title: “LABOTARIO_BONUS”

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output: html_document

LABORATORIO PLOT HOOVER CURVE ##############################

INSTALAR PREVIAMENTE install.packages(“devtools”) install.packages(“devtools”, type = “win.binary”)

```
library(devtools)
```

```
## Loading required package: usethis
```

```
library(EconGeo)
```

```
##
## Please cite EconGeo in publications as:
```

```
##  Balland, P.A. (2017) Economic Geography in R: Introduction to the EconGeo Package, Papers in Evolutionary Eco
nomic Geography, 17 (09): 1-75
```

generate vectors industrial

```
ind <- c(0, 10, 10, 30, 50)
pop <- c(10, 15, 20, 25, 30)
```

CHECK VECTOR

```
ind
```

```
## [1]  0 10 10 30 50
```

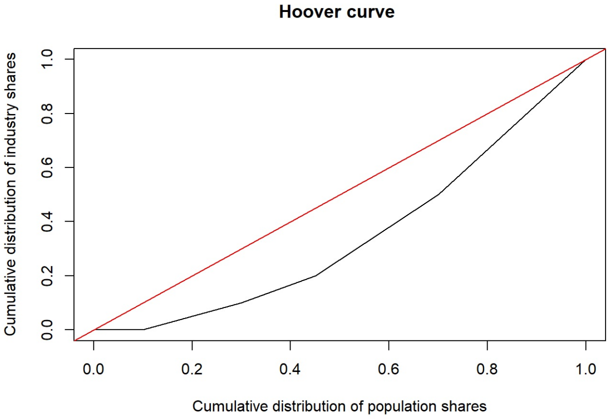
CHECK VECTOR POP

```
pop
```

```
## [1] 10 15 20 25 30
```

RUN THE FUNTION (30% de la poblacion produce 50% de los resultados industriales)

```
Hoover.curve (ind, pop)
```



COMPUTE HOOVER GINI

```
Hoover.Gini (ind, pop)
```

```
## [1] 0.31
```

################################## LABORTARIO GINI ##################################

############################ LABORATORIO HOOVER GINI ############################

USAGE Hoover.Gini(MAT,POP)

GENERATE VECTORS OF INDUSTRIAL COUNT

```
r ind <- c(0, 10, 10, 30, 50) pop <- c(10, 15, 20, 25, 30)
```

RUN THE FUNCTION

```
r Hoover.Gini (ind,pop)
```

```
## [1] 0.31
```

GENERATE A REGION-INDUSTRY MATRIX

```
r mat = matrix ( c (0, 10, 0, 0, 0, 15, 0, 0, 0, 20, 0, 0, 0, 25, 0, 1, 0, 30, 1, 1), ncol = 4, byrow = T) rownames(mat) <- c ("R1", "R2", "R3", "R4", "R5") co
```

RUN THE FUNCTION

```
r Hoover.Gini (mat,pop)
```

```
##   Industry Hoover.Gini ## 1       I1          NaN ## 2       I2       0.000 ## 3       I3       0.700 ## 4       I4       0.475
```

RUN THE FUNCTION BY AGGREGATING ALL INDUSTRIES

```
r Hoover.Gini (rowSums(mat),pop)
```

```
## [1] 0.015
```

RUN THE FUNCTION #1 ONLY

```
r Hoover.Gini (mat[,1],pop)
```

```
## [1] NaN
```

RUN THE FUNCTION #2 ONLY (perfectamente proporcional)

```
r Hoover.Gini (mat[,2],pop)
```

```
## [1] 0
```

RUN THE FUNCTION #3 ONLY (30% produce el 100% de la producción)

```
r Hoover.Gini (mat[,3], pop)
```

```
## [1] 0.7
```

RUN THE FUNCTION #4 ONLY (55% produce el 100% de la producción)

```
r Hoover.Gini (mat[,4], pop)
```

```
## [1] 0.475
```

