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MARKETS FOR STOLEN PROPERTY: PAWNSHOPS AND CRIME

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Markets for Stolen Property: Pawnshops and Crime

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Abstract

Pawnshops serve the credit needs of low-income individuals and consequently locate in higher crime communities. However, pawnshops are often suspected of being outlets for stolen property and if so, they may stimulate criminal activity. To break this simultaneity, this paper uses usury laws as instrumental variables to identify the causal effect of pawnshops on crime. States with more generous limits on the interest and fees that pawnbrokers may charge have a greater incidence of pawnshops. Increases in the number of pawnshops are shown to raise the rate of those crimes in which pawnable property is stolen and to have no impact on the rates of those crimes in which such property is not taken. The results support the hypothesis that pawnshops trade in ill-gotten merchandise. While a ban on these shops does not appear warranted, a closer police monitoring of these shops is likely efficient.

"Nothing therefore can be more just than the old observation, *'that if there were no Receivers there would be no thieves.'* — Deprive a thief of a safe and ready market for his goods, and he is undone."

— Patrick Colquhoun, *A Treatise on the Police of the Metropolis* (1796) [italics in the original]

Thieves rarely retain for themselves the items that they steal. Instead, they typically trade their booty for cash in markets for stolen goods. Evidence suggests that these markets are extensive. According to the Federal Bureau of Investigation (FBI), the value of all goods stolen during the commission of robberies, burglaries, and larcenies in 1996 exceeded $6 billion. This supply of stolen goods appears to be matched with a substantial demand. Studies by Wright and Decker (1994) and Sutton (1998) suggest that those who readily pay cash for ill-gotten goods include not only the professional fence, but also relatives, friends, acquaintances, even strangers.[2] In spite of the size and pervasive nature of these markets, economists have not thoroughly studied them.

Since the seminal contribution of Becker (1968), the economic study of criminal behavior has largely focused on the deterrent effect of sanctions. A large theoretical and empirical literature has found that increasing penalties and the probability of apprehension reduces crime.[3] In contrast, few researchers have examined the responsiveness of criminal behavior to the marginal benefits of crime. This paper attempts to do so by focusing on one institution that has long been associated with the receipt of stolen goods, namely the pawnshop.

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[2] These authors also found that some burglars bartered with drug dealers in order to acquire illegal drugs directly without having to convert their stolen goods into cash first.

[3] For theoretical analysis of the effect of sanctions on criminal behavior, see Stigler (1970), Ehrlich (1973), and Andreoni (1991), among others. For empirical analysis of the effect of police on crime, see Levitt (1997), Marvel and Moody (1996), and the survey in Cameron (1988). For empirical analysis of the effect of prisons on crime, see Levitt (1996).

Popular culture has long perceived the pawnshops as an outlet for stolen goods. This conventional wisdom has persisted for centuries,[4] and some modern-day law enforcement officers share this perception.[5] Even pawnbrokers readily admit that their industry suffers from this negative association.[6] Extensive anecdotal evidence supports the conclusion that pawnshops deal in ill-gotten goods. A casual review of newspapers yields numerous instances of stolen property having been pawned (see, for example, Perez, 1996). A more thorough analysis was conducted by a Ft. Lauderdale newspaper whose reporters gathered all the pawn slips in that city for the year 1996. These slips are records of pawn transactions, copies of which pawnbrokers in some jurisdictions are required to forward to police authorities. The reporters ranked the pawnors by the number of trips to pawnshops. Thirty-nine of the top 50 pawnors had criminal arrest records, nineteen of which were for burglary, theft, or related offenses. A follow-up to that study by Wallace (1997) highlighted cases that suggest that pawnshops may enable a few highly motivated criminals to commit many offenses. For example, an unemployed man visited a single pawnshop 38 times in less than two months and pawned, among other items, thirteen women's

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[4] One social commentator in 18th century London expressed this belief in unequivocal terms: "This Class of Swindling Pawnbrokers are uniformly receivers of stolen goods; and under cover of their license do much mischief to the public . . ." (Colquhoun, 1796, p. 156). An observer in 19th century Scotland declared, "The tendency of this [pawn] traffic to engender and encourage thievish propensities cannot be disputed . . . It tempts the multitudes to steal, by offering every facility for the disposal of stolen goods. It also encourages a sense of security in the thief. Brokers have been known to give direct encouragement to theft . . ." (Macrae, 1861).

[5] According to one Florida detective, "Pawnshops are the easiest place to go with stolen property. Unwittingly or not, I believe pawnshops regularly deal in stolen property" (quoted in Glover and Larrubia, 1996d).

[6] One California pawnbroker said, "Some people think they're for crooks and run by crooks" (quoted in *San Luis Obispo*, 1996). Another lamented how "we continue to be stereotyped as seedy, back-alley greedy business people who fence stolen goods" (Smith, 1998).

rings, ten men's rings, eleven necklaces, nine cameras, six watches, three VCRs, and two televisions. The day after his last visit to the pawnshop, the man was arrested for burglary, and he was later sentenced to two years in prison.

This paper conducts the first systematic analysis of pawnshops and crime. The results show that pawnshops correlate strongly with the seven types of Index I crimes, even when controls for income levels, labor market conditions, and demographics are present.[7] However, this correlation does not necessarily imply that pawnshops cause crime. Because pawnshops serve the credit needs of persons with low income and limited access to mainstream financial markets, pawnshops may choose to locate close to their customers. Because low-income counties are also places with high crime rates, a positive correlation between pawnshops and crime rates may result, even in the absence of a causal relationship. In this scenario, pawnshops would correlate with, but would not necessarily participate in, the trade of stolen goods. An alternative possibility is that pawnshops do engage in such illicit trade and that by providing a ready market for stolen goods, pawnshops furnish an incentive for greater criminal activity. That is, pawnshops may cause crime.[8]

The present paper tests this causal relationship by breaking the simultaneity of pawnshops and crime. Identification of the effect of pawnshops on crime requires a variable that affects the

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[7] Appendix A lists the Federal Bureau of Investigation's definitions of these crimes.

[8] A third possibility, which is not mutually exclusive from the second, reverses the direction of this causation. It begins with the observation that much of a pawnshop's revenue comes from retail sales of its unredeemed pawns. If thieves have lower reservation prices for their swag than do pawnors of legitimately obtained goods, pawnbrokers could obtain lower-cost inputs from criminals. More advantageous factor prices would provide an incentive for pawnshops to locate near criminal activity. In this scenario, higher crime rates would cause a greater presence of pawnshops. This paper leaves this possibility unexplored.

number of pawnshops but is otherwise unrelated to crime rates. Caskey (1991, 1994) reported that state usury laws that limit the interest that pawnbrokers can charge on their loans have a strong and significant effect on the geographic distribution of pawnshops. Therefore, this paper employs usury laws in general and those specific to pawnshops as instrumental variables.

Since pawnshops' primary businesses is making loans based on the collateral of tangible personal property, limits on the interest and fees that can be charged have a direct effect on the profitability of pawnbroking. As a consequence, these limits are a key factor in determining the number of shops in operation. In addition, after controlling for other factors, it is unlikely that usury laws have a direct effect on crime rates. Instead, pawnbroking appears to be the most plausible channel through which usury laws may affect crime rates. For these reasons, they are employed to identify the effect of pawnshops on crime rates.

Specifically, pawnshops are predicted to increase crimes in which offenders obtain types of property that may be converted into cash at pawnshops. The seven FBI Index I crimes are assembled into two groups in order to test this prediction. First, robbery, burglary, and larceny are crimes in which pawnable property is generally taken. Hence, under the hypothesis that pawnshops trade in stolen goods, an increase in the number of pawnshops should raise the incidence of these types of crimes. In contrast, pawnable property is generally not taken during the commission of murder, rape, aggravated assault, and motor vehicle theft. Hence, the presence of pawnshops should not causally affect the frequency of this second group of crimes.

These predictions are tested on a cross-section of counties with populations of at least 50,000 persons, as well as on less populous counties. OLS results show that the incidence of pawnshops correlates with both groups of crimes in all counties. However, evidence confirming

the prediction that pawnshops have a causal effect on certain crimes is found only in the sample of more populous counties. These estimates indicate that a 10% increase in the rate of pawnshops raises the rate of robberies, burglaries, and larcenies in urban counties by between 0.8 and 1.1 percentage points. In contrast, the estimated impact on the remaining crime types is smaller and not statistically different from zero.

The paper proceeds as follows. Section II details the mechanics of pawning and illustrates how these transactions may be used to fence stolen goods. Section III describes the data used. Section IV shows how usury laws affect the geographic distribution of pawnshops and discusses the exogeneity of such laws to crime rates. Section V presents estimates of the effect of pawnshops on crime, and Section VI evaluates the implications for public policy. Section VII concludes.

II. How Pawnshops Encourage Crime.

A pawn is simply a small collateralized loan. A pawnor gives the broker a piece of tangible personal property, against the value of which the broker extends a loan. The broker takes possession of the item and retains it in his shop as collateral. A pawn slip or ticket records the name of the pawnor, a description of the item pawned, the amount advanced, the maturity date, and other terms of the loan. The pawnor departs with the slip and the cash. Should the pawnor not return to reclaim the pledged item when the loan is due and after a brief grace period, it becomes the property of the broker. The broker is then free to sell the item for whatever price

it can fetch and to pocket the proceeds.[9] If the pawnor does return to redeem the item, she must repay the loan with interest. In addition, the terms of the loan may require her to pay fees for handling, storage, insurance, and other charges that together may exceed the interest cost.

From interviews with St. Louis-area burglars, Wright and Decker (1994) identified how a pawnshop transaction may be used to convert stolen goods into cash. First, a criminal may simply pawn the items. To do so, however, the pawnor must provide his name, address, and a form of identification. Some state and municipal regulations may also require the pawnor to furnish a home telephone number, a identification with photograph, and to have his fingerprint and/or photograph taken. If police properly utilized this information, these requirements would clearly increase the risk that the pawnor would be linked to the crime. In practice, however, few jurisdictions make full use of this information. Moreover, these requirements are easily skirted. The offender qua pawnor may provide false information (see Glover and Larrubia, 1996a) or use false identification. Alternatively, some burglars reported persuading friends or acquaintances to pawn the items for them, thereby distancing themselves from the items and further reducing their odds of apprehension (Wright and Decker, 1994). Once they have obtained cash for the pawned item, thieves may never return to redeem the item.[10]

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[9] Some states have laws requiring the broker to sell the item at public auction and to refund to the pawnor any surplus in excess of the loan amount and the broker's processing costs. Anecdotal evidence suggests that the public is largely unaware of such "surplus laws" and that they are rarely enforced.

