CEPII Example

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Contents

Preamble

```
rm(list = ls())
pklist <- c("tidyverse")
source("/Users/geerolf/Drive/work/code-sample/R/load-packages.R")
source("/Users/geerolf/Drive/work/code-sample/R/hpfilter.R")
Sys.time()
```

```
## [1] "2018-09-16 16:22:10 PDT"
```

```
sessionInfo()
```

```
## R version 3.5.1 (2018-07-02)
## Platform: x86_64-apple-darwin15.6.0 (64-bit)
## Running under: macOS High Sierra 10.13.6
##
## Matrix products: default
## BLAS: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRblas.0.dylib
## LAPACK: /Library/Frameworks/R.framework/Versions/3.5/Resources/lib/libRlapack.dylib
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats     graphics  grDevices utils     datasets  methods   base
##
## other attached packages:
## [1] forcats_0.3.0   stringr_1.3.1   dplyr_0.7.6     purrr_0.2.5
## [5] readr_1.1.1     tidyr_0.8.1     tibble_1.4.2    ggplot2_3.0.0
## [9] tidyverse_1.2.1
##
## loaded via a namespace (and not attached):
##  [1] Rcpp_0.12.18     cellranger_1.1.0 pillar_1.3.0     compiler_3.5.1
##  [5] plyr_1.8.4       bindr_0.1.1      tools_3.5.1      digest_0.6.15
```

```
##  [9] lubridate_1.7.4  jsonlite_1.5     evaluate_0.11    nlme_3.1-137
## [13] gtable_0.2.0     lattice_0.20-35  pkgconfig_2.0.2  rlang_0.2.2
## [17] cli_1.0.0        rstudioapi_0.7   yaml_2.2.0       haven_1.1.2
## [21] bindrcpp_0.2.2   withr_2.1.2      xml2_1.2.0       httr_1.3.1
## [25] knitr_1.20       hms_0.4.2        rprojroot_1.3-2  grid_3.5.1
## [29] tidyselect_0.2.4 glue_1.3.0       R6_2.2.2         readxl_1.1.0
## [33] rmarkdown_1.10   modelr_0.1.2     magrittr_1.5     backports_1.1.2
## [37] scales_1.0.0     htmltools_0.3.6  rvest_0.3.2      assertthat_0.2.0
## [41] colorspace_1.3-2 stringi_1.2.4    lazyeval_0.2.1   munsell_0.5.0
## [45] broom_0.5.0      crayon_1.3.4
```

```
options(tibble.print_max = Inf)
```

Datasets

```
load("/Users/geerolf/Drive/work/datasets/cepii/chel201726716.RData")
load("/Users/geerolf/Drive/work/datasets/wdi/WDI.RData")
load("/Users/geerolf/Drive/work/datasets/wdi/WDI.variable.nobs.RData")
load("/Users/geerolf/Drive/work/datasets/wdi/WDI.country.RData")
```

What's the structure of the CHELEM Data?

```
chel201726716 %>% str
```

```
## 'data.frame':    65711413 obs. of  10 variables:
##  $ i   : Factor w/ 137 levels "AES","AFA","AFN",..: 134 134 134 134 134 134 134 134 134 134 ...
##  $ isoi: int  0 0 0 0 0 0 0 0 0 0 ...
##  $ ordi: int  1 1 1 1 1 1 1 1 1 1 ...
##  $ j   : Factor w/ 137 levels "AES","AFA","AFN",..: 134 134 134 134 134 134 134 134 134 134 ...
##  $ isoj: int  0 0 0 0 0 0 0 0 0 0 ...
##  $ ordj: int  1 1 1 1 1 1 1 1 1 1 ...
##  $ k   : Factor w/ 103 levels "AL","B","BA",..: 3 4 5 7 8 9 11 12 13 14 ...
##  $ ordk: int  1 2 3 4 5 6 7 8 9 10 ...
##  $ t   : int  1967 1967 1967 1967 1967 1967 1967 1967 1967 1967 ...
##  $ v   : num  409 1134 1013 8166 1853 ...
```

All possible Trade Flows

Table

Growth in Chinese exports to varying partners from 2000-2010:

```
names(chel201726716)
```

```
##  [1] "i"    "isoi" "ordi" "j"    "isoj" "ordj" "k"    "ordk" "t"    "v"
```

```
cepii.extract <- chel201726716 %>%
  filter(t == 2000 | t == 2010, i == "CHN", k == "TT") %>%
  select(partner = j, year = t, value = v) %>%
  mutate(partner = partner %>% paste) %>%
  arrange(partner, year) %>%
  group_by(partner) %>%
  mutate(growth = log(value[2]) - log(value[1])) %>%
```

```
  select(-year, -value) %>%
  unique
```

