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Income Inequality and its Effect on Work-Related Fatalities

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Income Inequality and its Effect on Workplace Fatalities

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Abstract:

While many papers have examined the effect of income inequality on a range of health outcomes, few have examined data on workplace fatalities. This study compiles data from the Bureau of Labor Statistics and Gini coefficient estimates for each of the U.S. states from 2008-2015 to estimate the effect of income inequality on workplace fatality rates using multiple regression models. The resulting estimates are partially significant; however, they do not conclusively demonstrate a causal relationship between income inequality and workplace fatalities due to biases and other factors.

Executive Summary:

The relationship between individual, absolute income and health outcomes has been well-established in the health economics literature. Previous research has shown that income and health are positively related, that is to say that individuals with higher incomes tend to live longer and be at a lower risk for certain illnesses and injuries. Most studies have found the relationship to be concave, meaning that each additional dollar yields a smaller boost to health outcomes relative to the previous dollar. Figure 2 illustrates this relationship.

There is less research, however, that investigates the relationship between relative income rather than absolute income and health outcomes. Some social scientists argue that the individual level of income relative to others in the society affect an individual's perception of their social standing. The argument follows that individuals judge their own success by comparing themselves to others; in a society with low income inequality, most people earn a relatively similar amount of money annually and, therefore, experience less anxiety and stress when comparing themselves to their peers. In contrast, a highly unequal society may cause individuals to perceive themselves to be less economically well-off as they compare themselves to the rich. It is not necessarily the case that individuals in an unequal society earn less money on average, but rather that they discount their earnings relative to the higher-earners in their society.

Conversely, the argument could be made that the social stressors theory is balanced in an unequal society by the deeper levels of poverty that lead the individual to perceive himself as relatively wealthy. A stronger critical argument of the social stressors theory points to the distribution of a society on the income-health curve. As income inequality increases in a society, the overall effect on health depends on the range of incomes along the income-health curve. If health outcomes decrease as income inequality increases, it means that the average income of the society has decreased; accordingly, an increase in health outcomes means that the average income has increased. If income inequality does not reliably predict health outcomes, it lends credence to the argument that income inequality is affecting health through the distribution of incomes. Figure 2 illustrates two societies, one relatively equal, the other relatively inequal, with an equal average level of health. Societies with higher income inequality may see their average health level shift up or down relative to the more equal society depending on whether changes in income inequality created more relative poverty or wealth in the society.

This study uses data from income tax returns to the IRS to calculate income inequality in each U.S. state as well as data on workplace fatalities from the Bureau of Labor Statistics [BLS]. Income inequality was calculated as a Gini coefficient, which is a measure of the difference between the cumulative distribution of income in a society, or Lorenz curve, and a perfectly equal distribution. A Gini coefficient of 0 represents a perfectly equal society in which all members have exactly the same income, while a coefficient of 1 represents a perfectly unequal society in which exactly one individual holds all of the wealth. Figure 1 illustrates the calculation of a Gini coefficient.

The data collected ranges from 2008-2016 and were separated by state and year. Additional data was collected to include factors such as the state unemployment rate, population, individual income, age, education level, industry composition and other demographic control variables. The data from the BLS was broken down by working industry, allowing for industry-level regressions. A final regression including data from the National Vital Statistics Survey [NVSS] on overall state mortality rates in order to link workplace fatalities to the general mortality rate. Workplace fatalities were used in order to isolate the effect of income inequality as workers who are fatally injured in the workplace generally do not have the ability to expend their income to mitigate their health outcomes, meaning that individual income should not have a direct effect on the probability experiencing a fatal accident on the job.

Seven linear regression models are estimated in this study, of which three demonstrate a significant positive estimate on the effect of a state's Gini coefficient on the workplace fatality rate. The fact that the remaining four regressions are insignificant, however, leads to a mixed conclusion about the relationship between income inequality and workplace fatalities. It is uncertain whether there is a causal relationship between the two variables, or if the results are due to changes in the societal distribution of wealth.

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Introduction:

High levels of income inequality are known by economists to have a variety of effects on individuals and their wellbeing. In the labor market, a number of researchers have found a significant link between high income inequality and an increased number of work-related injuries; however, none have studied the incidence of fatal injuries in relation to income inequality. This research combines archival data from the Bureau of Labor Statistics [BLS] on worker fatalities from 2009 to 2015 with state-level Gini coefficients calculated from individual tax returns submitted to the Internal Revenue Service [IRS]. Utilizing the methodological framework set out by existing papers on the subject, I use regression analysis to assess the impact of income inequality on the number of work-related fatalities and find mixed significant and insignificant results. The results are explained by several theories posited within the research on the subject, and I propose several additional factors of analysis to improve the robustness of my findings. This research contributes to the few papers that have analyzed fatality data specifically and to the literature on income inequality and health as a whole, demonstrating that income inequality merits attention from policy-makers due to its ancillary effects on health.

Literature Review:

Many articles have discussed the outcomes of inequality on health in general, most of which report negative health outcomes in areas of relatively high income inequality. For this research, I consider these articles in addition to the literature regarding workplace injuries specifically. The studies consulted for this paper provide insights as to statistical methods and regression design as well as theoretical perspectives that explain the relationship between income inequality and health outcomes.

Doctors Elizabeth Quon and Jennifer McGrath investigate the relationship between income inequality and the health of Canadian youth at the province level. They cite research by Richard Wilkinson and Kate Pickett in 2006 that found that countries with greater income inequality tend to have lower outcomes for various health indicators (Quon and McGrath 2014, 251). A meta-analysis of self-rated health and mortality studies by Kondo et al. in 2009 found a modest adverse impact of income inequality (Quon and McGrath 2014, 251). Quon and McGrath's own research utilizes data from the Canadian National Longitudinal Survey of Children and Youth and recorded health outcomes using self-rated health, mental health, health behaviors, substance use and physical health; their research supports the hypothesis that income inequality negatively affects health in that they found an association between income inequality and injuries, and lower general well-being (2014, 255). They perform their regression analysis at the individual and province level using individual income, household income and Gini coefficients to measure income inequality (Quon and McGrath 2014, 253-254). The two argue that their research approach may aid in revealing differences between adolescent and adult effects of income inequality, as socio-economic status becomes self-determined with age (Quon and McGrath 2014, 251). To explain their results, Quon and McGrath rely on social cohesion theory, which suggests that income inequality causes individuals to have low social capital and to encounter stress when comparing oneself to others (2014, 251).

Research by Brian Biggs et al. considers income inequality and its impact on health outcomes in Latin American countries; their analysis considers gross domestic product [GDP] per capita and purchasing power parity [PPP], extreme poverty rates, and Gini coefficients as well as life expectancy, infant mortality rates, and tuberculosis [TB] mortality rates (2010, n.p.). The team cites work by Richard Wilkinson in 1992 that found a strong correlation between a decrease in relative poverty and higher life expectancy (Biggs et al. 2010, n.p). Their data was drawn from the World Bank, the World Health Organization, and the Socio-Economic Database for Latin America and the Caribbean and their regression analysis finds a strong correlation between poverty and low life expectancy and high infant mortality (Biggs et al. 2010, n.p). They also found a strong correlation between national income and high life expectancy and low infant mortality; however, the effect was limited by income inequality, indicating that increases in national income only positively affect health if the added income goes to the lower social milieus of the country (Biggs et al. 2010, n.p). Biggs and company argue that their results demonstrate a concave shape of the curve of income and health (2010, n.p). To explain their results, the researchers offer three explanations. The psychosocial interpretation suggests that an individual's perception of belonging to a low level of a social hierarchy causes stress and depression and, therefore, poor health (Biggs et al. 2010, n.p). The neo-materialist interpretation contends that the health differences between relatively equal and relatively unequal areas can be attributed to differences in exposures and experiences in the material world (Biggs et al. 2010, n.p). Lastly, the social cohesion interpretation argues that inequality prevents the development of social capital, which causes poor health, as suggested by Quon and McGrath (Biggs et al. 2010, n.p).

Kearney and Levine explore the effects of relative deprivation in their research on income inequality and teen pregnancy levels. They note that the United States has relatively high levels of teen pregnancy compared to other developed countries and that it also has higher levels of income inequality than its global contemporaries (Kearney and Levine 2014, 1). The two find a correlation on the international and inter-state level between Gini coefficients and the incidence of teen pregnancy (Kearney and Levine 2014, 4). They argue that there is no existing explanation for the geographical variation and that income inequality serves to explain the differences

(Kearney and Levine 2014, 4-5). Kearney and Levine regress interaction terms of inequality measures and indicators of socioeconomic status including educational attainment and high school dropout status on the likelihood of having given birth before age 20 (2014, 10). Their results indicate that while low-income women are more likely to give birth in their teen years than high-income women, this likelihood increases significantly if the low-income women also find themselves in a state with high income inequality (Kearney and Levine 2014, 15). They consider, however, that the difference may be a result of fewer abortions occurring in the highly unequal states (Kearney and Levine 2014, 16). In all, they argue that poor, young women in highly unequal communities perceive socioeconomic success as unattainable and maximize their utility by not delaying motherhood in search of a well-paying job and, thus, enjoy the more immediate gratification of having a baby (Kearney and Levine 2014, 28). The two argue that their results are robust and demonstrate that income inequality is a driving factor for teen pregnancy rates; moreover, they suggest that income inequality may explain other behaviors such as low educational attainment and higher crime rates (Kearney and Levine 2014, 29).

Work by Subramanian and Kawachi in 2004 analyzes the effect of income inequality measured with Gini coefficients and mortality rates within each state of the U.S. The two also find evidence that suggests a concave shape to the income-health curve (Subramanian and Kawachi 2004, n.p.). They argue that, in general, a transfer of income from the rich plateau portion of the income-health function to the poor and steep portion of the curve would yield a net increase in aggregate health (Subramanian and Kawachi 2004, n.p.). In order to identify this effect, they use a non-linear regression model with no intercept term (Subramanian and Kawachi 2004, n.p.). The researchers point out many considerations for further research on the topic, noting that non-U.S. studies are more likely to fail to find such an association as nearly all developed countries have lower levels of income inequality than the United States (Subramanian and Kawachi 2004, n.p.). They also point out that international studies often use units smaller than metropolitan statistical areas and may not appropriately identify the diverse income communities within a given area (Subramanian and Kawachi 2004, n.p.). Subramanian and Kawachi also find that individual income, educational attainment, race, and region all confound their results; moreover, they regress their data in a time-series model and find that the strongest potential negative effect of income inequality on health occurs after 15 years (2004, n.p.). The two, moreover, compiled results from a series of domestic and international studies on the subject found in Figure 3 and Figure 4.

In 2015, Wilkinson and Pickett performed a meta-analysis of the approximately 300 studies involving income inequality and health outcomes. They found that 70% of the studies found strong evidence that income inequality affects health outcomes for the worse, while 6% of the studies found no relationship (Wilkinson and Pickett 2015, n.p.). They argue that the studies that found no relationship either measured inequality at an inappropriate scale, included mediating variables as controls, used subjective health measures or followed up too quickly with their subjects (Wilkinson and Pickett 2015, n.p.). Additionally, they argue that scale is important in such studies, as research that uses income inequality on areas that are too small may incidentally segregate residents into rich and poor areas, which are, in turn, relatively equal and will not demonstrate a significant effect (Wilkinson and Pickett 2015, n.p.). Subramanian and Kawachi support this claim, arguing that, within the United States, state-level data are sufficient for such analysis, but smaller scale data yield unclear results (2004, n.p.).

Several papers exist that discuss the interaction between income inequality and injuries specifically. Cubbin and company researched injury mortality at the neighborhood level using data from the 1990 Census, the National Health Interview Survey, and the National Death Index (2000, n.p.). To justify using neighborhood-level data, they argue that individual's characteristics are robust to neighborhood characteristics and that differences in race and socioeconomic status are mediated through one's residential environment (Cubbin et al. 2000, n.p.). They found that the characteristics of one's residential neighborhood are associated with the risk of injury mortality, and that victims of fatal injuries tended to be single men with low income and low educational attainment (Cubbin et al. 2000, n.p.). Leeth and Ruser investigate workplace injuries and explore "safety segregation" among workers by using data from the Bureau of Labor Statistics (2005, 126). They argue that individuals who grow up in poverty are less risk-averse and tend to take riskier jobs than otherwise (Leeth and Ruser 2005, 123). In addition, the two contend that growing up in poverty generally means that the individual will have a below average level of education and, therefore, will tend to work in higher risk blue collar jobs (Leeth and Ruser 2005, 124). Immigrants, moreover, may be assigned riskier jobs due to a low working knowledge of English and a fear of being fired that prevents them from understanding safety procedures and arguing for low-risk work conditions (Leeth and Ruser 2005, 124). The two note that there are weaknesses in considering nonfatal injuries due to inconsistencies in reporting; for example, people with few support options are less likely to report a work injury and more likely to continue working; however, fatal injuries are reported almost invariably (Leeth and Ruser 2005, 147-148). Ultimately, their work does not yield differentiable results and the study allows only for comparison between demographic groups. Gotsens and company study the risk of injury, motor-vehicle accident [MVA], and suicide in 26 European cities over two periods by using a socio-economic deprivation index (2013, n.p.) The index included unemployment levels, education levels, youth education levels, rates of manual labor, and rates of temporary work contracts (Gotsens et al. 2013, n.p.). The resulting regression indicated a significant association between all injuries and socioeconomic deprivation in 22 of the 26 sample cities (Gotsens et al. 2013, n.p.). Lastly, Berdahl and McQuillan use data from the US Census and National Longitudinal Survey of the Youth to analyze the occupational and racial composition of nonfatal work injuries (2008, 549). They find that white men have the highest injury risk and that individual social closure, market position and skills cause different labor market outcomes in terms of job risk (Berdahl and McQuillan 2008, 550). While their study did not include inequality measures, they conclude that they should be factored into the analysis, as their findings were limited in scope (Berdahl and McQuillan 2008, 568). The two argue, nonetheless, that social closure and queuing theories explain the racial differences in injury risk as high-status workers seek to maintain their privilege by denying out-group coworkers the same level of training, full access to safety information, and by placing them in higher risk positions (Berdahl and McQuillan 2008, 551). Additionally, minorities may be placed in less desirable occupations as a result of racial discrimination and low human capital may also cause individuals to work risky jobs (Berdahl and McQuillan 2008, 551-553).

