Taxation by Citation? Exploring Local Governments' Revenue Motive for Traffic Fines

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Abstract

Anecdotal evidence suggests that local governments may have a revenue motive for traffic fines beyond public safety concerns. Using California county-level data over a 12-year period, this article presents findings that counties increased per capita traffic fines by 40 to 42 cents in the year immediately after a 10-percentage-point tax revenue loss in the previous year; however, these counties did not reduce traffic fines if they experienced tax revenue increase in the previous year. This finding indicates that local governments view traffic fines a revenue source to offset tax revenue loss, but not as a smoother to manage revenue fluctuation. This article also presents findings that low-income, Hispanic-majority counties raised more traffic fines. Counties that generate more revenue from transient occupancy tax—a tax typically paid by travelers and visitors—raised more traffic fines, indicting a tax exporting behavior by shifting the traffic fines burden on non-local drivers.

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Traffic accidents remain one of the leading causes of unintentional injuries in the United States (Kochanek et al. 2016). The vast majority of these traffic accidents are caused by human errors such as speeding, driving under the influence of alcohol, not wearing a seat belt, and distracted driving. Government has a long history of using traffic law enforcement to deter unsafe driving behaviors. Among the various traffic law enforcement tools, traffic citation is the primary one. A number of studies find that traffic citations effectively improve road safety. Makowsky and Stratmann (2011) use municipal budget shortfalls as an instrumental variable to examine the effect of traffic tickets on road safety. They find that increasing the number of traffic tickets reduced traffic accidents and accident-related injuries. DeAngelo and Hansen (2014) demonstrate that a mass layoff of state highway troopers in Oregon due to budget cuts was associated with 12 to 29 percent increase in highway deaths and injuries. Luca (2015) similarly discovers that traffic citations significantly reduced accidents and nonfatal injuries in Massachusetts.

While the ostensible goal of traffic citation is to improve road safety, a growing body of evidence shows that governments may see traffic fines an important revenue source. In Nevada, traffic fines provide the majority of funding for the state supreme court. A decline in traffic fines in 2015 caused a budget crisis for the Nevada Supreme Court (Chokshi 2015). In Louisiana, local traffic fines are the primary revenue source for public defenders (Robertson 2016). In California, traffic fines pay for over 50 state funds, many of which have no connection to the cited traffic violations (California State Auditor 2018). In Georgia, along highway I-75, a string of cities and counties are known as "ticket traps" that tap Disney-bound tourists and other pass-through traffic (Simmons 2014). The U.S. Department of Justice's (2015) investigation on

Ferguson, Missouri brought national attention to governments' misuse of law enforcement to generate revenues.

Despite growing evidence, few studies have investigated governments' revenue motive for traffic fines. One influential study was conducted by Garrett and Wagner (2009). They observed the relationship between the number of traffic tickets and the economic conditions in North Carolina counties from 1990 to 2003 and found that counties issued more traffic tickets in the year following a revenue decline in prior year. This finding provides evidence that local governments have a revenue motive for traffic fines. Yet, using changes in the number of traffic tickets is not the most precise way to measure governments' revenue motive. Because governments can increase the base fine and/or add surcharges to each traffic citation, they could increase traffic fine revenues without issuing more traffic tickets. Another influential study was conducted by Makowsky and Stratmann (2009), using the speeding traffic stops data in Massachusetts municipalities over a two-month period in 2001. They found that the decline of property tax revenue increased the likelihood a driver receiving a traffic ticket and the dollar amount of each citation. Furthermore, the likelihood of receiving a speeding ticket was higher in fiscally stressed towns. However, Makowsky and Stratmann's (2009) study focuses solely on speeding tickets. Since a substantial amount of traffic fines come from parking violation, particularly in big cities, a more precise analysis is to use traffic fine revenue from all traffic violations.

This article analyzes governments' revenue motive for traffic fines using California counties' traffic fine revenue from Vehicle Code violations, including moving violations and parking violations. The time span covers fiscal years from 2004 to 2015. Controlling for demographic, economic, fiscal, enforcement, and road-related factors, the regression results

show a statistically significant increase in per capita traffic fines in the year immediately following a tax revenue decrease in the prior year. Tax revenue increase in the previous year however, does not have a significant influence on per capita traffic fines in the current year. These results provide evidence of local governments' revenue motive for traffic fines—they see traffic fines a revenue source to offset tax revenue loss.

Background on California Counties and Traffic Fines

The Basics of California Counties

California has 58 counties. According to the California State Association of Counties, these counties operate health and human services programs as agents of the state. They also carry out a broad range of countywide functions such as overseeing elections and operating the criminal justice system. Among these counties, 44 are general law counties and 14 are charter counties. Charter counties have a limited degree of independent authority over certain rules but they lack *any* extra authority in budgeting and revenue increase. San Francisco is the only consolidated city and county in the state. Throughout this article, the analysis focuses on 57 counties, excluding San Francisco.

Traffic Fines in California Counties

In California, Vehicle Code violations fall into three categories: infractions, misdemeanors, and felonies (see Table 1). An individual who receives a citation for a traffic violation is assessed an amount consisting of a base fine plus several penalty surcharges and assessment fees. The state legislature and the Judicial Council set the base fine. The base fine varies depending on the type of violation. In addition to the base fine, state and county governments impose surcharges and fees. The various surcharges and fees significantly increase

the total cost of a violation. As demonstrated in Table 1, failure to stop at a stop sign with a base fine of $35 could cost up to $238 after all associated penalty surcharges and assessment fees are added. Counties and courts are authorized to set their own surcharge level and/or levy additional surcharges and fees. Thus, the amount of penalties for a particular traffic violation differs by county.

