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Strategic Tax Planning for State Tax Amnesties: Evidence from Eligibility Period Restrictions

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Abstract

Tax amnesty programs have exploded in popularity among cash-strapped states since the beginning of the Great Recession. Though many scholars have been interested in the long-term tax compliance effects after amnesty programs, this article is the first to consider short-run compliance effects just prior to a known amnesty—a moral hazard effect leading to strategic delinquencies. Evidence of this is detected from year-over-year tax revenue change in quarters just prior to an amnesty program. Regression analysis on pre-amnesty periods for state tax amnesty programs between 1982 and 2011 indicates that states experience higher pre-amnesty revenues when recent delinquents are excluded from amnesty participation. The point estimates from ordinary least squares (OLS) indicated that about 4.3 to

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6.4 percent of an average amnesty's recovery came from strategically delayed payments, whereas IV/2SLS put the range at 12.9 to 16.5 percent.

Keywords
tax amnesty, tax planning, tax delinquency

The consequences of tax amnesties have drawn considerable attention from public finance scholars interested in tax compliance. Though potentially representing large infusions of cash to governments desperate for revenue, of paramount concern has been whether such programs represent a "penny-wise but pound-foolish" policy approach to revenue generation. In addition to retrieving unpaid liabilities from delinquent accounts, the tax amnesties can potentially entice evading taxpayers to voluntarily join the tax rolls. However, the amnesty could also increase the delinquency rate among future taxpayers who infer the programs to be a reoccurring phenomenon. Taxpayers can hardly be blamed for making such an inference; the most recent decade (2000–2010) saw more tax amnesties than in the previous two decades combined, and many of these were from states offering repeat programs.[1] Though states often try to combat this expectation with promises of amnesties being "onetime only" events to be followed with more vigorous post-amnesty enforcement and stricter penalties, it is often difficult for current policy makers to make credible commitments to the actions of their future counterparts.[2]

While scholars will likely continue to gather evidence on post-amnesty compliance and its long-term effect on revenue collection, this article seeks to examine the consequences of a short-run source of moral hazard that has previously gone unnoticed in the literature.[3] Regardless of taxpayers' long-run expectations of the likelihood of future amnesties, in the short-run these programs are foreseeable through the policy process. Concern over the fairness in offering amnesty to any form of lawbreaker generates controversy, and tax law is no exception. This results in the process of enacting a statewide tax amnesty becoming a readily foreseeable and transparent event. For instance, Delaware's 2009 tax amnesty program was included in Governor Jack Markell's successful gubernatorial campaign platform in 2008.[4] Furthermore, marketing campaigns ahead of the amnesty program are considered necessary as the means to informing taxpayers of the opportunity to participate and therefore maximize collections (Mikesell 1984, 1986; Parle and Hirlinger 1986).

Policy debate, administrative preparation, and marketing efforts result in a period of time prior to the actual execution of the amnesty where households and firms can account for it in their tax planning. Consider the hypothetical case of a firm interested in a short-term, and often high-interest, loan from a financial intermediary. If an amnesty is on the horizon, then the firm could instead refuse to remit their biweekly/monthly (depending on the state and size of the firm) tax payments for sales and withholdings, use that money in lieu of the loan, and then repay it during the amnesty period. This would effectively treat the government as a competing, and often interest-free, lender to other financial intermediaries. Similarly, an individual with like circumstances may simply not file or delay paying their end-of-year tax bill if given the opportunity and knowledge of the upcoming amnesty. It is conceivable that such strategic tax planning could be commonplace and significant in amnesties, and there is some limited anecdotal evidence to this point. Ritsema, Manly, and Thomas (2003) analyzed the written comments from participants in the 1997 Arkansas amnesty program, which required a statement from the taxpayer explaining the reasons for their delinquency. Although the intended meaning is unclear, nearly half (44 percent) of the responses described "intentional" reasons for tax delinquency. Accounting consultants often advise their clients to not immediately self-report if they discover they hold a nexus in a particular state, but rather to look for amnesty opportunities (e.g., see Fleming 2011).

It is possible that this concern leads states, at least in some of their attempts, to exclude the recently delinquent from being eligible for the amnesty.[5] This exclusion does not constitute a free lunch, as the trade-off is forgoing the taxpayers who coincidentally become delinquent just prior to an amnesty offering, but would be willing and able to become current via the amnesty program. In this article, this group is referred to as the incidentally delinquent, whereas the group which engages in tax planning will be hereafter referred to as the strategically delinquent.

Excluding recently delinquent liabilities from amnesty eligibility affects both the incidentally and the strategically delinquent taxpayers, and therefore reduces the potential pool of amnesty applicants. For the strategically delinquent, this exclusionary period allows the state to collect a liability earlier and with lower administrative cost, but comes at the sacrifice of the incidentally delinquent. This suggests that, as with most issues that involve law and justice, efficiency may not be the only relevant consideration. The US legal system is arguably inefficient in the sense that it does not attempt to minimize the sum of type I and type II errors in determining guilt. Instead, by putting the burden on the prosecution to prove

guilt beyond reasonable doubt, the justice system implicitly considers the conviction of innocents to be a much more significant error than allowing the guilty to retain their freedom.[6] In terms of tax amnesties, it could be argued that deterring the strategically delinquent is normatively more important than excluding the incidentally delinquent. Still, in making such a determination, it would be informative for policy makers to know just how commonplace strategic delinquency is by means of its effect on revenue collections.

This article attempts to estimate the existence and extent of strategic tax delinquency in response to upcoming tax amnesties. This is done by explaining year-over-year changes in per capita state tax revenues in the quarters immediately preceding tax amnesty programs. After controlling for other relevant determinants, the main variables of interest relate to whether or not those who become delinquent during the pre-amnesty period remain eligible to participate in an upcoming amnesty. The exclusion increases revenue collections in pre-amnesty quarters by a margin that is substantively significant, and therefore suggests a deterrent effect on strategic tax planning. The result is robust to model specification, alternative dependent variable definitions, and limiting the sample to states with similar tax structures. The strongest findings are found when potential endogeneity in the use of the exclusion is treated with instrument variable estimation.

Empirical Methodology

Identification Approach

The Allingham and Sandmo (1972) model of tax evasion informs the incentives created by tax amnesty programs to motivate the empirical approach of this article.[7] In this model, taxpayers' reported income is directly related to the probability of detection and the penalties imposed if they are caught. Consider first an amnesty program that would occur in the next period and carries no complementary enforcement policy changes, so the penalties from evasion in the current period decline. In this instance, any taxpayers with a positive discount rate can increase the present value of their wealth by underreporting their taxable liabilities or likewise delaying fixed payments (i.e., negative cash flows) into the future. If this same amnesty program restricts participation eligibility to only those who were delinquent prior to the program announcement, that is, prior to the current period, then there is no gain to delaying a tax payment or under reporting tax liabilities beyond what already exists in the program's absence. On the other hand, if

the amnesty program permits participation among all delinquents prior to the program's execution, then delaying tax payments carries a more positive net present value to strategic delinquency than would occur in the absence of the amnesty. The identification of strategic tax delinquency behavior, therefore, will come from comparing revenue collection when upcoming amnesties exclude new and recently delinquent tax liabilities ($Exclude_{i,t}$) to those which do not.

