Summary of Yearly Comtrade Data, Quantity Trade Gap

August 14, 2017

This analysis is for the full 2012-2016 yearly Comtrade data using the HS2012 classification.

```
load(paste(DataPath,"Analysis Data/hs12_12.Rda", sep = "/"))
hs12_12 <- hs12_12[!is.na(Qty_log_gap)]
hs12_12 <- hs12_12[!is.infinite(Qty_log_gap)]

load(paste(DataPath,"Analysis Data/hs12_13.Rda", sep = "/"))
hs12_13 <- hs12_13[!is.na(Qty_log_gap)]
hs12_13 <- hs12_13[!is.infinite(Qty_log_gap)]

load(paste(DataPath,"Analysis Data/hs12_14.Rda", sep = "/"))
hs12_14 <- hs12_14[!is.na(Qty_log_gap)]
hs12_14 <- hs12_14[!is.infinite(Qty_log_gap)]

load(paste(DataPath,"Analysis Data/hs12_15.Rda", sep = "/"))
hs12_15 <- hs12_15[!is.na(Qty_log_gap)]
hs12_15 <- hs12_15[!is.infinite(Qty_log_gap)]

load(paste(DataPath,"Analysis Data/hs12_16.Rda", sep = "/"))
hs12_16 <- hs12_16[!is.na(Qty_log_gap)]
hs12_16 <- hs12_16[!is.infinite(Qty_log_gap)]

hs12_qty <- do.call("rbind", list(hs12_12, hs12_13, hs12_14, hs12_15, hs12_16))
rm(hs12_12, hs12_13, hs12_14, hs12_15, hs12_16)

save(hs12_qty,file = paste(DataPath,"Analysis Data","hs12_qty.Rda", sep = "/"))

rm(hs12_qty)
```

Quantity Trade Gap

The difference between what the exporting country reports and what the importing country reports in netweight (kg).

Coverage

```
options(digits=2)

#For each year, how many product x o-d pairs / all possible product x o-d pairs?

load(paste(DataPath,"Analysis Data/hs12_qty.Rda", sep = "/"))
hs12_qty <- hs12_qty[, .(Period, `Commodity Code`, Importer, Exporter, Log_gap)]

product <- hs12_qty[, uniqueN(`Commodity Code`)]
product_year <- hs12_qty[, uniqueN(`Commodity Code`), by=Period]
product_year <- rename(product_year, Products = V1)
```

```
pair <- unique(setDT(hs12_qty), by = c("Importer", "Exporter"))
pair <- pair[, .N]
pair_year <- unique(setDT(hs12_qty), by = c("Importer", "Exporter", "Period"))
pair_year <- pair_year[, .N, by=Period]
pair_year <- rename(pair_year, Pairs = N)

year_coverage <- merge(product_year, pair_year)
year_coverage$Total_products <- product
year_coverage$Total_pairs <- pair

year_coverage$Coverage <- (year_coverage$Products*year_coverage$Pairs)/
  (year_coverage$Total_products*year_coverage$Total_pair)

pander(year_coverage)
```

Period	Products	Pairs	Total_products	Total_pairs	Coverage
2012	6420	7396	6425	14322	0.516
2013	6423	9950	6425	14322	0.6945
2014	6420	11238	6425	14322	0.7841
2015	6417	12206	6425	14322	0.8512
2016	6413	6531	6425	14322	0.4552

```
rm(pair_year, product_year, year_coverage)

#For each product, how many year x o-d pairs / all possible year x o-d pairs?

year <- hs12_qty[, uniqueN(`Period`)]
year_product <- hs12_qty[, uniqueN(`Period`), by=`Commodity Code`]
year_product <- rename(year_product, Years = V1)

pair_product <- unique(setDT(hs12_qty), by = c("Importer", "Exporter", "Commodity Code"))
pair_product <- pair_product[, .N, by= .(`Commodity Code`)]
pair_product <- rename(pair_product, Pairs = N)

product_coverage <- merge(year_product, pair_product)
product_coverage$Total_years <- year
product_coverage$Total_pairs <- pair

product_coverage$Coverage <- (product_coverage$Years*product_coverage$Pairs)/
  (product_coverage$Total_years*product_coverage$Total_pairs)

pander(product_coverage[order(Coverage)][1:10])
```

Commodity Code	Years	Pairs	Total_years	Total_pairs	Coverage
292512	1	1	5	14322	1.396e-05
811252	1	1	5	14322	1.396e-05
890130	3	1	5	14322	4.189e-05
292424	2	2	5	14322	5.586e-05
030195	3	3	5	14322	0.0001257
293963	5	2	5	14322	0.0001396
890610	3	4	5	14322	0.0001676
293341	4	4	5	14322	0.0002234
293951	3	6	5	14322	0.0002514
261220	5	4	5	14322	0.0002793

```
pander(product_coverage[order(-Coverage)][1:10])
```

Commodity Code	Years	Pairs	Total_years	Total_pairs	Coverage
3926	5	8116	5	14322	0.5667
392690	5	7812	5	14322	0.5455
9403	5	7532	5	14322	0.5259
3923	5	7357	5	14322	0.5137
7326	5	7193	5	14322	0.5022
8708	5	7086	5	14322	0.4948
732690	5	6992	5	14322	0.4882
8517	5	6952	5	14322	0.4854
8536	5	6905	5	14322	0.4821
8421	5	6849	5	14322	0.4782

```
rm(year_product, pair_product, product_coverage)

#For each o-d pair, how many year x product / all possible year x product?

product_pair <- hs12_qty[, uniqueN(`Commodity Code`), by = c("Importer", "Exporter")]
product_pair <- rename(product_pair, Products = V1)

year_pair <- hs12_qty[, uniqueN(`Period`), by = c("Importer", "Exporter")]
year_pair <- rename(year_pair, Years = V1)

pair_coverage <- merge(product_pair, year_pair, by = c("Importer", "Exporter"))
pair_coverage$T_products <- product
pair_coverage$T_years <- year

pair_coverage$Coverage <- (pair_coverage$Products*pair_coverage$Years)/
  (pair_coverage$T_products*pair_coverage$T_years)

pair_coverage$Exporter <- strtrim(pair_coverage$Exporter, 15)
pander(pair_coverage[order(Coverage)][1:10])
```

Importer	Exporter	Products	Years	T_products	T_years	Coverage
Albania	Bahrain	1	1	6425	5	3.113e-05
Albania	Madagascar	1	1	6425	5	3.113e-05
Algeria	Cabo Verde	1	1	6425	5	3.113e-05
Algeria	Guinea	1	1	6425	5	3.113e-05
Algeria	State of Palest	1	1	6425	5	3.113e-05
Andorra	Armenia	1	1	6425	5	3.113e-05
Andorra	Pakistan	1	1	6425	5	3.113e-05
Andorra	Tunisia	1	1	6425	5	3.113e-05
Angola	Armenia	1	1	6425	5	3.113e-05
Angola	Honduras	1	1	6425	5	3.113e-05

```
pander(pair_coverage[order(-Coverage)][1:10])
```

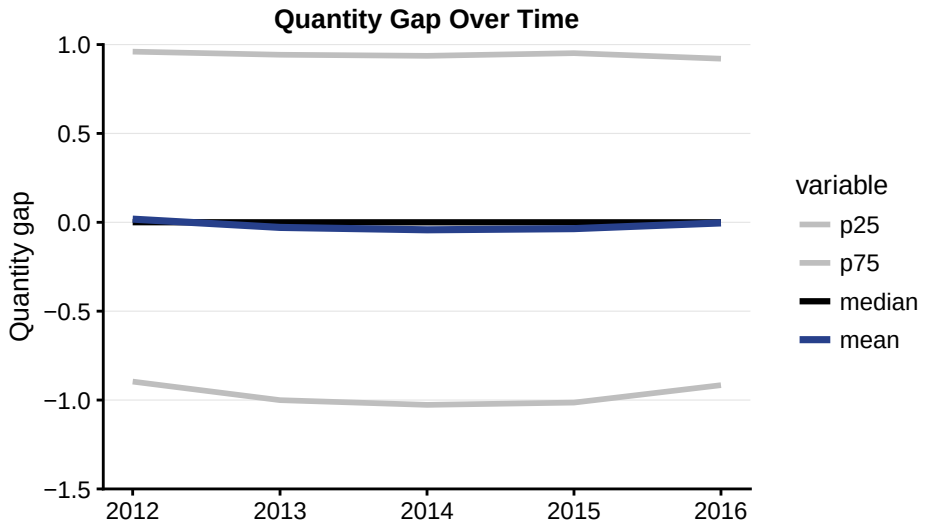
Importer	Exporter	Products	Years	T_products	T_years	Coverage
Portugal	Spain	5995	5	6425	5	0.9331
Switzerland	Germany	5978	5	6425	5	0.9304
France	Italy	5961	5	6425	5	0.9278
France	Germany	5946	5	6425	5	0.9254

Importer	Exporter	Products	Years	T_products	T_years	Coverage
Italy	Germany	5907	5	6425	5	0.9194
France	Belgium	5873	5	6425	5	0.9141
France	Spain	5869	5	6425	5	0.9135
Poland	Germany	5861	5	6425	5	0.9122
Italy	France	5840	5	6425	5	0.9089
Spain	Italy	5829	5	6425	5	0.9072

