Final

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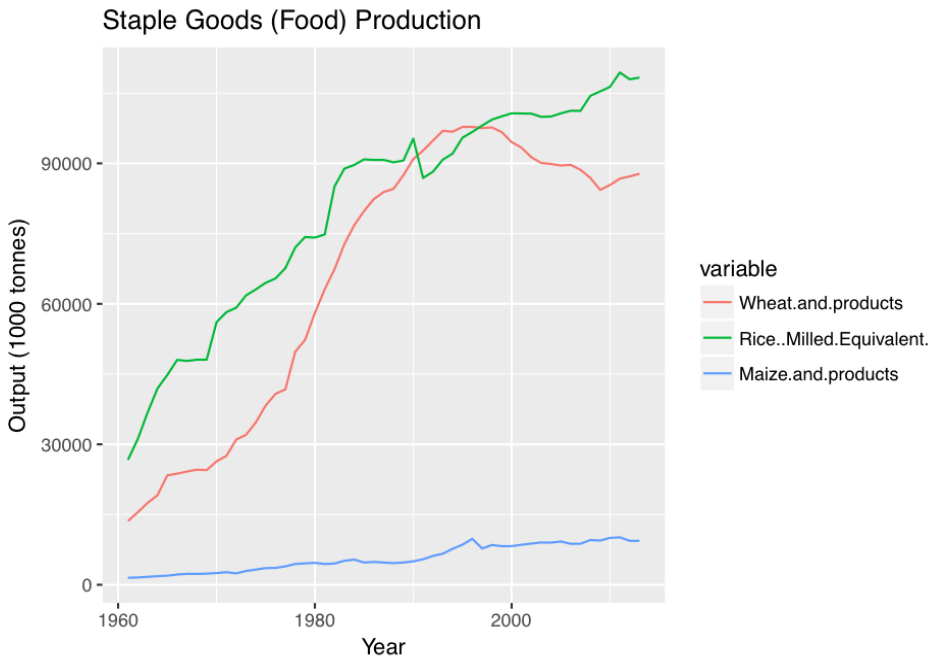
```
save_dir <- getwd()
setwd("~/Desktop/R Programming/final/R_Scripts")
source("configuration.R")
setwd(save_dir)
```

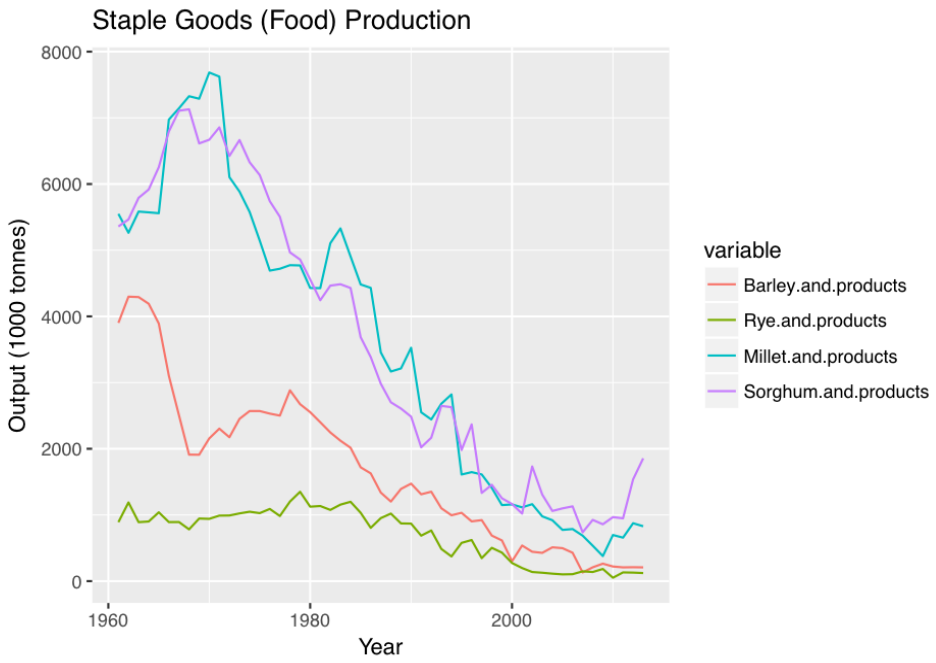
```
staples1<- c("2511", "2805", "2514")
staples2<- c("2513", "2515","2518", "2517")
sweetpotato<-"2533"
dates<- "2619"
luxury<-c("2656","2733","2918")
coffee<-c("2630", "2633")
```

```
#Plot Objects
staples1plotfood<-PlotCountry(df, "41", "Food", staples1)
staples2plotfood<-PlotCountry(df, "41", "Food", staples2)
staples1plotfeed<-PlotCountry(df, "41", "Feed", staples1)
staples2plotfeed<-PlotCountry(df, "41", "Feed", staples2)
sweetpotatoplot<-PlotCountry(df, "41", "Food", sweetpotato)
datesplot<-PlotCountry(df, "41", "Food", dates)
luxuryplot<-PlotCountry(df, "41", "Food", luxury)
coffeeplot<-PlotCountry(df, "41", "Food", coffee)
```

