

Gini_OECD

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OECD 국가들의 Gini계수 읽어들이기. 세전과 세후로 구분. 자료구조로 인하여 `sep="\t"` 을 사용한 것에 유의

```
Gini.b.tax<-read.table(file="Gini_before_tax.txt", header=F, sep="\t")
Gini.a.tax<-read.table(file="Gini_after_tax.txt", header=F, sep="\t")
str(Gini.b.tax)
```

```
## 'data.frame':    34 obs. of  8 variables:
## $ V1: chr  "Australia" "Austria" "Belgium" "Canada" ...
## $ V2: num  NA NA NA 0.385 NA NA NA NA 0.343 NA ...
## $ V3: num  NA NA 0.449 0.395 NA NA 0.373 NA 0.387 0.38 ...
## $ V4: num  NA NA NA 0.403 NA NA 0.396 NA NA 0.37 ...
## $ V5: num  0.467 NA 0.472 0.43 0.441 0.442 0.417 NA 0.479 0.473 ...
## $ V6: num  0.476 NA 0.464 0.44 NA 0.472 0.415 NA 0.478 0.49 ...
## $ V7: num  0.465 0.433 0.494 0.436 0.414 0.474 0.417 0.504 0.483 0.485 ...
## $ V8: num  0.468 0.472 0.469 0.441 0.426 0.444 0.416 0.458 0.465 0.483 ...
```

2000년 후반 자료만 모아서 새로운 data frame 구성

```
Gini.b.a<-data.frame(Country=Gini.b.tax$V1, Before=Gini.b.tax$V8, After=Gini.a.tax$V8)
Gini.b.a
```

##	Country	Before	After
## 1	Australia	0.468	0.336
## 2	Austria	0.472	0.261
## 3	Belgium	0.469	0.259
## 4	Canada	0.441	0.324
## 5	Chile	0.426	0.394
## 6	Czech_Republic	0.444	0.256
## 7	Denmark	0.416	0.248
## 8	Estonia	0.458	0.315
## 9	Finland	0.465	0.259
## 10	France	0.483	0.293
## 11	Germany	0.504	0.295
## 12	Greece	0.436	0.307
## 13	Hungary	0.466	0.272
## 14	Iceland	0.382	0.301
## 15	Ireland	NA	0.293
## 16	Israel	0.498	0.371
## 17	Italy	0.534	0.337
## 18	Japan	0.462	0.329
## 19	Luxembourg	0.482	0.288
## 20	Mexico	0.494	0.476
## 21	Netherlands	0.426	0.294
## 22	New_Zealand	0.455	0.330
## 23	Norway	0.410	0.250
## 24	Poland	0.470	0.305
## 25	Portugal	0.521	0.353
## 26	Slovak_Republic	0.416	0.257
## 27	Slovenia	0.423	0.236
## 28	South_Korea	0.344	0.315
## 29	Spain	0.461	0.317
## 30	Sweden	0.426	0.259
## 31	Switzerland	0.409	0.303
## 32	Turkey	0.470	0.409
## 33	United_Kingdom	0.456	0.345
## 34	United_States	0.486	0.378

세전과 세후의 Gini 계수 차이를 개선도(Improvement)라고 명명.

```
Gini.b.a$Improvement<-Gini.b.a[,2]-Gini.b.a[,3]
Gini.b.a
```

##	Country	Before	After	Improvement
## 1	Australia	0.468	0.336	0.132
## 2	Austria	0.472	0.261	0.211
## 3	Belgium	0.469	0.259	0.210
## 4	Canada	0.441	0.324	0.117
## 5	Chile	0.426	0.394	0.032
## 6	Czech_Republic	0.444	0.256	0.188
## 7	Denmark	0.416	0.248	0.168
## 8	Estonia	0.458	0.315	0.143
## 9	Finland	0.465	0.259	0.206
## 10	France	0.483	0.293	0.190
## 11	Germany	0.504	0.295	0.209
## 12	Greece	0.436	0.307	0.129
## 13	Hungary	0.466	0.272	0.194
## 14	Iceland	0.382	0.301	0.081
## 15	Ireland	NA	0.293	NA
## 16	Israel	0.498	0.371	0.127
## 17	Italy	0.534	0.337	0.197
## 18	Japan	0.462	0.329	0.133
## 19	Luxembourg	0.482	0.288	0.194
## 20	Mexico	0.494	0.476	0.018
## 21	Netherlands	0.426	0.294	0.132
## 22	New_Zealand	0.455	0.330	0.125
## 23	Norway	0.410	0.250	0.160
## 24	Poland	0.470	0.305	0.165
## 25	Portugal	0.521	0.353	0.168
## 26	Slovak_Republic	0.416	0.257	0.159
## 27	Slovenia	0.423	0.236	0.187
## 28	South_Korea	0.344	0.315	0.029
## 29	Spain	0.461	0.317	0.144
## 30	Sweden	0.426	0.259	0.167
## 31	Switzerland	0.409	0.303	0.106
## 32	Turkey	0.470	0.409	0.061
## 33	United_Kingdom	0.456	0.345	0.111
## 34	United_States	0.486	0.378	0.108

개선도가 낮은 순서로 나라명 나열. 아일랜드는 세전 자료가 없기 때문에 맨 뒤로 위치.

```
Gini.b.a$Country[order(Gini.b.a$Improvement)]
```

## [1]	"Mexico"	"South_Korea"	"Chile"
## [4]	"Turkey"	"Iceland"	"Switzerland"
## [7]	"United_States"	"United_Kingdom"	"Canada"
## [10]	"New_Zealand"	"Israel"	"Greece"
## [13]	"Australia"	"Netherlands"	"Japan"
## [16]	"Estonia"	"Spain"	"Slovak_Republic"
## [19]	"Norway"	"Poland"	"Sweden"
## [22]	"Denmark"	"Portugal"	"Slovenia"
## [25]	"Czech_Republic"	"France"	"Hungary"
## [28]	"Luxembourg"	"Italy"	"Finland"
## [31]	"Germany"	"Belgium"	"Austria"
## [34]	"Ireland"		

