"Covid_GovMeasures_BivariateViz"

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```
library(tseries)
```

```
## Registered S3 method overwritten by 'quantmod':
##   method            from
##   as.zoo.data.frame zoo
```

```
library(tidyr)
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
```

```
library(ggplot2)
library(caret)
```

```
## Loading required package: lattice
```

```
library(ggridges)

df0 <- read.csv(file="HS614_COVID_dataset.csv", header=TRUE)
head(df0)
```

```
##   country    date confirmed deaths new_confirmed new_deaths tagged_day
## 1   Italy 2/21/20        20      1            17          1          1
## 2   Italy 2/22/20        62      2            42          1          2
## 3   Italy 2/23/20       155      3            93          1          3
## 4   Italy 2/24/20       229      7            74          4          4
## 5   Italy 2/25/20       322     10            93          3          5
## 6   Italy 2/26/20       453     12           131          2          6
##   partial_lockdown flights_china school_closure
```

```
## 1              -16            21              0
## 2              -15            22              1
## 3              -14            23              2
## 4              -13            24              3
## 5              -12            25              4
## 6              -11            26              5
```

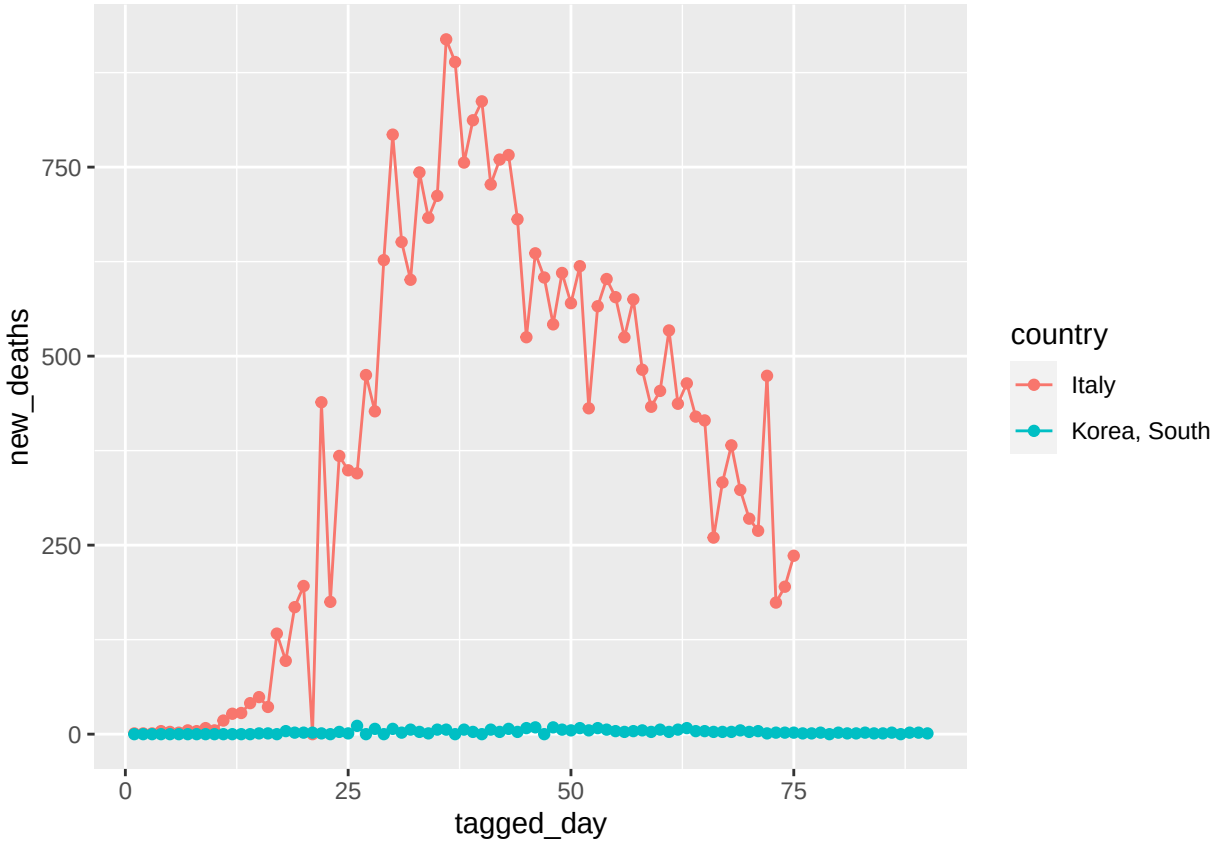
```
df0$date <- as.Date(df0$date, "%m/%d/%y")

