

# DATA 607 Homework 2 - Prevalence of Tuberculosis Worldwide (1995 to 2013)

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*February 13, 2016*

```
## Warning: package 'RMySQL' was built under R version 3.2.3
```

```
## Loading required package: DBI
```

```
## [1] "tb"
```

```
## [1] "country" "year"      "sex"      "child"    "adult"    "elderly"
```

```
## [1] TRUE
```

```
## [1] TRUE
```

```
## [1] "C:/Users/Antonio/Downloads"
```

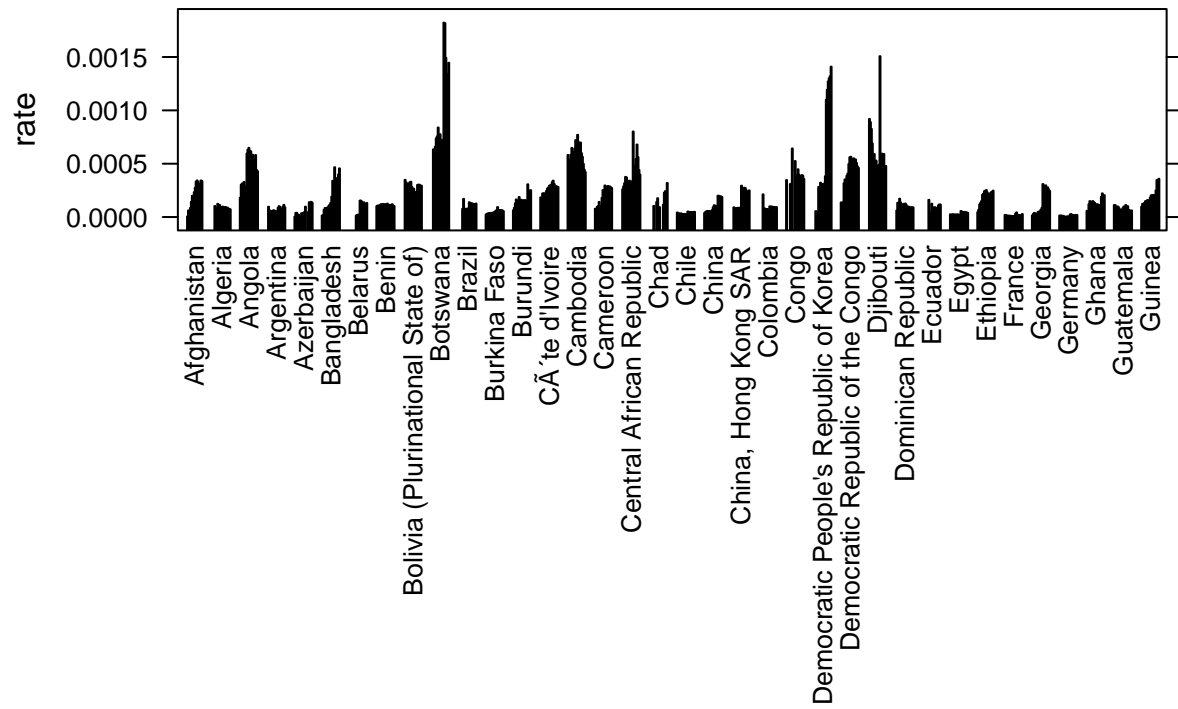
```
## [1] TRUE
```

```
## [1] 1691
```

