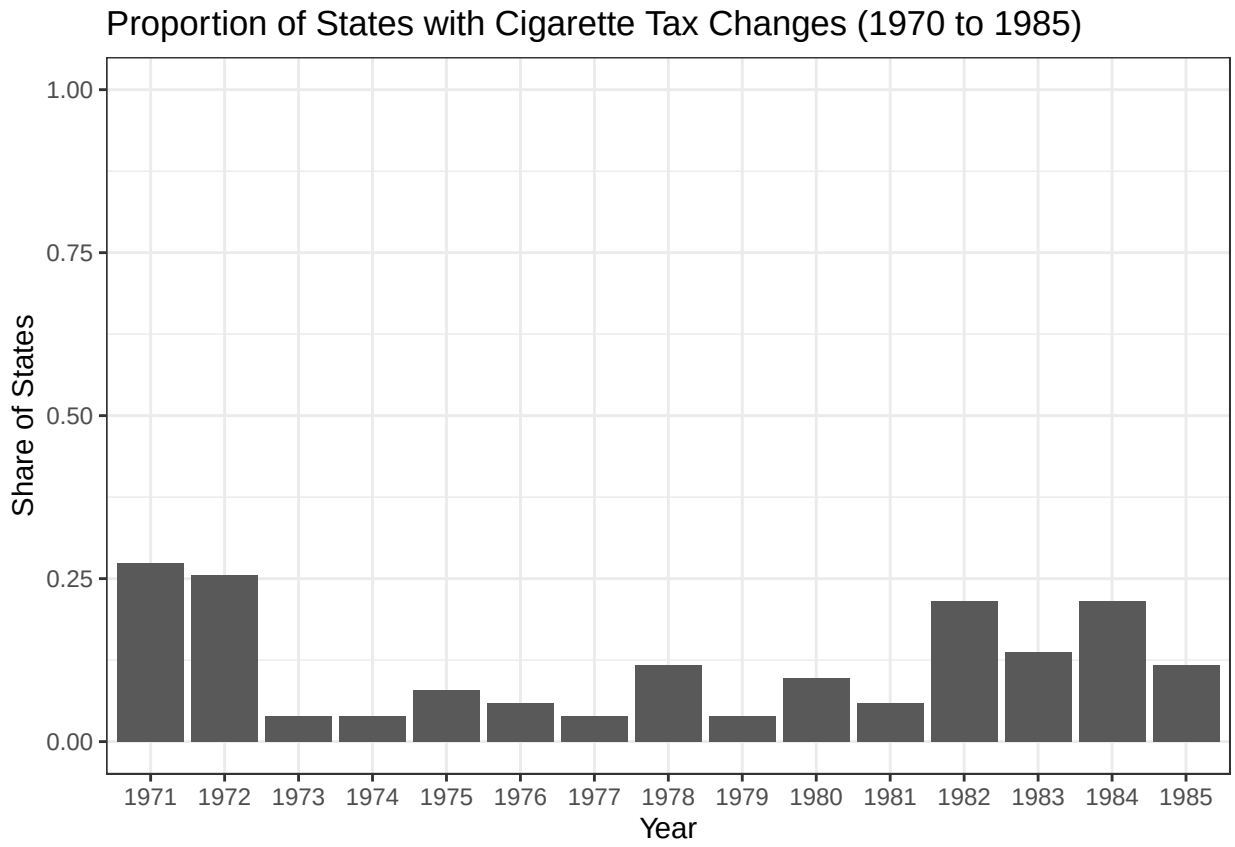
Homework 3

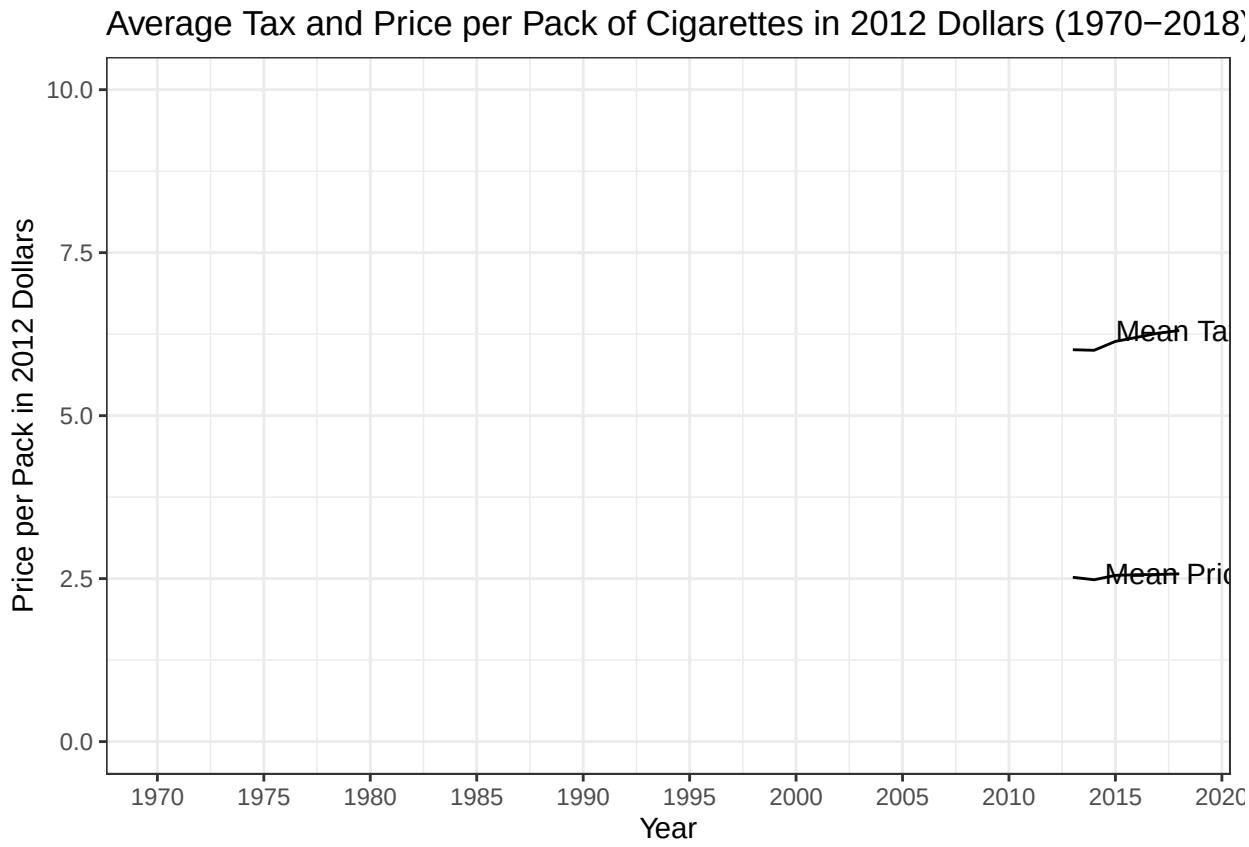
Virginia Sanson

19 March 2023

