Untitled

2024-10-21

```
library(sf)
```

```
## Linking to GEOS 3.11.0, GDAL 3.5.3, PROJ 9.1.0; sf_use_s2() is TRUE
```

```
library(here)
```

```
## here() starts at /Users/xilver/Documents/CASA0005/RGit
```

```
World <- st_read(here("World_Countries_(Generalized)_9029012925078512962.geojson"))
```

```
## Reading layer 'World_Countries_(Generalized)_9029012925078512962' from data source '/Users/xilver/Do
##   using driver 'GeoJSON'
## Simple feature collection with 251 features and 5 fields
## Geometry type: MULTIPOLYGON
## Dimension:     XY
## Bounding box:  xmin: -180 ymin: -89 xmax: 180 ymax: 83.6236
## Geodetic CRS:  WGS 84
```

```
print(World)
```

```
## Simple feature collection with 251 features and 5 fields
## Geometry type: MULTIPOLYGON
## Dimension:     XY
## Bounding box:  xmin: -180 ymin: -89 xmax: 180 ymax: 83.6236
## Geodetic CRS:  WGS 84
## First 10 features:
##    FID             COUNTRY ISO          COUNTRYAFF AFF_ISO
## 1    1         Afghanistan  AF         Afghanistan      AF
## 2    2             Albania  AL             Albania      AL
## 3    3             Algeria  DZ             Algeria      DZ
## 4    4      American Samoa  AS       United States      US
## 5    5             Andorra  AD             Andorra      AD
## 6    6              Angola  AO              Angola      AO
## 7    7            Anguilla  AI      United Kingdom      GB
## 8    8          Antarctica  AQ
## 9    9 Antigua and Barbuda  AG Antigua and Barbuda      AG
## 10  10           Argentina  AR           Argentina      AR
##                          geometry
## 1  MULTIPOLYGON (((61.27655 35...
## 2  MULTIPOLYGON (((19.57083 41...
## 3  MULTIPOLYGON (((4.603354 36...
```

```
## 4  MULTIPOLYGON (((-170.7439 -...
## 5  MULTIPOLYGON (((1.445836 42...
## 6  MULTIPOLYGON (((23.47611 -1...
## 7  MULTIPOLYGON (((-63.16778 1...
## 8  MULTIPOLYGON (((-180 -84.30...
## 9  MULTIPOLYGON (((-61.73806 1...
## 10 MULTIPOLYGON (((-71.85916 -...
```

^

```
CompData<-read.csv("HDR23-24_Composite_indices_complete_time_series.csv",
                   header = TRUE,
                   sep = ",",
                   encoding = "latin1")
cd_col <- colnames(CompData)
print(cd_col)
```

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## [1071] "pop_total_2017"         "pop_total_2018"
## [1073] "pop_total_2019"         "pop_total_2020"
## [1075] "pop_total_2021"         "pop_total_2022"
```

```
library(dplyr)
```

```
##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
##     filter, lag

## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
gii_world <- CompData %>%
  select(iso3,
         country,
         gii_2010,
         gii_2019) %>%
  mutate(gii_diff = gii_2010 - gii_2019) %>%
  select(-gii_2019,-gii_2010)
head(gii_world)
```

```
##   iso3             country gii_diff
## 1  AFG         Afghanistan    0.031
## 2  ALB             Albania    0.061
## 3  DZA             Algeria    0.120
## 4  AND             Andorra       NA
## 5  AGO              Angola    0.021
## 6  ATG Antigua and Barbuda       NA
```

```
tail(gii_world)
```

```
##          iso3                         country gii_diff
## 201   ZZF.EAP       East Asia and the Pacific    0.037
```

```
## 202   ZZG.ECA         Europe and Central Asia    0.077
## 203   ZZH.LAC Latin America and the Caribbean    0.041
## 204    ZZI.SA                       South Asia    0.053
## 205   ZZJ.SSA             Sub-Saharan Africa    0.024
## 206 ZZK.WORLD                           World    0.036
```

```
library(countrycode)
country <- function(gii_world, iso3, destination = 'iso2c', nomatch = NA, warn = TRUE) {
    gii_cn <- gii_world[[iso3]]
    out <- countrycode(sourcevar = gii_cn,
                       origin = 'iso3c',
                       destination = destination)

    gii_world[[iso3]]<-out
    return(gii_world)
 }
gii_world <- country(gii_world, iso3 = "iso3")
```