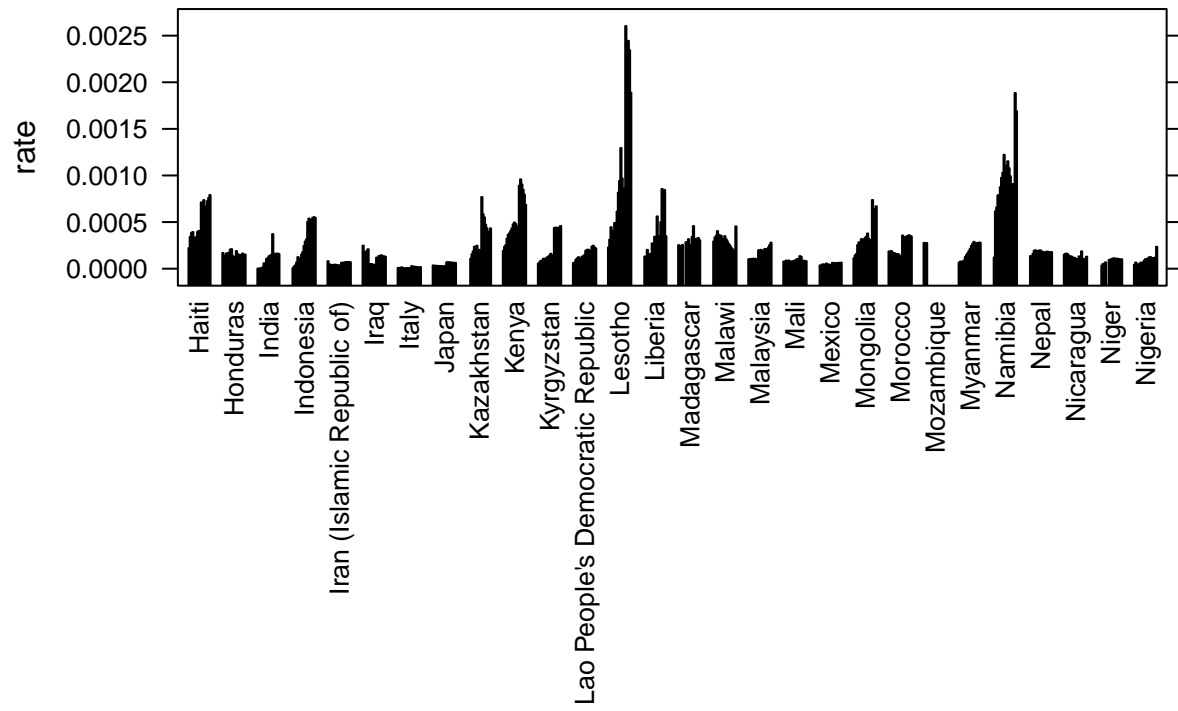
get the summary statistics for combined TB-World Population dataframe

```
##      country      year      cases      population
## Length:1691      Min.   :1995      Min.   :      0      Min.   :6.759e+05
## Class :character  1st Qu.:2000      1st Qu.:  1050      1st Qu.:8.842e+06
## Mode  :character  Median :2005      Median :   2483      Median :2.014e+07
##                               Mean   :2004      Mean   :   9236      Mean   :6.387e+07
##                               3rd Qu.:2009      3rd Qu.:   6350      3rd Qu.:4.868e+07
##                               Max.   :2013      Max.   :430522      Max.   :1.386e+09
##      rate
## Min.   :0.000e+00
## 1st Qu.:6.558e-05
## Median :1.361e-04
## Mean   :2.461e-04
## 3rd Qu.:2.851e-04
## Max.   :4.037e-03
```

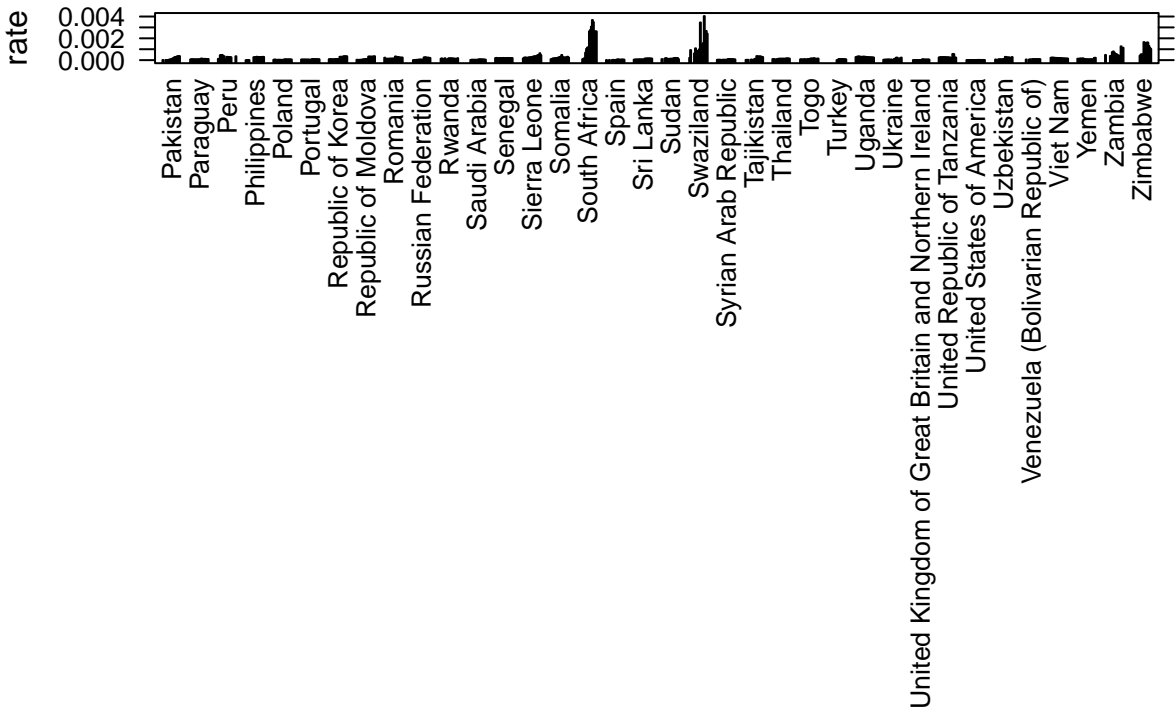
## Tuberculosis Rates by Country from 1995 to 2013 (Countries A through I)

