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# **The Impact of Arrest on Expectations of Educational Attainment and Criminal Punishment**

A Capstone Project Submitted in Partial Fulfillment of the Requirements of the  
Renée Crown University Honors Program at Syracuse University

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And Renée Crown University Honors  
May 2014

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Date: April 23<sup>rd</sup>, 2014

## **Abstract**

My paper focuses on changes in the expectations of arrested youths. I use the National Longitudinal Survey of Youth 1997 cohort to examine the effects of an arrest on three separate expectations: the expectation of earning a four-year college degree by the age of 30, the expectation of being arrested after stealing a car, and the expectation of being fined and released after stealing a car. In all cases, I isolate those respondents who have been arrested between and not prior to their interview dates in 1997 and 2001. These are the survey rounds in which the expectation questions of interest were asked. I use a modified difference in differences approach to establish significant changes between treatment and control groups. My results show arrest to have significant impacts in one of the three categories. My results supplement previous work showing that the event of an arrest significantly lowers the probability of attaining a college degree. In addition, this paper further supports Gary Becker's Theory of Rational Criminal Behavior by showing that the effect of an arrest significantly lowers one's expectation of low consequences of a serious criminal offense (being released after stealing a car) relative to those who have not been arrested.

## **Executive Summary**

The study of individuals' expectations can provide an insightful glimpse into their future predictions as well as future decisions. Particularly in forward-thinking individuals, expectations play an important role in the decision making process. To some extent, we know that expectation data may be used to predict future choice behavior. However, it remains a long-term goal in the field to improve our ability to predict choice behavior using expectation data.

Although the use of subjective expectation data by no means provides an accurate prediction of future outcomes and choices made by individuals, the insights provided in this study certainly add to our understanding of changes in the expectations of youths following the significant life event of receiving criminal consequences.

One interesting type event that could have the capacity to influence one's expectations is an interaction with law enforcement. In youths, it has been shown that interactions with law enforcement can have substantial impacts on future economic outcomes (Freeman 1991). My data source, the National Longitudinal Survey of Youth was designed to document the transition of youths from school to work and into adulthood. During this period of adolescence and transition, future outcomes are particularly subject to change as a result of significant life events.

In this study, I use data from the National Longitudinal Survey of Youth (NLSY) 1997 cohort to measure the effect of arrest on educational expectations, as well as expectations having to do with future criminal activity. The first

expectation variable of interest measures adolescents' prediction that they will have attained a college degree by the age of 30. The next two variables measure expectations associated with the consequences of auto theft. All three of these expectation variables were asked in the years 1997 and 2001. I exploit this time gap by isolating a sample of youths who experience their first arrest between these two survey dates, as well as a sample that did not experience an arrest during that time period. Due to the longitudinal nature of the NLSY, I can use a common analysis technique in economics called difference in differences in order to estimate the effects of these interactions with law enforcement on the expectation measurements of interest.

Assuming that the expectation variables of interest influence the cohort's future decisions to some extent, changes in these predictions can be seen as supporting evidence to several known contentions in the literature. The portion of my research having to do with educational expectations supports previous work showing that criminal consequences result in decreased educational outcomes among youths. I contend that changes in one's expectation of attaining a college degree influence the decision of youths to go on to college.

Additionally, I contend that the second portion of my paper supports Gary Becker's Theory of Rational Criminal Behavior. I use the second two variables of interest to identify one's attitude toward future criminal decisions. One's expectation of being arrested after stealing a car can be thought of as one's expectation of being caught after committing a relatively serious crime. Although the consequences of car theft vary by state and circumstance, most laws classify

the crime as either a serious misdemeanor or a felony. Misdemeanor charges can result in a criminal fine and a jail sentence of up to a year. Consequences for a felony charge on the other hand usually result in steeper fines and a prison sentence of over a year in a federal facility. Because the consequences of this crime vary from a misdemeanor and fine to a felony with jail time, the third expectation question of interest in this paper (the chance one expects to be fined and released after stealing a car) can be thought of as a relatively less severe and perhaps even unrealistic consequence of the theft. I assume that on average, one considers jail time a much more severe consequence than a fine. Using these variables, I can get an idea of how youths' expectations of criminal consequences change after they have experienced some type of interaction with the criminal justice system.

This study shows that the event of an arrest dramatically changes youths' expectations of educational attainment as well as consequences following future interactions with law enforcement. My results show that the event of an arrest among youths results in a decrease in the expectation that they will attain a college degree. In addition my results show that both the event of an arrest and the extent of the severity of consequences following that arrest influence the expectations among youths of both the occurrence of a future arrest and the severity of consequences that follow a future arrest. These changes in expectation supplement previous work showing that the event of an arrest significantly lowers the probability of educational attainment. In addition, these changes further support the Theory of Rational Criminal Behavior by showing that the effect of an

arrest significantly lowers one's expectation of low consequences (being released after stealing a car) relative to those who have not been arrested. These differences imply that youths in my sample are indeed considering the consequences of a crime before making criminal decisions, and that these expectations are affected by previous encounters with law enforcement.

## **Acknowledgements**

I would like to thank my advisor Perry Singleton for his tireless support, teaching, and encouragement. In addition, I would like to thank Javier Espinosa at RIT for his guidance in the early stages of this project. Dedicated to the memory of my late Grandfather, John Hahn.