LABORATORIO LOCATIONAL GINI ##############################

GENERATE REGION- INDUSTRI MATRIX

```
mat = matrix (
  c (100, 0, 0, 0, 0,
     0, 15, 5, 70, 10,
     0, 20, 10, 20, 50,
     0, 25, 30, 5, 40,
     0, 40, 55, 5, 0), ncol = 5, byrow = T)
rownames(mat) <- c ("R1", "R2", "R3", "R4", "R5")
colnames(mat) <- c ("I1", "I2", "I3", "I4", "I5")
```

RUN THE FUNCTION

```
locational.Gini (mat)
```

```
##   Industry Loc.Gini
## 1       I1     0.40
## 2       I2     0.18
## 3       I3     0.27
## 4       I4     0.31
## 5       I5     0.28
```

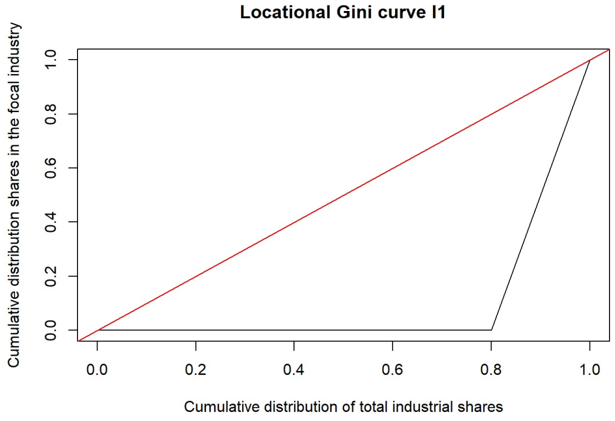
############################## LOCATIONAL.GINI_CURVE ##############################

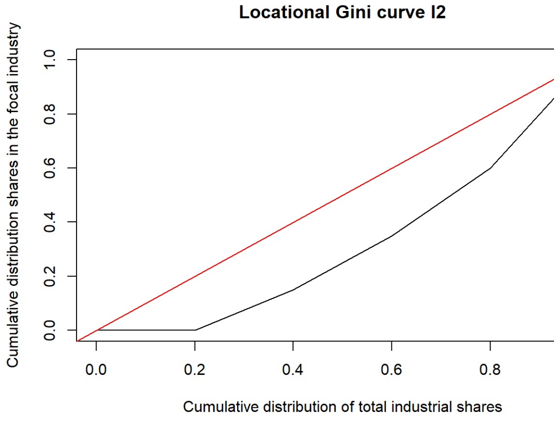
GENERATE A RECION-INDUSTRI MATRIX

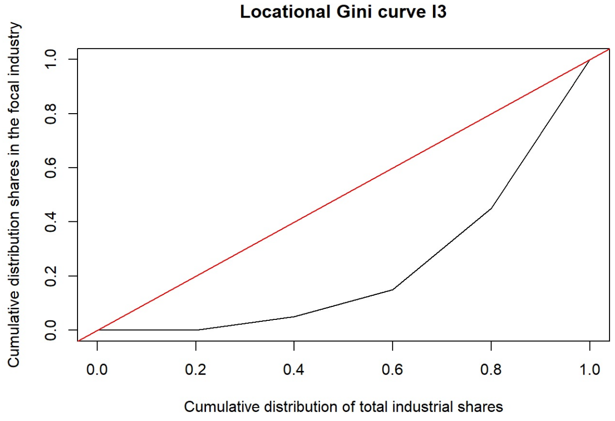
```
r mat = matrix ( c (100, 0, 0, 0, 0, 0, 15, 5, 70, 10, 0, 20, 10, 20, 50, 0, 25, 30, 5, 40, 0, 40, 55, 5, 0), ncol = 5, byrow = T) rownames(mat) <- c ("R1", "R
```

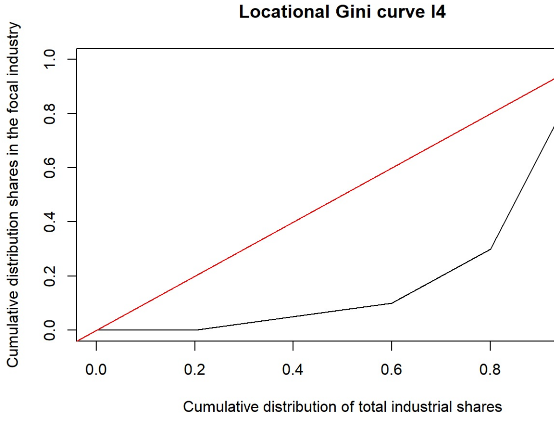
RUN THE FUNCTION (SHOWS INDUSTRY #5)