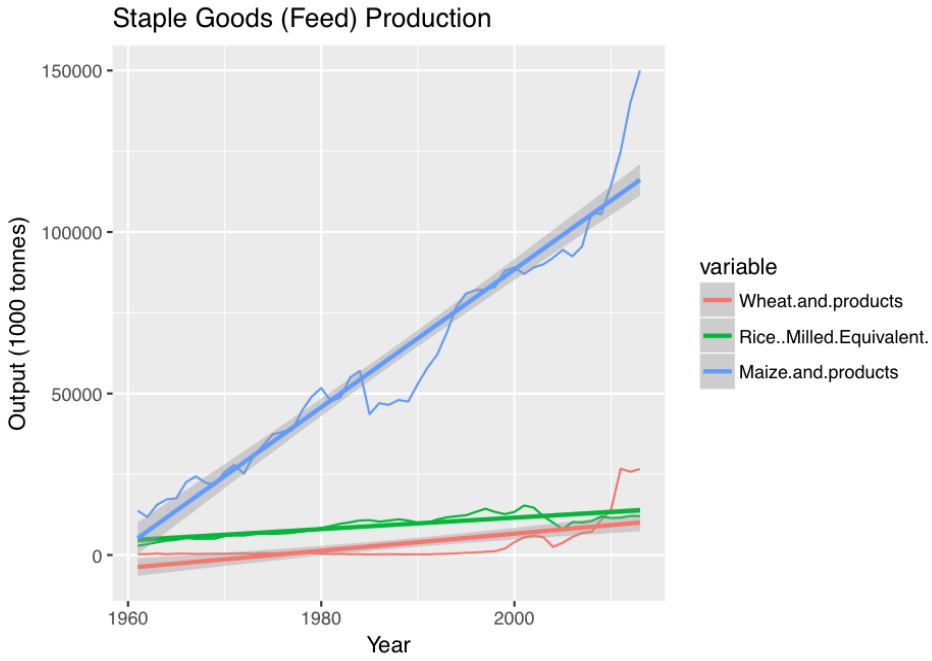
```
p1 <- ggplot(staples1plotfood,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p1 <- p1 + ggtitle("Staple Goods (Food) Production") + labs(y = "Output (1000 tonnes)")

print(p1)
```



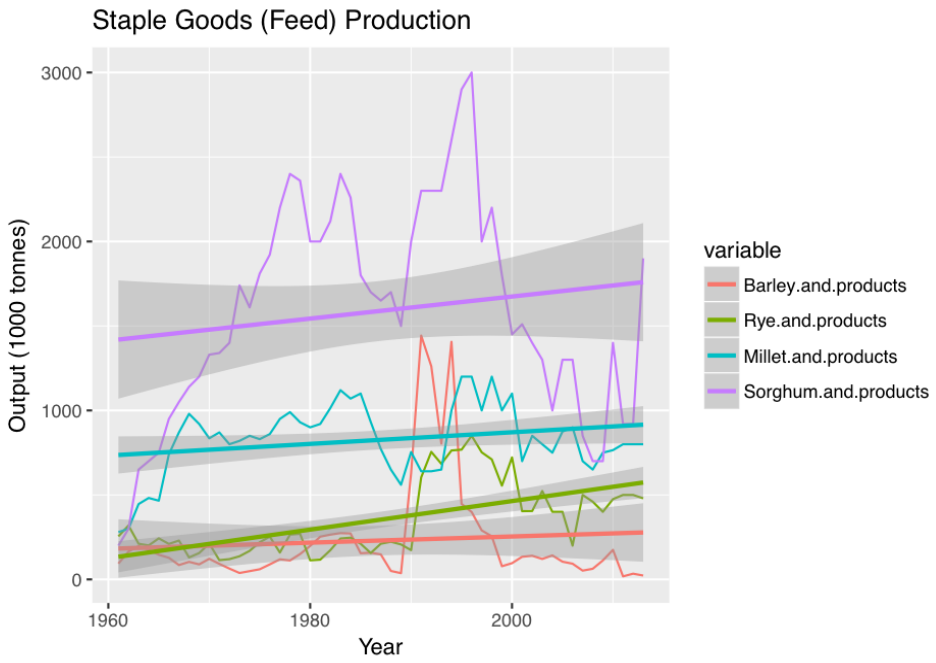

```
p1_2 <- ggplot(staples2plotfood,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p1_2 <- p1_2 + ggtitle("Staple Goods (Food) Production")+ labs(y = "Output (1000 tonnes)")
print(p1_2)
```



