Introduction

> *[. . .] we did not come here just to clean up crises. We came to build a future. So tonight, I return to speak to all of you about an issue that is central to that future – and that is the issue of healthcare.*
>
> Barack Obama, Joint Session of the Congress, September 2009

There are few issues which have divided America more than that of healthcare. Universal access to healthcare has been the Holy Grail of American Politics for decades. The idea was first mooted by President Theodore Roosevelt in his unsuccessful campaign in 1912. President Truman spoke of the need for universal healthcare in his speech to the State of the Union in 1949 but was ultimately unsuccessful. Since, multiple Presidents - Democrats and Republicans, have attempted to increase coverage for millions of uninsured Americans, but none came close to the idea of universal healthcare than the Affordable Care Act (ACA), signed by President Barack Obama.

The ACA, or as it is know colloquially - Obamacare, ranks amongst the largest healthcare reforms in the United States since the introduction of Medicare and Medicaid programs by President Johnson. Among-st its most popular provisions, it banned insurance firms from denying healthcare coverage to individuals with pre-existing conditions and provided subsidies for healthcare purchased through insurances exchanges for the poor. ACA decreased the rate of uninsured individuals from 16% in 2010 when the bill was signed into law, to 9.1% in 2015 - a decline of nearly 43% percent (Obama, 2016).

There have been several papers that have researced the impact of Obamacare, and access to healthcare in general, on issues outside the debate of health economics, such as improved financial security (Dussalt, Pinkovskiy, & Zafar, 2016), increased wages (Dillender, 2014) or **xxxx**. However few authors have studied the impact of healthcare on crime and criminal activity.

Crime has long been studied by economists and sociologists due to the costs it imposes upon society. Gary Becker won the prestigious Nobel Memorial Prize in Economics for his contribution in extending the *"domain of microeconomic analysis to a wide range of human behaviour and interaction, including nonmarket behaviour"*, including the fields the sociology criminology[1]. Becker approached the issue of crime as a trade-off between *risk* and *reward* for an individual. Thus crime was rationally motivated action by individuals who faced a high rewards upon engaging in a criminal activity, for her / his level of risk. In contrast, sociologists such as Albert Reiss approached the issue of crime from the view point of social and cultural norms. Individuals engaged in criminal activity as a failure of *personal and social controls* [**refer to papers**]. Nonetheless, the primary constraing factor of crime would then be a form of punishmen; increasing the risk to criminals for Becker and reinforcing social controls for Reiss.

The author disagrees with these findings. Increasing punishment of criminal activity through the mandatory minimum laws in the United States failed to reduce crime. In contrast to its orginal intent, scholars have found that the mandatory minimum laws have had a dispropotionate impact on the minorities in the United States, creating an image of *super-predators* for an entire race of individuals [**refer to papers**].

The author looks at crime, not as a disease that needs to be cured, but rather as a symptom of a larger cause. This is not to say that all forms of crime are caused by social hardship. It would be naive to assume that some forms of crime are not caused due to the hint of a large reward or a moment of indiscipline. However the author believes that crime can be reduced without the need of a drastic institutional buildup by reducing the causes of social hardship thatmotivate crime. Such a tool would be at a lesser cost to society, both financially and humanely, than the cost of a violent war on crime.

One of the main motivations of this study is to prove an implication of healthcare reform that has been largely ignored; the reduction of crime as millions of Americans earned access to the healthcare system.

[1] Source: http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1992/becker-facts.html

The study hopes to rectify the gaps in economic literature that has been woefully lacking in the debate. **ADD findings after the data and consistency checks are over.**

Literature Survey

Methodology

Modelling Crime

The authr tests if changes in the rates of uninsured individuals in the United States impact the conditional mean of crime in the different regions. Crime is modeled as an AR(1) process, with the model as defined as in equation 1 below.

$$crime_{i,t} = \alpha_0 crime_{i,t-1} + \beta_1 insurance_{i,t} + \sum \beta_e E_{i,t} + \sum \beta_d D_{i,t} + \epsilon_i + \epsilon_t \tag{1}$$

In equation (1), α_0 captures the propensity of crime; i.e the occurance of crime in a county i due to historical crime in the region. This can also be viewed as the cost for a criminal to shift criminal activity. Creation of criminal infrastructure is costly, be it in terms of time spent to attract new recruits or financially; the cost spent as bribes to unethical policemen. While the propensity will mainly capture the costs to organised crime, it includes the costs for an individual criminal entreprenuer.