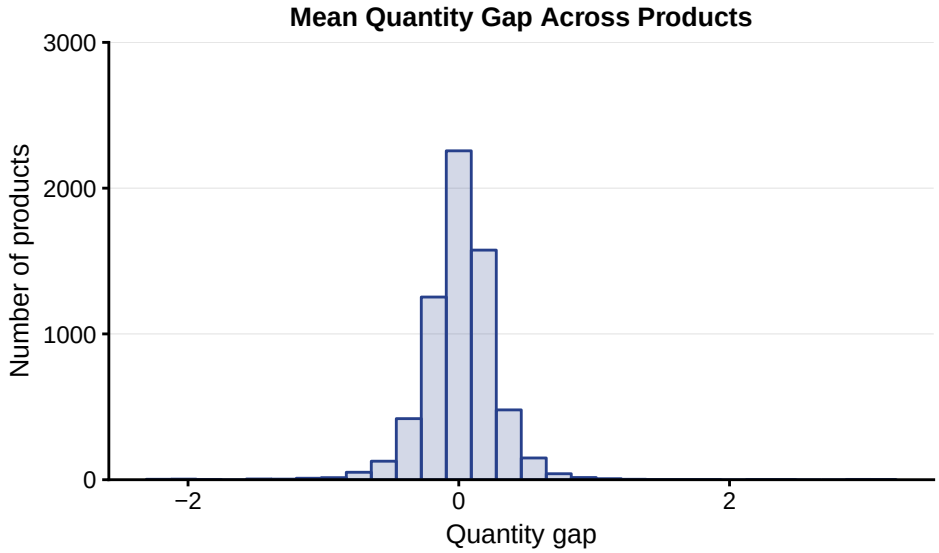
```
rm(product_pair, year_pair, pair_coverage, pair, product, year, hs12_qty)
```

Quantity trade gap over time

```
load(paste(DataPath,"Analysis Data/hs12_qty.Rda", sep = "/"))

hs12_qty <- hs12_qty[, .(Period, `Commodity Code`, Importer, Exporter, Qty_log_gap)]

hs12_qty$Period <- as.Date(hs12_qty$Period, "%Y")
hs12_qty$Period <- floor_date(hs12_qty$Period,"year")

periods <- hs12_qty[, .(mean = as.double(mean(Qty_log_gap)),
                        median = as.double(median(Qty_log_gap)),
                        p25 = as.double(quantile(Qty_log_gap,.25)),
                        p75 = as.double(quantile(Qty_log_gap,.75))
),
by=Period]

periods <- melt(periods, id = 'Period')
periods$variable <- factor(periods$variable, levels = c("p25","p75","median","mean"))

ggplot(data=periods ) +
  geom_line(data=periods, aes(x = Period, y = value, colour = variable, size=variable)) +
  scale_colour_manual(values=c("grey","grey","black","royalblue4")) +
  background_grid(major = 'y', minor = "none") +
  scale_size_manual(values = c(1,1,1.1,1.25)) +
  scale_y_continuous(expand = c(0, 0), limits = c(-1.5,1), minor_breaks = NULL) +
  xlab(label = "") +
  ylab(label = "Quantity gap") +
  labs(title="Quantity Gap Over Time")
```

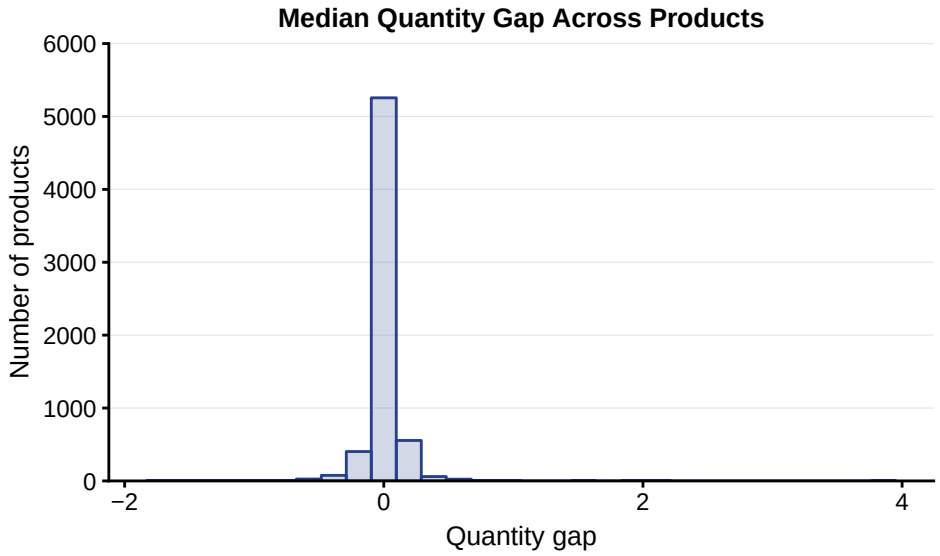



```
#Across products?
products <- hs12_qty[, .(mean = as.double(mean(Qty_log_gap)),
                         median = as.double(median(Qty_log_gap)),
                         p25 = as.double(quantile(Qty_log_gap,.25)),
                         p75 = as.double(quantile(Qty_log_gap,.75))
),
by= `Commodity Code`]

ggplot(data=products, aes(mean)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(0,3000), minor_breaks = NULL) +
  labs(title="Mean Quantity Gap Across Products") +
  labs(x="Quantity gap", y="Number of products")
```

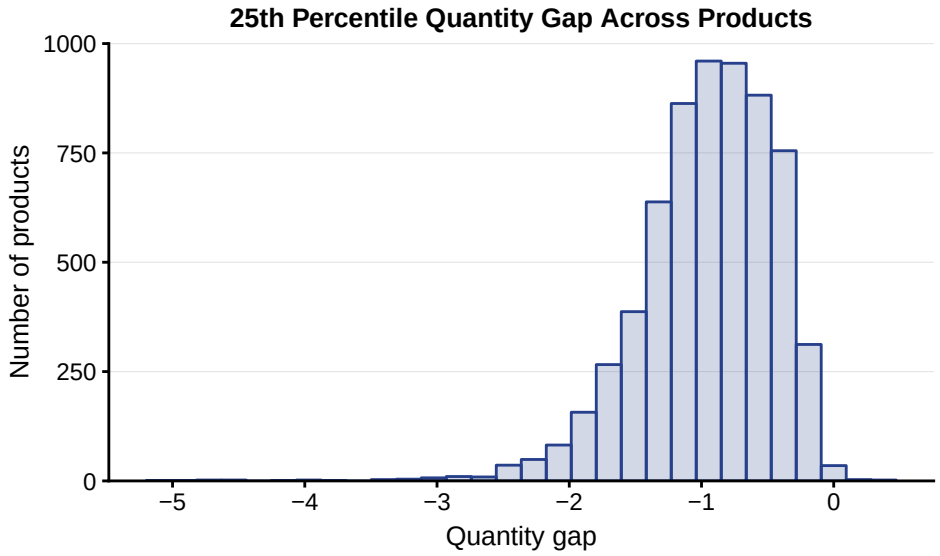



```
ggplot(data=products, aes(median)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
```

```
                alpha=.2) +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(0,6000)) +
  labs(title="Median Quantity Gap Across Products") +
  labs(x="Quantity gap", y="Number of products")
```

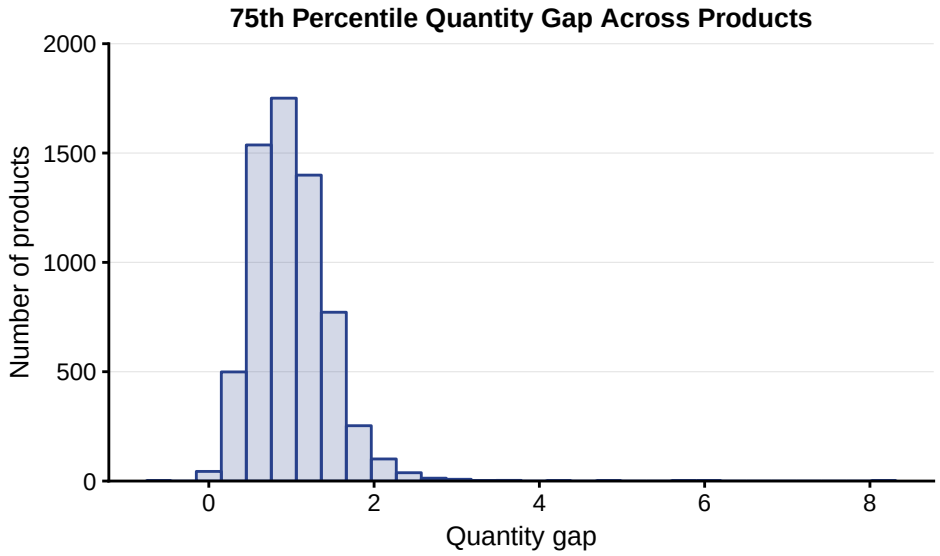



```
ggplot(data=products, aes(p25)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(0,1000),  minor_breaks = NULL) +
  labs(title="25th Percentile Quantity Gap Across Products") +
  labs(x="Quantity gap", y="Number of products")
```