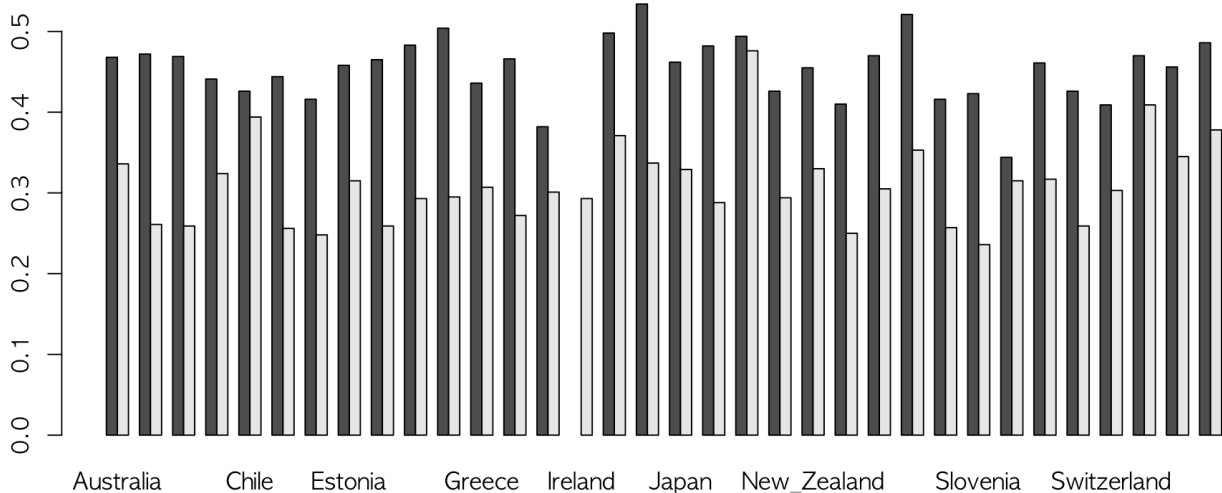
개선도가 높은 순서로 나라명을 나열하려면, `decreasing = TRUE` 추가.

```
Gini.b.a$Country[order(Gini.b.a$Improvement, decreasing=TRUE)]
```

```
## [1] "Austria"      "Belgium"      "Germany"
## [4] "Finland"      "Italy"        "Hungary"
## [7] "Luxembourg"   "France"       "Czech_Republic"
## [10] "Slovenia"     "Portugal"     "Denmark"
## [13] "Sweden"       "Poland"       "Norway"
## [16] "Slovak_Republic" "Spain"       "Estonia"
## [19] "Japan"        "Australia"    "Netherlands"
## [22] "Greece"       "Israel"       "New_Zealand"
## [25] "Canada"       "United_Kingdom" "United_States"
## [28] "Switzerland" "Iceland"      "Turkey"
## [31] "Chile"        "South_Korea" "Mexico"
## [34] "Ireland"
```

세전 세후 Gini 계수를 시각적으로 비교하려면 `barplot()` 이 적합함. `barplot(height, ...)` 에서 `height` 가 매트릭스일 때는 막대는 열의 각 요소를 크기대로 쌓아놓은 형태가 되므로, `t()` 를 이용하여 `transpose` 시킨 후 `barplot()` 을 적용. 또한 `transpose` 를 시켜도 여전히 `data frame` 이기 때문에 매트릭스로 강제 변환함. 세전, 세 후 비교를 위해 쌓아 놓기 보다는 옆에 늘어세우는 게 나으므로 `beside=TRUE` 를 적용하고 각 막대의 이름으로 나라 이름을 사용.

```
barplot(as.matrix(t(Gini.b.a[, 2:3])), beside=TRUE, names.arg=Gini.b.a$Country)
```



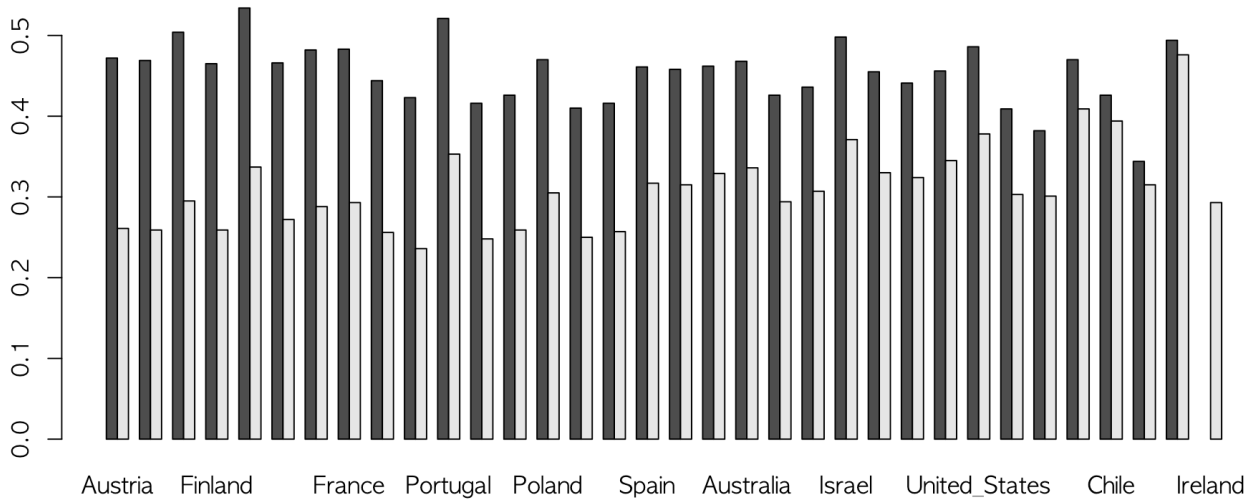
개선도 순서(내림차순)를 `o.improvement` 로 저장하여 지속적으로 활용.

```
o.improvement<-order(Gini.b.a$Improvement, decreasing=TRUE)
Gini.b.a$Country[o.improvement]
```

```
## [1] "Austria"      "Belgium"      "Germany"
## [4] "Finland"      "Italy"        "Hungary"
## [7] "Luxembourg"   "France"       "Czech_Republic"
## [10] "Slovenia"     "Portugal"     "Denmark"
## [13] "Sweden"       "Poland"       "Norway"
## [16] "Slovak_Republic" "Spain"       "Estonia"
## [19] "Japan"        "Australia"    "Netherlands"
## [22] "Greece"       "Israel"       "New_Zealand"
## [25] "Canada"       "United_Kingdom" "United_States"
## [28] "Switzerland"  "Iceland"      "Turkey"
## [31] "Chile"        "South_Korea"  "Mexico"
## [34] "Ireland"
```