[10] Another means by which thieves may obtain cash for their stolen goods at pawnshops is to sell, rather than pawn, their items. Wright and Decker (1994) reported that some burglars obtained slightly higher prices for engaging in sales rather than pawns. However, the ability of thieves to sell rather than pawn depended upon several factors such as the quality of the items and the extent of trust between the pawnbroker and pawnor.

Central to the controversy over whether pawnbrokers receive stolen goods is the extent to which they expend efforts to determine the origin of incoming goods.[11] According to the National Pawnbrokers Association (NPA), "Thieves and robbers are a pawnbroker's worst enemy . . . Pawnbrokers are trained to look for signs of stolen property and to avoid these costly mistakes" (NPA, 1998, p.2). The NPA explains that pawnbrokers attempt to screen out stolen goods, as the broker will lose both the collateral and the amount loaned if police seize the item. However, only Delaware, Virginia, and the District of Columbia explicitly permit police to search for and to seize without a warrant items which they believe are stolen. In contrast, some state laws make the recovery of stolen property from pawnshops difficult for crime victims. Until it was recently repealed, a Florida law stipulated that police could not return such property to its original owners. Unless a judge ordered its return, the items remained the property of the pawnbroker. Laws in seven other states similarly require victims to seek legal adjudication to secure the return of their property from pawnshops.[12] Because obtaining a judicial order is costly, few victims are likely to seek return of their articles. In such instances, the expected cost of unwittingly receiving stolen property is not high, and a pawnbroker's incentive to discern the origin of offered items is reduced. Furthermore, pawnbrokers do not internalize the full social benefits of any reductions in crime that might accrue from the more intense scrutiny of incoming

[11] Sir John Fielding admonished London pawnbrokers on this subject: "I am sure that it would be unnecessary to tell them, that when a shoe-black brings a diamond ring to pawn, there is great reason to suspect he did not come by it honestly" (Fielding, 1755, p.15)

[12] These states are Alabama, California, Kansas, Louisiana, Mississippi, Ohio, and Tennessee.

merchandise.[13] In addition, the competitive nature of pawn markets imposes a potentially large opportunity cost on the refusal of items.[14] Thus, while the effort level allocated to distinguishing between properly and improperly obtained goods is likely privately optimal for brokers, it may be below the social optimum.

As suggested by the quotation at the opening of this paper, the ultimate goal of most theft is to obtain cash for the ill-gotten property. Once a criminal has successfully expropriated property from his victim, the task of converting it into currency is not trivial. Apprehension by the authorities while the goods are in one's possession greatly increases the odds of conviction. If a pawnshop deals in stolen goods, that risk is reduced for criminals operating in its vicinity, and the consequent increase in expected rewards should encourage criminal activity in locations with pawnshops.

This incentive may be most powerful in densely populated environments. The closer proximity of the pawnshop to targets of theft together with the anonymity of the city may conspire to make the pawnshop a convenient destination for the urban criminal's stolen goods. In rural areas, the pawnshop may be remote from the crime scene, criminal activity is generally less frequent, and residents are more apt to know and to know more about the members of their communities. These factors increase the odds that pawning stolen goods in rural areas will result

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[13] In the words of one broker, "If he's coming in my store with a VCR, I'm not asking him where he got it. It's the police's job to find out if it's stolen, not mine" (quoted in Glover and Larrubia, 1996a).

[14] This same broker continues: "You don't ask where things come from. If you don't take those [items], the guy down the street will" (quoted in Glover and Larrubia, 1996a).

in apprehension. Thus, only pawnshops in urban environments ought to have a causal effect on rates of robbery, burglary, and larceny.

Importantly, these enhanced incentives bear only on particular types of crime. Pawnshops should affect only those categories of criminal activity in which offenders obtain pawnable merchandise. Robbery, burglary, and larceny are such categories. Frequently stolen during these three types of crime are items such as jewelry, watches, consumer electronics, and handguns. Such goods also constitute a large portion of the typical pawnshop's inventory.

The presence of pawnshops does not affect the reward structure of the remaining crime categories. While personal property may be taken during murders and rapes, the Federal Bureau of Investigation reports that the average value of goods taken during the commission of such crimes in 1996 was $125 and $25, respectively.[15] In contrast, the average value taken during the commission of robberies, burglaries, and larcenies was $929, $1,332, and $532, respectively (FBI, 1996). Moreover, no property is taken during an assault, by definition. Lastly, motor vehicle theft should not be affected by the presence of pawnshops, because these shops do not deal in automobiles or their parts.[16] In sum, the main empirical implication is that the greater

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[15] According to the "hierarchy rule" of crime reporting, a crime consisting of more than one type of felony is recorded as a single instance of the most serious offense involved. For example, a robbery in which the victim is killed is counted solely as a murder. Consequently, the "non-pawn" crime group used in this paper may actually contain offenses in which pawnable property was taken. However, these results are unlikely to be seriously affected by this data limitation. In 1996, only 10% of murders occurred in the circumstance of a robbery, burglary, or larceny (FBI, 1997, p. 19).

[16] Pawnbrokers in some states now extend credit against the value of an automobile. In these transactions, the borrower retains physical possession of the vehicle, while the broker holds the certificate of title as collateral. If the loan falls into delinquency, the broker uses the title to repossess the vehicle (Cahill, 1999). Because proof of ownership in the form of the certificate of title is essential to these eponymous "title loans," stolen cars cannot be converted into cash via

presence of pawnshops increases solely those categories of crime directed related to the pinching of pawnable goods.

III. Data.

The data analyzed are a cross-section of U.S. counties in 1996. To obtain the number and location of pawnshops and check-cashing outlets nationwide, the author searched the American Business Disc (ABD). This CD-RoM, which is produced by the American Business Information, Inc. (ABII), provides the name, address, and phone number for every "yellow page" entry in telephone directories across the country. The ABII combines this information with additional market data such as credit ratings, estimated sales volume, number of employees, years in business, and the standard industrial classification (SIC) codes for up to six lines of business. The SIC codes for pawnshops and check-cashing outlets are 5932-29 and 6099-03, respectively. Since the sale of marketing data is their primary business, the ABII has an incentive to ensure its accuracy. Moreover, the data performed well in a comparison by the author to entries in several cities' 1996 phone books.[17]

The discussion of Section II suggests that counts of pawnshops may not be the ideal unit of measurement. If thieves are interested only in obtaining cash for their stolen goods, they will be more likely to sell, rather than pawn, the items, as well as less likely to redeem them, in the

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these transactions. Therefore, a market in such loans is not apt to stimulate auto theft.

[17] An alternative source of counts of pawnshops is state licensing bureaus. However, not all states provide this information. Moreover, Caskey (1991, 1994) compared the ABD's 1990 counts of pawnshops to those of state agencies, for those states which release such data, and found that they were close.

event that they do pawn. Thus, higher rates of customers selling items to the broker and lower rates of pawnors redeeming their goods would be consistent with greater trade in stolen goods. Unfortunately, such detailed data are not available. No state regulator provides information on what share of pawnshops' inventory is from purchases versus pawns, and the few that have data on redemption rates release only state-level aggregates. While a systematic analysis of redemption rates is precluded, a casual examination reveals patterns consistent with the hypothesis that pawnshops do trade in stolen goods. In private correspondence with the author, a regulator in one state, Oklahoma, made available redemption rates at the state level for ten years (Bartlett and Hardin, 1999). Over that period, the rates of pawn redemption – whether based on the number of pawns or their dollar value – climbed while the rates of robbery, burglary, and larceny declined.

In lieu of systematic purchase and redemption rates, county-level counts of pawnshops are used as the unit of measurement and are expressed as rates per 100,000 population, as crime rates traditionally are. Because they exhibit little heterogeneity in size, simple counts of pawnshops are a reasonable unit of measurement. According to the ABD data, more than 92% of pawnshops have annual sales under $500,000 and more than 98% have them under $1 million. Similarly, almost 84% of pawnshops have four or fewer employees and more than 97% have nine or fewer.

The remaining data are from the traditional sources. Crime rates are taken from the Uniform Crime Reports of the FBI (1996). Unemployment rates and per capita personal income are from the U.S. Bureau of Labor Statistics (1998) and the U.S. Bureau of Economic Analysis (1998), respectively. County-level data on the age and racial distribution of the population are

from the U.S. Census Bureau (1998), and the remaining demographic data are from the decennial census (U.S. Census Bureau, 1990). Information on states' regulations of handguns was taken from National Rifle Association (1997).

The author gathered data on pawnshops' interest and fee limits from state statute books. A precise list of citations for these pawnshop regulations is available from the author upon request. Information on the remaining usury laws are drawn from the Commerce Clearing House (1994). In addition to the interest on the loan, pawnshops may also charge fees for handling, loan origination, storage, insurance, and other items. Since these fees effectively raise the cost of borrowed money, they are similar to interest and are regulated with interest in most states.[18] In some states the maximum fee is a fixed percentage of the principal, while in others it is a dollar amount independent of the value of the loan. Still other states have fee schedules in which the maximum charge, either a dollar amount or a percentage of the principal, varies along with the value of the pawn transaction.

In order to facilitate comparisons across states, the author calculated the maximum charge, including interest and fees, on a two-month $100 pawn and expressed it as a percentage of the principal. The two-month maturity was selected because Caskey (1989), who conducts a similar comparison, reported that it was the norm. The $100 amount was chosen to approximate the value of the typical pawn. While the NPA (1998) states that the average pawn is between $70 and $100, anecdotal evidence suggests that the distribution of pawn transactions is positively

[18] Four states, Delaware, Minnesota, Missouri, and Virginia, regulate the interest, but not the fees, that a pawnbroker may charge. Because the estimated APR for these states does not include fees, it may seriously understate the price ceiling on a pawn loan. Rather than assign an arbitrary fee amount, a separate dummy variable was included in the regression analysis for the states that regulate only interest.

skewed.[19] The use of other loan sizes and maturities resulted in estimates similar to those reported here. Pawn limits are usually denominated in terms of months, but general usury maxima are set in terms of years. Therefore, the estimated (interest and fee inclusive) cost of a pawn loan was multiplied by six to obtain an estimated annual percentage rate (APR).

