The Effects of Local Economic Activity on Crime: Evidence from Oil Price Shocks in Texas

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"Zach Mannon, 23, who has been working in the oil patch for three years, said he once bumped accidentally into a woman in a bar packed with men…. The boyfriend insisted they step outside, so they did, but 14 of Mr. Mannon's coworkers from his rig came along"

"At the urging of her family,..she is now getting her concealed weapons permit so she can carry a taser….Her family hardly ever lets her go out on her own-not even for walks down the gravel road at the housing camp where they live[1]"

[1] Both quotes are from the New York Article "An Oil Town Where Men Are Many, and Women are Hounded." *New York Times* 16 January 2013, which can be accessed from http://www.nytimes.com/2013/01/16/us/16women.html

Abstract

We exploit plausibly exogenous changes in the value of reserves in Texas's giant oil fields to determine the impact of crime in Texas counties that have reserves. Texas provides an ideal setting for this research strategy. First, Texas has the largest number of giant oil fields. Second, Texas's giant oil fields possess the greatest remaining oil potential. Third, giant oil fields are dispersed throughout the state. We find that a one percent increase in the lagged value of oil reserves increases violent crime by 0.32%, aggravated assaults by 0.40%, sex offenses by 0.40-0.50%, and drug offenses by 0.40 %. We also find that an increase in the value of local oil reserves improves local economic conditions and increases violent crime rates of its county with no effect on the local economic conditions or crime rates of adjacent counties. This is evidence of crime creation and not displacement of criminal activities across counties. We explore potential mechanisms that could be driving this increase in crime and find an increase in the share of young males, and increase in individuals residing in group quarters and no increase in the size of the police force.

I. INTRODUCTION

Economists have long been interested in the relationship between economic activity and crime. Becker (1968) and Ehrlich (1973) developed the standard economic model of crime where a rational agent decides to engage in criminal activity if committing a criminal act results in an increase in expected utility. One of the key predictions from the standard model is that increased labor market opportunities reduces the likelihood of participating in criminal activity, ceteris paribus. On the other hand, an increase in economic activity in a given area potentially increases the returns to criminal activity for individuals in that area who do not realize an increase in legal economic opportunities. (Cook, 1986) Moreover, changes in local economic activity may attract individuals from outside of the area to take advantage of increased economic activity which provides an additional mechanism via which local economic activity potentially affect local criminal activity. The impact of changes in local economic activity on local crime is, therefore, theoretically ambiguous and must be estimated empirically.

A number of papers attempt to estimate the empirical relationship between economic activity and crime. Mustard (2010), in an extensive review of the literature, remarks that early empirical research on the relationship between economic activity and crime fails to uncover a consistent relationship. He concludes that modern research-in particular, research conducted following the late 1990's-made significant progress in overcoming the endogeneity issues and data limitations that plagued earlier studies to provide credible estimates of the relationship between income and crime. In the paragraph below, we briefly describe representative examples of papers that directly confront the endogeneity issues that arise when considering the impact of economic activity on crime.

Raphael and Winter-Ebmer (2001), using a state level panel data set that covers the years from 1971 until 1997, employ an instrumental variables strategy to estimate the relationship

between economic activity and crime. Using both prime defense contracts awarded to each state and the product of the proportion of the state's employment in the manufacturing sector in a given year and annual change in the relative price of crude oil as instruments for unemployment, they estimate a significant positive effect of unemployment on crime with weaker results for violent crimes. Gould, Weinberg, and Mustard (2002) use ordinary least squares models, county-level fixed effects models, and instrumental variables to estimate the impact of labor market opportunities on crime from the 1979-1997. They find that declines in wages and employment for unskilled men result in increases in violent and property crime. Lin (2008) uses the real exchange rate, state manufacturing state percentages, and state union membership as instruments for state level unemployment and finds that a one percentage point increase in the unemployment rate leads to a four percentage point increase in property crime. Freedman and Owens (2016) exploit exogenous variation in the demand for construction workers in San Antonio caused by the 2005 Base Realignment and Closure program and find that criminal activity increased in neighborhoods with relatively large shares of construction workers.

This paper estimates the causal relationship between changes in the value of oil reserves in Texas counties and local criminal activity. We exploit a source of plausibly exogenous variation in economic activity that has not been used in this context and adopt a variant of an identification strategy used by Black, Daniel, and Sanders (2002); Black, McKinnish,and Sanders (2003); Black, McKinnish and Sanders (2005); Black, Kolesnikova, Sanders, and Taylor (2013); Charles and Stephens (2013) ; and Acemoglu, Finkelstein, and Notowidigdo (2013). The papers described above use a combination of cross sectional variation and variation over time in the value of natural resources-for example, coal and oil-to estimate the relationship between economic activity derived from the change in the value of natural resources and economic outcomes. We adopt a similar approach in this paper.

We use plausibly exogenous variation in the value of reserves for giant oil fields in Texas. The variation in the value of oil reserves comes from two sources: 1. Cross sectional variation that is due to the geographical dispersion of giant oil fields across counties in Texas with different levels of oil reserves. 2. Temporal changes in the price of crude oil from 1998 until 2011. We use these sources of variation in price to estimate the following relationships.

First, we show that there is a strong relationship between the value of oil reserves and measures of local economic activity. We find that the value of oil reserves is positively related to annual payroll earnings, annual payroll earnings per employee, and negatively related to the unemployment rate. In particular, the value of oil reserves improves local economic conditions of its county without affecting adjacent counties. Second, we show that increases in the value of oil reserves in Texas counties are positively related to increases in the following criminal categories: violent crime, aggravated assault, other assault, sex offenses, and drug offenses. [2] Third, given that individuals can move to take advantage of criminal activity, we estimate a series of models where we include the value of reserves in a given county and the value of reserves in the adjacent counties. We find that the impact of the value of reserves in the adjacent counties on crime in a given county is of much smaller magnitude and statistically indistinguishable from zero, which is evidence of crime creation and not displacement. Fourth, we offer suggestive evidence that temporary laborers who migrate to oil counties to take advantage of the increase in economic opportunities contribute to the increase in crime in Texas counties with oil reserves.

[2] In this paper, we show the effect of income of both Type I and Type II crimes. While Part I offense are serious offenses that are most likely to be reported to the police, Part II offenses are often not reported. Because it is not mandatory for agencies to report Type II crimes, data for these crimes is incomplete and should be interpreted with caution (Tabarrok, Helland and Heaton, 2010). However, changes in measurement error should be unrelated to changes in the value of reserves.

The remainder of the paper is organized as follows. We describe the data in Section 2. In Section 3, we present our estimation strategy. We discuss the results in Section 4 and Section 5 concludes.

II. DATA

Our identification strategy requires time-series data on oil prices, detailed information on the location of giant oil fields, the level of reserves attributable to a giant oil field, and reliable measures of local income and local crimes. Table 1 provides a description of the data we use in this study. Our data spans each of Texas's 254 counties from 1995 to 2014[3]. Beginning in 1994, the UCRC introduced a variable "COVIND" (coverage indicator), which can be used to diagnose the quality of county-level aggregated data. The coverage indicator corresponds to the share of county data that is not imputed and ranges from 0 (all data in the county are based on estimates) to 100 (all agencies in the county reported for 12 months in that year). Following Freedman and Owens (2011), we restrict the sample to county-years with a coverage indicator greater than 50. Of Texas's 254 counties, 152 are non-oil counties and 102 are oil counties. From these potential 5080 (254 X 20) county-year cells, we drop the 28 county-year cells that have coverage indicator of at most 50[4]. This leaves us with 5052 county-year cells, which we use for the analysis.

Covariates

[3] We use data starting in 1995 because there were major changes to the Uniform Crime Reports county-level files in 1994 regarding the mechanism to address and incomplete reporting and impute its corresponding data.

[4] We drop the following county-year cells that have coverage quality of at most 50 (COVIND<=50): we drop one county in 1995 (fips=48453), two counties in 1996 (48145, 48453), one county in 1997 (48481), two counties in 1998 (48127, 48225), one county in 1999(48255), two counties in 2000 and 2001 (48255, 48353), one county in 2002 (48505), one county in 2006 and 2007 (48197), one county in 2009 and 2010 (48105), three counties in 2011 (48095, 48097, 48105), two counties in 2012 (48097, 48105), three counties in 2013 (48075, 48097, 48105), four counties in 2014 (48013, 48075, 48097, 48193).

We obtain unemployment rates by year and county from the U.S. Bureau of Labor Statistics (BLS), and population measures by age, race and gender from the Centers for Disease Control and Prevention[5] We use income data from the County Business Patterns (CBP)[6] for the years 1995-2014. The CBP provides annual statistics for businesses with paid employees at both the county level and the industry level. The CBP data includes the following elements: the number of establishments, employment during the week of March 12, first quarter payroll and annual payroll. The CBP excludes most establishments with government employees. This restriction does not pose a problem for our analysis because this increase in the value of local reserves mostly affects earnings in the private sector[7].

Panel A of Table 1 indicates that the share of Hispanics and the total county population are higher in oil counties than in non-oil counties. However, the share of blacks, men, and individuals of age 18 or younger is similar across oil and non-oil counties. Panel B of Table 1 describes counts of employment by county and year averaged over years 1995-2014. Oil counties, on average, have slightly higher unemployment rate, more total employment counts overall, higher CPI-adjusted annual payroll, and a higher CPI-adjusted annual payroll per employee than non-oil counties

Uniform Crime Reports

We use the Uniform Crime Reports County-Level Detailed Arrest and Offense Data (UCRC) which is created by the staff of the Inter-University Consortium for Political and Social Research (ICPSR) based on the Federal Bureau of Investigation's Uniform Crime Reports (UCR). Unlike the UCR, which contains data at the police jurisdiction level, the UCRC provides data at the

[5] http://wonder.cdc.gov/bridged-race-population.html

[6] http://www.census.gov/econ/cbp/download/11_data/

[7] Using the Quarterly Census of Employment and Wages (QCEW), Online Appendix Table A4 present evidence that the value of local reserves only affects earnings in the private sector and not among government jobs.

county-level. Because not all agencies consistently report criminal activity, the UCRC includes imputed missing data in order to aggregate arrest counts to the county level. This imputation algorithm changed in 1994, making comparisons of before and after 1994 data difficult to interpret (Tabarrok, Helland and Heaton, 2010). We compute crime counts per 10 thousand county residents, and use as county residents the variable "CPOPARST," which is the total county population of agencies reporting arrests.

Panel C of Table 1 indicates that there are 57.86 total crimes per 10 thousand residents in non-oil counties, and 61.01 total crimes per ten thousand in oil counties. Non-oil counties have both fewer violent crimes (13.89 vs 14.60 counts of violent arrests per 10 thousand residents) and fewer property crimes (43.96 vs 46.41 counts of property arrests per 10 thousand residents. Regarding Type II crimes[8], public drunkenness is significantly higher in oil counties (66 incidents per 10 thousand residents) than in non-oil counties (52 incidents per 10 thousand county residents). The average rates we compute are lower than the national rates because our arrests are averages of incidents at the county-year level, and there are some counties in Texas with both very low crime rates and very small populations (Freedman and Owens, 2011).

In addition to the arrest data, we obtain data on the number and gender composition of police officers and police department employees from the Uniform Crime Reporting Program Data: Police Employee (LEOKA) Data from 1998 to 2014. While LEOKA reports employees at the agency level, we aggregate them to the county level, in order to obtain the counts of police officers and the gender composition of officers in each county-year cell. Panel D of Table 1 shows that the number of police officers per 1,000 residents is higher in non-oil counties than in

[8] Type I crimes are divided into four categories of violent crimes (murder, rape, robbery and aggravated assault), and four categories of property crimes (burglary, larceny, motor vehicle theft, and arson). All the other reported crimes are considered Type II crimes. While Type II crimes are reported with measurement error, the accuracy of reporting should be unrelated to oil prices.

oil counties (2.17 versus 1.90). Also, the number of male officer per 1000 residents is higher in non-oil counties, while the number of female officers per 1000 residents is similar between oil and non-oil counties.

Oil Reserves

We obtain data on the total amount of oil reserves from the U.S. Department of the Interior's U.S. Geological Survey[9] annual report "The Contribution of Giant Fields to United States Oil Production and Reserves." This report provides a list of all giant US oil fields, the year the field was discovered, the production in 1997, the giant oil field's cumulative production as of January 1998, the remaining reserves of a given oil giant field as of January 1998, the ratio of remaining reserves of 1998 to 1997 production, and the estimated total reserves (cumulative plus remaining reserves). An oil field is defined as "giant" if the total amount of oil reserves (cumulative plus proved remaining reserves) exceeds 100 million barrels of oil.

While "giant" oil fields are a small share of the total number of oil fields, they account for 59% of cumulative US oil production. Fifty-five of the oil fields supplied 80% of annual production in 1997 (Schmoker, 1999). Following Acemoglu et al (2013), we use the total amount of oil reserves as a measure of oil intensity, which is the sum of cumulative and verified remaining reserves.

While the U.S. Department of the Interior's U.S. Geological Survey Annual Report matches each "giant" oil field in Texas to its "oil district[10]," the oil district is a group of counties and not very informative on its own for two main reasons. First, we cannot assume that a giant field located in one county affects all those counties in the oil district homogeneously. Second, crime data and demographics are provided at the county level and not at the oil district level.

[9] "The Contribution of Giant Fields to the United States Oil Production and Reserves" open file report 99-131 by J.W. Schmoker. This report can be downloaded from http://pubs.usgs.gov/of/1999/0131/report.pdf.
[10] See Figure A1.

Fortunately, the Railroad Commission of Texas provides a comprehensive list of oil leases and gas wells in Texas[11] and matches them with their respective number and name of oil fields, as well as the counties where these operators or leases are located. We build a dataset with a comprehensive list of the counties that have oil operators for each of the 97 "giant" oil fields. Because these "giant" oil fields have oil leases and operators in several counties within their oil district, the amount of reserves of a particular "giant" oil field counts as oil reserves in several counties. This is how we assign an amount of oil to a particular county. A county that has been assigned at least one oil field is considered to be an oil county.