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## **I. Introduction**

The study of individuals' expectations can provide an insightful glimpse into their future predictions as well as future decisions. Particularly in forward-thinking agents, expectations play an important role in the decision making process. In expected utility models, the choices of individuals critically depend on their subjective expectations of future events (Manski 2004). In his 2004 paper, Manski shows with empirical evidence that in subjective quantitative expectation data, individuals generally respond informatively to questions eliciting probabilistic expectations for personally significant binary events. To some extent, we know that expectation data may be used to predict future choice behavior. However, it remains a long-term goal in the field to improve our ability to predict choice behavior using expectation data. The Rational Expectation Hypothesis (REH) contends that subjective expectations are identical to true statistical expected values. It has been shown that expectation bias (forecast bias) exists in several subjective expectation data sets, and influences agents' choices. However, when expectation bias exists, the REH is rendered a fallacy. Forecast bias likely exists in all subjective expectation data sets to some extent. Although I do not test for the validity of the REH in this paper, the insights provided from a longitudinal perspective certainly add to our understanding of changes in the expectations of youths following the significant life event of receiving criminal consequences.

One interesting type event that could have the capacity to influence one's expectations is an interaction with law enforcement. In youths, it has been shown

that interactions with law enforcement can have substantial impacts on future economic outcomes (Freeman 1991). My data source, the National Longitudinal Survey of Youth was designed to document the transition of youths from school to work and into adulthood. During this period of adolescence and transition, future outcomes of individuals are particularly subject to change as a result of significant life events.

In this study, I use data from the National Longitudinal Survey of Youth (NLSY) 1997 cohort to measure the effect of arrest on educational expectations, as well as expectations having to do with future criminal activity. The first expectation variable of interest measures adolescents' prediction that they will have attained a college degree by the age of 30. The next two variables measure expectations associated with the consequences of auto theft. All three of these expectation variables were asked in the years 1997 and 2001. I exploit this time gap by isolating a sample of youths who experience their first arrest between these two survey dates, as well as a sample that did not experience an arrest during that time period. Due to the longitudinal nature of the NLSY, I can use the difference in two fixed effects models to estimate the effects of these interactions with law enforcement on the expectation measurements of interest.

Assuming that the expectation variables of interest influence the cohort's future decisions to some extent, changes in these predictions can be seen as supporting evidence to several known contentions in the literature. The portion of my research having to do with educational expectations supports previous work showing that criminal consequences result in decreased educational outcomes

among youths. I contend that changes in one's expectation of attaining a college degree influence the decision of youths to go on to college.

Additionally, I contend that the second portion of my paper supports Gary Becker's Theory of Rational Criminal Behavior. I use the second two variables of interest to identify one's attitude toward future criminal decisions. One's expectation of being arrested after stealing a car can be thought of as one's expectation of being caught after committing a relatively serious crime. Although the consequences of car theft vary by state and circumstance, most laws classify the crime as either a serious misdemeanor or a felony. Misdemeanor charges can result in a criminal fine and a jail sentence of up to a year. Consequences for a felony charge on the other hand usually result in steeper fines and a prison sentence of over a year in a federal facility. In general, if the theft also involves violence or injury to another person, charges will be more severe. However, some states determine if a car theft is a felony based on the monetary value of the car.<sup>1</sup> Because the consequences of this crime vary from a misdemeanor and fine to a felony with jail time, the third expectation question of interest in this paper (the chance one expects to be fined and released after stealing a car) can be thought of as a relatively less severe and perhaps even unrealistic consequence of the theft. With the opportunity cost of foregone wages as well as the negative societal stigma that follows an incarceration (Rasmusen 1996), I assume that on average, one considers jail time a much more severe consequence than a fine. Using these variables, I can get an idea of how youths' expectations of criminal consequences

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<sup>1</sup> <http://www.legalmatch.com/law-library/article/car-theft-laws.html>

change after they have experienced some type of interaction with the criminal justice system.

## **II. Background and Prior Research**

Due to the significant nature of an arrest on a young person, as well as the consequences that are imposed as a result, criminal offenses often times prove to be significant life events for adolescents. For this reason, many researchers have investigated the effects of arrests, as well as the consequences to follow, on future outcomes of youths. There is an overwhelming consensus in the literature of the influence of future expectations on goal setting and planning, thereby guiding behavior and development (Bandura 2001; Nurmi 1991; Seginer 2008.) These influences are especially relevant to adolescents, as this is a time of preparation for the future, both developmentally and as it concerns future planning.<sup>2</sup>

Often times in microeconomic models researchers depend on the Rational Expectations Hypothesis (REH) as a replacement to using actual expectation data. The REH states that individuals' predictions of the future value of economically relevant events are not systematically wrong in that all errors are random. In a 2010 thesis, Nick Braykov explores the validity of the REH using subjective probability questions asked in the NLSY. Braykov finds that teenagers' expectations in the NLSY are not fully accurate and homogenous as suggested by the REH, and that evidence of partial learning and hidden information exists. However, it should be noted that none of the variables used in this study were

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<sup>2</sup> Insights from Wang, Y. (2009). Subjective Expectations: Tests for Bias and Implications for Choices. Ph.D. Dissertation, *Duke University*.

tested. Although his study finds substantial forecast bias in the NLSY expectation data, it should be noted that forecast bias is commonplace among subjective expectation datasets and should be taken with a grain of salt. Although the REH probably doesn't hold true in this study, I contend that any forecast bias seen in the data that stays constant for respondents across time periods can be eliminated. This is because such bias would be contained in the fixed effects terms and canceled out when the difference in models between the two time periods is taken. This feature of the study will be further discussed in the data section.