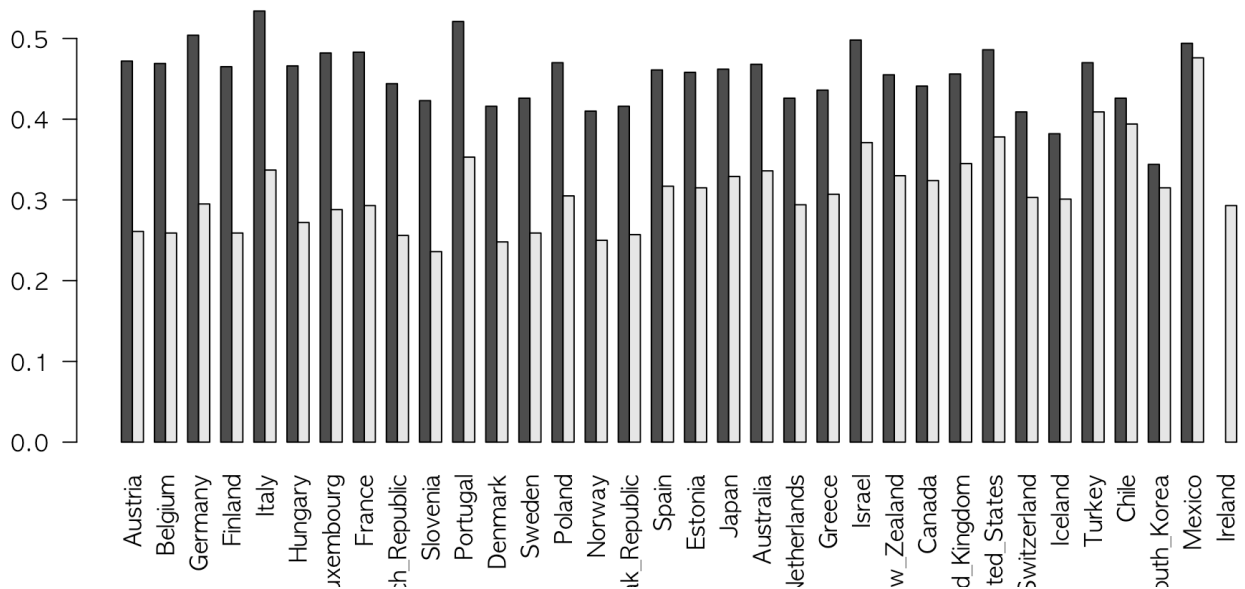
개선도 순서대로 막대를 늘어세우면,

```
barplot(as.matrix(t(Gini.b.a[o.improvement, 2:3])), beside=TRUE, names.arg=Gini.b.a$Country[o.improvement])
```



las=2 를 이용하여 막대 이름을 눕힘.

```
barplot(as.matrix(t(Gini.b.a[o.improvement, 2:3])), beside=TRUE, names.arg=Gini.b.a$Country[o.improvement], las=2)
```

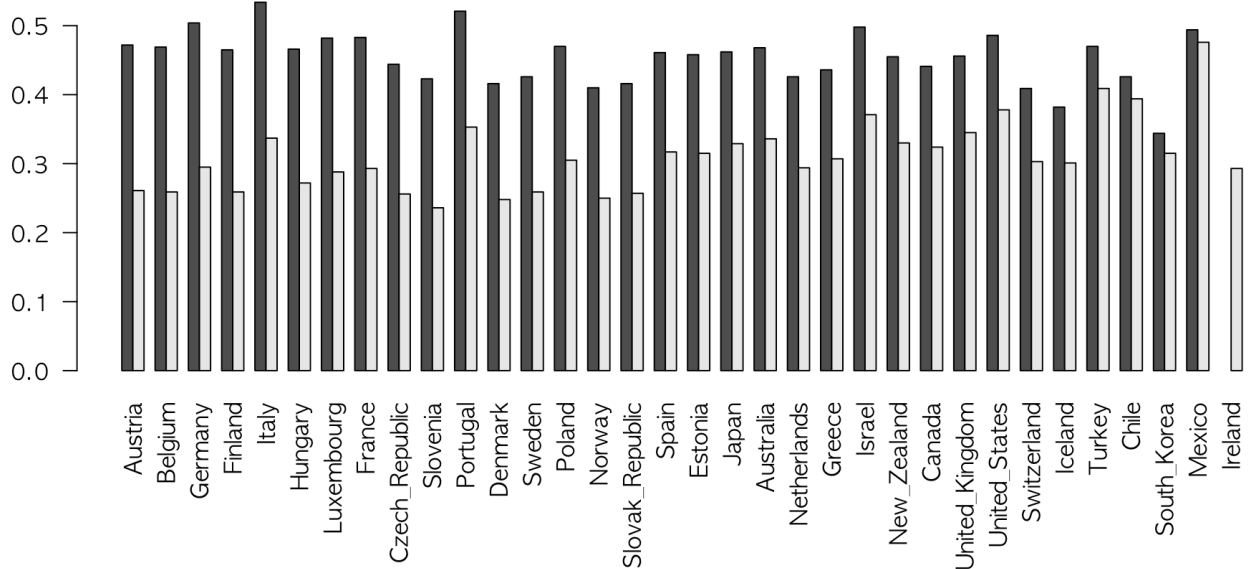


나라 이름이 가리지 않도록 `par("mai")` 를 조정

```
old.par<-par(no.readonly=TRUE)
par("mai")
```

```
## [1] 1.02 0.82 0.82 0.42
```

```
par("mai"= c(1.5, 0.8, 0.8, 0.4))
barplot(as.matrix(t(Gini.b.a[o.improvement, 2:3])), beside=TRUE, names.arg=Gini.b.a$Country[o.improvement], las=2)
```