We focus on Texas for three reasons. First, Texas has 97 "giant" oil fields, which makes it the state with the largest amount of "giant" oil fields[12]. Second, Texas has the largest amount of "giant" oil fields having significant remaining potential in the U.S[13], followed by California and Louisiana (Schmoker, 1999). Third, the "giant" oil fields in Texas are dispersed throughout the state and not confined to a small group of counties.

Figure 1 shows the histogram for the total amount of oil reserves in million barrels of oil by county. Panel A shows that there are multiple counties with no oil reserves. Panel B plots the histogram for the total amount of oil reserves in million barrels of oil in oil counties. The figure shows that there is substantial within-state variation in the importance of oil to the local economy.

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[11] The comprehensive list of oil leases and gas wells is located in the following link:http://www.rrc.state.tx.us/oil-gas/research-and-statistics/well-information/oil-leases-and-gas-wells-by-district-and-operator-2015/

[12] For instance, Oklahoma has 18, North Dakota has 1, and Louisiana has 34 on-shore "giant" oil fields.

[13]We use total amount of oil reserves because that is a truly exogenous measure of oil intensity. The amount of cumulative production, or production in a given year, or remaining reserves may be arguably endogenous. However, a natural concern of using the total amount of oil reserves is that some fields may have significant remaining potential while some others may be in decline. Texas is the state with the largest amount of "giant" oil fields with significant remaining potential in the US.

Oil Prices

We use two measures of oil prices. Our preferred measure, which we use through most of the paper, is the yearly average of oil prices from the Producer Price Index Series for Crude Petroleum[14] which we adjust using the Consumer Price Index (CPI). As an alternative measure of real oil prices, we also use CPI-adjusted average annual nominal spot crude oil price per barrel from the West Texas Intermediate Series[15]. Figure 2 presents the time-series of the three following measures of oil prices: CPI-adjusted Producer Price Index Series for Crude Petroleum, CPI-adjusted spot crude oil prices per barrel, and nominal spot crude oil price per barrel. We begin our analysis in 1995. Figure 2 shows both evidence of significant variation in oil prices since 1995 and that all three measures of prices have similar patterns. According to the average annual spot oil price from the West Texas Intermediate series, oil prices were at a low of $14.44 per barrel in 1998, doubled to $30.30 per barrel in 2000, decreased to $25.94 in 2001, and have been steadily increasing since then until they reach a peak $99.57 per barrel in 2008. Panel E of Table 1 shows that oil counties have on average 1226 million barrels of oil reserves[16] and have on average 3.8 neighboring oil counties. On the other hand, non-oil counties have on average 1.4 adjacent oil counties.

III. METHODS

We are interested in characterizing the relationship between local economic activity and crime. Two issues emerge that make this difficult. First, local economic activity is endogenous

[14] We define real oil prices as (PPI/CPI)*100 where the series for the PPI of Crude Petroleum is WPU0561 and we CPI-adjust it using 1982-1984 CPI-u series CUUR0000SA0 from BLS.

[15] The data can be downloaded from the following websites: http://research.stlouisfed.org/fred2/series/OILPRICE/downloaddata?cid=98 and the definition and sources of the spot prices can be found in the following website http://www.eia.gov/dnav/pet/TblDefs/pet_pri_spt_tbldef2.asp

[16] Note that we assign oil reserve amounts to a particular county as long as such county has oil leases and operators there, and hence one oil reserve enters several counties.

with respect to criminal activity. Second, even if one can identify a source of exogenous variation in income, changes in local economic activity impact through a number of channels-for example, changes in income, the likelihood of employment, and differences in migratory behavior related to crime.

To elide this problem, we follow Freedman and Owens (2016) approach and estimate the following two reduced form equations, where the first equation establishes the extent to which local economic conditions of counties with oil reserves responded to changes in the value of their local oil reserves. The second equation establishes the extent to which criminal participation responded to changes in the value of local oil reserves[17]. These equations employ a difference in difference strategy that identifies the effect of the local economic shocks associated with changes in the value of local oil reserves, where the first-order impact of the oil price is absorbed by the year effects and the differences in level of oil across counties is absorbed by the county fixed effects.

$$LEA_{it} = \alpha_0 + \theta[ln(P_{t-1}) * Res_i] + \beta X_{it} + \gamma_i + \gamma_t + \varepsilon_{it} \quad (1)$$

$$Y_{it} = \alpha_1 + \phi[ln(P_{t-1}) * Res_i] + \Gamma X_{it} + \gamma_i + \gamma_t + \epsilon_{it} \quad (2)$$

In Equation 1, LEA_{jt} consists of measures of local economic activity in county j in year t. P_{t-1} is the lagged price of oil and Res_i is the time-invariant assigned amount of oil reserves in ten thousand million barrels of oil that correspond to county i. [18] For the main specifications, P_{t-1} is the CPI-adjusted yearly average Producer Price Index Series for Crude Petroleum in year t-1. [19] The parameter θ measures the extent to which changes in the value of local oil reserves affect any given measure of local economic activity, such as CPI-adjusted total payroll earnings,

[17] Because we include county and year fixed effects, these regressions can be interpreted as
[18] The original dataset provides amount of reserves in million barrels of oil, (mmbo), and we divide it by ten thousand for the instrument.
[19] We estimate variants of our measure of the value of county oil reserves where we use nominal and CPI-adjusted global spot oil prices in the previous year as alternative measures of oil prices. We obtain qualitatively similar results.

number of employees, CPI-adjusted annual payroll earnings per employee, unemployment rate and total population.

As crude oil prices are determined in world markets, they are neither influenced by nor jointly determined with county-specific economic conditions. These exogenous changes in global oil prices should affect local economic activity, θ, differentially depending on whether oil production plays a large role in the local economy.

The reduced form coefficient of interest from equation 2, ϕ , allows us to capture the relationship between measures of criminal activity in county i and year t, (Y_{it}), and changes in the value of oil reserves without having to commit to a singular mechanism. The vector X_{it} includes demographic measures such as the county and year-specific share of blacks, share of Hispanics, share of males and share of the population that are at most 18 years old. Following Freedman and Owens (2016), we purposely exclude economic variables affected by the value of reserves in order to interpret ϕ as the effect of local economic activity driven by the value of local oil reserves on crime.

Finally, γ_i denotes county-specific effects which account for any time-invariant differences across counties, γ_t are year fixed effects which capture any common changes in crime rates that affect all counties in Texas in a given year, and ε_{it} is an idiosyncratic error term, which is clustered at the county level.

In Equation 3, the specification is identical to Equation 2 with the addition of the value of oil reserves of counties adjacent to a given county as a control. This is similar to strategies adopted in Freedman and Owens (2016) and Anderson, Crost, and Rees (2014). We expect criminal participation to be affected by changes in the value of oil reserves in own and adjacent counties. We allow both local economic conditions and criminal participation to respond to

changes in the value of both local and adjacent oil reserves, in order to determine whether there is evidence of displacement or spillovers.

$$Y_{it} = \alpha_1 + \phi_1[ln(P_{t-1}) * Res_i] + \phi_2[ln(P_{t-1}) * Res_{-i}] + \Gamma X_{it} + \gamma_i + \gamma_t + \epsilon_{it} \quad (3)$$

If $\phi_2$is negative, then we interpret this as indicating that changes in the value of oil reserves reduces crime in adjacent counties, which indicates displacement if accompanied by a positive ϕ_1. Similarly, a positive ϕ_2 would indicate that increases in the value of oil reserves in adjacent counties have spillover effects and create crime in adjacent counties. We also estimate a variant of equation 3 only on counties that have no oil reserves as defined in equation 4.

$$Y_{it} = \alpha_1 + \phi_2[ln(P_{t-1}) * Res_{-i}] + \Gamma X_{it} + \gamma_i + \gamma_t + \epsilon_{it} \quad (4)$$

The coefficient of interest ϕ_2 in equation 4 is associated with the oil reserves in adjacent counties and it represents pure spillover effects as there is no increase in economic activity in these counties associated with own oil production as these counties have no oil production[20].

IV. RESULTS

First, we present the results of the first-stage regression or the effects of the lagged value of reserves on local income (equation 1). Second, we present the reduced form effects of the lagged value of reserves on crime rates per 10 thousand county residents, for all Type I and Type II crime categories (equation 2). As a robustness check, we present estimates that use both alternative measures of oil prices and alternative measures of income. We obtain qualitatively similar results when we use these alternative measures of oil prices and income.

A. Local Economic Activity and The Value of Oil Reserves

Before estimating the effects of increases in the value of local oil reserves on criminal participation, we present evidence that increases in the value of local oil reserves improved local economic conditions of own-county, without affecting the local economic conditions of

[20] We present evidence in the online appendix Table A3 that local economic activity was only affected in oil counties and not in adjacent counties.

neighboring counties. In particular, we show that the value of local oil reserves is a strong predictor of higher earnings per employee as well as a lower unemployment rate.

Table 2 presents the estimates of θ where we use as dependent variables the natural logarithm of five measures of local economic activity: (1) The natural logarithm of CPI adjusted annual payroll earnings ($1,000) at the county level (2) The natural logarithm of employees at the county level (3) The natural logarithm of annual payroll earnings ($1,000) per employee at the county level (4) The county's unemployment rate and (5) The natural logarithm of the county's population.

Table 2 indicates that an increase in the lagged value of local reserves increases annual payroll earnings at the county level (columns 1-2-3). In particular, a one percent increase in the lagged value of oil reserves leads to a 0.29% to 0.36% increase in total annual earnings[21]. These results remain robust when we measure the price of oil as CPI-adjusted PPI (column 1), WTIS (column 2) and CPI-adjusted WTIS (column 3). We obtain qualitatively similar results when we use the current value of reserves in lieu of the lagged value of reserves as a regressor (last three columns).

We estimate a positive relationship between the value of reserves and the number of employees. In our preferred specification, we find that a one percent increase in the lagged value of the county's oil reserve is associated with a 0.153 percent increase the number of employees. This estimate, however, is not statistically significant at the conventional level.

The lagged value of oil reserves is positively associated with annual payroll earnings per employee at the county level. A one percent increase in the lagged value of oil reserves is associated with a .207 % increase in the value of annual payroll earnings per employee at the county level. This estimate is statistically significant at the five percent level. We obtain

[21] Panel A measures the natural logarithm of CPI-adjusted annual payroll earnings , not adjusted per employee.

qualitatively similar results when use alternative definitions of the value of oil reserves (columns 1-2-3), and also as we transition to using the current value of oil reserves.

The unemployment rate in a county declines as the lagged value of oil reserves in a county increases. In our preferred specification, a one percent increase in the value of reserves .026 percentage point decline in the unemployment rate. This estimate is statistically significant at the one percent. We find a statistically insignificant relationship between the lagged value of oil reserves and the population of a county, as measured by the CDC Wonder. Later, we explore population measures from the IPUMS, which includes group quarters, or temporary housing units.

Taken together, the estimates in Table 2 show a relationship between the value of oil reserves and local economic activity in the expected direction, with increases in measures of earnings and decreases in unemployment. Table A3 presents evidence that local economic conditions were responsive only to changes in own-county oil reserves and not to adjacent-county oil reserves.

B. Reduced Form Effects of Oil Reserves on Crime

We estimate the effects of exogenous changes in the value of local oil reserves on local crime rates using OLS for all Type I and Type II crime categories.[22] The dependent variable $CrimeRate_{it}$ measures the counts of arrests per 10 thousand county residents for a given offense in county i in year t. The parameter ϕ from equation 2 can be interpreted as, a one percent increase in the value of oil reserves increases the average counts of arrests per 10 thousand residents by $\frac{\phi}{100}$. The elasticity from this linear-log model at the means is ϕ divided by the mean of the dependent variable. The means of the dependent variables are presented in Table 1 and estimates of ϕ as well as the implied elasticities are presented in Table 3.

[22] See Online Appendix A for the definitions of each of the Type I and Type II crime categories for which UCRC provides counts of arrest.

Our preferred specification uses as an instrument the lagged value of reserves (columns 1-2-3). We obtain statistically significant results for the following criminal categories: aggravated assaults, other assaults, sex offenses, and drug offenses. In our preferred specification, we uncover estimate a marginally significant change in violent crime due to changes in the value of oil reserves at the county level. The results remain statistically indistinguishable as we use different measures of oil prices (columns 1-2-3). We obtain qualitatively similar results when we use the current value of reserves as the instrument (columns 4-5-6).

We find that a one percent increase in the value of oil reserves results in an additional 4.634 arrests for violent crimes per 10 thousand residents; that is a one percent increase in the value of oil reserves is associated with a .327 percent increase in arrests for violent crimes.

Arrests for aggravated assaults at the county level increase in response to increases in the value of oil reserves. A one percent increase in the value of oil generates an additional 4.815 arrests per 10 thousand county residents, which is equivalent to an implied elasticity of 0.424 . This estimate is statistically at the ten percent level. We produce estimates that are similar in magnitude when we use alternative definitions of the value of oil reserves.

There is evidence that arrests for other assault crime category increase as the value of oil reserves increase. The estimate using our preferred definition of the value of reserves is statistically significant; however, we do observe a significant estimate for definitions of the value of reserves that use alternative measures of the price of crude oil. The estimates range from 9.080 arrests per ten thousand to 7.599 arrests per ten thousand. The implied elasticities range from .196 to .203.

Sex Offense arrests increase by a little more than one per ten thousand county resident given a one percent increase in the value of the county's oil reserve, an implied elasticity of .473.

This estimate is significant at the five percent level. The estimate is robust to alternative definitions of the value of oil reserves.

Arrests for Drug offenses increase 24.320 per ten thousand given a one percent increase the value of oil reserves. This is an implied elasticity of .440. The estimate is statistically significant at the five percent level and is also robust to alternative definitions of the value of oil reserves.

Table 3 presents little evidence to support the idea that the increase in economic conditions associated with the change in the value of oil reserves results in an increase in property crimes[23] but they increased the following crimes with their respective elasticities in parenthesis: violent arrests (0.327), aggravated assaults (0.424) , sex offenses (0.473) and drug offenses (0.440), and the results remain robust to different measures of oil price and robust to whether we used lagged or current value of reserves.