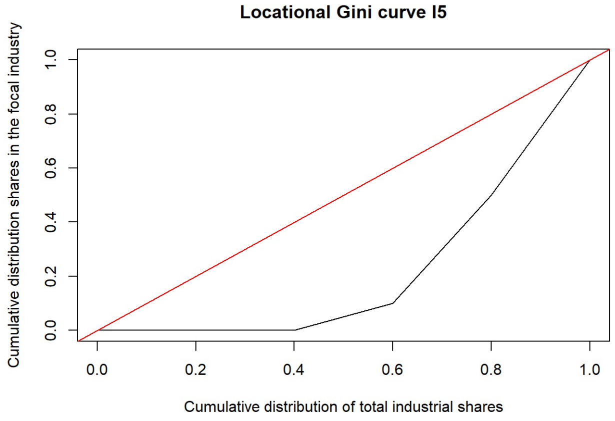
```
r locational.Gini.curve (mat)
```











```
r locational.Gini.curve (mat, pdf = TRUE)
```

```
## [1] "locational.Gini.curve.pdf has been saved to your current working directory"
```

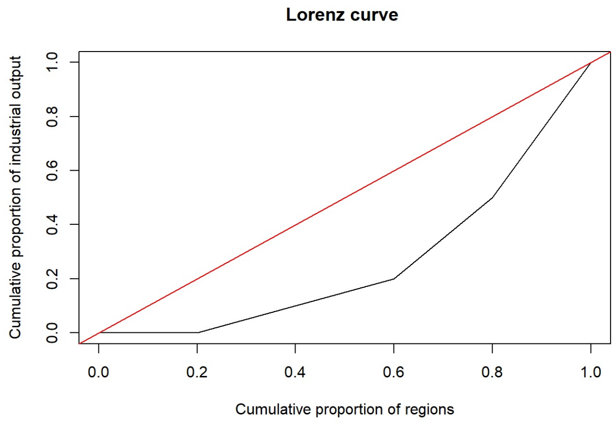
LABORATORIO LORENZ.CURVE
################################

GENERATE VECTORS OF INDUSTRIAL COUNT

```
ind <- c(0, 10, 10, 30, 50)
```

RUN THE FUNCTION

```
Lorenz.curve (ind)
```



```
Lorenz.curve (ind, pdf = TRUE)
```

```
## [1] "Lorenz.curve.pdf has been saved to your current working directory"
```

```
Lorenz.curve (ind, plot = FALSE)
```

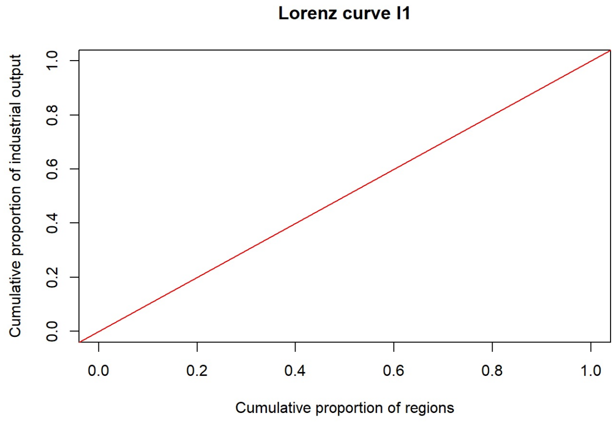
```
## $cum.reg
## [1] 0.0 0.2 0.4 0.6 0.8 1.0
##
## $cum.out
## [1] 0.0 0.0 0.1 0.2 0.5 1.0
```