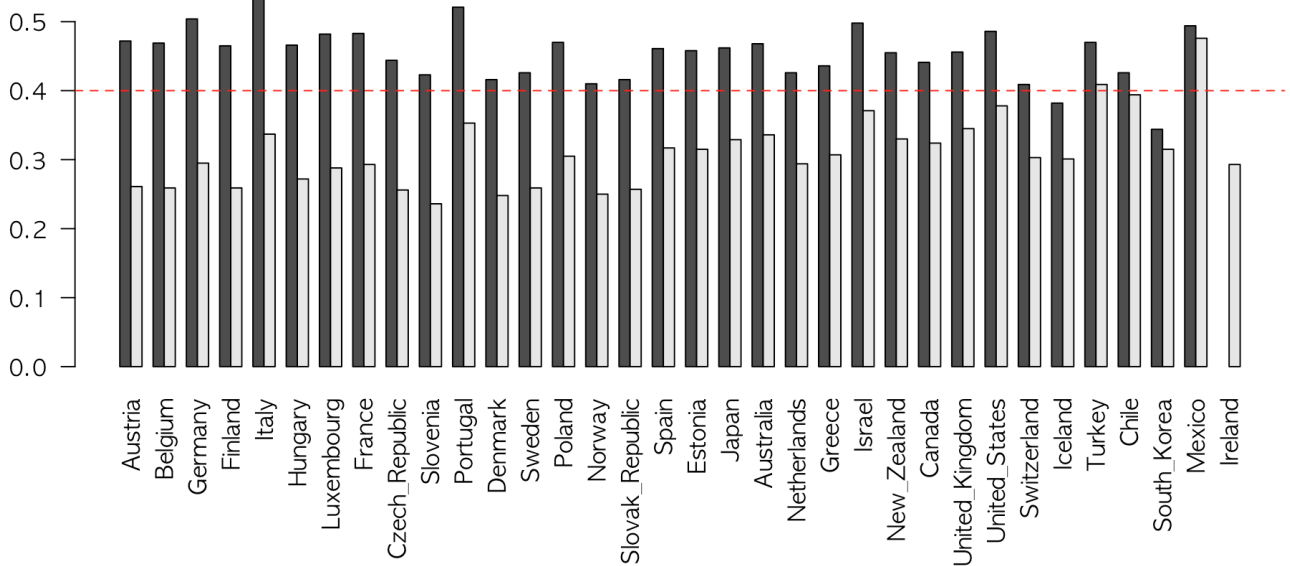
```
par(old.par)
```

불평등이 심하다고 판단하는 Gini 계수 0.4를 경계로 나눠 보면,

```
old.par<-par(no.readonly=TRUE)
par("mai")
```

```
## [1] 1.02 0.82 0.82 0.42
```

```
par("mai"= c(1.5, 0.8, 0.8, 0.4))
barplot(as.matrix(t(Gini.b.a[o.improvement, 2:3])), beside=TRUE, names.arg=Gini.b.a$Country[o.improvement], las=2)
abline(h=0.4, lty=2, col="red")
```



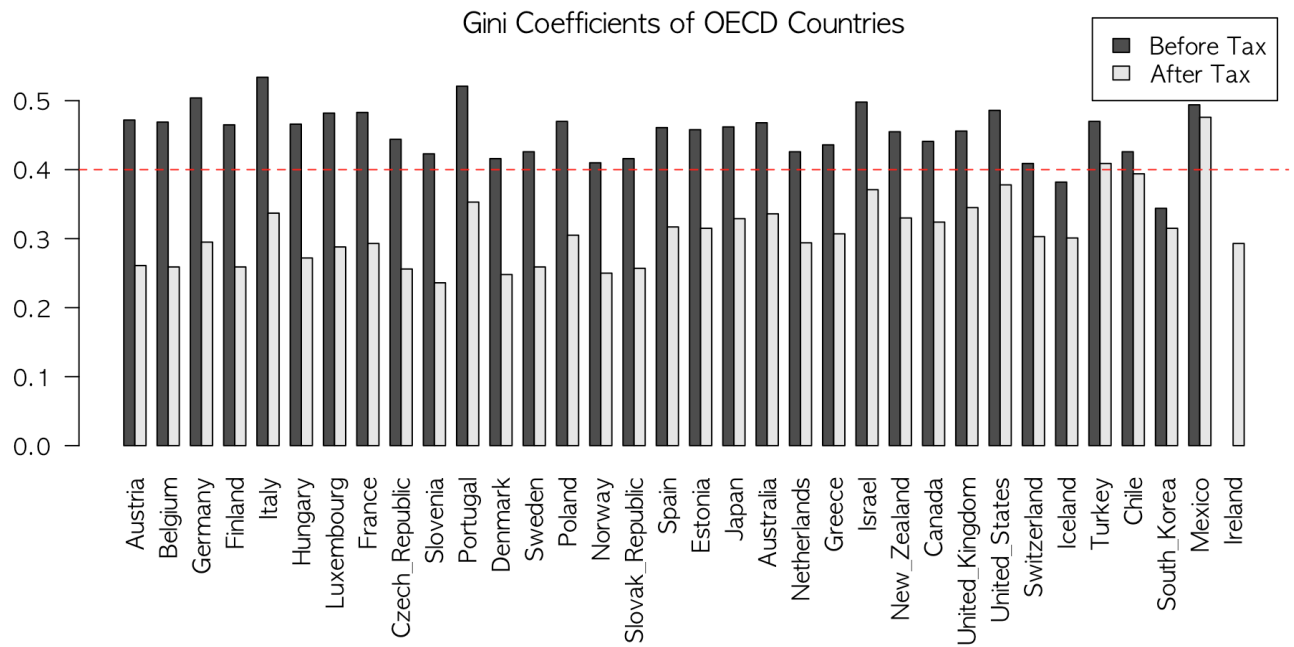
```
par(old.par)
```

범례와 메인 타이틀 추가. 좌표에 유의

```
old.par<-par(no.readonly=TRUE)
par("mai")
```

```
## [1] 1.02 0.82 0.82 0.42
```