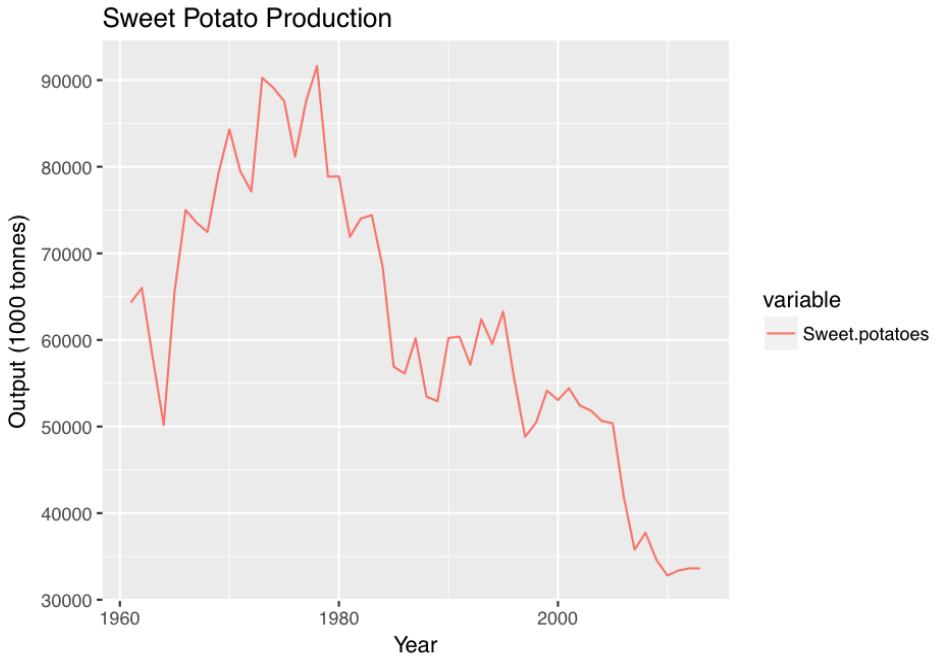

```
p2 <- ggplot(staples1plotfeed,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p2 <- p2 + ggtitle("Staple Goods (Feed) Production")+ labs(y = "Output (1000 tonnes)") + geom_smooth(me
print(p2)
```



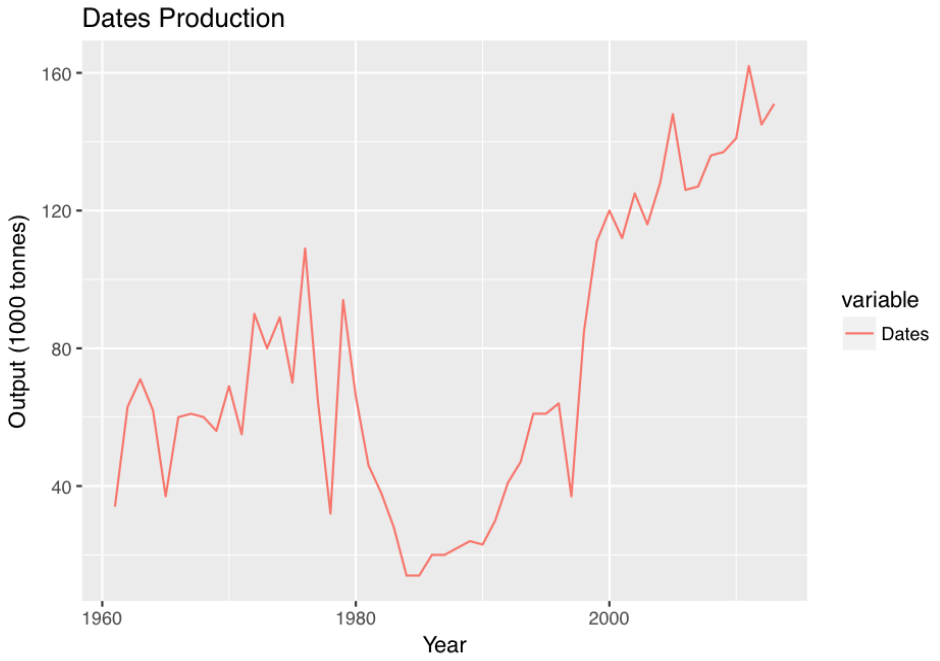

```
p2_2 <- ggplot(staples2plotfeed,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p2_2 <- p2_2 + ggtitle("Staple Goods (Feed) Production")+ labs(y = "Output (1000 tonnes)") + geom_smoothl
print(p2_2)
```