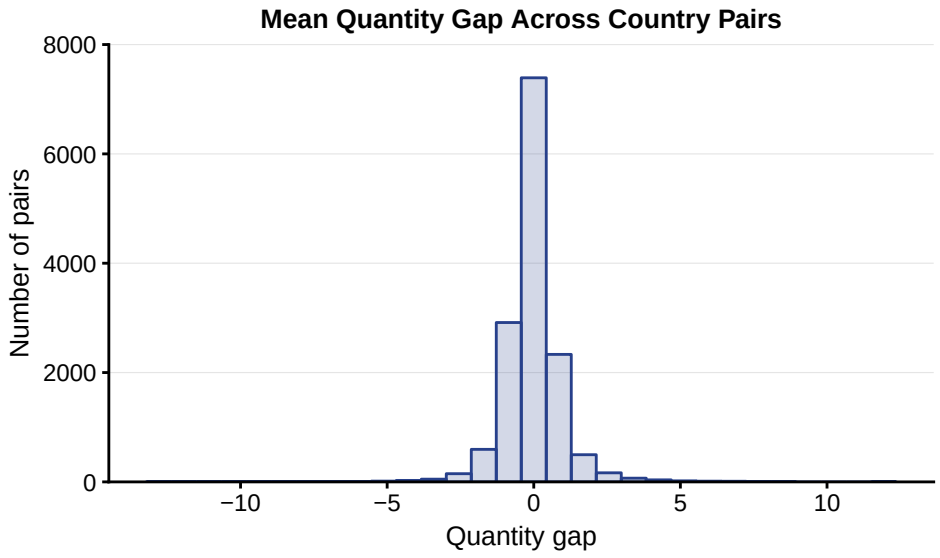



```
ggplot(data=products, aes(p75)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
```

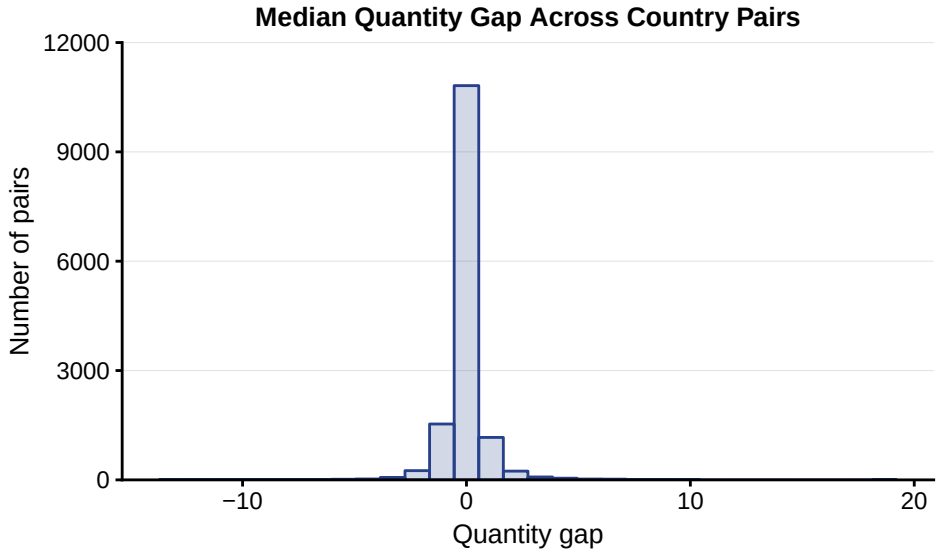
```
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0),  limits = c(0, 2000), minor_breaks = NULL) +
  labs(title="75th Percentile Quantity Gap Across Products") +
  labs(x="Quantity gap", y="Number of products")
```



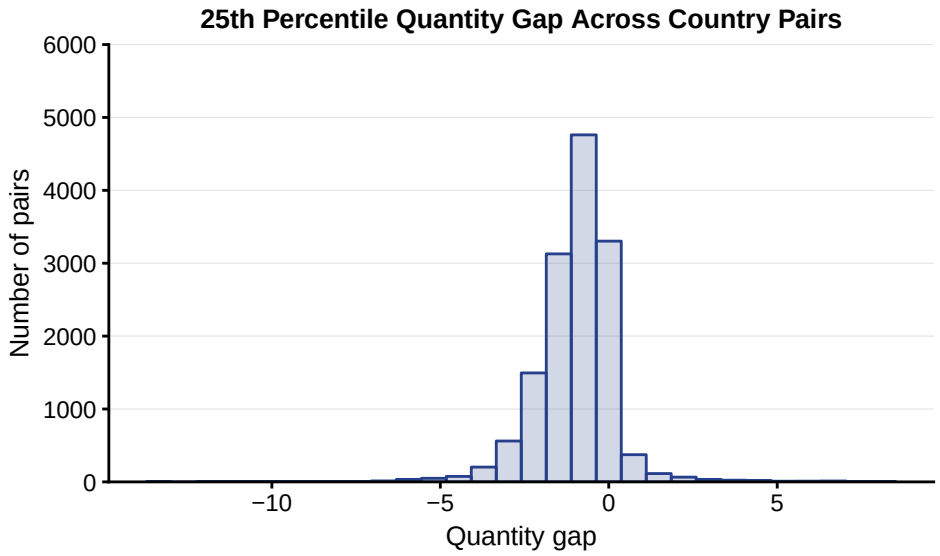

```
#Across countries?
countries <- hs12_qty[, .(mean = as.double(mean(Qty_log_gap)),
                          median = as.double(median(Qty_log_gap)),
                          p25 = as.double(quantile(Qty_log_gap,.25)),
                          p75 = as.double(quantile(Qty_log_gap,.75))
),
by= c("Importer", "Exporter")]

ggplot(data=countries, aes(mean)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(0, 8000),  minor_breaks = NULL) +
  labs(title="Mean Quantity Gap Across Country Pairs") +
  labs(x="Quantity gap", y="Number of pairs")
```



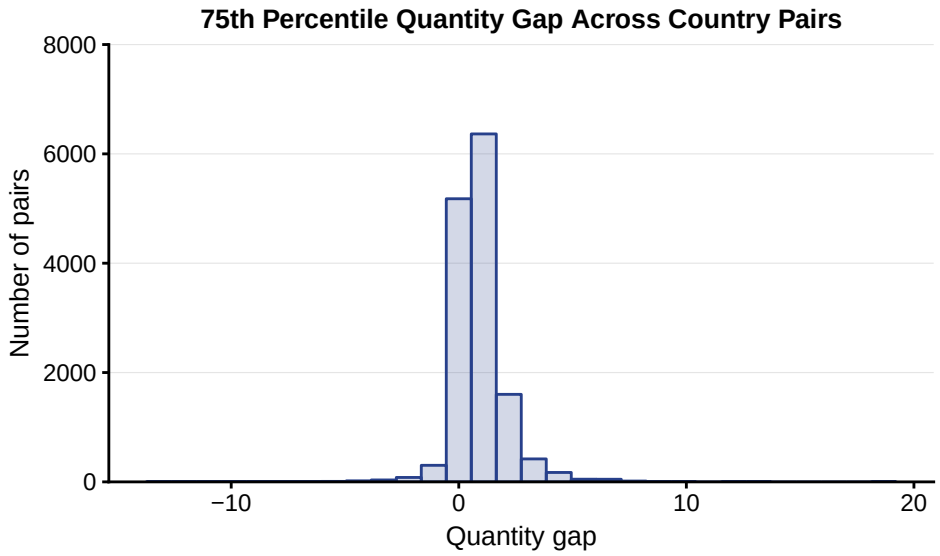

```
ggplot(data=countries, aes(median)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(0, 12000),  minor_breaks = NULL) +
  labs(title="Median Quantity Gap Across Country Pairs") +
  labs(x="Quantity gap", y="Number of pairs")
```




```
ggplot(data=countries, aes(p25)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(0, 6000),  minor_breaks = NULL) +
  labs(title="25th Percentile Quantity Gap Across Country Pairs") +
  labs(x="Quantity gap", y="Number of pairs")
```




```
ggplot(data=countries, aes(p75)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(0, 8000),  minor_breaks = NULL) +
  labs(title="75th Percentile Quantity Gap Across Country Pairs") +
  labs(x="Quantity gap", y="Number of pairs")
```




```
rm(periods, products, countries, hs12_qty)
```

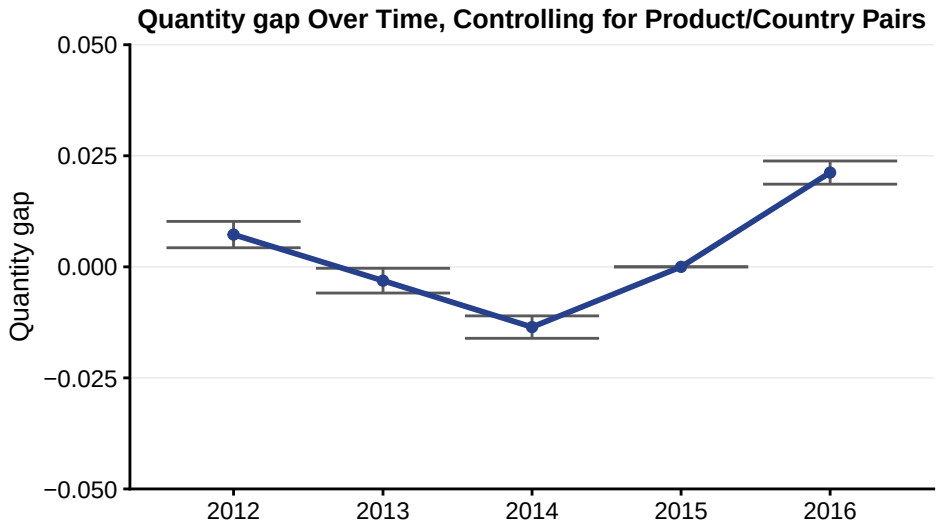
Year coefficients controlling for product codes and country pairs

```
load(paste(DataPath,"Analysis Data/hs12_qty.Rda", sep = "/"))

hs12_qty <- hs12_qty[, .(Period, `Commodity Code`, `Reporter Code`, `Partner Code`, Qty_log_gap)]

hs12_qty$Period <- as.Date(hs12_qty$Period, "%Y")
```