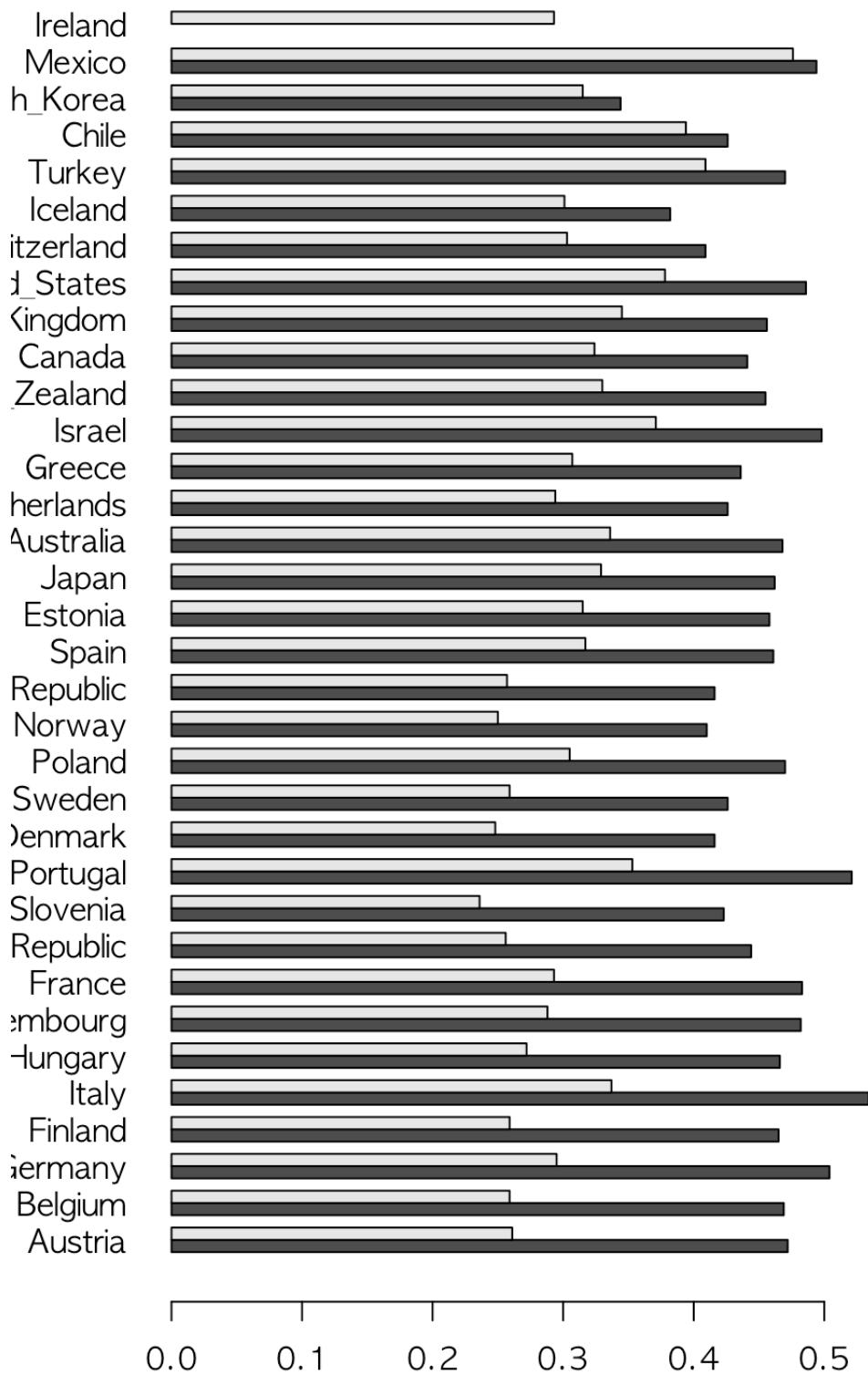
```
par("mai"= c(1.5, 0.8, 0.8, 0.4))
barplot(as.matrix(t(Gini.b.a[o.improvement, 2:3])), beside=TRUE, names.arg=Gini.b.a$Country[o.improvement], legend.text=c("Before Tax", "After Tax"), args.legend=list(x=105, y=0.62), las=2)
abline(h=0.4, lty=2, col="red")
title(main="Gini Coefficients of OECD Countries")
```



```
par(old.par)
```

이번에는 막대를 눕히는 방법을 생각해 보자. 옆으로 눕히면서 `las = 1` 로 설정하면,

```
barplot(as.matrix(t(Gini.b.a[o.improvement, 2:3])), beside=TRUE, horiz=TRUE, na
mes.arg=Gini.b.a$Country[o.improvement], las=1)
```

