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Factors That Predict Lien Payouts

By

Viktoria Chudsky

Submitted in partial fulfillment  
of the requirements for the degree of  
Master of Arts in Economics, Hunter College  
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## **Introduction**

Budgeting of various government sponsored programs, how to improve allocation and the reach of tax dollars throughout the population, is an important policy question. To get a glimpse into how the government allocates tax dollars and, on a smaller scale, how the government ensures that its citizens are better off with every passing year, I examine the operations of the Division of Liens and Recovery in New York City.

The Division of Liens and Recovery deals with recouping money for Medicaid and Public Assistance programs from clients who have gotten sponsored by these programs. Suppose a person X sues the city and wins a settlement. This person has injuries that have been treated in a hospital, and sometimes the hospital bills have been paid for by Medicaid. The city has then overcompensated person X. This is because person X has received a settlement from the injuring party, which was already meant to compensate for the injury related medical costs. The Division of Liens deducts the medical injury related costs out of the client's settlement amount. It does so by placing liens on client's settled cases from personal injury claims and law suits. Liens are rights of payment from clients in the amount of their medical costs and public assistance. By collecting from the settlement amount that is due to the client, the Division of Liens and Recovery is ensuring that they are getting reimbursed for paying for the client's medical costs and that the client is not getting over compensated. For example, if the person who injured the client owes the client money for the injury then they should pay for said client's Medical costs and Public Assistance that the client was receiving from the government back to the government. The city is also considered an injured party because the defendant who injured the client thus causes the city to pay out for the client's medical care and Public Assistance. Hence, the settlement amount is not considered the client's money to begin with. The money first must be

processed by the city so that they can recoup the payment for the client's Medicaid and Public Assistance that they paid to the client while the client was injured. Then, the remaining sum goes to the said client. By collecting a lien, the city is not taking the client's money. They are taking the defendant's money that was the defendant paid out for the client's medical injury related costs.

## **1.1 Background**

To understand how and under what regulations the Division on Liens and Recovery operates, it is important to understand what Medicaid and Public Assistance programs are and their history. Medicaid was signed into law in 1965 by President Lyndon B Johnson and was authorized by title XIX of the Social Security Act.<sup>1</sup> It provides health coverage for low income peoples in all the US states, the District of Columbia, and the US territories. Each state was given the right to administer the program differently, even though Medicaid is jointly administered by the states and federal government.<sup>2</sup> Public Assistance, also known as Cash Assistance, was created earlier than Medicaid. The beginnings of the welfare system that provided public assistance can be traced back to the Social Security Act of 1935.<sup>3</sup>

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<sup>1</sup> Joseph D. Juenger, "In Light of Ahlborn - Designing State Legislation to Protect the Recovery of Medicaid Expenses from Personal Injury Settlements," 35 N. Ky. L. Rev. (2008): 107.

<sup>2</sup> Ibid., 107.

<sup>3</sup> "Origins of the State and Federal Public Welfare Programs (1932 – 1935)." Social Welfare History Project. December 01, 2016. Accessed February 21, 2019. <https://socialwelfare.library.vcu.edu/public-welfare/origins-of-the-state-federal-public-welfare-programs/>.

For the purposes of this paper, an important change occurred in 1996, the welfare system got changed to TANF and this is what it is known as today.<sup>4</sup> TANF stands for Temporary Assistance for Needy Families and is a federally administered program that allows states to administer its own programs to assist the needy.<sup>5</sup>

New York, specifically, has many Public Assistance programs. For example, One Shot is a program that that helps pay for bills in months of bad financial management. Another program, the Supplemental Nutrition Assistance Program, SNAP, provides nutritional assistance to low income families. All programs under Public Assistance are “payers of last resort” meaning that, they help the needy when there is no other way for them to receive assistance. Similarly, Medicaid is also a payer of last resort. Payers of last resort such as SNAP, TANF, and Medicaid are allowed by law to recoup funds paid out to individuals on any of these programs who file for a personal injury claim or suit.<sup>6</sup>

The Division of Liens and Recovery can collect on personal injury cases according to two laws stated above, NYS SSL 104 and NYS SSL 104b. In its original form NYS SSL 104 was passed in 1940.<sup>7</sup> This law concerns recovering compensation from a person discovered to have property or to have come into significant wealth who has previously received Public Assistance.

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<sup>4</sup> Ibid., 1.

<sup>5</sup> Ibid., 1.

<sup>6</sup> Joseph D. Juenger, “In Light of Ahlborn - Designing State Legislation to Protect the Recovery of Medicaid Expenses from Personal Injury Settlements,” 35 N. Ky. L. Rev. (2008): 107.

<sup>7</sup> Michael A. Bottar, “Robbing Peter to Pay Paul: Medicaid Liens, Supplemental Needs Trusts and Personal Injury Recoveries on Behalf of Infants in New York State Following the Gold Decision,” 53 Syracuse L. Rev. 175 (2003): 184.

Since the client has been awarded a significant amount of money, this law allows for the department to collect up to 10 years back in Public Assistance that was awarded to the client. Under this law the department has the right to sue the client that is not willing to pay the department for up to 10 years of Public Assistance that was provided to them.<sup>8</sup> Similarly, NYS SSL 104b allows the Division of Liens and Recovery to file liens against personal injury if the recipient of the settlement is on Public Assistance (from the date of their accident to the settlement date) and/or has medical care paid for by Medicaid that is related to the accident after the date of the accident to the settlement date.<sup>9</sup> The statute involving Medicaid was added into law in 1964.<sup>10</sup>

Aside from the statutes, NYS SSL 104 and 104b, the applications for Medicaid and Public Assistance programs have an “assignment clause” that states that when a client pursues any personal injury claims they assign the resources they get to Medicaid.<sup>11</sup> This means that the Division of Liens and Recovery has the right to place a lien on the client’s settlement amount up to what was paid out in Medicaid or Public Assistance. Essentially, when applying for Medicaid and Public Assistance the client agrees to the assignment clause during the application process and acknowledges that he or she has given the department permission to file a lien on any medical injury law suit or claim that they bring up.

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<sup>8</sup> "2014 New York Laws :: SOS - Social Services :: Article 3 - LOCAL PUBLIC WELFARE ORGANIZATION; POWERS AND DUTIES :: Title 6 - (101 - 111) POWERS TO ENFORCE SUPPORT :: 104 - Recovery from a Person Discovered to Have Property." Justia Law. Accessed February 21, 2019. <https://law.justia.com/codes/new-york/2014/sos/article-3/title-6/104/>.