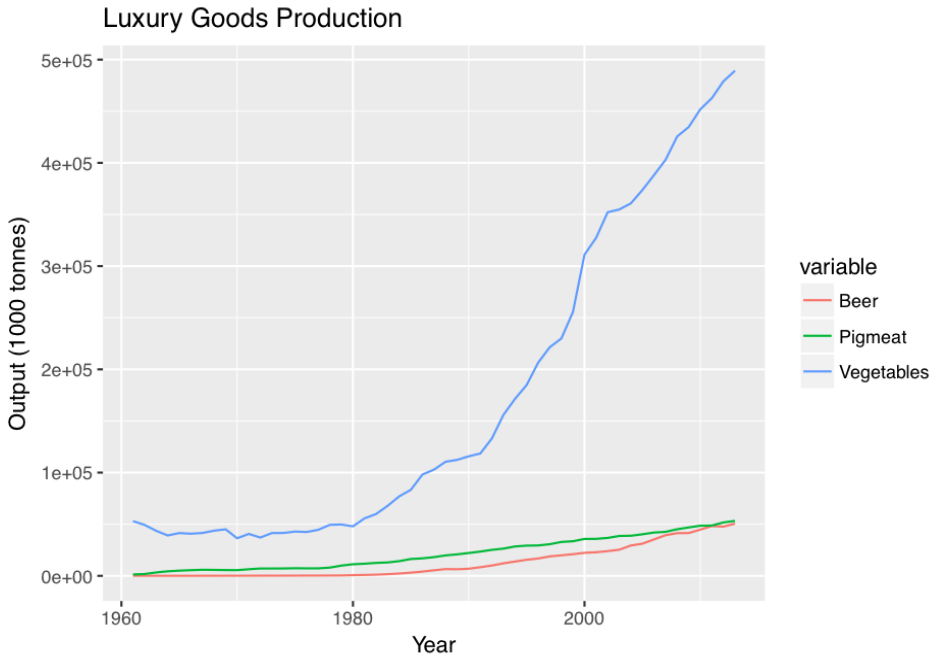

```
p3 <- ggplot(sweetpotatoplot,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p3 <- p3 + ggtitle("Sweet Potato Production")+ labs(y = "Output (1000 tonnes)")
print(p3)
```



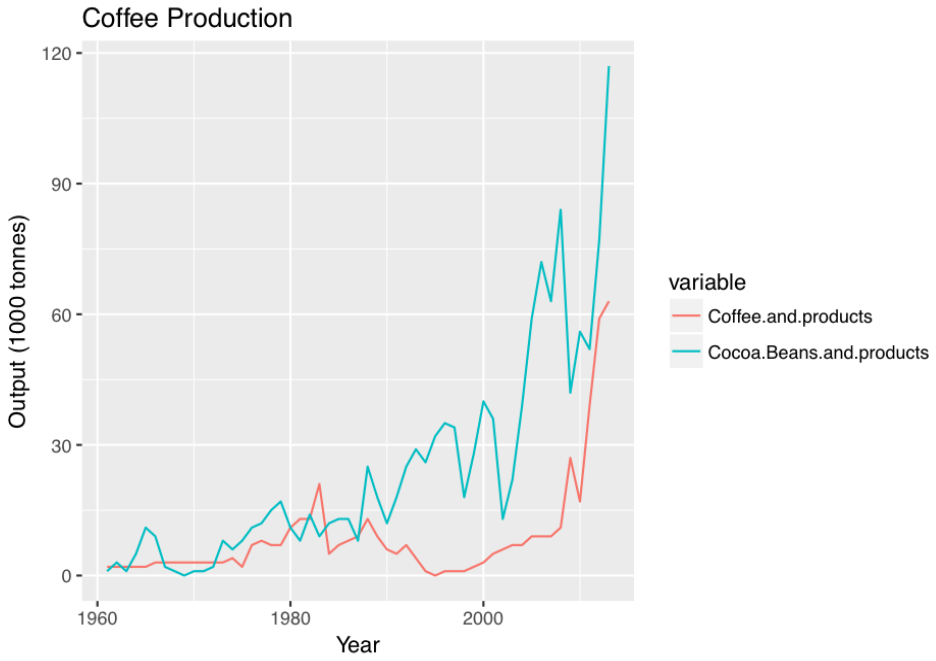

```
p4 <- ggplot(datesplot,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p4 <- p4 + ggtitle("Dates Production")+ labs(y = "Output (1000 tonnes)")
print(p4)
```




```
p5 <- ggplot(luxuryplot,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p5 <- p5 + ggtitle("Luxury Goods Production")+ labs(y = "Output (1000 tonnes)")
print(p5)
```