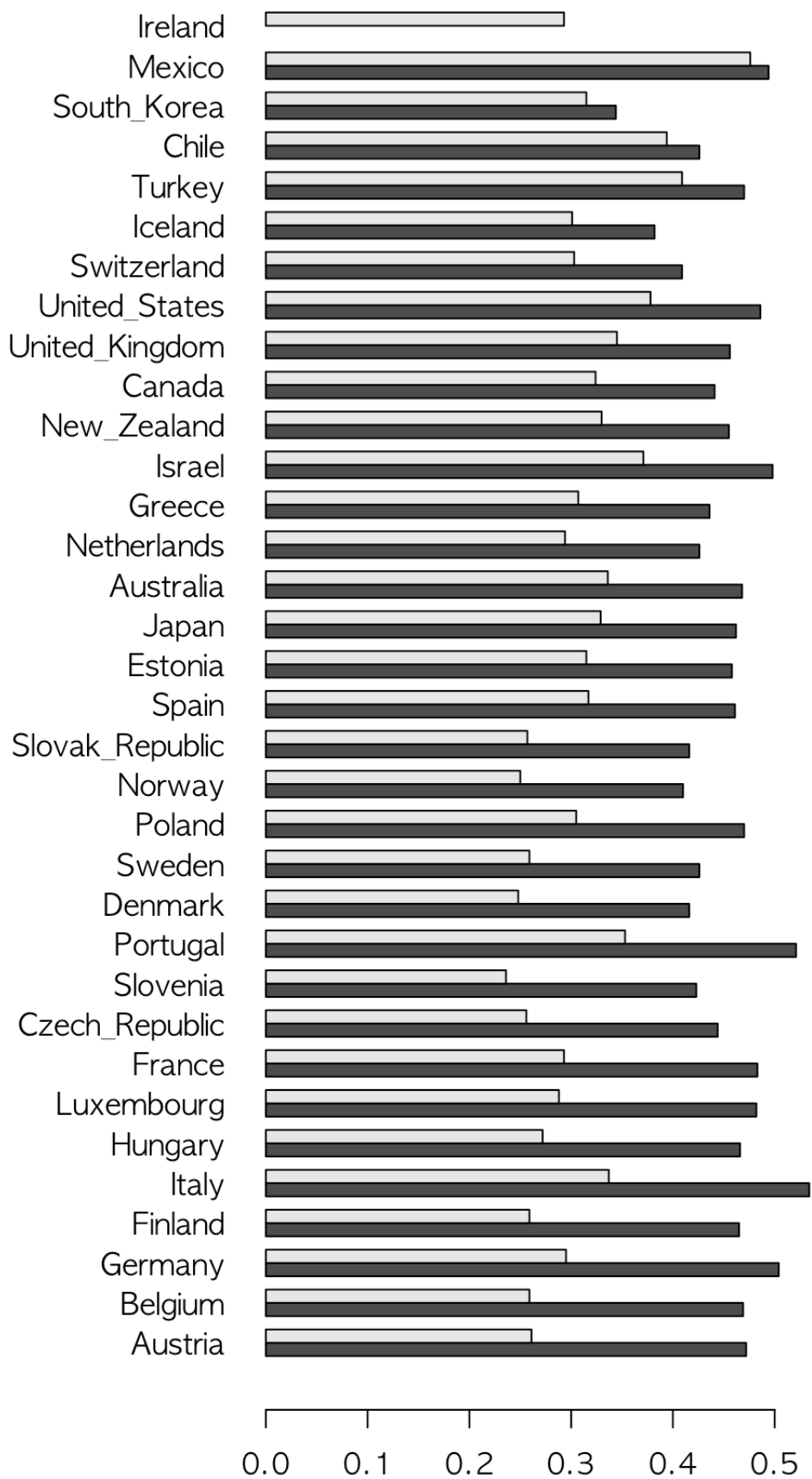



역시 나라 이름이 가리지 않도록 `par("mai")` 를 조정.

```
old.par<-par(no.readonly=TRUE)
par("mai")
```

```
## [1] 1.02 0.82 0.82 0.42
```

```
par("mai"= c(1.0, 1.5, 0.8, 0.4))  
barplot(as.matrix(t(Gini.b.a[o.improvement, 2:3])), beside=TRUE, horiz=TRUE, na  
mes.arg=Gini.b.a$Country[o.improvement], las=1)
```