<sup>9</sup> "2014 New York Laws :: SOS - Social Services :: Article 3 - LOCAL PUBLIC WELFARE ORGANIZATION; POWERS AND DUTIES :: Title 6 - (101 - 111) POWERS TO ENFORCE SUPPORT :: 104-B - Liens for Public Assistance and Care on Claims and Suits for Personal Injuries." Justia Law. Accessed February 21, 2019. <https://law.justia.com/codes/new-york/2014/sos/article-3/title-6/104-b/>.

<sup>10</sup> Michael A. Bottar, “Robbing Peter to Pay Paul: Medicaid Liens, Supplemental Needs Trusts and Personal Injury Recoveries on Behalf of Infants in New York State Following the Gold Decision,” 53 Syracuse L. Rev. 175 (2003): 185.

<sup>11</sup> *Ibid.*, 108.

Overall, in New York City, the recovery of money paid out to clients after a personal injury case settles is an interesting topic to investigate because it provides insight into how the government functions on a basic city level. It also allows for extensive data analysis in hopes of tracking patterns of possible improvements that can be made to the functions of the Division of Liens and Recovery which will increase monetary recoupments and hence the welfare of the city. Essentially, the objective of writing this paper is to use the knowledge gained and extrapolate it to other lien and recovery departments increasing the social benefit among the dwellers of other states.

## **1.2 The Question**

This research paper is concerned with finding which factors lead to recoupment and which factors explain recoupment amounts with the overarching objective to use the analysis in order to understand which variables increase reimbursement funds that will be reinjected into Medicaid and Public Assistance programs. This study measures the client and firm characteristics such as the settlement amount of their case, their age, how long the case has been in the MAESTRO system for, the client's borough of residence, and the defending law firm's location in order to see if a specific client and or firm characteristics impact the amount of recoupment. MAESTRO is the name of the analytical tool that all the data is gathered in. Additionally, the firm's names will be used to track whether specific firms have effects on recoupment amounts. Ultimately, modeling this information and interpreting the results can help create public policy that will help the city recoup and recover more money from settled personal injury cases and pave a path for better money management of the Medicaid program.

## **2 Literature Review**

While looking for articles to review related to the question at hand, it has become clear that this type of research has not yet been done. The articles that I did find fell into three categories. These articles either compared recoupment language among states, explained the need for a recoupment and compared Medicaid and Medicare recoupment processes. Additionally, studies on litigation and bargaining and how to conduct negotiations are plentiful and although the tactics will not be discussed in this paper having a strategy when negotiating is worth mentioning because it does speak on the Division of Liens and Recovery collection abilities. In, “Effective Legal Negotiation and Settlement” by (Craver 2009), it is explained that simply practicing and interacting with clients does not make one a great negotiator and only hours of negotiation practice can make a good negotiator.<sup>12</sup> Meaning that, the art of negotiation should be taught to analysts so that they can negotiate with attorneys higher recoupment amounts and increase the reimbursements to the Division. Ultimately, although there are no articles that describe similar data analytics to what I want to perform, these articles lead in the general direction of answering the question of how to improve the collection process of Medicaid; this question is one of the driving sources for my research.

## **2.1 Comparing Recoupment Among States**

“In Light of Ahlborn - Designing State Legislation to Protect the Recovery of Medicaid Expenses from Personal Injury Settlements,” (Juenger 2008), describes a personal injury case in Arkansas and illustrates the similarity of wording on recovering medical costs between Oklahoma and New York, showing that New York is not different in its recovery tactics. In this personal injury lawsuit, a 19-year-old college student, Heidi Ahlborn, was injured in an automobile accident and left permanently brain damaged. The state of Arkansas paid almost

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<sup>12</sup> Charles B. Craver, “Effective Legal Negotiation and Settlement,” PDF, (1986): 9.

\$216,000 to medical providers on her behalf. When she later sued the injurer, the state tried to recoup that \$216,000. However, Ahlborn only settled for \$550,000 and argued that the amount was only 1/6 of what she should have received in the settlement, so the government should only charge her 1/6 of the \$216,000 medical bill. She won the case and the government recovered approximately \$36,000.<sup>13</sup> This Arkansas case has demonstrated the importance of assignment of rights to recoup Medicaid funds and allowed for other states like Oklahoma to go a step further by placing a lien on the injurer, “Per session law, Oklahoma expressly seeks to continue to employ liens to recover Medicaid expenditures from third-party tortfeasors.”<sup>14</sup> Placing a lien insures and promotes that the Medicaid expenditures will be paid back and re-injected into the plan to help cover the costs of other Medicaid users. Similarly, the wording of the law in Oklahoma is similar to the wording of New York law; in New York, the law is written “[anyone who]...has a ‘lien’ on any third-party recoveries where medical expenses have been paid by Medicaid.”<sup>15</sup> This demonstrates that New York is not the only state that has a recoupment process and that New York’s wording when it comes to state’s right to collect a lien is not unique and unheard of. Thus, the similar wording that allows for recoupment of funds to be reinjected into the Medicaid budget illustrates each state’s approach to be able to provide health services for those who need them.

Similarly to Oklahoma, Virginia’s provisions also mirror those of New York.<sup>16</sup> In, “Robbing Peter to Pay Paul: Medicaid Liens, Supplemental Needs Trusts and Personal Injury

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<sup>13</sup> Joseph D. Juenger, “In Light of Ahlborn - Designing State Legislation to Protect the Recovery of Medicaid Expenses from Personal Injury Settlements,” 35 N. Ky. L. Rev. (2008): 107.

<sup>14</sup> Ibid., 117.

<sup>15</sup> Ibid., 116.

<sup>16</sup> Michael A. Bottar, “Robbing Peter to Pay Paul: Medicaid Liens, Supplemental Needs Trusts and Personal Injury Recoveries on Behalf of Infants in New York State Following the Gold Decision,” 53 Syracuse L. Rev. 175 (2003): 203.

Recoveries on Behalf of Infants in New York State Following the Gold Decision,” Michael A. Bottar explains that in Virginia’s law, “Section 8.01-66.9 provides that when the Commonwealth pays for or provides medical services because of a tortious injury, a lien is created in favor of the Commonwealth for the amount of those services. The lien is placed against a future personal injury recovery brought by a Medicaid recipient or their representative.”<sup>17</sup> In other words, the state of Virginia, like New York, is allowed to place a lien to recoup medical costs paid out on behalf of a Medicaid client. Nonetheless, the two states are not entirely similar in their provisions because, “the Medicaid reimbursement scheme under Virginia Code section 8.01-66.9 is considerably more flexible than the statutory recovery provisions of New York's Social Services Law.”<sup>18</sup> Although the two states mirror each other in language for recovery purposes and impose liens some states are more discretionary when it comes to how much they are willing to negotiate and reduce that lien for the injured client. Thus, there is a tradition in several states of trying to recover funds that can be used to further the interests of society.