With a focus on workplace fatality, this paper gives special consideration to the studies listed by Subramanian and Kawachi that perform regressions on mortality outcomes. Of the six studies listed in Figures 3 and 4, only one yielded results that supported the claim that income inequality is positively related to mortality outcomes. The study by Lochner et. al. does find a significant positive relationship between income inequality and mortality; however, the authors posit that the findings may be independent of changes in income inequality or may be a statistical outcome of the sample distributions, as described by Figure 2 (2001, 388-389). Their research was further confounded by demographic factors such as race, and they argue that the data aggregated to each state may not be the most meaningful method for examining health effects on racial minority groups (Lochner et. al. 2001, 390). Studies by Daly et. al., Gerdtham and Johannesson, Jones and Twigg, and Osler et. al. find no significant relationship between income inequality and mortality outcomes (2001, n.p.; 2002, n.p.; n.d. 240; 2002, n.p.). Work by Fiscella and Franks initially yielded significant results between income inequality and individual mortality within their study communities; however, the result became insignificant after adjusting for individual household income (1997, n.p.). These studies are considered in analyzing the work in this paper; in particular, they provide reasons for which the regressions that follow may not be significantly positive.

Research has also been conducted by Occupational Safety and Health Administration to explore the causes and effects of injuries in the workplace. A 2015 report found that employers fail to meet the government standards and provide adequate pay benefits, which causes more suffering to injured workers (Michaels, n.p.). Workplace injuries, therefore, are argued to be a cause of persistent income inequality. The cost related to workplace injuries tends to be borne by the injured, their families and the social safety net (Cole 2015, n.p.). Additionally, workers lose on average 15% of their potential salary over the ten years following an injury due to forced time off and a reduced physical capacity to work; this loss may be larger for those who do not enter the worker's compensation system (Cole 2015, n.p.).

Data:

Workplace fatality rate for this project were collected from the Bureau of Labor Statistics "State Occupational Injuries, Illnesses and Fatalities" database (2018, n.p.). The data were compiled by hand in an excel sheet using the individual year and state PDF files available on the database. The compiled data can be found in Appendix 1. The fatality rates published by the BLS represent the number of deaths per year per 100,000 workers and are obtained using the following calculation:

Fatality rate = $(N_S/EH_S) \times 200{,}000{,}000$ *where*

N_S = *number of fatal work injuries in the state*

EH_S = *total hours worked by all employees in the state during the calendar year*

200,000,000 = base for 100,000 equivalent full-time workers (40 hours/week, 50 weeks/year)

National mortality data available through the National Vital Statistics Survey [NVSS] was also collected to perform the regression using overall mortality rates in each state. Income inequality data was collected in the form of state-level Gini coefficients, calculated by Economics Professor Mark Frank by using individual tax returns submitted to the IRS (2015, n.p.). The regressions controlled for state unemployment levels using unemployment rate publications from the BLS, compiled in Appendix 2 ("Local Area Unemployment Statistics," n.d. n.p.). The regressions also controlled for state population by using the 2010 census data ("2010 Census," n.d. n.p.). A variety of other control variables were included through data from the Current Population Survey [CPS] compiled using IPUMS ("Current Population Survey Data for Social, Economic and Health Research" n.d. n.p.). Data collected included individual age, education level, total yearly income, state of employment, individual weight, industry of employment, race, and ethnicity. The data on race, ethnicity, and industry was coded as dummy variables for each individual. All the data was compiled into a single Stata file and averaged over all nine years of analysis for each of the fifty states. The resulting data represent the average workplace fatality or mortality rate, Gini coefficient, age, education level, annual income, and weight in each state. When averaged, the dummy variables for race, ethnicity and industry represent the percentage of people in each racial, ethnic, and industry category in each state.

Empirical Methods:

This research seeks to extend the literature on income inequality and health outcomes by finding an association between income inequality and fatal work injuries. I am considering fatal work injuries as the data was most readily available from the BLS, and in doing so, I avoid measurement errors in workplace illness and injury data, which often go unreported. The linear regression model will use income inequality data at the state level to encompass a larger amount of income diversity, which, as the literature indicates, is important to creating a significant and robust regression model. To identify income inequality, this work relies on the tendency in the literature to use Gini coefficients as a proxy for income inequality. The literature also indicates that there may be reverse causality between fatal work-related injuries and income inequality; therefore, the final regression model will be treated in order to ensure that it has robust standard errors and yields reliable results.

Using the aforementioned data from the BLS, IRS, NVSS, and CPS, I produce seven unique regression equations. The first measures the state crude mortality rates as an outcome of the state-level Gini coefficients and the control variables:

$$Crude\ Mortality\ Rate = ß_0+ß_1(Gini) +ß_2(2010\ population)+ß_3(Unemployment\ rate)+ß_4(Weight)+ß_5(Age)+ß_6(Education)+ß_7(Income)+ß_8(\%White)+ß_9(\%Hispanic)+ß_{10}$$

$$(\%Agriculture)+ß_{11}(\%Mining)+ß_{12}(\%Construction)+ß_{13}(\%Manufacturing)+ß_{14}(\%Retail) +ß_{15}(\%Transportation)+ß_{16}(\%Information)+ß_{17}(\%Finance)+ß_{18}(\%Service)+ß_{19}(\%Education\ \&\ Medicine)+ß_{20}(\%Recreation)+ß_{21}(\%Public\ Administration)+ß_{22}(\%Military)$$

The second regression calculates the effect of income inequality on the overall rate of workplace fatalities in each state using the same control variables:

$$Overall\ Workplace\ Fatality\ Rate = ß_0+ß_1(Gini) +ß_2(2010\ population)+ß_3(Unemployment\ rate)+ß_4(Weight)+ß_5(Age)+ß_6(Education)+ß_7(Income)+ß_8(\%White)+ß_9(\%Hispanic)+ß_{10}(\%Agriculture)+ß_{11}(\%Mining)+ß_{12}(\%Construction)+ß_{13}(\%Manufacturing)+ß_{14}(\%Retail) +ß_{15}(\%Transportation)+ß_{16}(\%Information)+ß_{17}(\%Finance)+ß_{18}(\%Service)+ß_{19}(\%Education\ \&\ Medicine)+ß_{20}(\%Recreation)+ß_{21}(\%Public\ Administration)+ß_{22}(\%Military)$$

The final five regressions calculate the effect of income inequality on the industry-specific workplace fatality rates using the same control variables in the industries with the most observations in the dataset. These industries are agriculture, construction, manufacturing, retail and wholesale, and business. The industry composition controls are not included in these regressions because the data is conditioned on belonging to the left-hand side variable industry:

$$Industry\ Fatality\ Rate = ß_0+ß_1(Gini) +ß_2(2010\ population)+ß_3(Unemployment\ rate)+ß_4(Weight)+ß_5(Age)+ß_6(Education)+ß_7(Income)+ß_8(\%White)+ß_9(\%Hispanic)$$

The regressions were performed with averaged data to ensure that the calculation measured the differences between states rather than the changes in fatality rates and Gini coefficients in each state over time. Since the data was clustered into state groups, there is a risk of heteroscedastic error terms, especially given that data availability differed for each state; therefore, the regressions are treated with robust standard errors.

Results:

Of the seven regression equations estimated in this paper, all resulted in a positive estimation for the β_1 coefficient on the Gini variable. Three regression equations yielded estimates that were significant in the positive direction: the agricultural industry workplace fatality rate, the overall workplace fatality rate, and the retail and wholesale workplace fatality rate, which were significant at the 1%, 5% and 10% levels respectively. Figures 5-12 display the Stata output for the regression estimations of all of the variables. Figures 6, 7 and 11 display the significant regressions. The β_1 coefficient for the overall workplace fatality rate regression model was estimated as 23.757 and can be interpreted statistically as an increase of 23.757 deaths for every 100,000 workers for a single standard deviation increase in a given state's Gini coefficient. In the retail and wholesale industry, the coefficient was estimated as 15.311. The model for the agricultural industry, however, yielded an estimate of 322.149.

The remaining four regression equations yielded positive results that were statistically insignificant. In the manufacturing industry, the regression was initially negative; however, omitting four outlying data points turned the regression positive. The difference in the regression output is illustrated in Figures 9 and 10.

Conclusion:

The positive regression results in the overall, agriculture and retail and wholesale regression models support the hypothesis that income inequality is related to higher rates of workplace fatality; however, the insignificant results on the other regression models confound this argument. None of the initial simple regression estimates of the models that included only the Gini data were positive and significant; in fact, many were negative. The positive movement in the estimates as more data were added demonstrates negative bias.

The models are subject to bias on many levels. Data for the models was collected on an aggregate level and averaged, contributing aggregation bias to the models. Using data collected at the state level likely causes heteroscedastic errors as conditions in each state vary; moreover, measurement error may be exacerbated by differences in data collection in each state. Workplace fatality data is subject to measurement error over discrepancies between the individual's state of employment and state of residency. An OSHA report indicates that workplace fatalities may exacerbate income inequality as the worker's family often does not file a compensation claim, indicating reverse causality in the regression models (Michaels, n.p.). Other variables exist that predict one's risk for death on the workplace that are either non-observable or not included in the regressions, causing omitted variable bias. A significant disadvantage to studying workplace fatalities is that they are rare relative to workplace injuries and illnesses; the low case rate and relatively short 8-year timespan of the study may not include a sufficient amount of data to demonstrate a causal relationship between income inequality and workplace fatalities.

More research should be conducted on this topic. Data from the BLS on workplace illnesses and injuries would have been a useful inclusion to this study and should be compiled and made accessible in future research. The income inequality database accessed for this project is also quite large and includes nearly a century of data for each U.S. state. This data could be used in future research that accesses a larger range of historic data on health or mortality measures.

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Figure 1: Lorenz Curve. (Subramanian and Kawachi 2004, n.p.).