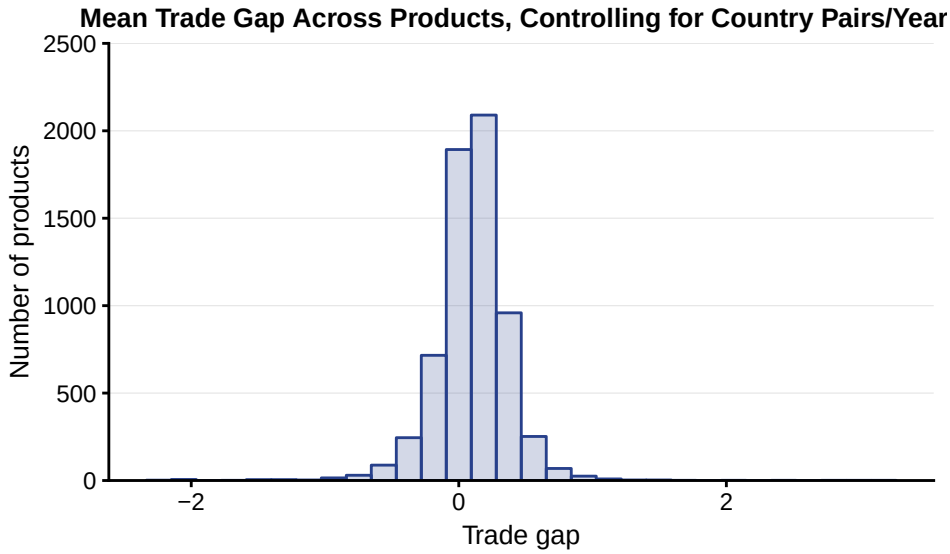
```r
hs12_qty$Period <- floor_date(hs12_qty$Period,"year")

hs12_qty$Period.f <- factor(hs12_qty$Period)
hs12_qty$Products.f <- factor(hs12_qty$`Commodity Code`)

hs12_qty$Importer.f <- factor(hs12_qty$`Reporter Code`)
hs12_qty$Exporter.f <- factor(hs12_qty$`Partner Code`)
hs12_qty$Pairs.f <- with(hs12_qty, interaction(Importer.f, Exporter.f))

hs12_qty <- hs12_qty[, .(Period, Qty_log_gap, Period.f, Products.f, Pairs.f)]

reg <- felm(Qty_log_gap ~ 1 | Period.f + Products.f + Pairs.f,
            data = hs12_qty,
            exactDOF = FALSE,
            keepX = FALSE,
            keepCX = FALSE)

fes <- getfe(reg,
             se=TRUE,
             bN = 50
)
```

```
## ...finished 24 of 56 vectors in 423 seconds
## ...finished 40 of 56 vectors in 728 seconds
```

```r
periodfes <- subset(fes,fe == "Period.f")

periodfes$ci_ub <- periodfes$effect + (1.96 * periodfes$se)
periodfes$ci_lb <- periodfes$effect - (1.96 * periodfes$se)
periodfes <- merge(periodfes,unique(hs12_qty[,list(Period,Period.f)]),
                   by.x = "idx",by.y="Period.f")
periodfes <- rename(periodfes, period = Period)

ggplot(data = periodfes, aes(period,effect)) +
  geom_errorbar(aes(ymin = ci_lb, ymax = ci_ub), color = "grey35") +
  geom_line(color = "royalblue4", size = 1) +
  geom_point(color = "royalblue4") +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(-.050,.050), minor_breaks = NULL) +
  xlab(label = "") +
  ylab(label = "Quantity gap") +
  labs(title = "Quantity gap Over Time, Controlling for Product/Country Pairs")
```

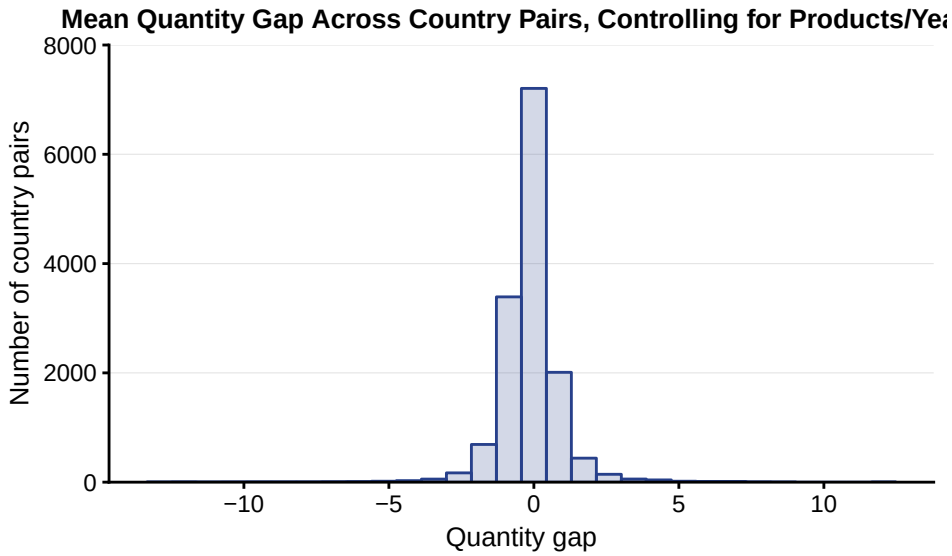



```
productfes <- subset(fes,fe == "Products.f")
productfes <- productfes[,c("effect","idx")]

ggplot(data=productfes, aes(effect)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
  background_grid(major = 'y', minor = "none") +
  scale_y_continuous(expand = c(0, 0), limits = c(0,2500), minor_breaks = NULL) +
  labs(title="Mean Trade Gap Across Products, Controlling for Country Pairs/Years") +
  labs(x="Trade gap", y="Number of products")
```




```
pairfes <- subset(fes,fe == "Pairs.f")
pairfes <- pairfes[,c("effect","idx")]

ggplot(data=pairfes, aes(effect)) +
  geom_histogram(col="royalblue4",
                 fill="royalblue4",
                 alpha=.2) +
  background_grid(major = 'y', minor = "none") +
```

```
  scale_y_continuous(expand = c(0, 0), limits = c(0,8000), minor_breaks = NULL) +
  labs(title="Mean Quantity Gap Across Country Pairs, Controlling for Products/Years") +
  labs(x="Quantity gap", y="Number of country pairs")
```




```
rm(fes, hs12_qty, pairfes, periodfes, productfes, reg)
```

What data is missing?