One particular outcome of interest in youths is the extent of their educational attainment. Although I have found no previous study that identifies changes in youths' expectations of educational attainment, it has been shown that arrest and incarceration of individuals aged 16 or younger have a significant negative effect on an individual's propensity to graduate high school (Pintoff, 2005). In her dissertation, Pintoff further shows that the extent of charge and conviction don't seem to play a significant role in an individual's educational outcomes over and above the effect of an arrest. In a 2007 paper, Pintoff conducts a similar study confirming these results. She finds arrested and incarcerated individuals are about 11 and 26 percentage points, respectively, less likely to graduate high school than non-arrested individuals. Incarceration was found to be less sensitive to selection on unobservable characteristics than arrest alone, and therefore likely to at least partially represent a genuine effect. There doesn't seem to be evidence of this relationship in the literature as it pertains to college degree attainment. However, one can extrapolate that a negative

relationship among high school students would then also affect the likelihood of college degree attainment, since a high school degree is a necessary prerequisite to college admission. A combination of three stories is likely to cause these negative relationships among criminal justice involvement and educational attainment: the quality of schooling while incarcerated, disruptions in human capital accumulation as juveniles are absent from school, and stigmas placed on delinquents by fellow students and teachers (Pintoff, 2007)

The second portion of this thesis identifies the extent to which arrest influences two expectation variables having to do with one's prediction of future criminal consequences: the expectation of being arrested after stealing a car, and the expectation of being fined and released after stealing a car. Pintoff also deals with this in her dissertation. She finds that for those with moderate criminal histories, incarcerated individuals have lower propensities to be reconvicted of a crime than those who are not incarcerated. In general, it has been found that there is a strong relationship between the punitiveness of the criminal justice system that a cohort faces and the extent of criminal involvement for that cohort later in life (Becker 1968, Shavell 1984). The fundamental prediction of this economic approach is that changes in expected punishment will influence criminal behavior. This prediction is paramount to understanding the significance of my results. This same relationship between the severity of consequences and future criminal outcomes has also been shown in youths who face the juvenile justice system (Levitt 1998). This relationship is stronger for those who receive consequences in the juvenile system as opposed to the adult system. In this study, the cohort could

potentially face the consequences of both systems. In a similar Japanese study, through the exploitation of changes in juvenile punishment laws, it was found that increased severity of consequences significantly deters juvenile crime (Oka 2009). In his theory of Rational Criminal Behavior, Gary Becker argues that criminals rationally see that the benefits of their crime outweigh the costs, such as the probability of apprehension, conviction, and punishment, as well as their current set of opportunities (Becker, 1974). I argue that the validity of this theory can also be shown in these expectation changes, when arrest and proceeding consequences are seen as a deterrent against future criminal choices. The premise surrounding this argument is that the experience of an interaction with the criminal justice system in some way changes one's internalization of the cost of committing a crime. Yun-Shan Chan's 2012 dissertation also supports Becker's work using NLSY data. He shows that those with criminal records are less likely to commit a crime to risk their future wage if their expected wage after jail becomes higher. He also shows that an increase in the probability of a long sentence term decreases the overall post-consequence crime involvement and recidivism (Chan 2012).

### **III. Methodology**

#### **A. Methods**

I use the difference in two fixed effects models in period two (2001) and one (1997) to identify variation in the expectation variables attributable to an arrest. In equations (1) and (2), the fixed effects variables  $\gamma_i$  are the same for both time periods because they represent individual factors that influence expectations.



$Arrest_2$  identifies those who have been arrested between and not prior to the years 1997 and 2001, and is equal to one.  $Arrest_1$  identifies those individuals who have never been arrested prior to 2001 and is equal to zero. When the difference in these two fixed effects models is taken (3), we see that  $Arrest_1$  drops out of the equation as well as the fixed effects terms  $\gamma_i$ . In equation (4) we're left with the new variable  $\Delta\vartheta$ , representing the change in expectations over the 4 year time interval, as well a new constant term  $\varphi_0$  and error term  $\theta$ .

$$(1) \quad y_{2i} = \beta_0 + \beta_1 Arrest_2 + \mu + \gamma_i$$

$$(2) \quad y_{1i} = \alpha_0 + \beta_1 Arrest_1 + \varepsilon + \gamma_i$$

$$(3) \quad (y_2 - y_1) = \beta_1(\beta_0 - \alpha_0) + (Arrest_2 - Arrest_1) + (\mu + \varepsilon)$$

$$(4) \quad \Delta\vartheta = \varphi_0 + \beta_1 Arrest_2 + \theta$$

Theoretically, we would expect all unobservable factors to be contained in these fixed-effects terms, and so would not need to run regressions containing control variables. However, because any changing effects of certain characteristics are uncertain, regressions that include observable characteristics must be considered. For example, if whites on average report higher expectations of attaining a college degree in period one, but over time the white group experiences a unified change in confidence by period two, the effect of being white on reported expectations would not be fixed between the two periods. I then set up two linear regression models for each expectation variable; one univariate model that regresses the change in expectation values on whether or not an individual was arrested between the two time periods (5), as well as a similar multivariate regression to identify variation due to the following observable characteristics: age in 1997, gender, race, and household income in 1997(6).

$$(5) \Delta\vartheta = \varphi_0 + \beta_1 \text{Arrest} + \theta$$

$$(6) \Delta\vartheta = \varphi_0 + \beta_1 \text{Arrest} + \beta_2 \text{age} + \beta_3 \text{male} + \beta_4 \text{white} + \beta_5 \text{hispanic} + \beta_6 \text{black} + \beta_7 \text{HHincome} + \theta$$

If any variation in individuals' expectations is due to unobservable characteristics, those influences are expected to be included in the fixed effects terms  $\gamma_i$ . The difference in expectations from the raw data should be almost identical to both linear regression coefficients in equations (5) and (6). In other words, most of the unobservable characteristics of individuals in the data should be "fixed" in both periods and eliminated when the difference across the two periods is considered. Also included in these fixed effects terms should be the expectation bias of individuals. Hopefully, most of this bias is also eliminated due to these differenced-out fixed effects. For example, individuals who tend to report higher than actual expectation values will tend to over report their expectations in both periods to the same extent. When the difference of models in both time periods is taken, only the difference in expectation values between the two interview dates will be identified.

