MicroCase Exercise #7:
A look at bio-psychological theory of choice

INTRODUCTION

In this data analysis exercise, we will test some of the ideas in bio-psychological theory of choice, which is discussed in Part VIII.

DESCRIPTION OF THE DATASET

See the MicroCase exercise #3 for a description of the NYS dataset. Before we start our analyses, we'll need to load up the second version of our dataset, which is 'NYSCRIM2.' The reason we are switching datasets is so there are not too many variables in any one set (this reduces your need to hunt around for variables in MicroCase).

EXPLORING BIO-PSYCHOLOGICAL THEORY OF CHOICE: GETTING A HANDLE ON THE DATA AND USING CROSSTABULATION TABLES

Bio-psychological theory of choice, as posed by Wilson and Herrnstein, assumes that people, when given a choice, will exercise their free will and choose the preferred course of action. Those who choose to commit crimes will do so because they perceive more benefits than drawbacks from criminal acts. Potential benefits from crime include such matters as material gains, emotional (e.g., the thrill of breaking the law) or sexual gratification, approval by one's peers, and the ability to enhance one's sense of justice, perhaps by getting even with someone who had somehow harmed the offender. Potential losses from crime include such drawbacks as guilt pangs, condemnation of the act by some citizens, retaliation of the victim, and the ever-present risk of apprehension and punishment. Oh, what is a potential criminal to do? Which choice should s/he make?

Testing bio-psychological theory of choice will require us to find suitable measures as we have done for the previous theories. Among the questions in the NYS survey were two that will work for our purposes. First, the respondents were asked to estimate their chances of arrest for a set of crimes, including theft of an item worth more than $50.00 (THEFT50) and violent offenses (VIOLENCE); I then recoded the percentages into two roughly equal categories to make our analyses easier (i.e., those who perceived a zero to 50% chance of arrest, and those who perceived a higher likelihood). If bio-psychological theory of choice is valid, those respondents who provide high estimates for their chances of arrest should be less likely to engage in the prohibited act.

The other relevant item asked the respondents how much guilt, remorse or personal discomfort they would experience as the result of breaking a variety of laws. Presumably, those who would experience more guilt should be less likely to break the law in the first place. This variable was left in its original form, a rating scale from "very little" to "a great deal."

We will look at the effect of the two measures on THEFT50, leaving VIOLENCE for you to look at for the "further exploration" questions. To see if the theory holds, run frequencies for ARRTHFT and GUILTHFT, and run crosstabulation tables with THEFT50 as the dependent variable and ARRTHFT and GUILTHFT as the independent variables.

What do you notice about the ARRTHFT --> THEFT50 table? Which respondents were most likely to have stolen something worth more than $50.00? What is the strength of the relationship shown in the table? Is it statistically significant? How can we summarize this table? Does this table support bio-psychological theory of choice?

What about the GUILTHFT --> THEFT50 table? Which respondents were least likely to steal items worth $50.00 or more? Which respondents were most likely? What is the strength of the relationship shown in the table? Is it statistically significant? How can we summarize this table? Does this table support bio-psychological theory of choice?

POINTS TO PONDER: Does our finding with respect to the increased likelihood of thefts among those who said they would feel "not too much" versus "very little" guilt invalidate bio-psychological theory of choice? Can you come up with an explanation for why those two

percentages seem reversed?

EXPLORING BIO-PSYCHOLOGICAL THEORY OF CHOICE: USING CONTROL VARIABLES

By now, you should be wondering if we are ever going to be able to move beyond simple bivariate analyses (i.e., analyses that involve only two variables). You may have thought to yourself, "Sure, the respondents' anticipated level of guilt may affect future involvement in crime, but what about the findings by Mears, Ploeger and Warr (referenced earlier in the exercises), who persuasively argued that girls are more likely than boys to rate offenses as very wrong? Could gender somehow affect the relationship between anticipated guilt and future criminality? Are males in the dataset less likely to be affected by anticipated guilt while females are more likely to be affected? I want to know!"

If you are such a person, you will be happy to know that there are options short of full-blown multi-variate statistics. You can easily add control variables to your crosstabulations. That's what the third box under the Crosstabs variable boxes is for. It allows you to feed in control variables. While you can feed in as many control variables as you wish, it is advisable to limit yourself to one or two due to the nature of crosstabs. Every control variable you add makes the results harder to interpret and increases the chance of empty cells (which affect the validity of your statistics). If you want to include more than one or two control variables, you should read up on regression or other multivariate techniques that are better able to handle a lot of variables at once. Now, back to our crosstabs.

I don't know about you, but I'm dying to find out if the results found by Mears *et al*. might shed some light on bio-psychological theory of choice. To do that, run a crosstabulation table with whether or not the respondent stole an item worth $50.00 or more (THEFT50) as the dependent (row) variable, anticipated level of guilt (GUILTHFT) as the independent (column) variable, and MALE as control variable (just pop it into the first control variable box). Make sure to click on column percents, then summary statistics to get the Cramer's V and probability like we've been doing because we'll need that information more than ever. You'll notice that the final table looks a lot like the ones we've already seen, except that there is a toggle arrow at the bottom of the left hand side of the screen that allows us to toggle between values of the control variable. Each time you click on the arrow, you will get a table for a different value of the control variable. In a way, it's multiple tables combined into one, with the statistics and probabilities for each table linked to the crosstabulation display. Spend some time looking at the resulting numbers to get the hang of tables that have control variables. Each category of the control variable is a mini-table, so in our case, there are two mini-tables, one for males and one for females. Within each of those tables is the GUILTHFT --> THEFT50 table.