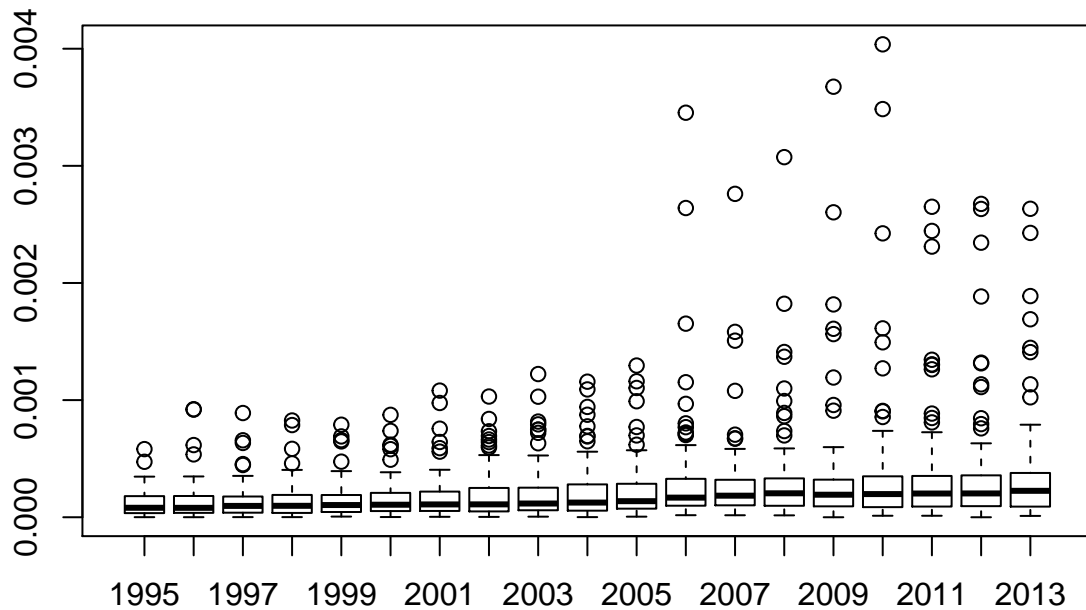


## Tuberculosis Rates by Country from 1995 to 2013 (Countries H through



## Tuberculosis Rates by Country from 1995 to 2013 (Countries O through Z)





Most of the 88 countries show a flat TB rate for the periods 1995 to 2013 (1/100,000 to 5/100,000 prevalence rates). However, for about 15 to 20 countries, there is an upward trend during this period in the prevalence of TB (1/500 to 1/1,000 in 2013). Because of these outliers, the median and mean for world TB Most of these relatively high prevalence countries are in southern Africa such as South Africa, Swaziland, Namibia, Lesotho and Botswana. North Korea and Haiti also have a relatively high rate. These relatively high TB rates, may be reflective of the current political and socio-economic conditions in these countries. As TB is a contagious disease - aggravating factors such as malnutrition and unsanitary living conditions may be contributing to the rise (or resurgence) of TB in these countries. Also, specially for countries in southern Africa, the AIDS epidemics there may be another reason for the upward trend.