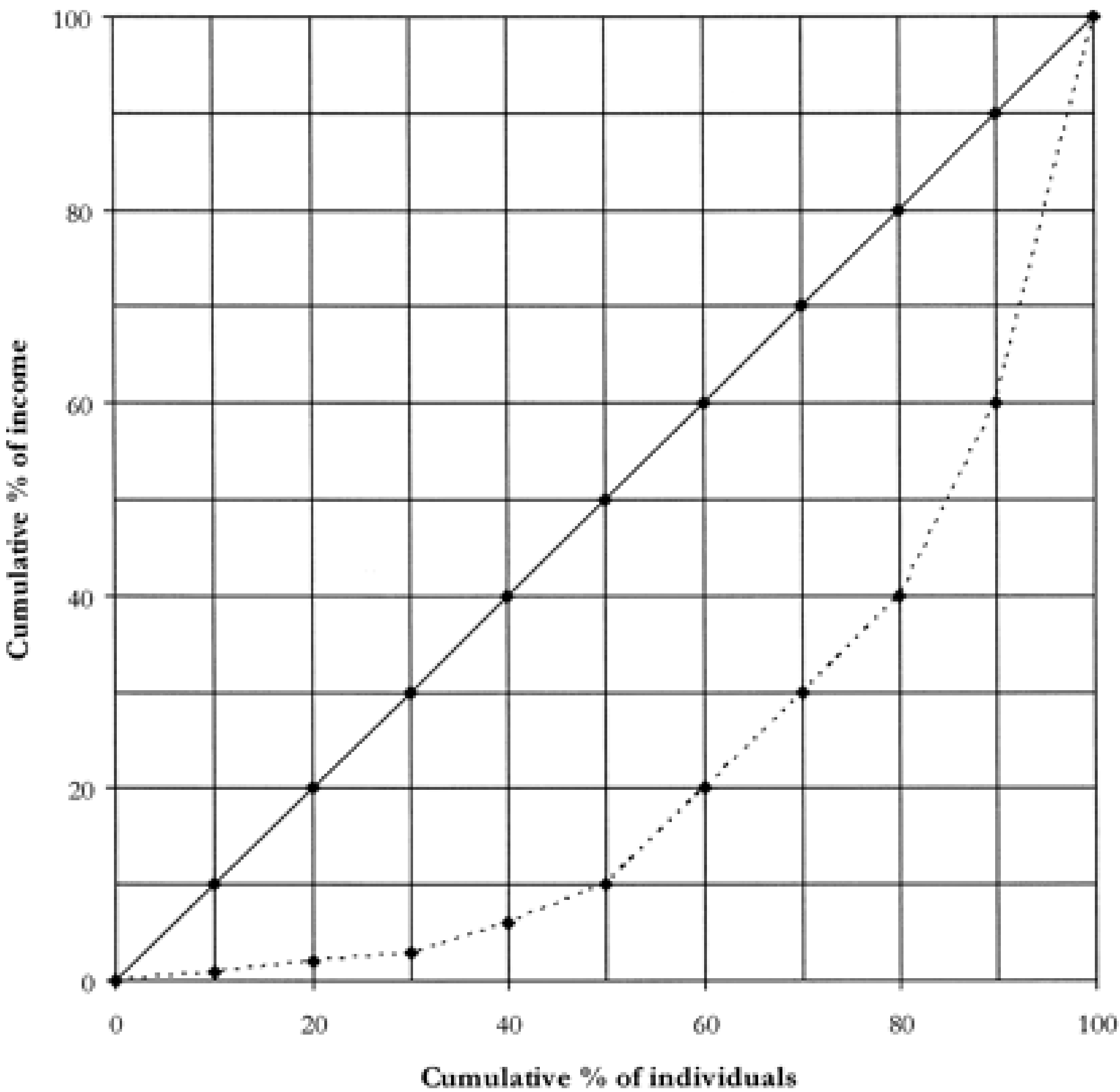
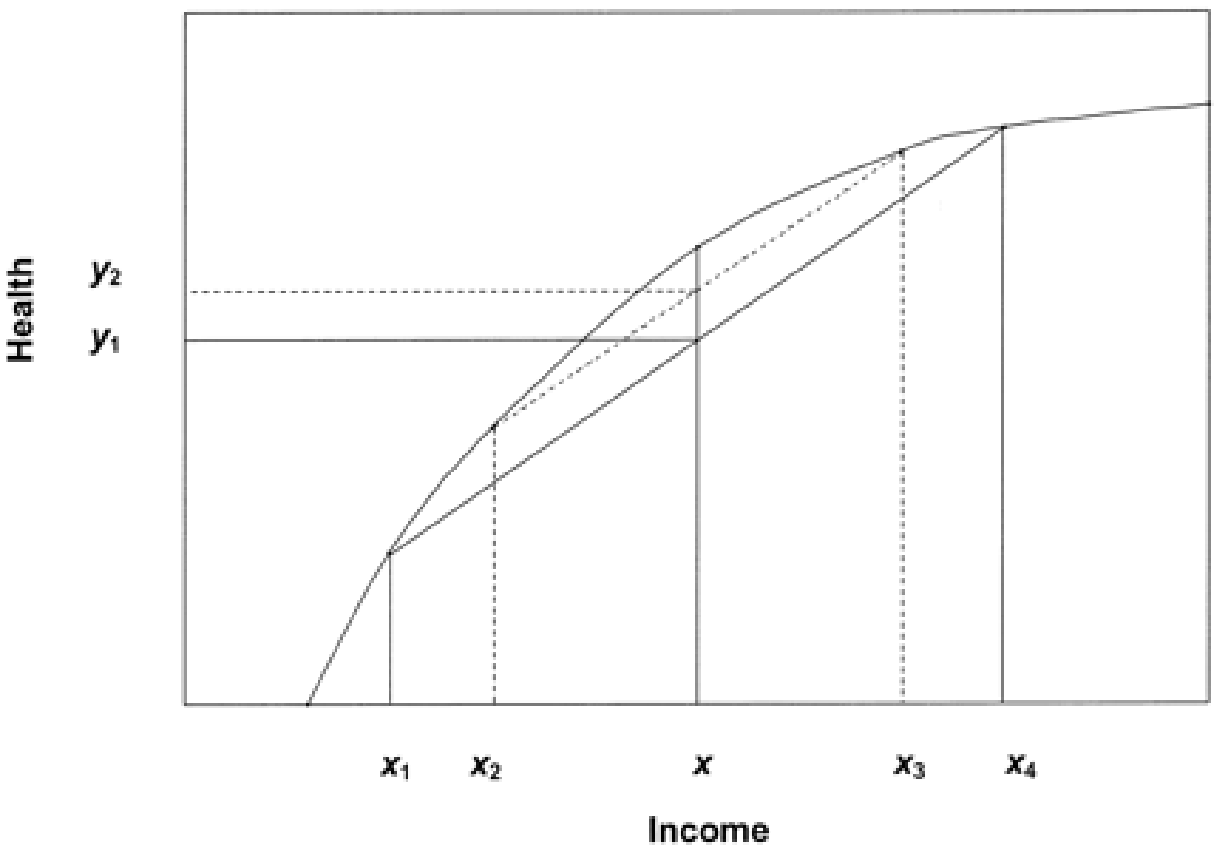


Figure 2: The individual-level relationship of income and health. (Subramanian and Kawachi



2004, n.p.).

Figure 3: Published studies on income inequality and health in the U.S. (Subramanian and Kawachi 2004, n.p.).

Authors, year (reference no.)	Data	Sample population	Method*	Outcome	Support for income inequality hypothesis
Fiscella and Franks, 1997 (26)	National Health and Nutrition Examination Survey (1971–1975)	14,407 adults from US counties (no. for counties not reported)	Single-level regression	Mortality	No
Daly et al., 1998 (27)	Panel Study of Income Dynamics (1980, 1990 cohorts)	About 6,500 adults from US states (no. for states not reported)	Single-level regression	Mortality	No
Kennedy et al., 1998 (19)	Behavioral Risk Factor Surveillance System (1993, 1994)	205,245 adults from 50 US states	Marginal models	Self-rated health	Yes
Soobader and LeClere, 1999 (20)	National Health Interview Survey (1989–1991)	9,637 White males from US counties and tracts (no. for counties and tracts not reported)	Marginal models	Self-rated health	Yes (at both county and tract levels)

Blakely et al., 2000 (17)	Current Population Survey (1995, 1997)	279,066 adults nested within 50 US states	Multilevel models	Self-rated health	Yes
Diez-Roux et al., 2000 (18)	Behavioral Risk Factor Surveillance System (1990)	81,557 adults nested within 50 US states	Multilevel models	Hypertension, smoking, sedentarism, body mass index	Yes
Kahn et al., 2000 (21)	National Maternal and Infant Health Survey (1991)	8,285 women from 50 US states	Marginal models	Depressive symptoms, self-rated health	Yes
Lochner et al., 2001 (22)	National Health Interview Survey–National Death Index-linked study (1987–1995)	546,888 adults from 50 US states	Marginal models	Mortality	Yes
Mellor and Milyo, 2002 (48)	Current Population Survey (1995–1999)	309,135 adults aged 25–74 years from US states and metropolitan areas (no. not reported)	Marginal models	Self-rated health	No

Subramanian et al., 2001 (23)	Behavioral Risk Factor Surveillance System (1993, 1994)	144,692 adults nested within 39 US states	Multilevel models	Self-rated health	Yes
Blakely et al., 2002 (16)	Current Population Survey (1995, 1997)	18,547 respondents and adults nested within 232 US metropolitan areas and 216 counties	Multilevel models	Self-rated health	No (at both metropolitan and county levels)
Sturm and Gresenz, 2002 (30)	"Healthcare for Communities" telephone survey (1997–1998)	8,235 adults from US metropolitan areas (no. for metropolitan areas not reported)	Marginal models	Self-reports of 17 common conditions (e.g., arthritis, depression)	No
Mellor and Milyo, 2003 (29)	Current Population Survey (1995–1999)	309,135 adults aged 25–74 years from US states	Marginal models	Self-rated health	No
Subramanian et al., 2003 (24)	Current Population Survey (1995, 1997)	90,000 adults aged ≥45 years nested within 50 US states nested within nine census divisions	Multilevel models	Self-rated health	Yes

Subramanian and Kawachi, 2003 (25)	Current Population Survey (1995, 1997)	201,221 adults nested within 50 US states	Multilevel models	Self-rated health	Yes

Figure 4: Internationally published studies on income inequality and health.

(Subramanian and Kawachi 2004, n.p.).

Authors, year (reference no.)	Data	Sample population	Method*	Outcome	Support for income inequality hypothesis
Gerdtham and Johannesson, 2001 (32)	Swedish Survey of Living Conditions (1997)	≥40,000 adults from municipalities in Sweden (no. for municipalities not reported)	Marginal models	Mortality	No
Jones et al., 2004 (33)	UK† Health and Lifestyle Survey (1997)	8,720 adults nested within 207 UK constituencies nested within 22 regions	Multilevel models	Mortality	No
Osler et al., 2002 (34)	Two cohort studies in Copenhagen, Denmark (1964–1992, 1976–1994)	25,728 adults from parishes within Copenhagen city (no. for parishes not reported)	Single-level regression	Mortality	No

Shibuya et al., 2002 (31)	Japanese Survey of Living Conditions of the People on Health and Welfare (1995)	80,899 adults from Japanese prefectures (no. for prefectures not reported)	Marginal models	Self-rated health	No
Blakely et al., 2003 (35)	New Zealand Census-Mortality Study	1,391,118 adults nested within regions within New Zealand (three alternatives, *n* = 14, *n* = 35, *n* = 73)	Multilevel models	All-cause and cause-specific mortality	No
Subramanian et al., 2003 (37)	2000 National Socioeconomic Characterization Survey, Chile	98,344 adults nested within 61,978 households nested within 285 Chilean communities nested within 13 regions	Multilevel models	Self-rated health	Yes

Figure 5: Regression Output: Crude Mortality Rate

```
Linear regression                               Number of obs     =         50
                                                F(23, 26)         =     125.81
                                                Prob > F          =     0.0000
                                                R-squared         =     0.9415
                                                Root MSE          =     41.333
```

cruderate	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gini	28.23306	227.5634	0.12	0.902	-439.5302	495.9963
pop2010	-1.04e-06	1.35e-06	-0.77	0.449	-3.80e-06	1.73e-06
rate	-1.337809	3.163179	-0.42	0.676	-7.839816	5.164199
hhwt	-5.679039	11.2593	-0.50	0.618	-28.82286	17.46478
perwt	-3.611071	8.200144	-0.44	0.663	-20.46671	13.24457
age	63.3895	9.961877	6.36	0.000	42.91257	83.86643
educ	-243.5365	82.52339	-2.95	0.007	-413.1657	-73.90722
inctot	-.0036777	.0044803	-0.82	0.419	-.012887	.0055317
Dwhite	-64.5203	129.7307	-0.50	0.623	-331.1855	202.1449
Dhispanic	-556.1464	123.2233	-4.51	0.000	-809.4356	-302.8573
Dagri	-48014.41	18109.02	-2.65	0.013	-85238.04	-10790.78
Dmine	-51116.84	19725.96	-2.59	0.015	-91664.14	-10569.55
Dcons	-55259.12	18963.01	-2.91	0.007	-94238.15	-16280.1
Dmanu	-48553.54	18099.52	-2.68	0.013	-85757.63	-11349.44
Dsale	-47826.02	18018.78	-2.65	0.013	-84864.15	-10787.89
Dtran	-48425.53	18321.38	-2.64	0.014	-86085.66	-10765.39
Dinfo	-44753.1	17502.17	-2.56	0.017	-80729.33	-8776.87
Dfina	-47854.7	17955.26	-2.67	0.013	-84762.27	-10947.13
Dserv	-46695.36	18471.7	-2.53	0.018	-84664.48	-8726.234
Dedmed	-47042.95	18181.13	-2.59	0.016	-84414.8	-9671.093
Drec	-47750.04	17920.23	-2.66	0.013	-84585.59	-10914.48
Dpubad	-46811.72	17521.1	-2.67	0.013	-82826.86	-10796.58
Dmili	-50807.12	18157.87	-2.80	0.010	-88131.17	-13483.08
_cons	48602.92	18116.1	2.68	0.013	11364.74	85841.1