Table 1 presents summary statistics on two samples. The first contains all counties for which data were available,[20] and the second consists of those counties with populations of at least 50,000 persons. The primary difference between the two samples is that the second is more urban, and consequently, variables typically associated with urbanization have higher means in the second sample. Crime rates for all categories are higher in the second sample, as are the incidence of rental housing and the sworn police officers. The demographic variables, such as percent of the population black and the percent of household female-headed, are less affected by this restriction. Their means rise slightly in the second sample, and their standard deviations decline.

IV. Usury Laws and Pawnshop Locations.

IV.A. Usury Laws.

Since the primary business of a pawnshop is to make loans, a connection between the number of pawnshops and usury laws is not surprising. States that cap the interest and fees that

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[19] In the words of one broker: "I've got people coming in here pawning things for 10 bucks to buy Pampers. It's pathetic" (quoted in Glover and Larrubia, 1996d).

[20] The full sample does not include every county in the country. County-level crime data are not available in 1996 for Montana and parts of Florida, Illinois, Kentucky, Mississippi, Missouri, South Dakota, and Tennessee. Data were unavailable for these locations because they are in the process of converting from the Uniform Crime Reporting System to the National Incident-Based Reporting System.

pawnbrokers can charge should have fewer pawnshops because these limits restrict the profitability of pawnbroking. By acting as a price ceiling, they constrain the amount of revenue generated on each repaid loan. Therefore, states with such limits should have fewer pawnshops than those without. Given that a state does have such a limit, the lower its value, the fewer should be the number of shops.

Among the states that do regulate pawn charges, those that fail to limit pawn fees explicitly allow pawnbrokers to raise the price of a pawn transaction. By re-labeling interest as fee, a pawnbroker in these states can raise the revenue earned on each repaid pawn. Therefore, states without limits on both fees and interest should have more pawnshops than states with them.

That pawnbrokers expend considerable resources to increase, or at least prevent reductions in, these limits is evidence that they form binding constraints. Each issue of the NPA's trade magazine contains a contact list of state chapter heads and updates on regulatory changes in each state. One such update describes how a proposal to reduce by half the maximum rate in Kansas "would have made it impossible for the industry to exist in that state." It describes how pawnbrokers avoided imposition of the lower limit by arranging a hearing with state legislators and concludes with the warning to fellow brokers, "NEVER become complacent" (George, 1998, capitals in the original). That pawnbrokers expend resources in an attempt to influence these regulations suggests that they do affect profitability. Whether such efforts are systamtically effective is considered in the next section.

Pawnbrokers are but one part of the larger credit market in which they compete with other lenders, and consequently, they may be affected by other laws that govern this broader market.

One such law is the limit on the amount of interest chargeable in a written contract. Because this "contract limit" applies to lenders who are not pawnbrokers, it may affect the substitution of borrowers between pawnbrokers and other lenders. Pawnshop customers are traditionally portrayed as would-be borrowers who are excluded from mainstream credit markets because of their dubious creditworthiness. A non-pawnbroking lender in this market would demand a high interest rate in order to bear the risk of loaning to such persons. Limits on the interest that these lenders can charge should restrict the amount of credit they extend, and encourage substitution to pawnbroker's services. Thus, states with such limits should have more pawnshops than those without. Given that a state does have such a limit, the lower its value, the greater should be the number of pawnshops.

A final type of usury law is the "legal limit." Every state has such a limit, and it is the maximum amount that can be charged in the absence of a written contract. Since a pawn slip represents a contract, unwritten loans are unlikely substitutes for pawn transactions. Rather, given the questionable credit profile of the traditional pawnshop customer, unwritten contracts are likely complements to pawnshops. Thus, more pawnshops ought to be found where the legal limit is more generous.

To summarize, this paper uses six variables as instruments. The first is an indicator for the presence of a limit on pawn charges in that state. The second takes on the value of that limit for a two-month $100 loan when such a limit exists and is zero otherwise. The third is an indicator for whether the limit on pawn charges covers only interest, not fees. The fourth and fifth variables mirror the first two except that they cover the contract, rather than pawn loan, limit. The final variable is the value of the legal limit.

Appendix B displays the values of these maxima. Several features of these data deserve comment. Where they exist, the value of the contract limit generally exceeds the legal limit. Similarly, the estimated pawn limits are typically greater than the contract ones. The values of the pawnshop limits exhibit wide variation, and the magnitudes of these limits in some states are so large that they perhaps are equivalent to having no limit at all.

VI.B. Exogeneity of Usury Laws.

For usury laws to be valid instruments, they must be uncorrelated with crime except through the variables included in the crime equation. Usury limits might be systematically related to crime in two ways. First, usury laws might reduce crime directly. Glaeser and Scheinkman (1998) argue that usury laws are a form of social insurance. If states with these laws enjoy greater risk-sharing, residents who experience negative income shocks may be less likely to resort to crime in order to smooth their consumption. In order for this linkage to cast doubt on the validity of the instruments, usury laws must be effective at mitigating the incentive to commit crime. Given that empirical estimates of the crime-reducing impact of direct social interventions are generally small (e.g., Donohue and Seigelman, 1998), the idea that usury laws would have a significant effect seems less plausible. Glaeser and Scheinkman themselves observe that usury laws are a "primitive" form of social insurance.

Secondly, if pawnshop regulation correlates with crime-fighting and social-welfare programs, then a failure to include measures of these efforts in the crime equation threatens the validity of the instruments. For that reason, the number of sworn police officers per capita in the state, the percent of persons in the county receiving public assistance, and the amount of that

assistance per recipient are included as control variables. However, usury laws are unlikely to correlate with crime-control and social-welfare measures. Jurisdictions in which pawnshops are perceived as part of crime-ridden "urban blight" have typically utilized regulations other than usury limits to restrict the number of pawnshops. These regulations include limits on the type of merchandise in which they may deal,[21] types of persons with whom they may deal,[22] their hours of operation and their location.[23] Local municipalities more often than states have promulgated these types of rules. In fact, such rules are so idiosyncratic at the state-level that the author's attempts to code them into binary variables proved fruitless. As a consequence, state-level usury laws likely do not correlate with other crime-control endeavors.

A final pawnshop regulation of interest is whether the state requires pawnbrokers to forward copies of pawn slips to law enforcement authorities. If pawnshops clearly increased crime rates, police agencies would observe this pattern and respond. In particular, police would use the information given in pawn slips to investigate suspicious pawnors, and pawnshops in these jurisdictions would be more reluctant to trade in stolen goods. However, in practice, the

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[21] Texas law (section 371.179) bars pawnshops from displaying dirks, daggers, blackjacks, hand chains, sword canes, switch blades, and brass knuckles, while Delaware law (section 24.2309) forbids pawnbrokers from accepting prosthetic limbs and workman's tools.

[22] According to Michigan law, pawnbrokers may not conduct business with a person who "is of unsound mind, or neglects all lawful business, or that he habitually spends his time frequenting houses of ill-fame, gambling houses or tippling houses, or that from drinking, gaming, idleness or debauchery of any kind he is squandering his earnings or wasting his estate, or that he is likely to bring himself or his family to want, or to render himself or his family a public charge, or that he is suspected of thievery" (section 446.214).

[23] Minnesota law prohibits the location of a pawnshop within 10 miles of a casino (section 325J.10).

ability of police agencies to trace stolen goods using pawn slips remains limited.[24] Few agencies have computerized reporting of pawn transactions, and many complain of facing a backlog of unprocessed slips (Rehyansky, 1997). The failure of rightful owners of items such as electronics and handguns often do not record the serial numbers to record serial numbers exacerbates the difficulties of tracking stolen property with pawn slips. Another hindrance to the unambiguous identification of articles is that some kinds of property are easily rendered indistinguishable. Jewelry, which is popular with both thieves and pawnbrokers, is such a good. Precious stones may be removed and reset, and valuable metals may be melted down.[25] Nevertheless, a dummy variable for whether or not the state requires pawnshops to forward copies of these slips to law enforcement authorities on a daily or weekly basis is included as a covariate. After controlling for this pawnshop regulation, as well as other crime-control and social welfare programs, state-level usury laws are plausibly exogenous to crime rates.

Whenever variation in legal regimes is used to identify behavioral effects, the endogenous determination of legal rules is a concern. In particular, pawnbrokers in states with a more active industry lobby may be more effective at raising limits on pawn charges or at eliminating them altogether. Using state-level counts of membership in the NPA taken from that organization's

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[24] This lack of enforcement was underscored by a sensational crime in 1997, when serial killer Andrew Cunanan pawned several gold coins that he had taken from his Chicago victim. Despite being on the FBI's "Ten Most Wanted" List at the time, Cunanan provided his name, thumbprint, and a local address as part of the pawn transaction at a Miami Beach pawnshop. The slip was forwarded to local police, but it went unprocessed. Eight days later, Cunanan murdered fashion designer Gianni Versace (Freedberg, 1997).

[25] Cash America International, Inc. is one of the nation's largest producers of gold bullion, but it owns no gold mines. It operates the nation's largest chain of pawnshops (Glover and Larrubia, 1996c).

website, an attempt was made to test for such political influence. Appendix C shows the results of probits for the presence of a limit on pawn charges and tobits on the value of that limit. Other than the measures of the pawn lobby, region dummies are the only other right-hand side variables. Whether measured as a rate in the population or as a percent of the total number of shops, membership levels have no significant relationship to pawn charge regulation. Moreover, with means of 1.7 and 31.2 for the membership rate and percentage, respectively, the estimated impacts are small. These results are consistent with the fact that while some states have changed their pawn laws recently, many are decades old. Results for the still older contract and legal usury laws, which are not reported here to conserve space, are similar. Thus, limits on pawn charges are a plausibly exogenous source of variation in the number of pawnshops.

IV.C. The Effect of Usury Laws on Pawnshop Locations.