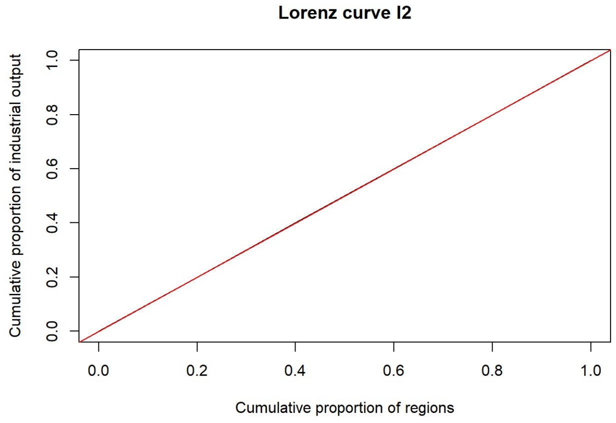
GENERATE A REGION- INDUSTRY MATRIX

```
mat= matrix (
  c (0, 1, 0, 0,
     0, 1, 0, 0,
     0, 1, 0, 0,
     0, 1, 0, 1,
     0, 1, 1, 1), ncol = 4, byrow = T)
rownames(mat) <- c ("R1", "R2", "R3", "R4", "R5")
colnames(mat) <- c ("I1", "I2", "I3", "I4")
```

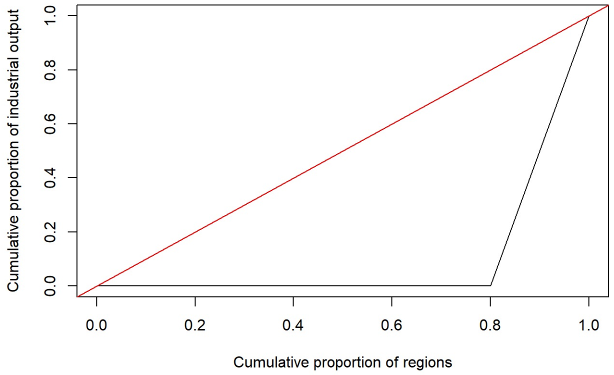
RUN THE FUNCTION

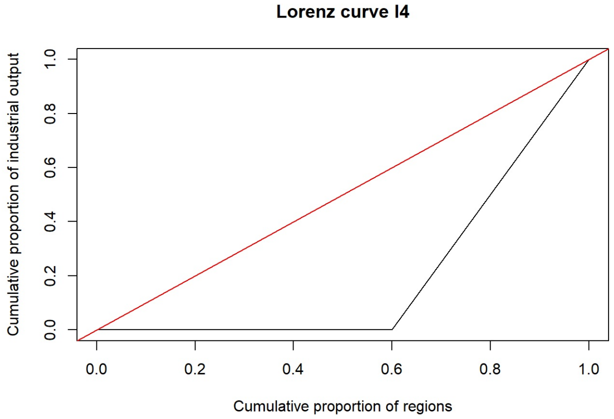
```
Lorenz.curve (mat)
```





Lorenz curve I3




Lorenz curve I4

```
Lorenz.curve (mat, pdf = TRUE)
```

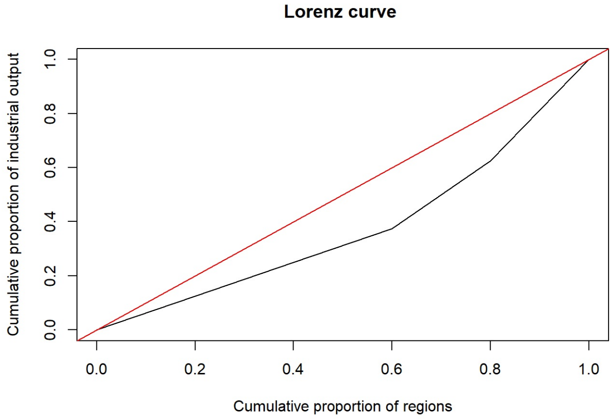
```
## [1] "Lorenz.curve.pdf has been saved to your current working directory"
```

```
Lorenz.curve (mat, plot = FALSE)
```

```
## $cum.reg
## [1] 0.0 0.2 0.4 0.6 0.8 1.0
##
## $cum.out
##      R1  R2  R3  R4  R5
##   0 NaN NaN NaN NaN NaN
```