Figure 6: Regression Output: Overall Workplace Fatality Rate

Linear regression			
	Number of obs	=	50
	F(23, 26)	=	42.26
	Prob > F	=	0.0000
	R-squared	=	0.8293
	Root MSE	=	1.2236

overall	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gini	23.75742	10.18865	2.33	0.028	2.814362	44.70049
rate	-.007729	.2122569	-0.04	0.971	-.4440293	.4285714
pop2010	-4.54e-08	4.02e-08	-1.13	0.269	-1.28e-07	3.72e-08
hhwt	.4072255	.2662749	1.53	0.138	-.1401104	.9545614
perwt	-.6452369	.2841059	-2.27	0.032	-1.229225	-.0612488
age	-.3038471	.3877227	-0.78	0.440	-1.100823	.4931283
educ	-.178563	2.207517	-0.08	0.936	-4.716179	4.359053
inctot	.0000886	.0001811	0.49	0.629	-.0002836	.0004607
Dwhite	-1.054614	4.174582	-0.25	0.803	-9.63559	7.526362
Dhispanic	.3999968	4.080109	0.10	0.923	-7.986787	8.786781
Dagri	-79.17422	522.9563	-0.15	0.881	-1154.126	995.7778
Dmine	-9.130634	586.4521	-0.02	0.988	-1214.6	1196.339
Dcons	-50.74716	540.4039	-0.09	0.926	-1161.563	1060.069
Dmanu	-108.8267	533.9762	-0.20	0.840	-1206.43	988.7771
Dsale	-64.50463	522.344	-0.12	0.903	-1138.198	1009.189
Dtran	-54.43747	523.7017	-0.10	0.918	-1130.922	1022.047
Dinfo	-276.878	589.7637	-0.47	0.643	-1489.155	935.3986
Dfina	-135.0608	542.2389	-0.25	0.805	-1249.649	979.5273
Dserv	-99.81194	538.6244	-0.19	0.854	-1206.97	1007.346
Dedmed	-107.8027	533.521	-0.20	0.841	-1204.471	988.8653
Drec	-118.6784	525.4691	-0.23	0.823	-1198.796	961.4388
Dpubad	-100.6168	525.7413	-0.19	0.850	-1181.293	980.0599
Dmili	-84.65432	542.2019	-0.16	0.877	-1199.166	1029.858
_cons	122.1037	537.0587	0.23	0.822	-981.8362	1226.044

Figure 7: Regression Output: Agricultural Industry Workplace Fatality Rate

Linear regression

Number of obs	=	44
F(10, 33)	=	4.80
Prob > F	=	0.0003
R-squared	=	0.6761
Root MSE	=	18.864

agri	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gini	322.1488	108.7893	2.96	0.006	100.8153	543.4823
rate	12.97194	3.294253	3.94	0.000	6.269733	19.67415
pop2010	-3.14e-06	6.39e-07	-4.91	0.000	-4.44e-06	-1.84e-06
hhwt	8.259932	2.966842	2.78	0.009	2.223846	14.29602
perwt	-1.147289	2.445441	-0.47	0.642	-6.122576	3.827998
age	7.499859	4.015478	1.87	0.071	-.6696929	15.66941
educ	-113.1371	34.5436	-3.28	0.002	-183.4166	-42.85765
inctot	.0079208	.0021091	3.76	0.001	.0036298	.0122118
Dwhite	25.27621	41.48973	0.61	0.547	-59.13528	109.6877
Dhispanic	-19.15594	50.7904	-0.38	0.708	-122.4898	84.17791
_cons	-759.0272	260.0984	-2.92	0.006	-1288.202	-229.853

Figure 8: Regression Output: Construction Industry Workplace Fatality Rate

Linear regression		
Number of obs	=	45
F(10, 34)	=	5.60
Prob > F	=	0.0001
R-squared	=	0.6122
Root MSE	=	4.818

cons	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gini	23.14707	34.47308	0.67	0.506	-46.91067	93.2048
rate	-1.467016	.635814	-2.31	0.027	-2.759145	-.1748862
pop2010	-2.18e-07	1.24e-07	-1.76	0.087	-4.70e-07	3.35e-08
hhwt	-.3292682	.847425	-0.39	0.700	-2.051443	1.392907
perwt	1.467748	.7012013	2.09	0.044	.042735	2.89276
age	-.3899858	.6774853	-0.58	0.569	-1.766802	.98683
educ	-17.36985	4.966532	-3.50	0.001	-27.46305	-7.276641
inctot	.0005695	.0002366	2.41	0.022	.0000886	.0010504
Dwhite	-6.129247	5.37213	-1.14	0.262	-17.04673	4.788236
Dhispanic	-29.56023	9.393459	-3.15	0.003	-48.65004	-10.47042
_cons	25.97218	80.64928	0.32	0.749	-137.9269	189.8712

Figure 9: Regression Output: Manufacturing Industry Workplace Fatality Rate (Original)

Linear regression			
	Number of obs	=	37
	F(10, 26)	=	7.04
	Prob > F	=	0.0000
	R-squared	=	0.8600
	Root MSE	=	6.1562

manu	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gini	-85.12207	46.7528	-1.82	0.080	-181.2238	10.97968
rate	.5903412	.9651912	0.61	0.546	-1.393638	2.57432
pop2010	-5.47e-08	1.48e-07	-0.37	0.715	-3.59e-07	2.50e-07
hhwt	-.2190907	1.705529	-0.13	0.899	-3.724856	3.286674
perwt	5.75907	1.832217	3.14	0.004	1.992894	9.525246
age	.9033263	1.425716	0.63	0.532	-2.027274	3.833927
educ	-12.29348	7.950915	-1.55	0.134	-28.63682	4.049859
inctot	.0007776	.000498	1.56	0.130	-.000246	.0018012
Dwhite	24.53098	20.96858	1.17	0.253	-18.57056	67.63252
Dhispanic	-67.23654	20.78399	-3.24	0.003	-109.9586	-24.51444
_cons	-494.3244	155.9283	-3.17	0.004	-814.8396	-173.8091

Figure 10: Regression Output: Manufacturing Industry Workplace Fatality Rate (Outliers omitted)

Linear regression		
Number of obs	=	33
F(10, 22)	=	12.56
Prob > F	=	0.0000
R-squared	=	0.6840
Root MSE	=	.8892

manu	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gini	4.751251	6.977583	0.68	0.503	-9.71937	19.22187
rate	-.5740906	.1818663	-3.16	0.005	-.9512583	-.1969229
pop2010	-6.02e-08	4.33e-08	-1.39	0.178	-1.50e-07	2.96e-08
hhwt	-.1788919	.20131	-0.89	0.384	-.5963834	.2385995
perwt	.4855799	.2725622	1.78	0.089	-.0796794	1.050839
age	-.0468303	.2215973	-0.21	0.835	-.506395	.4127345
educ	-1.215688	1.667257	-0.73	0.474	-4.673368	2.241992
inctot	-.0000208	.0001018	-0.20	0.840	-.000232	.0001904
Dwhite	-.9064506	4.190386	-0.22	0.831	-9.59678	7.783878
Dhispanic	-5.415346	6.344946	-0.85	0.403	-18.57396	7.743267
_cons	-13.38602	25.10785	-0.53	0.599	-65.45652	38.68448

Figure 11: Regression Output: Retail and Wholesale Industry Workplace Fatality Rate

```
Linear regression                               Number of obs     =         42
                                                F(10, 31)         =       7.35
                                                Prob > F          =     0.0000
                                                R-squared         =     0.5812
                                                Root MSE          =     1.4785
```

sale	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
Gini	15.31103	8.836976	1.73	0.093	-2.712098	33.33416
rate	-.3697715	.2011999	-1.84	0.076	-.7801213	.0405783
pop2010	-1.16e-07	3.58e-08	-3.23	0.003	-1.89e-07	-4.26e-08
hhwt	.4405118	.2557741	1.72	0.095	-.0811429	.9621665
perwt	.0013687	.3194669	0.00	0.997	-.6501884	.6529258
age	.5831312	.2321333	2.51	0.017	.1096922	1.05657
educ	-1.652822	2.010114	-0.82	0.417	-5.752476	2.446833
inctot	-.0000269	.0000939	-0.29	0.777	-.0002183	.0001646
Dwhite	-.686786	4.110139	-0.17	0.868	-9.06947	7.695898
Dhispanic	3.791061	4.662068	0.81	0.422	-5.717289	13.29941
_cons	-59.65864	38.22726	-1.56	0.129	-137.6237	18.30637

Year	State	FIPS	Gini	Overall	Agriculture	Mine	Constructi	Manufactu	Wholesale	Transporta	Informatio	Finance	Business	Education	Leisure	Public Adm	Other
2015	AL	1		3.7			15.1	3	2.5	14.6				1.3			
2014	AL	1		4	25.7		7.8	2.3	1.9	13.1			10.2	1.3			
2013	AL	1		4	30.2		16.8	1.6	3.4	13.8						5.1	
2012	AL	1		4.3			12.2	3.9	4.3	14			4.8				
2011	AL	1		4	47.6		7.5	3.6	2.4				3.8		4.9		
2010	AL	1		5.1	37.5		12.6	3.7	1.9	15.6			5.7	1.5	5		8.2
2009	AL	1		4.3	40.6		7.7	2	3.6	18			2.9			5.6	
2008	AL	1		5.3	41.5		9.6	3.8	5.1	26.3						9.2	
2015	AK	2		4.1						16.1							
2014	AK	2		7.8	97.8												
2013	AK	2		7.9	147					22.2							
2012	AK	2		8.9	110.6					22.1							
2011	AK	2		11.1	171.4					20.8					20.5		
2010	AK	2		11.5	83.3		40.5			35.9							
2009	AK	2		5.6	86.8												
2008	AK	2		10.6	165.8			87.1									
2015	AZ	4		2.4			6.3		1.9	12.7			1.4	0.9			
2014	AZ	4		3.1	24.4		8.6		2.1	10.4			2	1.1		7.4	
2013	AZ	4		3.5			7		2	7.7			2.7	1	3.4	15.8	3.4
2012	AZ	4		2.3	14.9		4.5		2.6	11.1						3.3	
2011	AZ	4		2.7			4.8			11.2			2.2	1	2.2	7.5	
2010	AZ	4		2.8			6.4		2.3	9.1							
2009	AZ	4		2.9	52		4.5		1.7	12.4			2.9	1.2	2.5		
2008	AZ	4		3.4	33.9		7.3		2.2	13.8			2.2	2.1		5.6	
2015	AR	5		5.8	33.5		9.9	4.3	3.7	37.3							
2014	AR	5		5.7	30		22.2	3.5	4.3	14.5			6.9				
2013	AR	5		5.6	14.8		23	3	4.6	12.1			6.9				9.8
2012	AR	5		5.4	25.3		16.3	0	4.2	14.5			6.4				
2011	AR	5		8	23.4		22.6	5.7	3.7	23.5			7.3	3.5	7.1		
2010	AR	5		7.6	26		23.3	6.1	4.3	27				2.5		9.7	
2009	AR	5		6.4	16.5		18.8		5.5	15.4			8.1	2.5			
2008	AR	5		6.8	15.2		17.5	3	5.2	21.4			11.8				
2015	CA	6		2.2	17.1		6.8	1	1.4	4.9			2.3	0.7	1.5	3	1.6
2014	CA	6		2	8.2		4.5	1.2	1.1	7.9		1	2.4	0.7	1.1	2.2	2.2
2013	CA	6		2.4	9.2		6.2	2	2.4	9.1	1.1		2.2	0.6	1.5	1.5	1.5
2012	CA	6		2.3	8.6		5.9	1.7	2.1	8.6	1.6		1.7	0.7	1.9	2.2	2.4
2011	CA	6		2.4	11		6.5	2.1	2	7.7	1.6	0.5	1.7	0.7	1.2	1.9	4
2010	CA	6		2.1	11.5		5.2	1.7	1.8	6.5	1.5	0.6	1	0.8	1.1	3.4	2.5
2009	CA	6		2.6	11.1		6.1	1.6	2.8	8		1.1	2.5	0.9	1.9	2.6	1.8
2008	CA	6		2.8	21.4	24	5.4	1.8	1.8	9.1	1.1	1	2.4	0.6	1.6	4.3	2.3
2015	CO	8		2.9	9		9.1			13.3				1.4		4.4	
2014	CO	8		3.3		11.1	6.2		3.6	17			2.2	1	2.2		
2013	CO	8		2.7			8.6			13.5			1.9				
2012	CO	8		3.5		24	13.2		2.2	9.7					2.4	9.5	4.1
2011	CO	8		3.9	29.6	15.5	9.9		2	16.6			3.5	1.1			
2010	CO	8		3.7	52.1		6.9		3.6	5.6			2.7		5.4		4.4
2009	CO	8		3.4	21.3		10.5	2.6	4.6	9.3							
2008	CO	8		4.2	29	16.3	10.2	4.7	4	15.3			1.7	1.4	4.8		
2015	CT	9		2.6			12.9		3.8	7.3			3.7				
2014	CT	9		2.1			7.2		2.3	11.2							
2013	CT	9		1.8			7.6			8.2							
2012	CT	9		2.1			9.8			9.8				1.7			
2011	CT	9		2.2			6.8			7.2			2.9				
2010	CT	9		3			12.9		6.3				2.6				
2009	CT	9		2			8.7			9.2							
2008	CT	9		1.6													
2015	DE	10		1.9													
2014	DE	10		2.8													
2013	DE	10		2.6													
2012	DE	10		3.1													
2011	DE	10		2.6													
2010	DE	10		2.2													
2009	DE	10		1.9													
2008	DE	10		2.3													
2015	FL	12		3.1	14.9		10.4	2.5	2.8	8.4		0.7	4.1	0.5	2.1		1.3
2014	FL	12		2.7	15.2		9.7	2.1	2	6.7		0.7	3.3	0.5	1.9	2.6	1.3
2013	FL	12		2.8	41.4		8.5	1.8	2.4	8.2		0.8	3.5	1	1.2	1.2	
2012	FL	12		2.7			10.5	1.9	2.5	7.6			3.7	0.6	1.2	2	2.5
2011	FL	12		2.9	19.2		8.3		2.5	8.1		0.7	3.8	0.8	2	3.8	2.7
2010	FL	12		3	16.7		7.7	2.8	2.2	8.6		1.5	3.9	0.7	2.4	2.7	2.1
2009	FL	12		3.2	16.5		7.5	3.4	2.2	6.5		1.1	5.5	0.7	2.9	2.8	3.2
2008	FL	12		3.5	36.8		8.9	2.6	2.3	10.1		0.9	4.1	1.4	2.9	3	2
2015	GA	13		4.3	13.9		12.2	5.5	2.9	11.1			2.9		3.1	5.6	5.2
2014	GA	13		3.6	26.5		11.8	3.2	1.9	8		1.8	2.4	0.6	2	2.4	6.7
2013	GA	13		2.8	14		8.2	2.5	1.6	9.2			2	1.2			2.7
2012	GA	13		2.5	17.7		5.8	2.4	2.4	8.2					1.7	3	3.5
2011	GA	13		2.8	22.2		8.2	1.7	1.6	11			1.6			4.9	2.6
2010	GA	13		2.8	13.1		9.5	2	2.1	7.2		2.4	2.2			5.1	
2009	GA	13		2.8	18		8.6		1.9	8.7			2.9		1.7	2.4	
2008	GA	13		4.2	29		9.8	5.7	1.9	12.4		1.6	3.2	0.7		2.6	3.2
2015	HI	15		2.6													
2014	HI	15		5			18.8										
2013	HI	15		1.6													
2012	HI	15		3.4			12.9										
2011	HI	15		4.2									15.3				
2010	HI	15		3.2													