Table 2 presents summary statistics on the relationship between pawnshops and legal variables. The first row of Panel A compares the average number of pawnshops in states with limits on pawn charges to that in states without such limits. States with such limits have essentially the same rate of pawnshops as states without this regulation, in contradiction to the prediction. However, as observed in Appendix Table B, the pawn charge maxima in some states are set so high that they perhaps are equivalent to no limit at all. For that reason, the second row of Panel A restricts the sample to counties in states with limits set below 300%. This row shows that counties without such limits have more than two additional pawnshops per 100,000 persons on average than those with them. The third row of Panel A shows that counties with limits only on pawn interest, not their fees, also have at least two more pawnshops per 100,000 on average

than those with limits on both types of charges. The fourth row of Panel A reveals that counties in states with contract limits have a higher average number of pawnshops than those without, which supports the notion that substitution may occur between pawns and other loan contracts.

Panel B of Table 2 reports simple correlations between pawnshops and the interest rate limits, over the samples in which such maxima exist. Significant positive correlations exist between pawnshops and the maximum pawn loan rate and the legal rate. Although a negative correlation was expected, a slightly positive one is found between the maximum contract rate and the number of pawnshops. However, it is not statistically significant.

Because simple means cannot account for the numerous factors determining the number of pawnshops, more formal analysis is necessary. The pawnshop rate is estimated using a regression equation of the form

$$P_{jk} = Z_k\gamma + X_{jk}\alpha + v_{jk}, \qquad (1)$$

where P_{jk} is the number of pawnshops per 100,000 persons in county j and state k. Matrix X_{jk} contains controls for demographics, labor market conditions, income levels, policing levels, and indicators for region. Matrix Z_k holds the state-level usury law variables.[26]

Table 3 presents regressions of pawnshops on various usury laws. Column (1) shows the predicted signs of the instruments, while columns (2), (3), and (4) report estimates of equations using only pawn-specific, all, and only the general usury laws, respectively. In all three

[26] Using a state-level variable (usury laws) to explain a county-level observations (pawnshops) implies a particular grouping of the data. Specifically, observations may be independent across states but not within them. The standard errors in the reported OLS and 2SLS regression results are corrected for this form of heteroskedasticity.

equations, all of the instruments bear the predicted signs. The presence of a limit on pawn charges appears to exert a negative effect on the number of shops, but given that this limit exists, the higher its value, the greater the number of shops. If this limit does not include fees, the number of shops is greater. Similarly, the variables for the contract limit bear signs consistent with the idea that written contracts substitute for pawns. The legal limit appears to complement the incidence of pawnshops. Usury limits specific to pawnshops are statistically significant in both equations that include them. The legal limit is significant at the 10% level in both of its equations, but the correlations between the incidence of pawnshops and the contract limits are still weaker. When all of the usury laws are included or when only the pawn-specific ones are, as in columns (2) and (4), the pawn-specific variables are jointly and individually significant. However, the general limits alone, as indicated in column (3), are not jointly above conventional significance levels. Therefore, the general limits alone cannot be used to estimate the impact of pawnshops on crime. Instead, those causal effects are estimated using the pawn-specific ones, as well as the full set of usury laws.

While the other right-hand side variables are discussed in Section V, two merit mentioning here. First, pawnshops have a positive and significant correlation with the extent of check-cashing outlets (CCOs), perhaps because they both serve the credit needs of low income individuals. Pawnbroking and check-cashing outlets (CCOs) constitute what has been termed the "alternative financial sector," "fringe banking," and (perhaps pejoratively) the "poverty industry" (Caskey (1991), Swagler et. al. (1995), Hudson (1993), and Marino (1997)). The positive estimate on CCOs supports the notion that these industries operate in the same markets. Secondly, pawnshops frequently deal in firearms, and regulations that restrict the availability of

handguns are seen to reduce the incidence of pawnshops. Counties in which the purchase of a handgun requires a waiting period or a license have significantly fewer pawnshops. Despite recent claims that "shall issue" laws encourage citizens to arms themselves and thereby deter crime, these laws are not significantly related to the rate of pawnshops.[27]

V. Estimating the Effect of Pawnshops on Crime.

V.A. Initial Estimates.

Two stage least squares is used to estimate the effect of pawnshops on crime. Pawnshops are modeled as endogenous and the other covariates are treated as exogenous. The second stage equation is of the form

$$C_{ijk} = \beta_i P_{jk} + X_{jk}\delta + \varepsilon_{ijk}, \qquad (2)$$

where C_{ijk} is the rate of crime type i in county j and state k. P_{jk} is again the rate of pawnshops in county j and state k and X_{jk} is the same matrix of covariates included in the right-hand side of equation (1).

As mentioned in Section III, the relationship of pawnshops to crime is tested by using two aggregated crime categories as dependent variables. The first crime measure is rate of robberies, burglaries, and larcenies, and this crime group is predicted to increase in the presence of pawnshops. The second crime measure is the rate of murder, rapes, aggravated assaults, and motor vehicle thefts, and this crime group is predicted to be not causally affected by the incidence of pawnshops.

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[27] Lott and Mustard (1997) present evidence that "shall issue" laws reduce crime rates, while Black and Nagin (1998) offer a critique.

Tables 4 and 5 report estimates of the impact of pawnshops on rates of these crimes that are predicted to increase and to be unaffected, respectively, by the presence of such shops. Columns (1) through (3) present OLS estimates, and subsequent columns contain results from instrumenting. In column (1) of Table 4, the summed rates of robbery, burglary, and larceny are regressed against only the pawnshop rate and an intercept term. Pawnshops are shown to be positively and significantly related to the incidence of these crimes. The regression in column (2) adds indicator variables for the four Census regions. While their coefficients are not reported here to conserve space, these indicator variables were jointly significant in all equations in which they were included. Their inclusion reduced the magnitude of the pawnshop coefficient by roughly 20%, but it remains statistically significant.

Column (3) adds several other right-hand side variables. Among these are CCOs which appear positively related to the rates of these crimes, but insignificantly so.[28] The estimates on the other covariates are consistent with the findings of previous researchers. For example, crime is greater in cities (Glaeser and Sacerdote, 1996), and African-Americans are more likely to be both offenders and victims of crime. Communities with more renters, who tend to be more

[28] The author originally hoped that CCOs would provide an opportunity to verify the substance of the results in Tables 4 and 5. While their name suggests that they are a source of liquidity, CCOs also provide credit. CCOs offer "payday loans" in which a borrower provides proof of income (usually recent pay stubs) and a post-dated check in exchange for immediate cash. Because they lend against the promise of future (legitimate-sector) labor earnings, not against tangible personal property, CCOs provide credit without magnifying the incentive to commit crime. Thus, like pawnshops, CCOs ought to correlate with crime, but unlike pawnshops, they should not increase crime. Attempts were made to use limits on state-level check-cashing fees as instruments for the number of CCOs. However, only fourteen states have such limits (Saunders, 1997), and in a regression of CCOs, coefficients on variables for the presence and value of these limits were individually and jointly insignificant. For that reason, CCOs are treated as exogenous.

transient than homeowners, have higher crime rates, as do those with a greater share of vacant housing. The rates of these crimes are positively related to unemployment rates, perhaps because the opportunity cost of crime is reduced when labor demand in the legitimate sector is lower. A greater share of female-headed households associates with more of these crimes, as is the presence of a law requiring pawnshops to give copies of their transactions to police. The negative estimate on the percent of persons receiving public assistance is consistent with the hypothesis that social welfare programs may ameliorate the incentive to commit crime.

Column (4) reports the 2SLS estimates of the effect of pawnshops on these crimes using the pawn-specific usury laws as instruments. Instrumenting reduces the value of the estimate by about 10% to 52.47, and statistical significance is retained. This estimate is approximately 35% lower than the original result of Column (1), and it indicates that pawnshops have small effects on the rate of robbery, burglary, and larceny. At the sample mean, a 10% increase in the pawnshop rate increases the rates of these crimes by almost 1%. Column (5) presents the results of 2SLS when the full set of usury laws are used as instruments. The statistically significant point estimate of 53.41 is remarkably close to the first one.

When instruments correlate weakly with the endogenous regressor, 2SLS estimates are likely biased toward OLS (Staiger and Stock, 1997). This bias is of particular concern here, as the purpose of instrumenting is to discern how much of the causal impact of pawnshops on crime accounts for the observed correlation between pawnshops and crime. For that reason, results from limited information maximum likelihood (LIML) are reported in columns (6) and (7). Both LIML estimates are only about 1% lower than their 2SLS counterparts. These results

suggest that the weakness of the correlation of the instruments with the incidence of pawnshops does not seriously bias the second-stage estimates.

Table 5 contains results of similar regressions in which the summed rate of murder, rape, robbery, aggravated assault, and motor vehicle theft is the dependent variable. The OLS estimates of columns (1), (2), and (3) show a strong, positive correlation between pawnshops and these crimes. In fact, the magnitude of the relationship is almost as large as it was for the previous set of crimes. According to the estimates of Column (3), a 10% increase in the mean pawnshop rate increases the mean rate of murder, rape, assault, and motor vehicle theft by roughly a half of one percentage point.

When pawnshops are treated as endogenous, however, their estimated relationship to the rates of these crimes is not different from zero. In column (4), the application of only the pawn-specific instruments reduces the point estimate by about 15% of that of OLS, and the standard error more than doubles. Column (5) shows that the use of all the instruments reduces the point estimate by two-thirds to 3.98. The LIML results reported in columns (6) and (7) mirror the 2SLS ones. Employing the pawn-specific usury laws as instruments only slightly reduces the coefficient on pawnshops but increases its standard error such that the estimate is no longer statistically significant. In contrast, the use of the full set of instruments dramatically cuts of the size of the point estimate. The LIML estimate in column (7) is less than a fourth of its OLS companion. In sum, the results in Tables 4 and 5 support for the hypothesis that pawnshops increase crimes in which pawnable goods are taken and that they have minimal effect on other types of criminal activity.

V.B. Individual Crime Rates and Urban versus Rural.