## **2.2 Why Recoupments Are Necessary**

“An Examination of the Personal Injury Plaintiff's Struggle for Adequate Compensation under Government Rights of Reimbursement,” by (Smith 2013), answers why there is a need for recovery and outlines a plan of how to increase the benefit of tax dollars. Understanding why there is a need for recovery allows for a passageway to improve collection methods which in turn increases reinjection back into Medicaid. Kaitlin M. Smith, says that, “rights of reimbursement held by the government under these programs provide two main functions in society; they allow the government to provide immediate care to an injured plaintiff who cannot afford medical care

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<sup>17</sup> Ibid., 203.

<sup>18</sup> Ibid., 205.

up front, as well as safeguarding taxpayers from an increased financial burden.”<sup>19</sup> The collection of recoupments and Medicaid itself are necessary because by reinjecting funds back into Medicaid these recoupments, in part, ensure that everyone in the society is covered if a Medical injury happens to them. Smith goes further to suggest a bifurcated process of collection during trials in which evidence is presented in the initial phase of the trial and then the jury decides if the defendant is liable. If the defendant is liable, the jury then decides how much they should payback the government based on the calculated damages amount.<sup>20</sup> This process will allow for a quicker repayment to the government because the lien amount will be calculated prior to the trial and the defendant will know how much he has to pay back to the government. Therefore, the defendant will be making the direct payment to the government without the money reaching the client first. Moreover, the process will not make the injured plaintiff feel as if the repayment of their medical care is being taken out of their settlement amount. Although this is a good suggestion, there is no data or testing done on whether such a method would work to better the recoupment process. Smith uses hypothetical scenarios to suggest that this method would work. This a good start in thinking of how to make the system function better, and to open up the study of increasing Medicaid recoupments.

### **2.3 Comparing Medicaid and Medicare Recoupments**

“Giving an Inch, Then Taking a Mile: How the Government's Unrestricted Recovery of Conditional Medicare Payments Destroys Plaintiffs' Chances at Compensation through the Tort System,” by (Miklos 2010), compares Medicaid and Medicare collection processes in order to demonstrate how rigid collection systems can damage clients’ chances of being compensated

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<sup>19</sup> Kaitlin M. Smith, “An Examination of the Personal Injury Plaintiff's Struggle for Adequate Compensation under Government Rights of Reimbursement,” 22 Kan. J.L. & Pub. Pol'y (2013): 270.

<sup>20</sup> Ibid., 296.

under Medicare. This has strong implications for Medicaid because Medicaid is also a government funded program. Increasing reimbursements is debated by Miklos to decrease overall just compensation. She argues that, “allowing the government full recovery from settlements makes Medicare beneficiaries undesirable clients for medical malpractice attorneys because it reduces their net recovery. Plaintiffs' attorneys will only agree to representation when they believe it is profitable to do so.”<sup>21</sup> Essentially, if the government can recover the entire amount of the settlement the plaintiff will have no incentive to sue at all. This is comparable in the Medicaid situation because although we are researching how to increase Medicaid collections it should be taken into account that extremely high recoupments can lead to clients not suing, plaintiff attorneys not taking cases and Medicaid not being able to recover anything at all. Comparing the full recovery of Medicare as opposed to limited recovery of Medicaid provides useful insight into policy implementation of increased Medicaid recoupments while maintaining balance and not isolating clients from having their cases heard.

### **3 Data**

The MAESTRO system is the primary data source for the analysis. The data is gathered on all cases that were settled from the year 2014 to 2018. We are only provided with cases that were opened and closed in the MAESTRO system between zero to four years. The primary dependent variable is Payment, and it is a continuous variable that represents the amount that the department was paid, or in other words, the recoupment amount. This recoupment amount includes recoupments from Medicaid and Public Assistance. Throughout the paper, the Payment variable will be referred to as the “recoupment amount” and should not be confused with the

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<sup>21</sup> Nicole Miklos, “Giving an Inch, Then Taking a Mile: How the Government's Unrestricted Recovery of Conditional Medicare Payments Destroys Plaintiffs' Chances at Compensation through the Tort System,” 84 St. John's L. Rev. 305 (2010): 320.

recoup variable. The recoup variable is a binary variable created to represent 1 if there is a recoupment and 0 if there is not a recoupment.

The independent variables consist of client characteristics and the client's representing law firm characteristics: the client's settlement amount divided by 10,000 for ease of interpretation, client's age, the borough the client lives in, how long the case was open in the MAESTRO system, the law firms' location by borough, and the law firm names. The independent client characteristic variables are labeled as `Settleby100`, `AgeAll`, `BoroughCode`, `O2CALL`, `FrimBorough` and `FirmNameCode`, respectively. `Settleby100`, `AgeAll`, and `O2CALL` are measured continuously while the remaining variables are measured nominally or categorically.

`BoroughCode` is a categorical variable and is split into groups. Each borough is assigned a number one through five and these numbers are collapsed into Borough dummy variables. The other independent variables are firm characteristics which consist of the firm's name that is linked to each individual case and the borough in which that firm operates. The variables are labeled as `FirmNameCode` and `FirmBoro` respectively. There are 1539 unique law firms, so each firm is assigned a number from 1 to 1539. There are fewer firms than cases, because some firms handled more than one case. To measure the location of the attorney's law firm, each the borough from which the law firm originates is also assigned a number in the same manner as the location of the client's addresses. The only difference between the client's and the law firm's addresses is that if a law firm is located outside the five boroughs then that law firm gets assigned a number six. Since New York City only recoups payments for clients from the five boroughs it makes sense that each client's address is assigned a number one through five. However, New York City does not limit the location to which the client's law firm can be from hence, there is an added category labeled with the number six, for firms that are outside the five

boroughs. Ultimately, the client characteristics and the law firm characteristics are used to predict whether there will be a recoupment or not and if there is a recoupment then how much will be recouped.

The summary statistics are presented in the first two tables. From the first table we can see that there is a total of 9,521 observations and approximately 43.3% of those cases had a recoupment. The average recoupment amount is \$8,094. The minimum recoupment amount was \$419.4 while the maximum was \$600,000. The average age for a client was approximately 48 years old. The average time a case was open in the MAESTRO system was one year. The minimum settlement amount was \$850 and the maximum was \$22 million. The average settlement amount was around \$129,000. From table 2 we can see that there was a total of 1,187 clients who live in Manhattan and a total of 4,497 firms operating in Manhattan. We can also observe that there were 693 cases with clients who lived in Manhattan and had representing law firms in Manhattan as well. We can also see that 81 cases had clients from Manhattan and their representing law firms from Brooklyn. The average recoupment amount seems to be small, less than 10% of the settlement amount. The rest of the summary data can be interpreted in a similar fashion.