[Table 1 here]

County courts collect traffic fines from citations written within county territory. After the court reports traffic fines to the county's auditor-controller, the auditor-controller distributes the county's shared proportion to relevant county funds and sends the state's shared proportion to the State Controller (California State Auditor 2018). Overall, the state receives roughly half of traffic fine revenue; counties 40 percent, cities and other collection programs 10 percent (LAO 2017). Counties report traffic fine revenue to the State Controller annually in "Counties Financial Transactions Reports." The Empirical Modeling and Data Source section introduces details of these reports. Figure 1 presents a map of per capita traffic fines of California counties over a 12-year period (2004-2015). Of all 57 counties excluding San Francisco, three counties' per capita traffic fines exceed $15. They are Glenn County ($25.73), Imperial County ($19.12), and Siskiyou County ($15.26).

[Figure 1 here]

Table 2 offers further information on per capita traffic fines distribution among California counties. The two-sample t-test results suggest that rural counties, general law counties, low-income counties, and Hispanic-majority counties have higher per capita traffic fines than their counterparts. These preliminary results present a brief overview of per capita traffic fines in

California counties. They also provide guidance on building the empirical model to examine these counties' revenue motive for traffic fines in the next section.

[Table 2 here]

Institutional Constraints on Raising Taxes and Non-tax Revenues

In California, the single largest own-source revenue for counties is property tax. In 1977, California counties received 74 percent of own-source general fund revenue from property tax whereas counties in the rest of the U.S. on average received 57 percent of their own-source revenue from property taxes (see Figure 2). In 1978, voters in California passed an amendment to the state Constitution—the People's Initiative to Limit Property Taxation, commonly known as Proposition 13. Prior to Proposition 13, California local governments determined their property tax rates independently with few limitations. Proposition 13 fundamentally changed local governments' fiscal authority and revenue structure. This constitutional amendment was designed to: (1) set the property tax rate at one percent of a property's assessed value; (2) set property values at their 1976 level, and allow the reassessment of property values only upon change of ownership; (3) limit property tax increase to an inflation rate or two percent per year, whichever was less; (4) give state government the authority to distribute property tax among local governments; (5) require a two-thirds vote of the state legislature to increase non-property taxes; and (6) require a two-thirds vote of electors for local special taxes.

The passage of Proposition 13 substantially constrains local governments' property tax collection. Counties were affected the most, because they relied solely on property tax for discretionary revenue. In the first year after its passage, California counties' property tax plummeted by over 50 percent (see Figure 2). The property tax constraints have forced local

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governments to look for alternative revenue sources, most notably: enterprise revenues, property-related fees, user charges, and a variety of small general-purpose taxes such as transient occupancy tax and utility users tax.

[Figure 2 here]

Yet, Proposition 13 was only the first of a series of institutional constraints that limit local revenue-raising capacity. In 1986, voters passed California Proposition 62 that requires general taxes to be approved by a majority of local voters, and special taxes to be approved by two-thirds of local voters[1]. In 1996, voters passed Proposition 218. This constitutional amendment restricts local governments' use of post-Proposition 13 revenue tools such as assessments, fees, and user charges. It requires that fees charged to property owners such as those from water, sewer, and garbage collection may not exceed the cost of providing the services. Revenues from fees and user charges cannot be used for general governmental services. In addition, Proposition 218 extends voter-approval requirements of general taxes to all local governments (charter cities previously were not affected by Proposition 62). It requires that a general tax must be presented to voters at a regularly scheduled local election. It also requires all the assessments, fees, and user charges must be presented to voters prior to their creation or proposed increase. However, changes of the assessments, fees, and user charges do not need voter approval. They only need a majority approval of the state legislature or a majority approval of the local governing body. The lack of voter-approval on changes of the assessments, fees, and user charges was changed in 2010 when voters passed Proposition 26. This constitutional amendment requires a two-thirds supermajority voter-approval to pass any change of the assessments, fees, and user charges. Tax revenue allocations that previously could be enacted by a simple majority vote now also require a two-thirds supermajority voter-approval.

Local Governments' Revenue Motive for Traffic Fines

Since the passage of Proposition 13 in 1978, California's past four decades are marked by voters imposing institutional constraints on local governments' revenue authority, local governments maneuvering around the institutional constraints, and voters passing new constitutional amendments closing the "loopholes." Institutional theories assert that institutions—rules and their enforcement mechanisms—determine choice of actions in a specific decision situation. Ostrom (2005) structured individuals' choice of actions into three categories: forbidden (must not do), required (must do), and permitted (may do) actions. Ostrom's categories of actions can be used to analyze California counties' choices of revenue sources. The forbidden actions include to increase property tax rate, to raise user charges or fees for general governmental services, and to charge fees for services beyond the costs of providing the services. The required actions include various voting requirements to raise taxes, assessments, fees, and user charges. The permitted actions include using available revenue sources that do not have institutional restrictions.