Table 6 reports results for the individual crime categories, and only coefficients on the pawnshop variable are reported in order to conserve space. The same patterns that were evident in the aggregated data emerge here. Murders, rapes, aggravated assaults, and motor vehicle thefts do not have statistically significant relationships to pawnshops after instrumenting. Moreover, almost all of these four crime types have 2SLS estimates that are smaller than their OLS counterparts. Only the estimate for aggravated assault, when the pawn-specific instruments alone are used, is larger than its OLS result, but when all the usury laws are used, its instrumented result about half that of OLS. In contrast, the size of the instrumented results for robbery, burglary, and larceny are only slightly below their OLS estimates. The larceny ones enjoy statistical significance in all specifications, while those for burglary remain marginally significant after instrumenting. Robbery is insignificant even in OLS, but instrumenting does not much affect its point estimate. That much of the causal impact of pawnshops on crime occurs through larceny is consistent with anecdotes of persons shoplifting with the intent of offering the swag to pawnbrokers (Larson, 1999).

As described in Section II, pawnshops' impact on crime rates may only be felt in urban areas where the lower cots of transporting goods and greater anonymity make such shops convenient destinations for stolen goods.[29] This hypothesis is tested by contrasting the results

[29] Early work on distance and crime identified both anonymity and the effort of moving loot to be important considerations. Turner (1969) found that the location of delinquents' offending peaked beyond the blocks immediately next to their residences where the risk of recognition might be greatest. Hakim and Weinblatt (1984) theorized that offenders would choose to steal bulkier items closer to home. Interestingly, the NPA (1997) notes that most pawnshop customers reside within two miles of the shop that they patronize.

presented thus far, which again used a sample of counties with populations of at least 50,000, with results from samples of less populous counties. Table 7 repeats the baseline results and presents estimates on samples of counties with fewer than 50,000 persons and fewer than 25,000. As one might expect, more rural samples have both fewer pawnshops and less crime. In counties with fewer than 50,000, the mean rate of robbery, burglary, and larceny is 2359.38, the mean rate of murder, rape, assault, and auto theft is 390.77, and the mean rate of pawnshops is 5.88. In counties with fewer than 25,000, these figures are 2050.11, 350.57, and 5.02, respectively.

The OLS estimates in columns (3) and (5) imply impacts of pawnshops on crime no larger than the instrumented results in the more urban sample did. A 10% increase in the mean pawnshop rate in counties with fewer than 50,000 persons would raise the mean rate of robbery, burglary, and larceny by 0.8 and the mean rate of murder, rape, assault, and auto theft by 0.6 of a percentage point. For counties with fewer than 25,000, these responses are 0.6 and 0.4, respectively.

The 2SLS results furnish an even sharper contrast of the behavioral impact of urban and rural pawnshops. In the sample of counties with less than 50,000 persons, instrumenting reduces the positive and significant estimate of the sum of murder, rape, assault, and auto theft to an insignificant negative. Moreover, the only crime category that is significantly affected by pawnshops after instrumenting is larceny and only at the 10% level. In the sample of counties with fewer than 25,000, the results are even more striking with four of the seven individual crime types bearing negative coefficients. In this column, pawnshops do not have a significant causal

effect on any of the crime categories. Thus, only pawnshops in more populous counties appear to stimulate criminal activity.[30]

V.C. Robustness.

To assess the sensitivity of the estimates, Table 8 presents the results of various alternative specifications. Row (A) repeats the baseline estimates from earlier tables, while row (B) reports results excluding the dummy variables for handgun regulations. If guns correlate with both pawnshops and crime, the exclusion of gun measures from the right-hand side may upwardly bias the estimated effect of pawnshops on crime. Excluding the gun variables does appear to inflict such a bias, as the instrumented estimates for robbery, burglary, and larceny are slightly larger than the OLS results. The effect of the removal of other covariates such as policing variables, public assistance variables, and CCOs, are given in rows (C), (D), and (E), respectively. Overall, the results are fairly robust to these changes. The instrumented results for robbery, burglary, and larceny are all statistically significant, and their magnitudes are within 10% of the baseline estimate. In addition, the instrumented results for the remaining crime categories are statistically insignificant and well below the OLS magnitudes.

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[30] A possible objection to these results is that the pawnbroking industry has been expanding in recent years (see Caskey, 1994), while crime rates have fallen. However, this growth has been led by four publicly-traded companies that operate chains of pawnshops and that have sought to improve the public image of pawnbroking. (These companies are Cash America International, EZCORP, First Cash, and Pawnmart). With their professional management techniques and the greater costs that negative publicity could impose on their reputations, their shops may be less likely to accept stolen property. Because these firms' shops are located primarily in Florida, Georgia, Louisiana, and Texas, the instruments lacked sufficient variation to identify the impact of these publicly-traded shops on crime. However, excluding them and conducting the analysis solely on privately-owned shops did not materially affect the results.

According to the author's counts of pawnshops, Georgia is the state with the greatest number of pawnshops per capita (over ten per 100,000 versus 5.08 in the rest of the country). Such a dense concentration of pawnshops might raise the concern that the results are driven by the potentially anomalous behavior of this particular state. To test this possibility, row (F) reports the results of regressions when observations for Georgia are excluded. Doing so reduces the sample size by 33 observations. However, the results are not severely altered by this change. Instrumented estimates for robbery, burglary, and larceny remain statistically significant and imply a 10% change in the mean pawnshop rate will increase the rate of these crimes by 0.77 of a percentage point. Moreover, when pawnshops are modeled as endogenous, the estimates for murder, rape, assault, and auto theft are insignificant and are at most a third of their size when pawnshops are treated as exogenous.

A further assessment of the sensitivity of the results is to express all of the level variables in natural logarithms. Doing so places less weight on observations with outlying values and allows the coefficients to be interpreted as elasticities. A cost of this specification is that observations with zero values are excluded, and consequently, the sample is reduced to 427 observations. Much of this reduction is due to the fact that CCOs are found only in the most urban areas. Row (G) presents the results of using this logarithmic specification, and they display a pattern similar to that of earlier estimates. A correlation between pawnshops and the summed rate of murder, rape, assault, and auto theft loses significance and becomes smaller in magnitude upon instrumenting. Meanwhile, the relationship between pawnshops and the summed rate of robbery, burglary, and larceny does not weaken.

A final test of robustness is given in row (H) of Table 10. Rather than examining the number of crimes, these regressions consider the value of goods stolen. Estimates of the average amount taken during the commission of particular types of crimes are available only at the national, not county, level. Therefore, the dependent variables in row (H) are the number of crimes multiplied by the national average of the value taken. The results from using these dependent variables are similar to those of earlier estimates. Instrumenting does not much reduce the coefficient in the robbery, burglary, and larceny equation and does not eliminate its statistical significance. Weighting the crimes in this fashion generates estimated impacts remarkably close to those arising from simple counts of crimes. For example, a 10% increase in the pawnshop rate would raise the mean property loss rate by 0.9 of a percentage point. In contrast, the pawn coefficient in the equation for the other crimes does lose statistical significance, and the point estimates are extremely close to zero.

VI. Public Policy.

Does the finding that pawnbroking imposes the negative externality of an increased incidence of certain crimes, imply a role exist for further regulation of the industry? To address this public policy question, Table 9 provides a rough calculation of the social costs and benefits of pawnshops. Column (1) presents the increased number of robberies, burglaries, and larcenies estimated to ensue from the introduction of one additional pawnshop at the margin for a county at the sample mean. The estimates are based on the individual crime category estimates reported in column (3) of Table 6, and they represent the number of additional crimes reported to police as the result of the presence of an additional pawnshop. Column (2) uses reporting rates from the

National Crime Victimization Survey (Bureau of Justice Statistics, 1997) to adjust for unreported crimes, and doing so increases the estimated number of crimes engendered by one more pawnshop from 60 to nearly 200.

The social costs of these crimes include both the property lost and the pain and suffering of victims. Column (3) shows the average value of property lost for each of these crime categories. These values are taken from the FBI (1997) and consequently are based upon reported crimes. Since crimes in which property losses are low are perhaps those less likely to be reported, the use of these values may overstate the total value of lost property. However, other costs such as the time lost from work, medical expenses, and precautions taken by potential victims, are not included in this table's calculation, and their exclusion may imply an understatement of the social cost of these crimes.

Column (4) gives the per-crime pain and suffering costs that are taken from Cohen's (1988) estimates and that have been adjusted to 1996 dollars. While trivial for larceny, much pain and suffering accompanies violent crimes like robbery. In column (5), the estimates of the additional crimes are multiplied by the property loss values to obtain a total dollar value of the property stolen as a result of an additional pawnshop. According to this calculation, the presence of one more pawnshop will stimulate almost $131,000 in thefts. An additional $54,000 of personal harms will attend these crimes, as shown in column (6).

These estimated losses can be placed in two contexts. First, only $45,000 of the estimated $131,000 in additional theft caused by the marginal pawnshop will be reported to police. If this $45,000 marginal increase is also representative of the average pawnshop, it suggests that the approximately 12,000 pawnshops nationwide are responsible for over half a

billion dollars of the reported property thefts annually. Put differently, about 8% of the $6 billion reported to police as stolen during the commission of robberies, burglaries, and larcenies may be due to the presence of pawnshops.

A second context into which the costs of the marginal pawnshop can be placed is to weigh them against the benefits of the additional pawnshop.[31] Since a pawnshop's primary service is lending, the social benefits of pawnbroking can be approximated by the profits earned on its lending activities. Because pawnors of stolen goods are unlikely to return to reclaim the items and because fees are collected only upon redemption of the pawn, the fees paid should measure solely the benefits accruing to legitimate customers. In addition, those pawns that go unredeemed, even if they are ill-obtained, are not forever lost. They are eventually purchased by customers who patronize pawnshops for their offerings of used merchandise. The social gains from such trade may be approximated by the profits from a pawnshop's retail trade. Therefore, revenues from loan fees and retail sales are an estimate of a pawnshop's social value.

Since most pawnshops are proprietorships, information on their revenues are not publicly available.[32] However, the SEC-filings of the publicly-traded pawnshop chains provide a source for these data, and because these chains have been leading the expansion in the number of shops, they are arguably representative of the marginal pawnshop. Data from EZCorp is used, as it

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[31] Pawnshops may also provide benefits of crime-reduction by giving law enforcement access to transactions on the edge of the illegal sector. For example, pawnbrokers have sometimes provided clues to the whereabouts of wanted fugitives (Walsh, 1999, pp. 47-48), and via Brady Law background checks, some pawnshops have aided in confiscating guns from convicted felons (NPA, 1999). In the absence of systematic data on the extent of these phenomenon, such potential benefits are excluded from these calculations.