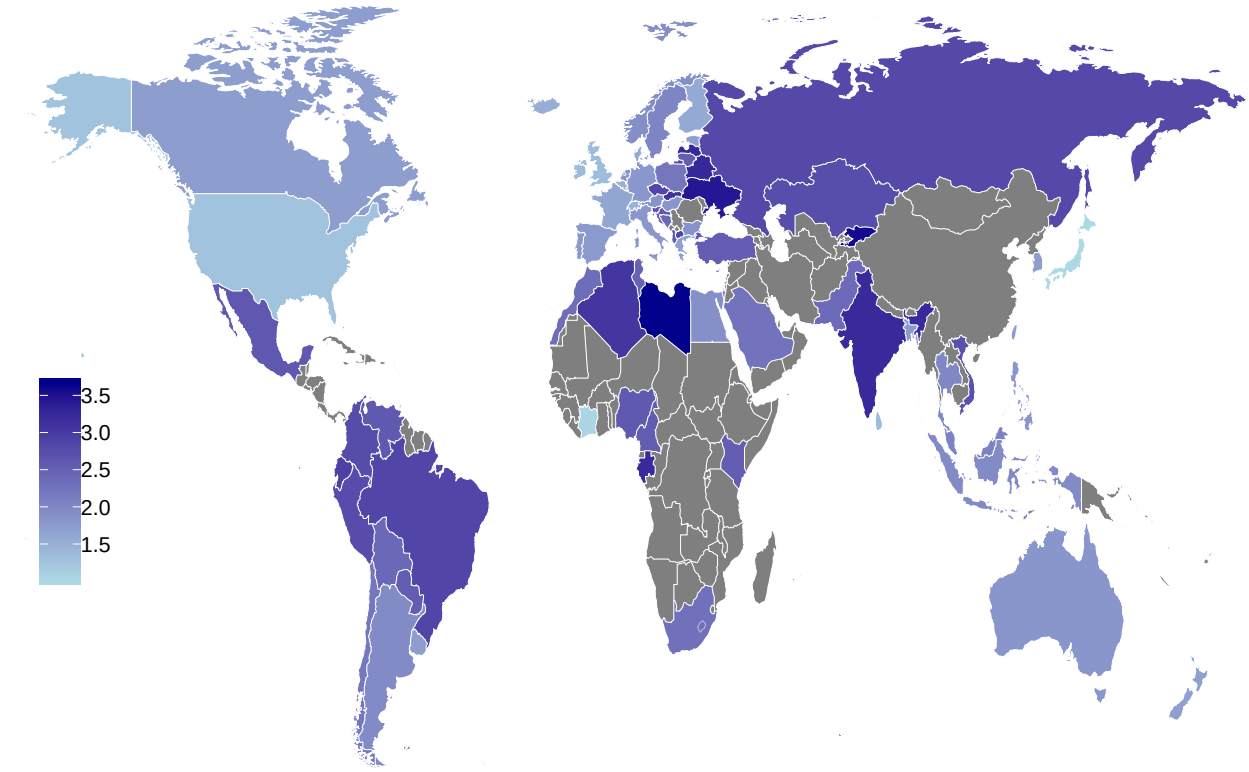
Map

```
map_data("world") %>%
  filter(region != "Greenland", region != "Antarctica") %>%
  left_join(iso3166 %>%
              select(region = mapname, countrycode = a3) %>%
              mutate(region = ifelse(region == "China(?!:Hong Kong|:Macao)", "China", region),
                     region = ifelse(region == "Finland(?!:Aland)", "Finland", region),
                     region = ifelse(region == "UK(?!r)", "UK", region),
                     region = ifelse(region == "Norway(?!:Bouvet|:Svalbard|:Jan Mayen)", "Norway", regi
            by = "region") %>%
  left_join(cepii.extract %>%
              rename(countrycode = partner),
            by = "countrycode") %>%
  ggplot(aes(long, lat, group = group)) +
  geom_polygon(aes(fill = growth),
               colour = alpha("white", 1/2),
               size = 0.1)  +
  scale_fill_continuous(low="lightblue", high="darkblue", guide="colorbar") +
  theme_void() +
  theme(legend.position = c(0.1, 0.4),
        legend.title = element_blank())
```

```
Attaching package: 'maps'
```

```
The following object is masked from 'package:purrr':

    map
```