While county legislators and officials cannot take the "forbidden actions" to raise revenue, they have the discretion to take the "required actions" or "permitted actions" to raise revenue within institutional constraints (Ingram and Clay 2000). These decision-makers are most likely to choose a revenue source that has the least strict institutional constraints. In California, one area that has not received much institutional constraints is traffic fines and surcharges. State and local governments can add surcharges to the base fines. The increase of surcharges only needs approval from state or local governing body. No statute or regulation imposes caps on revenue accrued from the adding surcharges. Since the Great Recession, California added penalty surcharges to the traffic violations base fines twice. Once was in 2008 when the state added the

Criminal Conviction Assessment fees of $35 per infraction conviction, and $30 per felony or misdemeanor conviction. The second time was in 2010 when the state added an Emergency Medical Air Transportation fee of $4 per conviction (California State Auditor 2018). These add-on surcharges make California's traffic fines the highest in the county (LCCR 2017).

To test California counties' revenue motive for traffic fines, a direct way is to see the responsiveness of traffic fines to revenue changes. Specifically, whether a government increases traffic fines following a revenue decline. The next section introduces the empirical modeling strategy and data sources.

Empirical Modeling and Data Sources

Dependent Variable

This article uses California counties' per capita traffic fines as the dependent variable. California counties differ considerably in population. The largest county Los Angeles has over 10 million residents whereas the smallest county Alpine has less than 1,200 residents. Normalizing traffic fines by county population account for heterogeneity across counties. The per capita traffic fines are also adjusted for inflation using consumer price index (CPI) with 2004 as the base year.

The traffic fine revenue data comes from "Counties Financial Transactions Reports" published by California State Controller's Office. The California State Controller's Office requires counties and other local governmental entities to report their financial and statistical data on a uniform basis each year within seven months after the close of a fiscal year. Data reported in these reports comes from the audited financial statements, if available. The traffic fine revenue is reported as "Vehicle Code Fines" in these reports, which consists the net revenue

from fines and forfeitures for Vehicle Code violations within a county, including the county's

share from arrests made in cities. This variable also includes fines from various parking

violations defined in the Vehicle Code. Fines from violations of local traffic ordinances are not

included (State Controller's Office 2017, 114). Table 3 gives the descriptions of all variables,

summary statistics, and data sources.

[Table 3 here]

Independent Variables

To test local governments' revenue motive for traffic fines, a direct way is to see the

responsiveness of counties' per capita traffic fines to tax revenue changes. If county governments

view traffic fines a revenue source to offset tax revenue loss, they would increase traffic fines in

the year following a tax revenue decrease in the previous year(s). They may not necessarily

reduce traffic fines following a tax revenue increase in the previous year(s). Thus, this article

hypothesizes that the impacts of tax revenue increase and decrease on counties' per capita traffic

fine revenue are different. To examine the asymmetric impacts, the model includes both tax

revenue increase and tax revenue decrease as independent variables.

Tax revenue increase is measured by multiplying tax growth rate from year t-1 to year t

with a positive dummy that equals one if tax growth rate is positive, and zero otherwise. Tax

revenue decrease is measured by multiplying tax growth rate with a negative dummy that equals

one if tax growth rate is negative, and zero otherwise. In the sample of 57 counties over a 12-

year period, 55 percent of the observations are periods of tax revenue increase and the remaining

45 percent are periods of tax revenue decrease. The two variables are both lagged by one year.

Considering California counties start the budget preparation process several months before the

start of a new fiscal year, the last year's tax revenue changes are expected to have the strongest influence on current year's effort of raising traffic fines. The model includes tax revenue increase and tax revenue decrease lagged by up to three years to capture the influence of tax revenue changes in the recent past on current year's per capita traffic fines. Using lagged independent variables not only helps isolate the causal effect of tax revenue changes on per capita traffic fines, it also allows us to assess the robustness of findings.

The tax revenue data also comes from "Counties Financial Transactions Reports." A county's total tax revenue consists of revenue from property tax, sales tax, and a number of small taxes.[2]Total tax revenue excludes the in-lieu taxes from the state in order to measure counties' own-source tax revenue more precisely.[3]Tax revenues are inflation adjusted using CPI prior to the calculation of growth rates.

In addition to changes of tax revenue, researchers find that traffic citations are determined by various factors (Garrett and Wagner 2009; Makowsky and Stratmann 2009; Sances and You 2017). The empirical model includes a number of control variables with year and county fixed effects. The empirical model is formally expressed as:

$Traffic\ Fine_{i,t}$

$$= \alpha + \beta_1 Tax\ Revenue\ Increase_{i,t-1} + \beta_2 Tax\ Revenue\ Increase_{i,t-2}$$
$$+ \beta_3 Tax\ Revenue\ Increase_{i,t-3} + \gamma_1 Tax\ Revenue\ Decrease_{i,t-1}$$
$$+ \gamma_2 Tax\ Revenue\ Decrease_{i,t-2} + \gamma_3 Tax\ Revenue\ Decrease_{i,t-3} + \delta X_{i,t}$$
$$+ \theta_t + \lambda_i + \varepsilon_{i,t}$$

where α is the constant term.$X_{i,t}$ is a matrix of control variables in county i at year t assumed to affect a county's traffic fine revenue. θ_t denotes year fixed effect that controls for aggregate

factors affecting all counties such as national or statewide economic downturns. λ_i denotes county fixed effect that controls for county-specific, time-invariant factors affecting traffic citations. $\varepsilon_{i,t}$ is the error term.