C. Spillover of Crime Across Counties

Table 4 contains the estimates of Equation 3. Recall that in Equation 3 we add the value of oil reserves in counties adjacent to a given county as a regressor. This allows us to in determine if spillover effects across counties are a significant determinant of changes in criminal behavior; that is, we can determine if there is evidence of crime creation or displacement. If the coefficient associated with the value of oil reserves in counties adjacent to a given county, ϕ_2, is negative, then this is evidence of crime displacement and a positive value is evidence of creation.

[23] Although statistically insignificant from zero, we estimate negative relationships between increases in the value of oil reserves and arrests for property crimes, robbery, burglary, larceny, and motor vehicle theft. We find statistically insignificant positive effects for Total arrests, arson, arrests for weapons, drunkenness, and disorderly conduct. Increases in the value of oil reserves at the county level produce negative and statistically insignificant effects for arrests for murder, rape, commercial vice, offenses against the family, and liquor law violations.

We find little evidence to support the existence of significant spillover effects for the majority of the arrest categories. When we include the value of reserves in adjacent counties as an additional regressor, the impact of a one percent increase in the value of a county's oil reserves is 4.637 additional arrests for violent crimes per ten thousand residents; 4.836 additional arrests for aggravated assaults per ten thousand; 1.102 additional arrests for sexual offenses per ten thousand; and 29.537 additional arrests for drug offenses per ten thousand. The estimates are remarkably similar to the estimates in Table 3 and suggest that, for these particular crimes, that spillover is not an issue.

However, we do uncover some evidence of spillover effects for a few outcomes. A one percent increase in the value of reserves in adjacent counties reduces other assault arrests by 1.516 arrests per ten thousand residents. However, this is small relative to the magnitude of the impact of a change in the value of a county's own oil reserves and small relative to the mean number of arrests per ten thousand in the oil counties. For drug offenses, we find evidence of creation. A one percent increase in the value of oil reserves in adjacent counties results in an additional 3.469 additional arrests per ten thousand residents. We uncover some evidence of creation for arrests for robbery and burglary. Overall, these findings support the hypothesis that it is change in the value of a county's own oil reserves that impact criminal activity in a given county.

Table 5 focuses on the set of counties with no oil reserves and includes as the regressor of interest the value of oil reserves in adjacent counties. This subsample provides a more straightforward test for spillover tests as we need not worry about the simultaneous change ithe value of the county's own resources. The estimates in Table 5, do not support the existence of

pervasive spillover effects for the majority of arrest categories[24]. The impact of the change in the value of oil reserves for adjacent counties for this subsample produced estimates that are far smaller in magnitude and do not achieve statistical significance with the exception of a few arrests categories.

D. Potential Mechanisms

We have provided evidence that both local economic activity and some measures of crime change in response to changes in the value of county level oil reserves. The increase in the value of reserves likely stimulates economic activities that are related to and complement oil production. The changes in economic activity have theoretically ambiguous effects on criminal activity. In this section, we attempt to examine potential mechanisms in more detail. In particular, we examine demographic composition and policing changes in response to changes in the value of local oil reserves[25].

Demographic Changes and Temporary Workers

The economics of crime literature hypothesizes that income shocks could potentially affect property crime by creating an alternative to a criminal career and an opportunity to enter the legal labor market, or by increasing the purchase of durables and hence making crimes such as robbery or burglary more appealing. We hypothesize that the reason that we do not find changes in property crime due to changes in the value of oil reserves sin oil counties is that these locations attract temporary workers who work in the oil fields and live in temporary housing (i.e. man camps). If these temporary workers increase their purchase of durables, then those durables,

[24] Because counts of arrests have cells with zero counts, we also estimate a Poisson model and a negative binomial model and present the coefficients in Table A1 and A2, respectively.

[25] From this section onwards, we will use the PPI/CPI definition for the price of oil. Previous sections have shown evidence that the results remain unchanged as we use different measures of oil prices.

in all likelihood, would be housed in their county of permanent residence and, thus, not have an impact on property crimes in the oil counties

Moreover, the influx of temporary workers is a plausible mechanism via which income shocks affect violent crimes. The temporary workers are young men, and these young men commit violent crimes in the oil counties. As temporary workers, they do not count towards the permanent population of the oil county and can reconcile the increase in the crime types that we observe without having a impact on the county's permanent population. This hypothesis is consistent with reports from the popular press about criminal activities in areas affected by increased activity in the oil industry.

A New York Times article entitled *An Oil Town Where Men Are Many and Women are Hounded*[26] corroborates the proposed mechanism. The article examines Williston, North Dakota a city that experienced an oil boom. The article reports that many of the men attracted to the area by the large salaries are young and split their time between their permanent residence and the oil field. The men outnumber the available women in the area. The article notes that prosecutors and police in Williston indicate that the influx of temporary workers lead to an increase in crimes against women which includes sexual assaults.

In Table 6, we provide some evidence to support this hypothesis. For this exercise, we use data from IPUMS, which provides individual level data from a limited number of counties and is only available every year since 2000. The IPUMS is particularly attractive to study temporary workers because it identifies whether the respondent resides in a household, group quarter or vacant unit. Group quarters are group living arrangements, including rooming houses, workers' dormitories and military barracks, that can be distinguished

[26] The article can be accessed online http://www.nytimes.com/2013/01/16/us/16women.html?_r=0

between institutional and non-institutional group quarters[27]. Correctional facilities are an example of institutionalized group quarters while workers' dormitories and motels are examples of non-institutionalized group quarters.

Using data from IPUMS for a limited number of counties, Table 6 shows that increases in the value of a county's oil reserves leads to the following demographic changes. First, it increases the share of males and decreases the share of females. Second, it decreases the share of blacks in oil counties while increasing the share of blacks in adjacent counties. Third, it increases the share of males between 20 and 35 while increasing the share of females only between ages 20 and 30. Surprisingly, there is no change in the share of children under 15 regardless of the gender, which supports evidence of young adults moving to oil counties for work and not families migrating. Fourth, there is an increase in the share of the population that resides in group quarters. Fifth, and most importantly given our hypothesis, there is an increase in the share of the population that resides in non-institutionalized group-quarters.

The results presented in Table 6 are consistent with the scenarios reported in the popular press given the increases in the particular types of arrests that we report and is consistent with the lack of property crimes given that the income generated by temporary purchases likely contributes to purchases of durable goods where they reside[28].

Changes in Policing

One potential channel that directly affects criminal activity is policing. In Table 7, we examine the relationship between changes in the value of a county's oil reserves and measures of policing at the county level: the natural logarithm of male officers, the natural logarithm of

[27] https://usa.ipums.org/usa-action/variables/GQ#description_section
https://www2.census.gov/programs-surveys/acs/tech_docs/group_definitions/2010GQ_Definitions.pdf

[28] Table A5 presents estimates where the dependent variable is the natural logarithm of the counts of car titles and car registrations as a proxy for

female officers, the natural logarithm of the number of police employees, the natural logarithm of the total number of officers, the natural logarithm of male officers per resident, the natural logarithm of the number of female officers per resident, and the share of male officers. We do not find evidence of a significant relationship between the change in the value of a county's oil reserves and any of the measures of policing in such county or adjacent counties. However, there are pathways via which policing could have an impact on crime that we are unable to measure.

Our measures of police activity are essentially measures of the extensive margin of policing. That is, we examine measures related to the size and composition of the police force. These measures do not account for potential changes in policing strategy that can take place while holding the size and composition of the police force constant. For example, rather than hiring additional police officers, a department could have the force work more hours or focus its efforts on a different set of criminal activities than the department would have focused absent the changes in a county associated with changes in the value of reserves. Changes on the intensive margin likely increase arrest rates and this makes arrests an upwardly biased measure of underlying criminal activity[29].

V. CONCLUSION

This paper contributes to the literature on the effect of changes in local economic activity, driven by changes in the value of oil, on crime. This paper shows that increases in the value of local oil reserves increases arrests for violent crimes, aggravated assault, other assaults, drug offenses, and sex offenses. These findings are robust to different definitions of the value of oil as well as alternative specifications. We find no effect on property crimes.

[29] Another mechanism through which we could have seen an effect is through the purchases of durables. we follow Freedman and Owens (2016) and examine whether purchases of durables respond to changes in local economic conditions. Our two measures of durables are car titles and car registrations, which we obtain from Texas Department of Motor Vehicles. The results are presented in Table A5 and the value of oil reserves does not affect purchase of durables as measured by car titles or car registrations, whether in own-county or adjacent-county.

These results are consistent with the proposition that the increase in crime due to changes in income caused by changes in the value of oil reserves is, in part, attributable to the influx of young temporary workers.

Texas's economy certainly benefits from a robust energy sector. However, as our research shows, there are negative consequences to economic activity associated with the oil industry. More broadly, in line with prior research, we show there are negative consequences associated with changes in economic activity. Therefore, policy should keep these possibilities in mind as they design policies to maximize the welfare of its citizens.

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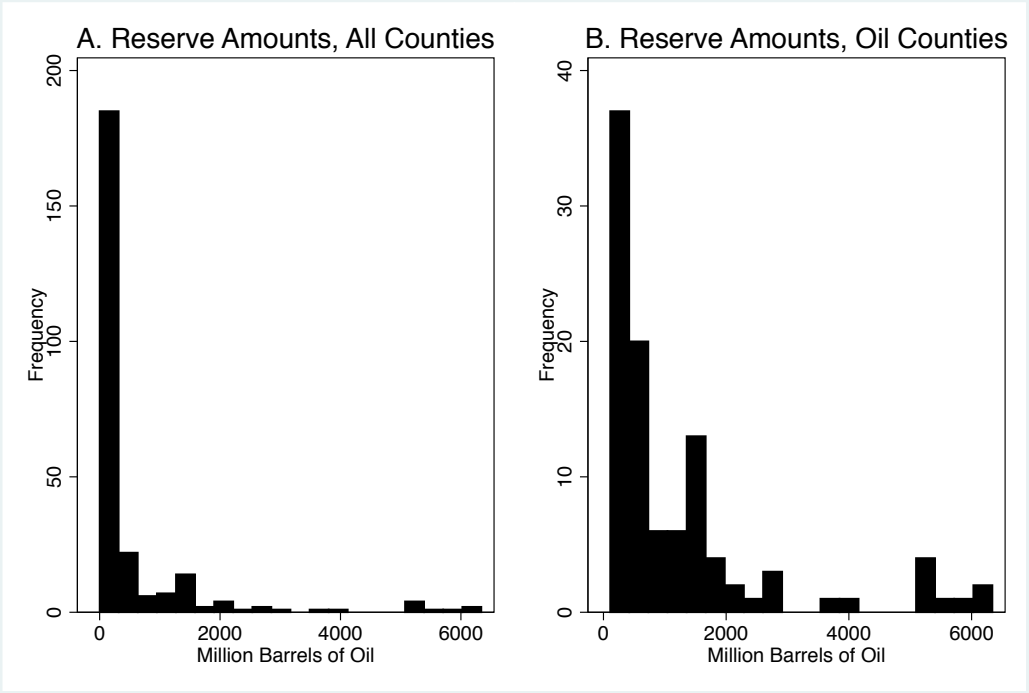
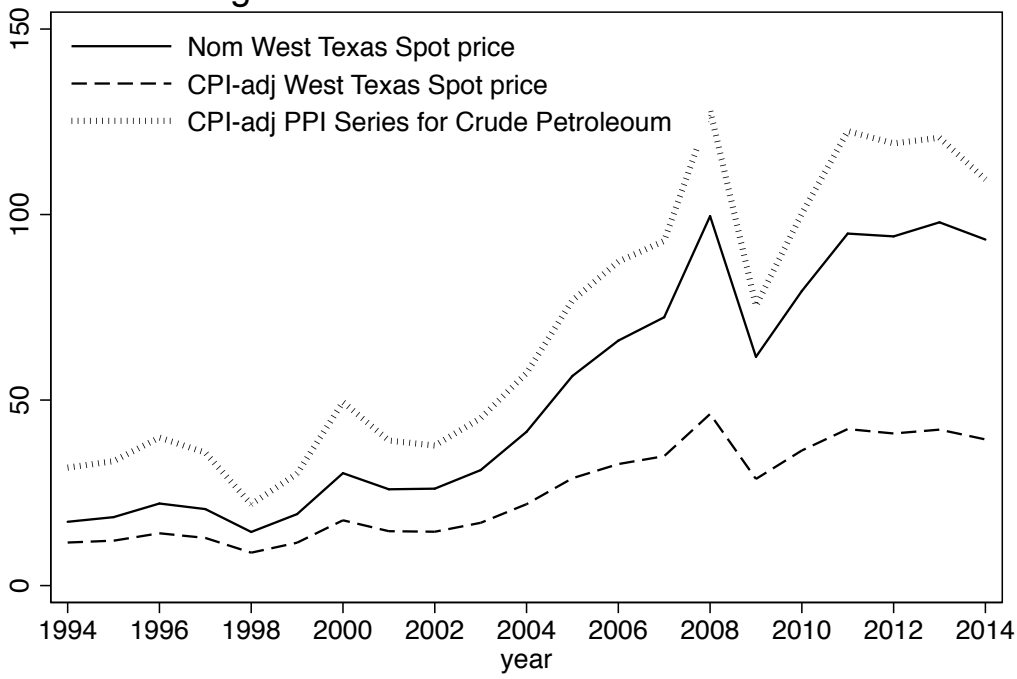
Figure 1: Histogram



Source: Author's calculations

Figure 2: Trend of Oil Prices 1994-2014



Note: The solid line corresponds to nominal West Texas Spot prices, the dashed line corresponds to CPI-adjusted West Texas Spot prices, and the dotted line corresponds to CPI-adjusted Producer Price Index Series for Crude Petroleum