## **4 Methodology**

To complete the analysis, this paper uses ordinary least squares, fixed effects modeling, Probit, and Heckman. The regression and Probit treats recoupment amounts and the recoupment decisions separately, while Heckman allows them to be interdependent. The first model is a simple linear regression, regressing payment on client characteristics and client's law firm characteristics such as settlement amount, client's age, length of time the client's case has been in the MAESTRO system, the borough in which the client lives in, and the firm's borough. Three

types of basic regressions are performed. The first regression includes client characteristics and excludes the client boroughs and law firm locations. The second regression includes all the client characteristics and excludes law firm locations. The third regression includes all the client and law firm characteristics. This is done in order to see if the borough codes and the law firm locations add anything interesting to the models.

The second model in this paper is a fixed effects model which is used to control for law firm characteristics in order to see if controlling for law firm characteristics would change the effect of the client characteristics on recoupment amount. There are 1539 unique law firms so dummy variables are created for each unique firm name. Due to the multitude of dummy variables pertaining to each unique firm, the “areg” command is used. A lot of these dummies just drop out if the firm has only handled one case, hence, allowing firms with multiple cases to be different with the single case firms as the base group. The third model, an addition to the second model, analyzes the firm codes by their frequency of cases in order to understand whether specific law firms contribute to lower recoupment amounts. Dummy variables are created for law firms that have a frequency of greater than fifty firms matching the same firm code. The number fifty is used because it is thought that law firms with over fifty cases are perhaps more used to dealing with litigating recoupments and paying out less to Medicaid, so it might be that recoupment amounts are lower in these cases. With the created dummies, these additional variables are added into the regression with client characteristics to try to identify firms that consistently either increase or decrease the recoupment amount. Three regressions are performed and each regression includes the same variables as the three regressions in the OLS models, described above, with the addition of the dummy variables.

The fourth model that is estimated is a Probit model which estimates the probability of recoupment as a function of case characteristics. The same variables are used in this model as in the previously described OLS model. Also, three Probit models are run in the same manner as three OLS models without the location variables and then adding the location variables. These regressions are run in order to see if adding client location and firm location adds any interesting information to the model. However, in the Probit model, marginal effects are also estimated in order to make interpretations.

These four simple models are good starting points. However, results from linear regressions tend to be biased because we are not observing the equation for the entire population; not all cases have received a recoupment/payment. Using a regular regression in this case might cause sample selection bias. To avoid sample selection bias, I use the Heckman model. The first stage of the Heckman is estimated using a Probit and measures whether there is a recoupment or not. Then the inverse mills ratio, or lambda, is calculated and used in the second stage as an additional independent variable. The second stage is then estimated by linear regression. With the Heckman model we measure if the Division of Liens and recovery receives a recoupment, then how much will the recoupment be. The model allows correlation between the amount of recoupment and whether or not any recoupment is observed. The marginal effects are then calculated in order to be able to interpret the coefficients. The Heckman model is calculated as is and with the “twostep” command in order to demonstrate the likeness of the results, that the model can be calculated in two different ways, and to fit regression models with selection.<sup>22</sup> It is typical to have some variables that are in the Probit that are not in the regression equation when

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<sup>22</sup> “Heckman- Heckman Selection Model,” PDF file. Accessed April 19, 2019.  
<https://www.stata.com/manuals13/rheckman.pdf>.

estimating a Heckman model. I use all the variables in both models and relying on the functional form to identify the model. Overall, OLS, fixed effects, Probit, and Heckman, are utilized in order to complete this analysis.

## **5 Results**

Table 3 shows the three OLS regressions. The first one does not include any borough/location variables for either the client or the law firm. All things held constant, recoupment amount is on average \$3,041. The only significant variable is the settlement amount. Meaning that, a one dollar increase in settlement amount leads to an approximately \$0.02 increase in recoupment amount. In the second regression, where the client boroughs are added, the settlement amount is still significant with the same coefficient, making the analysis for that variable the same as the model without the client boroughs. Additionally, Bronx and Staten Island are boroughs which have significant coefficients in this model. Compared to clients who live in Manhattan, clients who live in the Bronx have on average \$2,036 more in recoupment amount. Compared to clients who live in Manhattan, clients who live in Staten Island have on average \$3,197 less in recoupment amount. The constant decreases in the second model to \$2,260 being the average recoupment amount all else held constant. The r-squared increases from 0.32 to 0.323 from model one to model two which can be interpreted as the borough coefficients not adding a lot to the explanatory power to the model. In the third regression model we add the law firm's location characteristics. The third OLS model also has the same significant coefficients on settlement amount and thus the same interpretation as the previous two models. Bronx and Staten Island are still significant. Compared to clients who live in Manhattan, clients who live in the Bronx have on average \$1,922 more in recoupment amount. Compared to clients who live in Manhattan, clients who live in Staten Island have on average \$3,896 less in

recoupment amount. The constant decreases in the third model, to \$2,027, being the average recoupment amount all else held constant. The r-squared in this model increases by only 0.001 and none of the law firm locations are significant which signals that adding them into the model does not create a big difference in the accuracy of the model.

Table 4 shows the results of the fixed effects model; it is a regression using the “areg” command. All things held constant, and accounting for law firm fixed effects, recoupment amount is on average \$2,089 according to this model. The significant variables are settlement amount and how long the case was open in the MAESTRO system for. The difference between the fixed effect model and the regular regression is that now, how long the case was open in the system for, O2CALL, has a significant effect and can be meaningfully interpreted. A one dollar increase in settlement amount leads to an approximate \$0.02 increase in recoupment amount, controlling for law firm fixed effects. Or to be more specific a \$10,000 increase in the settlement amount leads to an approximate \$200 increase in recoupment amount. This is essentially the same result as using the regular regression without having law firm fixed effects. Moreover, a one- year increase in the length the case stays open in the system leads to a \$728 increase in recoupment amount, controlling for law firm fixed effects. Essentially, the coefficients did not change significantly so controlling for law firm fixed effects did not create a better model.