Demographic and Economic Factors

The $X_{i,t}$ matrix contains control variables broadly defined as county demographic, economic, fiscal, enforcement, and road-related factors that are expected to correlate with traffic fines. As demonstrated in Table 2, rural counties have significantly higher per capita traffic fines. The model includes population density, a measure often used to define rural and urban territories by the Census Bureau. Population density is defined in this article as the number of persons per square mile of land area. The county square miles data comes from "Counties Financial Transactions Reports," and county population data comes from California Department of Finance. The population aged between 15 and 24 is traditionally considered the highest risk group by auto insurance companies, and data shows that this age group is more likely to be involved in fatal car crashes (NHTSA 2015). The model thus includes the share of population between 15 and 24 in a county's total population as a control variable. Results in Table 2 also indicate that low-income counties have higher per capita traffic fines. The model includes county poverty rates obtained from the Census Bureau to control counties' economic wealth.

Fiscal Factor

Political economic theories predict that local governments' decision to choose a revenue tool is modeled as if government officials maximize their effective voter support. They achieve this goal by "tax exporting" on nonvoters (Inman 1989; Gade and Adkkins 1990; Braid 2005). In the case of traffic citations, researchers find that out-of-state and out-of-town drivers face

different enforcement standards than local drivers. Non-local drivers are more likely to receive traffic tickets than verbal warnings. They also pay larger amounts of fines (Makowsky and Stratmann 2009, 2011; Roach 2015). Because existing information cannot identify whether traffic violations were committed by local or non-local drivers, this article uses a proxy—tourism—to account for this effect. This variable is measured as the share of transient occupancy tax as a percent of a county's total own-source revenues. California counties and cities are authorized to impose a transient occupancy tax on individuals who stay at hotels, motels, and similar accommodations for a period of 30 days or less. As such, this tax is typically paid by non-local residents. Larger share of transient occupancy tax thus indicates a larger number of non-local drivers in a county.

Law Enforcement and Crime Factors

Traffic law enforcement is an important component in traffic citations. Traffic law enforcement officers often have the discretion to give verbal warnings or traffic citations for minor infractions. Thus, local governments are able to raise more traffic fines if they decide to implement traffic laws more strictly. Since the currently known data source does not allow us to measure traffic law enforcement directly, this article uses a proxy variable—police presence—to control county-level differences in law enforcement. This variable is measured as the number of sworn law enforcement personnel per 1,000 county residents.[4]The model also includes the arrest rates, measured as the number of arrests made by law enforcement agencies per 1,000 county residents. Because law enforcement officials have limited time and resources, increase in crime rates could result in less focus on traffic law enforcement (Garrett and Wagner 2009).

Road-Related Factors

California counties' road network is classified as arterial roads and collector roads according to the Federal Highway Administration's classification of functional streets and highways. Arterial roads are high-capacity roads that carry longer-distance flows between important centers of activity. These roads often have four or more lanes and are designed for unimpeded high-speed movement. Typical arterial roads include the interstate system, freeways, expressways, and major conventional highways. Data shows that 77 percent of fatal auto vehicle crashes occur on urban arterial roads, and 62 percent on rural arterial roads (IIHS 2016). Collector roads are low-to-moderate-capacity roads that move traffic from local streets to arterial roads. They are designed to provide access to residential properties. Because arterial roads carry large traffic volumes with high speed and have more accidents, it is reasonable to expect more traffic law enforcement focus on arterial roads and more traffic citations issued on arterial roads. The model includes arterial road mileage in a county as a percent of total arterial roads mileage in California as a control variable. This variable is hypothesized to be positively associated with a county's per capita traffic fines. Another road-related variable is collector road mileage in a county as a percent of total collector roads mileage in California. This variable is hypothesized to be negatively associated with per capita traffic fines.

Time Span of the Sample

The sample includes 57 of the 58 counties in California, excluding San Francisco, the only consolidated city and county government. The time span of the sample covers 12 fiscal years, from 2004 to 2015. In June 2015, California launched a one-time Traffic Amnesty Program that provided relief to individuals from unpaid traffic and non-traffic tickets. The program began on October 1, 2015 and ended on April 3, 2017. To avoid the influence of this

event on the analysis results, the ending point of the sample is fiscal year 2015.[5]This sample is a balanced panel dataset with 684 observations. The next section presents and interprets the regression results.

Estimation Results

Table 4 presents the regression results from three empirical specifications. Each of the three models was estimated with county and year fixed effects. The standard errors, reported in parentheses, were clustered by individual counties. The second and third models include independent variables lagged up to two and three years to test the influence of tax revenue changes not only in the previous year but also in the recent past on counties' per capita traffic fines. Of all three models, only the one-year lag of tax revenue decrease (i.e. tax revenue loss in the previous year) has a significant impact on local traffic fines. Results are robust to the inclusion of the two-year and three-year lags of tax revenue changes. Holding all other variables constant, 10-percentage-point tax revenue loss in the previous year leads to 40 to 42 cents increase in per capita traffic fines in the current year. The result that previous year's tax revenue changes has the strongest influence on traffic fines is not surprising. California counties start their budget preparation process several months before the end of current fiscal year. Thus, current year's tax revenue is the most relevant indicator of revenue forecast in the new fiscal year. If a county has a tax revenue loss in the current year, county officials and legislators will make a less optimistic tax revenue forecast. They are likely to increase revenue-raising efforts in non-tax revenue sources, especially those with the least institutional constraints such as traffic citations. This article focuses on tax revenue changes rather than total revenue changes used in Garret and Wagner's (2009) study due to endogeneity concern, because traffic fines are part of counties'

total revenue. Moreover, the lagged tax revenue changes helps isolate the causal effect of counties' budget conditions on traffic fines.

