Brad Anderson

ESM 244 |Winter 2018

## Assignment 2

*Parameter Estimation – Wild Fish Catch*

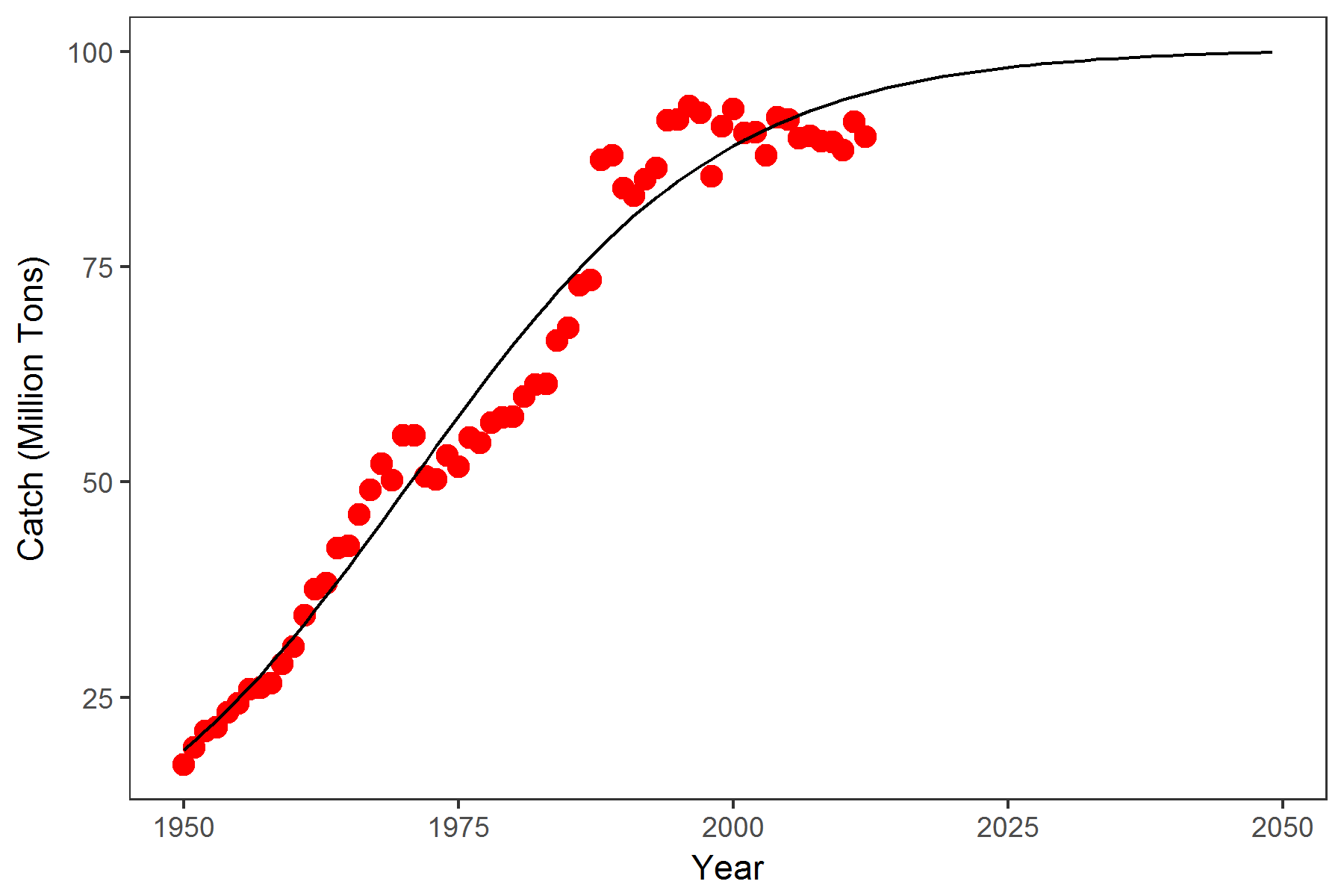


Figure 1: Global Wild Fish Catch. Historical data from 1915 to 2012, with non-linear model projection of future catch. Source: Earth Policy Institute with 1950-2010 from U.N. Food and Agriculture Organization (FAO), Global Capture Production and Global Aquaculture Production, electronic databases, at www.fao.org/fishery/topic/16140/en, updated March 2012

*Bootstrapped Confidence Intervals for Proportions*

*RProjects, R Markdown, Data Wrangling and ggplot*

library(tidyverse)

pest <- read\_csv("ca\_pest.csv")  
  
pop <- read\_csv("ca\_pop.csv")

both <- merge(pest, pop, by = "County")  
  
both$PestConcentration <- both$PestConcentration <- both$PestPounds/both$CountyArea  
   
both <- both %>%   
 select(County, PestConcentration, MedFamilyIncome, Population) %>%  
 arrange(-PestConcentration)

ggplot( both, aes(x = MedFamilyIncome, y = PestConcentration)) +  
 geom\_jitter(aes(size = Population))+  
 ylab("Pesticide (Pounds per Square Mile)")+  
 xlab("Median Family Income")+  
 geom\_smooth(se = FALSE, method = "lm")+  
 theme\_bw()+  
 theme(panel.grid.major = element\_blank(),  
 panel.grid.minor = element\_blank())

