Appendix

## Loading Packages

## ── Attaching packages ─────────────────────────────────────── tidyverse 1.3.2 ──  
## ✔ ggplot2 3.3.6 ✔ purrr 0.3.4   
## ✔ tibble 3.1.6 ✔ dplyr 1.0.10  
## ✔ tidyr 1.2.0 ✔ stringr 1.4.0   
## ✔ readr 2.1.3 ✔ forcats 0.5.1   
## ── Conflicts ────────────────────────────────────────── tidyverse\_conflicts() ──  
## ✖ dplyr::filter() masks stats::filter()  
## ✖ dplyr::lag() masks stats::lag()

## Loading CO2 emmissions

## Loading SO2 emmissions

## Merge CO2 and SO2 dataframe

## Adding PM10 emmissions

## Merge PM10 with dataframe containg CO2 and SO2 emmissions

## Glimpse into Pollutant varriables

head(pollutants\_long)

## IPCC\_annex Country\_code\_A3 Name Year CO2\_kt SO2\_kt PM10\_kt  
## 1 Annex\_I AUS Australia 1970 210117.8 796.5230 262.4378  
## 2 Annex\_I AUS Australia 1971 212598.6 805.7743 266.0484  
## 3 Annex\_I AUS Australia 1972 217361.9 723.3684 267.4226  
## 4 Annex\_I AUS Australia 1973 229400.3 779.9494 278.1004  
## 5 Annex\_I AUS Australia 1974 238880.1 864.5995 282.5948  
## 6 Annex\_I AUS Australia 1975 246532.6 859.4392 289.9333

## Loading Urban Population

## Cleaning Urban Population

## Merge Urban Population with Pollutants

## Load and merge all the years for merchandise export value to the EU

## Merge pollutants\_pop with Export Value to the EU to create eueffect\_v1.

## Filter dataset for relevant years

## Current stage of data loading and cleaning

write\_xlsx(eueffect\_v2,"/Users/jamesduffy/Library/CloudStorage/OneDrive-TheUniversityofManchester/BASS/Modules/Year\ 3/Sem\ 2/Diss/Data\\eueffectv2.xlsx")  
  
head(eueffect\_v2, n=10)

## IPCC\_annex Name Country\_code\_A3 Year CO2\_kt SO2\_kt PM10\_kt  
## 1 Non-Annex\_I Afghanistan AFG 1995 3483.691 6.300759 13.06454  
## 2 Non-Annex\_I Afghanistan AFG 1996 3716.706 6.121216 14.98249  
## 3 Non-Annex\_I Afghanistan AFG 1997 3910.140 6.188271 16.14022  
## 4 Non-Annex\_I Afghanistan AFG 1998 4036.376 6.945150 16.79753  
## 5 Non-Annex\_I Afghanistan AFG 1999 3884.130 6.666917 16.64209  
## 6 Non-Annex\_I Afghanistan AFG 2000 3504.450 4.987858 15.70742  
## 7 Non-Annex\_I Afghanistan AFG 2001 3456.671 6.219716 16.22728  
## 8 Non-Annex\_I Afghanistan AFG 2002 3967.050 5.795080 18.78061  
## 9 Non-Annex\_I Afghanistan AFG 2003 4382.531 8.040601 20.43532  
## 10 Non-Annex\_I Afghanistan AFG 2004 4027.990 7.432438 19.84008  
## Merchandise\_Exported\_to\_EU\_thousandsUSD Urban\_Pop\_%oftotal  
## 1 31299.439999999999 21.623999999999999  
## 2 18138.88 21.713999999999999  
## 3 29786.732 21.805  
## 4 48298.921000000002 21.895  
## 5 40697.243000000002 21.986000000000001  
## 6 31209.59 22.077999999999999  
## 7 15741.948 22.169  
## 8 19720.688999999998 22.260999999999999  
## 9 15084.933999999999 22.353000000000002  
## 10 47164.9 22.5