```
## Warning: Some values were not matched unambiguously: ZZA.VHHD, ZZB.HHD, ZZC.MHD, ZZD.LHD, ZZE.AS, ZZ
```

```
gii_world <- gii_world %>%
  rename(iso2='iso3') %>%
  filter(!is.na(iso2))
gii_world <- gii_world %>%
  select(-country)
head(gii_world)
```

```
##   iso2 gii_diff
## 1   AF    0.031
## 2   AL    0.061
## 3   DZ    0.120
## 4   AD       NA
## 5   AO    0.021
## 6   AG       NA
```

```
gii_merge <- World %>%
  merge(.,
        gii_world,
        by.x="ISO",
        by.y="iso2")%>%
  distinct()
print(gii_merge)
```

```
## Simple feature collection with 197 features and 6 fields
## Geometry type: MULTIPOLYGON
## Dimension:     XY
## Bounding box:  xmin: -180 ymin: -55.90223 xmax: 180 ymax: 83.11387
## Geodetic CRS:  WGS 84
## First 10 features:
##    ISO FID              COUNTRY           COUNTRYAFF AFF_ISO gii_diff
## 1   AD   5              Andorra              Andorra      AD       NA
## 2   AE 237 United Arab Emirates United Arab Emirates      AE    0.132
```

```
## 3   AF   1          Afghanistan          Afghanistan      AF    0.031
## 4   AG   9  Antigua and Barbuda  Antigua and Barbuda      AG       NA
## 5   AL   2              Albania              Albania      AL    0.061
## 6   AM  11              Armenia              Armenia      AM    0.127
## 7   AO   6               Angola               Angola      AO    0.021
## 8   AR  10            Argentina            Argentina      AR    0.081
## 9   AT  14              Austria              Austria      AT    0.057
## 10  AU  13            Australia            Australia      AU    0.056
##                          geometry
## 1  MULTIPOLYGON (((1.445836 42...
## 2  MULTIPOLYGON (((56.36027 25...
## 3  MULTIPOLYGON (((61.27655 35...
## 4  MULTIPOLYGON (((-61.73806 1...
## 5  MULTIPOLYGON (((19.57083 41...
## 6  MULTIPOLYGON (((46.54037 38...
## 7  MULTIPOLYGON (((23.47611 -1...
## 8  MULTIPOLYGON (((-71.85916 -...
## 9  MULTIPOLYGON (((10.47124 46...
## 10 MULTIPOLYGON (((151.5403 -2...
```

```
View(gii_merge)
```

```
library(tmap)
```

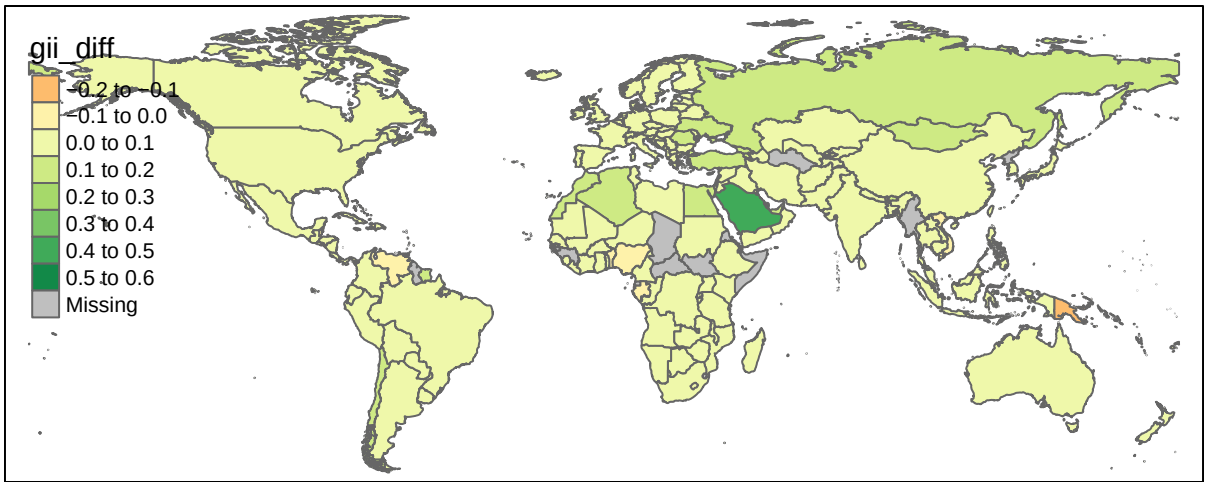
```
## Breaking News: tmap 3.x is retiring. Please test v4, e.g. with
## remotes::install_github('r-tmap/tmap')
```