## **B. Data**

Data for all expectation variables and arrests are entirely derived from the National Longitudinal Survey of Youth 1997 cohort (NLSY). The NLSY is a nationally representative sample of approximately 9,000 youths designed and carried out by the Bureau of Labor Statistics in order to document the transition from school to work and into adulthood. Annual surveys collect extensive information about youth's labor market behavior and educational experiences

over time. Respondents were 12 to 16 years old as of December 31, 1996. Beginning in 1997, the youths have received interviews on an annual basis.<sup>3</sup>

The original sample included 8,984 youths born between 1980 and 1984, screening more than 75,000 households to select the sample. Some respondents reside in the same household. The interviews are conducted in person using an automated computer system designed to minimize the probability of inconsistent responses. Sections of the survey which are potentially sensitive, dealing with topics such as criminal activity, drug use, and sexual behavior, are asked in a self-administered portion of the survey in which the respondent answers in private using a computer. A total of 15 data waves are available, conducted between 1997 and 2011.

The data are separated into the *Youth Questionnaire*, *Household Roster*, *Parent Questionnaire*, *School Surveys*, *Armed Services Vocational Aptitude Battery* (CAT-ASVAB), and *High School Transcripts* sections. The NLSY includes a total of 82 variables that measure subjective probability expectations in the years 1997, 2000, 2001, and 2002. Expectation questions inquire into situations respondents expect to experience both at particular times in the future and at any point in the future. Expectation questions prompt respondents to choose an integer between 0 and 100, which represents the probability that he or she expects a particular event to occur<sup>4</sup>.

Expectation data in the NSLY are ideal for analysis because they are reported as integer values as opposed to opinion polling and traditional sources in

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<sup>3</sup> <http://www.bls.gov/nls/nlsy97.htm>, March 26<sup>th</sup>, 2014

<sup>4</sup> Insights from Braykov, 2010

social psychology. Several researchers have provided evidence to support the notion that quantitative expectation measures are essential to making interpersonal comparisons and model estimation (Manski, 2004). However, it has been debated whether or not self reported probabilities can serve as reliable and unbiased measures of future projections. For example, often times “bunching” is seen in the data around values like 0, 50, and 100. After comprehensive investigation of the data, it has been determined that on average, respondents make use of the entire range of percentages without tendencies for higher or lower responses, and that the elicitations are internally consistent across waves (Parker and Fischhoff, 2000).

### **C. Sample**

In order to estimate the effect of an arrest on particular expectation measures, I identify all those respondents arrested between and not before the years in which the expectation measures of interest are collected (1997 and 2001). In wave 1, respondents were asked whether they have ever been arrested for an illegal or delinquent offense. All those who answer yes to this question are dropped from the sample. In subsequent waves, youths are asked if they have been arrested since the date of last interview. Respondents are identified as arrested and placed in the treatment group if they answer “yes” to “arrested since date of last interview” in the years 1998, 1999, 2000, or 2001. Conversely, respondents are identified as not arrested and placed in the control group if and only if there are no missing responses to this question in all years 1998 to 2001 and all of the responses are “no”. Of the 6,565 youths who fall into either the

arrest group or non-arrest group, 5,583 have not been arrested up until their 2001 interview date, and 982 have been arrested at some time between their first interview in 1997 and their most recent interview in 2001. Unfortunately, my sample is further diminished for each of the three expectation measures of interest due to non responses in each expectation measure. Only those who respond to a particular expectation question in both 1997 and 2001, and who have been identified as arrested or not arrest between the two interview dates are included in the control and treatment samples for each expectation. This condition results in a fairly small sample size for the college completion expectation relative to the sample sizes of the other two expectation measures. 439 non-arrestees and 61 arrestees, for a total of 500 observations, are included in the control and treatment groups for the expectation measure of receiving a college degree by age 30. The control and treatment groups for “expectation of being arrested after stealing a car” contains 5,415 and 953 youths respectively for a total of 6,368 observations. Lastly, the control and treatment groups for the “expectation of being fined and released after stealing a car” contains 5,351 and 943 youths respectively, for a total of 6,294 observations.

Table 1 shows a breakdown of age, gender, race, and household income for control and treatment groups. We see on average that arrested individuals are slightly younger than the non-arrested group by about a month. There is a significant rise in the percentage of males versus females in the arrested group versus the non-arrested group from 49% to 69%. The arrested group is also slightly more likely to be African American as opposed to White or Hispanic.

Lastly, average household income drops by about \$7,000/year from the non-arrested group to the arrested group.