df1 <- select(df0, c(country, tagged_day, new_confirmed, new_deaths, partial_lockdown, flights_china, s
head(df1)
```

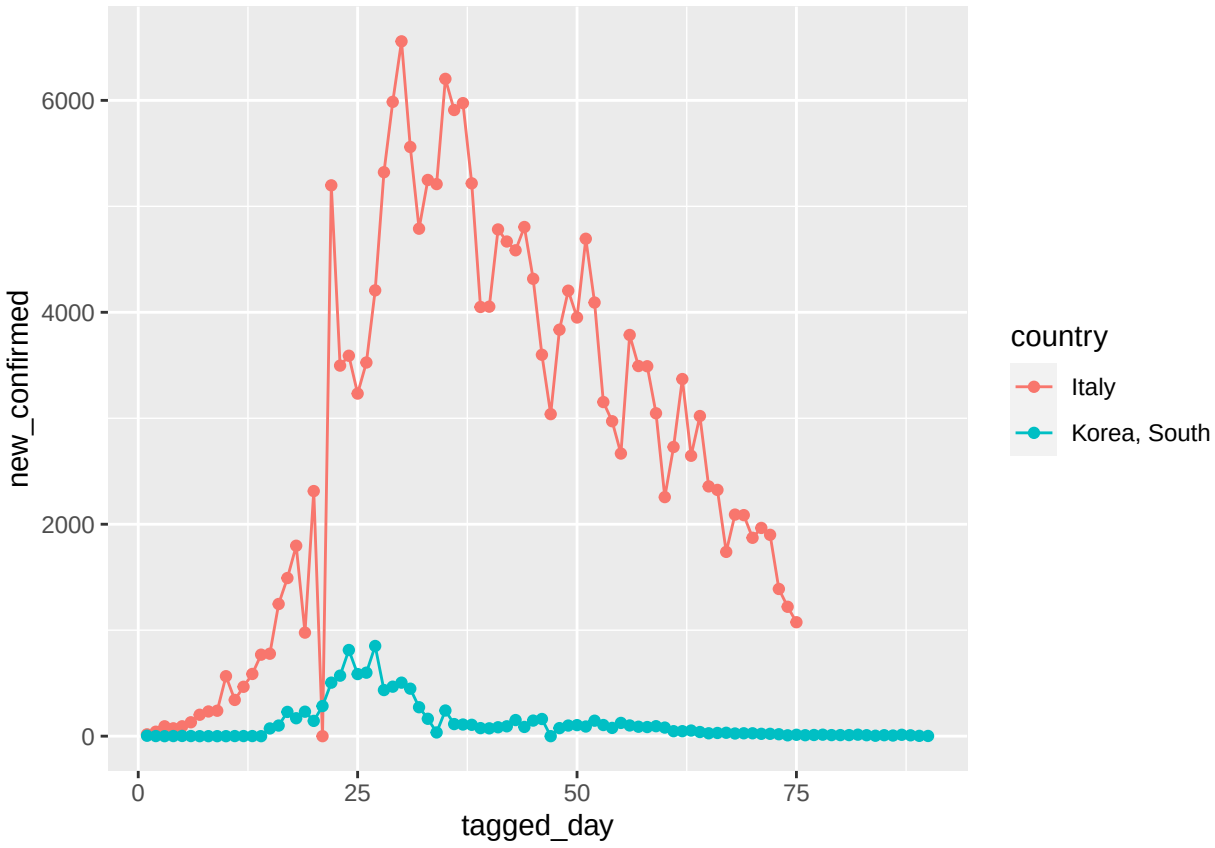
```
##   country tagged_day new_confirmed new_deaths partial_lockdown flights_china
## 1   Italy          1            17          1              -16            21
## 2   Italy          2            42          1              -15            22
## 3   Italy          3            93          1              -14            23
## 4   Italy          4            74          4              -13            