The empirical model can begin with a specification designed to explain pre-amnesty quarterly tax revenue collection per capita for state i in period t, $R_{i,t}$. Le Borgne (2006) and Mikesell and Ross (2012) have demonstrated that, over time, amnesty periods have increasingly followed recessionary periods of fiscal stress, which suggests that control variables for business-cycle effects ($\boldsymbol{X_{i,t}}$) are likely necessary, as well as state specific fixed effects (π_i). At this point, a model for pre-amnesty revenue can be summarized as

$$\ln(R_{i,t}) = \boldsymbol{X_{i,t}}\boldsymbol{\beta} + \delta Exclude_{i,t} + \pi_i + \varepsilon_{i,t}. \quad (1)$$

For brevity, quarter and year fixed effects are omitted from equation (1), but will be included during the actual estimation of the final model.[8] Time-differencing the model eliminates the state-specific time-invariant fixed effects, and recognizing that the treatment effects are zero in the one-year lag ($Exclude_{i,t-4} = 0$), the resulting equation is[9]

$$\ln(R_{i,t}) - \ln(R_{i,t-4}) = (\boldsymbol{X_{i,t}} - \boldsymbol{X_{i,t-4}})\boldsymbol{\beta} + \delta Exclude_{i,t} + (\varepsilon_{i,t} - \varepsilon_{i,t-4}). \quad (2)$$

The left-hand side of equation (2) is now the year-over-year change in quarterly real per capita tax revenue, and the implementation of natural logs allows this to be interpreted in terms of percentage growth rates. The parameter estimate on the exclusion variable, δ, will be positive if it deters strategic tax planning in the pre-amnesty period.

Equation (2) requires one further modification in cases where the amnesty program is accompanied by other programs which change the incentives to evade, such as with post-amnesty increases in the rates of penalties and interest. While post-amnesty enforcement programs would be irrelevant to a strategic tax evader looking to delay their tax payments until amnesty, post-amnesty enforcement would affect the general return to all forms of evasion, which may confound the results if the correlation between the exclusion variable and the post-amnesty programs is not zero.[10] Mikesell and Ross (2012) document a disappearance of post-amnesty enforcement efforts over time, while we find that amnesty exclusionary periods have become somewhat more common. Following Alm and Beck

(1991), we control for post-amnesty increases in penalties and interest separately, but represent them in equation (3) as a two-column matrix $\boldsymbol{Enforce_{i,t}}$:

$$\ln(R_{i,t}) - \ln(R_{i,t-4}) = (\boldsymbol{X_{i,t}} - \boldsymbol{X_{i,t-4}})\boldsymbol{\beta} + \delta Exclude_{i,t} + \boldsymbol{Enforce_{i,t}}\boldsymbol{\gamma} + (\varepsilon_{i,t} - \varepsilon_{i,t-4}). \quad (3)$$

Why Do Some Amnesty Programs Exclude the Recently Delinquent?

Ideally, for the purpose of our study, the exclusion of the recently delinquent would be a randomly assigned feature of the amnesty program. The second best case is that the *Exclude* variable is exogenous to the model specified in equation (3), so that it is not endogenously determined by the change in pre-amnesty tax revenue. Specifically, if states perceive that the announcement of the amnesty will spur strategic delinquency among the population and become more likely to adopt the exclusion, then it would introduce a negative bias in the coefficient on *Exclude*, and cause it to underestimate the level of strategic delinquency. In other words, the nature of the endogeneity problem works *against* ordinary least squares (OLS) detecting the hypothesized behavior. As such, the main results of the article begin with OLS as the more conservative test, and then repeat the analysis with instrument variable estimation.

Understanding why some programs exclude the recently delinquent can be informative of the potential for endogeneity in the *Exclude* variable, as well as what possible instruments might be valid. In the course of our research, we were never able to uncover any public discussion of this exclusion in the context of strategic delinquency, even when it was determined by legislative statute to authorize the amnesty program, suggesting that such behavior is likely not considered. Instead, most discussion concerns whether the administrative personnel can simultaneously process delinquent claims and execute the amnesty program. Delinquency-collection programs and staff are most active on new accounts, and typically spend fewer resources chasing older accounts. When recent delinquents are eligible for the amnesty, staff from collection departments can wind up devoting resources to pursuing overdue taxpayers who have already applied for amnesty. This requires greater coordination between the regular collection staff and those of the amnesty program to help identify which accounts have applied for amnesty, as well as those whose applications are likely to be approved. Furthermore, the preparation and marketing of an amnesty

program often involves generating lists of known-but-uncollected accounts. This list serves the dual function of providing a targeted population for direct mailings of amnesty notices, and allowing administrators to gauge program needs pertaining to staffing and resource allocation. For these reasons, states tend to anchor the exclusion date to significant points in the fiscal or tax administration year, such as July 1, April 1, or January 1.

Aside from administrative issues, the other theme that appears in determining the exclusion of the recently delinquent is a mimicry-of-features behavior among the states. There is a notable tendency for states to repeat either the policies of their previous amnesty offering, or to mimic another state's recent program. For instance, in 2010 when Pennsylvania would once again exclude the recently delinquent, their after-action report simply notes that the program was modeled after its 1995 predecessor, and there is no discussion of maintaining the normal flow of delinquent revenues (Pennsylvania Department of Revenue 2010). Similarly, the after-action report for the 2005 amnesty program in Indiana indicates that the other program features were based on a case review of ten recent amnesty programs in other states, adopting advice they received from administrators in those states on running the program without overburdening the existing staff (Indiana Department of Revenue 2006).

Since the exclusion is motivated by administrative issues like marketing and staffing, or by mimicking previous programs, the policy of excluding the recently delinquent from amnesty participation appears to be random with respect to the potential for strategic delinquency and the year-over-year change in tax revenues. Again, to the extent this is not true, OLS will be biased toward finding no strategic delinquency.

This administrative burden as a determinant of the exclusionary period motivates the choice of instrument variables used for IV/2SLS estimates. While there are no data we are aware of that informs a state's administrative capacity, we can look to other variables which are known to have some relationship to state administrative burden and resources.[11] States have historically piggy-backed their tax compliance efforts off the federal government's audit process (Dubin, Graetz, and Wilde 1992; Birskyte 2008), so states that have routinely been among the most audited are less reliant on their own administrative systems for compliance. The only major available data on federal audits by states come from the Transactional Records Access Clearinghouse of Syracuse University between 1997 and 2001, so we adopt the dummy variable approach used by Mikesell and Ross (2012) in estimating the amount of amnesty recovery, coded "1" if a state averaged a top-fifteen ranking in federal audits between 1997 and 2001.

Additionally, having a corporate income tax is another state characteristic which increases administrative burden because states conduct audits and help identify nexus. Being a historically high audit state (*High Audit*) and not having a corporate income tax (*No CIT*) are both negatively correlated with the use of an exclusionary period prior to amnesty. The use of these dummies is intended to instrument for the use of the exclusion.[12] Data definitions are discussed in the Data and Identifying Relevant Periods Prior to Amnesty subsection and first-stage instrument variable diagnostics are reviewed with the results in the next section.