#### **IV. Results**

In tables 1, 2, and 3, we see the raw difference in differences data showing large changes between control and treatment groups for the first and third expectations of interest (educational attainment and expectation of low consequences following an arrest). These differences are trivially identical to the regression coefficients on the linear regression models including only arrest as an independent variable (tables 7, 8, and 9). When observable characteristics are included as independent variables, the regression coefficients do not significantly change. This suggests that the characteristics included in the multivariate models aren't attributable to much of the variation of expectations seen across the two periods. The regression analyses do not show statistically significant effects of arrest on changes in one's expectation of attaining a college degree as well as being arrested after auto theft. However, the regression result for changes in the expectation of being fined and released after auto theft is statistically significant at the 1% confidence level.

We see an over 11% decline in the expectation of attaining college degree among arrestees compared with an over 4% decline among non-arrestees.

Although this result is not statistically significant at the 5% level, we still see a large decline in this expectation among arrested youths. This result supports previous work showing a negative impact of criminal activity on educational attainment. Assuming these expectations influence the educational choices of

youths to some extent, arrest can then be thought of as a deterrent to educational attainment at the collegiate level. It is interesting to note that this expectation was about seven percentage points lower for the treatment group in period one.

Interestingly, changes in the expectation of arrest after auto theft group are positive and under 1% for both control and treatment groups. I then further break down the post auto theft expectations into three categories based on the extent of any punishment received. Unfortunately, these sub-classifications are not possible for the college degree expectation due to sample size constraints. These new subgroups are those who have received some type of incarceration, community service requirement, and either no punishment or a fine. Looking at the raw data from only the control and treatment groups, it appears as though previous encounters with law enforcement don't play a big role in one's expectation of being caught after a serious crime. However, after breaking down the treatment group into categories based on the severity of consequences received, we see a positive increase of about 7.5% among incarcerated youths, as opposed to a drop of about 5% among youths who received only community service as a punishment (table 5). The expectations of the no-punishment group dropped slightly by less than 1%. This result suggests that incarceration does in fact play a large role in the expectations of future arrests among youths. This difference among the incarcerated and community service groups can be seen as a result of the severity of each consequence. Perhaps the more severe punishment of an incarceration leads to an increase in this expectation because the punishment of incarceration serves as a better crime deterrent than community service.

Looking at the fined and released group, we see a rise in over 3% for non-arrestees compared with a decline of over 7% for arrestees. This change is statistically significant at the 1% level. This result suggests that arrest significantly lowers one's expectation of low consequences as a result of auto theft. When the arrest group is conditioned on the severity of the consequence received, we see a large decline in the expectation measure among all three punishment groups. The greatest decline is seen in the community service group, followed by the incarceration and no punishment groups, respectively (table 6). We would expect the more severe punishment to result in a greater decrease in this expectation of low consequences. However, this is not the case. Although the no punishment group experiences the smallest decline, those who received community service as a consequence reported a larger drop in this expectation than the incarcerated group by about 1.6%.

I believe the results from the two previous expectation variables having to do with the expected consequences of criminal activity support Gary Becker's Theory of Rational Criminal Behavior; that criminals rationally see that the benefits of their crime outweigh the cost such as the probability of apprehension, conviction, and punishment, as well as their current set of opportunities. My results show that the effect of an arrest significantly lowers one's expectation of low consequences (being released after stealing a car) relative to those who have not been arrested. Additionally, we see no difference between control and treatment groups when the expectation of only arrest is asked without mention of consequences. However, when the expectation of being caught after auto theft is



broken down into punishment groups, we see that the slight positive result is driven primarily by the incarcerated group, while the expectations of the community service group significantly decrease, suggesting that the severity of consequences is considered in the expectations of youths' future criminal behavior. I then surmise that this difference based on the severity of consequences implies that youths in my sample are considering the consequences of a crime before making criminal decisions, and that this expectation is affected by previous encounters with law enforcement. Assuming these expectations effect future criminal decisions to some extent, the youths examined in this study show significant changes in not only their expectations of future interactions with law enforcement, but also changes in their future choices concerning criminal behavior.

## **V. Conclusion**

This study shows that the event of an arrest dramatically changes youths' expectations of educational attainment as well as consequences following future interactions with law enforcement. My results show that the event of an arrest among youths results in a decrease in the expectation that they will attain a college degree. In addition my results show that both the event of an arrest and the extent of the severity of consequences following that arrest influence the expectations among youths of both the occurrence of a future arrest and the severity of consequences that follow a future arrest. These changes in expectation supplement previous work showing that the event of an arrest significantly lowers the probability of educational attainment. In addition, these changes further

support the Theory of Rational Criminal Behavior by showing that the effect of an arrest significantly lowers one's expectation of low consequences (being released after stealing a car) relative to those who have not been arrested. These differences imply that youths in my sample are indeed considering the consequences of a crime before making criminal decisions, and that these expectations are affected by previous encounters with law enforcement. The goals of this study could be continued in future research by comparing actual college degree attainments and criminal justice interactions with the reported expectation changes. These data could also be used to identify any forecast bias present in the subjective expectation measures. In addition, future research could also look into the effects of being charged as a minor as opposed to an adult, as we know there are large variations in the consequences imposed across these two categories.

