The aim of this blog post is to reproduce part of the economic indicators table from 'The Economist' using only free tools. We take data directly from DBnomics. The DBnomics API can be accessed through R with the rdbnomics package. All the following code is written in R, thanks to the RCoreTeam (2016) and the RStudioTeam (2016). To update the table, just download the code here and re-run it.

```
if (!"pacman" %in% installed.packages()[,"Package"])
install.packages("pacman", repos='http://cran.r-project.org')
pacman::p_load(tidyverse,rdbnomics,magrittr,zoo,
lubridate,knitr,kableExtra,formattable)

opts_chunk$set(fig.align="center", message=FALSE, warning=FALSE)

currentyear <- year(Sys.Date())
lastyear <- currentyear-1
beforelastyear <- currentyear-2
CountryList <- c("United States","China","Japan","Britain","Canada",
                 "Euro area","Austria","Belgium","
France","Germany","Greece","Italy","Netherlands","Spain",
                 "Czech Republic","Denmark","Norway","
Poland","Russia","Sweden","Switzerland","Turkey",
                 "Australia","Hong Kong","India","Indonesia","
Malaysia","Pakistan","Philippines","Singapore","South
Korea","Taiwan","Thailand",
                 "Argentina","Brazil","Chile","
Colombia","Mexico","Peru",
                 "Egypt","Israel","Saudi Arabia","South Africa")
```

Download

```
gdp <- rdb("OECD","MEI",ids=".NAEXKP01.GPSA+GYSA.Q")
hongkong_philippines_thailand_gdp <-
  rdb("IMF","IFS",mask="Q.HK+PH+TH.NGDP_R_PC_CP_A_SA_PT+NGDP_
R_PC_PP_SA_PT") %>%
  rename(Country=`Reference Area`) %>%
  mutate(Country=case_when(Country=="Hong Kong, China" ~ "Hong Kong",
                           TRUE ~ Country),
         MEASURE=case_when(INDICATOR=="NGDP_R_PC_CP_A_SA_PT" ~ "GYSA",
                           INDICATOR=="NGDP_R_PC_PP_SA_PT" ~ "GPSA"))
malaysia_peru_saudi_singapore_gdp <-
  rdb("IMF","IFS",mask="Q.MY+PE+SA+SG.NGDP_R_PC_CP_A_PT+NGDP_
R_PC_PP_PT") %>%
  rename(Country=`Reference Area`) %>%
  mutate(MEASURE=case_when(INDICATOR=="NGDP_R_PC_CP_A_PT" ~ "GYSA",
                           INDICATOR=="NGDP_R_PC_PP_PT" ~ "GPSA"))
taiwan_gdp <-
  rdb("BI/TABEL9_1/17.Q") %>%
  mutate(Country="Taiwan",
         MEASURE="GYSA")
egypt_pakistan_gdp <-
```

```r
  rdb("IMF","WEO:latest",mask="EGY+PAK.NGDP_RPCH") %>%
  rename(Country=`WEO Country`) %>%
  mutate(MEASURE="GYSA") %>%
  filter(year(period)%
  arrange(period) %>%
  mutate(value=value/lag(value)-1,
         MEASURE="GPSA")
gdp_yoy_china <-
  china_gdp_level %>%
  arrange(period) %>%
  mutate(quarter=quarter(period)) %>%
  group_by(quarter) %>%
  mutate(value=value/lag(value)-1,
         MEASURE="GYSA")
argentina_gdp_level <-
  rdb(ids="Eurostat/naidq_10_gdp/Q.SCA.KP_I10.B1GQ.AR") %>%
  rename(Country=`Geopolitical entity (reporting)`)
gdp_qoq_argentina <-
  argentina_gdp_level %>%
  arrange(period) %>%
  mutate(value=value/lag(value)-1,
         MEASURE="GPSA")
gdp_yoy_argentina <-
  argentina_gdp_level %>%
  arrange(period) %>%
  mutate(quarter=quarter(period)) %>%
  group_by(quarter) %>%
  mutate(value=value/lag(value)-1,
         MEASURE="GYSA")
gdp <- bind_rows(gdp,hongkong_philippines_thailand_gdp,
malaysia_peru_saudi_singapore_gdp,taiwan_gdp,egypt_pakistan_
gdp,gdp_yoy_china,gdp_qoq_china,gdp_yoy_argentina,gdp_qoq_argentina)

indprod <- rdb("OECD","MEI",ids=".PRINTO01.GYSA.M")
australia_swiss_indprod <- rdb("OECD","MEI","AUS+CHE.PRINTO01.GYSA.Q")
china_egypt_mexico_malaysia_indprod <-
  rdb("IMF","IFS",mask="M.CN+EG+MX+MY.AIP_PC_CP_A_PT") %>%
  rename(Country=`Reference Area`)
indonesia_pakistan_peru_philippines_singapore_southafrica_indprod <-
  rdb("IMF","IFS",mask="M.ID+PK+PE+PH+SG+ZA.AIPMA_PC_CP_A_PT") %>%
  rename(Country=`Reference Area`)
argentina_hongkong_saudiarabia_thailand_indprod <-
  rdb("IMF","IFS",mask="Q.AR+HK+SA+TH.AIPMA_PC_CP_A_PT") %>%
  rename(Country=`Reference Area`) %>%
  mutate(Country=case_when(Country=="Hong Kong, China" ~ "Hong Kong",