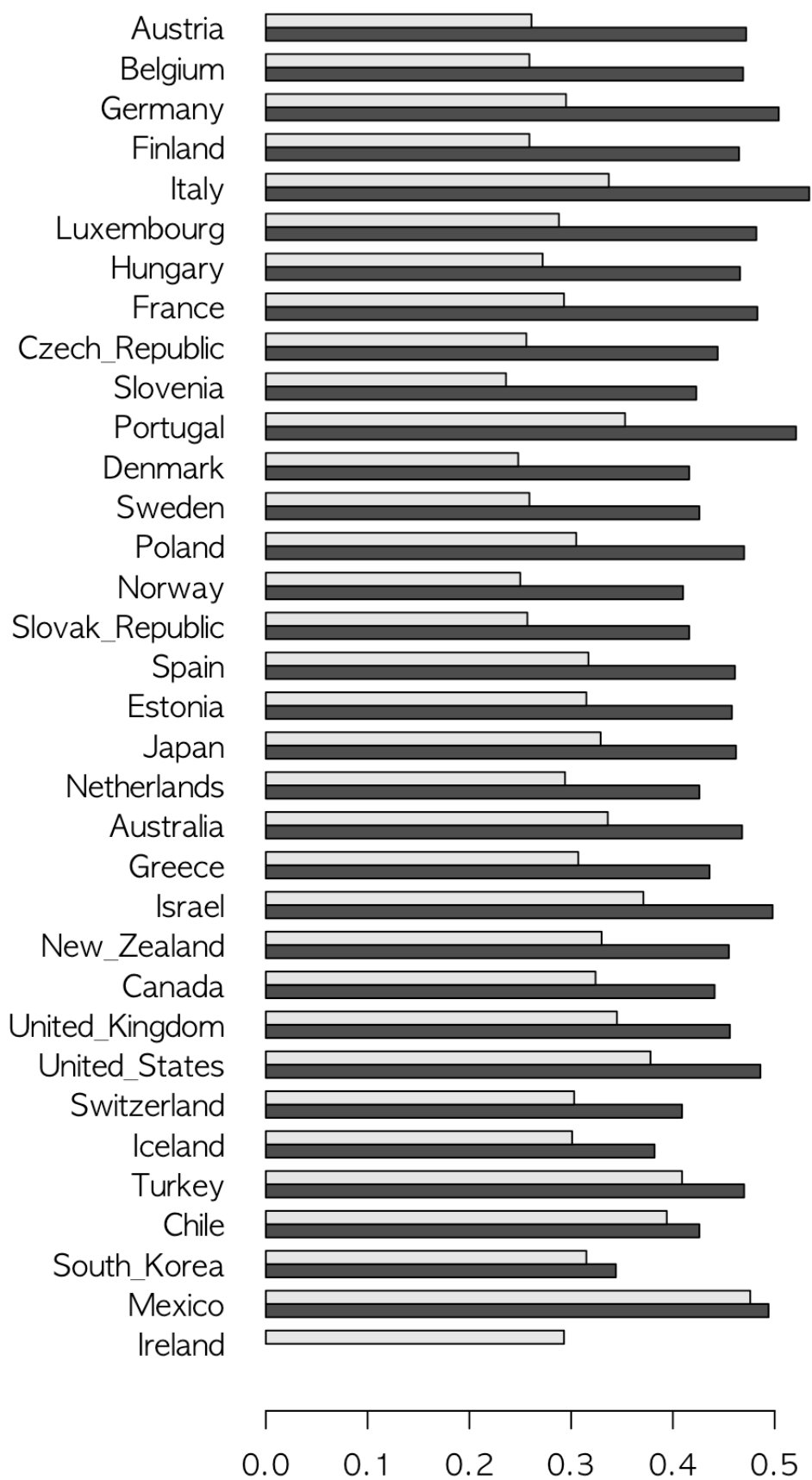
```
par(old.par)
```

개선평가가 낮은 순서대로 밑에서 올라가도록 다시 그리면,

```
old.par<-par(no.readonly=TRUE)  
par("mai")
```

```
## [1] 1.02 0.82 0.82 0.42
```

```
par("mai"= c(1.0, 1.5, 0.8, 0.4))  
barplot(as.matrix(t(Gini.b.a[order(Gini.b.a$Improvement, na.last=FALSE),  
2:3])), beside=TRUE, horiz=TRUE, names.arg=Gini.b.a$Country[order(Gini.b.a$Improvement, na.last=FALSE)], las=1)
```



```
par(old.par)
```

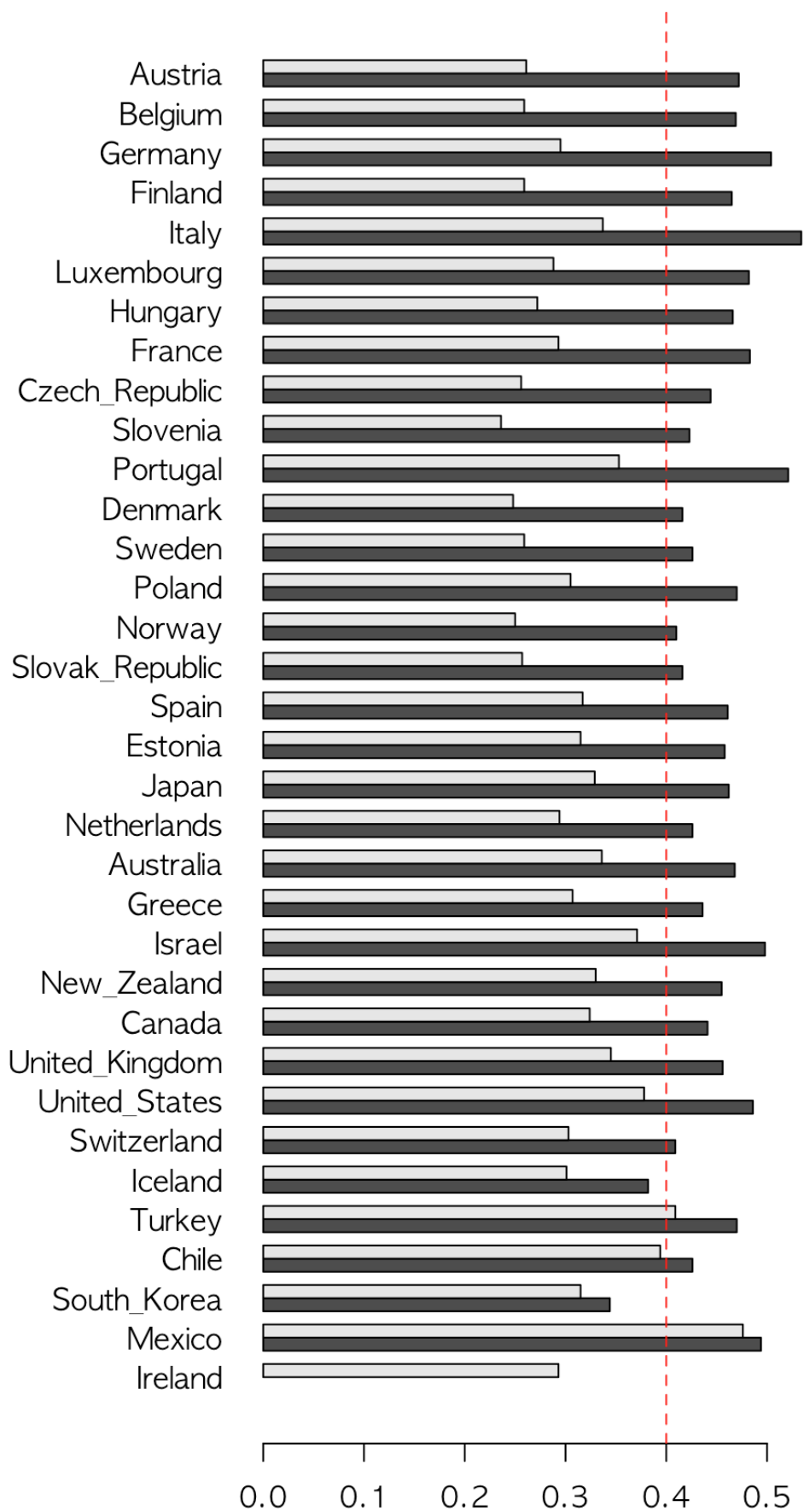
이 때, Ireland가 맨 위에 올라오는 게 보기 좋지 않으므로, `na.last=FALSE` 를 추가한 것임.