Data Considerations in Model Derivation

This section discusses the implications for model choice in employing total per capita tax revenue for the dependent variable. States are often selective in declaring which tax bases qualify for amnesty. For instance, sales tax or corporate income tax liabilities might be excluded from eligibility. Even when states announce that "all" taxes are eligible, as is common in policy there are many footnotes to these proclamations that exclude particular taxes or types of taxpayers from amnesty. As a first pass, the definition for estimating equation (3) will use only changes in revenues that are derived from taxes unambiguously eligible for the state's amnesty program, hereto referred to as "amnesty eligible revenue."[13] This carries the advantage of only looking at revenues that will ultimately be allowed to participate in the amnesty, though the definition is not likely collectively exhaustive and misses some revenues which are eligible. A natural alternative would have been to employ control variables for the types of taxes that are omitted from the amnesty program, but there was not enough commonality in the type of taxes being excluded across amnesties to produce estimable coefficients.

As a second pass to estimating equation (3), changes in total tax revenue collections will be employed as the dependent variable. There are three primary reasons to consider total revenue as the dependent variable as opposed to the amnesty eligible counterpart. First, it will include revenues which may be eligible for amnesty, but are not statutorily clear enough to be included the first proposed measure of "amnesty eligible." Second, in the delinquency calculus, there may be complementary effects between taxes. That is, taxpayers who engage in strategic delinquency to participate in the tax amnesty for some taxes might become delinquent in additional taxes as well. Similarly, taxpayers with a questionable nexus in a state can face multiple taxes, but they might be more likely to come forward during an

amnesty, even if that amnesty does not encompass their entire delinquent tax burden.

The third reason pertains to the role of accounts receivable and how the Census of Governments surveys state revenue sources. One of the largest determinants of tax amnesty collections is whether taxes in accounts receivable are eligible in the amnesty (Mikesell 1986). These amnesty collections from taxpayers in accounts receivable are largely illusionary in terms of recovered funds, as the state tax administrators were already aware of the amount owed, had an identified taxpayer, and were capable of taking action to collect the unpaid liabilities. When states collect through accounts receivable, it is categorized as miscellaneous general tax revenue for the period. Since the money does not get identified by the original delinquent tax, it will be missed by amnesty relevant revenue measures if the amnesty only applies to particular taxes.

Data and Identifying Relevant Periods Prior to Amnesty

To our knowledge, there is no database identifying relevant restrictions in the eligibility period for state tax amnesties. As such, we relied on a multitude of sources in collecting this data: state statutes, tax administration press releases, newspaper articles in LexisNexis, and correspondence with state tax administrators.[14] As can be seen in table 1, of the 106 amnesty programs in the data set, 81 of them excluded the recently delinquent. The earliest exclusion comes in North Dakota in 1983, the second year in which states started offering tax amnesties and within the first five amnesties overall. In 1984, four of the seven state amnesties carried an exclusionary period. Among states offering amnesties repeatedly, they largely appear to copy whatever they did in the previous amnesties in terms of creating exclusions for the recently delinquent, which is not particularly surprising since states often model their programs on their previous experience. When they do change over time, more often than not they are adding exclusionary periods to the programs, though this is not always the case. Louisiana and New York both excluded the recently delinquent in their earlier amnesties but not in a later program.

Of the amnesties that excluded the recently delinquent, the duration of this exclusion also varied from 0.2 to 3.0 years prior to the amnesty's starting date, with the mean exclusionary period lasting 0.8 years. The mean exclusionary period is somewhat skewed upward with a median duration of 0.67 years, and twenty amnesty programs excluded those who became delinquent more than one year prior to the beginning of the program.

Table 1. The Eligibility of the Recently Delinquent for State Tax Amnesties.

State	Year	Excludes recently delinquent?	State	Year	Excludes recently delinquent?
Arizona	1982	No	Massachusetts	2002	Yes
Idaho	1983	No	Michigan	2002	Yes
Massachusetts	1983	No	Missouri	2002	Yes
Missouri	1983	No	Nevada	2002	No
North Dakota	1983	Yes	New Jersey	2002	Yes
Alabama	1984	No	New York	2002	Yes
California	1984	Yes	Oklahoma	2002	No
Illinois	1984	Yes	South Carolina	2002	Yes
Kansas	1984	Yes	Arizona	2003	Yes
Minnesota	1984	Yes	Colorado	2003	Yes
Oklahoma	1984	No	Florida	2003	No
Texas	1984	No	Illinois	2003	Yes
Colorado	1985	Yes	Kansas	2003	Yes
Louisiana	1985	Yes	Maine	2003	Yes
New Mexico	1985	No	Massachusetts	2003	Yes
New York	1985	Yes	Missouri	2003	Yes
South Carolina	1985	No	North Dakota	2003	Yes
Wisconsin	1985	Yes	Virginia	2003	Yes
Iowa	1986	Yes	Arkansas	2004	Yes
Michigan	1986	Yes	Mississippi	2004	Yes
Mississippi	1986	Yes	Nebraska	2004	Yes
Rhode Island	1986	Yes	Texas	2004	No
West Virginia	1986	Yes	West Virginia	2004	Yes
Arkansas	1987	Yes	California	2005	Yes
Florida	1987	No	Indiana	2005	Yes
Louisiana	1987	No	New York	2005	No
Maryland	1987	Yes	Ohio	2006	Yes
New Jersey	1987	Yes	Rhode Island	2006	Yes
Florida	1988	No	Iowa	2007	Yes
Kentucky	1988	Yes	Texas	2007	Yes
North Carolina	1989	Yes	Nevada	2008	No
Connecticut	1990	Yes	Oklahoma	2008	Yes
Maine	1990	Yes	Connecticut	2009	Yes
Vermont	1990	Yes	Delaware	2009	Yes
Virginia	1990	Yes	Louisiana	2009	Yes
Georgia	1992	Yes	Maine	2009	Yes
Connecticut	1995	Yes	Maryland	2009	Yes
Pennsylvania	1995	Yes	New Jersey	2009	Yes

Table 1. (continued)

State	Year	Excludes recently delinquent?	State	Year	Excludes recently delinquent?
New Jersey	1996	Yes	Oregon	2009	Yes
New York	1996	Yes	Vermont	2009	Yes
Rhode Island	1996	Yes	Virginia	2009	Yes
New Hampshire	1997	No	Florida	2010	No
Louisiana	1998	Yes	Illinois	2010	Yes
Wisconsin	1998	Yes	Kansas	2010	Yes
New Mexico	1999	Yes	Maine	2010	Yes
South Dakota	1999	No	Massachusetts	2010	Yes
Louisiana	2001	Yes	Nevada	2010	No
Maryland	2001	Yes	New Mexico	2010	Yes
New Hampshire	2001	No	New York	2010	Yes
Ohio	2001	Yes	Pennsylvania	2010	Yes
Arizona	2002	No	Colorado	2011	Yes
Connecticut	2002	Yes	Michigan	2011	Yes
Kentucky	2002	Yes	Washington	2011	No

States tend to anchor the exclusion date to July 1, April 1, or January 1, all of which tend to be significant dates for the fiscal or tax administration year. This is supportive of the earlier observation that the exclusion period is often determined on the basis of administrative record keeping rather than on foresight of strategic tax planning.