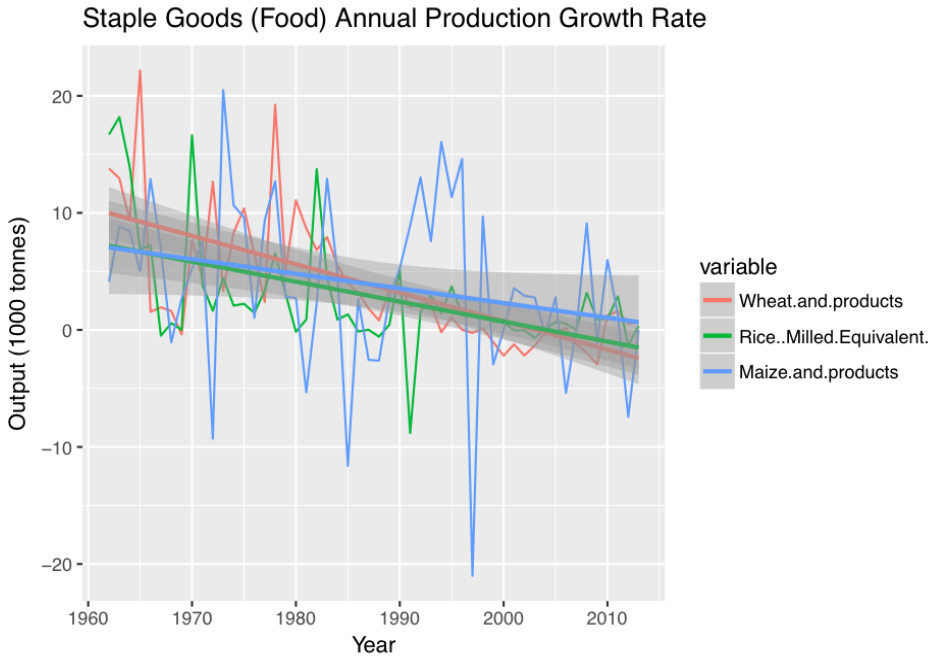



```
p6 <- ggplot(coffeeplot,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p6 <- p6 + ggtitle("Coffee Production")+ labs(y = "Output (1000 tonnes)")
print(p6)
```

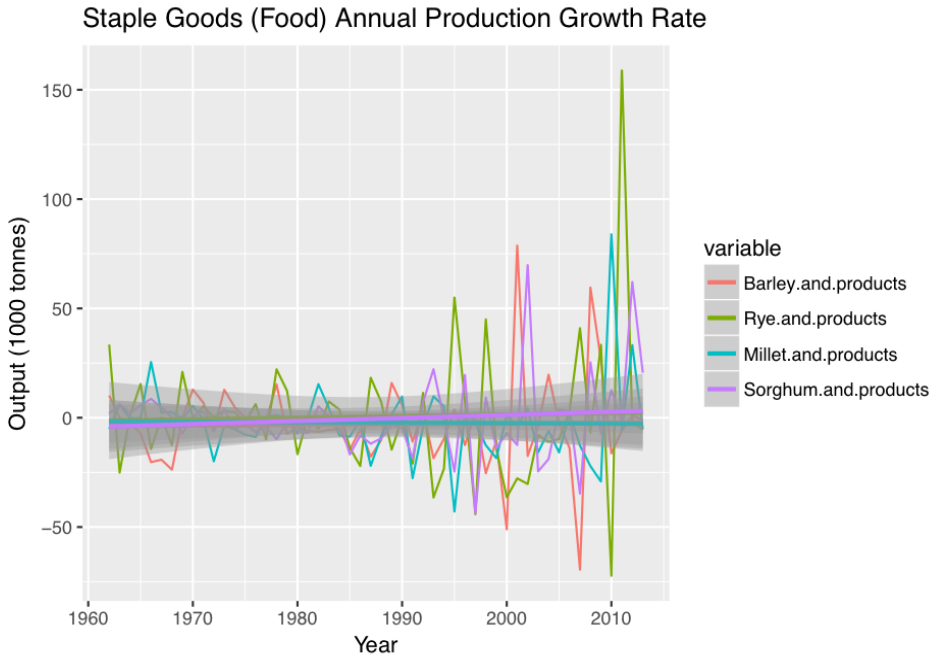



```
#TimeSeries Objects
staples1tsfood<-TimeSeries(df, "41", "Food", staples1)
staples2tsfood<-TimeSeries(df, "41", "Food", staples2)
staples1tsfeed<-TimeSeries(df, "41", "Feed", staples1)
staples2tsfeed<-TimeSeries(df, "41", "Feed", staples2)
sweetpotatots<-TimeSeries(df, "41", "Food", sweetpotato)
datests<-TimeSeries(df, "41", "Food", dates)
luxuryts<-TimeSeries(df, "41", "Food", luxury)
coffeets<-TimeSeries(df, "41", "Food", coffee)

#PlotTimeSeries Objects
staples1changefood<- PlotCountryChange(staples1tsfood)
staples2changefood<- PlotCountryChange(staples2tsfood)
staples1changefeed<- PlotCountryChange(staples1tsfeed)
staples2changefeed<- PlotCountryChange(staples2tsfeed)
sweetpotatochange<- PlotCountryChange(sweetpotatots)
dateschange<- PlotCountryChange(datests)
luxurychange<- PlotCountryChange(luxuryts)
coffeechange<- PlotCountryChange(coffeets)
```