세전 Gini 계수 0.4를 경계로 나눠보면

```
old.par<-par(no.readonly=TRUE)  
par("mai")
```

```
## [1] 1.02 0.82 0.82 0.42
```

```
par("mai"= c(1.0, 1.5, 0.8, 0.4))  
barplot(as.matrix(t(Gini.b.a[order(Gini.b.a$Improvement, na.last=FALSE),  
2:3])), beside=TRUE, horiz=TRUE, names.arg=Gini.b.a$Country[order(Gini.b.a$Improvement, na.last=FALSE)], las=1)  
abline(v=0.4, lty=2, col="red")
```



```
par(old.par)
```

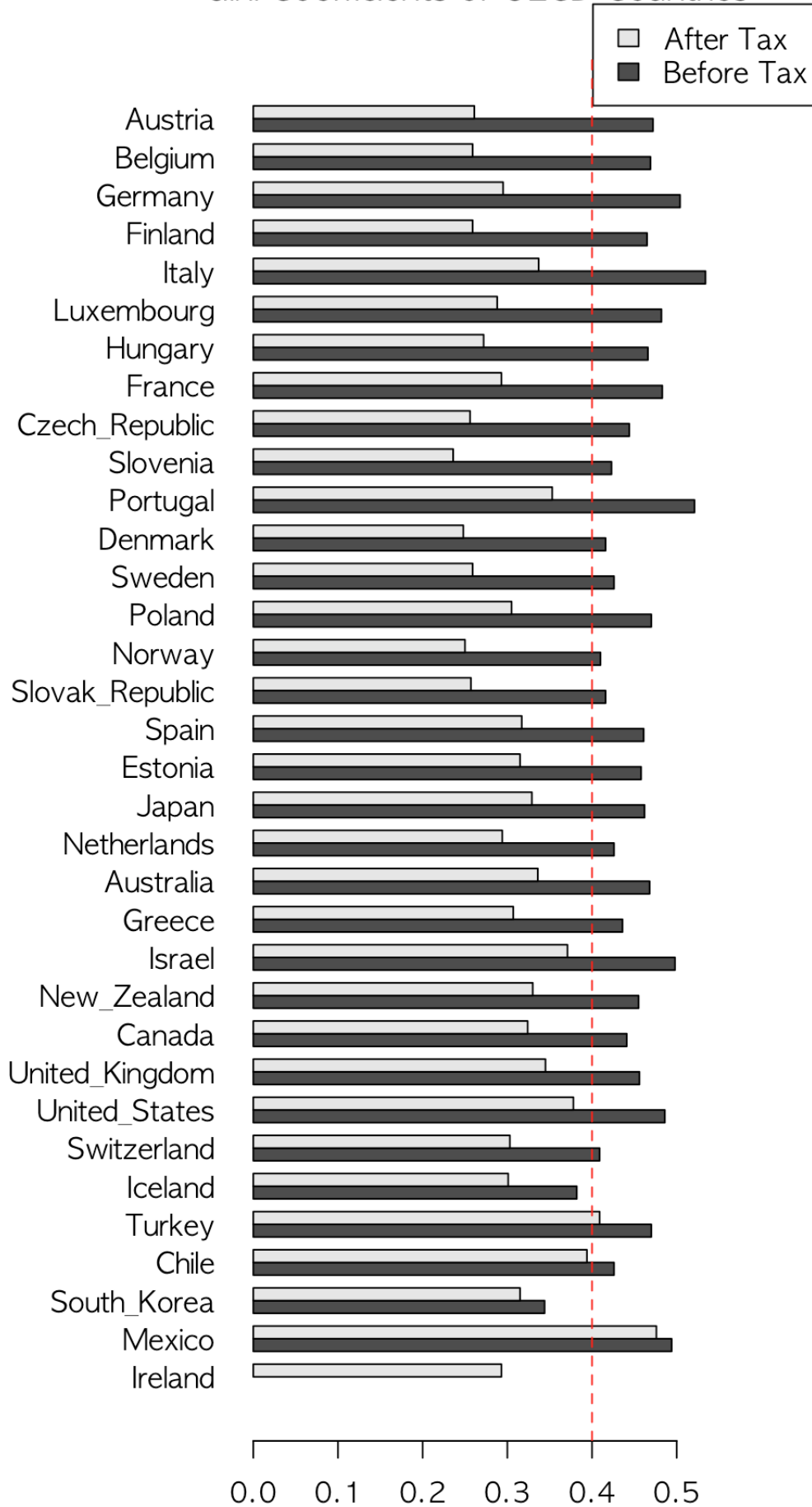
범례 및 메인 타이틀 추가. 시행착오를 거쳐 구한 좌표에 유의할 것.

```
old.par<-par(no.readonly=TRUE)  
par("mai")
```

```
## [1] 1.02 0.82 0.82 0.42
```

```
par("mai"= c(1.0, 1.5, 0.8, 0.8))  
barplot(as.matrix(t(Gini.b.a[order(Gini.b.a$Improvement, na.last=FALSE),  
2:3])), beside=TRUE, horiz=TRUE, names.arg=Gini.b.a$Country[order(Gini.b.a$Improvement, na.last=FALSE)], legend.text=c("Before Tax", "After Tax"), args.legend=list(x=0.67, y=110), las=1)  
abline(v=0.4, lty=2, col="red")  
title(main="Gini Coefficients of OECD Countries")
```


Gini Coefficients of OECD Countries



```
par(old.par)
```

뒷 마무리

```
save(file="Gini_OECD0504.rda", list=ls())  
savehistory("Gini_OECD0504.Rhistory")
```