The remaining significant issue in identifying the treatment effect is defining the relevant periods prior to an amnesty. It would be expected that the behavioral response of strategic tax planning would be between the amnesty start *and* the point in time in which the taxpayer could reasonably count on the amnesty actually occurring. In recent amnesties, the political debate, legislative process, and administrative preparation cumulatively appear to take several months to a year prior to the actual implementation of the amnesty period.[15] The Pennsylvania 2010 amnesty was on the faster side with about six months between authorization, although this short notice may be misleading as the program was part of a budget bill whose controversial spending cuts delayed its passage more than 100 days from the budget due date (Murphy 2009). Indiana's 2005 program was overwhelmingly approved by the Senate Ways and Means Committee on January 6, more than nine months before the program began (Indiana Department of Revenue 2006). Ohio's 2012 general tax amnesty program was first

Table 2. Demonstration of Data from Selected States with Amnesty to Occur in $t = 0$.

	Are taxpayers who become delinquent in this period excluded from amnesty participation?				
State amnesty	$t-5$	$t-4$	$t-3$	$t-2$	$t-1$
New York, 2005	Allow	Allow	Allow	Allow	Allow
Ohio, 2000	Allow	Allow	Exclude	Exclude	Exclude
Indiana, 2005	Allow	Allow	Allow	Exclude	Exclude
Louisiana, 2001	Allow	Exclude	Exclude	Exclude	Exclude
North Dakota, 2003	Allow	Allow	Allow	Allow	Exclude

Note: In the data, each period is three months/one quarter (i.e., t is a quarter). The data above would be coded as *Exclude* = 1 if "Exclude" and Exclude = 0 if "Allow."

introduced to the fiscal 2012–2013 budget bill twelve months prior to the amnesty start date. After reviewing Lexus-Nexus newspaper articles from the 1980s, it is our impression that the process unfolded over a similar time frame in the cases of the earliest amnesties as well.[16] However, there is no objective way of identifying when exactly taxpayers would have started their strategic planning for an upcoming amnesty. Instead, the main estimates presents alternative specifications that differ by the amount of time prior to the amnesty. To aid in explaining this approach, table 2 provides an intuitive demonstration of the data to highlight the intended counterfactual in the regression analysis.

All of the rows of table 2 represent a state's particular amnesty that will occur in the quarter designated by $t = 0$, and the subsequent columns identify which periods a taxpayer can (*Exclude* = 0) or cannot (*Exclude* = 1) become delinquent and still remain eligible for the amnesty.[17] For instance, New York's 2005 amnesty did not exclude the recently delinquent, whereas the 2003 program in North Dakota only excluded those within three months of the amnesty. The other states in table 2 exclude the recently delinquent for at least six months. If the data set is limited to the two quarters (within six months) prior to the amnesty, the estimation of equation (3) would pick up the variation coming from New York being considered an "Exclude" in both periods and North Dakota being considered an "Exclude" in $t-2$ only, while all the others take "Allow" values. If the data set is expanded to being within three calendar quarters of the amnesty period, New York and North Dakota would continue being "Exclude" counterfactuals, but it would also add the Indiana 2005 amnesty that only excluded those becoming delinquent in the first two quarters from participation.

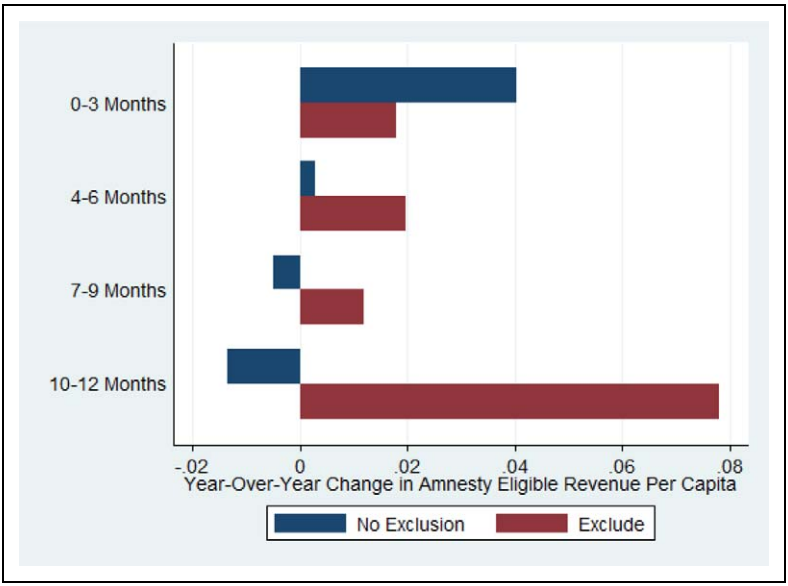

Figure 1. Comparison of mean amnesty eligible revenue growth for states with and without exclusion of recently delinquent, by quarter.

Figure 1 provides a bar graph comparing the means of these quarters, both with and without the exclusion. In a simple comparison of averages, amnesty programs excluding the recently delinquent in a given quarter experience higher growth rates than states that do not. The exception is in the quarter immediately prior to the amnesty, where those without the exclusion have a higher average growth rate. One possibility for that kind of effect is that it actually takes time to become delinquent in the eyes of the state tax administration. A firm or household deciding to intentionally become delinquent and pay later in the amnesty period would be less likely to have the time to be far enough "past due" in order to be eligible as a delinquent account.

Turning attention now to other controls employed in the regressions, year fixed effects are included to help reduce national fluctuations not specific to the state, and quarter fixed effects are included because tax administration constraints are often thought to vary across the year. State and time-variant quarterly controls that proxy for the change in economic activity in the state are represented in matrix $\boldsymbol{X}$. Since they will likely correlate with the underlying components of the state tax base, natural

variables for these effects are changes in the unemployment rate and real per capita personal income.[18]

Five amnesty programs were eliminated from the data set because they occurred within two years of a previous amnesty program in the same state, which confounds the revenue collection data for the year-over-year revenue change variables. There was also missing quarterly data for the amnesty eligible revenue (subcomponents of total revenue) that caused a loss of eight and twelve observations in the nine- and twelve-month samples of data, respectively. Another twenty-six amnesty programs are missing because we could not verify post-amnesty interest and penalties. An earlier version of this article excluded the post-amnesty variables and included the amnesties with missing post-program features, yet the results were substantively similar.[19] Table 3 provides descriptions for the variables and their sources, as well as summary statistics for the variables employed in this article.

Results

Results with Amnesty Eligible Revenue as the Dependent Variable

Table 4 provides the result of estimating equation (3) over quarters within nine and twelve months of an amnesty period's starting date.[20] The first-differenced measure of revenue collections are those derived from taxes which were eligible for amnesty, as described in the Data Considerations in Model Derivation subsection. To gauge the robustness of the findings, specifications differ with the inclusion of the business cycle control variables of per capita income and unemployment rate, as well as quarter and year fixed effects, but the "main" results include all of these controls appearing in columns F and L. Reported in parentheses are the heteroscedastic robust standard errors clustered by state and quarter.[21] All specifications control for whether the amnesty program was accompanied with a state program to either increase penalties and interest (*Post Penalties*) or some other enforcement (*Post Enforce*) program, which range from having the predicted positive effect on revenues to no effect. The main variable of interest is *Exclude*, which is the dummy variable identifying if a newly delinquent taxpayer would be excluded from participating in the amnesty. As hypothesized earlier in the article, a positive coefficient on *Exclude* is taken as evidence that taxpayers are more likely to stay current on their tax bills when they are not eligible for amnesty (*Exclude* = 1). Alternatively stated, they are more likely to strategically become delinquent when the upcoming amnesty will allow them to participate (*Exclude* = 0).