24
## 5   Italy          5            93          3              -12            25
## 6   Italy          6           131          2              -11            26
##   school_closure
## 1              0
## 2              1
## 3              2
## 4              3
## 5              4
## 6              5
```

Tagged day x New death and New confirmed

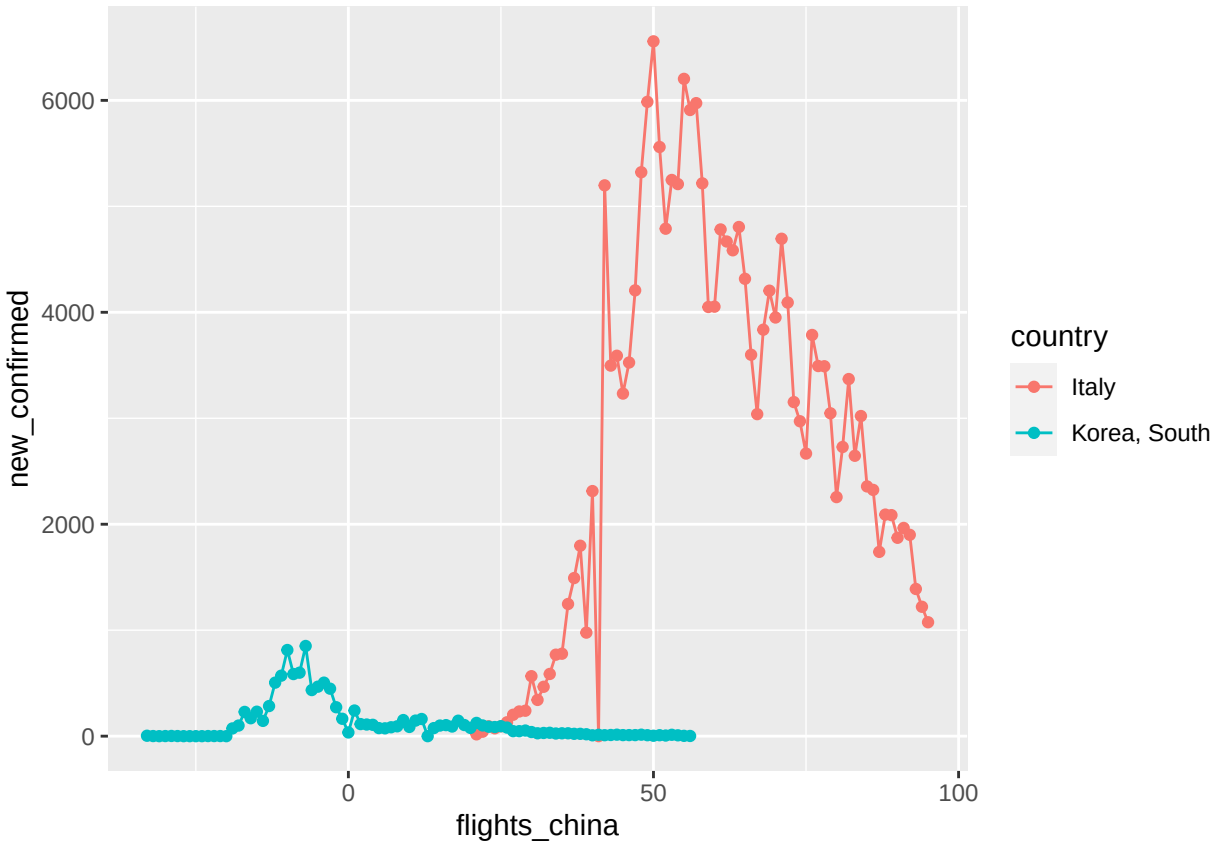
```
ggplot(df1, aes(x=tagged_day, y= new_deaths, group=country, colour=country)) + geom_path() + geom_point
```



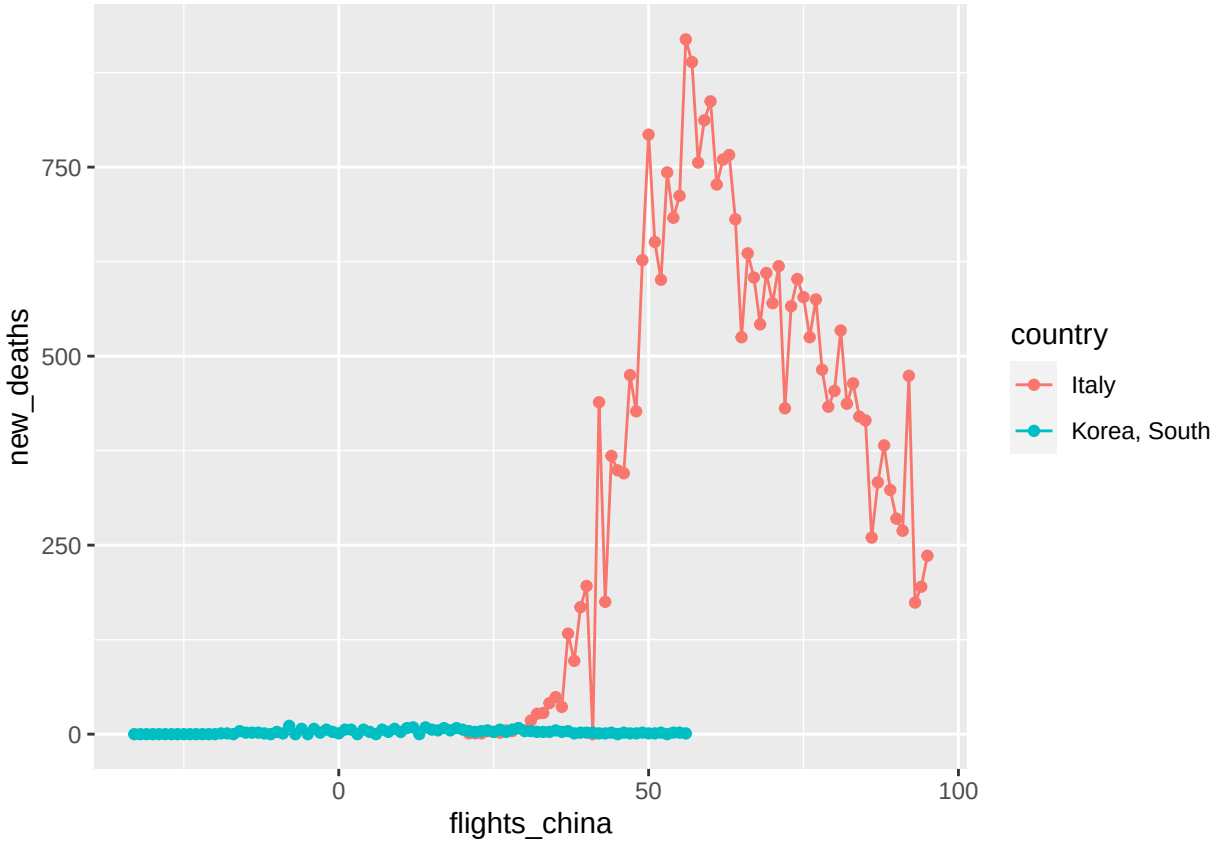