Part 1 Question 1



Question 2


Average Tax and Price per Pack of Cigarettes in 2012 Dollars (1970−2018)
Price per Pack in 2012 Dollars
10.0
7.5
5.0
2.5
0.0
1970
1975
1980
1985
1990
1995
2000
2005
2010
2015
2020
Year
Mean Ta
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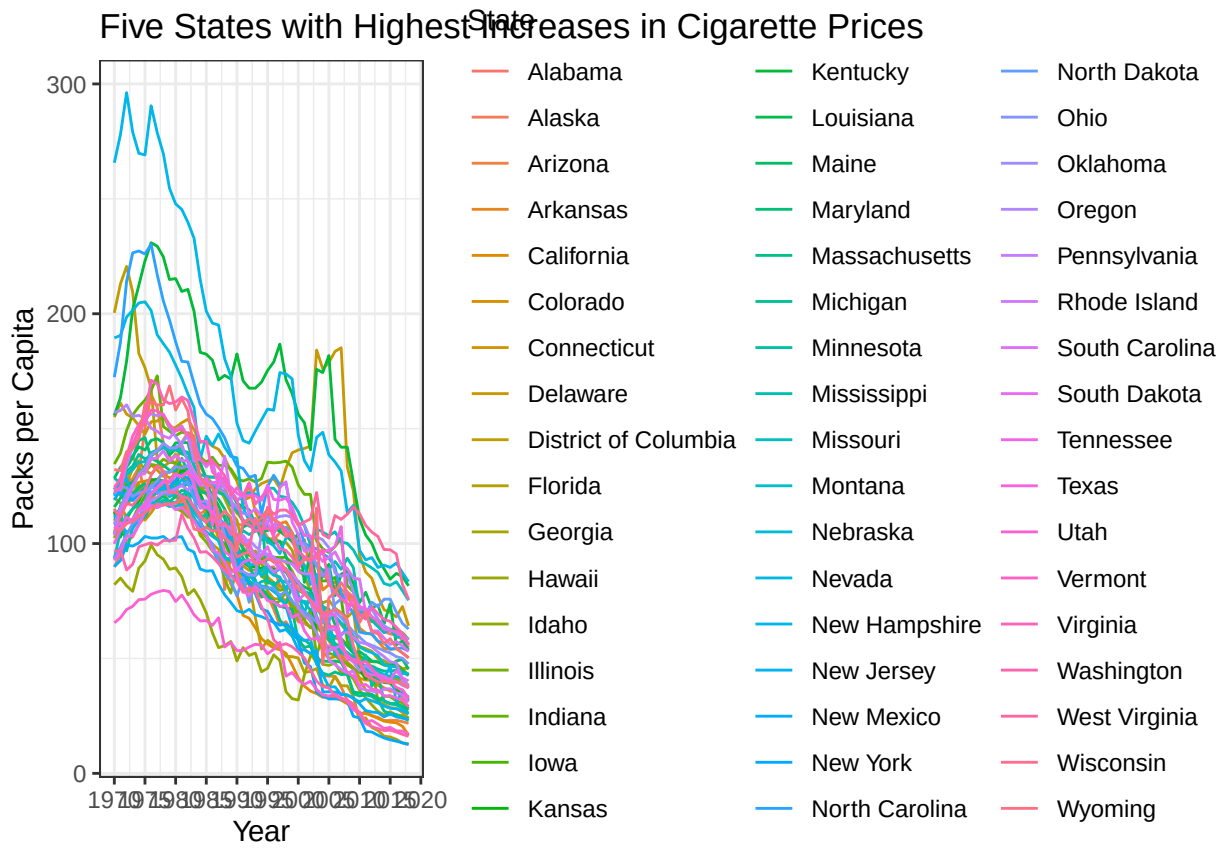
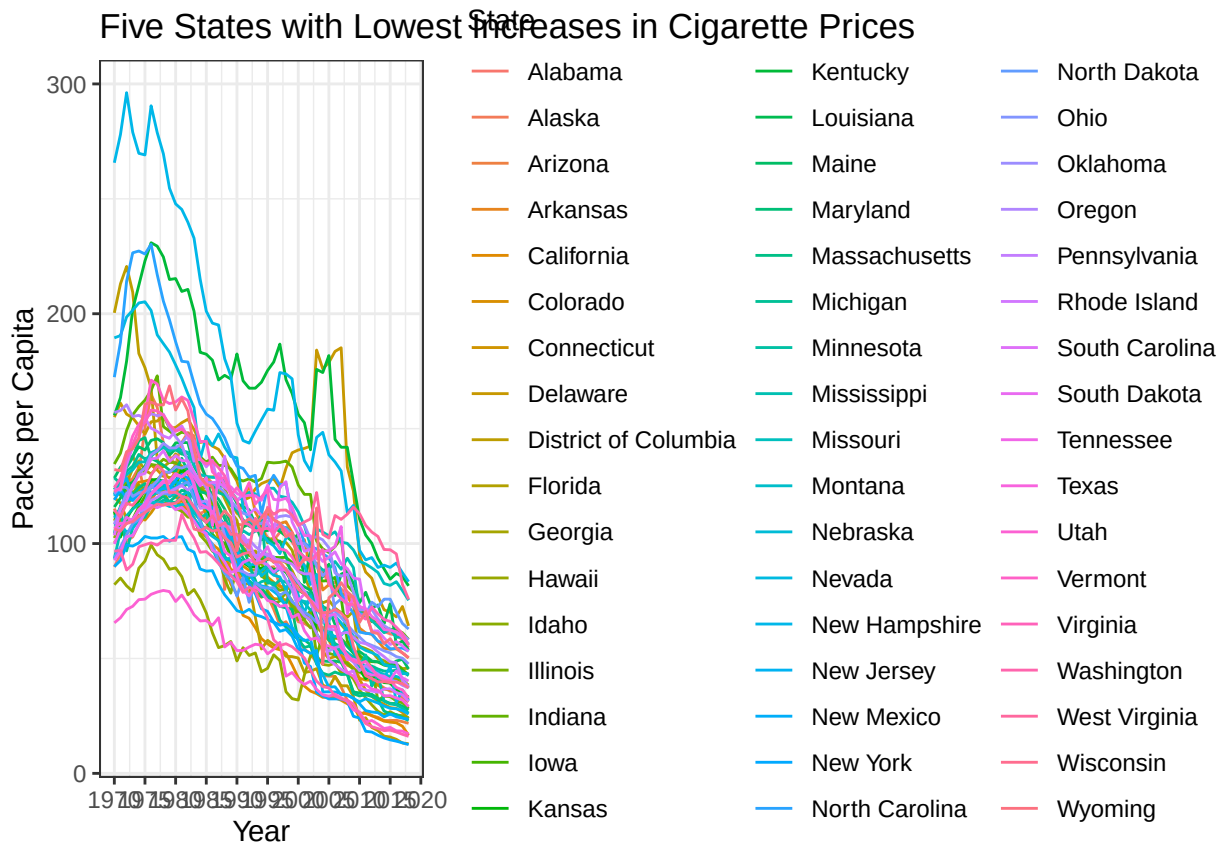
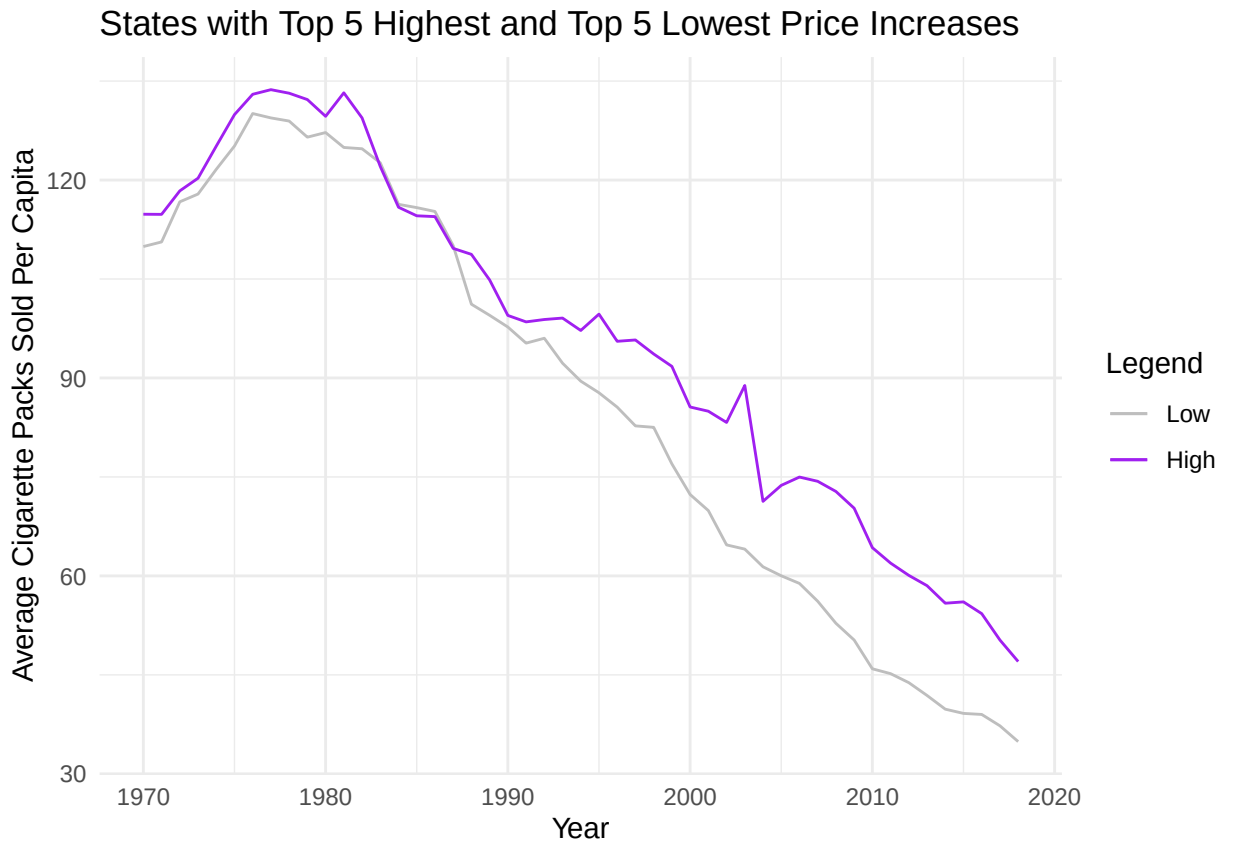
Question 3