Table 1: Summary Statistics: CBP, 1995-2014

	Non-Oil Counties	Oil counties	All
Panel A: Demographic Characteristics (Average 1995-2014)			
Share Black	0.07	0.07	0.07
Share Hispanic	0.26	0.35	0.30
Share Male	0.50	0.51	0.50
Share under age 18	0.27	0.29	0.28
Population county	86611.64	95139.65	90029.94
Panel B: Economic Characteristics (Average 1995-2014)			
Unemployment rate (BLS)	5.74	5.87	5.79
Total Mid March Employees (CBP)	31970.60	33088.22	32419.91
CPI-Adjusted Annual Payroll ($1,000)	608777.20	665747.60	631680.70
CPI-Adjusted Annual Payroll per Employee ($1,000)	13.28	14.82	13.90
PANEL C:(CRIME/POP)*10K, (Average 1995-2014)			
Total	57.86	61.01	59.12
Violent	13.89	14.60	14.18
Property	43.96	46.41	44.94
Murder	0.38	0.39	0.38
Rape	0.93	0.95	0.94
Robbery	1.31	1.51	1.39
Aggravated Assault	11.25	11.74	11.45
Burglary	11.32	11.01	11.20
Larceny	28.15	31.12	29.34
Motor Vehicle Theft	3.93	3.75	3.86
Arson	0.54	0.53	0.53
Other Assault	37.39	40.87	38.79
Forgery	3.69	3.54	3.63
Fraud	8.86	7.95	8.50
Embezzlement	0.16	0.14	0.16
Stolen	0.50	0.49	0.50
Vandalism	5.36	5.92	5.58
Weapons	4.81	4.72	4.77
Commercial Vice	0.30	0.34	0.32
Sex Offense (Not Rape)	2.41	2.05	2.27
Drug Offenses	64.95	64.22	64.66
Gamble	0.13	0.28	0.19
Offense Against Family	4.32	4.39	4.35
DUI	50.34	52.32	51.13
Liquor	15.70	13.77	14.93
Drunk	52.10	66.83	58.01
Disorderly Conduct	13.98	17.75	15.49
Vagrancy	0.44	0.24	0.36
All Other	137.00	142.46	139.19
Suspicious	0.03	0.03	0.03
Curfews	2.37	3.36	2.76
Runaway	4.08	6.85	5.19

(Continued) Table 1: Summary Statistice: CBP, 1995-2014

	Non-Oil Counties	Oil counties	All
Panel D: Police Force Characteristics , LEOKA (Average 1998-2014)			
Officers per 1,000 residents in an agency (LEOKA)	2.17	1.90	2.06
Male Officers per 1,000 residents in an agency	2.03	1.76	1.92
Female Officers per 1,000 residents in an agency	0.14	0.14	0.14
Share Male Officers	0.93	0.93	0.93
Panel E: Oil Reserves (Time Invariant)			
Million Barrels	0.00	1226.71	492.62
Number of Adjacent Oil Counties	1.40	3.86	2.39
Million Barrels in Adjacent Oil Counties	1377.39	5274.47	2942.36
Share of Counties with Adjacent Oil Counties	0.64	0.99	0.78
Number of counties	152	102	254
Observations UCR (1995-2014)	3027	2025	5052

Note: There are 254 counties in Texas, which are observed over 20 years (1995-2014). From these potential 5080 county-year cells, we drop the following county-year cells that have coverage quality of at most 50 (COVIND<=50): we drop one county in 1995 (fips=48453), two counties in 1996 (48145, 48453), one county in 1997 (48481), two counties in 1998 (48127, 48225), one county in 1999(48255), two counties in 2000 and 2001 (48255, 48353), one county in 2002 (48505), one county in 2006 and 2007 (48197), one county in 2009 and 2010 (48105), three counties in 2011 (48095, 48097, 48105), two counties in 2012 (48097, 48105), three counties in 2013 (48075, 48097, 48105), four counties in 2014 (48013, 48075, 48097, 48193). After dropping these 28 county-cell years, we 5052 county-year cells remaining.

Table 2: Economic Effects of Changes in the Value of Local Oil Reserves in Own County

	Lagged Value of Reserves			Current Value of Reserves		
	PPI/CPI	**WTIS**	**CPI- WTIS**	**PPI/CPI**	**WTIS**	**CPI- WTIS**
Panel A: Ln CPI Adjusted Annual Payroll Earnings (CBP)						
Own	0.360**	0.292*	0.367*	0.335*	0.277*	0.342*
	(0.138)	(0.116)	(0.143)	(0.132)	(0.113)	(0.138)
Constant	9.244***	9.251***	9.249***	9.207***	9.221***	9.215***
	(0.813)	(0.813)	(0.813)	(0.812)	(0.813)	(0.812)
N	4890	4890	4890	4890	4890	4890
Panel B: Ln Employees (CBP)						
Own	0.153	0.121	0.153	0.131	0.108	0.132
	(0.090)	(0.076)	(0.094)	(0.085)	(0.073)	(0.089)
Constant	7.889***	7.891***	7.891***	7.873***	7.879***	7.876***
	(0.639)	(0.639)	(0.639)	(0.638)	(0.638)	(0.638)
Observations	4865	4865	4865	4865	4865	4865
Panel C: Ln CPI-Adjusted Annual Payroll Earnings per Employee (CBP)						
Own	0.207**	0.171**	0.214**	0.204**	0.169**	0.210**
	(0.064)	(0.054)	(0.067)	(0.064)	(0.054)	(0.067)
Constant	1.568***	1.573***	1.572***	1.547***	1.556***	1.552***
	(0.278)	(0.278)	(0.278)	(0.278)	(0.278)	(0.278)
Observations	4865	4865	4865	4865	4865	4865
Panel D: Unemployment Rate (BLS)						
Own	-2.656***	-2.104***	-2.672***	-2.570***	-2.071**	-2.599**
	(0.772)	(0.628)	(0.792)	(0.767)	(0.633)	(0.794)
Constant	10.883**	10.835**	10.844**	11.151**	11.044**	11.093**
	(3.823)	(3.822)	(3.823)	(3.822)	(3.821)	(3.822)
Observations	4926	4926	4926	4926	4926	4926
Panel E: Ln Population (CDC Wonder)						
Own	-0.035	-0.035	-0.041	-0.048	-0.043	-0.054
	(0.055)	(0.047)	(0.058)	(0.056)	(0.048)	(0.059)
Constant	9.744***	9.743***	9.743***	9.748***	9.746***	9.747***
	(0.394)	(0.393)	(0.393)	(0.392)	(0.392)	(0.392)
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

Note: Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000). We use both current and lagged prices of oil. We use three measures of oil prices: (1)CPI-Adjusted PPI for crude petroleum (PPI/CPI), (2) West Texas Intermediate Spot Oil Prices of Dollars per Barrel (WTIS), and (3) CPI-adjusted WTIS. The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table 3: Effect of Value of Reserves in Own County on Crime

	Lagge Value of Reserves			Current Value of Reserves		
	PPI/CPI	**WTIS**	**CPI- WTIS**	**PPI/CPI**	**WTIS**	**CPI- WTIS**
Panel A: Total						
Own	3.254	2.825	1.815	0.594	0.321	0.191
	(7.254)	(7.586)	(6.023)	(7.242)	(7.641)	(6.119)
Implied Elasticity	0.055	0.048	0.031	0.010	0.005	0.003
Panel B: Violent						
Own	4.634+	4.683	3.660	3.791	3.921	3.192
	(2.753)	(2.897)	(2.338)	(2.736)	(2.878)	(2.334)
Implied Elasticity	0.327	0.330	0.258	0.267	0.277	0.225
Panel C: Property						
Own	-1.327	-1.802	-1.806	-3.168	-3.563	-2.974
	(6.058)	(6.292)	(4.982)	(5.948)	(6.249)	(5.007)
Implied Elasticity	-0.030	-0.040	-0.040	-0.070	-0.079	-0.066
Panel D: Murder						
Own	-0.090	-0.115	-0.121	-0.161	-0.175	-0.160
	(0.252)	(0.269)	(0.229)	(0.281)	(0.296)	(0.247)
Implied Elasticity	-0.237	-0.303	-0.318	-0.424	-0.461	-0.421
Panel E: Rape						
Own	-0.057	-0.090	-0.091	-0.141	-0.146	-0.123
	(0.281)	(0.297)	(0.244)	(0.308)	(0.328)	(0.266)
Implied Elasticity	-0.061	-0.096	-0.097	-0.150	-0.155	-0.131
Panel F: Robbery						
Own	-0.062	-0.078	-0.071	-0.102	-0.111	-0.090
	(0.332)	(0.356)	(0.295)	(0.369)	(0.393)	(0.320)
Implied Elasticity	-0.045	-0.056	-0.051	-0.073	-0.080	-0.065
Panel G: Aggravated Assault						
Own	4.851+	4.972+	3.946+	4.190	4.347	3.561
	(2.617)	(2.759)	(2.224)	(2.574)	(2.707)	(2.198)
Implied Elasticity	0.424	0.434	0.345	0.366	0.380	0.311
Panel H: Burglary						
Own	-0.149	-0.182	-0.141	0.223	0.159	0.097
	(1.405)	(1.468)	(1.194)	(1.475)	(1.532)	(1.241)
Implied Elasticity	-0.013	-0.016	-0.013	0.020	0.014	0.009
Panel I: Larceny						
Own	-1.163	-1.591	-1.605	-3.406	-3.692	-3.016
	(5.185)	(5.391)	(4.260)	(4.993)	(5.266)	(4.224)
Implied Elasticity	-0.040	-0.054	-0.055	-0.116	-0.126	-0.103
Panel J: Motor Vehicle Theft						
Own	-0.360	-0.437	-0.400	-0.608	-0.687	-0.561
	(1.009)	(1.067)	(0.874)	(1.087)	(1.147)	(0.928)
Implied Elasticity	-0.093	-0.113	-0.104	-0.158	-0.178	-0.145
Panel K: Arson						
Own	0.388	0.448	0.367	0.632	0.664	0.513
	(0.340)	(0.371)	(0.291)	(0.456)	(0.482)	(0.368)
Implied Elasticity	0.732	0.845	0.692	1.192	1.253	0.968
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

(Continued) Table 3: Effect of Value of Reserves in Own County on Crime (OLS)

	Lagge Value of Reserves			Current Value of Reserves		
	PPI/CPI	**WTIS**	**CPI- WTIS**	**PPI/CPI**	**WTIS**	**CPI- WTIS**
Panel L: Other Assault						
Own	7.868	9.080+	7.599+	7.523	8.998+	7.562+
	(5.223)	(5.498)	(4.388)	(4.821)	(5.084)	(4.132)
Implied Elasticity	0.203	0.234	0.196	0.194	0.232	0.195
Panel M: Weapons						
Own	0.229	0.148	0.040	-0.342	-0.338	-0.270
	(0.865)	(0.936)	(0.767)	(0.949)	(1.023)	(0.827)
Implied Elasticity	0.048	0.031	0.008	-0.072	-0.071	-0.057
Panel N: Commercial Vice						
Own	-0.093	-0.090	-0.094	-0.073	-0.075	-0.085
	(0.508)	(0.535)	(0.431)	(0.536)	(0.558)	(0.447)
Implied Elasticity	-0.291	-0.281	-0.294	-0.228	-0.234	-0.266
Panel O: Sex Offense						
Own	1.074*	1.178*	0.953*	0.996+	1.141+	0.937*
	(0.532)	(0.565)	(0.445)	(0.546)	(0.580)	(0.458)
	0.473	0.519	0.420	0.439	0.503	0.413
Panel P: Drug Offense						
Own	28.430*	29.177*	23.769*	33.406*	34.643*	27.608*
	(13.788)	(14.483)	(11.735)	(15.836)	(16.131)	(13.031)
Implied Elasticity	0.440	0.451	0.368	0.517	0.536	0.427
Panel Q: Offense Against Family						
Own	-0.176	-0.245	-0.220	-0.435	-0.428	-0.330
	(1.551)	(1.689)	(1.410)	(1.654)	(1.812)	(1.495)
Implied Elasticity	-0.040	-0.056	-0.051	-0.100	-0.098	-0.076
Panel R: DUI						
Own	14.914	16.427	13.522	13.805	15.993	13.331
	(10.222)	(10.799)	(8.691)	(10.447)	(11.059)	(8.896)
Implied Elasticity	0.292	0.321	0.264	0.270	0.313	0.261
Panel S: Liquor Law Violations						
Own	-5.219	-4.890	-3.443	-5.656	-5.106	-3.621
	(8.855)	(9.271)	(7.388)	(8.819)	(9.293)	(7.444)
Implied Elasticity	-0.350	-0.328	-0.231	-0.379	-0.342	-0.243
Panel T: Drunkeness						
Own	4.269	5.302	4.581	4.041	5.398	4.614
	(12.212)	(12.963)	(10.542)	(12.853)	(13.614)	(11.026)
Implied Elasticity	0.074	0.091	0.079	0.070	0.093	0.080
Panel U: Disorderly Conduct						
Own	0.568	0.927	1.049	0.459	0.864	0.990
	(4.787)	(5.043)	(4.029)	(5.187)	(5.441)	(4.314)
Implied Elasticity	0.037	0.060	0.068	0.030	0.056	0.064
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

Note: The dependent variable is arrests per 10,000 residents. Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000). We use both current and lagged prices of oil. We use three measures of oil prices: (1)CPI-Adjusted PPI for crude petroleum (PPI/CPI), (2) West Texas Intermediate Spot Oil Prices of Dollars per Barrel (WTIS), and (3) CPI-adjusted WTIS. The elasticity corresponds to the coefficient divided by the mean crime rate reported in Table 1. The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table 4: Effect of Value of Reserves in Own and Adjacent County on Crime