Table 3. Variable Descriptions and Data Sources.

	Within nine months				Within twelve months			
Variable	*M*	*SD*	Min	Max	Mean	*SD*	Min	Max
Δln(AE Revenue Per Capita)	0.01	0.11	−0.33	0.43	0.01	0.13	−0.35	1.26
Δln(Tot Revenue Per Capita)	0.01	0.09	−0.33	0.26	0.00	0.11	−0.35	0.82
Exclude	0.53	0.50	0	1	0.44	0.50	0	1
Post Penalty	0.48	0.50	0	1	0.48	0.50	0	1
Post Enforce	0.41	0.49	0	1	0.41	0.49	0	1
Δln(PCPI)	0.01	0.03	−0.05	0.09	0.01	0.03	−0.06	0.09
Δln(Unemp. Rate)	0.06	0.20	−0.30	0.58	0.07	0.20	−0.30	0.58
High Audit	0.29	0.46	0	1	0.29	0.45	0	1
No CIT	0.08	0.27	0	1	0.07	0.26	0	1
Q1	0.28	0.45	0	1	0.23	0.42	0	1
Q2	0.28	0.45	0	1	0.24	0.43	0	1
Q3	0.17	0.38	0	1	0.26	0.44	0	1

Note: Variable descriptions and Sources: Δln(AE Revenue Per Capita): Change in natural log of quarterly tax revenue per capita that is eligible for amnesty from the same quarter in the previous year, based on authors' review of amnesty programs, the Federation of Tax Administrators, US Census of Governments, and the Statistical Abstract of the United States. Δln(Tot Revenue Per Capita): Change in natural log of total quarterly tax revenue per capita from the same quarter in the previous year; US Census of Governments. Exclude: Dummy variable indicating that taxpayers delinquent in the quarter are ineligible for participating in the amnesty program, based on authors' research from a variety of sources, contact for more information. Post Penalty: Dummy variable where "1" indicates there will be an increase in penalties or interest on delinquent liabilities after the amnesty period ends, else zero; Significant sources include Alm and Beck (1991), Mikesell (1986), Mikesell and Ross (2012). Post Enforce: Dummy variable where "1" indicates there will be an increase in post enforcement efforts on delinquent liabilities after amnesty period ends, else zero; significant sources include Alm and Beck (1991), Mikesell (1986), Mikesell and Ross (2012). Δln(PCPI): Change in natural log of per capita personal income from the same quarter in the previous year; US Bureau of Economic Analysis. Δln(Unemp. Rate): Change in natural log of unemployment rate from the same quarter in the previous year; US Bureau of Labor Statistics. High Audit: dummy where a value of "1" indicates the state's mean rank in federal audits between 1997 and 2001 was in the top-ten most audited; source is the Transactional Records Access Clearinghouse of Syracuse University. No CIT: Dummy variable where "1" indicates that the state has no corporate income tax in the year of the amnesty. Q(1−3): Quarter indicator where Q1 is January–March, Q2 is April–June, and so on.

As can be seen in table 4, the sign across all specifications is consistent with the hypothesis that there is strategic tax planning, as the coefficient on *Exclude* ranges from 0.020 to 0.066. For ease of interpretation, these estimates are compared to a pre-amnesty period that would otherwise

Table 4. Estimates of Equation (3) for Amnesty Eligible Tax Revenue per Capita during Pre-amnesty Periods.

	Within nine months ($N = 196$)						Within twelve months ($N = 267$)					
	A	B	C	D	E	F	G	H	I	J	K	L
Exclude	0.036**	0.039**	0.045**	0.020	0.025	0.041**	0.045**	0.054**	0.066**	0.035	0.045	0.064**
	(0.017)	(0.018)	(0.019)	(0.019)	(0.022)	(0.020)	(0.020)	(0.023)	(0.030)	(0.026)	(0.030)	(0.032)
Δln(PCPI)				0.843	0.900*	0.405				0.591	0.617	0.102
				(0.520)	(0.529)	(0.421)				(0.446)	(0.438)	(0.297)
Δln(Unemp.				−0.172***	−0.175***	−0.091				−0.134***	−0.134***	−0.096**
Rate)				(0.056)	(0.055)	(0.087)				(0.046)	(0.045)	(0.043)
Post Penalty	0.025*	0.025*	0.005	−0.002	−0.001	−0.001	0.025	0.025	0.018	0.006	0.006	0.012
	(0.014)	(0.015)	(0.009)	(0.013)	(0.014)	(0.015)	(0.020)	(0.020)	(0.022)	(0.019)	(0.019)	(0.020)
Post Enforce	0.051***	0.052***	0.028**	0.031**	0.031**	0.028**	0.037**	0.038**	0.009	0.018	0.019	0.010
	(0.016)	(0.017)	(0.014)	(0.014)	(0.014)	(0.012)	(0.017)	(0.017)	(0.015)	(0.014)	(0.014)	(0.013)
Intercept	−0.045***	−0.043***	−0.012	−0.017	−0.017	−0.003	−0.037***	−0.024*	0.064***	−0.016	−0.002	−0.053***
	(0.013)	(0.013)	(0.013)	(0.020)	(0.017)	(0.028)	(0.010)	(0.013)	(0.024)	(0.015)	(0.016)	(0.011)
QFE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
YFE	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
R^2	.122	.130	.403	.318	.336	.423	.072	.083	.224	.150	.162	.234

Note: Dependent variable is Δln(AE Revenue Per Capita). Year and quarter fixed effects (FE) not reported but available upon request. Robust standard errors in parentheses and are clustered by state and quarter. Statistical significance indicated at the 1 percent (***), 5 percent (**), and 10 percent (*) level.

experience a 1 percent increase in revenue collection from the previous year.[22] Looking first at the sample limited to quarters within nine months of amnesty, the point estimates of the main results in column F indicate that excluding the recently delinquent would increase amnesty eligible revenue collection rates by 0.041 percent. Expanding the sample to twelve months, the point estimate of the main result in column L suggests the exclusion creates a 0.064 percent increase. Both of these results are statistically significant at the 5 percent level.

Results with Total Tax Revenue as the Dependent Variable

In the *Why Do Some Amnesty Programs Exclude the Recently Delinquent?* subsection, the argument was made for the use of amnesty relevant tax revenue as the first metric for testing the presence of strategic tax delinquency. This section uses the more expansive measure of total tax revenue per capita. It is possible there are spillover effects with respect to delinquency, that is, a taxpayer finds it in their advantage to become delinquent in all taxes if they are to be delinquent in any, which may help them avoid detection, although it is also possible this would only add more noise to the regression error. One final additional advantage of this measure is that the coefficients can be compared to the average amnesty recovery as a share of state total tax revenue, which was 0.7 percent during this period.