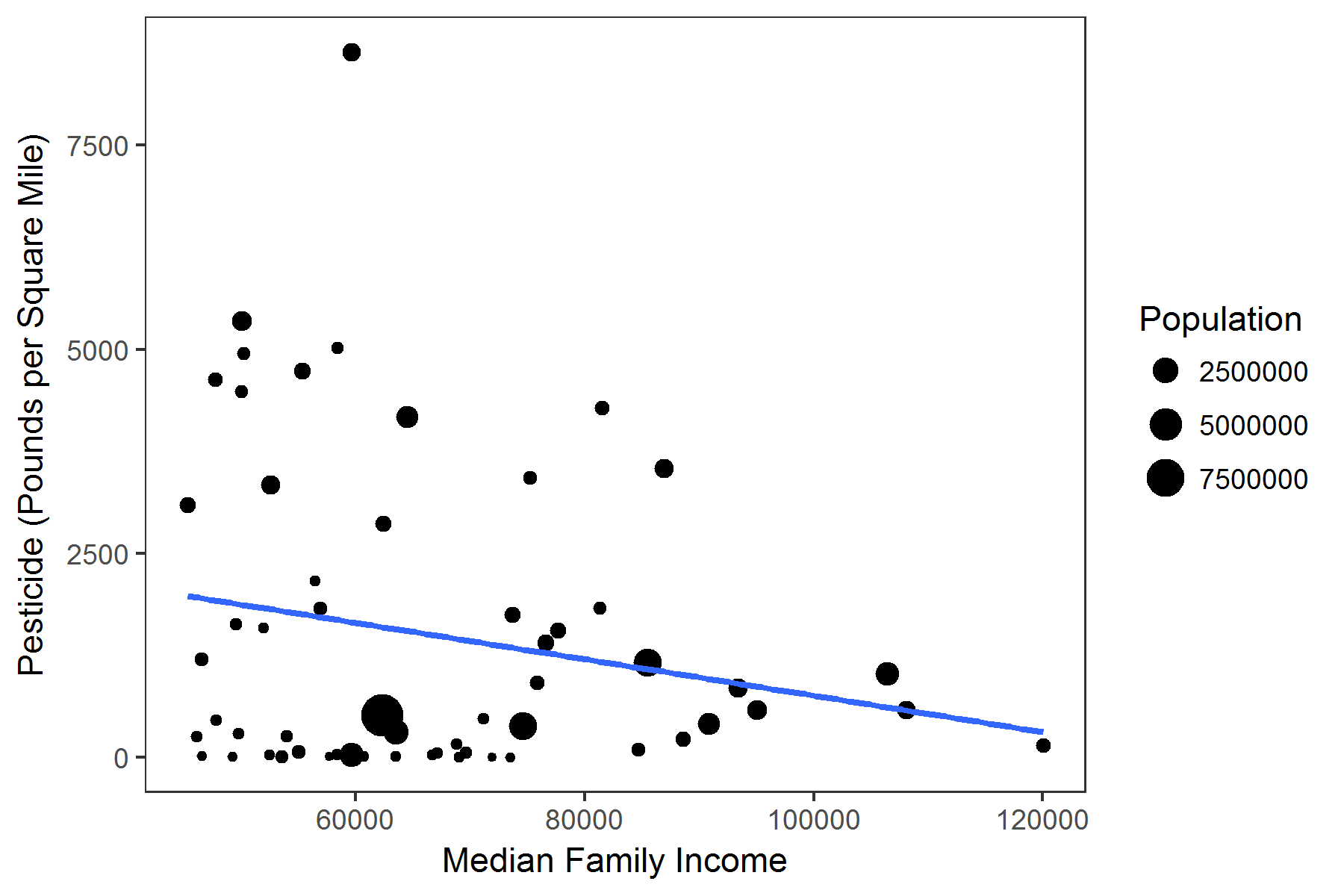


Figure 2: Pesticide Use in California Counties. Pesticide application in pounds per square mile for each county in California. Size of circle represents the county population size. Line of best fit shows decreased pesticide use corresponds with a higher family income. Pesticide data: 2014 CA pesticide application (by county) from the California Department of Pesticide Regulation (accessed at http://www.cdpr.ca.gov/docs/pur/pur14rep/14\_pur.htm). California population and income data: U.S. Census Bureau. American Community Survey, 2010- 2014 American Community Survey 5-Year Estimates.