The results in Table 5 show that all the dummy variables created on law firm names based on their assigned codes were insignificant. In other words, creating these dummy variables and adding them to the OLS model did not have any significant effects on increasing or decreasing recoupment amount. The coefficients did change slightly from the regular OLS model but not enough to have a different effect than the OLS model showed. This first regression with law firm name dummy variables shows that all things held constant, recoupment amount is on

average \$3,455.124. The only significant variable is the settlement amount which means that a one dollar increase in settlement amount leads to an approximately \$0.02 increase in recoupment amount. Or, for every \$10,000 increase in the settlement amount the recoupment amount increases by approximately \$200. In the second regression, where the client boroughs are added in, the settlement amount is still significant with almost the same coefficient, making the analysis for that variable the same as the model without the client boroughs. Comparatively to the regular regression model, Bronx and Staten Island, client boroughs, are boroughs which have significant coefficients. Compared to clients who live in Manhattan, clients who live in the Bronx have on average \$2,117 more in recoupment amount. Compared to clients who live in Manhattan, clients who live in Staten Island have on average \$3,376 less in recoupment amount. The constant decreases in the second model with law firm dummy variables to \$2,588 being the average recoupment amount all else held constant. The r-squared increases from 0.321 to 0.324 from model one to model two which can be interpreted as the borough coefficients not adding a lot to the explanatory power to the model. In the third model with law firm dummy variables the law firm's location characteristics are added. This model has significant coefficients on settlement amount as the regular OLS model and thus the same interpretation as the previous two models applies. Bronx and Staten Island client boroughs are still significant. Compared to clients who live in Manhattan, clients who live in the Bronx have on average \$2,027 more in recoupment amount. Compared to clients who live in Manhattan, clients who live in Staten Island have on average \$3,748 less in recoupment amount. The constant decreases in the third model, to \$2,363, being the average recoupment amount all else held constant. The r-squared in this model increases by only 0.001 and none of the law firm locations are significant which signals that adding them into the model does not create a big difference in the accuracy of the model. Table 6

is created to show the exact effect each law firm dummy variable has on recoupment amount, however, since none of the dummy variables is significant, Table 3 is presented first and simplifies the dummy variables into one effect.

In Table 7 I present results from the estimation of the Probit model. This model predicts whether there will be a recoupment or not. The first Probit equation does not include any borough/ location variables for either the client or the law firm. The second equation includes borough variables of the client but not location variables for the law firm. The third equation includes everything, borough variables from the client and from the law firm. The coefficients are not easily interpretable, so the marginal effects, labeled in columns 4, 5 and 6 are used to make interpretations. In the first model, the settlement amount, age of the client, and how long the case was in the system for are significant variables that carry a meaningful interpretation. For every \$10,000 increase in the Settlement Amount the likelihood of recoupment increases by 0.7 percent. A one-year increase in age increases the probability of recoupment by 0.3 percent. A one-year increase in the length the case is open in the MAESTRO system increase the probability of recoupment by 8.3 percent. In the second version of the Probit model, when the client boroughs are added, it is observed that Brooklyn, Queens and Staten Island have significant effects on the probability of recoupment. Compared to clients who live in Manhattan, clients that are from Brooklyn have a 7.9 percent lower likelihood of recoupment. Compared to clients who live in Manhattan, clients that are from Queens have a 13.7 percent lower probability of recoupment. Compared to clients who live in Manhattan, clients that are from Staten Island have a probability of 13.1 percent lower recoupment. In the third Probit model, where law firm boroughs are added, we can see that law firms that are located in Brooklyn, Bronx, Queens, Staten Island and outside of New York City have a significant effect on whether there is a

recoupment or not. Compared to law firms that are located in Manhattan, law firms that located in Brooklyn, Bronx, Queens and Staten Island decrease the probability of recoupment by 5.3, 7.7, 10.8, and 7.4 percent respectively. Compared to law firms that are located in Manhattan, law firms that are located outside of New York City increase the probability of recoupment by 3.6 percent respectively. The differences across the boroughs might be because law firms outside the five boroughs are more willing to pay recoupments in order to avoid law suits. These firms might be smaller than New York City law firms and less willing to risk being shut down due to a large lawsuit.

Table 8 demonstrates the results of the Heckman model. Marginal effects are once again needed to make an interpretation. It is shown that, the settlement amount of the case, the client's age, how long the case was open in the system for, client boroughs such as Brooklyn and Queens, and law firm locations such as Brooklyn, Bronx, Queens and Staten Island are significant. What this means is that, given that there is a recoupment, for every \$10,000 increase in the settlement amount the recoupment increases by \$151. Additionally, per \$10,000 increase in settlement amount, chances of recoupment go up by 0.01 or 1%. The average marginal effect on age can be interpreted as, given that there is a recoupment, a one-year increase in age decreases the recoupment amount by \$133. With a year increase in age, the likelihood of recoupment goes up by 0.2%. Furthermore, conditional on there being a recoupment with every year that the case is in the MAESTRO system, there is a decrease in recoupment amount by \$3248. Given that there is a recoupment, clients that live in Brooklyn and Queens, as compared to clients that live in Manhattan, increase the recoupment amount by \$2,299 and \$4,463 respectively. Given that there is a recoupment, law firms that are located in Brooklyn, Bronx, Queens and Staten Island increase the recoupment amount by \$2,759, \$4,877, \$5,236, and

\$6,421 respectively. Firms that are located outside New York City increase the probability of recoupment by 3%.

Table 9 illustrates the results of the Heckman model performed in two parts. It is illustrated that the settlement amount of the case, the client's age, how long the case was open in the system for, client boroughs such as Brooklyn, Queens, and Staten Island and all law firm locations are significant. In other words, given that there is a recoupment, a \$10,000 increase in the settlement amount increases the recoupment amount by \$140. Also, per \$10,000 increase in settlement amount, chances of recoupment go up by 0.6%. The average marginal effect on age can be interpreted as, a one-year increase in age increases the recoupment amount by 0.3%. Additionally, conditional on there being a recoupment, with every year that the case is in the MAESTRO system, there is a decrease in recoupment amount by \$1,941. Given that there is a recoupment, clients that live in the Bronx, and Queens, as compared to clients that live in Manhattan, increase the recoupment amount by \$1,665 and \$3,002 respectively. Given that there is a recoupment, law firms that are located in the Bronx, Queens and Staten Island increase the recoupment amount by \$4,042, \$2,681, and \$5,900 respectively. All the law firms within NYC compared to law firms that are in Manhattan decrease the chances of recoupment. Law firms located outside NYC increase the chances of recoupment by 3.5%. Comparing the results both Heckman models gives a similar conclusion that age and how long the case was in the system for decreases recoupment amounts while law firms that are located in the Bronx and Staten Island increases recoupment amount.