Table 5 presents the results for the same specifications from table 4, but with this alternative dependent variable. The results are similarly consistent with strategic delinquency, but with slightly smaller coefficients and generally lower statistical significance levels owing to the fact it is including revenues which rely upon spillover delinquency into noneligible revenues. The main results of 0.030 in column F and 0.046 in column L represent 4.3 and 6.4 percent, respectively of the average amnesty recovery.[23]

Results from States with Similar Tax Structures

In some previous work on tax amnesties, most notably Dubin, Graetz, and Wilde (1992) and Luitel and Sobel (2007), regression analysis is based on an exante selection of states that do not omit a major broad-based tax.[24] Therefore, table 6 estimates the model in equation (3) using the same set of states as in those two previous papers, estimating the full models for both revenue measures, making them analogous specifications to columns F and L in tables 4 and 5.

Table 5. Estimates of Equation (3) for Total Tax Revenue per Capita during Pre-amnesty Periods.

	Within nine months ($N = 199$)						Within twelve months ($N = 272$)					
	A	B	C	D	E	F	G	H	I	J	K	L
Exclude	0.025**	0.029*	0.034*	0.013	0.018	0.030	0.033**	0.041**	0.048**	0.024	0.033	0.046*
	(0.013)	(0.016)	(0.020)	(0.016)	(0.022)	(0.021)	(0.015)	(0.019)	(0.024)	(0.020)	(0.025)	(0.026)
Δln(PCPI)				0.868*	0.908**	0.633				0.630	0.643	0.399
				(0.459)	(0.462)	(0.484)				(0.407)	(0.399)	(0.352)
Δln(Unemp. Rate)				−0.137**	−0.139**	−0.072				−0.131***	−0.132***	−0.103**
				(0.059)	(0.058)	(0.078)				(0.037)	(0.035)	(0.052)
Post Penalty	0.020	0.021	−0.004	−0.003	−0.003	−0.009	0.019	0.019	0.003	−0.001	−0.001	−0.003
	(0.013)	(0.014)	(0.005)	(0.013)	(0.013)	(0.012)	(0.015)	(0.015)	(0.016)	(0.012)	(0.012)	(0.014)
Post Enforce	0.033**	0.033**	0.021	0.016	0.016	0.020*	0.028**	0.028**	0.008	0.010	0.010	0.008
	(0.013)	(0.014)	(0.013)	(0.013)	(0.013)	(0.011)	(0.012)	(0.012)	(0.011)	(0.010)	(0.010)	(0.009)
Intercept	−0.035***	−0.032***	0.005	−0.015	−0.012	−0.015	−0.031***	−0.019*	0.064***	−0.011	0.002	−0.038**
	(0.011)	(0.009)	(0.015)	(0.020)	(0.015)	(0.021)	(0.009)	(0.011)	(0.024)	(0.013)	(0.012)	(0.016)
QFE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
YFE	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
R^2	.078	.090	.353	.278	.300	.384	.059	.071	.221	.174	.188	.246

Note: Dependent variable is Δln(Tot Revenue Per Capita). Year and quarter fixed effects (FE) not reported but available upon request. Robust standard errors in parentheses and are clustered by state and quarter. Statistical significance indicated at the 1 percent (***), 5 percent (**), and 10 percent (*) level.

Table 6. Regression Results for the Change in Amnesty Eligible Tax Revenue per Capita Collection Prior to Amnesty for States with Similar Tax Structure.

Dependent variable	Δln(AE revenue per capita)		Δln(Tot revenue per capita)	
Sample periods:	Within nine months	Within twelve months	Within nine months	Within twelve months
Exclude	0.040	0.045**	0.034	0.039**
	(0.025)	(0.020)	(0.022)	(0.017)
Post Penalty	−0.003	−0.013	−0.014	−0.022
	(0.019)	(0.015)	(0.014)	(0.014)
Post Enforce	0.029	0.023**	0.025	0.021*
	(0.018)	(0.011)	(0.018)	(0.011)
Δln(PCPI)	0.352	0.168	0.512	0.416
	(0.508)	(0.336)	(0.564)	(0.427)
Δln(Unemp. Rate)	−0.089	−0.127	−0.079	−0.122
	(0.102)	(0.090)	(0.094)	(0.092)
Intercept	−0.017***	0.047***	−0.008	0.044***
	(0.000)	(0.001)	(0.014)	(0.006)
R^2	.407	.380	.370	.361
Sample size	172	233	172	233

Note: Year and quarter fixed effects (FE) included in all specifications. Robust standard errors in parentheses are clustered by state and quarter. Statistical significance indicated at the 1 percent (***), 5 percent (**), and 10 percent (*) level.

The results in table 6 are consistent with strategic delinquency and are similar in the magnitude across the specifications within the table and to the previous results in tables 4 and 5. Excluding the recently delinquent from participating in the amnesty is correlated with a 0.034 to 0.045 percent increase in revenue. Despite losing about 12 percent of the sample, statistical significance is weakened to meeting the 5 percent confidence level for only the two specifications that are within twelve months of the amnesty.

Results from IV/2SLS

Table 7 presents the second-stage results of IV/2SLS of equation (3), along with diagnostics on the chosen instruments discussed in the *Why Do Some Amnesty Programs Exclude the Recently Delinquent?* subsection, which were dummy variables for whether or not the state was a historically high-audit state and whether or not it taxed corporate income. An *F*-test of the excluded instruments ranges from 21 to 39, exceeding the commonly

Table 7. IV/2SLS Estimates of Equation (3).

Dependent variable	Δln(AE revenue per capita)		Δln(Tot revenue per capita)	
Sample periods	Within nine months	Within twelve months	Within nine months	Within twelve months
Exclude[a]	0.094***	0.082***	0.116***	0.090***
	(0.037)	(0.031)	(0.021)	(0.032)
Post Penalty	−0.003	0.012	−0.011	−0.004
	(0.012)	(0.017)	(0.008)	(0.011)
Post Enforce	0.034***	0.012	0.027***	0.011
	(0.011)	(0.012)	(0.010)	(0.008)
Δln(PCPI)	0.335	0.104	0.532	0.402
	(0.363)	(0.212)	(0.373)	(0.251)
Δln(Unemp. Rate)	−0.080	−0.092**	−0.049	−0.093*
	(0.056)	(0.038)	(0.049)	(0.048)
Intercept	−0.062***	0.019	−0.062***	0.011
	(0.009)	(0.016)	(0.010)	(0.015)
R^2	0.382	0.230	0.244	0.214
Sample size	196	267	199	272
F-test excluded instruments	39.369	23.405	31.780	21.231
Hansen overidentification *p* value	.238	.325	.793	.949

[a]Indicates the variable treated for endogeneity. Year and quarter fixed effects (FE) included in all specifications. Robust standard errors in parentheses are clustered by state and quarter. Statistical significance indicated at the 1 percent (***), 5 percent (**), and 10 percent (*) level.

employed rule of thumb that it be at least 10. Since two instruments are employed, the *p* value of the Hansen test for overidentification is reported, and in all cases it cannot reject the null hypothesis of a just-identified system.