Main Countries: GDP (current US$)

```
WDI %>%
  # Countries / groups with GDP higher than 1 trillion dollars
  filter(Indicator.Code == "NY.GDP.MKTP.CD", year == "2017", value > 0.5*10^12) %>%
  mutate(value = (value / 10^12) %>% round(2)) %>%
  arrange(-value) %>%
  select(Country.Name, Country.Code, value) %>%
  inner_join(WDI.country %>%
               select(Country.Code, Currency.Unit) %>%
               filter(Currency.Unit != ""),
             by = "Country.Code")
```

```
Warning: Column `Country.Code` joining factors with different levels,
coercing to character vector
```

	Country.Name	Country.Code	value	Currency.Unit
1	United States	USA	19.39	U.S. dollar
2	China	CHN	12.24	Chinese yuan
3	Japan	JPN	4.87	Japanese yen
4	Germany	DEU	3.68	Euro
5	United Kingdom	GBR	2.62	Pound sterling
6	India	IND	2.60	Indian rupee
7	France	FRA	2.58	Euro
8	Brazil	BRA	2.06	Brazilian real
9	Italy	ITA	1.93	Euro
10	Canada	CAN	1.65	Canadian dollar

```
11 Russian Federation          RUS  1.58       Russian ruble
12        Korea, Rep.          KOR  1.53          Korean won
13          Australia          AUS  1.32   Australian dollar
14              Spain          ESP  1.31               Euro
15             Mexico          MEX  1.15       Mexican peso
16          Indonesia          IDN  1.02   Indonesian rupiah
17             Turkey          TUR  0.85    New Turkish lira
18        Netherlands          NLD  0.83               Euro
19       Saudi Arabia          SAU  0.68 Saudi Arabian riyal
20        Switzerland          CHE  0.68         Swiss franc
21          Argentina          ARG  0.64      Argentine peso
22             Sweden          SWE  0.54       Swedish krona
23             Poland          POL  0.52        Polish zloty
```

```
Country.Code.Main <- WDI %>%
  # Countries / groups with GDP higher than 1 trillion dollars
  filter(Indicator.Code == "NY.GDP.MKTP.CD", year == "2017", value > 0.5*10^12) %>%
  mutate(value = (value / 10^12) %>% round(2)) %>%
  arrange(-value) %>%
  select(Country.Name, Country.Code, value) %>%
  inner_join(WDI.country %>%
               select(Country.Code, Currency.Unit) %>%
               filter(Currency.Unit != ""),
             by = "Country.Code") %>%
  select(Country.Code) %>%
  unique %>%
  unlist %>%
  unname
```

```
Warning: Column `Country.Code` joining factors with different levels,
coercing to character vector
```

```
cepii.extract %>%
  filter(partner %in% Country.Code.Main) %>%
  inner_join(WDI.country %>%
               select(partner = Country.Code, countryname = Short.Name, Currency.Unit),
             by = "partner")
```

```
## Warning: Column `partner` joining character vector and factor, coercing
## into character vector
```

```
## # A tibble: 22 x 4
## # Groups:   partner [?]
##    partner growth countryname    Currency.Unit
##    <chr>    <dbl> <fct>          <fct>
##  1 ARG       1.96 Argentina      Argentine peso
##  2 AUS       1.83 Australia      Australian dollar
##  3 BRA       2.86 Brazil         Brazilian real
##  4 CAN       1.74 Canada         Canadian dollar
##  5 CHE       1.48 Switzerland    Swiss franc
##  6 DEU       1.81 Germany        Euro
##  7 ESP       1.77 Spain          Euro
##  8 FRA       1.63 France         Euro
##  9 GBR       1.36 United Kingdom Pound sterling
## 10 IDN       1.96 Indonesia      Indonesian rupiah
## 11 IND       3.22 India          Indian rupee
```

```
## 12 ITA       1.81 Italy          Euro
## 13 JPN       1.03 Japan          Japanese yen
## 14 KOR       1.73 Korea          Korean won
## 15 MEX       2.61 Mexico         Mexican peso
## 16 NLD       1.88 Netherlands    Euro
## 17 POL       2.23 Poland         Polish zloty
## 18 RUS       2.82 Russia         Russian ruble
## 19 SAU       2.27 Saudi Arabia   Saudi Arabian riyal
## 20 SWE       2.04 Sweden         Swedish krona
## 21 TUR       2.56 Turkey         New Turkish lira
## 22 USA       1.28 United States  U.S. dollar
```