Ranking of countries by prevalence TB (for 2013) in descending order. Note that the U.S. is last - reflective of America's superior health care system and how it is able to keep a contagious disease in check

- ## [1] "South Africa"
- ## [2] "Swaziland"
- ## [3] "Lesotho"
- ## [4] "Namibia"
- ## [5] "Botswana"
- ## [6] "Democratic People's Republic of Korea"
- ## [7] "Zambia"
- ## [8] "Zimbabwe"
- ## [9] "Haiti"
- ## [10] "Kenya"
- ## [11] "Mongolia"
- ## [12] "Indonesia"
- ## [13] "Djibouti"
- ## [14] "Democratic Republic of the Congo"

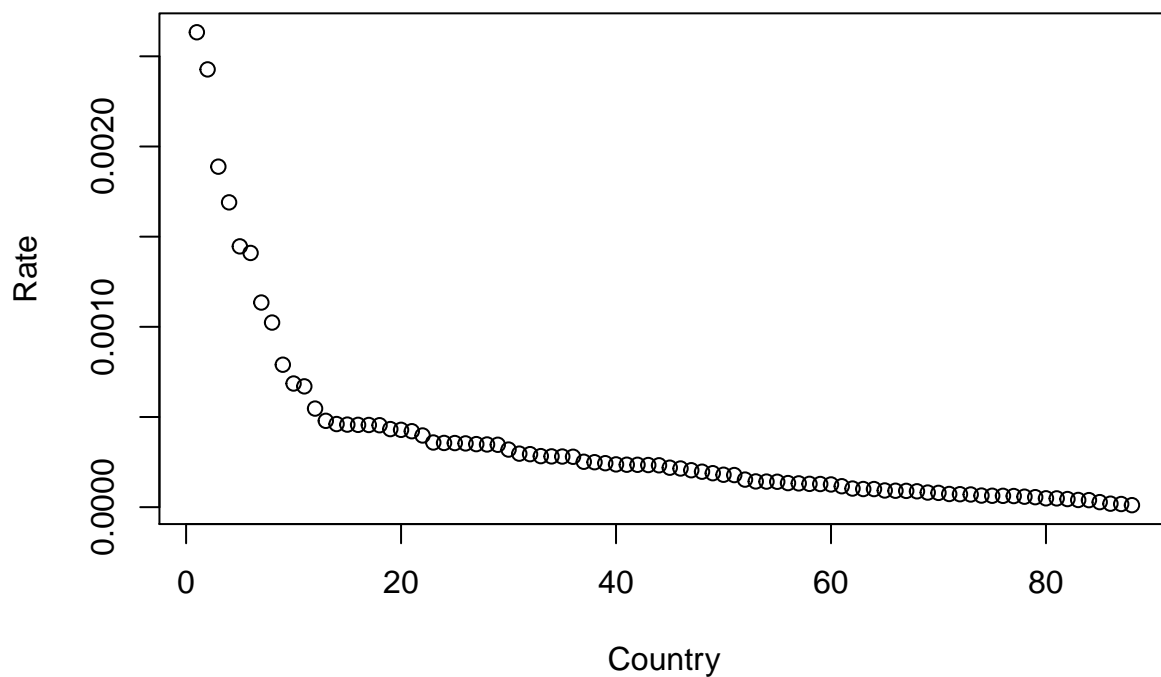
## [15] "Kyrgyzstan"  
## [16] "Sierra Leone"  
## [17] "Bangladesh"  
## [18] "Malawi"  
## [19] "Kazakhstan"  
## [20] "Angola"  
## [21] "Cambodia"  
## [22] "Central African Republic"  
## [23] "Guinea"  
## [24] "Congo"  
## [25] "Republic of Moldova"  
## [26] "Peru"  
## [27] "Liberia"  
## [28] "Republic of Korea"  
## [29] "Morocco"  
## [30] "Chad"  
## [31] "Philippines"  
## [32] "Bolivia (Plurinational State of)"  
## [33] "Côte d'Ivoire"  
## [34] "Tajikistan"  
## [35] "Uzbekistan"  
## [36] "Malaysia"  
## [37] "Burundi"  
## [38] "China, Hong Kong SAR"  
## [39] "Georgia"  
## [40] "Romania"  
## [41] "Nigeria"  
## [42] "Uganda"  
## [43] "Somalia"  
## [44] "Ukraine"  
## [45] "Lao People's Democratic Republic"  
## [46] "Yemen"  
## [47] "Ghana"  
## [48] "Russian Federation"  
## [49] "China"  
## [50] "Rwanda"  
## [51] "Nepal"  
## [52] "Honduras"  
## [53] "Togo"  
## [54] "Sri Lanka"  
## [55] "Viet Nam"  
## [56] "Azerbaijan"  
## [57] "Belarus"  
## [58] "Nicaragua"  
## [59] "Iraq"  
## [60] "Brazil"  
## [61] "Ecuador"  
## [62] "Benin"  
## [63] "Niger"  
## [64] "Paraguay"  
## [65] "Colombia"  
## [66] "Argentina"  
## [67] "Dominican Republic"  
## [68] "Venezuela (Bolivarian Republic of)"

```

## [69] "Mali"
## [70] "Portugal"
## [71] "Turkey"
## [72] "Algeria"
## [73] "Iran (Islamic Republic of)"
## [74] "Mexico"
## [75] "Syrian Arab Republic"
## [76] "Japan"
## [77] "Guatemala"
## [78] "Poland"
## [79] "Burkina Faso"
## [80] "United Kingdom of Great Britain and Northern Ireland"
## [81] "Chile"
## [82] "Spain"
## [83] "Saudi Arabia"
## [84] "Egypt"
## [85] "France"
## [86] "Germany"
## [87] "Italy"
## [88] "United States of America"