RUN THE FUNCTION BY AGGREGATION ALL INDUSTRIES

```
Lorenz.curve (rowSums(mat))
```


Lorenz curve

```
Lorenz.curve (rowSums(mat), pdf = TRUE)
```

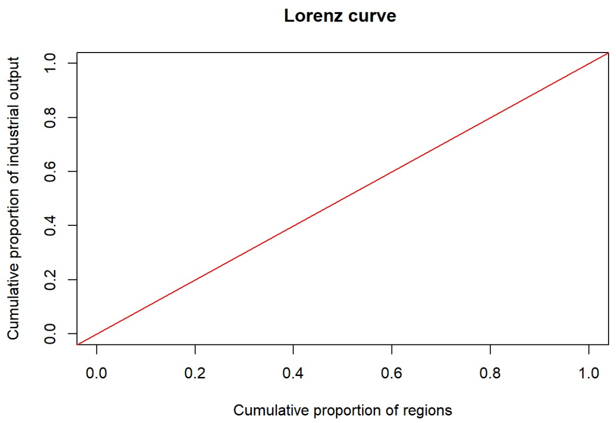
```
## [1] "Lorenz.curve.pdf has been saved to your current working directory"
```

```
Lorenz.curve (rowSums(mat), plot = FALSE)
```

```
## $cum.reg
## [1] 0.0 0.2 0.4 0.6 0.8 1.0
##
## $cum.out
##          R1    R2    R3    R4    R5
## 0.000 0.125 0.250 0.375 0.625 1.000
```

RUN THE FUNCTION FOR INDUSTRIY #1 ONLY (PERFECT EQUALITY)

```
Lorenz.curve (mat[,1])
```



```
Lorenz.curve (mat[,1], pdf = TRUE)
```

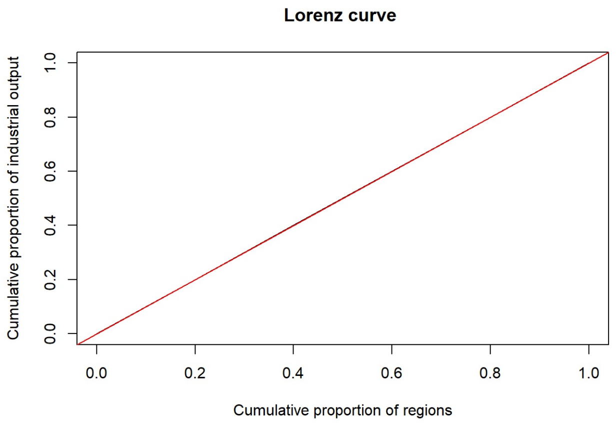
```
## [1] "Lorenz.curve.pdf has been saved to your current working directory"
```

```
Lorenz.curve (mat[,1], plot = FALSE)
```

```
## $cum.reg
## [1] 0.0 0.2 0.4 0.6 0.8 1.0
## 
## $cum.out
##      R1  R2  R3  R4  R5 
##   0 NaN NaN NaN NaN NaN
```

RUN THE FUNCTION FOR INDUSTRIY #2 ONLY (PERFECT EQUALITY)

```
Lorenz.curve (mat[,2])
```



```
Lorenz.curve (mat[,2], pdf = TRUE)
```

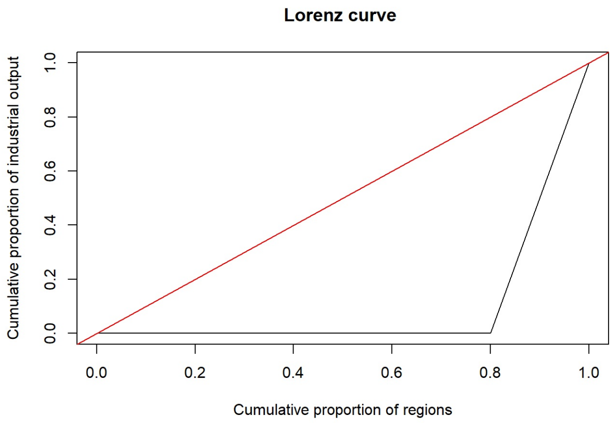
```
## [1] "Lorenz.curve.pdf has been saved to your current working directory"
```

```
Lorenz.curve (mat[,2], plot = FALSE)
```

```
## $cum.reg
## [1] 0.0 0.2 0.4 0.6 0.8 1.0
## 
## $cum.out
##      R1  R2  R3  R4  R5 
## 0.0 0.2 0.4 0.6 0.8 1.0
```