The first table looks at how many product x year x partner combinations each country reported as exports (`Reported Exports`), relative to the number of combinations that the same country was reported as a partner (`World Imports`). The second table repeats the first, but looking at imports.

```
#yearXproduct exports reported by country, relative to imports to country reported by world

load(paste(DataPath,"Analysis Data/imports_full12.Rda", sep = "/"))

imports_full12 <- rename(imports_full12, "Import Netweight (kg)" = "Netweight (kg)")
imports_full12 <- imports_full12[,
                      .(Period, Reporter, Partner, `Commodity Code`, `Import Netweight (kg)`)]

imports_full12[`Import Netweight (kg)`==""]$`Import Netweight (kg)` <- NA

load(paste(DataPath,"Analysis Data/exports_full12.Rda", sep = "/"))

exports <- rename(exports, "Export Netweight (kg)" = "Netweight (kg)")
exports <- exports[, .(Period, Reporter, Partner, `Commodity Code`, `Export Netweight (kg)`)]

exports[`Export Netweight (kg)`==""]$`Export Netweight (kg)` <- NA


rep_ex <- exports[!is.na(`Export Netweight (kg)`), unique(`Commodity Code`),
                  by = c("Reporter", "Period", "Partner")]
rep_ex <- rep_ex[, .N, by = "Reporter"]
rep_ex <- rename(rep_ex, "Reported Exports" = "N")

rep_ex2 <- imports_full12[!is.na(`Import Netweight (kg)`), unique(`Commodity Code`),
                          by = c("Partner", "Period", "Reporter")]
```

```
rep_ex2 <- rep_ex2[, .N, by = "Partner"]
rep_ex2 <- rename(rep_ex2, "World Imports" = "N")

rep_ex <- merge(rep_ex, rep_ex2, by.x = c("Reporter"), by.y = "Partner", all = T)

rep_ex[is.na(rep_ex)] <- 0
rep_ex$Share_Present <- rep_ex$`Reported Exports` / rep_ex$`World Imports`

rep_ex <- rep_ex[order(Share_Present)]
rep_ex$Reporter <- strtrim(rep_ex$Reporter, 15)
print(rep_ex, nrow=245)
```

```
##             Reporter Reported Exports World Imports Share_Present
##   1:     Afghanistan                0         23233         0.000
##   2:  American Samoa                0          7714         0.000
##   3:        Anguilla                0          2923         0.000
##   4:      Antarctica                0          1608         0.000
##   5: Antigua and Bar                0          7231         0.000
##   6:      Areas, nes                0        274420         0.000
##   7:        Barbados                0         12860         0.000
##   8:         Bonaire                0           916         0.000
##   9:   Bouvet Island                0           522         0.000
##  10: Br. Indian Ocea                0          1899         0.000
##  11: Br. Virgin Isds                0         13331         0.000
##  12:         Bunkers                0          5536         0.000
##  13:     Cayman Isds                0          7135         0.000
##  14: Central African                0          5006         0.000
##  15:            Chad                0          5645         0.000
##  16:  Christmas Isds                0          2493         0.000
##  17:      Cocos Isds                0          3228         0.000
##  18:         Comoros                0          3787         0.000
##  19:       Cook Isds                0          3499         0.000
##  20:            Cuba                0         19346         0.000
##  21:        CuraÃ§ao                0         17485         0.000
##  22: Dem. People's R                0         55278         0.000
##  23: Dem. Rep. of th                0         20098         0.000
##  24:        Djibouti                0          5471         0.000
##  25:        Dominica                0          9145         0.000
##  26: Equatorial Guin                0          5861         0.000
##  27:         Eritrea                0          4278         0.000
##  28:   FS Micronesia                0          1670         0.000
##  29:     Faeroe Isds                0         10922         0.000
##  30: Falkland Isds (                0          2025         0.000
##  31: Fr. South Antar                0          1064         0.000
##  32:      Free Zones                0         38274         0.000
##  33:           Gabon                0         18570         0.000
##  34:          Gambia                0          6270         0.000
##  35:       Gibraltar                0          8969         0.000
##  36:         Grenada                0          3776         0.000
##  37:            Guam                0          7963         0.000
##  38:   Guinea-Bissau                0          1794         0.000
##  39:          Guyana                0          9522         0.000
##  40:           Haiti                0         18286         0.000
##  41: Heard Island an                0           413         0.000
##  42: Holy See (Vatic                0          2443         0.000
##  43:            Iran                0        130721         0.000
##  44:            Iraq                0         18051         0.000
```

```
##  45:           Kenya              0        111936         0.000
##  46:        Kiribati              0          2234         0.000
##  47:       LAIA, nes              0          1836         0.000
##  48: Lao People's De              0         28392         0.000
##  49:         Lesotho              0         15798         0.000
##  50:         Liberia              0          7979         0.000
##  51:           Libya              0         11625         0.000
##  52:            Mali              0         18817         0.000
##  53:   Marshall Isds              0          3188         0.000
##  54:         Mayotte              0          1065         0.000
##  55:      Montserrat              0          2881         0.000
##  56:      Mozambique              0         26341         0.000
##  57: N. Mariana Isds              0          1877         0.000
##  58:           Nauru              0          4717         0.000
##  59:         Nigeria              0         69208         0.000
##  60:            Niue              0          3342         0.000
##  61:    Norfolk Isds              0           725         0.000
##  62: North America a              0           198         0.000
##  63:    Oceania, nes              0           644         0.000
##  64: Other Africa, n              0          1865         0.000
##  65: Other Europe, n              0        159839         0.000
##  66:     Philippines              0        331916         0.000
##  67:        Pitcairn              0          1693         0.000
##  68: Saint BarthÃ©le              0          1668         0.000
##  69:    Saint Helena              0          3552         0.000
##  70: Saint Kitts and              0          4134         0.000
##  71:     Saint Lucia              0          4206         0.000
##  72:   Saint Maarten              0          2980         0.000
##  73: Saint Pierre an              0          1517         0.000
##  74: Saint Vincent a              0          3236         0.000
##  75:      San Marino              0         21870         0.000
##  76: Sao Tome and Pr              0          3830         0.000
##  77:      Seychelles              0         15413         0.000
##  78:    Sierra Leone              0         26285         0.000
##  79:         Somalia              0          5390         0.000
##  80: South Georgia a              0           372         0.000
##  81:     South Sudan              0          1287         0.000
##  82: Special Categor              0          1437         0.000
##  83:        Suriname              0         15216         0.000
##  84:       Swaziland              0         48139         0.000
##  85:           Syria              0         57335         0.000
##  86:      Tajikistan              0         11500         0.000
##  87:     Timor-Leste              0          3446         0.000
##  88:         Tokelau              0          9442         0.000
##  89: Trinidad and To              0         24030         0.000
##  90:    Turkmenistan              0         11917         0.000
##  91: Turks and Caico              0          5207         0.000
##  92:          Tuvalu              0          1653         0.000
##  93: United States M              0          5144         0.000
##  94:      Uzbekistan              0         27428         0.000
##  95:         Vanuatu              0          4394         0.000
##  96:       Venezuela              0         64764         0.000
##  97: Wallis and Futu              0          1013         0.000
##  98:  Western Sahara              0           984         0.000
##  99:           World              0       3052658         0.000
## 100:          Angola            320         22105         0.014
## 101:      Mauritania            888         11552         0.077
```

```
## 102:          Panama            12897        139820         0.092
## 103: Papua New Guine             1689         15763         0.107
## 104:         Myanmar             9955         56256         0.177
## 105:        Maldives             1820          9937         0.183
## 106:           Sudan             3064         14844         0.206
## 107: China, Macao SA            11518         46694         0.247
## 108:          Bhutan             1298          4512         0.288
## 109:          Nepal             20723         66383         0.312
## 110:          Congo              4954         15258         0.325
## 111:    Burkina Faso             3871         11817         0.328
## 112:          Qatar             24598         71123         0.346
## 113:      Bangladesh            65605        167232         0.392
## 114:        Honduras            33533         80206         0.418
## 115:         Albania            28417         67699         0.420
## 116:          Ghana             22618         53758         0.421
## 117:        Cambodia            43323        102759         0.422
## 118:         Morocco            88983        209117         0.426
## 119:           Egypt           110831        257549         0.430
## 120:        Viet Nam           225121        498563         0.452
## 121:           Niger             6651         13655         0.487
## 122:            Togo             8627         17098         0.505
## 123: Rep. of Moldova            33447         65753         0.509
## 124:         Ukraine           158370        307560         0.515
## 125:    Saudi Arabia            96525        185743         0.520
## 126:    Solomon Isds             1943          3633         0.535
## 127: State of Palest             3845          7156         0.537
## 128:        Pakistan           176351        299492         0.589
## 129:          Israel           245592        402791         0.610
## 130: Bolivia (Plurin            24868         40354         0.616
## 131:         Tunisia           118038        187443         0.630
## 132:          Belize            10716         16651         0.644
## 133:          Guinea             7980         12138         0.657
## 134:         Burundi             4361          6423         0.679
## 135:  CÃ´te d'Ivoire            25472         36678         0.694
## 136:        Cameroon            28212         40505         0.697
## 137: China, Hong Kon           538753        752126         0.716
## 138:        Malaysia           429481        597671         0.719
## 139:           Benin             7331          9813         0.747
## 140:          Cyprus            79786        106567         0.749
## 141:       Nicaragua            38980         50654         0.770
## 142:           Japan           817578       1051378         0.778
## 143:         Senegal            30742         38366         0.801
## 144: Other Asia, nes           779847        937016         0.832
## 145:       Sri Lanka           168453        199831         0.843
## 146:         Andorra            16204         19118         0.848
## 147:           Malta            73899         86967         0.850
## 148:       Greenland             5013          5762         0.870
## 149:        Zimbabwe            29459         32748         0.900
## 150:        Slovenia           397201        440550         0.902
## 151:          Mexico           542244        600959         0.902
## 152:         Algeria            22206         24433         0.909
## 153:         Iceland            70253         77081         0.911
## 154:             USA          1701509       1862141         0.914
## 155:           Tonga             2706          2961         0.914
## 156:         Ecuador            94621        103359         0.915
## 157:      Azerbaijan            26554         28900         0.919
## 158:         Finland           479314        519999         0.922
```

```
## 159:          Ireland          375600        406342        0.924
## 160:          Uruguay           74656         78543        0.951
## 161:           Malawi           13808         14453        0.955
## 162:         Bulgaria          389322        406500        0.958
## 163:       Kyrgyzstan           16483         17163        0.960
## 164:           Canada          736618        764391        0.964
## 165:            India         1157845       1182261        0.979
## 166:        Indonesia          569783        580858        0.981
## 167:         Thailand          757594        771112        0.982
## 168:         Ethiopia           34162         34520        0.990
## 169:        Australia          593745        595916        0.996
## 170:         Slovakia          432736        431573        1.003
## 171:         Mongolia           18875         18523        1.019
## 172:    New Caledonia           13581         13205        1.028
## 173:            Chile          213466        207350        1.029
## 174:          Austria          944075        895819        1.054
## 175:          Romania          484714        458867        1.056
## 176:           Greece          443034        418903        1.058
## 177:          Hungary          603421        568942        1.061
## 178:        Argentina          293220        274852        1.067
## 179:          Bermuda            5991          5607        1.068
## 180:    Rep. of Korea         1002807        925999        1.083
## 181:           Jordan           99230         90927        1.091
## 182:          Bahamas           13490         12277        1.099
## 183:          Armenia           35438         31843        1.113
## 184:        Singapore          608856        546266        1.115
## 185:           Sweden          926312        818194        1.132
## 186:           Norway          436868        384936        1.135
## 187:          Estonia          287059        249597        1.150
## 188: Bosnia Herzegov           152356        132333        1.151
## 189:            Italy         1912552       1652640        1.157
## 190:            China         2419203       2087668        1.159
## 191:   United Kingdom         1754300       1510353        1.162
## 192:         Colombia          265752        226319        1.174
## 193:      Switzerland         1097902        924881        1.187
## 194:        Mauritius           94534         79542        1.188
## 195:       Madagascar           65150         54768        1.190
## 196: TFYR of Macedon           130411        108553        1.201
## 197:           Serbia          314167        261017        1.204
## 198:           Brazil          696178        576167        1.208
## 199:   Dominican Rep.          108640         89595        1.213
## 200:           Kuwait           66683         54656        1.220
## 201:      Netherlands         1556668       1271105        1.225
## 202:        Guatemala          140739        114082        1.234
## 203:             Peru          239847        194050        1.236
## 204:         Paraguay           40038         31898        1.255
## 205:          Lebanon          167006        132822        1.257
## 206:          Czechia          949874        751406        1.264
## 207:          Croatia          320861        252140        1.273
## 208:      El Salvador          106955         83981        1.274
## 209:       Luxembourg          290138        227641        1.275
## 210:           France         1988012       1542579        1.289
## 211:           Poland         1125707        873199        1.289
## 212:           Zambia           43267         33556        1.289
## 213:             Oman           76096         58592        1.299
## 214:          Denmark         1019503        781868        1.304
## 215:         Portugal          728948        558880        1.304
```

```
## 216:           Spain          1714394       1303533         1.315
## 217:          Latvia           302926        230274         1.316
## 218: Russian Federat           602706        455293         1.324
## 219:         Germany          2521086       1893704         1.331
## 220:          Turkey          1333660        979631         1.361
## 221:       Lithuania           440031        321042         1.371
## 222:     New Zealand           420971        305166         1.379
## 223:         Belarus           199161        144203         1.381
## 224:         Belgium          1569511       1136322         1.381
## 225:           Aruba            13782          9949         1.385
## 226:         Jamaica            33110         23307         1.421
## 227:         Georgia            83809         58818         1.425
## 228: United Rep. of             76033         53255         1.428
## 229:      Costa Rica           184010        128684         1.430
## 230: United Arab Emi           757167        529115         1.431
## 231:        Botswana            52764         36695         1.438
## 232:         Bahrain            81964         54522         1.503
## 233:    South Africa           801239        509793         1.572
## 234:           Yemen            20632         13079         1.577
## 235:          Uganda            64834         40336         1.607
## 236:           Samoa             9516          5374         1.771
## 237: Brunei Darussal            28056         15198         1.846
## 238:      Montenegro            47261         24767         1.908
## 239: French Polynesi            18519          9132         2.028
## 240:          Rwanda            20508          8926         2.298
## 241:      Kazakhstan           127108         53429         2.379
## 242:            Fiji            67170         27547         2.438
## 243:         Namibia           124697         49614         2.513
## 244:      Cabo Verde            18344          7136         2.571
## 245:           Palau             3802          1238         3.071
##             Reporter Reported Exports World Imports Share_Present
```