```
ggplot(df1, aes(x=tagged_day, y= new_confirmed, group=country, colour=country)) + geom_path() + geom_po
```




```
ggplot(df1, aes(x= flights_china, y= new_confirmed, group=country, colour=country)) + geom_path() + geo
```

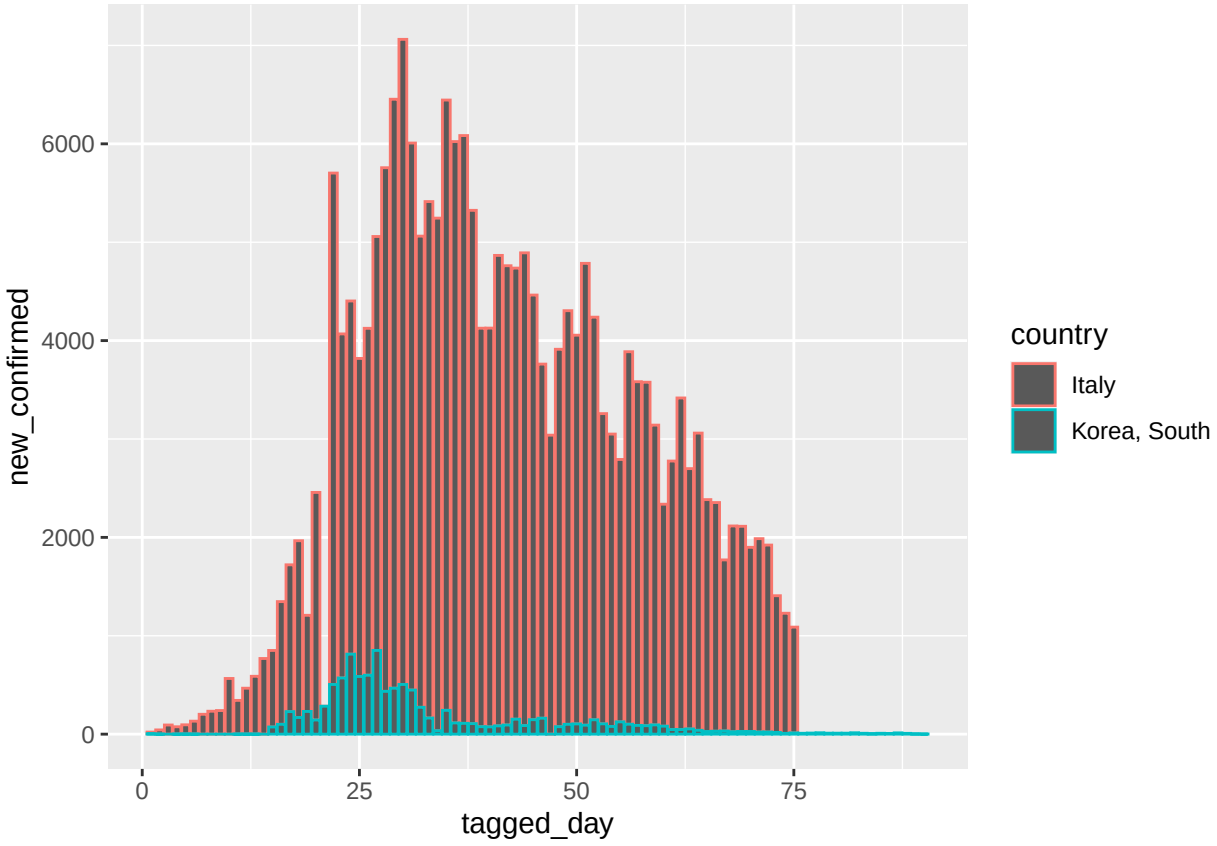



```
ggplot(df1, aes(x= flights_china, y= new_deaths, group=country, colour=country)) + geom_path() + geom_p
```

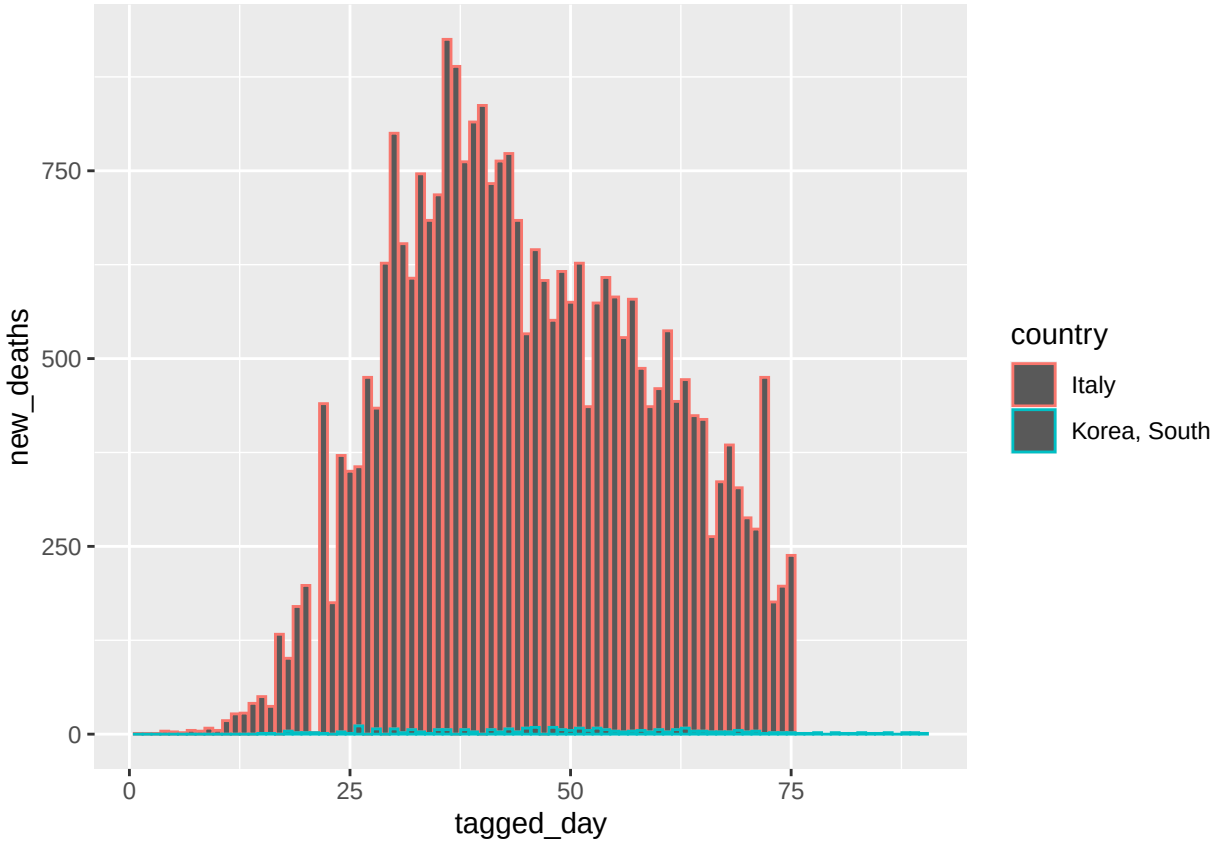


BAR TAGGED DAY x new confirmed and new deaths