The effect on the exclusion of the recently delinquent also demonstrates that it has the predicted influence if the policy was being adopted in cases where policy makers anticipated that a strategic response would be relatively strong. The IV/2SLS estimates on *Exclude* in table 7 are larger and have a greater level of statistical significance than their counterparts in columns F and L of tables 4 and 5. In table 4 with the amnesty eligible revenue results, the main estimates reported coefficients of 0.041 and 0.064 that were statistically significant at the 5 percent level, whereas table 7 indicates that the responsiveness is 0.094 and 0.082 with statistical significance at the 1 percent level, respectively.[25]

A similar story emerges with the results for total revenues. The main results in table 5 found the coefficient to be 0.030 and 0.046 for the nine- and twelve-month sample, with only the twelve-month sample being statistically significant. The corresponding results in table 7, after instrumentation, indicate that the magnitude is 0.116 and 0.090 with statistical significance at the 1 percent level. These magnitudes are equivalent to 12.9 to 16.5 percent of an average amnesty recovery.[26]

Conclusion

The announcement of an amnesty period potentially allows unknown tax evaders to voluntarily reveal themselves to the authorities in the near future, ideally for the purpose of becoming permanently compliant taxpayers. Much of the policy concern and attention from academics has been in the ability of the amnesty to permanently improve long-run compliance, as it may have the unintended consequence of revealing tax evasion as a profitable pursuit or by causing the perception that amnesty will be a frequently reoccurring phenomenon (e.g., Alm, McKee, and Beck 1990; Luitel and Sobel 2007). This article suggests that another possibility is that an announced amnesty will cause some compliant taxpayers to become temporarily delinquent, effectively treating the state as a short-term loan officer. In doing so, this article also contributes to the broader literature on strategic tax planning and delinquency.

To study this moral hazard problem, this article makes use of variation in amnesty eligibility exclusion periods, which is generally a short time prior to the amnesty's beginning for which a taxpayer cannot become delinquent and still participate in the amnesty. If these exclusions prevent some taxpayers from becoming strategically delinquent, their quarterly state tax revenues during pre-amnesty periods should be greater than those which do not carry such an exclusion.

In all cases, the first-differenced regression estimates provided signs that are consistent with the behavior of strategic tax planning. Though statistical significance is sensitive, the magnitude and direction of the effect across different model specifications, sample choice, and revenue definition in the dependent variable are robust. The point estimates from OLS indicated that about 4.3 to 6.4 percent of an average amnesty's recovery came from strategically delayed payments, whereas IV/2SLS put the range at 12.9 to 16.5 percent.

If states wish to deter strategic tax planning and maintain constant revenue collections, then excluding new delinquents appears to be a successful

strategy. Alternatively, if the cost–benefit analysis on a potential amnesty program is being conducted, then the results also imply that the new revenue estimate should be discounted by 4 to 16 percent. The results are the strongest in examining the revenue from tax instruments eligible for amnesty, suggesting that policy makers are not experiencing a spillover of delinquencies by limiting amnesty offering to certain types of tax instruments.

The trade-off to the policy of excluding the recently delinquent, of course, is that taxpayers who would become delinquent even in the absence of the amnesty are also not capable of participating. Since the cost of the exclusion is forgoing incidentally delinquent taxpayers, this article's estimates also provide a normative benchmark as the cost of their exclusion. Future research might examine the size of the group behaving strategically relative to the group which enters delinquency for reasons independent of the amnesty.

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Notes

1. For instance, New York has offered four tax amnesties since 1996, with its first amnesty in 1985.
2. This article deals exclusively with state governments, which have been running temporary amnesty programs since 1981. The US Bureau of Internal Revenue did operate a "permanent amnesty" program at the federal level from 1919 to 1952 (Andreoni 1991, 144). Many states also have a voluntary disclosure program that forgives criminal prosecution to self-reporting evaders. The

Multistate Tax Commission also operates a Multistate Voluntary Disclosure Program that permanently runs in place to allow a non-filer to negotiate a settlement for back liability for taxpayers with nexus in multiple states.

3. For literature on the long-term effects, see Alm and Beck (1990, 1991, 1993); Alm, Mckee, and Beck (1990); and Luitel and Sobel (2007).
4. The Delaware tax amnesty was first proposed in an issue position statement in (Setze 2009).
5. To be clear, the exclusion applies to the age of the unpaid liability, rather than the point in time when a taxpayer first became delinquent. For example, a taxpayer's income tax bill may be due in March or April for income earned in the previous calendar year, and so they would not become delinquent until thirty to sixty days after that tax bill's due date. However, the taxpayer's ability to participate in the amnesty would depend on whether the liability's calendar year is eligible.
6. An alternative or complementary view might be that this is a constraint on government for its potential to abuse police powers.
7. Other examples of research on tax amnesty programs that are modeled in the Allingham and Sandmo (1972) tradition include Alm and Beck (1991), Malik and Schwab (1991), Stella (1991), and Macho-Stadler, Olivella, and Pérez-Castrillo (1999). There is a large literature on the determinants of tax evasion and delinquency. Within this literature, there is wide agreement that the determination of tax evasion is more complicated than an agent maximizing net present value, but this is the margin that is affected by the announced amnesty. For a recent literature review on the theory and evidence of tax evasion, see Alm (2012).
8. Using logged values of revenues also helps reduce heteroscedasticity in the revenue data.
9. In public budgeting, the year-over-year quarterly change is the most common approach to analyzing trends, which motivates the use of a one-year lag in this article. See Bertrand, Duflo, and Mullainathan (2004) for a critique of difference-in-difference estimates.
10. The authors wish to thank an anonymous referee for pointing out this important point.
11. An IV/2SLS approach was attempted with program mimicking intuition described by program administrators. The instruments tested included the use of an exclusion in a previous program, and the share of the amnesty programs which excluded the recently delinquent in the most recent year with an amnesty. Though these instruments were statistically significant determinants of excluding the recently delinquent, they failed every traditional instrument diagnostic test. For instance, the F-statistic on the exclusion of the instrument was less than

2 in all specifications, and Durbin-Wu-Hausman tests for endogeneity failed to reject the null hypothesis of exogeneity with p values in the range of .30 to .90.

12. We wish to thank an anonymous referee for pointing us in the direction of this genre of instruments.
13. The authors were largely aided by amnesty details from the Federation of Tax Administrators, Mikesell (1986), and Parle and Hirlinger (1986) in identifying eligible taxes.
14. Due to the high number of varied sources, they are available in a spreadsheet from the authors upon request. The source types were typically press releases, news articles, and state legislation.
15. Most amnesty programs are legislatively authorized, but a few have been at the will of tax administrators or at the request of the state executive branch. However, even in these cases, it is clearly not a politically opaque process, but one that seems to occur with the permission or cheerleading of major political actors.
16. For example, the New York 1985 amnesty was formally introduced to Legislature in February, passed in April, and executed in November (Gargan 1985). Virginia's legislature authorized an amnesty that began February 1, 1990, in a bill that passed in March of the previous year (Virginia Department of Taxation 1989).
17. This is the *Exclude* indicator variable, where $Exclude = 1$ and $Allow = 0$.
18. Also attempted where some controls for additional state characteristics introduced ad hoc to the first-differenced model, such as whether or not the state had previously executed an amnesty program before and whether or not they had a voluntary disclosure program. Their effect was substantively small with very low t-statistics, suggesting their potential influence was a fixed effect and therefore mitigated by the first differencing.
19. The previous version of the article with these results is viewable at https://sites.google.com/site/jross08/OLD_Amnesty10.docx.
20. Limiting the data to quarters within six months of an amnesty yields results that are very similar to the reported values within nine months, but with smaller t-statistics. They are omitted for space but are available upon request.
21. Clustering standard errors is used to mitigate cross-sectional and or/or serial correlation, such as that documented in Gow, Ormazabal, and Taylor 2010. Stata code used to cluster standard errors came from "cluster2" program by Petersen (2009) and "ivreg2" program by Baum, Schaffer, and Stillman (2010). Alternative specifications of clusters by year or amnesty program had no qualitative impact on the results.
22. The precise interpretation of the dummy variable coefficients would actually be $\exp(\gamma) - 1$, but in this case the coefficients are just a difference in rounding.