```
rm(rep_ex, rep_ex2)

#yearXproduct imports reported by country, relative to exports to country reported by world

rep_im <- imports_full12[!is.na(`Import Netweight (kg)`), unique(`Commodity Code`),
                         by = c("Reporter", "Period", "Partner")]
rep_im <- rep_im[, .N, by = "Reporter"]
rep_im <- rename(rep_im, "Reported Imports" = "N")

rep_im2 <- exports[!is.na(`Export Netweight (kg)`), unique(`Commodity Code`),
                   by = c("Partner", "Period", "Reporter")]
rep_im2 <- rep_im2[, .N, by = "Partner"]
rep_im2 <- rename(rep_im2, "World Exports" = "N")

rep_im <- merge(rep_im, rep_im2, by.x = c("Reporter"), by.y = "Partner", all = T)

rep_im[is.na(rep_im)] <- 0
rep_im$Share_Present <- rep_im$`Reported Imports` / rep_im$`World Exports`

rep_im <- rep_im[order(Share_Present)]
rep_im$Reporter <- strtrim(rep_im$Reporter, 15)
print(rep_im, nrow=245)
```

```
##             Reporter Reported Imports World Exports Share_Present
##   1:     Afghanistan                0         99896          0.00
##   2:  American Samoa                0         13346          0.00
```

```
##   3:        Anguilla              0         11349          0.00
##   4:      Antarctica              0          8528          0.00
##   5: Antigua and Bar              0         42328          0.00
##   6:      Areas, nes              0        136947          0.00
##   7:        Barbados              0         73310          0.00
##   8:         Bonaire              0         10405          0.00
##   9:   Bouvet Island              0           392          0.00
##  10: Br. Indian Ocea              0          1287          0.00
##  11: Br. Virgin Isds              0         34225          0.00
##  12:         Bunkers              0         62631          0.00
##  13:     Cayman Isds              0         39439          0.00
##  14: Central African              0         28145          0.00
##  15:            Chad              0         56795          0.00
##  16:  Christmas Isds              0          7843          0.00
##  17:      Cocos Isds              0          2447          0.00
##  18:         Comoros              0         31813          0.00
##  19:       Cook Isds              0         25757          0.00
##  20:            Cuba              0        144415          0.00
##  21:        CuraÃ§ao              0         88683          0.00
##  22: Dem. People's R              0         39547          0.00
##  23: Dem. Rep. of th              0        153092          0.00
##  24:        Djibouti              0         82321          0.00
##  25:        Dominica              0         28864          0.00
##  26: Equatorial Guin              0        103256          0.00
##  27:         Eritrea              0         31517          0.00
##  28:   FS Micronesia              0         14850          0.00
##  29:     Faeroe Isds              0         60812          0.00
##  30: Falkland Isds (              0         11462          0.00
##  31: Fr. South Antar              0          8006          0.00
##  32:      Free Zones              0         59903          0.00
##  33:           Gabon              0        126857          0.00
##  34:          Gambia              0         57386          0.00
##  35:       Gibraltar              0         60025          0.00
##  36:         Grenada              0         28954          0.00
##  37:            Guam              0         32285          0.00
##  38:   Guinea-Bissau              0         32127          0.00
##  39:          Guyana              0         62548          0.00
##  40:           Haiti              0         83570          0.00
##  41: Heard Island an              0           263          0.00
##  42: Holy See (Vatic              0          3126          0.00
##  43:            Iran              0        245475          0.00
##  44:            Iraq              0        214600          0.00
##  45:           Kenya              0        235314          0.00
##  46:        Kiribati              0         24066          0.00
##  47:       LAIA, nes              0          2242          0.00
##  48: Lao People's De              0         66239          0.00
##  49:         Lesotho              0         39013          0.00
##  50:         Liberia              0         86729          0.00
##  51:           Libya              0        174842          0.00
##  52:            Mali              0         95226          0.00
##  53:   Marshall Isds              0         27613          0.00
##  54:         Mayotte              0         14467          0.00
##  55:      Montserrat              0          5371          0.00
##  56:      Mozambique              0        151325          0.00
##  57: N. Mariana Isds              0         11250          0.00
##  58:           Nauru              0         11855          0.00
##  59:         Nigeria              0        282295          0.00
```

```
##  60:            Niue                0          9059          0.00
##  61:    Norfolk Isds                0          9365          0.00
##  62: North America a                0           798          0.00
##  63:    Oceania, nes                0          4226          0.00
##  64: Other Africa, n                0         14897          0.00
##  65: Other Europe, n                0         20725          0.00
##  66:     Philippines                0        335511          0.00
##  67:        Pitcairn                0          1062          0.00
##  68: Saint BarthÃ©le                0         11710          0.00
##  69:    Saint Helena                0         16201          0.00
##  70: Saint Kitts and                0         25718          0.00
##  71:     Saint Lucia                0         39085          0.00
##  72:   Saint Maarten                0         32586          0.00
##  73: Saint Pierre an                0         20032          0.00
##  74: Saint Vincent a                0         28211          0.00
##  75:      San Marino                0         25661          0.00
##  76: Sao Tome and Pr                0         26306          0.00
##  77:      Seychelles                0        108640          0.00
##  78:    Sierra Leone                0         78273          0.00
##  79:         Somalia                0         44222          0.00
##  80: South Georgia a                0           681          0.00
##  81:     South Sudan                0         22612          0.00
##  82: Special Categor                0          2291          0.00
##  83:        Suriname                0         79284          0.00
##  84:       Swaziland                0         47052          0.00
##  85:           Syria                0         98870          0.00
##  86:      Tajikistan                0         78620          0.00
##  87:     Timor-Leste                0         42950          0.00
##  88:         Tokelau                0          2856          0.00
##  89: Trinidad and To                0        131405          0.00
##  90:    Turkmenistan                0        125469          0.00
##  91: Turks and Caico                0         21030          0.00
##  92:          Tuvalu                0         10422          0.00
##  93: United States M                0          4365          0.00
##  94:      Uzbekistan                0        154780          0.00
##  95:         Vanuatu                0         50701          0.00
##  96:       Venezuela                0        215409          0.00
##  97: Wallis and Futu                0         16265          0.00
##  98:  Western Sahara                0           820          0.00
##  99:           World                0       2172909          0.00
## 100: Papua New Guine            15866        111848          0.14
## 101:      Mauritania            15470         93751          0.17
## 102:           Congo            36425        151898          0.24
## 103:         Myanmar            35272        137152          0.26
## 104:           Sudan            38022        145360          0.26
## 105:    Burkina Faso            29518         89584          0.33
## 106:           Ghana            84691        224990          0.38
## 107:            Togo            39332         95962          0.41
## 108:  CÃ´te d'Ivoire            71377        168432          0.42
## 109:         Ukraine           201476        397765          0.51
## 110:           Benin            46084         89463          0.52
## 111:           Tonga            16480         30595          0.54
## 112:           Egypt           198335        357256          0.56
## 113:         Senegal            95472        165536          0.58
## 114:        Viet Nam           227608        378749          0.60
## 115:    Saudi Arabia           275155        439512          0.63
## 116:         Morocco           180087        286481          0.63
```

```
## 117:      Kyrgyzstan           79235        121880         0.65
## 118: Rep. of Moldova          130270        198215         0.66
## 119:          Angola          170164        244082         0.70
## 120:          Bhutan           14241         19626         0.73
## 121:          Guinea           79228        108291         0.73
## 122:        Honduras          120447        160090         0.75
## 123: China, Macao SA           75660         95673         0.79
## 124: China, Hong Kon          408321        510841         0.80
## 125:         Burundi           35605         43257         0.82
## 126: State of Palest           26093         31129         0.84
## 127:      Azerbaijan          189066        221972         0.85
## 128:         Lebanon          248353        288203         0.86
## 129:      Bangladesh          182770        207096         0.88
## 130:         Albania          157312        177495         0.89
## 131:             USA          840534        934027         0.90
## 132:          Panama          243217        268758         0.90
## 133:           Niger           52328         57483         0.91
## 134:    Solomon Isds           35339         38641         0.91
## 135:         Bahamas           67032         72422         0.93
## 136:   New Caledonia          105958        114357         0.93
## 137:        Cambodia          119224        127490         0.94
## 138:          Israel          358616        381472         0.94
## 139:        Malaysia          408561        433239         0.94
## 140:           India          486837        509138         0.96
## 141:        Pakistan          250685        261765         0.96
## 142:        Ethiopia          136862        142179         0.96
## 143:           Japan          538746        549882         0.98
## 144:           Aruba           66400         66210         1.00
## 145:        Mongolia          125762        122612         1.03
## 146:          Cyprus          297324        287555         1.03
## 147:          Malawi           73476         71011         1.03
## 148:           Yemen          113935        109119         1.04
## 149:       Singapore          541529        510784         1.06
## 150:         Finland          464438        435296         1.07
## 151: Other Asia, nes          445931        414298         1.08
## 152:           Malta          258174        236619         1.09
## 153:        Bulgaria          455775        413780         1.10
## 154:          Latvia          410297        370992         1.11
## 155:          Greece          480917        434257         1.11
## 156:          Jordan          286275        257787         1.11
## 157:        Cameroon          166941        148679         1.12
## 158:  United Kingdom          890400        783915         1.14
## 159: United Arab Emi          668325        581337         1.15
## 160:  Dominican Rep.          240609        208093         1.16
## 161:          Kuwait          332762        286931         1.16
## 162:         Andorra           74887         64491         1.16
## 163:       Australia          651381        558563         1.17
## 164:           China          781963        663726         1.18
## 165:           Italy          880950        743953         1.18
## 166:         Hungary          542956        456871         1.19
## 167:           Nepal           95725         80333         1.19
## 168:       Lithuania          482837        401518         1.20
## 169:       Sri Lanka          262513        216472         1.21
## 170:           Qatar          352364        290168         1.21
## 171:        Slovenia          466873        384162         1.22
## 172:          Sweden          646853        530426         1.22
## 173:         Germany         1148011        936026         1.23
```

```
## 174:         Austria          640696        519461         1.23
## 175: Russian Federat          747753        604745         1.24
## 176:         Tunisia          291321        234175         1.24
## 177:         Jamaica          124189         99306         1.25
## 178:         Belgium          765611        611997         1.25
## 179:        Thailand          548990        431158         1.27
## 180:        Portugal          510868        399868         1.28
## 181:          Turkey          641326        499273         1.28
## 182:            Oman          302786        233486         1.30
## 183:         Romania          619720        475180         1.30
## 184:         Ecuador          299796        229320         1.31
## 185:          Brazil          552881        421141         1.31
## 186:       Argentina          367798        279538         1.32
## 187:         Algeria          304057        230534         1.32
## 188: Brunei Darussal          136478        103322         1.32
## 189:     Netherlands          927263        689442         1.34
## 190:       Guatemala          283921        210525         1.35
## 191:          Poland          774875        574444         1.35
## 192:           Chile          502380        367303         1.37
## 193:         Estonia          495236        361349         1.37
## 194:           Spain          889254        647990         1.37
## 195:          Serbia          515834        375133         1.38
## 196:      Cabo Verde           85292         61153         1.39
## 197:         Ireland          502537        359908         1.40
## 198:            Fiji          135835         97192         1.40
## 199:         Croatia          500701        356923         1.40
## 200:        Colombia          466499        321256         1.45
## 201:         Uruguay          324028        222424         1.46
## 202:          France         1155790        774169         1.49
## 203:       Indonesia          540344        361426         1.50
## 204:            Peru          445052        296790         1.50
## 205:         Belarus          393758        262398         1.50
## 206:         Denmark          707181        471235         1.50
## 207:   Rep. of Korea          728603        485089         1.50
## 208:          Belize           84662         55940         1.51
## 209:        Paraguay          244351        161165         1.52
## 210:        Slovakia          591929        388012         1.53
## 211:         Czechia          760001        497505         1.53
## 212:      Kazakhstan          466103        300973         1.55
## 213:         Armenia          226190        144913         1.56
## 214:    South Africa          726231        465130         1.56
## 215:       Mauritius          296850        190093         1.56
## 216: Bolivia (Plurin          272186        173594         1.57
## 217:          Norway          695304        443388         1.57
## 218:          Zambia          201343        128338         1.57
## 219:     Switzerland          893987        568501         1.57
## 220:         Georgia          358898        226395         1.59
## 221:         Bahrain          358030        225400         1.59
## 222:          Mexico          666384        417046         1.60
## 223:          Canada          839627        520670         1.61
## 224:     New Zealand          577082        353631         1.63
## 225:        Maldives          200800        122715         1.64
## 226:       Nicaragua          232307        141109         1.65
## 227: TFYR of Macedon          379662        228349         1.66
## 228:      Luxembourg          414367        241942         1.71
## 229:           Samoa           66483         38744         1.72
## 230:          Uganda          216080        125586         1.72
```

```
## 231:        Zimbabwe           177096        101892          1.74
## 232:        Botswana           125004         70998          1.76
## 233: United Rep. of            318510        176788          1.80
## 234: Bosnia Herzegov           447892        242433          1.85
## 235:      Montenegro           301786        159721          1.89
## 236:          Rwanda           142823         73260          1.95
## 237:         Namibia           196241        100495          1.95
## 238:         Iceland           399557        196839          2.03
## 239:      Costa Rica           446590        219197          2.04
## 240:     El Salvador           333950        161518          2.07
## 241:      Madagascar           242529        117093          2.07
## 242: French Polynesi           195565         90464          2.16
## 243:       Greenland           103983         46030          2.26
## 244:         Bermuda            97959         42611          2.30
## 245:           Palau            64824         16300          3.98
##             Reporter Reported Imports World Exports Share_Present
```

```
rm(rep_im, rep_im2, exports, imports_full12)
```