```

## Turberculosis Rate by Country for 2013



2013 TB Rate Top Ten and Bottom Ten Countries

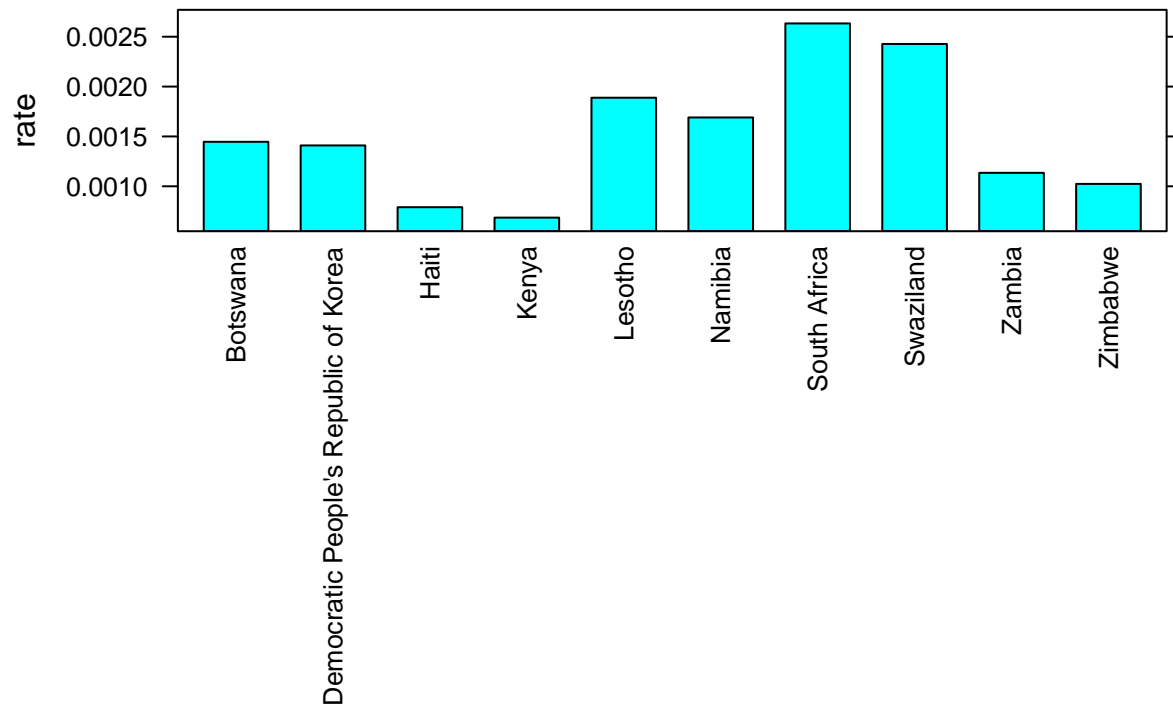
```

##               country      rate
## 1      South Africa 0.0026333306
## 2      Swaziland 0.0024273438

```

## 3	Lesotho	0.0018881977
## 4	Namibia	0.0016901726
## 5	Botswana	0.0014462107
## 6	Democratic People's Republic of Korea	0.0014096535
## 7	Zambia	0.0011348379
## 8	Zimbabwe	0.0010237004
## 9	Haiti	0.0007900199
## 10	Kenya	0.0006856927

## Countries with the Highest Tuberculosis Rate (2013)



##	country	rate
## 79	Burkina Faso	5.556593e-05
## 80	United Kingdom of Great Britain and Northern Ireland	4.908431e-05
## 81	Chile	4.869547e-05
## 82	Spain	4.500611e-05
## 83	Saudi Arabia	4.002932e-05
## 84	Egypt	3.915601e-05
## 85	France	2.799758e-05
## 86	Germany	1.943751e-05
## 87	Italy	1.756018e-05
## 88	United States of America	1.119823e-05



## Countries with the Lowest Tuberculosis Rate (2013)