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**Table 1: Key Characteristics of Treatment and Control Groups**

<b>Characteristics</b>	<b>Control</b>	<b>Treatment</b>	<b>Total</b>
Age 1997	14.159 (0.020)	14.086 (0.690)	14.307 (0.016)
Male	0.451 (0.007)	0.690 (0.015)	0.512 (0.005)
Female	0.549 (0.007)	0.310 (0.015)	0.488 (0.005)
White	0.534 (0.007)	0.500 (0.016)	0.519 (0.005)
Hispanic	0.211 (0.005)	0.195 (0.013)	0.212 (0.004)
Black	0.246 (0.006)	0.294 (0.015)	0.260 (0.005)
Household Income 1997	36774.180 (578.423)	29758.470 (1189.494)	33996.300 (437.910)
Observations	5583	982	8984

**Table 2: Raw Difference in Differences Means for the Expectation of Attaining a College Degree by Age 30**

Expectation of Attaining a College Degree by Age 30		Difference	Observations
Treatment	1997	2001	
No Arrest	74.255 (1.418)	69.768 (0.974)	-4.487 (1.822) 439
Arrest	66.967 (3.923)	55.574 (5.371)	-11.393 (5.115) 61
<b>D-in-D</b>			-6.906 (5.430) 500

**Table 3: Raw Difference in Differences Means for the Expectation of Being Arrested After Stealing a Car**

Expectation Arrested after Auto Theft		Difference		Observations
Treatment	1997	2001		
No Arrest	59.875 (0.551)	59.999 (0.572)	0.123 (0.699)	5415
Arrest	54.816 (1.300)	55.206 (1.378)	0.389 (1.702)	953
<b>D-in-D</b>			0.266 (1.840)	6368

**Table 4: Raw Difference in Differences Means for the Expectation of Being Fined and Released after Stealing a Car**

Expectation Fined and Release after Auto Theft		Difference		Observations
Treatment	1997	2001		
No Arrest	33.240 (0.468)	36.405 (0.490)	3.165 (0.628)	5351
Arrest	32.161 (1.115)	24.753 (1.104)	-7.408 (1.479)	943
<b>D-in-D</b>			-10.573 (1.607)	6294

**Table 5: Punishment Breakdown: Raw Difference in Differences Means for the Expectation of Being Arrested After Stealing a Car**

<b>Expectation Arrested after Auto Theft (Punishment Breakdown)</b>				<b>observations</b>
<b>No Arrest</b>	59.875 (0.551)	59.999 (0.572)	0.123 (0.699)	5415
<b>Arrested</b>	54.816 (1.300)	55.206 (1.378)	0.389 (1.702)	953
<b>Incarcerated</b>	50.370 (3.025)	57.848 (3.250)	7.479 (4.296)	165
<b>Community Service</b>	59.763 (4.416)	54.588 (4.718)	-5.175 (6.055)	80
<b>No Punishment</b>	55.294 (1.520)	54.660 (1.609)	-0.634 (1.940)	708



**Table 6: Punishment Breakdown: Raw Difference in Differences Means for the Expectation of Being Fined and Released After Stealing a Car**

<b>Expectation Fined and Released after Auto Theft</b>				
<b>(Punishment Breakdown)</b>				<b>observations</b>
<b>No Arrest</b>	33.240 (0.468)	36.405 (0.490)	3.165 (0.628)	5351
<b>Arrested</b>	32.161 (1.115)	24.753 (1.104)	-7.408 (1.479)	943
<b>Incarcerated</b>	29.448 (2.507)	19.816 (2.457)	-9.632 (3.499)	163
<b>Community Service</b>	34.588 (3.793)	23.313 (3.657)	-11.275 (5.151)	80
<b>No Punishment</b>	32.516 (1.315)	26.067 (1.305)	-6.449 (1.722)	700

**Table 7: Regression Analysis of Key Characteristics: Expectation of Attaining a College Degree by Age 30**

<b>College Degree by Age 30</b>		
Arrest	-6.906 (5.400)	-7.003 (5.398)
Age		-1.581 (2.534)
Male		-0.187 (3.530)
White		-12.137 (3.349)**
Black		-12.021 (4.389)**
Hispanic		-14.760 (4.612)**
Income		$2.83 \cdot 10^{-5}$ $(3.46 \cdot 10^{-5})$
Observations		500

\*\* Indicates results are statistically significant at the 1% level

\* Indicated results are statistically significant at the 5% level

**Table 8: Regression Analysis of Key Characteristics: Expectation of Being Arrested After Stealing a Car**

Arrested after Auto Theft		
Arrest	0.266 (1.839)	0.617 (1.844)
Age		-0.857 (0.444)
Male		-1.633 (1.314)
White		6.414 (6.718)
Black		4.919 (6.289)
Hispanic		0.830 (6.303)
Income		$3.39 \times 10^{-6}$ $(1.46 \times 10^{-5})$
Observations		6368