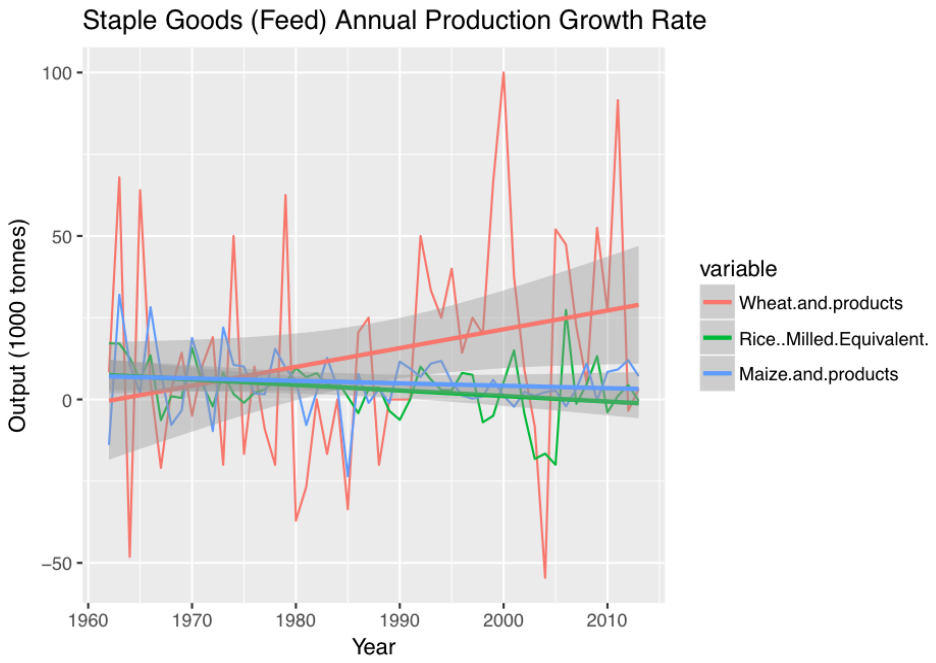
```
p1 <- ggplot(staples1changefood,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p1 <- p1 + ggtitle("Staple Goods (Food) Annual Production Growth Rate")
p1 <- p1 + labs(y = "Output (1000 tonnes)") + geom_smooth(method = "lm",aes(group=variable))
print(p1)
```