The estimates of the Heckman relative to the estimates of the simple regressions and Probit are different, this can be observed in the tables. For example, in the OLS model a ten thousand dollar increase in the settlement amount leads to an approximate \$169 increase in

recoupment amount. Similarly, in the Probit model for every \$10,000 increase in the Settlement Amount the likelihood of recoupment increases. Comparative to the OLS and Probit model, in the Heckman model, when there is a ten thousand dollar increase in the settlement amount the recoupment amount increases by \$151. In that same OLS model we saw that clients who live in the Bronx compared to clients who live in Manhattan increase recoupment amount. While clients who live in State Island decrease recoupment amount. This similar pattern was observed in the fixed effects model and the model where dummy variables are created to track the specific effects of law firms on recoupment amounts. Also, in the Heckman model, the client's law firm location in most of the boroughs tends to increase the recoupment amount where as in the OLS and Probit models being located in one of the four boroughs compared to Manhattan tends to either decrease or increase recoupment amount and the probability of recoupment. After analyzing multiple models, the Heckman model is a superior model when compared to the OLS and Probit models. These different results go to show that sample selection is important and hence the Heckman model should be used because it accounts for such sample selection.

## **6 Discussion**

After performing multiple analysis, it becomes evident that based on the data it cannot be predicted which law firm should be targeted in order to increase recoupment amounts; however, client characteristics and law firm locations are good indicators to look for when working on a case. Throughout the models, Settlement Amount was consistently an important factor in determining there being a recoupment and an increased amount in recoupment. This makes logical sense because the higher the settlement amount is, the more serious a person's injury could have been where they were required to use Medicaid which would qualify the settlement amount to be eligible for recoupment. The age of the client and how long that client's case was

in the MAESTRO system also came up as significant variables. This can be explained with the fact that the younger people, especially children born with disabilities due to malpractice have higher settlements and require more Medicaid coverage. If Medicaid provides those people with more coverage than they are more likely to recoup those larger sums when the injured client receives a settlement. An explanation to why the length of the case in the system is significant is because the longer the case stays in the system, the more likely it is that some medical charges might be disputed as not being related to the accident thus, decreasing the eligible recoupment amount. Overall, as a policy suggestion, it would make sense to have the more experienced analysts, in the Division of Liens and Recovery, to be first given cases that have high settlement amounts with people who are younger and live in Queens with their representing attorneys working in Staten Island. The chief conclusion being that the relationship between settlement amount and recoupment amount seems stable and the two cents on the dollar rule holds up. At this current time the experienced analysts get assigned the high value or high settlement amount cases, but the age and location of the clients and their law firms are not accounted for. If the cases with characteristics described above are prioritized and assigned to the senior analysts, the department should see an increase in recoupments and recoupment amounts.

Although a lot of analysis was performed in this study there are still a few limitations. One limitation is that the data that was available was only for the 2014-2018 years. A bigger data set could have shown more interesting results and potentially tracked patterns with law firms that were causing the department to lose money. Another limitation is that data on law firms was extremely limited to the name of the law firm and their location by borough. If there was more data available on the size of the law firm, the length of time this law firm was in business for, and etc more interesting variables could be added and observed within the model. Additionally,

since law firms and clients aren't the only "players" in the recoupment process, if data on the analysts was available then this study could analyze which analysts were causing increases or decreases in the recoupment amount given that there was a recoupment. In summary, due to regulations and safety of clients, law firms and analysts the research was limited yet still provided useful insight.

## **7 Conclusion**

This study provided useful insight and potential suggestions to increasing the reimbursement of government paid out funds to cover Medicaid's recipient's medical injury related costs. It is concluded that senior analysts should be assigned cases with high settlement amounts and clients who are younger and live in Queens with their representing attorneys working in Staten Island. The next step would be for the Division of Liens and Recovery to create a tool that would do such prioritization and automatically assign cases to analysts based on their rank and based on the client's and law firm's characteristics. An interesting project going forward would be for the department to start collecting more data on law firms like how many employees each law firm has, and how long these law firms have been around for and etc. Also, to collect more information on the analysts and have it input in the MAESTRO system in order to increase the analyzing potential, increase recoupments, increase recoupment amounts and increase overall benefit to society. This paper worked with data that although was limited, helped pave a great starting point to analyzing government agencies and maximizing the efficiency of such agencies while creating a better society for the future generations to come.

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## List of Tables

### Summary Statistics Table 1

VARIABLES	(1) N	(2) Mean	(3) Sd	(4) Min	(5) Max
Payment	4,120	8,094	22,916	419.4	600,000
Age	9,521	48.10	17.94	2.151	104.1
Open to Close	9,521	0.980	0.965	0	3.989
Settlement Amount	9,521	128,694	532,011	850	2.200e+07
Recoupment	9,521	0.433	0.495	0	1

### Summary Statistics Table 2

Firm Borough	(1) Manhattan Freq (Percent)	(2) Brooklyn Freq (Percent)	(3) Bronx Freq (Percent)	(4) Queens Freq (Percent)	(5) Staten Island Freq (Percent)	Total
Manhattan	693*** (58.38)	1,380*** (45.63)	1,413*** (54.22)	878*** (38.22)	133*** (32.68)	4,497
Brooklyn	81*** (6.824)	905*** (29.93)	159*** (6.101)	191*** (8.315)	47*** (11.55)	1,383
Bronx	76*** (6.403)	67*** (2.216)	368*** (14.12)	27*** (1.175)	6*** (1.474)	544
Queens	117*** (9.857)	236*** (7.804)	205*** (7.866)	718*** (31.26)	24*** (5.897)	1,300
Staten Island	16*** (1.348)	39*** (1.290)	16*** (0.614)	11*** (0.479)	158*** (38.82)	240
Outside NYC	204*** (17.19)	397*** (13.13)	445*** (17.08)	472*** (20.55)	39*** (9.582)	1,557
Total	1187	3024	2606	2297	407	9,521

### OLS Regressions

VARIABLES	(1)	(2)	(3)
	Payment	Payment	Payment
Settlement Amount	168.431*** (3.867)	168.888*** (3.865)	168.599*** (3.879)
Age	9.429 (17.222)	12.809 (17.274)	14.889 (17.319)
Open to Close	339.972 (307.673)	360.748 (307.307)	367.338 (307.588)
Brooklyn		-80.379 (933.857)	200.654 (950.518)
Bronx		2,036.489** (929.895)	1,922.007** (933.746)
Queens		419.415 (1,005.429)	600.543 (1,021.120)
Staten Island		-3,197.489* (1,694.064)	-3,896.172** (1,830.008)
Firm- Brooklyn			-1,130.995 (970.541)
Firm- Bronx			1,949.586 (1,357.585)
Firm- Queens			-986.757 (1,066.871)
Firm- Staten Island			3,137.153 (2,366.868)
Firm- Not in NYC			692.946 (788.096)
Constant	3,040.711*** (1,011.681)	2,260.390* (1,268.348)	2,026.829 (1,292.336)
Observations	4,120	4,120	4,120
R-squared	0.320	0.323	0.324

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 3:** OLS regressions of Payment on Settlement amount. Payment is measured in dollar amounts. Model (2) includes a client borough identifier and Model (3) includes a client borough identifier as well as a law firm location identifier.