```
ggplot(data = df1, aes(x = tagged_day, y = new_confirmed, color = country)) + geom_bar(stat = "identity
```

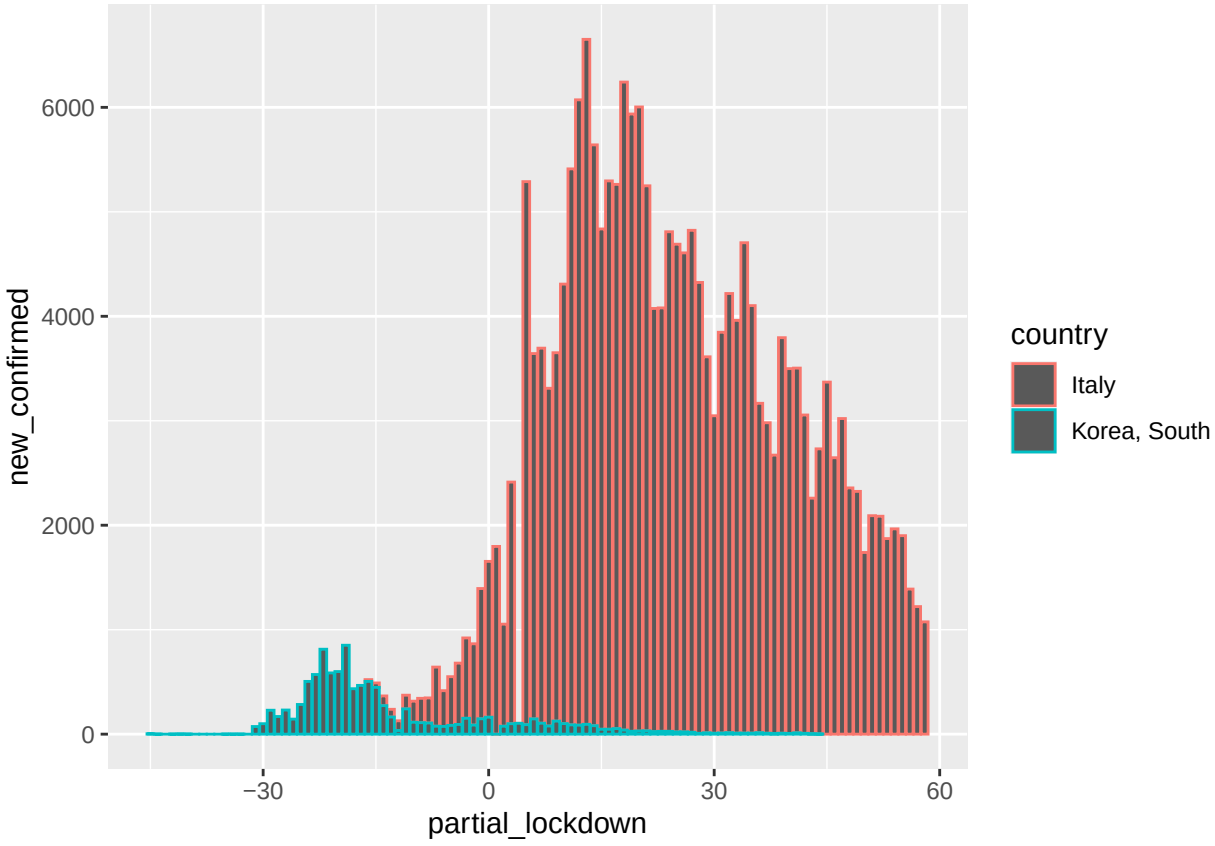