Origin x year combinations, per commodity code

The following tables look at the number of origin x year combinations per reporter (`Reporter Pairs`) vs the number of combinations per partner (`Partner Pairs`) for reported exports and then reported imports.

```
#For each product how many origin X month combinations
load(paste(DataPath,"Analysis Data/imports_full12.Rda", sep = "/"))

imports_full12 <- rename(imports_full12, "Import Netweight (kg)" = "Netweight (kg)")
imports_full12 <- imports_full12[,
                .(Period, Reporter, Partner, `Commodity Code`, Commodity, `Import Netweight (kg)`)]

imports_full12[`Import Netweight (kg)`==""]$`Import Netweight (kg)` <- NA

load(paste(DataPath,"Analysis Data/exports_full12.Rda", sep = "/"))

exports <- rename(exports, "Export Netweight (kg)" = "Netweight (kg)")
exports <- exports[,
            .(Period, Reporter, Partner, `Commodity Code`, Commodity, `Export Netweight (kg)`)]

exports[`Export Netweight (kg)`==""]$`Export Netweight (kg)` <- NA

prod_ex <- exports[!is.na(`Export Netweight (kg)`), unique(`Reporter`),
                   by = c("Commodity", "Period")]
prod_ex <- prod_ex[, .N, by = "Commodity"]
prod_ex <- rename(prod_ex, "Reporter Pairs" = "N")

prod_expartner <- imports_full12[!is.na(`Import Netweight (kg)`), unique(`Partner`),
                                 by = c("Commodity", "Period")]
prod_expartner <- prod_expartner[, .N, by = "Commodity"]
prod_expartner <- rename(prod_expartner, "Partner Pairs" = "N")

prod_ex <- merge(prod_ex, prod_expartner, by = c("Commodity"), all = T)

prod_ex$Share <- prod_ex$`Reporter Pairs` / prod_ex$`Partner Pairs`

prod_ex$Commodity <- strtrim(prod_ex$Commodity, 50)
pander(prod_ex[order(Share)][1:25])
```