\*\* Indicates results are statistically significant at the 1% level

\* Indicated results are statistically significant at the 5% level

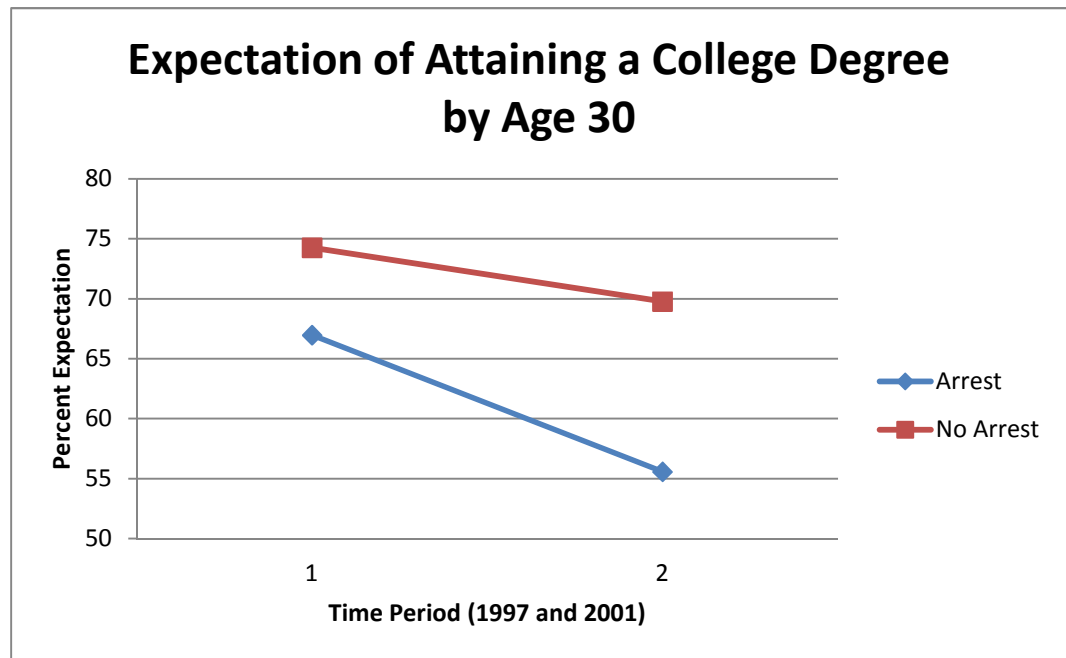
**Table 9: Regression Analysis of Key Characteristics: Expectation of Being Fined and Released after Stealing a Car**

<b>Fined and Released after Auto Theft</b>		
Arrest	-10.573 (1.607)**	-10.100 (1.632)**
Age		-0.277 (0.389)
Male		-2.947 (1.173)*
White		-8.725 (6.496)
Black		-3.719 (6.589)
Hispanic		-5.387 (6.599)
Income		7.63*10 <sup>-9</sup> 1.41*10 <sup>-5</sup>
Observations		6294

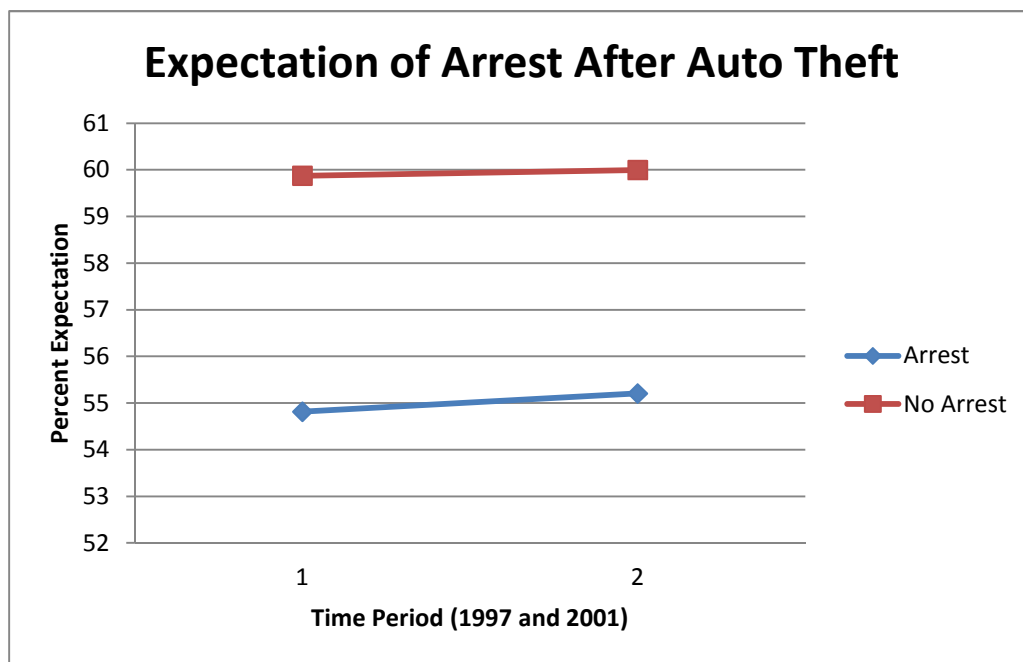
\*\* Indicates results are statistically significant at the 1% level