	Lagge Value of Reserves			Current Value of Reserves		
	PPI/CPI	WTIS	CPI- WTIS	PPI/CPI	WTIS	CPI- WTIS
Panel A: Total						
Own Coeff	3.479	3.137	2.096	1.101	0.948	0.680
	(7.268)	(7.594)	(6.024)	(7.239)	(7.625)	(6.102)
Adjacent Coeff	0.526	0.688	0.585	0.826	0.986	0.776
	(0.936)	(0.987)	(0.789)	(1.037)	(1.084)	(0.854)
Own Elasticity	0.059	0.053	0.035	0.019	0.016	0.012
Adjacent Elasticity	0.009	0.012	0.010	0.014	0.017	0.013
Panel B: Violent						
Own Coeff	4.637+	4.702	3.680	3.809	3.968	3.231
	(2.795)	(2.941)	(2.375)	(2.789)	(2.932)	(2.377)
Adjacent Coeff	-0.013	0.026	0.028	0.047	0.089	0.069
	(0.353)	(0.369)	(0.295)	(0.373)	(0.395)	(0.313)
Own Elasticity	0.327	0.332	0.260	0.269	0.280	0.228
Adjacent Elasticity	-0.001	0.002	0.002	0.003	0.006	0.005
Panel C: Property						
Own Coeff	-1.137	-1.541	-1.562	-2.680	-2.989	-2.525
	(6.027)	(6.254)	(4.946)	(5.886)	(6.177)	(4.945)
Adjacent Coeff	0.543	0.667	0.561	0.782	0.901	0.710
	(0.728)	(0.765)	(0.610)	(0.785)	(0.816)	(0.646)
Own Elasticity	-0.025	-0.034	-0.035	-0.060	-0.067	-0.056
Adjacent Elasticity	0.012	0.015	0.012	0.017	0.020	0.016
Panel D: Murder						
Own Coeff	-0.101	-0.127	-0.130	-0.177	-0.192	-0.172
	(0.256)	(0.274)	(0.234)	(0.287)	(0.302)	(0.253)
Adjacent Coeff	-0.032	-0.034	-0.025	-0.031	-0.030	-0.023
	(0.039)	(0.042)	(0.034)	(0.050)	(0.052)	(0.041)
Own Elasticity	-0.266	-0.334	-0.342	-0.466	-0.505	-0.453
Adjacent Elasticity	-0.084	-0.089	-0.066	-0.082	-0.079	-0.061
Panel E: Rape						
Own Coeff	-0.070	-0.100	-0.098	-0.152	-0.153	-0.128
	(0.277)	(0.293)	(0.241)	(0.302)	(0.322)	(0.261)
Adjacent Coeff	-0.029	-0.024	-0.016	-0.018	-0.012	-0.009
	(0.076)	(0.078)	(0.061)	(0.072)	(0.074)	(0.058)
Own Elasticity	-0.074	-0.106	-0.104	-0.162	-0.163	-0.136
Adjacent Elasticity	-0.031	-0.026	-0.017	-0.019	-0.013	-0.010
Panel F: Robbery						
Own Coeff	-0.042	-0.052	-0.045	-0.029	-0.036	-0.031
	(0.323)	(0.346)	(0.286)	(0.352)	(0.374)	(0.305)
Adjacent Coeff	0.091	0.098	0.079	0.119+	0.121+	0.095+
	(0.070)	(0.072)	(0.057)	(0.063)	(0.066)	(0.053)
Own Elasticity	-0.030	-0.037	-0.032	-0.021	-0.026	-0.022
Adjacent Elasticity	0.065	0.071	0.057	0.086	0.087	0.068
Panel G: Aggravated Assault						
Own Coeff	4.836+	4.966+	3.941+	4.151	4.330	3.549
	(2.648)	(2.792)	(2.253)	(2.623)	(2.758)	(2.239)
Adjacent Coeff	-0.047	-0.019	-0.014	-0.026	0.007	0.003
	(0.319)	(0.338)	(0.269)	(0.333)	(0.357)	(0.283)
Own Elasticity	0.422	0.434	0.344	0.363	0.378	0.310
Adjacent Elasticity	-0.004	-0.002	-0.001	-0.002	0.001	0.000
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

(Continued) Table 4: Effect of Value of Reserves in Own and Adjacent County on Crime (OLS)

	Lagge Value of Reserves			Current Value of Reserves		
	PPI/CPI	WTIS	CPI- WTIS	PPI/CPI	WTIS	CPI- WTIS
Panel H: Burglary						
Own Coeff	-0.028	-0.011	0.015	0.525	0.526	0.383
	(1.415)	(1.482)	(1.204)	(1.491)	(1.550)	(1.254)
Adjacent Coeff	0.279	0.370	0.314	0.470+	0.554*	0.435+
	(0.236)	(0.247)	(0.200)	(0.267)	(0.278)	(0.223)
Own Elasticity	-0.003	-0.001	0.001	0.047	0.047	0.034
Adjacent Elasticity	0.025	0.033	0.028	0.042	0.049	0.039
Panel I: Larceny						
Own Coeff	-1.134	-1.548	-1.562	-3.302	-3.571	-2.926
	(5.153)	(5.353)	(4.225)	(4.959)	(5.226)	(4.187)
Adjacent Coeff	0.272	0.293	0.225	0.235	0.266	0.204
	(0.686)	(0.722)	(0.571)	(0.704)	(0.737)	(0.583)
Own Elasticity	-0.039	-0.053	-0.053	-0.113	-0.122	-0.100
Adjacent Elasticity	0.009	0.010	0.008	0.008	0.009	0.007
Panel J:MV Theft						
Own Coeff	-0.434	-0.505	-0.446	-0.616	-0.695	-0.568
	(0.990)	(1.048)	(0.859)	(1.078)	(1.140)	(0.921)
Adjacent Coeff	-0.099	-0.085	-0.054	-0.019	-0.014	-0.009
	(0.187)	(0.195)	(0.156)	(0.218)	(0.223)	(0.175)
Own Elasticity	-0.112	-0.131	-0.116	-0.160	-0.180	-0.147
Adjacent Elasticity	-0.026	-0.022	-0.014	-0.005	-0.004	-0.002
Panel K: Arson						
Own Coeff	0.425	0.486	0.401	0.687	0.720	0.560
	(0.361)	(0.395)	(0.311)	(0.492)	(0.520)	(0.398)
Adjacent Coeff	0.094	0.094	0.079	0.106	0.104	0.086
	(0.064)	(0.068)	(0.055)	(0.082)	(0.083)	(0.066)
Own Elasticity	0.802	0.917	0.757	1.296	1.358	1.057
Adjacent Elasticity	0.177	0.177	0.149	0.200	0.196	0.162
Panel L: Other Assault						
Own Coeff	7.047	8.224	6.906	6.538	7.988	6.767
	(5.260)	(5.530)	(4.415)	(4.903)	(5.152)	(4.180)
Adjacent Coeff	-1.516*	-1.498*	-1.138*	-1.345*	-1.322*	-1.034*
	(0.533)	(0.555)	(0.447)	(0.614)	(0.625)	(0.492)
Own Elasticity	0.182	0.212	0.178	0.169	0.206	0.174
Adjacent Elasticity	-0.039	-0.039	-0.029	-0.035	-0.034	-0.027
Panel R: Weapons						
Own Coeff	0.269	0.195	0.076	-0.300	-0.285	-0.231
	(0.868)	(0.938)	(0.768)	(0.952)	(1.026)	(0.829)
Adjacent Coeff	0.095	0.103	0.073	0.069	0.084	0.061
	(0.181)	(0.186)	(0.147)	(0.164)	(0.172)	(0.139)
Own Elasticity	0.056	0.041	0.016	-0.063	-0.060	-0.048
Adjacent Elasticity	0.020	0.022	0.015	0.014	0.018	0.013
Panel S: Comvice						
Own Coeff	-0.081	-0.076	-0.082	-0.050	-0.049	-0.065
	(0.498)	(0.524)	(0.421)	(0.519)	(0.540)	(0.432)
Adjacent Coeff	0.034	0.037	0.030	0.044	0.047	0.037
	(0.033)	(0.035)	(0.029)	(0.041)	(0.043)	(0.033)
Own Elasticity	-0.253	-0.238	-0.256	-0.156	-0.153	-0.203
Adjacent Elasticity	0.106	0.116	0.094	0.138	0.147	0.116
Panel T: Sex offense						
Own Coeff	1.102*	1.211*	0.983*	1.035+	1.185*	0.974*
	(0.537)	(0.571)	(0.451)	(0.559)	(0.597)	(0.472)
Adjacent Coeff	0.103	0.111	0.088	0.072	0.080	0.068
	(0.111)	(0.116)	(0.091)	(0.112)	(0.118)	(0.093)
Own Elasticity	0.485	0.533	0.433	0.456	0.522	0.429
Adjacent Elasticity	0.045	0.049	0.039	0.032	0.035	0.030
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

(Continued) Table 4: Effect of Value of Reserves in Own and Adjacent County on Crime (OLS)

	Lagge Value of Reserves			Current Value of Reserves		
	PPI/CPI	WTIS	CPI- WTIS	PPI/CPI	WTIS	CPI- WTIS
Panel U: Drug Offenses						
Own Coeff	29.357*	30.322*	24.801*	35.718*	37.114*	29.502*
	(13.814)	(14.474)	(11.784)	(16.136)	(16.450)	(13.304)
Adjacent Coeff	3.469+	3.763+	3.009+	4.017*	4.226*	3.310*
	(1.935)	(2.050)	(1.616)	(1.763)	(1.868)	(1.502)
Own Elasticity	0.454	0.469	0.384	0.552	0.574	0.456
Adjacent Elasticity	0.054	0.058	0.047	0.062	0.065	0.051
Panel W: OFA						
Own Coeff	-0.075	-0.134	-0.135	-0.308	-0.294	-0.232
	(1.588)	(1.732)	(1.450)	(1.707)	(1.872)	(1.547)
Adjacent Coeff	0.158	0.170	0.122	0.138	0.145	0.106
	(0.295)	(0.307)	(0.245)	(0.225)	(0.245)	(0.205)
Own Elasticity	-0.017	-0.031	-0.031	-0.071	-0.068	-0.053
Adjacent Elasticity	0.036	0.039	0.028	0.032	0.033	0.024
Panel X: DUI						
Own Coeff	14.906	16.455	13.571	14.131	16.349	13.593
	(10.124)	(10.705)	(8.628)	(10.408)	(11.029)	(8.881)
Adjacent Coeff	0.360	0.404	0.317	0.546	0.602	0.452
	(1.350)	(1.368)	(1.055)	(1.245)	(1.275)	(1.009)
Own Elasticity	0.292	0.322	0.265	0.276	0.320	0.266
Adjacent Elasticity	0.007	0.008	0.006	0.011	0.012	0.009
Panel Y: Liquor						
Own Coeff	-5.286	-4.918	-3.426	-5.287	-4.692	-3.308
	(8.836)	(9.231)	(7.362)	(8.696)	(9.141)	(7.346)
Adjacent Coeff	0.203	0.274	0.264	0.596	0.677	0.533
	(0.691)	(0.715)	(0.563)	(0.767)	(0.805)	(0.622)
Own Elasticity	-0.354	-0.329	-0.229	-0.354	-0.314	-0.222
Adjacent Elasticity	0.014	0.018	0.018	0.040	0.045	0.036
Panel Z: Drunkeness						
Own Coeff	4.308	5.384	4.663	4.453	5.857	4.945
	(12.201)	(12.951)	(10.542)	(12.870)	(13.628)	(11.048)
Adjacent Coeff	0.290	0.391	0.344	0.804	0.883	0.665
	(1.247)	(1.285)	(1.018)	(1.275)	(1.295)	(1.034)
Own Elasticity	0.074	0.093	0.080	0.077	0.101	0.085
Adjacent Elasticity	0.005	0.007	0.006	0.014	0.015	0.011
Panel AA: Disorderly condict						
Own Coeff	0.843	1.249	1.331	0.930	1.379	1.404
	(4.786)	(5.036)	(4.022)	(5.159)	(5.416)	(4.295)
Adjacent Coeff	0.460	0.530	0.454	0.656	0.696	0.565
	(0.573)	(0.587)	(0.469)	(0.565)	(0.580)	(0.465)
Own Elasticity	0.054	0.081	0.086	0.060	0.089	0.091
Adjacent Elasticity	0.030	0.034	0.029	0.042	0.045	0.036
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

Note: The dependent variable is arrests per 10,000 residents. Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000) and we define them for own county and also for adjacent counties. We use both current and lagged prices of oil. We use three measures of oil prices: (1)CPI-Adjusted PPI for crude petroleum (PPI/CPI), (2) West Texas Intermediate Spot Oil Prices of Dollars per Barrel (WTIS), and (3) CPI-adjusted WTIS. The elasticity corresponds to the coefficient divided by the mean crime rate reported in Table 1. The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table 5: Effect of Value of Reserves in Adjancent Counties on Crime in non-Oil Counties