The coefficients on lags of positive tax revenue change are not statistically significant in any of the three models, suggesting that tax revenue increase in the previous year and recent past does not affect current year's local traffic fines. The fact that counties raised traffic fines after experiencing a tax revenue loss but do not reduce traffic fines in response to a tax revenue increase indicates these counties do not use traffic fines to smooth tax revenue fluctuations. Rather, they behave to some degree like revenue maximizers (Garret and Wagner 2006). This is not to say that these local governments are Leviathans (Brennan and Buchanan 1977; Oates 1985). They are forced to seek alternative revenue sources with no or less strict intuitional constraints. Extant studies show that since the passage and Proposition 13 and similar constitutional amendments, California local governments have switched their revenue-raising effort from property taxes to other revenue sources to circumvent institutional constraints thereby gradually changing local revenue structures (Shires, Ellwood, and Sprague 1998; Wassmer 2008).

The coefficients on control variables also provide interesting insights into local governments' collection of traffic fines. One variable that show consistent statistical significance across all three models is 'poverty'—a county's poverty rate. Holding other variables constant, one-percentage-point poverty rate increase raises per capita traffic fines by 16 to 17 cents. This result indicates that counties with high poverty rates rely more on traffic fines. However, this result is not sufficient to conclude that residents in low-income counties bear the burden of traffic fines. The dataset does not contain information to identify whether a Vehicle Code violator is a local resident or an out-of-town driver. It is plausible that much of the traffic fines are paid by out-of-town drivers who drive through the county. Anecdotal evidence shows that

local governments without a well-endowed tax base take advantage of their other asset—having major interstate highways running through the counties (LaRose 2016).

The variable 'tourism' is statistically significant in two of the three models. This variable is measured as transient occupancy tax (TOT) as a share of a county's own-source revenues. Since non-local residents pay most of the TOT, this variable is a proxy measure of visitors and travelers in a county. The coefficients suggest that holding other variables constant, one-percentage-point increase in the share of TOT in local own-source revenues raises per capita traffic fines by 38 to 42 cents. The result here supports the notion that local governments transfer the traffic fines burden onto non-local residents, in this case, out-of-town drivers.

The two road-related variables are also statistically significant across all three models. Consistent with the hypothesis, traffic fines are strongly associated with the type of road network. Arterial roads, due to the large and high-speed traffic volumes they carry, are where the majority of traffic accidents happen. Traffic law enforcement thus has a considerable focus on arterial roads. In recently years, California allows automated enforcement—the use of cameras to enforce traffic safety laws. Although still a controversial issue, the use of red light cameras and license plates recognition cameras greatly improve the efficiency and accuracy in traffic law enforcement. Most of these cameras were installed on busy arterial roads. The regression results suggest that holding other variables constant, if a county's arterial roads mileage as percent of total arterial roads mileage in the state increases by one-percentage point, the county's per capita traffic fines would increase by 66 to 76 cents. In contrast, if a county's collector roads mileage share increases by one-percentage point, the county's per capita traffic fines would decrease by 80 to 90 cents.

Conclusion

Government traffic fines generally do not receive much public scrutiny. Most states do not require voter approval to increase the base fine or to add surcharges. The lack of institutional constraints and public scrutiny on raising traffic fines may create a revenue incentive to governments, especially those that face fiscal stress. This article finds empirical evidence of local governments' revenue motive for traffic fines using county-level data in California. Results suggest that California counties increased per capita traffic fines in the year right after a tax revenue decline in the previous year; however, these counties did not reduce per capita traffic fines after a tax revenue increase. This indicates that local governments view traffic fines as a revenue source to offset tax revenue loss; they do not use traffic fines as revenue-smoother to ease tax revenue fluctuations.

This article also finds that low-income counties rely more on traffic fines. Counties that generate more revenues from transient occupancy tax—a tax typically paid by travelers and visitors—raise more traffic fines, indicating a possible tax exporting behavior by imposing the traffic fines on non-local drivers. Counties with a greater proportion of arterial roads raise more traffic fines whereas counties with a greater proportion of collector roads raise less traffic fines.

Imposing monetary punishment on those who violate traffic laws is an effective policy tool to deter misbehaviors and to compensate society for the damage caused by these misbehaviors. However, "taxation by citation"—the excessive use of traffic fines for revenue purpose—could seriously undermine trust between citizens and government law enforcement agencies, as a Missouri state senator wrote to the Wall Street Journal (Schimitt 2015). Aggressive use of traffic citations makes citizens see police more of traffic fine predators instead

of road safety protectors. Furthermore, excessive use of traffic citations jeopardizes employment. In many states, failure to pay traffic fines can result in license suspension. Because the overwhelming majority of Americans drive to work and many occupations require a valid driver license (Tomer 2017), those who have their license suspended may not be able to keep their jobs. The lack of a valid driver license and a reliable transportation puts obstacles in the way of job searching and future employment. Considering a large number of low-wage and blue-collar jobs require a driver license, some concerns the excessive use of traffic citations and license suspension may impose a greater burden on low-income families (LCCR 2017). The racial profiling and racial disparity in traffic stops as demonstrated in the cases of Ferguson and other cities raise another concern that the excessive traffic law enforcement may disproportionately affect African-American communities (U.S. Department of Justice 2015; Epp, Maynard-Moody, and Haider-Markel 2017). Finally yet importantly, traffic fines are not a sustainable revenue source for government functions (California State Auditor 2018). In all, traffic citations should not be used as means to generate revenues.