                           TRUE ~ Country))
indprod <- bind_rows(indprod,australia_swiss_indprod,china_egypt_
mexico_malaysia_indprod,indonesia_pakistan_peru_philippines_singapore_
southafrica_indprod,argentina_hongkong_saudiarabia_thailand_indprod)

cpi <- rdb("OECD","MEI",ids=".CPALTT01.GY.M")
```

```
australia_cpi <- rdb("OECD","MEI",ids="AUS.CPALTT01.GY.Q")
taiwan_cpi <-
   rdb("BI/TABEL9_2/17.Q") %>%
   mutate(Country="Taiwan")
other_cpi <-
   rdb("IMF","IFS",mask="M.EG+HK+MY+PE+PH+PK+SG+TH.PCPI_PC_CP_A_PT")
%>%
   rename(Country=`Reference Area`) %>%
   mutate(Country=case_when(Country=="Hong Kong, China" ~ "Hong Kong",
                            TRUE ~ Country))
cpi <- bind_rows(cpi,australia_cpi,taiwan_cpi,other_cpi)

unemp <- rdb("OECD","MEI",ids=".LRHUTTTT.STSA.M")
swiss_unemp <- rdb("OECD","MEI",mask="CHE.LMUNRRTT.STSA.M")
brazil_unemp <- rdb("OECD","MEI",mask="BRA.LRUNTTTT.STSA.M")
southafrica_russia_unemp <- rdb("OECD","MEI",mask="ZAF+
RUS.LRUNTTTT.STSA.Q")
china_unemp <-
   rdb(ids="BUBA/BBXL3/Q.CN.N.UNEH.TOTAL0.NAT.URAR.RAT.I00") %>%
   mutate(Country="China")
saudiarabia_unemp <-
   rdb(ids="ILO/UNE_DEAP_SEX_AGE_RT/SAU.BA_627.AGE_AGGREGATE_
TOTAL.SEX_T.A") %>%
   rename(Country=`Reference area`) %>%
   filter(year(period)%
   rename(Country=`Reference area`) %>%
   filter(year(period)%
   rename(Country=`Reference area`)
other_unemp <-
   rdb("ILO","UNE_DEA1_SEX_AGE_RT",mask="ARG+EGY+HKG+MYS+PER+
PHL+SGP+THA+TWN..AGE_YTHADULT_YGE15.SEX_T.Q") %>%
   rename(Country=`Reference area`) %>%
   mutate(Country=case_when(Country=="Hong Kong, China" ~ "Hong Kong",
                            Country=="Taiwan, China" ~ "Taiwan",
                            TRUE ~ Country))
unemp <- bind_rows(unemp,brazil_unemp,southafrica_russia_unemp,
swiss_unemp,china_unemp,saudiarabia_unemp,india_unemp,
indonesia_pakistan_unemp,other_unemp)

forecast_gdp_cpi_ea <-
   rdb("IMF","WEOAGG:latest",mask="163.NGDP_RPCH+PCPIPCH") %>%
   rename(`WEO Country`=`WEO Countries group`)
forecast_gdp_cpi <-
   rdb("IMF","WEO:latest",mask=".NGDP_RPCH+PCPIPCH") %>%
   bind_rows(forecast_gdp_cpi_ea) %>%
   transmute(Country=`WEO Country`,
             var=`WEO Subject`,
             value,
             period) %>%
   mutate(Country=str_trim(Country),
          var=str_trim(var)) %>%
   mutate(Country=case_when(Country=="United Kingdom" ~ "Britain",
```

```r
                         Country=="Hong Kong SAR" ~ "Hong Kong",
                         Country=="Korea" ~ "South Korea",
                         Country=="Taiwan Province of China" ~
"Taiwan",
                         TRUE ~ Country),
        var=case_when(var=="Gross domestic product, constant prices" ~
"GDP",
                      var=="Inflation, average consumer prices" ~
"CPI",
                      TRUE ~ var))
forecast_gdp_cpi <- left_join(data.frame(Country=
CountryList),forecast_gdp_cpi,by="Country")
```

Transform

```r
gdp_yoy_latest_period <-
  gdp %>%
  filter(MEASURE=="GYSA") %>%
  filter(!is.na(value)) %>%
  group_by(Country) %>%
  summarise(period=max(period))
gdp_yoy_latest <-
  gdp %>%
  filter(MEASURE=="GYSA") %>%
  inner_join(gdp_yoy_latest_period) %>%
  mutate(var="GDP",measure="latest")


gdp_qoq_latest_period <-
  gdp %>%
  filter(MEASURE=="GPSA") %>%
  filter(!is.na(value)) %>%
  group_by(Country) %>%
  summarise(period=max(period))
gdp_qoq_latest <-
  gdp %>%
  filter(MEASURE=="GPSA") %>%
  inner_join(gdp_qoq_latest_period) %>%
  mutate(value=((1+value/100)^4-1)*100,
         var="GDP",
         measure="quarter")


gdp_2020_2021 <-
  forecast_gdp_cpi %>%
  filter(var=="GDP" & (period=="2020-01-01" | period=="2021-01-01"))
%>%
  mutate(measure=as.character(year(period)))


indprod_latest_period <-
  indprod %>%
  filter(!is.na(value)) %>%
  group_by(Country) %>%
  summarise(period=max(period))
```

```r
indprod_latest <-
  indprod %>%
  inner_join(indprod_latest_period) %>%