β_1 is our main coefficient of interest. It would capture the impact of ncreasing (or decreasing) rate of uninsured individuals on criminal activity. *A priori*, it is assumed to be strictly lesser than zero, i.e $\beta_1 \ll 0$. Furthermore, E refers to a vector of economic controls such as the median income and povert rate in county i. the literature is ablivient on the direction of the impact here, with some scholars finding a positive impact on crime [**refer to papers**] and others negative [**refer to papers**]. Finally, D refers to a vector of social and demographical controls such as the population of a county, percentage of minorities in the county and the rural-urban divide. All of these variables have been found to have an impact on the level of crime in a region [**refer to papers**].

ASK PROF TRAXLER FOR INSTRUMENTAL REGRESSIONS

Sources of Data

The data for this stdy come from a multitude of sources. Data on crime in the counties of United States is sourced from the National Archive of Criminal Justice Data (NACJD) loacted within the ICPSR, University of Michigan. The primary source of criminal data for the NACJD is the Uniform Crime Reporting (UCR) Program maintained by the Federal Bureau of Investigation in the United States. The UCR data contains county, state and national level aggregations of crimes reported and arrests made by both local and federal agencies in the United States for any year.

There is often a delay between the time a crime is reported, and the time of the arrest. The delay is further compunded by the idosyncracies within local and federal law enforcement agencies. To prevent the idiosyncracies from biasing the results, this study uses the data on crime reported in every county, over the arrests made. It leaves consistency checks using different sources of crime to future research.

The data on crime, gathered through the UCR Program, is comprehensive and contains over 20 sub-divisions of criminal activity; ranging from violent crimes such as burglary to drug possesion and disorderly conduct. Due to the wide range of criminal behaviour, the study limits itself to the study of violent crimes and drug possession, along with vagrancy. Impact of healthcare of other forms of crime

is left to future research. Figure 1 below provides a concise view of the changing criminal actvity in the United States.