### Fixed Effects Regression

VARIABLES	(1) Payment
Settlement Amount	162.840*** (5.106)
Age	25.657 (20.873)
Open to Close	727.697** (369.777)
Brooklyn	717.198 (1,147.926)
Bronx	2,532.051** (1,146.936)
Queens	1,203.560 (1,254.578)
Staten Island	-5,622.689** (2,291.097)
Firm - Brooklyn	-2,662.979 (5,541.379)
Firm - Bronx	545.937 (6,731.569)
Firm - Queens	-2,648.795 (5,113.879)
Firm – Staten Island	4,329.184 (10,680.608)
Firm – Not NYC	-1,115.331 (3,239.966)
Constant	1,524.585 (2,223.975)
Observations	4,120
R-squared	0.501

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 4:** Results when accounting for law firm fixed effects.

### Regressions with Condensed Firm Code Dummy Variables

VARIABLES	(1) Payment	(2) Payment	(3) Payment
Settlement Amount	167.610*** (3.840)	168.161*** (3.899)	167.891*** (3.916)
Age	8.560 (17.421)	12.013 (17.471)	13.496 (17.501)
Open to Close	308.890 (311.345)	318.366 (310.946)	343.087 (311.329)
Brooklyn		16.661 (944.331)	265.752 (959.153)
Bronx		2,116.643** (936.753)	2,027.010** (941.286)
Queens		519.896 (1,016.419)	719.692 (1,033.117)
Staten Island		-3,375.753* (1,793.173)	-3,748.275** (1,861.055)
Firm - Brooklyn			-1,342.817 (1,194.298)
Firm - Bronx			1,652.894 (1,388.235)
Firm - Queens			-1,213.602 (1,219.346)
Firm – Staten Island			3,368.159 (2,707.118)
Firm – Not NYC			566.315 (841.314)
Firm Code Dummies	Yes	Yes	Yes
Constant	3,455.124*** (1,043.218)	2,588.258** (1,294.721)	2,363.366* (1,329.084)
Observations	4,120	4,120	4,120
R-squared	0.321	0.324	0.325

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5:** This condensed table shows the Firm Code dummies condensed into one. The dummy variables are all not statistically significant hence, it makes sense to have a condensed version of them instead of having them listed.

## Regressions with Expanded Firm Code Dummy Variables

VARIABLES	(1) Payment	(2) Payment	(3) Payment
Settlement Amount	167.610*** (3.840)	168.161*** (3.899)	167.891*** (3.916)
Age	8.560 (17.421)	12.013 (17.471)	13.496 (17.501)
Open to Close	308.890 (311.345)	318.366 (310.946)	343.087 (311.329)
Brooklyn		16.661 (944.331)	265.752 (959.153)
Bronx		2,116.643** (936.753)	2,027.010** (941.286)
Queens		519.896 (1,016.419)	719.692 (1,033.117)
Staten Island		-3,375.753* (1,793.173)	-3,748.275** (1,861.055)
Firm - Brooklyn			-1,342.817 (1,194.298)
Firm - Bronx			1,652.894 (1,388.235)
Firm - Queens			-1,213.602 (1,219.346)
Firm - Staten Island			3,368.159 (2,707.118)
Firm - Not NYC			566.315 (841.314)
Firm Code 23	-3,077.937 (4,751.589)	-2,456.986 (4,760.367)	-1,221.140 (4,852.958)
Firm Code 34	-969.389 (3,599.646)	-640.809 (3,604.107)	-259.072 (3,678.627)
Firm Code 42	-558.037 (3,018.339)	-1,230.520 (3,022.057)	83.390 (3,199.984)
Firm Code 65	-117.524 (4,481.266)	-194.947 (4,476.598)	-125.083 (4,487.069)
Firm Code 131	-1,493.116 (3,967.389)	-1,147.971 (3,965.433)	-1,122.009 (3,977.926)
Firm Code 132	-1,153.334 (3,423.631)	-1,373.333 (3,419.745)	20.525 (3,572.303)
Firm Code 159	-2,151.088 (5,727.714)	-2,363.069 (5,722.517)	-2,775.134 (5,755.516)
Firm Code 164	-1,879.377 (3,271.638)	-1,841.404 (3,267.943)	-471.101 (3,425.303)
Firm Code 213	-282.291	-277.642	-333.586

	(2,340.006)	(2,338.541)	(2,348.333)
Firm Code 222	-2,487.396	1,079.254	-1,874.881
	(3,885.544)	(4,122.031)	(4,685.479)
Firm Code 225	-2,132.259	-3,576.503	-3,364.770
	(7,745.349)	(7,746.912)	(7,752.725)
Firm Code 414	-1,710.175	-955.545	395.754
	(3,270.151)	(3,275.900)	(3,420.424)
Firm Code 440	-1,780.079	-1,561.091	-423.504
	(4,256.582)	(4,273.605)	(4,383.327)
Firm Code 470	-2,551.023	-2,679.723	-2,544.819
	(4,614.212)	(4,609.456)	(4,620.158)
Firm Code 481	-2,340.821	-2,906.539	-2,809.786
	(2,559.624)	(2,560.575)	(2,581.844)
Firm Code 541	-2,293.041	-2,228.615	-2,197.787
	(2,173.126)	(2,171.030)	(2,196.908)
Firm Code 680	-2,416.162	-2,437.615	-2,986.284
	(5,482.116)	(5,475.480)	(5,508.060)
Firm Code 772	-1,122.587	-1,085.778	-945.134
	(3,543.205)	(3,542.602)	(3,558.738)
Firm Code 773	199.351	348.099	409.596
	(2,122.625)	(2,120.499)	(2,145.906)
Firm Code 780	-2,285.672	-1,779.107	-484.554
	(3,097.380)	(3,100.541)	(3,256.325)
Firm Code 801	-1,968.987	-1,209.266	10.695
	(4,621.846)	(4,633.242)	(4,727.076)
Firm Code 803	-918.812	-1,062.988	-1,571.229
	(3,268.831)	(3,265.456)	(3,323.318)
Firm Code 808	-1,693.826	-1,541.251	-1,533.020
	(3,015.338)	(3,012.166)	(3,029.911)
Firm Code 923	-2,061.757	-2,277.307	-1,933.305
	(4,609.241)	(4,607.870)	(4,636.380)
Firm Code 978	-1,680.721	-1,743.831	-536.171
	(5,267.913)	(5,264.151)	(5,346.221)
Firm Code 1125	-2,019.624	-1,962.285	-1,960.760
	(3,179.936)	(3,177.484)	(3,195.309)
Firm Code 1276	-1,578.191	-1,458.737	-298.404
	(4,254.025)	(4,258.305)	(4,374.528)
Firm Code 1511	-1,750.014	-1,892.856	-1,849.610
	(3,176.397)	(3,173.022)	(3,189.657)
Constant	3,455.124***	2,588.258**	2,363.366*
	(1,043.218)	(1,294.721)	(1,329.084)
Observations	4,120	4,120	4,120
R-squared	0.321	0.324	0.325