	Lagge Value of Reserves			Current Value of Reserves		
	PPI/CPI	WTIS	CPI- WTIS	PPI/CPI	WTIS	CPI- WTIS
Panel A: Total						
Adjacent	0.035	0.270	0.303	0.694	0.866	0.684
	(1.806)	(1.959)	(1.634)	(2.366)	(2.493)	(1.988)
Implied Elasticity	0.001	0.005	0.005	0.012	0.015	0.012
Panel B: Violent						
Adjacent	0.666	0.895	0.796	0.817	1.016	0.864
	(1.698)	(1.841)	(1.505)	(2.086)	(2.210)	(1.746)
Implied Elasticity	0.047	0.063	0.056	0.058	0.072	0.061
Panel C: Property						
Adjacent	-0.474	-0.355	-0.085	-0.485	-0.434	-0.159
	(1.738)	(1.787)	(1.411)	(1.950)	(1.990)	(1.557)
Implied Elasticity	-0.011	-0.008	-0.002	-0.011	-0.010	-0.004
Panel D: Murder						
Adjacent	0.118	0.108	0.073	0.096	0.087	0.061
	(0.075)	(0.085)	(0.077)	(0.100)	(0.111)	(0.094)
Implied Elasticity	0.311	0.284	0.192	0.253	0.229	0.161
Panel E: Rape						
Adjacent	-0.030	-0.016	0.005	0.041	0.051	0.046
	(0.313)	(0.317)	(0.255)	(0.230)	(0.247)	(0.210)
Implied Elasticity	-0.032	-0.017	0.005	0.044	0.054	0.049
Panel F: Robbery						
Adjacent	0.009	0.020	0.022	0.161	0.157	0.113
	(0.271)	(0.280)	(0.226)	(0.224)	(0.242)	(0.201)
Implied Elasticity	0.006	0.014	0.016	0.116	0.113	0.081
Panel G: Aggravated Assault						
Adjacent	-0.758	-0.768	-0.620	-0.455	-0.480	-0.429
	(0.654)	(0.677)	(0.540)	(0.612)	(0.647)	(0.524)
Implied Elasticity	-0.066	-0.067	-0.054	-0.040	-0.042	-0.037
Panel H: Burglary						
Adjacent	1.071	1.313	1.123	1.525	1.724+	1.391+
	(0.842)	(0.905)	(0.725)	(0.962)	(1.019)	(0.805)
Implied Elasticity	0.096	0.117	0.100	0.136	0.154	0.124
Panel I: Larceny						
Adjacent	-0.511	-0.558	-0.487	-0.928	-0.936	-0.744
	(1.347)	(1.423)	(1.167)	(1.482)	(1.593)	(1.280)
Implied Elasticity	-0.017	-0.019	-0.017	-0.032	-0.032	-0.025
Panel J: Motor Vehicle Theft						
Adjacent	-0.010	0.039	0.066	0.149	0.164	0.147
	(0.497)	(0.510)	(0.402)	(0.455)	(0.483)	(0.389)
Implied Elasticity	-0.003	0.010	0.017	0.039	0.042	0.038
Panel K: Arson						
Adjacent	0.150	0.138	0.126	0.144	0.137	0.124
	(0.200)	(0.209)	(0.179)	(0.264)	(0.267)	(0.215)
Implied Elasticity	0.283	0.260	0.238	0.272	0.258	0.234
Observations	2931	2931	2931	2931	2931	2931
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

(Continued) Table 5: Effect of Value of Reserves in Adjancent Counties on Crime in non-Oil Counties (OLS)

	Lagge Value of Reserves			Current Value of Reserves		
	PPI/CPI	WTIS	CPI- WTIS	PPI/CPI	WTIS	CPI- WTIS
Panel L: Other Assault						
Adjacent	-2.424	-2.328	-1.684	-1.700	-1.669	-1.274
	(1.921)	(1.946)	(1.577)	(1.702)	(1.731)	(1.429)
Implied Elasticity	-0.062	-0.060	-0.043	-0.044	-0.043	-0.033
Panel M: Weapons						
Adjacent	-0.285	-0.249	-0.207	-0.251	-0.202	-0.179
	(0.528)	(0.543)	(0.427)	(0.474)	(0.489)	(0.394)
Implied Elasticity	-0.060	-0.052	-0.043	-0.053	-0.042	-0.038
Panel N: Commercial Vice						
Adjacent	0.005	0.003	0.001	-0.007	-0.007	-0.006
	(0.065)	(0.067)	(0.053)	(0.055)	(0.058)	(0.047)
Implied Elasticity	0.016	0.009	0.003	-0.022	-0.022	-0.019
Panel O: Sex Offense						
Adjacent	-0.096	-0.129	-0.128	-0.361+	-0.373+	-0.285+
	(0.227)	(0.241)	(0.187)	(0.211)	(0.220)	(0.171)
Implied Elasticity	-0.042	-0.057	-0.056	-0.159	-0.164	-0.126
Panel P: Drug Offense						
Adjacent	2.115	3.346	2.837	4.195	4.967	3.768
	(5.697)	(6.601)	(5.358)	(5.190)	(5.837)	(4.745)
Implied Elasticity	0.033	0.052	0.044	0.065	0.077	0.058
Panel Q: Offense Against Family						
Adjacent	0.541	0.564	0.389	0.254	0.289	0.214
	(0.613)	(0.648)	(0.512)	(0.564)	(0.612)	(0.488)
Implied Elasticity	0.124	0.130	0.089	0.058	0.066	0.049
Panel R: DUI						
Adjacent	-0.571	-0.180	-0.297	0.260	0.457	0.111
	(3.698)	(4.000)	(3.206)	(4.079)	(4.365)	(3.455)
Implied Elasticity	-0.011	-0.004	-0.006	0.005	0.009	0.002
Panel S: Liquor Law Violations						
Adjacent	-2.163	-2.248	-1.599	-1.889	-2.054	-1.491
	(2.500)	(2.550)	(2.076)	(2.948)	(3.024)	(2.407)
Implied Elasticity	-0.145	-0.151	-0.107	-0.127	-0.138	-0.100
Panel T: Drunkeness						
Adjacent	-2.158	-2.178	-1.892	-2.599	-2.600	-2.165
	(2.786)	(2.901)	(2.285)	(2.810)	(2.934)	(2.321)
Implied Elasticity	-0.037	-0.038	-0.033	-0.045	-0.045	-0.037
Panel U: Disorderly Conduct						
Adjacent	0.554	0.541	0.264	-0.545	-0.594	-0.489
	(1.546)	(1.660)	(1.310)	(1.512)	(1.589)	(1.257)
Implied Elasticity	0.036	0.035	0.017	-0.035	-0.038	-0.032
Observations	2931	2931	2931	2931	2931	2931
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

Note: The dependent variable is arrests per 10,000 residents. Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves for adjacent counties are defined as Value of Adjacent Reserves= ln(Oil Price)*(Reserves in million barrels/10000). We use both current and lagged prices of oil. We use three measures of oil prices: (1)CPI-Adjusted PPI for crude petroleum (PPI/CPI), (2) West Texas Intermediate Spot Oil Prices of Dollars per Barrel (WTIS), and (3) CPI-adjusted WTIS. The elasticity corresponds to the coefficient divided by the mean crime rate reported in Table 1. The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table 6: Effect of the Value of Reserves on Demographic Outcomes , IPUMS

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	Current	Lagged	Current	Lagged	Current
Panel A: Share Male						
Own	0.647	2.179+	0.440	2.301+		
	(0.602)	(1.137)	(0.535)	(1.206)		
Adjacent			0.223	0.183	0.149	0.517
			(0.173)	(0.206)	(0.784)	(0.853)
Panel B: Share White						
Own	3.270	2.429	3.447	2.209		
	(2.953)	(5.526)	(3.140)	(5.506)		
Adjacent			-0.192	-0.333	-2.250	-2.925
			(0.388)	(0.336)	(2.162)	(2.390)
Panel C: Share Black						
Own	-1.255*	-1.025+	-1.291*	-0.870		
	(0.540)	(0.572)	(0.433)	(0.591)		
Adjacent			0.040	0.234	1.252*	0.926*
			(0.186)	(0.182)	(0.302)	(0.233)
Panel D: share Male 0-15						
Own	0.034	0.744	-0.076	0.922		
	(0.203)	(1.072)	(0.223)	(1.073)		
Adjacent			0.119	0.268	-0.348	0.590
			(0.182)	(0.159)	(0.473)	(0.566)
Panel E: Share Male 15-20						
Own	-0.246	0.322	-0.150	0.307		
	(0.241)	(0.295)	(0.270)	(0.281)		
Adjacent			-0.103	-0.022	0.663*	0.258
			(0.074)	(0.079)	(0.246)	(0.161)
Panel F: Share Male 20-25						
Own	0.764*	1.509*	0.679*	1.531*		
	(0.152)	(0.422)	(0.162)	(0.406)		
Adjacent			0.091*	0.034	0.830*	0.382*
			(0.039)	(0.050)	(0.297)	(0.152)
Panel G: Share Male 25-30						
Own	0.914+	1.123+	0.869	1.174+		
	(0.510)	(0.639)	(0.548)	(0.623)		
Adjacent			0.049	0.077	0.199	-0.216
			(0.087)	(0.090)	(0.328)	(0.166)
Demog Controls	N	N	N	N	N	N
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster County	Y	Y	Y	Y	Y	Y

Table 6 (continued) : Effect of Lagged Value of Reserves on Demographic Outcomes , IPUMS

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	Current	Lagged	Current	Lagged	Current
Panel N: Share Male 30-35						
Own	1.050*	1.557*	1.087*	1.521*		
	(0.502)	(0.577)	(0.482)	(0.565)		
Adjacent			-0.040	-0.055	-0.018	-0.184
			(0.043)	(0.076)	(0.275)	(0.278)
Panel O: Share Male 35 plus						
Own	-1.870+	-3.076*	-1.970*	-3.154*		
	(0.949)	(0.703)	(0.868)	(0.767)		
Adjacent			0.107	-0.118	-1.178	-0.313
			(0.220)	(0.225)	(0.970)	(0.856)
Panel P: Share Female 0-15						
Own	0.243	0.652+	0.381	0.598		
	(0.578)	(0.371)	(0.519)	(0.375)		
Adjacent			-0.149	-0.081	0.906	0.003
			(0.168)	(0.186)	(0.529)	(0.344)
Panel Q: Share Female 15-20						
Own	-0.223	-0.528	-0.118	-0.548		
	(0.401)	(0.682)	(0.419)	(0.690)		
Adjacent			-0.113	-0.030	-0.936*	-0.352+
			(0.090)	(0.112)	(0.308)	(0.204)
Panel R: Share Female 20-25						
Own	0.824*	0.746*	0.770*	0.807*		
	(0.162)	(0.260)	(0.160)	(0.288)		
Adjacent			0.058	0.092	0.704*	0.239
			(0.044)	(0.071)	(0.181)	(0.253)
Panel S: share 25-30						
Own	0.808*	1.551*	0.779*	1.574*		
	(0.298)	(0.383)	(0.272)	(0.403)		
Adjacent			0.032	0.033	0.529+	0.659*
			(0.091)	(0.093)	(0.279)	(0.177)
Panel T: Share Female 30-35						
Own	0.182	0.197	0.135	0.225		
	(0.450)	(0.481)	(0.451)	(0.473)		
Adjacent			0.051	0.042	-0.455*	-0.540*
			(0.039)	(0.045)	(0.162)	(0.225)
Demog Controls	N	N	N	N	N	N
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster County	Y	Y	Y	Y	Y	Y

Table 6 (continued) : Effect of Lagged Value of Reserves on Demographic Outcomes , IPUMS

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	Current	Lagged	Current	Lagged	Current
Panel U: share Female 35 plus						
Own	-2.481*	-4.798*	-2.387*	-4.957*		
	(0.861)	(0.766)	(0.714)	(0.841)		
Adjacent			-0.102	-0.239	-0.898	-0.526
			(0.306)	(0.303)	(1.048)	(1.163)
Panel V: Share Group Quarters						
Own	1.359*	2.664*	1.399*	2.552*		
	(0.588)	(0.874)	(0.609)	(0.871)		
Adjacent			-0.154	-0.090	-0.589	-0.672*
			(0.198)	(0.113)	(0.477)	(0.243)
Panel W: Share Non-institutionalized Group Quarters						
Own	0.741*	1.487*	0.747+	1.531*		
	(0.345)	(0.657)	(0.394)	(0.609)		
Adjacent			-0.018	0.037	-0.290	-0.671*
			(0.208)	(0.121)	(0.180)	(0.175)
Observations	279	279	279	279	149	149
Demog Controls	N	N	N	N	N	N
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by Coun	Y	Y	Y	Y	Y	Y

Note: This table uses data from IPUMS. We include no controls in this regression. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000). We use as measure of oil prices CPI-Adjusted PPI for crude petroleum (PPI/CPI). The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table 7: Effect of the Value of Reserves on Police Enforcement, PPI/CPI

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	Current	Lagged	Current	Lagged	Current
Panel A: Ln Male Officers						
Own	-0.063	-0.080	-0.062	-0.079		
	(0.061)	(0.063)	(0.061)	(0.062)		
Adjacent			0.002	-0.000	0.007	-0.011
			(0.005)	(0.005)	(0.017)	(0.015)
Panel B: Ln Female Officers						
Own	0.217	0.208	0.224	0.210		
	(0.183)	(0.187)	(0.182)	(0.186)		
Adjacent			0.024	0.013	0.006	-0.033
			(0.021)	(0.021)	(0.049)	(0.055)
Panel C: Ln Employment						
Own	-0.066	-0.080	-0.066	-0.080		
	(0.054)	(0.054)	(0.054)	(0.054)		
Adjacent			0.001	0.001	0.022	0.018
			(0.007)	(0.007)	(0.033)	(0.035)
Panel D: Ln Officers						
Own	-0.063	-0.080	-0.063	-0.080		
	(0.061)	(0.064)	(0.060)	(0.064)		
Adjacent			0.003	0.001	0.003	-0.010
			(0.005)	(0.005)	(0.018)	(0.018)
Panel E :Ln Officers per Resident						
Own	-0.000	-0.003	-0.001	-0.003		
	(0.053)	(0.050)	(0.053)	(0.050)		
Adjacent			-0.002	-0.004	-0.005	-0.016
			(0.006)	(0.006)	(0.018)	(0.019)
Panel F: Ln Male Officers per Resident						
Own	0.001	-0.002	0.000	-0.002		
	(0.058)	(0.054)	(0.058)	(0.054)		
Adjacent			-0.003	-0.006	-0.001	-0.017
			(0.005)	(0.006)	(0.017)	(0.017)
Panel G: Ln Female Officers per Resident						
Own	0.260	0.265	0.266	0.267		
	(0.183)	(0.183)	(0.181)	(0.182)		
Adjacent			0.021	0.012	0.007	-0.029
			(0.021)	(0.020)	(0.049)	(0.055)
Panel H:Share Male Officers						
Own	-0.000	-0.001	-0.000	-0.001		
	(0.017)	(0.017)	(0.017)	(0.017)		
Adjacent			-0.001	-0.001	0.003	-0.001
			(0.002)	(0.002)	(0.006)	(0.005)
Observations	4225	4225	4225	4225	2931	2931
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

Note: This table uses data from LEOKA from 1998 to 2014. Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000). We use both current and lagged prices of oil. We measure oil prices using CPI-Adjusted PPI for crude petroleum (PPI/CPI). The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Online Appendix A

This section presents the description of every Type I and Type II errors, as provided by the UCR

Source: https://www2.fbi.gov/ucr/cius_04/appendices/appendix_02.html

Criminal homicide —a.) Murder and non-negligent manslaughter: the willful (non-negligent) killing of one human being by another. Deaths caused by negligence, attempts to kill, assaults to kill, suicides, and accidental deaths are excluded. The Program classifies justifiable homicides separately and limits the definition to: (1) the killing of a felon by a law enforcement officer in the line of duty; or (2) the killing of a felon, during the commission of a felony, by a private citizen. b.) Manslaughter by negligence: the killing of another person through gross negligence. Traffic fatalities are excluded.