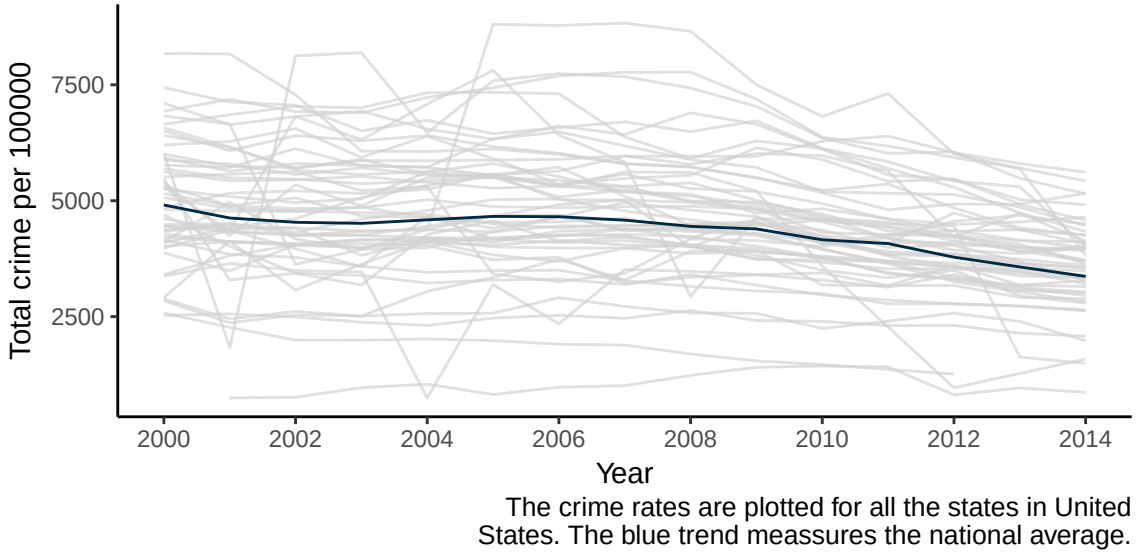
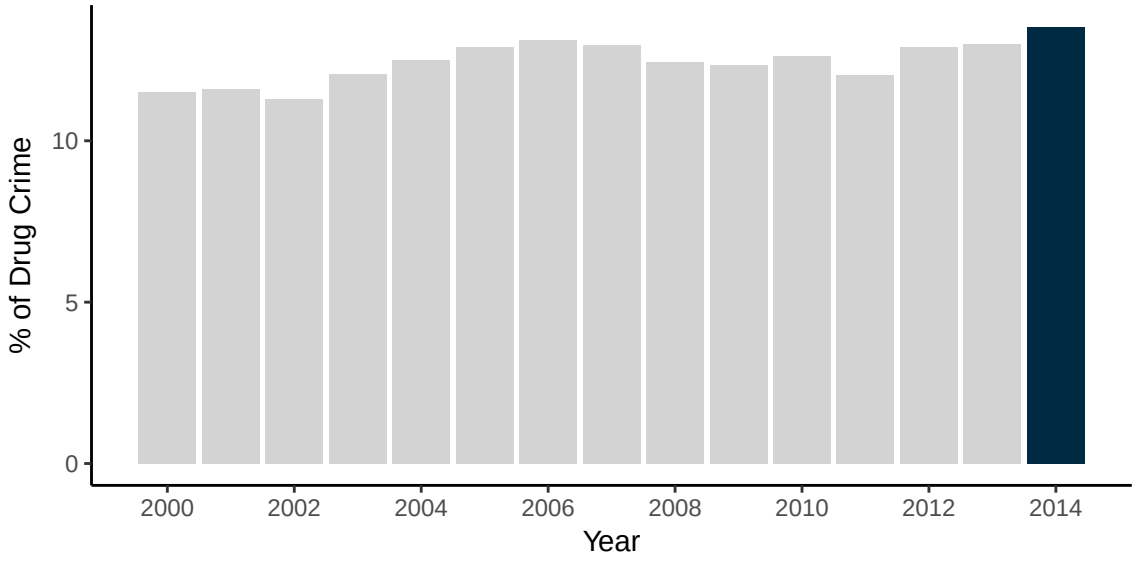


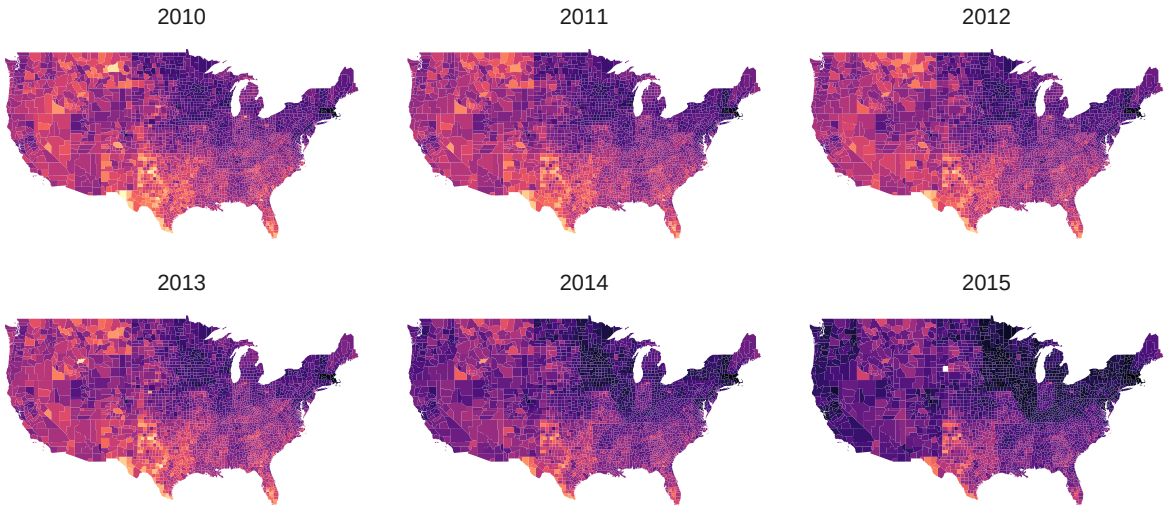
Figure 1: Trends in Crime in the United States

