alyssa problem set 3

Problem 1

exercise 1 exercise 9 - (c) weight on probability of exposure; run lm with weights; weights are the inverse of the exposure probabilities; fit lm(y exposure weights = weights) ; filter for which probability10 > 0 ; calculation of weights - if exposure == 10, prob10, else prob00

y on exposure would give you the prob of spillover

all you need to find for c and (probably b) is these different probability weights based on the exposure

exercise 11

Problem 5

a) Run the analysis in R including an intercept in the model.

```
library(stargazer)
```

```
## Warning: package 'stargazer' was built under R version 4.1.2
```

```
##
## Please cite as:
```

```
##  Hlavac, Marek (2022). stargazer: Well-Formatted Regression and Summary Statistics Tables.
```

```
##  R package version 5.2.3. https://CRAN.R-project.org/package=stargazer
```

```
data <- haven :: read_dta("camp1.dta")

m <- glm(dwin ~ julyecq2 + presinc + adaaca + I(presinc*julyecq2), family = binomial(link = "probit"), d

m
```

```
##
## Call:  glm(formula = dwin ~ julyecq2 + presinc + adaaca + I(presinc *
##     julyecq2), family = binomial(link = "probit"), data = data)
##
## Coefficients:
##           (Intercept)               julyecq2               presinc
##             -0.461229               0.020190              0.489485
##                adaaca  I(presinc * julyecq2)
##              0.003678               0.463499
##
## Degrees of Freedom: 543 Total (i.e. Null);  539 Residual
## Null Deviance:       675.7
## Residual Deviance: 518.5     AIC: 528.5
```

```
stargazer(m,
          type = "latex",
          title = "Probit model results",
          header = F,
          dep.var.labels = c("democratic win"),
          covariate.labels =c("2nd quarter GNP growth", "incumbent seeking re-election", "state liberali
```

Table 1: Probit model results

	Dependent variable:
	democratic win
2nd quarter GNP growth	0.020
	(0.088)
incumbent seeking re-election	0.489***
	(0.137)
state liberalism index	0.004**
	(0.002)
I(presinc ∗julyecq2)	0.463***
	(0.095)
Constant	−0.461***
	(0.099)
Observations	544
Log Likelihood	−259.250
Akaike Inf. Crit.	528.501
Note:	*p<0.1; **p<0.05; ***p<0.01

(b) Manipulate state liberalism index holding all other variables at their median values.

```
library(margins)

m <- glm(dwin ~ julyecq2 + presinc + adaaca + presinc:julyecq2, family = binomial(link = "probit"), data

margins(m, at = list(julyecq2 = median(data$julyecq2), presinc = median(data$presinc)))


## Average marginal effects at specified values

## glm(formula = dwin ~ julyecq2 + presinc + adaaca + presinc:julyecq2,     family = binomial(link = "pr

##  at(julyecq2) at(presinc) julyecq2 presinc  adaaca
##          1.08           0 0.007191  0.3527 0.00131
```

b - marginal effects get the range of the variable adaaca then get a sequence of values by 1 from bottom to top of range

or just get the values in the data set get the unique values of the data set then get the medians of various values - median is the function -one of them has a median of 0 so the interaction term drops out -get the medians, make the data set, then make an interaction variable based on the medians of the two variables (multiply them by each other)

- you could hold all of these things and evaluate the function
- he plotted it to look like a graph; then it looks like the graph has a constant slope
- maybe you can do analytically look it up

c) all the unique values in the data set ; plot for the 4 scenarios;

maybe a dataset for each hypothesis do the same for each then joint together and graphs

adaaca as a vector of the unique values of adaaca. then repeat it 4 times as a vector. create a variable for each hypothesis.

do predict for each, filtering for each hypothesis (type = response) because you want it on the scale of the y variable

plot the two with facet wrap and color each hypothesis differently

make a variable when not incumbent or when incumbent; incumbency probably matters? but he wasn't sure