Forcible rape —The carnal knowledge of a female forcibly and against her will. Rapes by force and attempts or assaults to rape, regardless of the age of the victim, are included. Statutory offenses (no force used —victim under age of consent) are excluded.

Robbery —The taking or attempted taking of anything of value from the care, custody, or control of a person or persons by force or threat of force or violence and/or by putting the victim in fear.

Aggravated assault —An unlawful attack by one person upon another for the purpose of inflicting severe or aggravated bodily injury. This type of assault usually is accompanied by the use of a weapon or by means likely to produce death or great bodily harm. Simple assaults are excluded.

Burglary (breaking or entering) —The unlawful entry of a structure to commit a felony or a theft. Attempted forcible entry is included.

Larceny-theft (except motor vehicle theft) —The unlawful taking, carrying, leading, or riding away of property from the possession or constructive possession of another. Examples are thefts of bicycles or automobile accessories, shoplifting, pocket-picking, or the stealing of any property or article that is not taken by force and violence or by fraud. Attempted larcenies are included. Embezzlement, confidence games, forgery, worthless checks, etc., are excluded.

Motor vehicle theft —The theft or attempted theft of a motor vehicle. A motor vehicle is self-propelled and runs on land surface and not on rails. Motorboats, construction equipment, airplanes, and farming equipment are specifically excluded from this category.

Arson —Any willful or malicious burning or attempt to burn, with or without intent to defraud, a dwelling house, public building, motor vehicle or aircraft, personal property of another, etc.

The **Part II** offenses, for which only arrest data are collected, are:

Other assaults (simple) —Assaults and attempted assaults which are not of an aggravated nature and do not result in serious injury to the victim.

Forgery and counterfeiting —The altering, copying, or imitating of something, without authority or right, with the intent to deceive or defraud by passing the copy or thing altered or imitated as that which is original or genuine; or the selling, buying, or possession of an altered, copied, or imitated thing with the intent to deceive or defraud. Attempts are included.

Fraud —The intentional perversion of the truth for the purpose of inducing another person or other entity in reliance upon it to part with something of value or to surrender a

legal right. Fraudulent conversion and obtaining of money or property by false pretenses. Confidence games and bad checks, except forgeries and counterfeiting, are included.

Embezzlement —The unlawful misappropriation or misapplication by an offender to his/her own use or purpose of money, property, or some other thing of value entrusted to his/her care, custody, or control.

Stolen property; buying, receiving, possessing —Buying, receiving, possessing, selling, concealing, or transporting any property with the knowledge that it has been unlawfully taken, as by burglary, embezzlement, fraud, larceny, robbery, etc. Attempts are included.

Vandalism —To willfully or maliciously destroy, injure, disfigure, or deface any public or private property, real or personal, without the consent of the owner or person having custody or control by cutting, tearing, breaking, marking, painting, drawing, covering with filth, or any other such means as may be specified by local law. Attempts are included.

Weapons; carrying, possessing, etc. —The violation of laws or ordinances prohibiting the manufacture, sale, purchase, transportation, possession, concealment, or use of firearms, cutting instruments, explosives, incendiary devices, or other deadly weapons. Attempts are included.

Prostitution and commercialized vice —The unlawful promotion of or participation in sexual activities for profit, including attempts.

Sex offenses (except forcible rape, prostitution, and commercialized vice) **—**Statutory rape, offenses against chastity, common decency, morals, and the like. Attempts are included.

Drug abuse violations —The violation of laws prohibiting the production, distribution, and/or use of certain controlled substances. The unlawful cultivation, manufacture, distribution, sale, purchase, use, possession, transportation, or importation of any controlled drug or narcotic substance. Arrests for violations of state and local laws, specifically those relating to the unlawful possession, sale, use, growing, manufacturing, and making of narcotic drugs. The following drug categories are specified: opium or cocaine and their derivatives (morphine, heroin, codeine); marijuana; synthetic narcotics —manufactured narcotics that can cause true addiction (demerol, methadone); and dangerous nonnarcotic drugs (barbiturates, benzedrine).

Gambling —To unlawfully bet or wager money or something else of value; assist, promote, or operate a game of chance for money or some other stake; possess or transmit wagering information; manufacture, sell, purchase, possess, or transport gambling equipment, devices, or goods; or tamper with the outcome of a sporting event or contest to gain a gambling advantage.

Offenses against the family and children —Unlawful nonviolent acts by a family member (or legal guardian) that threaten the physical, mental, or economic well-being or morals of another family member and that are not classifiable as other offenses, such as Assault or Sex Offenses. Attempts are included.

Driving under the influence —Driving or operating a motor vehicle or common carrier while mentally or physically impaired as the result of consuming an alcoholic beverage or using a drug or narcotic.

Liquor laws —The violation of state or local laws or ordinances prohibiting the manufacture, sale, purchase, transportation, possession, or use of alcoholic beverages, not including driving under the influence and drunkenness. Federal violations are excluded.

Drunkenness —To drink alcoholic beverages to the extent that one's mental faculties and physical coordination are substantially impaired. Excludes driving under the influence.

Disorderly conduct —Any behavior that tends to disturb the public peace or decorum, scandalize the community, or shock the public sense of morality.

Vagrancy —The violation of a court order, regulation, ordinance, or law requiring the withdrawal of persons from the streets or other specified areas; prohibiting persons from remaining in an area or place in an idle or aimless manner; or prohibiting persons from going from place to place without visible means of support.

All other offenses —All violations of state or local laws not specifically identified as Part I or Part II offenses, except traffic violations.

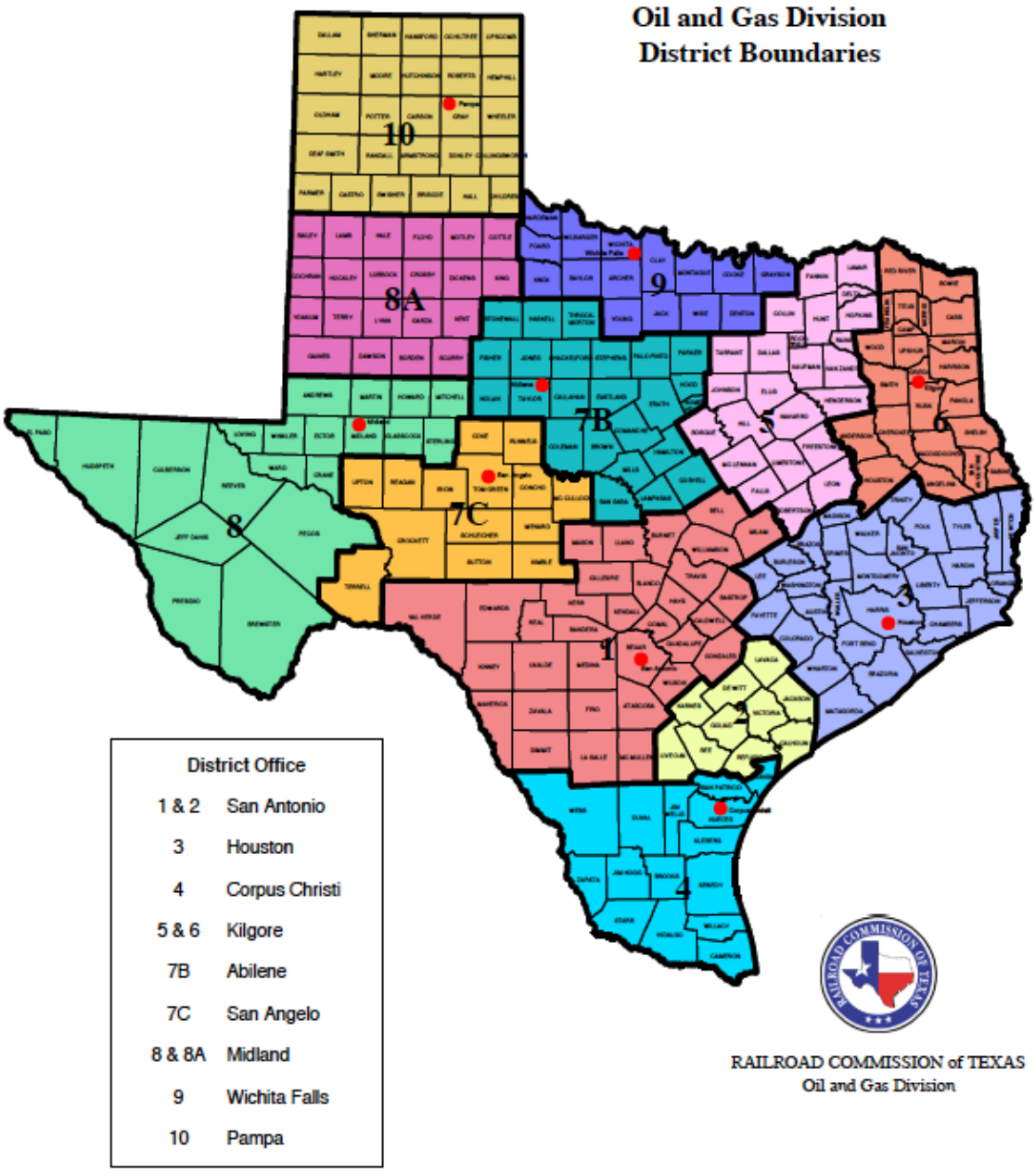


Figure A1: Oil and Gas Division District Boundaries
Source: http://www.rrc.state.tx.us/media/7100/districts_color_8x11.pdf

Table A1: Poisson Estimates of the Effect of the Value of Reserves on Crime, PPI/CPI

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	Current	Lagged	Current	Lagged	Current
Panel A: Total						
Own	0.092	0.057	0.092	0.057		
	(0.111)	(0.107)	(0.110)	(0.107)		
Adjacent			0.008	0.004	0.022	0.019
			(0.014)	(0.014)	(0.055)	(0.057)
Panel B: Violent						
Own	0.325+	0.265	0.325+	0.264		
	(0.189)	(0.186)	(0.189)	(0.187)		
Adjacent			0.004	0.011	-0.023	-0.001
			(0.025)	(0.026)	(0.050)	(0.064)
Panel C: Property						
Own	0.035	0.008	0.034	0.008		
	(0.123)	(0.116)	(0.122)	(0.116)		
Adjacent			0.008	0.001	0.036	0.025
			(0.015)	(0.015)	(0.063)	(0.061)
Panel D: Murder						
Own	0.061	-0.103	0.058	-0.103		
	(0.490)	(0.574)	(0.491)	(0.574)		
Adjacent			0.057	0.000	0.303	0.116
			(0.090)	(0.098)	(0.233)	(0.165)
Panel E: Rape						
Own	0.017	-0.059	0.012	-0.063		
	(0.265)	(0.278)	(0.264)	(0.278)		
Adjacent			0.037	0.045	0.139	0.161
			(0.058)	(0.058)	(0.183)	(0.182)
Panel F: Robbery						
Own	-0.044	-0.048	-0.043	-0.056		
	(0.186)	(0.197)	(0.179)	(0.190)		
Adjacent			0.062	0.047	0.005	-0.014
			(0.040)	(0.045)	(0.123)	(0.155)
Panel G: Aggravated Assault						
Own	0.428+	0.366+	0.429+	0.366+		
	(0.225)	(0.221)	(0.226)	(0.221)		
Adjacent			-0.011	0.003	-0.054	-0.015
			(0.029)	(0.029)	(0.062)	(0.077)
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

(Continued) Table A1: Poisson Estimates of the Effect of the Value of Reserves on Crime

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	**Current**	**Lagged**	**Current**	**Lagged**	**Current**
Panel H: Burglary						
Own	-0.073	-0.038	-0.074	-0.039		
	(0.160)	(0.159)	(0.158)	(0.156)		
Adjacent			0.018	0.025	0.016	0.039
			(0.026)	(0.028)	(0.085)	(0.086)
Panel I: Larceny						
Own	0.044	-0.007	0.043	-0.007		
	(0.137)	(0.130)	(0.137)	(0.131)		
Adjacent			0.005	-0.009	0.044	0.020
			(0.017)	(0.017)	(0.066)	(0.065)
Panel J: Motor Vehicle Theft						
Own	-0.067	-0.117	-0.067	-0.117		
	(0.246)	(0.250)	(0.246)	(0.249)		
Adjacent			-0.000	0.001	-0.040	-0.036
			(0.034)	(0.033)	(0.124)	(0.115)
Panel K: Arson						
Own	0.621	1.049	0.612	1.049		
	(0.691)	(0.840)	(0.683)	(0.838)		
Adjacent			0.083	0.102	0.476*	0.394+
			(0.092)	(0.106)	(0.222)	(0.207)
Panel L: Other Assault						
Own	0.235+	0.221+	0.235+	0.223+		
	(0.130)	(0.116)	(0.130)	(0.118)		
Adjacent			-0.005	-0.021	0.017	0.008
			(0.017)	(0.019)	(0.045)	(0.043)
Panel M: Weapons						
Own	0.057	-0.054	0.056	-0.055		
	(0.158)	(0.168)	(0.157)	(0.168)		
Adjacent			0.019	0.008	0.055	0.021
			(0.034)	(0.035)	(0.074)	(0.075)
Panel N: Commercial Vice (Not Applicable)						
Panel O: Sex Offense						
Own	0.488+	0.460+	0.488+	0.461+		
	(0.263)	(0.272)	(0.262)	(0.272)		
Adjacent			0.011	0.018	0.129	0.095
			(0.040)	(0.040)	(0.096)	(0.114)
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

(Continued) Table A1: Poisson Estimates of the Effect of the Value of Reserves on Crime