[32] Internal Revenue Service's data on income from sole proprietorships aggregates pawnshops with other sellers of used and antique goods and hence cannot be used here.

alone among the public pawn companies enumerates revenue from pawn loans separately from that of retail sales. In the fiscal year ended September 30, 1996, it received on a per-shop basis over $282,000 in revenue from pawn loans. This firm also had total assets of almost $566,000 per shop[33] that when valued at the prime interest rate of 8.25% in 1996, suggests a per-shop opportunity cost of capital of just over $46,000. Thus, the profit from pawn lending is roughly $236,000, which exceeds the social losses of additional crimes by over $50,000. Thus, the social benefits of pawn lending alone outstrip the social costs of higher crime, and the estimates do not support banning or restricting entry into the pawn industry. Also, this firm had on a per-shop basis over $417,000 in revenue from retail sales, while the cost of goods sold was only $359,000. The resulting $58,000 profit on retail sales further offsets the social losses of additional crime.

However, a role for regulation, short of outright prohibition, may still exist. Recent developments in computer technology allow for more efficient processing of pawn slips by law enforcement agencies. For example, this year the Nashville Metro Police Department developed software that allows pawnbrokers to file their slips electronically and Internet users to search the database of slips for stolen items.[34] If effective at increasing the amount of stolen property recovered from pawnshops, this software should deter the pawning of ill-gotten goods in two ways. First, it should magnify the thief-turned-pawnor's odds of apprehension. Secondly, as police confiscation of stolen merchandise becomes more likely, pawnbrokers should be less willing to accept questionable items.

While it is too early to estimate the deterrent impact of this program, its economic worth may still be evaluated by asking what fraction of the $131,000 in stolen goods would need to be

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[33] Author's calculations from EZCorp (1996).

[34] See www.police.nashville.org/pawn.html.

recovered to justify its use? Because the Nashville Metro Police is donating it to any law enforcement agency that requests it, the marginal cost of the software is zero (Pence, 1999). One officer is required to maintain the associated website, and the mean salary of an experienced officer is roughly $40,000 (Sourcebook, 1999, table 1.47). Since Nashville has almost 100 pawnshops, only a hundredth of the officer's time would be allocated to monitoring the marginal pawnshop for a cost of $400. In addition, if each of the victims of the almost 200 additional criminal incidents caused by the marginal pawnshop spent an hour searching the website, the cost of their time, when valued at the $5.15 minimum wage, would be $1030. Thus, the total cost of property recovery would be $1,430. Hence, for the use of this software to be socially efficient, the recovery of 1.1% of these goods would be required. Since this rate is not much higher than the pawn industry's own estimate of the current recovery rate of about 0.5%,[35] only a small increase would be needed to justify the use of this technology.

VII. Conclusion.

This paper explores the responsiveness of criminal behavior to the benefits of crime by examining the case of pawnshops. It finds that pawnshops increase the rates of robbery, burglary, and larceny, but have no effect on the incidence of murders, rapes, aggravated assaults,

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[35] No reliable estimates of what fraction of pawnshop merchandise is stolen exist. Similarly, estimates of the total value of goods pawned annually are unavailable. The National Pawnbrokers Association claims that about one half of one percent of a typical pawnshop's inventory is shown to be stolen, but it does not provide a source for this estimate (NPA, 1998). In contrast, one police officer believes this fraction is much higher: "With some of these places, if you were to walk in there with something that could somehow suck up everything that's stolen, the shelves would be empty" (quoted in Glover and Larrubia, 1996a). Still, an estimate can be made from EZCORP (1996), whose average shop made $610,000 in pawn loans that year. Relative to the estimated value of additional crimes in column (5) of Table 9, it indicates that in terms of dollar value over 20% of the goods incoming to the marginal pawnshop are stolen.

or motor vehicle thefts. The estimates indicate that a 10% increase in the number of pawnshops will raise mean rates of robbery, burglary, and larceny by roughly 1%. The mechanism by which pawnshops increase the rate of these offenses is presumably through the receipt of stolen property. While the marginal pawnshop is estimated to be a conduit for over $131,000 worth of stolen goods, the benefits enjoyed by the shop's legitimate customers exceed this value. Still, new technologies to track pawn slips hold promise for reducing thieves' incentive to use pawnshops as outlets for their takings.

Appendix A.
Definitions of Index I Crime Categories.

Violent Crimes:

1. Homicide: the killing of one human being by another either through an act of willful (non-negligence) or through gross negligence.

2. Rape: the carnal knowledge of a female forcibly or against her will.

3. Robbery: the taking or attempting to take anything of value from the care, custody, or control of a person or persons by force or the threat of force or violence with or without putting the victim into fear.

4. Aggravated Assault: unlawful attack of one person upon another for the purpose of inflicting some severe or aggravated bodily injury. This type of assault is usually accompanied by the use of a weapon or by means likely to produce death or great bodily harm.

Property Crimes:

5. Burglary or "Breaking and Entering": the unlawful entry of a structure to commit a theft.

6. Larceny: the unlawful taking, carrying, leading, or riding away of property from the possession of another.

7. Motor Vehicle Theft: the theft or attempted theft or a motor vehicle.

Source: FBI (1984)

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Table 1.
Summary Statistics: Means

Variable	Full sample	Counties with populations greater than 50,000
Pawnshop Rate	6.05	6.46
	(9.62)	(9.06)
Summed Rate of Burglary,	2,905.16	4,093.31
Robbery, and Larceny	(1,909.50)	(1,1816.49)
Robbery Rate	56.26	124.42
	(107.41)	(161.28)
Burglary Rate	735.29	930.70
	(491.84)	(486.36)
Larceny Rate	2,113.61	3,038.19
	(1,473.14)	(1,335.02)
Summed Rate of Murder, Rape,	498.82	734.03
Assault, and Auto Theft	(455.95)	(555.84)
Murder Rate	5.17	5.59
	(10.34)	(6.75)
Rape Rate	26.70	35.76
	(26.84)	(21.44)
Assault Rate	260.31	336.71
	(277.67)	(280.03)
Auto Theft Rate	206.64	355.97
	(234.31)	(323.05)
Check-Cashing Outlet Rate	0.69	1.52
	(2.26)	(2.91)
% African-American	9.82	10.37
	(15.43)	(12.42)
% Urban and in Core	37.91	63.91
	(29.51)	(24.49)
% Urban and outside Core	30.17	44.77
	(30.15)	(38.31)
% Renters	25.79	28.61
	(7.63)	(8.63)
% Housing Vacant	15.17	9.90
	(10.95)	(6.66)

Table 1 (continued).
Summary Statistics: Means

Variable	Full sample	Counties with populations greater than 50,000
State Unemployment Rate	4.95	5.26
	(1.12)	(1.03)
Per Capita Income	19,350.41	22,345.60
	(4,559.81)	(5,200.57)
% Receiving Public Assistance	9.27	8.15
	(4.93)	(3.80)
Public Assistance Amount per Recipient	1,219.64	1,262.95
	(283.45)	(247.30)
% Households Female-Headed	9.51	10.49
	(3.95)	(2.98)
Sworn Officers Per Capita	13.63	14.87
	(3.70)	(5.23)
Pawnslips Forwarded to Police Daily or Weekly (Dummy)	0.40	0.48
	(0.49)	(0.50)
Waiting Period to Purchase Handgun (Dummy)	0.17	0.19
	(0.38)	(0.39)
"Shall Issue" Law (Dummy)	0.65	0.59
	(0.48)	(0.49)
N	2,567	808

Note: Standard deviations are in parentheses.

Appendix B.
State Usury Limits

State	Estimated Maximum A.P.R. on Two Month $100 Pawn	Pawn Limit Includes Only Interest, not Fees?	Contract Rate Maximum	Legal Rate Maximum
AK			10	10.5
AL	300		8	6
AR			10	6
AZ	162			10
CA	135		10	7
CO	120			8
CT	24		12	8
DC	24		24	6
DE	36	Yes	10	10
FL	300		18	10
GA	300		16	7
HI	240		13	10
IA			8	5
ID				12
IL	108		9	5
IN	276			8
KS	120		15	10
KY	264		9	8
LA	180		12	12
MA				6
MD			8	6
ME	300			6
MI	42		7	5
MN	36	Yes	8	6
MO	24	Yes	10	9
MS	300		10	8
MT			15	10
NC	264		16	8
ND			11	6
NE			16	6
NH				10
NJ	36		16	6
NM	84			15
NV	126			10
NY	54		16	16

Table 2 (continued).
State Usury Limits

State	Estimated Maximum A.P.R. on Two Month $100 Pawn	Pawn Limit Includes Only Interest, not Fees?	Contract Rate Maximum	Legal Rate Maximum
OH	84		8	10
OK	240			6
OR	108			9
PA	36		9	6
RI	60		21	12
SC	240			6
SD				15
TN	144		12	10
TX	180		24	6
UT				10
VA	60	Yes	12	8
VT	36		12	12
WA	108		12	12
WI	36			5
WV			8	6
WY	240			7

Note: Blank entries indicate the absence of that regulation in the state.

Appendix C.
Panel A.
Impact of Pawnbroker's Lobby on State Pawn Charges:
Presence of a Limit on Pawn Charges

	OLS		Probit	
Variable	(1)	(2)	(3)	(4)
No. of Pawnshops in NPA per 100,000 Population	0.0058 (0.0451)		0.0268 (0.1471) [0.0085]	
% of Pawnshops Members of NPA		0.0064 (0.0043)		0.0222 (0.01490 [0.0069]
N	51	51	51	51

Notes: Standard errors are in parentheses. Marginal effects are in brackets. Coefficients denoted by * are statistically significant at the 5% level.

Panel B.
Impact of Pawnbroker's Lobby on State Pawn Charges:
Value of a Limit on Pawn Charges

	OLS		Tobit	
Variable	(1)	(2)	(3)	(4)
No. of Pawnshops in NPA per 100,000 Population	6.8268 (9.8681)		7.1710 (12.0395) [1.8279]	
% of Pawnshops Members of NPA		1.1241 (0.9454)		1.7338 (1.1719) [0.4420]
N	51	51	51	51

Notes: Standard errors are in parentheses. Marginal effects are in brackets. Coefficients denoted by * are statistically significant at the 5% level.