In recent years, a few states have recognized this issue of local governments' misuse of traffic fines and started traffic fines reforms. In 2015, Missouri Governor signed a municipal court reform bill (the Senate Bill 5) that caps municipalities' percentage of general revenue collected from traffic fines. Also in 2015, California launched a one-time Traffic Amnesty Program that provides relief to individuals from unpaid traffic and non-traffic tickets. Missouri and California are not the only states with the "taxation by citation" issue. States need careful review of local traffic law enforcement to make sure that traffic citations are used for public safety purposes and not for revenue purpose.

Endnotes

1. General taxes are levied by a general-purpose government and used at the discretion of the local government's governing body, on any program or services. A special tax is a tax that needs one of the following conditions: levied by special districts, school districts, and community college districts; dedicated to a specific purpose; property-related taxes but not the property tax (LAO 2014).

2. These small taxes include transportation tax (non-transit purpose), property transfer tax, transient occupancy tax, timber yield tax, aircraft tax, construction tax, and utility user tax.

3. Counties and cities receive in-lieu tax revenues from the state, one from the Vehicle License Fee Property Compensation Fund, the other from Sales and Use Tax Compensation Fund.

4. Sworn law enforcement officers are those who have a badge, carry a firearm, and have arrest power when performing their duties. This is in contrast with non-sworn (also called civilian) law enforcement officers.

5. All California counties end their fiscal year 2015 on June 30, 2015. Thus, the Traffic Amnesty Program that took effect on October 1, 2015 did not affect counties' traffic fine revenue in fiscal year 2015.

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Figures and Tables

Figure 1. Per Capita Traffic Fines by Counties (Fiscal years 2004-2015)
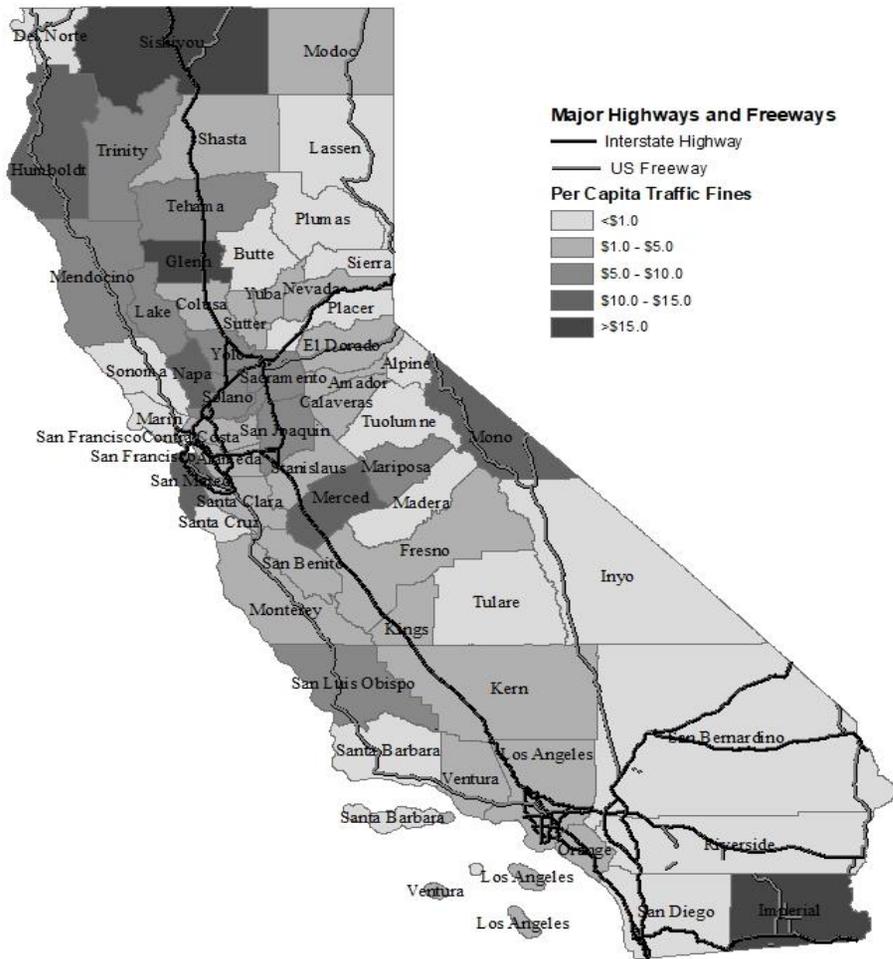
Figure 2. Counties' Dependence on Property Tax: United Statas vs. California