BLS Workplace Fatality Rates by State, Year, and Industry

2009 HI	15	2.1												
2008 HI	15	2.4												
2015 ID	16	4.8	22.7				5.2							
2014 ID	16	4.7	20.8		11.1			20.3						
2013 ID	16	4.3	29.1		12.5									
2012 ID	16	2.7	14.8											
2011 ID	16	5.1	24.4				6.5	14.3						
2010 ID	16	4.9	18.4		11.6									
2009 ID	16	4.3	31.2											
2008 ID	16	5.1	21.2		8.7		4.8	32.1						
2015 IL	17	2.9	27.1		12.2	1.7	2.8	7.1		2.2	0.6	3	3.4	2.6
2014 IL	17	2.9	42.2		10	1.7	3	10.3	1.8	1.3		1.8		
2013 IL	17	3.1	35	63.5	9.2	2.8	2.3	6		3	0.7	2.9	2.2	2
2012 IL	17	2.5	14		6.6	2.4	1.5	8.6	1.6	1.7	0.9	1.9	3.1	
2011 IL	17	3.1	31.7		7.4	1.7	2.6	10.6		2.7	0.8	3.4		3.2
2010 IL	17	3.7	32.8		9.9	3.1	3.2	9.8		2.3	1.1	2.8	7.4	3.2
2009 IL	17	2.9	23.6		9.5	2.8	2.4	6.1	1.4	2	0.8	1.9	2.2	2.8
2008 IL	17	3.3	40.9		8.8	2.4	2.7	7.4	1.5	1.5		2.4	3.5	4.1
2015 IN	18	3.9	31.2		6.5	2.2	1.8	18.7		3.4	0.8	3.3		5.5
2014 IN	18	4.4	50.7		10	1.7	4.5	10.3		5		3.1		7.2
2013 IN	18	4.4	35.6		8.2	2.3	4.8	18.7		2.9	1.4	2.1		7.4
2012 IN	18	4.2	32.8		12.9	2.1	4.4	13.4		4.5		2.6	4.5	
2011 IN	18	4.5	27.8		11.9	2.6	4.9	15.8		2.3		3.5	4.3	5
2010 IN	18	4.2	36.3		1.7	2.8	3.1	13.4			1.6	3.2		5.1
2009 IN	18	4.7	40.4		11.3	2.5	5	16.6		3.2	1.3	2.9		5.3
2008 IN	18	5	41.7		10.9	3.1	4.3	14		4.3	1.3	4.4		5
2015 IA	19	3.9	14.7		12.5	2.4	3.8	7.7		4.8				
2014 IA	19	6	33.4		21.7	2	5.3	10.7	3.7	5.4				
2013 IA	19	4.7	30.3		14	2	3.6	14.1						
2012 IA	19	6.6	56.2		18.2	2	5.5	17.7						
2011 IA	19	6.3	37.7		15.9	2.6	2.9	22.6					10.2	
2010 IA	19	5.2	31.2		14.5	2.6	6.3	10.4		5.8				
2009 IA	19	5.6	35.4		21	2	5.1	16.2			1.6			
2008 IA	19	5.9	34.5		22.2	2.2	4.3	15.1		4.5				
2015 KS	20	4.4	30.6		5.7		3.1	29.9						
2014 KS	20	5.5	37.3	32.7	14.6	3.9	3.7	19.5			1.9			
2013 KS	20	4.2	38.7	28.2	10.4			22						
2012 KS	20	5.7	32.8		13.5	4.6	3.5	20.7		6				
2011 KS	20	5.9	44.4	46.6	13.1	4.8	6.2	20.8		6.8				
2010 KS	20	6.5	41.1		14.9	4.2	11.2	13.9					8.8	
2009 KS	20	5.8	65.5	49.6	15.6	2.9	4.1				1.6			
2008 KS	20	5.3	46.3		13.9	3.2	3.8	13.4		3.7				
2015 KY	21	5.5	31.3		12.9	3.7	5.4	10.3		3.9			8.2	
2014 KY	21	4.5	30.7		13.7	2.8	2.2	13.4		4				
2013 KY	21	4.7	33.9		16.5	3	4.5	8.2			1.3			
2012 KY	21	4.9	29.9	20	16.5	3.5		10.6		5.4				
2011 KY	21	5.4	41.2	39.7	8.4	2.4	3.1	11.2		7.9	1.8			
2010 KY	21	4.1	32	36.9	8	3	3	4.7		7				
2009 KY	21	6	20.6	42.3	4.6	3.4	6.6	20.1	5.7	6	1.3			6.5
2008 KY	21	5.9	45.4	24.5	13.4	5.5	2.2	43.5		5.6	1.6		6.4	
2015 LA	22	5.8	27.9	9.6	17		3	24.9		5.8			7.9	
2014 LA	22	6.3	59.5	7.2	11.1	4.6	4.4	23.2		4.7			6.3	6.5
2013 LA	22	6.3	32.7	6.6	11.6	7.8	3.5	26		8.6			7.2	
2012 LA	22	6.4		11.2	17.4	5.8	3.7	31.9		4			5.7	
2011 LA	22	6.3	57.9	6.3	21.2	7.7	3.5	18.8		7.2			7.3	
2010 LA	22	6.2		24.8	11.9	6.3	5.2	21.4		5.1			8	
2009 LA	22	8	39.7	15.9	27.2	5	4.4	29.2		7.3				7.1
2008 LA	22	7.3	45.1	12.2	19.3	5.2		33.8		7.9		3.6	13.2	6.1
2015 ME	23	2.5												
2014 ME	23	2.9												
2013 ME	23	3.1	25.8							8.9				
2012 ME	23	3.2	57.8											
2011 ME	23	4.2	35.7											
2010 ME	23	3.3												
2009 ME	23	2.8	56.7											
2008 ME	23	3.9	32.2											
2015 MD	24	2.4			9.1		2.4	10.1		1.1		2.6	1.4	
2014 MD	24	2.6			8		4.2	8.4		2.7	0.8	2.7		
2013 MD	24	2.7	35		9.2		2.5	6.7		2.3		3.3	1.9	4.2
2012 MD	24	2.6			8.4	3.5	2	12.5		2.2				
2011 MD	24	2.6			6.6		3.4	11.2		3.2		2.7		
2010 MD	24	2.7			9.8		1.7	8.8		2.2		3.4		
2009 MD	24	2.5			8.7		2.4	12.9		2.6				
2008 MD	24	2.2			8.8			8.5		1.8		2.7	2.1	
2015 MA	25	2.1	28.7		11	1.9	1.4			1.3		2.1		3.7
2014 MA	25	1.7			5.1			8.6		1.9				5.7
2013 MA	25	1.8	45.2		7.6	1.9	1.7	8.5		1.1				
2012 MA	25	1.4	53.6		5.8			4.4					6	
2011 MA	25	2.2			8			9		1.5	0.7	2.2		
2010 MA	25	1.8			8.7		1.3	5.1					5.3	
2009 MA	25	2.2	40.9		8.7		3.3	4.5		2				
2008 MA	25	2.2			9.7	2	2.5	10.1					4.6	
2015 MI	26	3.1	35.2		9.8	2.2	2.9	5.9	3.5	2.7		2.5	4	
2014 MI	26	3.3	33.5		11.8	1.3	3.5	10.3	2.1	1.9	0.9	3		3.1
2013 MI	26	3.3	26.7		10.1	1.2	1.8	14.5	3.2	3	1	2.8	4.6	
2012 MI	26	3.4	34		10.3	1.6	3.1	9.7		3.4	0.9	2.5	3.8	4.6
2011 MI	26	3.5	35.3		11.1	2.4	3.1	7.9		2.7	1.1	2.2	4.5	3.5

2010	MI	26	3.6	36.7		13.1	0.7	3.7	10.1			3.5	0.7	2.6	2.9	6.2
2009	MI	26	2.3	18		8.2	2	2.1	4.4			3.4		3		
2008	MI	26	2.8	31		12.5	1.6	2.4	4.7			2.1		3.1	3.7	3.2
2015	MN	27	2.7	16.9		5	1.6	2.1	5.2			3				
2014	MN	27	2.3	26.3		3.9		2.5	6.2							
2013	MN	27	2.6	25.2		8.6	1.8	1.8	7				1.1			
2012	MN	27	2.6	25.8		9.8	3.1	1.7	5.4							
2011	MN	27	2.3	24.4		11.5		1.4	3.8			2.4				
2010	MN	27	2.8	34.5		6.7		3.3	4.4							
2009	MN	27	2.4	27.1		6.6		2	4.8			2.5				
2008	MN	27	2.5	51.5		7.8			7.1							
2015	MS	28	6.8	35.1		19.7	2.9		30			12.1			9.2	
2014	MS	28	7.1	17.5		22.5	3.7	5.5	23.6			11.1	2.3			
2013	MS	28	6.2			13.2		4.7	27	38.6					15.1	
2012	MS	28	5.5	26.8		19.7	3.4	3.9	15.3			9.8				
2011	MS	28	5.5	47.6		12.8	2.9	7.4	16.2							
2010	MS	28	6.4	26.6		23.3		4.2	20.4			8.9			10.4	
2009	MS	28	6.3	24.8		14.6	5.9	3.8	24							
2008	MS	28	6.3	29.3		18.8	3.9	3.4	18.4			11.1				
2015	MO	29	4.3	34.4		7.9		2.3	22.5			4.1			3.8	4.3
2014	MO	29	3.9	36		5.8	3.5	3.9	10.4		2.4				4.8	
2013	MO	29	4.3	23.5		12.6	4.4	3.6	12.6			2.4	1	3.5		
2012	MO	29	3.3	13.7		6.7	2.6	1.6	19.2				0.8	4.1		
2011	MO	29	4.9	28.6		10.5	1.9	5.3	14.2				1.5	3.4	8.1	7.5
2010	MO	29	4.2	41.8		6.9	3.1	5.4	7.3			4.8	0.9		4.6	4.7
2009	MO	29	5.6	84.3		21.8		3.7	5.5		2.6	2.7		3.5		5.9
2008	MO	29	5.4	42.6		11.8	2.5	4.3	13.9			3.5	1.8	3.1	11.7	7.3
2015	MT	30	7.5	31.4		11.7										
2014	MT	30	4.9	20.2												
2013	MT	30	5.8	27.6												
2012	MT	30	7.3	37.6												
2011	MT	30	11.2	70.4		18.9			47.5							
2010	MT	30	8.2	64.2					28							
2009	MT	30	12.1	43.8		27.6		8.7	34.2							
2008	MT	30	8.2	24.2		10.3			56.9							
2015	NE	31	5.4	34.6		7.1			17.7			5.9				
2014	NE	31	5.8	32.6		15.4	5.7	7.2	10.5							
2013	NE	31	4	36.9		10.6			12							
2012	NE	31	5.2	36.1		15.7		3.7	15.9							
2011	NE	31	3.9	28.8					10.2							
2010	NE	31	6.3	43.9		14.6		5.5	21.9							
2009	NE	31	6.2	37.2		27.6		7.2	12.1							
2008	NE	31	5.7	40.8		15.2			13.2							
2015	NV	32	3.5			11.2			13.4			4.9				
2014	NV	32	3.1			6.7	11.8							2.3		
2013	NV	32	3			9.6			8							
2012	NV	32	3.6						16.9			5.1		2.9		
2011	NV	32	3.1						22.7			4.1		2		
2010	NV	32	3.7			8.3		4.3	8.5							
2009	NV	32	2.2			5.4						4.3			10.6	
2008	NV	32	3.3	145.1		9.7	10.6									
2015	NH	33	2.7													
2014	NH	33	2.6													
2013	NH	33	2.1													
2012	NH	33	2.2													
2011	NH	33	1.2													
2010	NH	33	0.9													
2009	NH	33	0.9													
2008	NH	33	1.1													
2015	NJ	34	2.3			8.5	1.7	2.8	7.9			1.7		1.6		
2014	NJ	34	2.1			8.9	1.7	1.6	8.7			2				
2013	NJ	34	2.6			6.1	1.3	3.7	12.6			2	0.6	2.3		4.6
2012	NJ	34	2.4			6.2	1.3	3.2	7.8			3		3.7		
2011	NJ	34	2.6			10.1	2.1	2.2	9.7		1.6	1.9			2.7	
2010	NJ	34	2.2	89.9		7.4		1.6	7.5			1.1		2.3	4.4	
2009	NJ	34	2.6	173.7		12.7	1.5	2.5	3.9			2.5		3.4		
2008	NJ	34	2.3			10.1	2.1	1.8	6.1			2.8		1.9		
2015	NM	35	4.1		32.2				24.9							
2014	NM	35	6.7	21.3	54	16.6			20.3				3.3			
2013	NM	35	6.7		37.3	15.6			55.4			5.6				
2012	NM	35	4.8		28	15.7		8.1								
2011	NM	35	6.6		13.3	18.4	17.1		35.6							
2010	NM	35	4.9			17.1	12.5		20.7							
2009	NM	35	5.2			12.1		5.5	21							
2008	NM	35	3.5		17.5	8			9.8					7.2		
2015	NY	36	2.7	43.6		10	2.2	1.9	5.6		0.8	2.7	0.7	2.1	1.8	4.5
2014	NY	36	2.8	66		10.3	1.3	2.5	6.5		0.9	1.5	0.8	2.8	3.1	3.7
2013	NY	36	2.1	44.7		8.8	1.1	1.6	5.4		0.8	1.4	0.3	1.8	1.4	2.7
2012	NY	36	2.4	35.8		8.3	1.1	2.4	5.6	2.7	1.1	2.1	0.6	2.4	2.5	1.8
2011	NY	36	2.5	44.7		7.2	2	2	6.4		0.7	2.9		2.2	4.4	3.4
2010	NY	36	2.2	78.1		7.5	1	1.7	5		1.3	1.6	0.5	2.2	1.1	2.5
2009	NY	36	2.2	21.8		5.4	2.2	1.9	5.3		0.9	2.8	0.6	2.1	1.4	4.3
2008	NY	36	2.4	42.3		8.3	1.3	1.9	5.6			2.5	0.5	1.9	2.2	3.5
2015	NC	37	3.4	29.1		10.5	2.6	2	7.5			4.6				4.2
2014	NC	37	3.1	18.8		10.8	1.9	2.2	9.1			2.5	0.6	1.6	3.1	
2013	NC	37	2.5	26.7		7.5	1	2.5	6.5			2.2		2.4		2.6
2012	NC	37	3.5	25.4		7.5	2.4	4.2	10.7			4.1	0.6	3.1	3.5	