```
ggplot(data = df1, aes(x = tagged_day, y = new_deaths, color = country)) + geom_bar(stat = "identity")
```

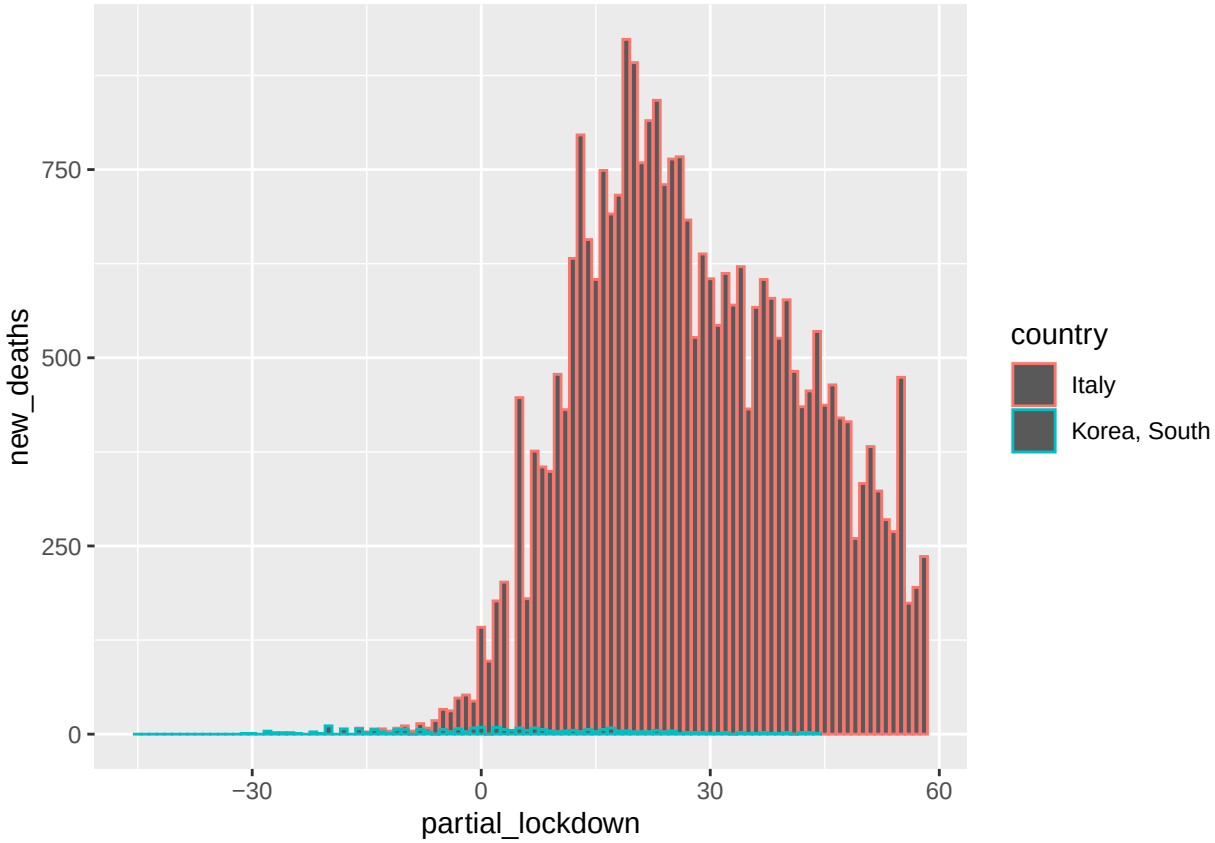


BAR PARTIAL LOCKDOWN x new confirmed and new deaths

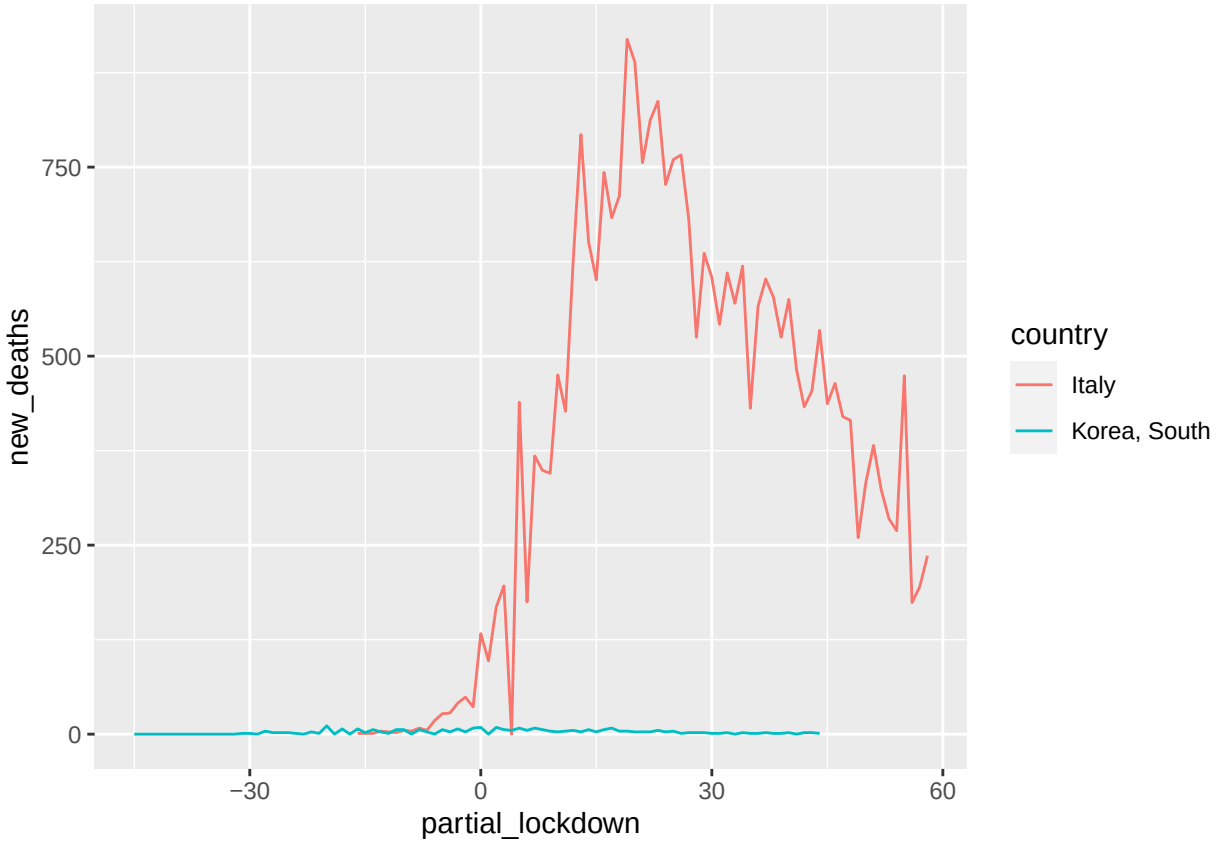
```
ggplot(data = df1, aes(x = partial_lockdown, y = new_confirmed, color = country)) + geom_bar(stat = "id
```



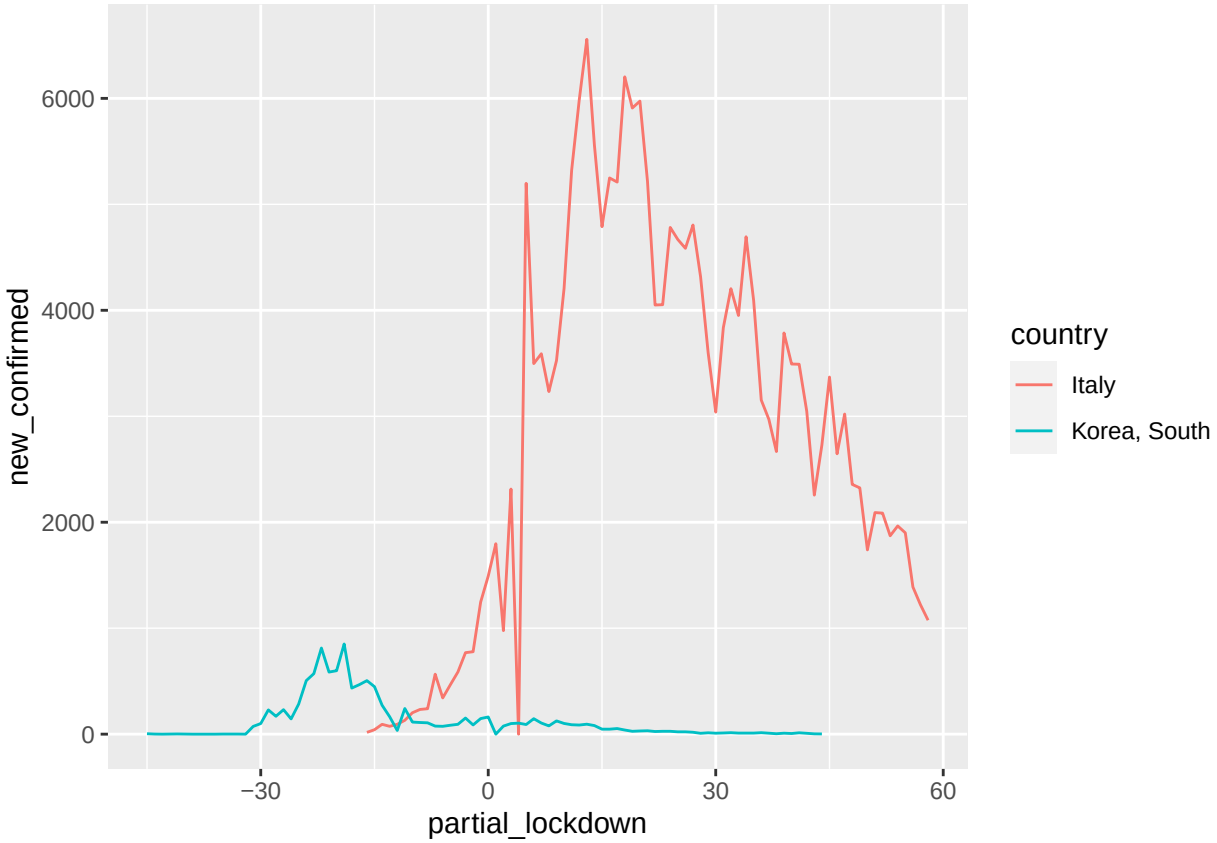