```
library(tmaptools)
tmap_mode("plot")
```

```
## tmap mode set to plotting
```

```
qtm(gii_merge,
    fill = "gii_diff")
```

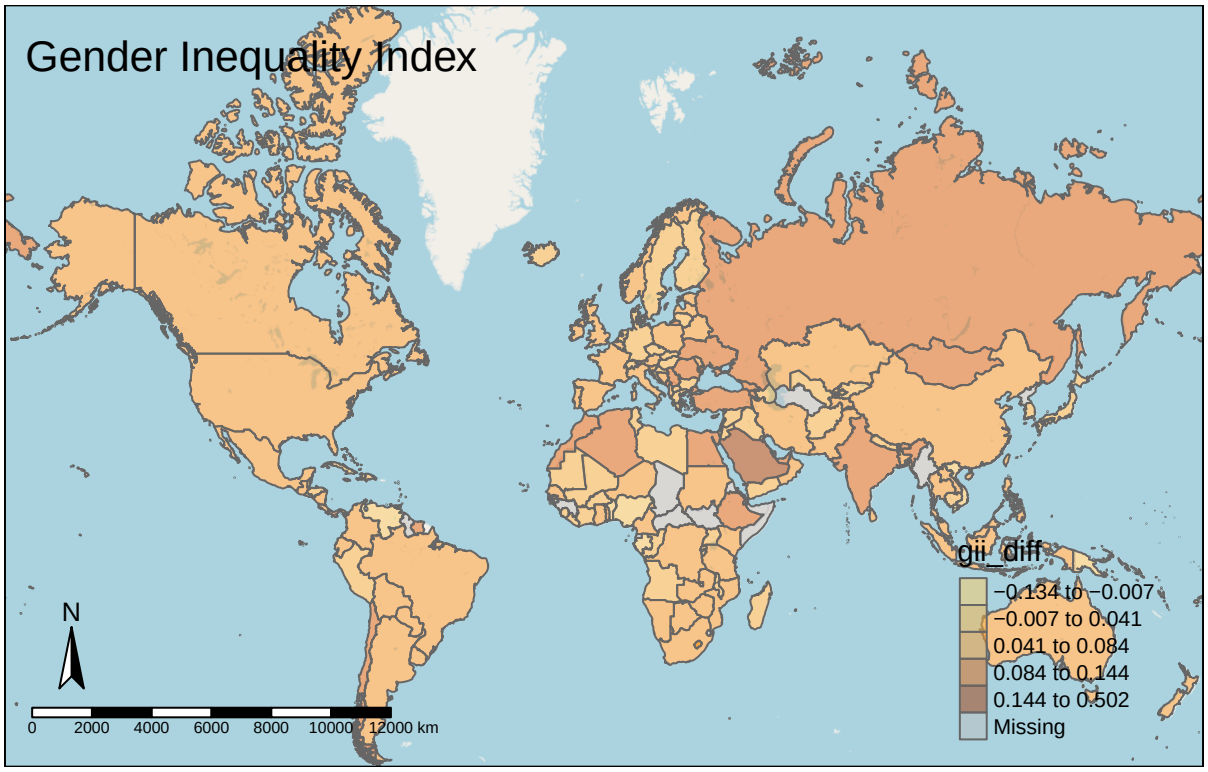
```
## Variable(s) "gii_diff" contains positive and negative values, so midpoint is set to 0. Set midpoint =
```




```
tmapgii <- gii_merge %>%
  st_bbox(.) %>%
  tmaptools::read_osm(., type = "osm", zoom = NULL)
tmap_mode("plot")
```

```
## tmap mode set to plotting
```

```
tm_shape(tmapgii)+
tm_rgb()+
tm_shape(gii_merge) +
tm_polygons("gii_diff",
        style="jenks",
        palette="YlOrBr",
        midpoint=NA,
        alpha = 0.5) +
  tm_compass(position = c("left", "bottom"),type = "arrow") +
  tm_scale_bar(position = c("left", "bottom")) +
  tm_layout(title = "Gender Inequality Index", legend.position = c("right", "bottom"))
```


Gender Inequality Index
N
0
2000
4000
6000
8000
10000
12000 km
gii_diff
−0.134 to −0.007
−0.007 to 0.041
0.041 to 0.084
0.084 to 0.144
0.144 to 0.502
Missing