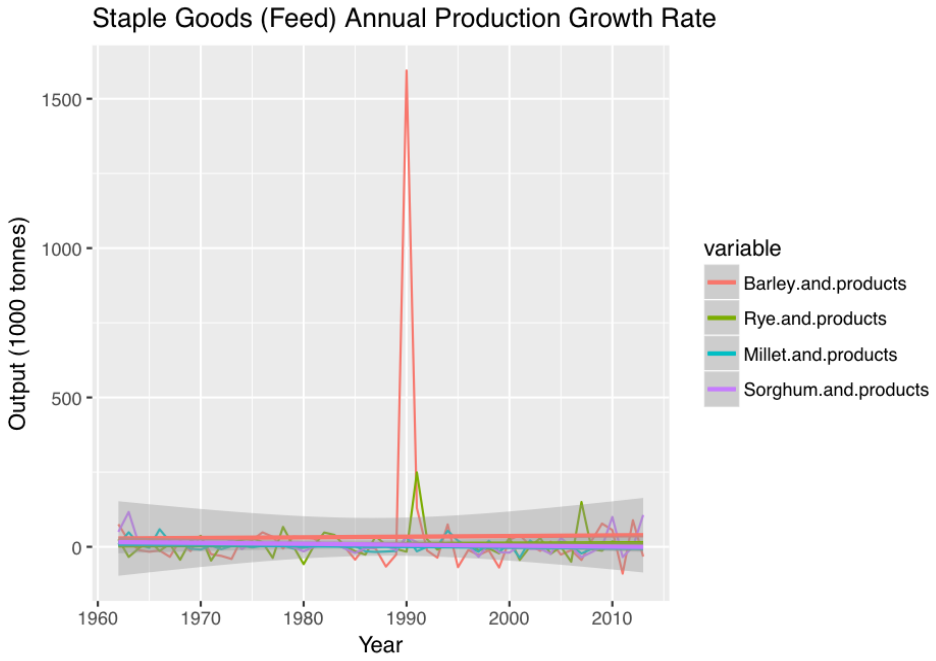

```
p1_2 <- ggplot(staples2changefood,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p1_2 <- p1_2 + ggtitle("Staple Goods (Food) Annual Production Growth Rate") + labs(y = "Output (1000 to
p1_2 <- p1_2 + geom_smooth(method = "lm",aes(group=variable))
print(p1_2)
```



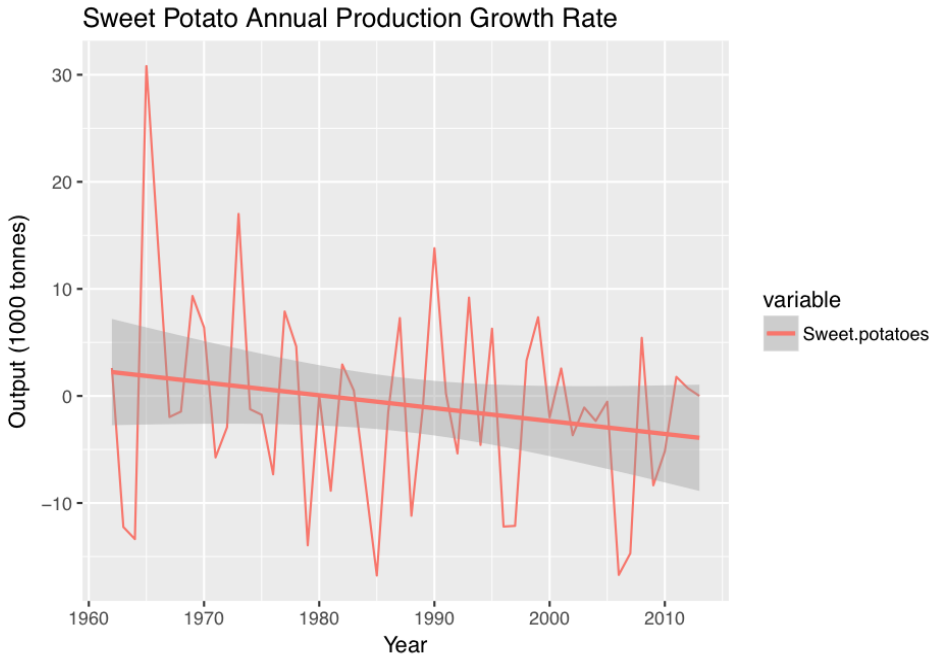

```
p2 <- ggplot(staples1changefeed,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p2 <- p2 + ggtitle("Staple Goods (Feed) Annual Production Growth Rate") + labs(y = "Output (1000 tonnes)
p2 <- p2 + geom_smooth(method = "lm",aes(group=variable))
print(p2)
```




```
p2_2 <- ggplot(staples2changefeed,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p2_2 <- p2_2 + ggtitle("Staple Goods (Feed) Annual Production Growth Rate") + labs(y = "Output (1000 to
p2_2 <- p2_2 + geom_smooth(method = "lm",aes(group=variable))
print(p2_2)
```