2011	NC	37	3.7	27.8		10.8	1.2	3.5	15.2			3.8		2.6	4.5	
2010	NC	37	3.5	24		9.8	1	4.3	9.9			6.1	0.7	2.6	3.2	2.9
2009	NC	37	3.3	31.6		7.4	3.4	2.2	10			2.5	0.8	4.4	4.3	
2008	NC	37	3.9	41.7		9.7	3	3.3	10.2			4.2	0.8	2.1	4.2	
2015	ND	38	12.5	42.3	69.8	24										
2014	ND	38	9.8	19.6	42.5	36.9			26							
2013	ND	38	14.9	33.8	84.7	44.1		9.2	44.9							
2012	ND	38	17.7	35.1	104	97.4			37.4							
2011	ND	38	12.4	21.4	92.2	40.2			56.5							
2010	ND	38	8.5	34.6		21			35.5							
2009	ND	38	7.9	42												
2008	ND	38	8.3	41.9												
2015	OH	39	3.9	24.8		14.6	2.1	2.7	13.9		1.7	3.2	1	3.1		5.5
2014	OH	39	3.6	48.9		12.7	2.4	2.8	8.8			2.2	0.9	3	4	3.6
2013	OH	39	3	22.9		6.7	2.2	2.7	11.5			2.4		2.8		3.7
2012	OH	39	3.1	22.6		11.5	1.7	1.9	13.4			2.2	0.6	4		
2011	OH	39	3.1	25.4		8.2	1.8	1.9	10.2			2.6	1	2.4	3.9	3.6
2010	OH	39	3.2	42.6		8.1	1.3	4.2	5.2		3.1	2.3	1.1	2.1		3.4
2009	OH	39	2.8	33.8		10.5	1.5	2	5.7			2.2	0.8	2.7	2.5	2.7
2008	OH	39	3.2	31.6	52.6	8	1.9	2.4	10.3			1.7	0.6	3.4	4.2	3.5
2015	OK	40	5.5	7	11.2	22.2		2.7	21.5			5.5	1.4			
2014	OK	40	6.2		15.2	18.1	4.9	3.2	28.3			5.5				
2013	OK	40	5.8	12.6	7.7	19.6			24.9			4.6			5.8	
2012	OK	40	6.1		20.1	10.8	4.3	7.6	22.3			5.2			5.1	
2011	OK	40	5.5		22.4	15	4.6		17.3			5.6			4	
2010	OK	40	6.3	13.3	21.6	24.8	8.8	3.1	16			7.6				
2009	OK	40	5.3	11	13.4	9	6.1	2.4	33						7.3	
2008	OK	40	6.4	15.4	35.6	12.5	6.7	3.6	22.6			3.8				
2015	OR	41	2.6	20.9		5.6			12.1							
2014	OR	41	3.9	29.5		6.5		2	15.2			2.6				
2013	OR	41	2.9	17.8		7.4			9.3			4.4				
2012	OR	41	2.6	18.7		5.8			9.5							
2011	OR	41	3.4	26.4		6.7			9							
2010	OR	41	2.9	10					20.6							
2009	OR	41	3.9	26.4		9.6	2.9		9.2			3.5				7.9
2008	OR	41	3.1	20.8		5.2	2.1		10.9					3.7	5.9	
2015	PA	42	3	19.5	16.5	10.6	2.5	1.6	9.1			3.2	0.7	2.5	2.5	2.9
2014	PA	42	3.1	30		12.7	1.9	1	11.3		1.6	2.7		2.2	3.9	
2013	PA	42	3.2	21.5		7.6	2.4	2.8	12			3.5	0.5	2	2.1	4.3
2012	PA	42	3.4	24.3		9.9	2	2.1	9.3		1.4	5.1	0.5	2.5	3.2	3.6
2011	PA	42	3.4	12	16.2	8.8	2.4	3.4	12.1			4.5	0.6	1.6	2.4	
2010	PA	42	4	21.7	32.4	12.8	3	2.1	15			3.1	1.1	2.1	3.1	5
2009	PA	42	3.1	21.3		7.7	0.9	2.7	9.3			5.8	0.4	2.2	3.2	3.8
2008	PA	42	4.1	22.9	17.5	11.2	2.9	3	12.1		1.3	4.7	0.4	3.5	5.5	3.8
2015	RI	44	1.2													
2014	RI	44	2.1													
2013	RI	44	2.1													
2012	RI	44	1.7													
2011	RI	44	1.5													
2010	RI	44	1.9													
2009	RI	44	1.5													
2008	RI	44	1.2													
2015	SC	45	5.6	33.6		19.3	1.7	4.2	20.3			5.2	1.2		6.8	7.7
2014	SC	45	3.3	32.6		11.8		3.4	10			2.9				6.6
2013	SC	45	3.9			16.8	2.3	2.9	7.9			5.6				6
2012	SC	45	3.5	34.7		10	2.2	2.8	10.5			3		3.6		
2011	SC	45	4.5			13.6		2.9	17.6			7.3		3.3		
2010	SC	45	3.6	22.2		10		3.2	9.1			5.5			6.5	
2009	SC	45	4	35		15.5		3.7	12.8			3.8	1.5			
2008	SC	45	4.5	42.3		10.3	2.4	3.8	14.2		4.5	4		3.6		
2015	SD	46	4.9	29.3												
2014	SD	46	7.2			20.7										
2013	SD	46	4.7			16.8										
2012	SD	46	6.7	27.3		27.3										
2011	SD	46	6.7	26.5		19.1										
2010	SD	46	8.8	38.2		27.4										
2009	SD	46	5.9	24.1				8.7								
2008	SD	46	6.9	45.5												
2015	TN	47	3.7	55.1		8.7	3.4	2.6	9.4			6.5				
2014	TN	47	4.8	54.3		11.7	3.8	4.4	10.4			3.8	1.7		5	5.1
2013	TN	47	3.6	20.2		9.5	2.3	2.7	9.6			5.8	1.3			
2012	TN	47	3.8	21.9		10.4	2.5	2.4	12			4.5		2.9		4.3
2011	TN	47	4.5	42.4		12.9	3.9	2.5	10.4			5	1.5	2.2	3.5	
2010	TN	47	5.4	55.5		19	3.6	3.9	14.7			2.7	1.2	3.1		3.9
2009	TN	47	4.5	53.2		10.9	3.8	4.8	13.3			4.2				
2008	TN	47	5.1	68.3		12.5	1.6	4.6	13.8			3.9		3.8	4	4.1
2015	TX	48	4.5	15.3	10.1	11.8	2.6	3.5	15		1.3	4.3	0.8	1.6	4.5	3.6
2014	TX	48	4.5	13.1	16.3	10.6	4.5	2.7	13.7		1.3	3.9	0.5	1.8	3.2	2.7
2013	TX	48	4.4	11.6	11.2	13.3	2.3	3.7	12.6	2.5	1.7	3.3	0.5	2	5.4	3.2
2012	TX	48	4.8	14.8	16.6	12.8	2.1	3.4	15.2	2.5	1.2	4.3	0.9	3	4	3.3
2011	TX	48	4	12.5	14.3	9.7	2.6	2.8	12.6		1.1	3.6	0.8	2.9	3.5	3.2
2010	TX	48	4.4	15.9	16.4	10.7	2.6	2.6	15.3		2.2	2.9	0.9	2.7	4.7	3.1
2009	TX	48	4.6	11.2	11.9	16.7	2.8	2.8	12.6		1.6	4.1	0.8	2.5	3.7	2.4
2008	TX	48	4.4	9.2	14.8	13.1	3.2	2.7	12.8	2.7	1.5	2.9	1.1	1.5	3.1	1.9
2015	UT	49	3.2			11.3		2.8	8.6					1.9		
2014	UT	49	4.2			5.2	4	3	19.5					6.9		
2013	UT	49	2.9			8.4	3.7		13.6							

2012	UT	49	3			7.3										
2011	UT	49	3.3			6.8			14.3							
2010	UT	49	3.4			7.4							2.6	10.2		
2009	UT	49	3.9			10.5		3.4	20.2							
2008	UT	49	5.1			14.2		2.7	28.9				4.8			
2015	VT	50	2.9													
2014	VT	50	3.2													
2013	VT	50	2.2													
2012	VT	50	3.5													
2011	VT	50	2.8													
2010	VT	50	3.9													
2009	VT	50	2.9													
2008	VT	50	3.2	53.7												
2015	VA	51	2.8	19.1		9.7	4	1.1	11.3			1.7		3.2		
2014	VA	51	2.8	16.3		8.6	3.1	2.1	15.3			1.9		2.3	1.3	
2013	VA	51	3.2	27.7		9.4	2.9	2.9	10.4			2.9		3	1.6	
2012	VA	51	3.8	34.5		13		3.4	17.3			1.8	1.3			
2011	VA	51	3.4	33.9		6.4	2.5	1.3	14.6			2.6	0.9	1.9	2.3	4
2010	VA	51	2.8	22.6		5.9	2.1	1.4	13.4			2	0.7	2.3	2	
2009	VA	51	3.3	29.8		8	3	2.2	14.6			2.1		3	1.9	
2008	VA	51	4.1	39.1		9.2	3.1	2.5	15.3		1.8	2.3	0.7	3.3	2.7	3.8
2015	WA	53	2.1	13.3		4.2	1.7	1.9	4			1.5				
2014	WA	53	2.7	19.1		7.8		2.8	5.7			2	1			
2013	WA	53	1.7	14.8		3.5			6.7			1.3				
2012	WA	53	2.2	18.9		5.4	2		9.7							
2011	WA	53	1.9			4.2	1.4	1.6	8.5			2				
2010	WA	53	3.4	27.2		5.2	4.7	1.9	7.3		3.3	3.1	0.9	2.4		
2009	WA	53	2.5	22.3		4.6		2.6	6.3			1.9			5.2	
2008	WA	53	2.6	22.3		7.7	2	1.3	4.8						2.7	
2015	WV	54	5	41.8		19.1			17.4							
2014	WV	54	5.2		19.6	10.1			18							
2013	WV	54	8.6	130.7	36.3	15.4			22.4			12.1				
2012	WV	54	6.9	114.7	19.2	10.3			19.9							
2011	WV	54	5.9	85.7	22.1	14.7			20.1							
2010	WV	54	13.7	139.9	86.7	26.2	10.7		21.6					3		
2009	WV	54	5.7	99.2	11.2	13.2	9.9		27.3							
2008	WV	54	7.2		35.4	11.9	8.6	5.5	16.6							
2015	WI	55	3.6	26.2		8.8	2.7	2.4	10.4			2.9				6.2
2014	WI	55	3.5	40.4		8.2	2	2.2	7.3			5.5	0.8			
2013	WI	55	3.5	28.4		7.2	1.8	3.1	9			2	1.5	4.8		
2012	WI	55	4	41.1		8.7	3.1	4.4	9.9			2				6.4
2011	WI	55	3.3	31.4		4.3	2.7	4.2	10.2				0.8			4.5
2010	WI	55	3.4	54.2		6.4	2.5	2.1	7.5				1			
2009	WI	55	3.4	29.8		8.4	2.5	2.7				2.4	1.5	3		
2008	WI	55	2.7	34.2		3.7	1.9	2.3	4.8							
2015	WY	56	12	52.5					36.7							
2014	WY	56	13.1	44.5	13.1	28.2			44.5							
2013	WY	56	9.5	40.8										4.2		
2012	WY	56	12.2	57.4					55.3							
2011	WY	56	11.6		12				50.2							
2010	WY	56	12.9		15.6	26.1										
2009	WY	56	7.5													
2008	WY	56	12.4	26.9	21.7	30.6			39.8							

