <- lm(y ~ x_matrix)
  residuals <- model$residuals

  # Square the residuals and take their logarithm
  squared_log_resid <- log(residuals^2)

  # Take the logarithm of the independent variables
  log_x <- log(x_matrix)

  # Perform a linear regression of squared_log_resid on log_x
  park_model <- lm(squared_log_resid ~ log_x)

  # Output the results of the Park test
  summary(park_model)
}

# Define two vectors of data
x1 <- c(234662,53510,75168,34645,127639,96162,155801,
        143472,34004,81317,73258,54742,72090,52443)

y <- c(2716,816,2277,2294,34839,1760,1375,
       8531,4955,18724,15204,2424,15005,4374)



# Call the park_test function
park_test(x1, y)
```

```
##
## Call:
## lm(formula = squared_log_resid ~ log_x)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -5.0721  0.0687  0.2567  0.5806  2.9248
```

```
##
## Coefficients: (1 not defined because of singularities)
##             Estimate Std. Error t value Pr(>|t|)
## (Intercept)  12.6676    10.1274   1.251    0.235
## log_x             NA         NA      NA       NA
## log_xx        0.4035     0.8969   0.450    0.661
##
## Residual standard error: 1.823 on 12 degrees of freedom
## Multiple R-squared:  0.01659,    Adjusted R-squared:  -0.06536
## F-statistic: 0.2024 on 1 and 12 DF,  p-value: 0.6608
```