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	**Current**	**Lagged**	**Current**	**Lagged**	**Current**
Panel P: Drug Offense						
Own	0.528*	0.654*	0.528*	0.653*		
	(0.207)	(0.234)	(0.208)	(0.234)		
Adjacent			0.044	0.025	0.133	-0.004
			(0.031)	(0.036)	(0.094)	(0.095)
Panel Q: Offense Against Family						
Own	0.020	-0.048	0.020	-0.045		
	(0.372)	(0.402)	(0.372)	(0.403)		
Adjacent			0.020	0.075	0.301+	0.433*
			(0.047)	(0.051)	(0.161)	(0.185)
Panel R: DUI						
Own	0.357*	0.330+	0.357*	0.329+		
	(0.174)	(0.179)	(0.176)	(0.180)		
Adjacent			0.024	0.030	0.101	0.118+
			(0.023)	(0.028)	(0.067)	(0.071)
Panel S: Liquor Law Violations						
Own	-0.145	-0.150	-0.142	-0.153		
	(0.396)	(0.374)	(0.396)	(0.381)		
Adjacent			-0.078*	-0.066*	0.016	0.075
			(0.031)	(0.031)	(0.117)	(0.118)
Panel T: Drunkeness						
Own	0.208	0.194	0.206	0.193		
	(0.183)	(0.187)	(0.183)	(0.187)		
Adjacent			0.012	0.018	0.051	0.087*
			(0.015)	(0.014)	(0.040)	(0.040)
Panel U: Disorderly Conduct						
Own	0.202	0.202	0.203	0.201		
	(0.252)	(0.269)	(0.251)	(0.269)		
Adjacent			-0.012	-0.014	0.086	0.152+
			(0.031)	(0.031)	(0.067)	(0.086)
Observations	4926	4926	4926	4926	4926	4926
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

Note: We estimate a Poisson model where the dependent variable is arrests per 10,000 residents. Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000) and we define them for own county and also for adjacent counties. We use both current and lagged prices of oil. We use the CPI-Adjusted PPI for crude petroleum (PPI/CPI) as the measure of oil price. The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table A2: Negative Binomial of the Effect of the Value of Reserves on Crime

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	Current	Lagged	Current	Lagged	Current
Panel A: Total						
Own	0.105	0.080	0.105	0.082		
	(0.132)	(0.130)	(0.134)	(0.134)		
Adjacent			-0.001	0.003	-0.012	0.015
			(0.018)	(0.021)	(0.033)	(0.042)
Panel B: Violent						
Own	0.300	0.246	0.297	0.244		
	(0.187)	(0.186)	(0.190)	(0.190)		
Adjacent			-0.006	-0.003	-0.047	-0.010
			(0.028)	(0.030)	(0.056)	(0.055)
Panel C: Property						
Own	0.043	0.025	0.045	0.030		
	(0.148)	(0.145)	(0.150)	(0.148)		
Adjacent			0.004	0.008	0.002	0.026
			(0.018)	(0.021)	(0.042)	(0.050)
Panel D: Murder						
Own	0.144	-0.007	0.114	-0.043		
	(0.474)	(0.538)	(0.479)	(0.536)		
Adjacent			-0.063	-0.049	0.302+	0.312+
			(0.079)	(0.094)	(0.159)	(0.163)
Panel E: Rape						
Own	0.007	-0.070	-0.010	-0.090		
	(0.279)	(0.290)	(0.276)	(0.287)		
Adjacent			-0.040	-0.031	-0.160	-0.054
			(0.064)	(0.063)	(0.218)	(0.160)
Panel F: Robbery						
Own	-0.029	-0.027	0.001	0.029		
	(0.196)	(0.209)	(0.199)	(0.212)		
Adjacent			0.053	0.064	0.017	0.089
			(0.048)	(0.044)	(0.130)	(0.108)
Panel G: Aggravated Assault						
Own	0.395+	0.333	0.391+	0.329		
	(0.218)	(0.216)	(0.220)	(0.219)		
Adjacent			-0.010	-0.006	-0.057	-0.024
			(0.030)	(0.032)	(0.056)	(0.054)
Observations	4926	4926	4926	4926	2931	2931
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

(Continued) Table A2: Negative Binomial of the Effect of the Value of Reserves on Crime

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	**Current**	**Lagged**	**Current**	**Lagged**	**Current**
Panel H: Burglary						
Own	-0.119	-0.057	-0.109	-0.033		
	(0.170)	(0.164)	(0.174)	(0.169)		
Adjacent			0.022	0.039	0.112	0.161+
			(0.024)	(0.028)	(0.075)	(0.085)
Panel I: Larceny						
Own	0.090	0.029	0.088	0.026		
	(0.176)	(0.176)	(0.177)	(0.177)		
Adjacent			-0.003	-0.004	-0.055	-0.034
			(0.025)	(0.028)	(0.058)	(0.062)
Panel J: Motor Vehicle Theft						
Own	-0.004	-0.081	-0.013	-0.077		
	(0.234)	(0.234)	(0.229)	(0.233)		
Adjacent			-0.018	0.007	-0.005	0.047
			(0.045)	(0.051)	(0.100)	(0.096)
Panel K: Arson						
Own	0.217	0.533	0.274	0.601		
	(0.476)	(0.531)	(0.495)	(0.549)		
Adjacent			0.147	0.148	0.082	0.030
			(0.092)	(0.113)	(0.234)	(0.310)
Panel L: Other Assault						
Own	0.161	0.154	0.137	0.127		
	(0.143)	(0.133)	(0.142)	(0.133)		
Adjacent			-0.049*	-0.041*	-0.073	-0.043
			(0.020)	(0.019)	(0.068)	(0.058)
Panel M: Weapons						
Own	0.079	-0.024	0.091	-0.009		
	(0.174)	(0.179)	(0.175)	(0.180)		
Adjacent			0.022	0.020	-0.048	-0.011
			(0.037)	(0.033)	(0.078)	(0.067)
Panel N: Commercial Vice (Not Applicable)						
Panel O: Sex Offense						
Own	0.367	0.315	0.381+	0.334		
	(0.230)	(0.227)	(0.229)	(0.230)		
Adjacent			0.042	0.033	-0.038	-0.140
			(0.047)	(0.048)	(0.092)	(0.088)
Observations	4926	4926	4926	4926	2931	2931
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

(Continued) Table A2: Negative Binomial of the Effect of the Value of Reserves on Crime

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	**Current**	**Lagged**	**Current**	**Lagged**	**Current**
Panel P: Drug Offense						
Own	0.340+	0.363+	0.352+	0.388*		
	(0.194)	(0.190)	(0.194)	(0.193)		
Adjacent			0.028	0.038	-0.057	0.025
			(0.028)	(0.026)	(0.066)	(0.067)
Panel Q: Offense Against Family						
Own	-0.081	-0.123	-0.059	-0.100		
	(0.347)	(0.360)	(0.351)	(0.365)		
Adjacent			0.058	0.052	-0.003	-0.053
			(0.052)	(0.045)	(0.127)	(0.124)
Panel R: DUI						
Own	0.342+	0.328+	0.336+	0.320+		
	(0.188)	(0.190)	(0.186)	(0.190)		
Adjacent			-0.014	-0.012	-0.054	-0.041
			(0.032)	(0.028)	(0.064)	(0.070)
Panel S: Liquor Law Violations						
Own	-0.208	-0.186	-0.207	-0.175		
	(0.346)	(0.347)	(0.350)	(0.353)		
Adjacent			0.002	0.016	-0.149	-0.091
			(0.034)	(0.034)	(0.116)	(0.106)
Panel T: Drunkeness						
Own	0.264	0.280	0.263	0.284	-0.074	-0.071
	(0.197)	(0.199)	(0.198)	(0.200)	(0.063)	(0.057)
Adjacent			-0.001	0.007		
			(0.023)	(0.022)		
Panel U: Disorderly Conduct						
Own	0.139	0.136	0.145	0.151		
	(0.259)	(0.272)	(0.262)	(0.274)		
Adjacent			0.015	0.028	-0.070	-0.107
			(0.032)	(0.033)	(0.096)	(0.102)
Observations	4926	4926	4926	4926	2931	2931
Demog Controls	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by County	Y	Y	Y	Y	Y	Y

Note: We estimate a negative binomial model where the dependent variable is arrests per 10,000 residents. Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000) and we define them for own county and also for adjacent counties. We use both current and lagged prices of oil. We use the CPI-Adjusted PPI for crude petroleum (PPI/CPI) as the measure of oil price. The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table A3: Economic Effects of Changes in the Value of Local Oil Reserves, PPI/CPI

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	Current	Lagged	Current	Lagged	Current
Panel A: Ln CPI Adjusted Annual Payroll Earnings (CBP)						
Own	0.360*	0.336*	0.362*	0.338*		
	(0.138)	(0.132)	(0.138)	(0.133)		
Adjacent			0.005	0.002	-0.042+	-0.055+
			(0.013)	(0.013)	(0.023)	(0.028)
Panel B: Ln Employees (CBP)						
Own	0.153+	0.132	0.154+	0.133		
	(0.090)	(0.085)	(0.090)	(0.085)		
Adjacent			0.002	0.002	-0.034+	-0.031
			(0.009)	(0.008)	(0.020)	(0.019)
Panel C: Ln CPI-Adjusted Annual Payroll Earnings per Employee (CBP)						
Own	0.207*	0.205*	0.208*	0.205*		
	(0.064)	(0.065)	(0.064)	(0.065)		
Adjacent			0.002	-0.000	0.002	-0.008
			(0.005)	(0.006)	(0.010)	(0.009)
Panel D: Unemployment Rate (BLS)						
Own	-2.655*	-2.572*	-2.649*	-2.584*		
	(0.773)	(0.768)	(0.771)	(0.766)		
Adjacent			0.015	-0.020	-0.002	-0.137
			(0.056)	(0.057)	(0.103)	(0.113)
Panel E: Ln Population (CDC Wonder)						
Own	-0.034	-0.047	-0.034	-0.047		
	(0.055)	(0.056)	(0.054)	(0.056)		
Adjacent			0.002	0.000	-0.002	-0.003
			(0.003)	(0.003)	(0.007)	(0.006)
Observations	4865	4865	4865	4865	2893	2893
Demog Cont	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by Cc	Y	Y	Y	Y	Y	Y

Note: Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000). We use both current and lagged prices of oil. We use as measure of oil prices CPI-Adjusted PPI for crude petroleum (PPI/CPI). The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table A4: QCEW Economic Effects of Changes in the Value of Local Oil Reserves, PPI/CPI

	Own		Own and Neighbor		leighbor (Non-Oil Counties	
	Lagged	Current	Lagged	Current	Lagged	Current
Panel A: Ln CPI Adjusted Annual Year Pay (QCEW), Sector 0 Total Covered						
Own	0.116*	0.110*	0.117*	0.111*		
	(0.045)	(0.044)	(0.045)	(0.045)		
Adjacent			0.001	0.002	0.000	-0.007
			(0.003)	(0.003)	(0.008)	(0.009)
Panel B: Ln CPI Adjusted Annual Year Pay (QCEW), Sector 1 Federal Governement						
Own	0.014	-0.003	0.015	-0.003		
	(0.028)	(0.029)	(0.028)	(0.028)		
Adjacent			0.003	-0.000	0.011	0.007
			(0.003)	(0.003)	(0.006)	(0.007)
Panel C: Ln CPI Adjusted Annual Year Pay (QCEW), Sector 2 State Governement						
Own	-0.010	-0.009	-0.012	-0.012		
	(0.036)	(0.035)	(0.037)	(0.036)		
Adjacent			-0.005	-0.005	-0.008	-0.006
			(0.004)	(0.004)	(0.009)	(0.011)
Panel D: Ln CPI Adjusted Annual Year Pay (QCEW), Sector 3 Local						
Own	0.001	-0.001	0.002	-0.001		
	(0.026)	(0.026)	(0.026)	(0.026)		
Adjacent			0.002	0.001	-0.003	-0.005
			(0.003)	(0.003)	(0.005)	(0.006)
Panel E: Ln CPI Adjusted Annual Year Pay (QCEW), Sector 5 Private						
Own	0.143**	0.136*	0.144**	0.137*		
	(0.055)	(0.054)	(0.055)	(0.054)		
Adjacent			0.001	0.002	0.003	-0.009
			(0.003)	(0.003)	(0.010)	(0.011)
Observations	4426	4426	4426	4426	2632	2632
Demog Cont	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
County FE	Y	Y	Y	Y	Y	Y
Cluster by Cc	Y	Y	Y	Y	Y	Y

Note: Each regression controls for share of blacks, share of Hispanics, share of male and share of individuals under age 18 in a particular county-year cell, county fixed effects and year fixed effects. Standard errors are clustered at the county level. The time and county specific value of reserves are defined as Value of Reserves= ln(Oil Price)*(Reserves in million barrels/10000). We use both current and lagged prices of oil. We use as measure of oil prices CPI-Adjusted PPI for crude petroleum (PPI/CPI). The + indicates $P \leq 0.10$; * indicates $P \leq 0.05$; ** indicates $P \leq 0.01$; *** indicates $P \leq 0.001$

Table A5: Effect of the Value of Reserves on Purchase of Durables

	Own		Own and Neighbor		Neighbor (Non-Oil Counties)	
	Lagged	**Current**	**Lagged**	**Current**	**Lagged**	**Current**
Panel A: Ln Registrations						
Own	0.002	-0.020	-0.001	-0.024		
	(0.052)	(0.051)	(0.051)	(0.051)		
Adjacent			-0.007	-0.006	-0.008	-0.011
			(0.005)	(0.005)	(0.007)	(0.007)
Panel B: Ln Titles						
Own	0.075	0.046	0.071	0.044		
	(0.086)	(0.083)	(0.086)	(0.084)		
Adjacent			-0.009	-0.003	-0.004	-0.001
			(0.008)	(0.008)	(0.014)	(0.016)
Observations	4692	4692	4692	4692	2794	2794

Note: The + indicates P $\leq$ 0.10; * indicates P $\leq$ 0.05; ** indicates P $\leq$ 0.01; *** indicates P $\leq$ 0.001