\* Indicated results are statistically significant at the 5% level

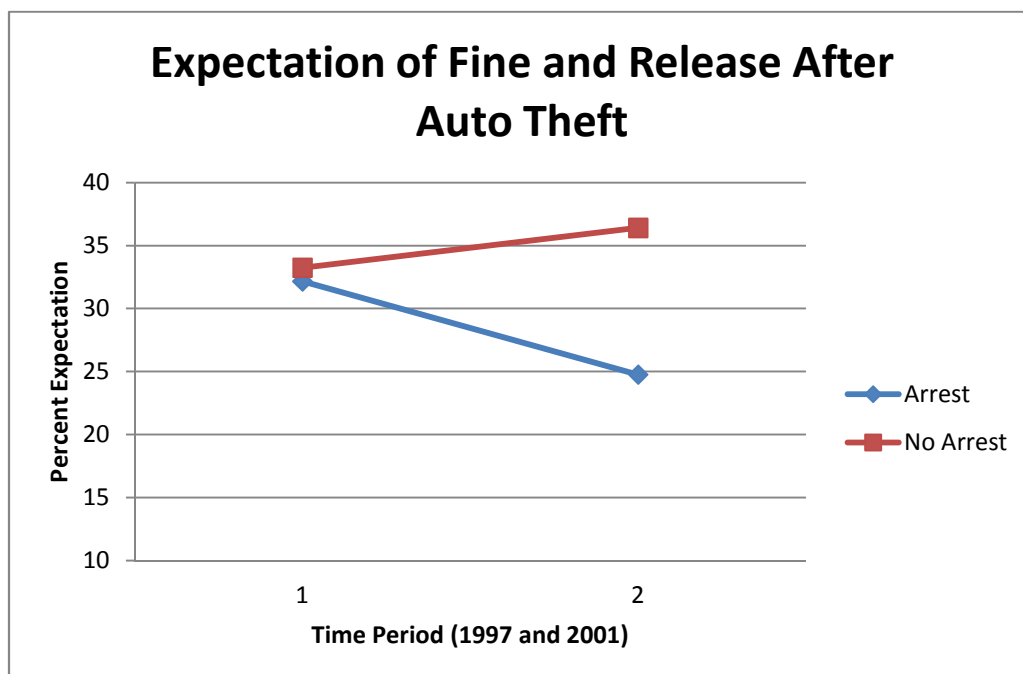
**Figure 1: Raw Difference in Differences Means: Expectation of Attaining a College Degree by Age 30**



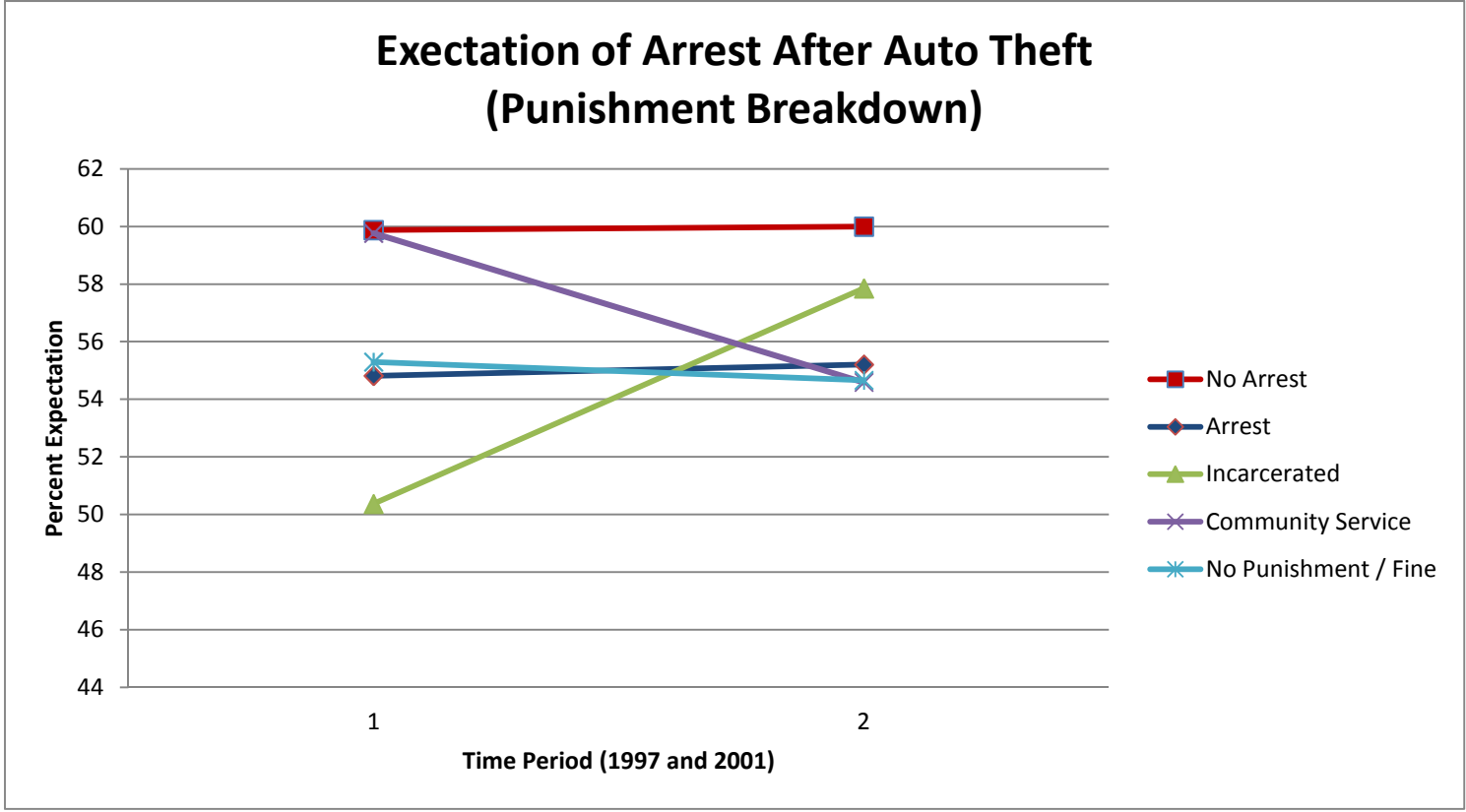
**Figure 2: Raw Difference in Differences Means: Expectation of Being Arrested After Stealing a Car**



**Figure 3: Raw Difference in Differences Means: Expectation of Being Fined and Released After Stealing a Car**



**Figure 4: Punishment Breakdown: Expectation of Being Arrested after Stealing a Car**



**Figure 5: Punishment Breakdown: Expectation of Being Fined and Released after Stealing a Car**