  mutate(var="indprod",measure="latest")

cpi_latest_period <-
  cpi %>%
  filter(!is.na(value)) %>%
  group_by(Country) %>%
  summarise(period=max(period))
cpi_latest <-
  cpi %>%
  inner_join(cpi_latest_period) %>%
  mutate(var="CPI",measure="latest")

cpi_2020 <-
  forecast_gdp_cpi %>%
  filter(var=="CPI" & period=="2020-01-01") %>%
  mutate(measure=as.character(year(period)))

unemp_latest_period <-
  unemp %>%
  filter(!is.na(value)) %>%
  group_by(Country) %>%
  summarise(period=max(period))
unemp_latest <-
  unemp %>%
  inner_join(unemp_latest_period) %>%
  mutate(var="unemp",measure="latest")
```

Merge

```r
df_all <-
  bind_rows(gdp_yoy_latest,gdp_qoq_latest,gdp_2020_2021,
indprod_latest,cpi_latest,cpi_2020,unemp_latest) %>%
  mutate(value=ifelse(value>=0,
                      paste0("+",sprintf("%.1f",round(value,1))),
                      sprintf("%.1f",round(value,1)))) %>%
  unite(measure,c(var,measure))

df_latest <-
  df_all %>%
  filter(measure %in% c("GDP_latest","indprod_
latest","CPI_latest","unemp_latest")) %>%
  mutate(value=case_when(`@frequency`=="quarterly" ~ paste(value,"
Q",quarter(period),sep=""),
                         `@frequency`=="monthly" ~ paste(value,"
",month(period,label = TRUE, abbr = TRUE, locale =
"en_US.utf8"),sep=""),
                         `@frequency`=="annual" ~ paste(value,"
Year",sep=""),
                         TRUE ~ value)) %>%
```

```r
  mutate(value=text_spec(ifelse(year(period)==lastyear,paste0(
value,footnote_marker_symbol(3)),
                              ifelse(year(period)==
beforelastyear,paste0(value,footnote_marker_symbol(4)),value)),
                       link = paste("https://db.nomics.world
",provider_code,dataset_code,series_code,sep = "/"),
                       color = "#333333",escape = F,extra_css="text-
decoration:none"))

df_final <-
  df_all %>%
  filter(measure %in% c("GDP_quarter","GDP_2020","
GDP_2021","CPI_2020")) %>%
  bind_rows(df_latest) %>%
  mutate(Country=case_when(Country=="United Kingdom" ~ "Britain",
                           Country=="Euro area (19 countries)" ~ "Euro
area",
                           Country=="China (People's Republic of)" ~
"China",
                           Country=="Korea" ~ "South Korea",
                           TRUE ~ Country)) %>%
  select(Country,value,measure) %>%
  spread(measure,value) %>%
  select(Country,GDP_latest,GDP_quarter,GDP_2020,GDP_2021,
indprod_latest,CPI_latest,CPI_2020,unemp_latest)

df_final <- left_join(data.frame(Country=CountryList),df_final,by="
Country")
```

Display

```r
names(df_final)[1] <- ""
names(df_final)[2] <- "latest"
names(df_final)[3] <- paste0("quarter",footnote_marker_symbol(1))
names(df_final)[4] <- paste0("2020",footnote_marker_symbol(2))
names(df_final)[5] <- paste0("2021",footnote_marker_symbol(2))
names(df_final)[6] <- "latest"
names(df_final)[7] <- "latest"
names(df_final)[8] <- paste0("2020",footnote_marker_symbol(2))
names(df_final)[9] <- "latest"

df_final %>%
  kable(row.names = F,escape = F,align = c("l",rep("c",8)),caption =
"Economic data (% change on year ago)") %>%
  kable_styling(bootstrap_options = c("striped", "hover","responsive"),
fixed_thead = T, font_size = 13) %>%
  add_header_above(c(" " = 1, "Gross domestic product" = 4, "Industrial
production  " = 1, "Consumer prices"= 2, "Unemployment rate, %"=1)) %>%
  column_spec(1, bold = T) %>%
  row_spec(seq(1,nrow(df_final),by=2), background = "#D5E4EB") %>%
  row_spec(c(5,14,22,33,39),extra_css = "border-bottom: 1.2px solid")
%>%
```

```
    footnote(general = "DBnomics (Eurostat, ILO, IMF, OECD and national
sources). Click on the figures in the `latest` columns to see the full
time series.",
            general_title = "Source: ",
            footnote_as_chunk = T,
            symbol = c("% change on previous quarter, annual rate ",
"IMF estimation/forecast", paste0(lastyear),paste0(beforelastyear)))…
```