Property Tax Revenues as a Percent of Counties' Own-source General Fund Revenue

- - - - Counties in all states ——— Counties in California
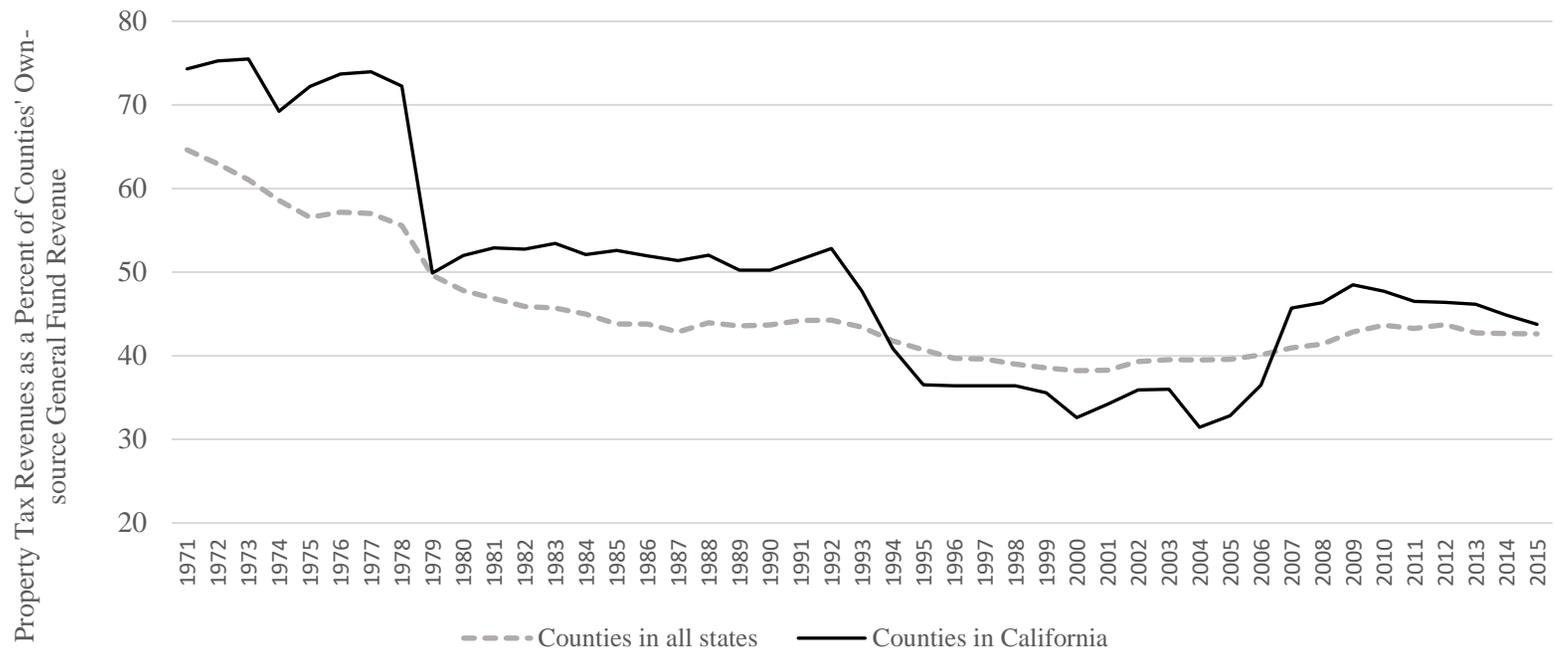
Data source: U.S. Department of Commerce, Census Bureau (county governments data). Author's calculation.

Table 1. An Example of Traffic Fines and Fees Schedule

As of January 1, 2017	Calculation of Charge	Stop Sign Violation (Infraction)	DUI of Alcohol/Drugs (Misdemeanor)
Standard Fines and Fees			
Base Fine	Depends on violation	35	390
State Penalty Assessment	$10 for every $10 of a base fine	40	390
County Penalty Assessment	$7 for every $10 of a base fine	28	273
Court Construction Penalty Assessment	$5 for every $10 of a base fine	20	195
Proposition 69 DNA Penalty Assessment	$1 for every $10 of a base fine	4	39
DNA Identification Fund Penalty Assessment	$4 for every $10 of a base fine	16	156
EMS Penalty Assessment	$2 for every $10 of a base fine	8	78
EMAT Penalty Assessment	$4 per conviction	4	4
State Surcharge	20% of base fine	7	78
Court Operations Assessment	$40 per conviction	40	40
Conviction Assessment Fee	$35 per infraction conviction and $30 per felony or misdemeanor conviction	35	30
Night Court Fee	$1 per fine and fee imposed	1	1
Restitution Fine	$150 minimum per misdemeanor conviction and $300 minimum per felony conviction	-	150
Examples of Additional Fines and Fees That Could Apply			
DUI Lab Test Penalty Assessment	Actual costs up to $50 for specific violations	-	50
Alcohol Education Penalty Assessment	Up to $50	-	50
County Alcohol and Drug Program Penalty Assessment	Up to $100	-	100
Total		**238**	**2024**

Three Traffic Violation Categories

Traffic *infractions* are minor offenses such as speeding or failing to stop at a stop sign. Traffic infractions are not punishable by jail time but by a base fine of up to $100.

Traffic *misdemeanors* are offenses punishable by imprisonment in a county jail, a base fine of up to $1,000, or both. Examples of traffic misdemeanors include driving under the influence of alcohol and/or drugs and reckless driving.

Traffic *felonies* are serious offenses such as accidents resulting in injury or death to another person. Such offenses are punishable by imprisonment, a base fine of no less than $1,000 and up to $10,000, or both.

Note: the base fine is rounded to the nearest $10 to calculate these additional charges. For example, the $35 base fine for a failure to stop would round up to $40. DUI = Driving Under Influence; EMS = Emergency Medical Services; and EMAT = Emergency Medical Air Transportation.
Source: Legislative Analysts' Office(2017, 2).