RUN THE FUNCTION FOR INDUSTRIY #3 ONLY (PERFECT UNEQUALITY)

```
Lorenz.curve (mat[,3])
```



```
Lorenz.curve (mat[,3], pdf = TRUE)
```

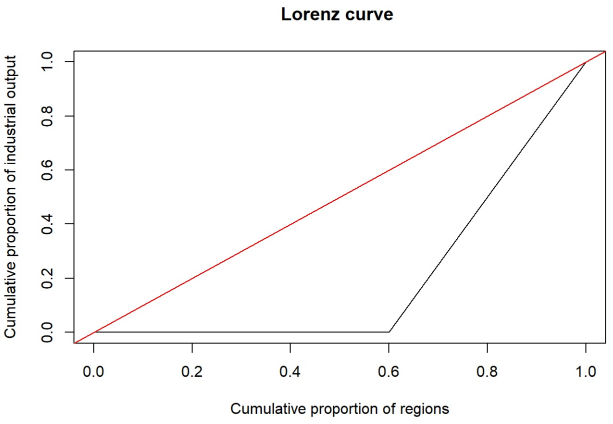
```
## [1] "Lorenz.curve.pdf has been saved to your current working directory"
```

```
Lorenz.curve (mat[,3], plot = FALSE)
```

```
## $cum.reg
## [1] 0.0 0.2 0.4 0.6 0.8 1.0
## 
## $cum.out
##    R1 R2 R3 R4 R5 
##  0  0  0  0  0  1
```

RUN THE FUNCTION FOR INDUSTRIY #4 ONLY (PERFECT UNEQUALITY)

```
Lorenz.curve (mat[,4])
```



```
Lorenz.curve (mat[,4], pdf = TRUE)
```

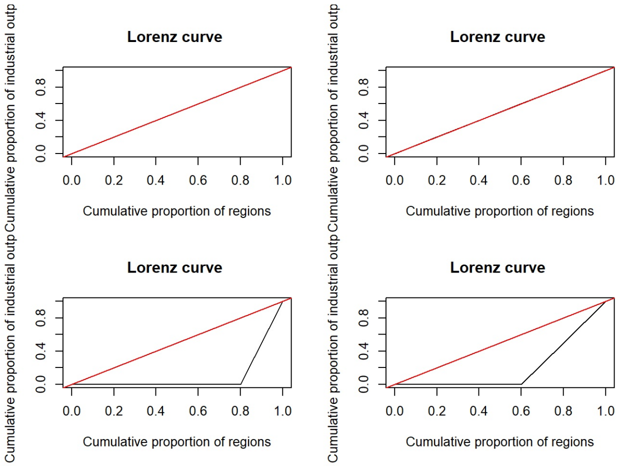
```
## [1] "Lorenz.curve.pdf has been saved to your current working directory"
```

```
Lorenz.curve (mat[,4], plot = FALSE)
```

```
## $cum.reg
## [1] 0.0 0.2 0.4 0.6 0.8 1.0
## 
## $cum.out
##      R1  R2  R3  R4  R5 
## 0.0 0.0 0.0 0.0 0.5 1.0
```

COMPARE THE DISTRIBUTION OF THE INDUSTRIES

```
par(mfrow=c(2,2))
Lorenz.curve (mat[,1])
Lorenz.curve (mat[,2])
Lorenz.curve (mat[,3])
Lorenz.curve (mat[,4])
```


Lorenz curve
Cumulative proportion of industrial outp
Cumulative proportion of regions
Lorenz curve
Cumulative proportion of industrial outp
Cumulative proportion of regions
Lorenz curve
Cumulative proportion of industrial outp
Cumulative proportion of regions
Lorenz curve
Cumulative proportion of industrial outp
Cumulative proportion of regions