Appendix 2: Unemployment Rates by State, Year, 2008-2015:

Year	FIPS	Rate
2015	1	6.1
2014	1	6.8
2013	1	7.2
2012	1	7.3
2011	1	8.7
2010	1	9.5
2009	1	9.7
2008	1	5
2015	2	6.5
2014	2	6.9
2013	2	7
2012	2	7
2011	2	7.6
2010	2	8
2009	2	7.8
2008	2	6.7
2015	4	6.1
2014	4	6.8
2013	4	7.7
2012	4	8.3
2011	4	9.4
2010	4	10
2009	4	9.7
2008	4	5.5
2015	5	5
2014	5	6
2013	5	7.2
2012	5	7.3
2011	5	7.9
2010	5	7.9
2009	5	7.4
2008	5	5.1
2015	6	6.2
2014	6	7.5
2013	6	8.9
2012	6	10.5
2011	6	11.8
2010	6	12.4
2009	6	11.3
2008	6	7.2
2015	8	3.9
2014	8	5
2013	8	6.9
2012	8	8
2011	8	8.6
2010	8	8.9
2009	8	8.3
2008	8	4.9
2015	9	5.7
2014	9	6.6

2013	9	7.8	2011	12	10.3	2009	15	6.6
2012	9	8.4	2010	12	11.5	2008	15	3.9
2011	9	8.9	2009	12	10.2	2015	16	4.2
2010	9	9.1	2008	12	6.2	2014	16	4.9
2009	9	8.3	2015	13	6	2013	16	6.1
2008	9	5.7	2014	13	7.1	2012	16	7.1
2015	10	4.9	2013	13	8.2	2011	16	8.3
2014	10	5.7	2012	13	9	2010	16	9.3
2013	10	6.7	2011	13	9.9	2009	16	7.7
2012	10	7.1	2010	13	10.2	2008	16	4.9
2011	10	7.4	2009	13	9.7	2015	17	6
2010	10	8.5	2008	13	6.2	2014	17	7.1
2009	10	8	2015	15	3.6	2013	17	9
2008	10	4.8	2014	15	4.4	2012	17	7
2015	12	5.5	2013	15	4.9	2011	17	9.7
2014	12	6.3	2012	15	5.8	2010	17	10.3
2013	12	7.2	2011	15	6.5	2009	17	10
2012	12	8.6	2010	15	6.8	2008	17	6.5

2015	18	4.8	2013	20	5.3	2011	22	7.3
2014	18	6	2012	20	5.7	2010	22	7.5
2013	18	7.7	2011	20	6.5	2009	22	6.6
2012	18	8.4	2010	20	7	2008	22	4.6
2011	18	9	2009	20	7.1	2015	23	4.4
2010	18	10.2	2008	20	4.4	2014	23	5.6
2009	18	10.4	2015	21	5.3	2013	23	6.6
2008	18	5.9	2014	21	6.5	2012	23	7.3
2015	19	3.8	2013	21	8	2011	23	7.7
2014	19	4.2	2012	21	8.2	2010	23	7.9
2013	19	4.7	2011	21	9.5	2009	23	8.2
2012	19	5.2	2010	21	10.5	2008	23	5.4
2011	19	5.9	2009	21	10.7	2015	24	5.1
2010	19	6.1	2008	21	6.4	2014	24	5.8
2009	19	5.6	2015	22	6.3	2013	24	6.6
2008	19	4.1	2014	22	6.4	2012	24	6.8
2015	20	4.2	2013	22	6.7	2011	24	7.3
2014	20	4.5	2012	22	6.4	2010	24	7.5

2009	24	7.1	2015	27	3.7	2013	29	6.7
2008	24	4.4	2014	27	4.2	2012	29	6.9
2015	25	4.8	2013	27	5	2011	29	8.4
2014	25	5.7	2012	27	5.6	2010	29	9.6
2013	25	6.7	2011	27	6.5	2009	29	9.3
2012	25	6.7	2010	27	7.3	2008	29	6.1
2011	25	7.3	2009	27	8.1	2015	30	4.2
2010	25	8.5	2008	27	5.4	2014	30	4.7
2009	25	8.2	2015	28	6.4	2013	30	5.4
2008	25	5.3	2014	28	7.5	2012	30	6
2015	26	5.4	2013	28	8.5	2011	30	6.6
2014	26	7.2	2012	28	9.2	2010	30	7.2
2013	26	8.8	2011	28	10.5	2009	30	6.3
2012	26	9.1	2010	28	10.4	2008	30	4.5
2011	26	10.4	2009	28	9.8	2015	31	3
2010	26	12.5	2008	28	6.9	2014	31	3.3
2009	26	13.3	2015	29	5	2013	31	3.8
2008	26	8.4	2014	29	6.1	2012	31	3.9

2011	31	4.4	2009	33	6.3	2015	36	5.3
2010	31	4.7	2008	33	3.8	2014	36	6.3
2009	31	4.8	2015	34	5.8	2013	36	7.7
2008	31	3.3	2014	34	6.8	2012	36	8.5
2015	32	6.8	2013	34	8.2	2011	36	8.3
2014	32	7.9	2012	34	9.5	2010	36	8.6
2013	32	9.6	2011	34	9.4	2009	36	8.4
2012	32	11.1	2010	34	8.6	2008	36	5.4
2011	32	13.2	2009	34	8.4	2015	37	5.7
2010	32	14.9	2008	34	5.5	2014	37	6.3
2009	32	12.5	2015	35	6.5	2013	37	8
2008	32	6.7	2014	35	6.7	2012	37	9.5
2015	33	3.4	2013	35	6.9	2011	37	10.2
2014	33	4.3	2012	35	6.9	2010	37	10.6
2013	33	5.1	2011	35	7.5	2009	37	10.8
2012	33	5.5	2010	35	9.5	2008	37	6.3
2011	33	5.5	2009	35	9.1	2015	38	2.8
2010	33	6.1	2008	35	4.2	2014	38	2.7

2013	38	2.9	2011	40	5.9	2009	42	8
2012	38	3.1	2010	40	7.1	2008	42	5.4
2011	38	3.5	2009	40	6.6	2015	44	6
2010	38	3.9	2008	40	3.8	2014	44	7.7
2009	38	4.3	2015	41	5.6	2013	44	9.3
2008	38	3.2	2014	41	6.8	2012	44	10.4
2015	39	4.9	2013	41	7.9	2011	44	11.2
2014	39	5.8	2012	41	8.7	2010	44	11.6
2013	39	7.5	2011	41	9.6	2009	44	10.8
2012	39	7.2	2010	41	10.8	2008	44	7.8
2011	39	8.6	2009	41	11.1	2015	45	6
2010	39	10.1	2008	41	6.4	2014	45	6.5
2009	39	10.1	2015	42	5.3	2013	45	7.6
2008	39	6.5	2014	42	5.9	2012	45	9.1
2015	40	4.4	2013	42	7.4	2011	45	10.4
2014	40	4.5	2012	42	7.9	2010	45	11.2
2013	40	5.3	2011	42	7.9	2009	45	11.3
2012	40	5.2	2010	42	8.7	2008	45	6.9

2015	46	3.1	2013	48	6.3	2011	50	5.6
2014	46	3.4	2012	48	6.8	2010	50	6.2
2013	46	3.8	2011	48	7.9	2009	50	6.9
2012	46	4.4	2010	48	8.2	2008	50	4.8
2011	46	4.8	2009	48	7.6	2015	51	4.5
2010	46	4.8	2008	48	4.9	2014	51	5.2
2009	46	5	2015	49	3.6	2013	51	5.7
2008	46	3	2014	49	3.8	2012	51	5.9
2015	47	5.6	2013	49	4.6	2011	51	6.4
2014	47	6.6	2012	49	5.7	2010	51	6.9
2013	47	7.8	2011	49	6.9	2009	51	6.8
2012	47	8	2010	49	7.7	2008	51	4
2011	47	9.3	2009	49	7.1	2015	53	5.7
2010	47	9.7	2008	49	3.4	2014	53	6.1
2009	47	10.4	2015	50	3.6	2013	53	7
2008	47	6.4	2014	50	4	2012	53	8.2
2015	48	4.4	2013	50	4.4	2011	53	9.2
2014	48	5.1	2012	50	5	2010	53	9.6

2009	53	9.3	2008	54	4.3	2015	56	4.3
2008	53	5.3	2015	55	4.5	2014	56	4.1
2015	54	6.7	2014	55	5.4	2013	56	4.7
2014	54	6.6	2013	55	6.7	2012	56	5.4
2013	54	6.8	2012	55	6.9	2011	56	6.1
2012	54	7.3	2011	55	7.5	2010	56	7
2011	54	7.8	2010	55	8.3	2009	56	6.5
2010	54	9.1	2009	55	8.7	2008	56	3.1
2009	54	7.7	2008	55	4.7			