23. Calculations for amnesty recovery share: $0.030/0.7 = 0.043$; $0.046/0.7 = 0.065$.
24. Luitel and Sobel (2007) use the same selection of states as Dubin, Graetz, and Wilde (1992). The full list of states excluded are those that omit a broad-based tax: Alaska, Connecticut, Delaware, Florida, Montana, New Hampshire, Nevada, Oregon, South Dakota, Tennessee, Texas, Washington, and Wyoming.
25. Since the first stage is a linear probability model, the interpretation of the dummy variable changes to be a move from a 0 percent to a 100 percent predicted probability of excluding the recently delinquent.
26. Calculations: $0.116/0.7 = 0.165$ and $0.09/0.7 = 0.129$.

References

Allingham, Michael G., and Agnar Sandmo. 1972. "Income Tax Evasion: A Theoretical Analysis." *Journal of Public Economics* 1:323–38.

Alm, James. 2012. "Measuring, Explaining, and Controlling Tax Evasion: Lessons from Theory, Experiments, and Field Studies." *International Tax and Public Finance* 19:54–77.

Alm, James, and William Beck. 1990. "Tax Amnesties and Tax Revenues." *Public Finance Quarterly* 18:433–53.

Alm, James, and William Beck. 1991. "Wiping the Slate Clean: Individual Response to State Tax Amnesties." *Southern Economic Journal* 57:1043–53.

Alm, James, and William Beck. 1993. "Tax Amnesties and Compliance in the Long Run: A Time Series Analysis." *National Tax Journal* 46:53–60.

Alm, James, Michael McKee, and William Beck. 1990. "Amazing Grace: Tax Amnesties and Compliance." *National Tax Journal* 43:23–37.

Andreoni, James. 1991. "The Desirability of a Permanent Tax Amnesty." *Journal of Public Economics* 45:143–59.

Baum, Christopher F., Mark E. Schaffer, and Steven Stillman. 2010. *IVREG2: Stata Module for Extended Instrumental Variables/2SLS, GMM and AC/HAC, LIML and K-Class Regression*. Accessed December 28, 2011. http://ideas.respec.org/c/boc/bocode/s425401.html.

Bertrand, M., E. Duflo, and S. Mullainathan. 2004. "How Much Should we Trust Differences-In-Differences Estimates?" *The Quarterly Journal of Economics* 119:249–75.

Birskyte, Liucija. 2008. "The Effects of IRS Audit Rates on State Individual Income Tax Compliance." PhD diss. Indiana University.

Dubin, Jeffrey A., Michael J. Graetz, and Louis L. Wilde. 1992. "State Income Tax Amnesties: Causes." *The Quarterly Journal of Economics* 107:1057–70.

Federation of Tax Administrators, website. Accessed July 28, 2010. http://www.taxadmin.org/FTA/rate/amnesty1.pdf.

Fleming, Michael. 2011. *Nexus: It's all about Physical Presence. Or Is It?* Accessed May 23, 2012. http://www.articlesbase.com/corporate-articles/nexus-its-all-about-physical-presence-or-is-it-5093924.html.

Gargan, Edward A. 1985. "Albany Enacts Tax Amnesty as It Tightens Evasion Laws." *New York Times*, April 5, Section B, p. 1. Accessed October 10, 2010. www.lexisnexis.com/hottopics/Inacademic.

Gow, I. D., G. Ormazabal, and D. J. Taylor. 2010. "Correcting for Cross-sectional and Time-series Dependence in Accounting Research." *The Accounting Review* 85:483–512.

Indiana Department of Revenue. 2006. "Indiana Tax Amnesty: Final Report." Accessed October 9, 2010. www.in.gov/dor/files/press_amnesty-final.pdf.

Le Borgne, Eric. 2006. "Economic and Political Determinants of Tax Amnesties in the U.S. states." IMF Working Paper, WP/06/222. Accessed July 29, 2010. http://ssrn.com/abstract=941284.

Luitel, Hari Sharan, and Russell S. Sobel. 2007. "The Revenue Impact of Repeated Tax Amnesties." *Public Budgeting and Finance* 27:19–38.

Macho-Stadler, Inés, Pau Olivella, and David Pérez-Castrillo. 1999. "Tax Amnesties in a Dynamic Model of Tax Evasion." *Journal of Public Economic Theory* 1: 439–63.

Malik, Arun S., and Robert M. Schwab. 1991. "The Economics of Tax Amnesties." *Journal of Public Economics* 46:29–49.

Mikesell, John L. 1984. "Tax Amnesties as a Tool for Revenue Administration." *State Government* 57:114–20.

Mikesell, John L. 1986. "Amnesties for State Tax Evaders: The Nature of and Response to Recent Programs." *National Tax Journal* 39:507–525.

Mikesell, John L., and Justin M. Ross. 2012. "Fast Money? The Contribution of State Tax Amnesties to Public Revenue Systems." *National Tax Journal* 65: 529–62.

Murphy, Jan. 2009. Governor Ed Rendell Approves 2009-10 Pennsylvania Budget 101 Days Late. Published October 9, 2009. *The Patriot News*. Accessed April 25, 2012. http://www.pennlive.com/midstate/index.ssf/2009/10/governor_ed_rendell_approves_2.html.

Parle, William M., and Mike W. Hirlinger. 1986. "Evaluating the Use of Tax Amnesty by State Governments." *Public Administration Review* 46:246–55.

Petersen, M. A. 2009. "Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches." *Review of Financial Studies* 22:435–80.

Pennsylvania Department of Revenue. 2010. *Final Report on the 2010 PA Tax Amnesty Program*. Pennsylvania Department of Revenue. Accessed November 5, 2011. http://www.revenue.state.pa.us/portal/server.pt/document/1055029/2010_final_amnesty_report_pdf.

Ritsema, Christina, Tracy S. Manly, and Deborah W. Thomas. 2003. "Why Taxpayers are Noncompliant: Comments from 1997 Arkansas Tax Amnesty Participants." *State Tax Notes* 27 (January): 305–11.

Setze, Karen. 2009. "States Offering Amnesties in Wake of Fiscal Crisis, but at What Price?" Accessed September 12, 2012. http://www.tax.com/taxcom/features.nsf/Articles/9EBDB2352E1902FF8525757E00586600?OpenDocument

Stella, Peter. 1991. "An Economic Analysis of Tax Amnesties." *Journal of Public Economics* 46:383–400.

Virginia Department of Taxation. 1989. "1989 Legislative Summary." Accessed August 2, 2010. www.policylibrary.tax.virginia.gov.

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