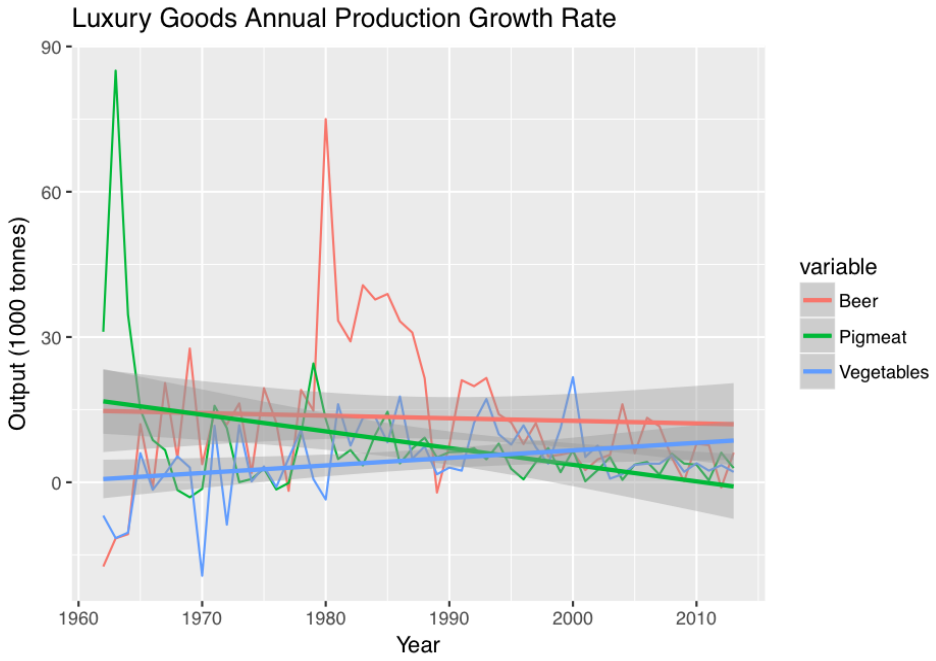



```
p3 <- ggplot(sweetpotatochange,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p3 <- p3 + ggtitle("Sweet Potato Annual Production Growth Rate") + labs(y = "Output (1000 tonnes)")
p3 <- p3 + geom_smooth(method = "lm",aes(group=variable))
print(p3)
```

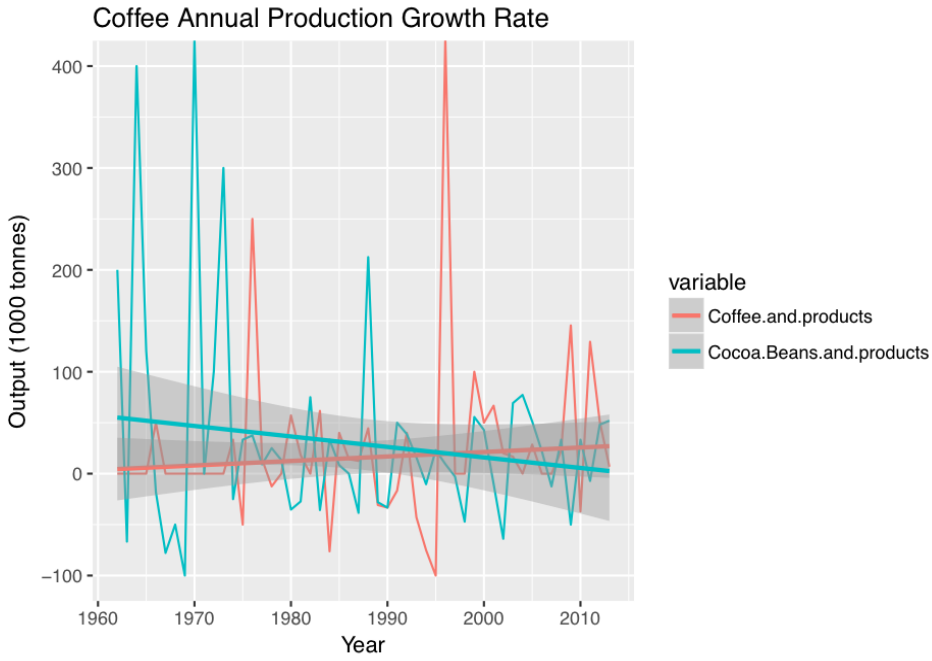



```
p4 <- ggplot(dateschange,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p4 <- p4 + ggtitle("Dates Annual Production Growth Rate") + labs(y = "Output (1000 tonnes)") + geom_smo
print(p4)
```


```
p5 <- ggplot(luxurychange,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p5 <- p5 + ggtitle("Luxury Goods Annual Production Growth Rate") + labs(y = "Output (1000 tonnes)")
p5 <- p5 + geom_smooth(method = "lm",aes(group=variable))
print(p5)
```




```
p6 <- ggplot(coffeechange,aes(x=Year,y=value,colour=variable,group=variable)) + geom_line()
p6 <- p6 + ggtitle("Coffee Annual Production Growth Rate") + labs(y = "Output (1000 tonnes)")
p6 <- p6 + geom_smooth(method = "lm",aes(group=variable))
print(p6)
```


Coffee Annual Production Growth Rate
Output (1000 tonnes)
400
300
200
100
0
−100
1960
1970
1980
1990
2000
2010
Year
variable
Coffee.and.products
Cocoa.Beans.and.products