```
ggplot(data = df1, aes(x = partial_lockdown, y = new_deaths, color = country)) + geom_bar(stat = "ident
```




```
ggplot(df1, aes(x = partial_lockdown, y = new_deaths, color = country)) + geom_line()
```



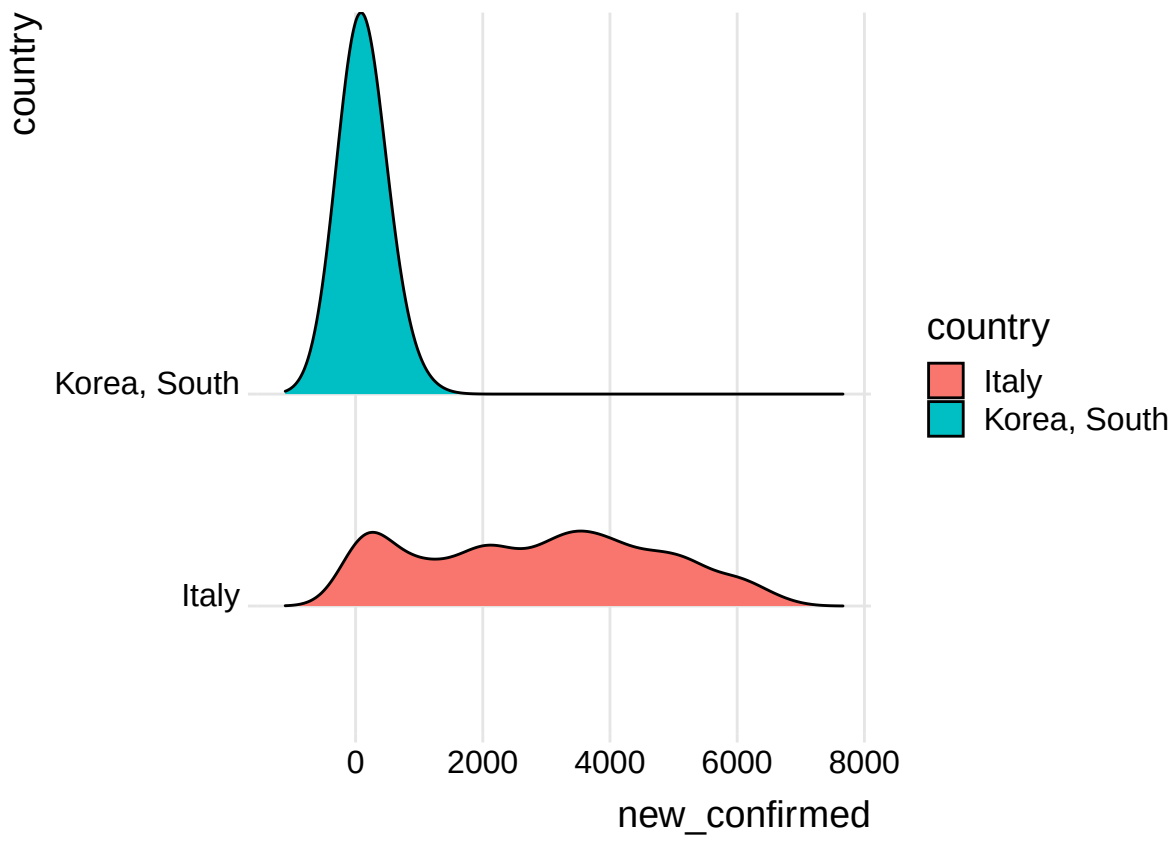