Table 2.A.
Impact of Usury Laws on Geographic Distribution of Pawnshops:
Average Number of Pawnshops per 100,000

Type of Usury Limit	Predicted Effect on Pawnshop Rate	States with Regulation	States without Regulation	Difference
Limit on Pawn Charges	Fewer	6.411 (0.349)	6.456 (0.671)	-0.046 (0.756)
Limit on Pawn Charges, Observations with APR < 300%	Fewer	4.158 (0.219)	6.456 (0.671)	-2.298* (0.706)
Limit Only on Interest, not Fees, Among Those with Limit on Charges	Greater	6.588 (0.374)	4.194 (0.483)	2.394* (0.611)
Contract Limit	Greater	6.791 (0.391)	5.077 (0.420)	1.714* (0.573)

Notes: Standard errors are in parentheses. Differences denoted by * are statistically significant at the 0.05% level.

Table 2.B.
Impact of Usury Laws on Geographic Distribution of Pawnshops:
Correlations between Value of Limits and Pawnshops per 100,000

Type of Usury Limit	Predicted Sign	Correlation
Maximum Pawn APR	Positive	0.554 (0.0001)
Maximum Legal Rate	Positive	0.1954 (0.0001)
Maximum Contract Rate	Negative	0.0133 (0.7055)

Note: Probability of a greater rho is given in parentheses.

Table 3.
Usury Laws and Interest Rate Limits as Predictors of Pawnshops

	Predicted Sign	Dependent Variable: Pawnshop Rate		
Variable	(1)	(2)	(3)	(4)
Limit on Pawnshop Charges		-12.277*	-11.738	
(Dummy)	Negative	(3.616)	(3.290)	
Maximum Effective Pawnshop		0.057*	0.055*	
APR * Pawn Limit Dummy	Positive	(0.017)	(0.014)	
Only Pawn Interest, Not Fees,		9.791*	8.134*	
Limited (Dummy)	Positive	(3.937)	(3.021)	
Maximum Legal Rate			0.377**	0.588**
	Positive		(0.218)	(0.327)
Limit on Contract Interest Rate			3.813**	3.278
(Dummy)	Positive		(2.171)	(3.155)
Maximum Contract Interest			-0.124	-0.216
Rate * Contract Limit Dummy	Positive		(0.081)	(0.251)
Check-Cashing Outlet Rate		1.262*	1.236*	1.222*
		(0.186)	(0.177)	(0.205)
% African American		0.047	0.043	0.063
		(0.086)	(0.090)	(0.100)
% Urban and in Urban Core		0.030	0.043*	0.064*
		(0.026)	(0.022)	(0.031)
% Urban and outside Urban Core		-0.017	-0.022**	-0.023*
		(0.012)	(0.011)	(0.011)
% Renters		-0.132*	-0.136	-0.138
		(0.059)	(0.070)	(0.081)
% Housing Vacant		0.086	0.111*	0.188*
		(0.072)	(0.060)	(0.092)
State Unemployment Rate		0.534	-0.237	-1.345**
		(0.637)	(0.679)	(0.716)
Per Capita Income		-0.00011*	-0.00009	-.00008**
		(0.00005)	(0.00006)	(.00005)
% Receiving Public Assistance		0.160	0.139	0.110
		(0.274)	(0.270)	(0.281)

Table 3 (continued).
Usury Laws and Interest Rate Limits as Predictors of Pawnshops

	Predicted Sign	Dependent Variable: Pawnshop Rate		
Variable	(1)	(2)	(3)	(4)
Public Assistance Amount per		0.006	0.005	0.007
Recipient		(0.004)	(0.004)	(0.006)
% Household Female-Headed		-0.339	-0.132	-0.280
		(0.624)	(0.605)	(0.641)
Sworn Officers per Capita		0.216	0.154	0.063
		(0.153)	(0.133)	(0.131)
Pawnslips Forwarded to Police		2.219	1.663	-1.902
Daily or Weekly (Dummy)		(2.004)	(1.874)	(1.843)
Waiting Period to Purchase		-5.378*	-5.021*	-3.121*
Handgun (Dummy)		(2.233)	(1.786)	(1.194)
License Required to Purchase		-3.875*	-4.410*	-4.078*
Handgun		(1.167)	(1.245)	(1.683)
"Shall Issue" Law (Dummy)		-1.149	-1.655	-0.679
		(2.288)	(2.023)	(2.330)
N		808	808	808
R^2		.5498	.5682	.4893
Census Region Dummies?		Yes	Yes	Yes
F-statistic on Joint Significance of Usury Laws and Interest Rate Limits		3.90	4.76	1.63
P-value on Joint Significance of Usury Laws and Interest Rate Limits		0.0142	0.0007	0.1943

Notes: Standard errors are in parentheses. All equations also include an intercept term. Coefficients denoted by * are statistically significant at the 5% level, and those by ** are at the 10% level.

Table 4.
Estimates of the Impact of Pawnshops on Rates Robbery, Burglary, and Larceny

Variable	OLS (1)	OLS (2)	OLS (3)	2SLS (4)	2SLS (5)	LIML (6)	LIML (7)
Pawnshop Rate	81.650*	62.798*	60.977*	52.466*	53.405*	52.420*	52.797*
	(9.741)	(6.724)	(6.295)	(21.874)	(20.114)	(15.830)	(14.841)
Check-Cashing Outlet Rate			23.545	13.076	14.231	13.020	13.483
			(31.330)	(31.125)	(30.035)	(25.701)	(24.791)
% African American			12.856	13.464	13.397	13.468**	13.441**
			(12.827)	(12.965)	(12.942)	(8.099)	(8.089)
% Urban and in Urban Core			20.700*	21.170*	21.118*	21.173*	21.152*
			(4.652)	(4.962)	(4.979)	(4.345)	(4.334)
% Urban and outside Urban Core			0.746	0.533	0.574	0.552	0.560
			(2.6090)	(2.737)	(2.718)	(2.542)	(2.539)
% Renters			32.070*	30.832*	30.969*	30.826*	30.881*
			(10.737)	(10.295)	(10.301)	(7.611)	(7.568)
% Housing Vacant			53.931*	55.440*	55.274*	55.448*	55.381*
			(8.893)	(9.525)	(9.419)	(7.664)	(7.601)
State Unemployment Rate			117.338	111.092	111.781	111.058**	111.335**
			(81.935)	(84.580)	(84.049)	(59.059)	(58.915)
Per Capita Income			-0.0025	-0.0036	-0.0035	-0.0036	-0.0036
			(0.0175)	(0.0175)	(0.0177)	(0.0123)	(0.00123)
% Receiving Public Assistance			-90.069*	-89.638*	-89.685*	-89.635*	-89.654*
			(41.369)	(41.301)	(41.346)	(26.677)	(26.673)
Public Assistance Amount per Recipient			0.094	0.158	0.151	0.158	0.155
			(0.270)	(0.264)	(0.254)	(0.306)	(0.303)

Table 4 (continued).
Estimates of the Impact of Pawnshops on Rates Robbery, Burglary, and Larceny

Variable	OLS (1)	OLS (2)	OLS (3)	2SLS (4)	2SLS (5)	LIML (6)	LIML (7)
% Household Female-Headed			219.485*	217.595*	217.804*	217.585*	217.669*
			(70.184)	(71.432)	(71.531)	(47.039)	(47.019)
Sworn Officers per Capita			12.660	13.830	13.701	13.836	13.784
			(18.840)	(18.814)	(18.964)	(14.315)	(14.293)
Pawnslips Forwarded to Police			196.940	187.278	188.345	187.226**	187.654**
Daily or Weekly (Dummy)			(151.475)	(159.755)	(156.741)	(110.955)	(110.768)
Waiting Period to Purchase			-132.105	-156.790	-154.065	-156.922	-155.830
Handgun (Dummy)			(153.478)	(141.613)	(139.564)	(136.816)	(135.869)
License Required to Purchase			262.272	235.017	238.026	234.871**	236.077**
Handgun			(197.065)	(198.702)	(192.180)	(137.831)	(136.687)
"Shall Issue" Law (Dummy)			601.046*	604.159*	603.815*	604.176*	604.038*
			(276.807)	(285.479)	(285.166)	(184.693)	(184.665)
N	808	808	808	808	808	808	808
R^2	0.1658	0.2334	0.5644				
Census Region Dummies?	No	Yes	Yes	Yes	Yes	Yes	Yes
Instruments Used	None	None	None	Pawn-specific only	All	Pawn-specific only	All

Notes: Standard errors are in parentheses. All equations also include an intercept term. Coefficients denoted by * are statistically significant at the 5% level, and those by ** are at the 10% level.