Commodity	Reporter Pairs	Partner Pairs	Share
Furskins and artificial fur; manufactures thereof	1	12	0.08333
Prepared feathers and down and articles made of fe	1	8	0.125
Aircraft, spacecraft, and parts thereof	1	7	0.1429
Products of animal origin, not elsewhere specified	1	7	0.1429
Raw hides and skins (other than furskins) and leat	1	6	0.1667
Cereals	1	4	0.25
Organic chemicals // Carboxyamide-function compoun	18	67	0.2687
Wood and articles of wood; wood charcoal // Wood i	48	176	0.2727
Wood and articles of wood; wood charcoal // Wood s	87	300	0.29
Ores, slag and ash // Uranium or thorium ores and	30	102	0.2941
Miscellaneous chemical products // Prepared binder	23	74	0.3108
Articles of apparel and clothing accessories, knit	1	3	0.3333
Electrical machinery and equipment and parts there	1	3	0.3333
Musical instruments; parts and accessories of such	1	3	0.3333
Ships, boats and floating structures // Vessels an	137	406	0.3374
Ships, boats and floating structures // Vessels an	137	406	0.3374
Organic chemicals // Halogenated, sulphonated, nit	22	65	0.3385
Ores, slag and ash // Uranium or thorium ores and	49	144	0.3403
Ships, boats and floating structures // Other vess	32	94	0.3404
Ores, slag and ash // Uranium or thorium ores and	26	76	0.3421
Pulp of wood or of other fibrous cellulosic materi	46	130	0.3538
Wood and articles of wood; wood charcoal // Wood i	200	560	0.3571
Works of art, collectors' pieces and antiques // P	272	743	0.3661
Works of art, collectors' pieces and antiques // P	272	743	0.3661
Salt; sulphur; earths and stone; plastering materi	21	57	0.3684

```
pander(prod_ex[order(-Share)][1:25])
```

Commodity	Reporter Pairs	Partner Pairs	Share
Aircraft, spacecraft, and parts thereof // Other a	232	212	1.094

Commodity	Reporter Pairs	Partner Pairs	Share
Nuclear reactors, boilers, machinery and mechanica	211	204	1.034
Nuclear reactors, boilers, machinery and mechanica	158	156	1.013
Railway or tramway locomotives, rolling-stock and	163	164	0.9939
Vehicles other than railway or tramway rolling-sto	260	262	0.9924
Nuclear reactors, boilers, machinery and mechanica	205	207	0.9903
Meat and edible meat offal // Edible offal of bovi	285	288	0.9896
Aircraft, spacecraft, and parts thereof // Other a	282	289	0.9758
Meat and edible meat offal // Edible offal of bovi	276	283	0.9753
Oil seeds and oleaginous fruits; miscellaneous gra	154	158	0.9747
Dairy produce; birds' eggs; natural honey; edible	335	345	0.971
Live animals // Live swine. // - Other : // – Wei	210	218	0.9633
Nuclear reactors, boilers, machinery and mechanica	306	318	0.9623
Cotton // Cotton yarn (other than sewing thread),	67	70	0.9571
Inorganic chemicals; organic or inorganic compound	281	294	0.9558
Preparations of meat, of fish or of crustaceans, m	101	106	0.9528
Meat and edible meat offal // Meat and edible meat	279	293	0.9522
Organic chemicals // Organo-sulphur compounds. //	195	205	0.9512
Organic chemicals // Carboxyimide-function compoun	290	305	0.9508
Live animals // Live swine.	268	282	0.9504
Nuclear reactors, boilers, machinery and mechanica	227	239	0.9498
Nuclear reactors, boilers, machinery and mechanica	222	234	0.9487
Live animals // Live swine. // -Pure-bred breeding	200	211	0.9479
Meat and edible meat offal // Pig fat, free of lea	268	283	0.947
Vehicles other than railway or tramway rolling-sto	314	332	0.9458

```
rm(prod_ex, prod_expartner)

prod_im <- imports_full12[!is.na(`Import Netweight (kg)`), unique(`Reporter`),
                          by = c("Commodity", "Period")]
prod_im <- prod_im[, .N, by = "Commodity"]
prod_im <- rename(prod_im, "Reporter Pairs" = "N")
```

```
prod_impartner <- exports[!is.na(`Export Netweight (kg)`), unique(`Partner`),
                          by = c("Commodity", "Period")]
prod_impartner <- prod_impartner[, .N, by = "Commodity"]
prod_impartner <- rename(prod_impartner, "Partner Pairs" = "N")

prod_im <- merge(prod_im, prod_impartner, by = c("Commodity"), all = T)

prod_im$Share <- prod_im$`Reporter Pairs` / prod_im$`Partner Pairs`

prod_im$Commodity <- strtrim(prod_im$Commodity, 50)
pander(prod_im[order(Share)][1:25])
```

Commodity	Reporter Pairs	Partner Pairs	Share
Tobacco and manufactured tobacco substitutes	1	16	0.0625
Printed books, newspapers, pictures and other prod	1	13	0.07692
Prepared feathers and down and articles made of fe	1	10	0.1
Aircraft, spacecraft, and parts thereof	1	8	0.125
Electrical machinery and equipment and parts there	1	7	0.1429
Musical instruments; parts and accessories of such	1	5	0.2
Articles of apparel and clothing accessories, knit	1	4	0.25
Raw hides and skins (other than furskins) and leat	1	4	0.25
Cereals	1	3	0.3333
Manufactures of straw, of esparto or of other plai	1	3	0.3333
Products of animal origin, not elsewhere specified	1	3	0.3333
Tools, implements, cutlery, spoons and forks, of b	1	3	0.3333
Ships, boats and floating structures // Other vess	61	175	0.3486
Organic chemicals // Halogenated derivatives of hy	117	316	0.3703
Other base metals; cermets; articles thereof // Be	12	32	0.375
Organic chemicals // Epoxides, epoxyalcohols, epox	92	244	0.377
Electrical machinery and equipment and parts there	441	1163	0.3792
Nuclear reactors, boilers, machinery and mechanica	434	1122	0.3868
Optical, photographic, cinematographic, measuring,	445	1149	0.3873
Optical, photographic, cinematographic, measuring,	452	1165	0.388
Electrical machinery and equipment and parts there	438	1122	0.3904
Electrical machinery and equipment and parts there	436	1094	0.3985

Commodity	Reporter Pairs	Partner Pairs	Share
Nuclear reactors, boilers, machinery and mechanica	444	1112	0.3993
Nuclear reactors, boilers, machinery and mechanica	444	1112	0.3993
Electrical machinery and equipment and parts there	449	1119	0.4013

```
pander(prod_im[order(-Share)][1:25])
```

Commodity	Reporter Pairs	Partner Pairs	Share
Ores, slag and ash // Uranium or thorium ores and	56	28	2
Pulp of wood or of other fibrous cellulosic materi	146	77	1.896
Wood and articles of wood; wood charcoal // Wood i	155	84	1.845
Organic chemicals // Halogenated derivatives of hy	218	126	1.73
Miscellaneous chemical products // Residual produc	77	45	1.711
Organic chemicals // Carboxyamide-function compoun	44	27	1.63
Ores, slag and ash // Uranium or thorium ores and	109	69	1.58
Organic chemicals // Halogenated derivatives of hy	103	66	1.561
Ores, slag and ash // Uranium or thorium ores and	78	52	1.5
Nuclear reactors, boilers, machinery and mechanica	241	166	1.452
Organic chemicals // Vegetable alkaloids, natural	66	47	1.404
Organic chemicals // Carboxyamide-function compoun	113	81	1.395
Pulp of wood or of other fibrous cellulosic materi	101	73	1.384
Organic chemicals // Heterocyclic compounds with n	69	50	1.38
Fish and crustaceans, molluscs and other aquatic i	72	54	1.333
Salt; sulphur; earths and stone; plastering materi	52	41	1.268
Miscellaneous chemical products // Prepared binder	136	111	1.225
Organic chemicals // Saturated acyclic monocarboxy	132	110	1.2
Miscellaneous chemical products // Prepared binder	92	77	1.195
Organic chemicals // Heterocyclic compounds with n	92	77	1.195
Wood and articles of wood; wood charcoal // Wood s	217	187	1.16
Photographic or cinematographic goods // Photograp	234	202	1.158

Commodity	Reporter Pairs	Partner Pairs	Share
Salt; sulphur; earths and stone; plastering materi	214	187	1.144
Natural or cultured pearls, precious or semi-preci	345	308	1.12
Fish and crustaceans, molluscs and other aquatic i	109	98	1.112

```
rm(prod_im, prod_impartner, exports, imports_full12)
```