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 6:** This extended table shows the Firm Code dummy variables. They are all not statistically significant however, for reference purposes they are listed.

### Probit Regressions

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Recoupment	Recoupment	Recoupment	Recoupment	Recoupment	Recoupment
Settlement Amount	0.019*** (0.000)	0.019*** (0.001)	0.027*** (0.001)	0.007*** (0.000)	0.007*** (0.000)	0.009*** (0.000)
Age	0.009*** (0.001)	0.009*** (0.001)	0.009*** (0.001)	0.003*** (0.000)	0.003*** (0.000)	0.003*** (0.000)
Open to Close	0.232*** (0.014)	0.252*** (0.014)	0.251*** (0.014)	0.083*** (0.005)	0.088*** (0.005)	0.085*** (0.005)
Brooklyn		-0.222*** (0.045)	-0.208*** (0.047)		-0.079*** (0.016)	-0.072*** (0.016)
Bronx		-0.003 (0.046)	-0.006 (0.047)		-0.001 (0.017)	-0.002 (0.016)
Queens		-0.390*** (0.057)	-0.354*** (0.049)		-0.137*** (0.017)	-0.120*** (0.017)
Staten Island		-0.371*** (0.077)	-0.297*** (0.087)		-0.131*** (0.026)	-0.102*** (0.029)
Firm- Brooklyn			-0.154* (0.043)			-0.053* (0.014)
Firm- Bronx			-0.228*** (0.062)			-0.077*** (0.020)
Firm- Queens			-0.326*** (0.045)			-0.109*** (0.015)
Firm- Staten Island			-0.219 (0.102)			-0.074 (0.034)
Firm- Not in NYC			0.104*** (0.039)			0.037*** (0.014)
Constant	-0.989*** (0.042)	-0.869*** (0.057)	-0.874*** (0.583)			
Observations	9,521	9,521	9,521	9,521	9,521	9,521

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 7:** Probit regressions of Recoupment on the log of settlement amount. Recoupment is a binary variable which equals 1 if the respondent received a recoupment and 0 otherwise. Model (2) includes client borough identifiers and Model (3) includes client borough identifiers as well as firm location identifiers. Models (4)-(6) are the average marginal effects of the first three models respectively.

### Heckman Regression

VARIABLES	(1) Payment	(2) Recoupment	(3) AME on Recoupment
Settlement Amount	150.597*** (5.210)	0.029*** (0.000)	0.010*** (0.000)
Age	-132.650*** (19.324)	0.006*** (0.000)	0.002*** (0.000)
Open to Close	-3247.633*** (348.232)	0.190*** (0.014)	0.063*** (0.004)
Brooklyn	2299.103** (1095.32)	-0.100** (0.043)	-0.033** (0.015)
Bronx	896.706 (1088.554)	0.050 (0.043)	0.017 (0.015)
Queens	4463.201*** (1164.395)	-0.234*** (0.046)	-0.077*** (0.015)
Staten Island	1329.962 (2057.961)	-0.122 (0.080)	-0.041 (0.026)
Firm- Brooklyn	2758.722*** (1062.947)	-0.134*** (0.041)	-0.045*** (0.013)
Firm- Bronx	4976.771*** (1519.248)	-0.206*** (0.059)	-0.068*** (0.019)
Firm- Queens	5235.746*** (1144.461)	-0.271*** (0.043)	-0.088*** (0.014)
Firm- Staten Island	6420.715** (2561.631)	-0.236** (0.097)	-0.077** (0.030)
Firm- Not in NYC	-724.226 (1470.157)	0.087** (0.037)	0.030** 0.013
Constant	29260.29*** -1470.157		
Observations	9,521	9,521	9,521

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 8:** Heckman regressions using Payment and Recoupment. Recoupment is a binary variable which equals 1 if the respondent received a recoupment and 0 otherwise. Payment is measured in dollar amounts. Model (1) shows the regression on Payment. Model (2) shows the probit regression on Recoupment and Model (3) shows the average marginal effects of Model (2).

## Two-Stage Heckman Regression

VARIABLES	(1) Payment	(2) Recoupment	(3) AME on Recoupment
Settlement Amount	139.946*** (5.843)	0.017*** (0.000)	0.006*** (0.000)
Age	-60.532*** (20.938)	0.010*** (0.001)	0.003*** (0.000)
Open to Close	-1940.972*** (443.876)	0.255*** (0.014)	0.089*** (0.005)
Brooklyn	1682.600 (1039.428)	-0.193*** (0.046)	-0.068*** (0.016)
Bronx	1665.107* (1007.007)	0.009 (0.046)	0.003 (0.017)
Queens	3001.691** (1138.168)	-0.337*** (0.048)	-0.118*** (0.017)
Staten Island	-1708.721 1975.526	-0.288*** (0.086)	-0.101*** (0.029)
Firm- Brooklyn	1175.214 (1064.811)	-0.175*** (0.042)	-0.062*** (0.015)
Firm- Bronx	4041.988*** (1468.129)	-0.230*** (0.061)	-0.080*** (0.021)
Firm- Queens	2681.113** (1213.498)	-0.345*** (0.045)	-0.118*** (0.015)
Firm- Staten Island	5900.166** (2513.721)	-0.234** (0.101)	-0.081** (0.034)
Firm- Not in NYC	-64.8643 (854.6039)	0.098** (0.039)	0.035** (0.014)
Constant	19069.75 -2597.675	-0.828*** (0.058)	
Observations	9,521	9,521	9,521

Standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 9:** Two Stage Heckman regressions using Payment and Recoupment. Recoupment is a binary variable which equals 1 if the respondent received a recoupment and 0 otherwise. Payment is measured in dollar amounts. Model (1) shows the regression on Payment. Model (2)