Table 5.
Estimates of the Impact of Pawnshops on Rates of Murder, Rape, Assault, and Auto Theft

Variable	OLS (1)	OLS (2)	OLS (3)	2SLS (4)	2SLS (5)	LIML (6)	LIML (7)
Pawnshop Rate	17.500*	12.859*	12.348*	10.254	3.983	10.105	2.553
	(3.399)	(4.052)	(3.754)	(9.551)	(10.912)	(8.435)	(6.634)
Check-Cashing Outlet Rate			84.09	10.985	18.698	11.169	20.457*
			(13.053)	(13.469)	(14.309)	(7.763)	(7.627)
% African American			5.987	6.137	6.585	6.148*	6.687*
			(4.139)	(4.224)	(4.120)	(2.410)	(2.445)
% Urban and in Urban Core			0.513	0.629	0.975	0.637	1.054
			(1.353)	(1.413)	(1.470)	(1.294)	(1.311)
% Urban and outside Urban Core			2.584*	2.807*	2.664*	2.803*	2.632*
			(0.614)	(0.673)	(0.702)	(0.756)	(0.767)
% Renters			7.774	7.469*	6.558*	7.448*	6.350*
			(2.740)	(2.929)	(2.842)	(2.269)	(2.293)
% Housing Vacant			11.313*	11.684*	12.795*	11.710*	13.049*
			(2.639)	(2.709)	(3.007)	(2.288)	(2.306)
State Unemployment Rate			64.971*	63.434*	58.832**	63.325*	57.783*
			(30.157)	(31.097)	(32.247)	(17.584)	(17.819)
Per Capita Income			0.0072	0.0070	0.0062	0.0070**	00.060**
			(0.0062)	(0.0060)	(0.0060)	(0.0037)	(0.0037)
% Receiving Public Assistance			-10.043	-9.937	-9.620	-9.930	-9.547
			(13.604)	(13.581)	(13.463)	(7.934)	(8.058)
Public Assistance Amount per Recipient			0.253*	0.269	0.316	0.270*	0.327
			(0.114)	(0.115)	(0.130)	(0.091)	(0.092)

Table 5 (continued).
Estimates of Pawnshops on Rates of Murder, Rape, Assault, and Auto Theft

Variable	OLS (1)	OLS (2)	OLS (3)	2SLS (4)	2SLS (5)	LIML (6)	LIML (7)
% Household Female-Headed			81.145*	80.680*	79.287*	80.646*	78.970*
			(19.605)	(19.919)	(20.191)	(13.993)	(14.207)
Sworn Officers per Capita			8.013	8.301	9.163	8.322**	9.359*
			(6.624)	(6.526)	(6.237)	(4.260)	(4.321)
Pawnslips Forwarded to Police			115.446**	113.068**	105.951	112.899*	104.328*
Daily or Weekly (Dummy)			(63.892)	(68.941)	(75.956)	(33.024)	(33.491)
Waiting Period to Purchase			171.909*	165.835*	147.650*	165.402*	143.503*
Handgun (Dummy)			(38.285)	(43.535)	(47.861)	(40.817)	(41.187)
License Required to Purchase			0.276	-6.431	-26.510	-6.909	-31.088
Handgun			(75.769)	(80.401)	(80.603)	(41.145)	(41.464)
"Shall Issue" Law (Dummy)			144.755**	145.521**	147.814**	165.402*	148.337*
			(80.453)	(82.299)	(90.026)	(40.817)	(55.791)
N	808	808	808	808	808	808	808
R^2	0.0911	0.3584	0.5883				
Census Region Dummies?	No	Yes	Yes	Yes	Yes	Yes	Yes
Instruments Used	None	None	None	Pawn-specific only	All	Pawn-specific only	All

Notes: Standard errors are in parentheses. All equations also include an intercept term. Coefficients denoted by * are statistically significant at the 5% level, and those by ** are at the 10% level.

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Table 6.
Estimates of the Impact of Pawnshops on Individual Crime Categories

Dependent Variable	OLS (1)	2SLS (2)	2SLS (3)	LIML (4)	LIML (5)
Summed Rate of Robbery, Burglary, and Robbery	60.977*	52.466*	53.405*	52.420*	52.797*
	(6.295)	(21.874)	(20.114)	(15.830)	(14.841)
Robbery Rate	1.337	1.132	1.207	1.125	1.201
	(0.916)	(2.4874)	(2.190)	(1.249)	(1.242)
Burglary Rate	15.394*	13.692**	13.431**	13.196**	12.627*
	(3.554)	(8.144)	(7.420)	(6.984)	(5.696)
Larceny Rate	44.247*	37.642*	38.767*	37.533*	28.355*
	(4.344)	(13.731)	(13.059)	(12.381)	(11.530)
Summed Rate of Murder, Rape, Assault, and Auto Theft	12.348*	10.254	3.983	10.015	2.553
	(3.754)	(9.551)	(10.912)	(8.835)	(6.634)
Murder Rate	-0.026	0.0068	-0.008	-0.074	-0.097
	(0.044)	(0.088)	((0.086)	(0.065)	(0.060)
Rape Rate	0.427*	-0.303	-0.224	-0.320	-0.310
	(0.127)	(0.618)	(0.584)	(0.424)	(0.230)
Assault Rate	8.890*	9.138	4.242	9.165	1.833
	(2.744)	(7.506)	(7.556)	(6.953)	(4.062)
Auto Theft Rate	2.968*	1.486	0.053	1.470	-0.032
	(1.264)	(3.727)	(3.890)	(3.828)	(2.603)
Instruments Used	None	Pawn-specific only	All	Pawn-specific only	All

Notes: Equations above contain the same covariates as the regression reported in columns (3) through (7) of Tables 4 and 5. Coefficients denoted by * are statistically significant at the 5% level and those by ** are at the 10% level.

Table 7.
Estimates of the Impact of Pawnshops on Individual Crime Categories by County Population Size

	Counties with Pop. >50,000		Counties with Pop.<50,000		Counties with Pop.<25,000	
Dependent Variable	(1)	(2)	(3)	(4)	(5)	(6)
Summed Rate of Robbery, Burglary,	60.977*	53.405*	37.228*	18.834	23.072*	5.343
and Robbery	(6.295)	(20.114)	(9.916)	(17.044)	(4.753)	(18.005)
Robbery Rate	1.337	1.207	0.633*	0.128	0.410*	-0.118
	(0.916)	(2.190)	(0.141)	(0.603)	(0.118)	(0.577)
Burglary Rate	15.394*	13.431**	6.431*	-2.647	3.987*	-3.534
	(3.554)	(7.420)	(2.046)	(5.671)	(1.551)	(6.408)
Larceny Rate	44.247*	38.767*	30.164*	21.352**	18.675*	8.995
	(4.344)	(13.059)	(8.118)	(12.567)	(3.740)	(12.747)
Summed Rate of Murder, Rape,	12.348*	3.983	3.697*	-2.172	3.107*	0.780
Assault, and Auto Theft	(3.754)	(10.912)	(0.832)	(7.656	(0.883)	(6.622)
Murder Rate	-0.026	-0.008	-0.033	-0.155	-0.062	-0.207
	(0.044)	((0.086)	(0.031)	(0.170)	(0.041)	(0.092)
Rape Rate	0.427*	-0.224	0.158*	-0.844	0.178*	-0.953
	(0.127)	(0.584)	(0.081)	(0.483)	(0.102)	(0.633)
Assault Rate	8.890*	4.242	2.076*	-1.641	1.916*	1.389
	(2.744)	(7.556)	(0.589)	(6.103)	(0.540)	(4.989)
Auto Theft Rate	2.968*	0.053	1.496*	0.441	1.075	0.551
	(1.264)	(3.890)	(0.386)	(2.247)	(0.402)	(2.374)
Instruments Used	None	All	None	All	None	All
N	808	808	1,759	1,759	1,231	1,231
F-statistic on Joint Sig. of IVs		4.760		6.840		8.850
P-value of Joint Significance of IVs		0.0007		<0.00001		<0.00001

Notes: Equations above contain the same covariates as the regression reported in columns (3) through (7) of Tables 4 and 5. Coefficients denoted by * are statistically significant at the 5% level and those by ** are at the 10% level.

Table 8.
Sensitivity of Estimated Impacts of Pawnshops on Crime Categories

	Dependent Variable: Rate of Burglary, Robbery, and Larceny			Dependent Variable: Rate of Murder, Rape, Assault, and Auto Theft			
Specification	OLS (1)	2SLS (2)	LIML (3)	OLS (4)	2SLS (5)	LIML (6)	(7)
(A) Baseline Estimates (Repeated from Earlier Tables)	60.977*	53.405*	52.797*	12.348*	3.983	2.553	0.0007
	(6.295)	(20.114)	(14.841)	(3.754)	(10.912)	(6.634)	
(B) Excluding Dummies for Gun Licensing, Waiting, "Shall Issue"	62.260*	64.328*	64.615*	11.733*	9.856	9.403	0.0092
	(7.294)	(20.556)	(16.394)	(4.081)	(11.277)	(6.095)	
(C) Excluding Sworn Officers and Pawnslips to Police Dummy	60.549*	48.944*	64.615*	12.115*	-0.419	-2.234	0.0001
	(6.746)	(22.351)	(16.394)	(4.265)	(11.075)	(6.723)	
(D) Excluding Public Assistance Variables	59.940*	51.135*	47.970*	13.260*	5.567	4.492	0.0063
	(5.808)	(21.205)	(14.298)	(3.950)	(11.486)	(6.387)	
(E) Excluding Check-cashing Outlets	57.498*	56.343*	50.317*	13.591*	3.493	1.502	0.0043
	(6.635)	(19.514)	(14.352)	(3.593)	(12.022)	(6.373)	
(F) Excluding Observations in GA	65.185*	52.119*	56.233*	14.242*	4.388	3.153	0.0010
	(5.341)	(22.526)	(14.852)	(3.331)	(11.707)	(6.753)	
(G) Logarithmic Specification	0.1122*	0.1124*	50.334*	0.1143*	0.0817	0.0581	<0.0001
	(0.0197)	(0.0435)	(15.187)	(0.0408)	(0.0976)	(0.0756)	
(H) Crimes Weighted by Average Value of Property Taken	45,285.9*	39,635.7*	0.1124*	16,079.9*	270.4	-191.3	0.0007
	(6,028.4)	(16,724.6)	(0.0414)	(6,849.4)	(21,084.4)	(14,101.0)	
Instruments Used	None	All	None	All	None	All	

Notes: Equations above contain the same covariates as the regression reported in columns (3) through (7) of Tables 4 and 5. Coefficients denoted by * are statistically significant at the 5% level and those by ** are at the 10% level. Standard errors are in parentheses.

Table 9.
Estimated Costs of Additional Crimes Due to the Opening of One More Pawnshop

Type of Crime	Increase in Reported Crimes (1)	Increase in Total Crimes (2)	Average Property Loss per Crime (3)	Pain & Suffering per Crime (4)	Total Property Loss (5)	Total Social Costs (6)
Robbery	1.34	2.41	$929.00	$15,225.80	$2,241.67	$38,981.47
Burglary	15.39	30.48	$1,332.00	$574.28	$40,603.32	$58,109.08
Larceny	44.25	165.10	$532.00	$2.65	$87,833.20	$88,270.72
Total	60.98	198.00			$130,678.19	$185,361.27

Notes: Estimates of the increase in individual offenses are based upon individual crime elasticities of crime with respect of pawnshops given in Table 4 and evaluated at the sample mean. Reporting rates are from the Bureau of Justice Statistics (1997), per-crime property losses are from FBI (1997), and per-crime pain and suffering estimates are from Cohen (1988).