Appendix 3: Stata Code:

```
use "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\Frank_Gini_2015", clear
drop st Atkin05 RMeanDev Theil
rename State state
rename Year year
drop if year<1999
generate FIPS=.
drop if state=="American Samoa"
drop if state=="Guam"
drop if state=="Puerto Rico"
drop if state=="District of Colombia"
drop if state=="US Virgin Islands"
drop if state=="United States"
replace FIPS=01 if state=="Alabama"
replace FIPS=02 if state=="Alaska"
replace FIPS=05 if state=="Arkansas"
replace FIPS=04 if state=="Arizona"
replace FIPS=06 if state=="California"
replace FIPS=08 if state=="Colorado"
replace FIPS=09 if state=="Connecticut"
replace FIPS=10 if state=="Delaware"
replace FIPS=12 if state=="Florida"
replace FIPS=13 if state=="Georgia"
replace FIPS=15 if state=="Hawaii"
replace FIPS=19 if state=="Iowa"
replace FIPS=16 if state=="Idaho"
replace FIPS=17 if state=="Illinois"
replace FIPS=18 if state=="Indiana"
replace FIPS=20 if state=="Kansas"
replace FIPS=21 if state=="Kentucky"
replace FIPS=22 if state=="Louisiana"
replace FIPS=25 if state=="Massachusetts"
replace FIPS=24 if state=="Maryland"
replace FIPS=23 if state=="Maine"
replace FIPS=26 if state=="Michigan"
replace FIPS=27 if state=="Minnesota"
replace FIPS=29 if state=="Missouri"
replace FIPS=28 if state=="Mississippi"
replace FIPS=30 if state=="Montana"
replace FIPS=37 if state=="North Carolina"
replace FIPS=38 if state=="North Dakota"
replace FIPS=31 if state=="Nebraska"
replace FIPS=33 if state=="New Hampshire"
replace FIPS=34 if state=="New Jersey"
replace FIPS=35 if state=="New Mexico"
replace FIPS=32 if state=="Nevada"
replace FIPS=36 if state=="New York"
replace FIPS=39 if state=="Ohio"
replace FIPS=40 if state=="Oklahoma"
replace FIPS=41 if state=="Oregon"
replace FIPS=42 if state=="Pennsylvania"
replace FIPS=44 if state=="Rhode Island"
replace FIPS=45 if state=="South Carolina"
replace FIPS=46 if state=="South Dakota"
replace FIPS=47 if state=="Tennessee"
replace FIPS=48 if state=="Texas"
replace FIPS=49 if state=="Utah"
replace FIPS=51 if state=="Virginia"
replace FIPS=50 if state=="Vermont"
replace FIPS=53 if state=="Washington"
replace FIPS=55 if state=="Wisconsin"
replace FIPS=54 if state=="West Virginia"
replace FIPS=56 if state=="Wyoming"
sort FIPS year
drop state
save "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\Gini", replace
```

```
use "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\OSHAFatalStata.dta", clear
split dateofincident, parse(/)
drop dateofincident1 dateofincident2
rename dateofincident3 year
generate FIPS=.
drop if state=="AS"
drop if state=="GU"
drop if state=="PR"
drop if state=="DC"
drop if state=="VI"
replace FIPS=01 if state=="AL"
replace FIPS=02 if state=="AK"
replace FIPS=05 if state=="AR"
replace FIPS=60 if state=="AS"
replace FIPS=04 if state=="AZ"
replace FIPS=06 if state=="CA"
replace FIPS=08 if state=="CO"
replace FIPS=09 if state=="CT"
replace FIPS=11 if state=="DC"
replace FIPS=10 if state=="DE"
replace FIPS=12 if state=="FL"
replace FIPS=13 if state=="GA"
replace FIPS=66 if state=="GU"
replace FIPS=15 if state=="HI"
replace FIPS=19 if state=="IA"
replace FIPS=16 if state=="ID"
replace FIPS=17 if state=="IL"
replace FIPS=18 if state=="IN"
replace FIPS=20 if state=="KS"
replace FIPS=21 if state=="KY"
replace FIPS=22 if state=="LA"
replace FIPS=25 if state=="MA"
replace FIPS=24 if state=="MD"
replace FIPS=23 if state=="ME"
replace FIPS=26 if state=="MI"
replace FIPS=27 if state=="MN"
replace FIPS=29 if state=="MO"
replace FIPS=28 if state=="MS"
replace FIPS=30 if state=="MT"
replace FIPS=37 if state=="NC"
replace FIPS=38 if state=="ND"
replace FIPS=31 if state=="NE"
replace FIPS=33 if state=="NH"
replace FIPS=34 if state=="NJ"
replace FIPS=35 if state=="NM"
replace FIPS=32 if state=="NV"
replace FIPS=36 if state=="NY"
replace FIPS=39 if state=="OH"
replace FIPS=40 if state=="OK"
replace FIPS=41 if state=="OR"
replace FIPS=42 if state=="PA"
replace FIPS=72 if state=="PR"
replace FIPS=44 if state=="RI"
replace FIPS=45 if state=="SC"
replace FIPS=46 if state=="SD"
replace FIPS=47 if state=="TN"
replace FIPS=48 if state=="TX"
replace FIPS=49 if state=="UT"
replace FIPS=51 if state=="VA"
replace FIPS=78 if state=="VI"
replace FIPS=50 if state=="VT"
replace FIPS=53 if state=="WA"
replace FIPS=55 if state=="WI"
replace FIPS=54 if state=="WV"
replace FIPS=56 if state=="WY"
destring year, replace
generate obs=1
collapse (sum) obs, by(FIPS year)
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\Gini"
```

```
drop _merge
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\UnemployRate0815"
drop if year<2008
drop _merge
merge m:m FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\StatePop"
collapse obs Gini rate pop2010, by(FIPS)
generate logobs=log(obs)
regress logobs Gini rate pop2010, robust

use \\hd.ad.syr.edu\01\fc3005\Documents\ECN495\CompiledFatalityRates, clear
drop gini
rename fips FIPS
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\Gini"
sort FIPS year
drop if year<2008
collapse (mean) overall agri cons manu sale bus Gini, by(FIPS)
xi: regress overall Gini, robust
xi: regress agri Gini, robust
xi: regress cons Gini, robust
xi: regress manu Gini, robust
xi: regress sale Gini, robust
xi: regress busi Gini, robust



use "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\StatePop", clear
rename var1 state
rename var2 pop2010
generate FIPS=.
drop if state=="American Samoa"
drop if state=="Guam"
drop if state=="Puerto Rico"
drop if state=="District of Colombia"
drop if state=="US Virgin Islands"
drop if state=="United States"
replace FIPS=01 if state=="Alabama"
replace FIPS=02 if state=="Alaska"
replace FIPS=05 if state=="Arkansas"
replace FIPS=04 if state=="Arizona"
replace FIPS=06 if state=="California"
replace FIPS=08 if state=="Colorado"
replace FIPS=09 if state=="Connecticut"
replace FIPS=10 if state=="Delaware"
replace FIPS=12 if state=="Florida"
replace FIPS=13 if state=="Georgia"
replace FIPS=15 if state=="Hawaii"
replace FIPS=19 if state=="Iowa"
replace FIPS=16 if state=="Idaho"
replace FIPS=17 if state=="Illinois"
replace FIPS=18 if state=="Indiana"
replace FIPS=20 if state=="Kansas"
replace FIPS=21 if state=="Kentucky"
replace FIPS=22 if state=="Louisiana"
replace FIPS=25 if state=="Massachusetts"
replace FIPS=24 if state=="Maryland"
replace FIPS=23 if state=="Maine"
replace FIPS=26 if state=="Michigan"
replace FIPS=27 if state=="Minnesota"
replace FIPS=29 if state=="Missouri"
replace FIPS=28 if state=="Mississippi"
replace FIPS=30 if state=="Montana"
replace FIPS=37 if state=="North Carolina"
replace FIPS=38 if state=="North Dakota"
replace FIPS=31 if state=="Nebraska"
replace FIPS=33 if state=="New Hampshire"
replace FIPS=34 if state=="New Jersey"
replace FIPS=35 if state=="New Mexico"
replace FIPS=32 if state=="Nevada"
```

```
replace FIPS=36 if state=="New York"
replace FIPS=39 if state=="Ohio"
replace FIPS=40 if state=="Oklahoma"
replace FIPS=41 if state=="Oregon"
replace FIPS=42 if state=="Pennsylvania"
replace FIPS=44 if state=="Rhode Island"
replace FIPS=45 if state=="South Carolina"
replace FIPS=46 if state=="South Dakota"
replace FIPS=47 if state=="Tennessee"
replace FIPS=48 if state=="Texas"
replace FIPS=49 if state=="Utah"
replace FIPS=51 if state=="Virginia"
replace FIPS=50 if state=="Vermont"
replace FIPS=53 if state=="Washington"
replace FIPS=55 if state=="Wisconsin"
replace FIPS=54 if state=="West Virginia"
replace FIPS=56 if state=="Wyoming"
drop state
save "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\StatePop", replace

*General Mortality Data
insheet using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\CompMort9916.txt", clear
drop state yearcode notes
drop if year==2016
drop if year==.
rename statecode FIPS
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\Gini"
drop _merge
merge m:m FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\StatePop"
drop _merge
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\UnemployRate0815"
save "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\CompMort", replace
drop _merge
merge m:m FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\IPUMS1"
drop _merge
sort FIPS year
save "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\CompMort", replace
use "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\CompMort", clear
generate Dwhite=0
replace Dwhite=1 if race==1
generate Dhispanic=0
replace Dhispanic=1 if hispan>0
generate Dagri=0
replace Dagri=1 if ind<360
generate Dmine=0
replace Dmine=1 if ind>370
replace Dmine=0 if ind>700
generate Dcons=0
replace Dcons=1 if ind==770
generate Dmanu=0
replace Dmanu=1 if ind>1000
replace Dmanu=0 if ind>4000
generate Dsale=0
replace Dsale=1 if ind>4000
replace Dsale=0 if ind>6000
generate Dtran=0
replace Dtran=1 if ind>6000
replace Dtran=0 if ind>6400
generate Dinfo=0
replace Dinfo=1 if ind>6400
replace Dinfo=0 if ind>6800
generate Dfina=0
replace Dfina=1 if ind>6800
replace Dfina=0 if ind>7200
generate Dserv=0
replace Dserv=1 if ind>7200
replace Dserv=0 if ind>7800
replace Dserv=1 if ind>8700
```

```
replace Dserv=0 if ind>9300
generate Dedmed=0
replace Dedmed=1 if ind>7800
replace Dedmed=0 if ind>8500
generate Drec=0
replace Drec=1 if ind>8500
replace Drec=0 if ind>8700
generate Dpubad=0
replace Dpubad=1 if ind>9300
replace Dpubad=0 if ind>9600
generate Dmili=0
replace Dmili=1 if ind>9600
replace Dmili=0 if ind>9950
encode oftotal, generate(oftotaldeath)
collapse (mean) deaths population oftotaldeath cruderate ageadjuste Gini pop2010 rate hhwt perwt age educ inctot Dwhite Dhispanic Dagri Dmine Dcons Dmanu Dsale Dtran Dinfo Dfina Dserv Dedmed Drec Dpubad Dmili, by(FIPS)
xi: regress ageadjust Gini, robust
xi: regress cruderate Gini, robust
xi: regress ageadjust Gini pop2010 rate, robust
xi: regress cruderate Gini pop2010 rate, robust
xi: regress ageadjust Gini pop2010 rate hhwt perwt age educ inctot Dwhite Dhispanic Dagri Dmine Dcons Dmanu Dsale Dtran Dinfo Dfina Dserv Dedmed Drec Dpubad Dmili, robust
xi: regress cruderate Gini pop2010 rate hhwt perwt age educ inctot Dwhite Dhispanic Dagri Dmine Dcons Dmanu Dsale Dtran Dinfo Dfina Dserv Dedmed Drec Dpubad Dmili, robust



*Compiled Fatalities Regressions BLS
use "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\CompiledFatalityRates", clear
drop gini
rename fips FIPS
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\Gini"
drop _merge
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\UnemployRate0815"
drop if year<2008
drop _merge
merge m:m FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\StatePop"
collapse (mean) overall agri cons manu sale bus Gini rate pop2010, by(FIPS)
xi: regress overall Gini rate pop2010, robust
xi: regress agri Gini rate pop2010, robust
xi: regress cons Gini rate pop2010, robust
xi: regress manu Gini rate pop2010, robust
xi: regress sale Gini rate pop2010, robust
xi: regress busi Gini rate pop2010, robust

*Input IPUMS Data
use "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\usa_00003.dta\usa_00003.dta", clear
drop datanum serial gq pernum raced hispand educd pwstate2
rename state FIPS
drop if age<18
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\Gini"
drop _merge
sort FIPS year
merge m:m year FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\UnemployRate0815"
drop if year<2008
drop _merge
merge m:m FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\StatePop"
drop _merge
save "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\IPUMS1", replace

use "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\CompiledFatalityRates", clear
drop gini
rename fips FIPS
sort FIPS year
merge m:m FIPS using "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\IPUMS1"
*create dummies for race and industry combining 2008 and 2013 ACS/PRCS Industry Codes
generate Dwhite=0
```

```
replace Dwhite=1 if race==1
generate Dhispanic=0
replace Dhispanic=1 if hispan>0
generate Dagri=0
replace Dagri=1 if ind<360
generate Dmine=0
replace Dmine=1 if ind>370
replace Dmine=0 if ind>700
generate Dcons=0
replace Dcons=1 if ind==770
generate Dmanu=0
replace Dmanu=1 if ind>1000
replace Dmanu=0 if ind>4000
generate Dsale=0
replace Dsale=1 if ind>4000
replace Dsale=0 if ind>6000
generate Dtran=0
replace Dtran=1 if ind>6000
replace Dtran=0 if ind>6400
generate Dinfo=0
replace Dinfo=1 if ind>6400
replace Dinfo=0 if ind>6800
generate Dfina=0
replace Dfina=1 if ind>6800
replace Dfina=0 if ind>7200
generate Dserv=0
replace Dserv=1 if ind>7200
replace Dserv=0 if ind>7800
replace Dserv=1 if ind>8700
replace Dserv=0 if ind>9300
generate Dedmed=0
replace Dedmed=1 if ind>7800
replace Dedmed=0 if ind>8500
generate Drec=0
replace Drec=1 if ind>8500
replace Drec=0 if ind>8700
generate Dpubad=0
replace Dpubad=1 if ind>9300
replace Dpubad=0 if ind>9600
generate Dmili=0
replace Dmili=1 if ind>9600
replace Dmili=0 if ind>9950
collapse (mean) overall agri cons manu sale bus Gini rate pop2010 hhwt perwt age race hispan educ ind inctot Dwhite Dhispanic Dagri Dmine Dcons Dmanu Dsale Dtran Dinfo Dfina Dserv Dedmed Drec Dpubad Dmili, by(FIPS)
save "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\FullData", replace
use "\\hd.ad.syr.edu\01\fc3005\Documents\ECN495\FullData", clear
xi: regress overall Gini rate pop2010 hhwt perwt age educ inctot Dwhite Dhispanic Dagri Dmine Dcons Dmanu Dsale Dtran Dinfo Dfina Dserv Dedmed Drec Dpubad Dmili, robust
xi: regress agri Gini rate pop2010 hhwt perwt age educ inctot Dwhite Dhispanic, robust
xi: regress cons Gini rate pop2010 hhwt perwt age educ inctot Dwhite Dhispanic, robust
xi: regress manu Gini rate pop2010 hhwt perwt age educ inctot Dwhite Dhispanic, robust
xi: regress sale Gini rate pop2010 hhwt perwt age educ inctot Dwhite Dhispanic, robust
xi: regress busi Gini rate pop2010 hhwt perwt age educ inctot Dwhite Dhispanic, robust
drop if manu>8
xi: regress manu Gini rate pop2010 hhwt perwt age educ inctot Dwhite Dhispanic, robust
```