```
ggplot(df1, aes(x = partial_lockdown, y = new_confirmed, color = country)) + geom_line()
```



Showing Korea has much less confirmed cases and confirmed deaths than italy, different peaks

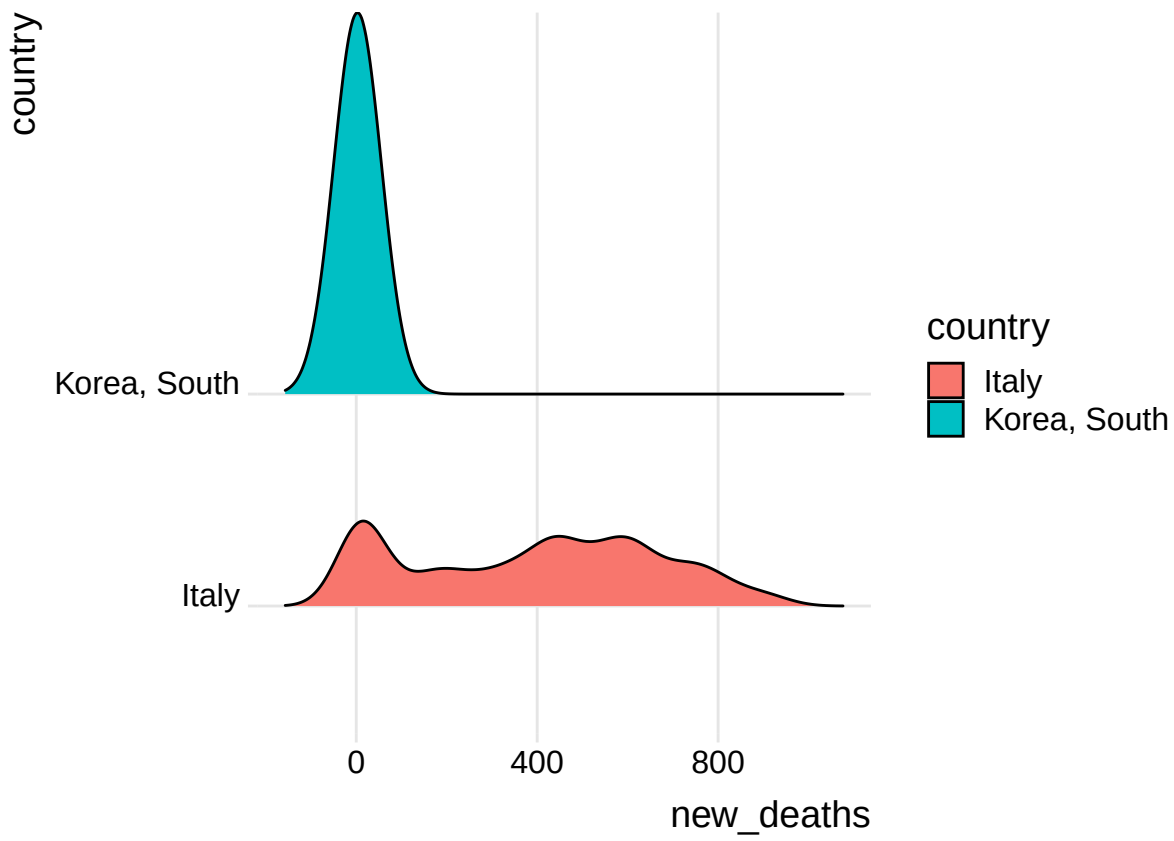
```
ggplot(df1,
       aes(x = new_confirmed,
           y = country,
           fill = country)) +
  geom_density_ridges() +
  theme_ridges()
```

```
## Picking joint bandwidth of 369
```




```
ggplot(df1,
       aes(x = new_deaths,
           y = country,
           fill = country)) +
  geom_density_ridges() +
  theme_ridges()
```

```
## Picking joint bandwidth of 52.4
```


country
Korea, South
Italy
0
400
800
new_deaths
country
Italy
Korea, South