Five States with Highest Increases in Cigarette Prices
Packs per Capita
300
200
100
0
Year
State
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming

Question 4


Five States with Lowest Increases in Cigarette Prices
Packs per Capita
300
200
100
0
Year
State
Alabama
Alaska
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Hawaii
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming

Question 5



Both groups of states had deep and gradual declines in their average sales per capita trends. They began with overall increasing sales until ~1976, and the states with the lowest price increases resulted to be the ones with the lower cigarette packs sold per capita, on average.

Part 2
Question 1

A 1% increase in cost per cigarette pack is estimated to decrease the sales per capita by 0.17% (on average).

Question 2

A 1% increase in cost per cigarette pack is estimated to decrease the sales per capita by 0.28% (on average). The instrumental variables changed the estimates in that a change in cost has a greater effect on sales than before, as we are now including total federal and state tax on the cost of cigarettes. Cigarettes seem more of an elastic good.

Question 3

Question 4

Table 1: Price Elasticity of Demand (1991-2015)

	OLS	IV
Log Price	−1.530	−1.545
	(0.125)	(0.130)
Num.Obs.	153	153
R2	0.496	0.496

A 1% increase in cost per cigarette pack is estimated to decrease the sales per capita by 0.17% (on average).

Table 2: Point Estimates (1991-2015)

	First Stage	Reduced Form
Cigarette Tax	0.193	−0.299
	(0.004)	(0.026)
Num.Obs.	153	153
R2	0.926	0.468

A 1% increase in cost per cigarette pack is estimated to decrease the sales per capita by 0.76% (on average). The change in cost has an even greater effect on sales in this time period, which suggests cigarettes are an extremely elastic good. This can be explained by increasing evidence by the CDC suggesting the ill health effects cigarettes have, which makes people more sensitive to increased taxes/price.

Question 5

The elasticity estimations were higher in 1991-2015 versus 1970-1990. Taxes on cigarette packs increased, and coupled with information about the detrimental health effects about smoking cigarettes beginning in 1990, led to increased sensitivity from people about purchasing cigarettes.