Table 2. Comparison of Per Capita Traffic Fines by County Group

County Groups		Mean		Difference
(1)	(2)	(1)	(2)	(1)-(2)
Urban or suburban (n=432)	Rural (n=252)[a]	4.08	5.86	-1.79***
Charter (n=156)	General law (n=528)[b]	3.83	5.00	-1.17***
Low-income (n=69)	All others (n=615)[c]	8.27	4.34	3.93***
White-majority (n=39)	All others (n=360)[d]	3.75	5.19	-1.43*
Hispanic-majority (n=40)	All others (n=359)[e]	6.85	4.85	2.00**

Note: a. the designation of a "Rural" county is based on the Rural-Urban Commuting Area Codes (RUCAs) developed by California State Office of Rural Health Policy. According to RUCAs, 36 counties in the sample are urban or suburban, and 21 counties are rural. More information on RUCAs is available at https://www.ers.usda.gov/data-products/rural-urban-commuting-area-codes.aspx.

b. the California Constitution recognize two types of counties: charter counties and general law counties. More information on county structure and powers is at http://www.counties.org/general-information/county-structure-0.

c. a county is defined "Low-income" if its median income falls below $24,020.58, the 10th percentile for median income of all counties from 2004 to 2015.

d. a county is defined "White-majority" if non-Hispanic whites are greater than 84.11% of its total population. The 84.11% is the 90th percentile for non-Hispanic whites' share of a county's total population of all counties from 2010 to 2015.

e. a county is defined "Hispanic-majority" if Hispanics are greater than 51.29% of its total population. The 51.29% is the 90th percentile Hispanics' share of a county's total population of all counties from 2010 to 2015.

f. statistically significant level: * at 10%, ** at 5%, *** at 1%.

Table 3. Variable Descriptions, Summary Statistics, and Data Sources

Variable	Description	Mean	Min	Max	Sources
Traffic fine per capita	Net revenues from fines and forfeitures for Vehicle Code violations divided by county population	4.16 (4.82)	0	30.96	California State Controller's Office
Tax revenue increase	Per capita tax revenue growth rate × a positive dummy (a positive dummy equals one if tax revenue growth rate at time t is positive, and zero otherwise)	3.75 (6.66)	0	58.62	California State Controller's Office
Tax revenue decrease	Per capita tax revenue growth rate × a negative dummy (a negative dummy equals one if tax revenue growth rate at time t is negative, and zero otherwise)	-2.45 (4.45)	-41.04	0	California State Controller's Office
Density	Number of persons per square mile of land area	354.29 (676.98)	1.60	4015.17	California Department of Finance and California State Controller's Office
Population ages 15-24	Number of persons ages 15-24 as a percent of a county's total population	14.24 (2.86)	8.57	25.29	California Department of Finance
Poverty	Poverty rate (all ages)	15.32 (4.91)	5.60	29.70	Census
Tourism	Transient occupancy taxes (the "TOT" or the hotel room taxes) as a percent of a county's total own-source revenues	2.30 (5.78)	0	48.10	California State Controller's Office
Police Presence	Number of sworn law enforcement personnel per 1,000 county residents	1.94 (1.36)	.73	12.89	California Criminal Justice Statistics Center
Arrest rate	Number of arrests (including felonies, misdemeanor, and status offenses) made by law enforcement agencies per 1,000 county residents	45.61 (13.82)	20.48	129.67	California Criminal Justice Statistics Center
Arterial roads	Arterial roads mileage in a county as a percent of total arterial roads mileage in California	1.75 (3.31)	0	27.56	California Department of Transportation

| Collector roads | Collector roads mileage in a county as a percent of total collector roads mileage in California | 1.75 (2.62) | 0 | 23.04 | California Department of Transportation |

Note: a. the sample includes 57 of California's 58 counties. San Francisco is omitted because it is a consolidated city and county government.

b. number in parentheses are standard deviations.

Table 4. Effect of County Per Capita Tax Revenue Changes on Traffic Fine Revenues

Variable	(1)	(2)	(3)
Tax revenue increase lagged 1 year	.004 (.009)	.008 (.010)	.010 (.011)
Tax revenue increase lagged 2years		.009 (.008)	.014 (.009)
Tax revenue increase lagged 3years			.013 (.012)
Tax revenue decrease lagged 1 year	-.042 (.019)**	-.040 (.017)**	-.042 (.018)**
Tax revenue decrease lagged 2years		-.010 (.019)	-.008 (.016)
Tax revenue decrease lagged 3years			-.041 (.023)
Density	.005 (.004)	.005 (.004)	.003 (.004)
Population ages 15-24	-.386 (.260)	-.322 (.274)	-.333 (.317)
Poverty	.156 (.072)**	.161 (.082)*	.170 (.087)*
Tourism	.378 (.225)*	.419 (.243)*	.330 (.215)
Police Presence	.131 (.367)	-.115 (.392)	-.117 (.404)
Arrest rate	.059 (.048)	.052 (.051)	.034 (.046)
Arterial roads	.659 (.328)**	.692 (.351)*	.761 (.379)**
Collector roads	-.795 (.309)**	-.824 (.323)**	-.902 (.352)**
	(Year dummies results omitted)		
Number of Observations	570	513	456
Adjusted R	.234	.217	.200
F-statistics	2.82***	2.47***	2.41***

Note: a. robust standard errors are clustered by county in parentheses.

b. variables with monetary value are deflated using consumer price index.

c. each model was estimated with county and year fixed effects that are not reported.

d. the sample contains 57 counties in California from 2004 to 2015.

e. statistically significant level: * at 10%, ** at 5%, *** at 1%.