The different states in United States witness a huge variation in their crime rates. However, as the national average shows, crime is undoubtfully reducing in its trend, though the reduction is only marginal. There are also marginal changes in the composition of criminal activity. Figure 2 showcases the changes in the number of crimes related to the possesion of drugs as a percentage of the total crimes reported. There is a small upward trend post 2012, corresponding with the epidemic of heroin in the United States [**refer to papers or news article**s]. However it presents little evidence of a large difference in the distribution of criminal activity.



Health Coverage for Individual Americans

Data on coverage for healthcare comes from the Small Area Health Insurance Estimates (SAHIE) maintained by the Census Bureau. Data was collected from 2000 onward, however due to a change in the estimation method between 2005 and 2006, there is considerable variation between the timelines. This is unfortunate, as President Bush enacted his reform of the Medicare and Medicaid programs in 2001. Nonetheless, the current dataset included the coverage of Americans post the enaction of the ACA, the main source of exogenous variation in our model. Figure 3 below displays the changing access to healthcare for the last 6 years in the dataset.



NOTE: Darker colours refer to lower rates of uninsured indivduals and vice versa

Contrary to data on criminal activity, there is a marked change in the rates of uninsured individuals in America. Uninsured rates fell drastically in Southern America, though there are still some pockets on uninsured in Texas. Texas may be an outlier as Republicans won a reprieve in the enforcement from the [**xxx**] circuit in Texas. Though it would not bias the results, a dummy variable for Texas would be created during robustness checks to measure the impact of the rulings in Texas.

Income, Geographic and Social Characteristics

Data on income, geographic and social characteristics for the counties were collected to serve as an control for the study. Median Income for Americans in every county were derivied from the Small Area Personal Income estimates (SAPIE) maintained by the Census Bureau. They also maintain a measure of the poverty rate in the different counties which will be explored further in the robustness checks.

Social data peraining to the division of the different races in the US was collected from the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute. SEER collects data mainly on cancer cases in the United States, but maintaing expertise in collection of population-based statistics. They have a comprehensive distribution of data on race from 1969. For the purpose of the study, a variable measuring the percentage of minorities[2] is created. Research has shown minority dominated areas to face higher premium costs [**refer to papers**], higher rates of incarceration [**refer**

[2]Disregarding the sociological implications for a minute, minorities is defined as the number of non-white individuals. From SEER, it is created by adding the number of African Americans with the number of Asians and Native Indians, divided by the total population of the county

to papers] and [**xxxx**]. It would therefore be of interest to see if these areas do feature higher rates of crime.

Finally, data on demographical and geographical constructs were obtained from the Census Bureau and the Department of Agriculture respectively. Of Particular interest is the changing levels of population in the different counties, as well as the level of urbanisation. A brief note on the classification of urbanisation in the US. The USDA[3] defined 9 levels of urbanisation in the US, from large metro cities to smaller towns in the, so-called, non-core areas. However these are collapsed into 6 levels of urbanisation for the study. A breakdown of the original classification by the USDA as well as the collapsed groups is gven in Table 1 in the appendix.

It is also important to note that the levels of urbanisation do not change in the dataset, as they are fixed to the 2013 levels defined by the USDA. As a result, they can be completely ignored in the fixed-effects setting of the modelling. However urbanisation will be explore further in the robustness checks to measure the drivers of the impact of healthcare on crime.

Pairwise correlations of the different variables of interest are taken to provide a preliminary view of the data. The figure is below. Oh the horror!

Results

Robustness Checks; What drives the results?

Conclusion

References

Dillender, M. (2014). Do more health insurance options lead to higher wages? Evidence from states extending dependent coverage. *Journal of health economics*. Retrieved from http://www.sciencedirect.com/science/article/pii/S0167629614000411

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Obama, B. (2016). United States Health Care Reform. *Jama*, *27*(6), 1718–1727. doi:10.1001/jama.2016.9797

[3]United States Department of Agriculture