Look within the table for males. You'll see that 20 (7.3%) of the males who anticipated a great deal of guilt had actually stolen something, compared to 6 (37.5%) of those who said they would experience very little guilt. The Cramer's V is .287 and the relationship is significant. Moving to the table for females, we see that 8 (1.8%) of the females who anticipated a great deal of guilt had actually stolen something, compared to four (8.7%) of those who said they would experience some guilt. The Cramer's V is .28 and the relationship is significant. We also see a problem that makes many researchers sigh; there are too few females who stole anything to make our comparisons more meaningful (that's why we ignored the lowest two categories of perceived guilt). From our tables, we can see that fewer females participated in thefts within each of the three valid categories of anticipated guilt. In its own way, this finding supports Mears *et al*, but it doesn't invalidate our ideas regarding bio-psychological theory of choice (because the relationship between anticipated guilt and likelihood of committing a theft remains fairly similar within the subcategories of the control variable). In other words, the relationship we found cannot be "explained away" as due to the effects of gender rather than anticipated guilt. Among both genders, increased levels of anticipated guilt meant decreased chances of participating in a theft.

Now, let's turn out attention to whether gender affects the relationship between perceived chance of arrest and involvement in theft. To do that, run a crosstabulation table with whether or not

the respondent stole an item worth $50.00 or more (THEFT50) as the dependent (row) variable, perceived chances of arrest (ARRTHFT) as the independent (column) variable, and MALE as control variable. Looking within the table for males, we see that 74 (19.8%) of the males who perceived low chances of arrest had actually stolen something, compared to 37 (11.4%) of those who perceived higher chances of arrest. The Cramer's V value is .115 and the relationship is significant. Moving to the table for females, we see that 13 (5.0%) of the females who perceived low chances of arrest had actually stolen something, compared to 9 (2.1%) of those who perceived higher chances of arrest. The Cramer's V value is .079 and the relationship is significant. From our table, we can see that fewer females participated in thefts within each of the categories of perceived chance of arrest. Once again, this finding supports Mears *et al*'s arguments that females are affected differently by the same forces that affect males. But as we saw above, controlling for gender does not substantially change the relationship we found between perceived risk of arrest and the likelihood of committing theft; we can still say that those who perceive higher risks of arrest are less likely to steal property.

We could run control variables forever, but we'll save this for the "on your own" exercises and for future exercises.

FURTHER EXPLORATION OF BIO-PSYCHOLOGICAL THEORY OF CHOICE

We have now explored two relationships relevant to bio-psychological theory of choice as they apply to theft of items worth $50.00 or more. To see if the theory helps explain crimes other than theft, you will apply it to violent offenses for the "further exploration" questions.

BIO-PSYCHOLOGICAL THEORY OF CHOICE ON YOUR OWN

Now that we have briefly examined bio-psychological theory of choice and added a few control variables, you could include control variables of your own. For example, is the relationship between likelihood of committing a crime and anticipated guilt mediated at all by income (INCOME)? Or, is the relationship between likelihood of committing a crime and perceived chances of arrest mediated at all by community size (RURAL), due in part to increased numbers of police or increased crime rates in urban areas? You can have fun with this assignment and learn a lot about theory-building as well. Although we are temporarily limited to one control variable at a time, try adding in factors you think might be important. Make sure you write down why you think they are important before trying them out, tying them to the articles you've read. With the ability to control variables, you're now on your way to building theories of your own!

Homework for MicroCase #7: General questions
(bio-psychological theory of choice)

Name: _____ Date:_____

Directions: Answer the following questions by filling in the blanks or circling the appropriate responses. A few answers have been filled in for you.

Exploring bio-psychological theory of choice:
Getting a handle on the data and using crosstabulation tables:

1. In Wave VII of the NYS dataset, 634 (_____%) of the sample felt their chances of arrest for committing theft was low (i.e., up to 50%), and _____ (_____%) felt their chances for arrest were high (i.e., more than 50%). _____ (_____%) of the respondents said they would feel a great deal of guilt if they stole something worth $50.00 or more, 438 (_____%) said they would feel quite a bit of guilt, _____ (_____%) said they would feel some guilt, _____ (_____%) said they would feel "not too much" guilt, and _____ (_____%) said they would feel very little guilt.

2. In the ARRTHFT --> THEFT50 crosstabulation, _____ (_____%) of the respondents who felt their chances of arrest following a theft were high (more than 50%) had actually stolen property worth $50 or more, compared to 87 (_____%) of those who felt their chances of arrest were low. This relationship is *weak / moderate / strong*. This relationship *is / is not* statistically significant.

   The relationship between perceived certainty of arrest and thefts found using Wave VII of the NYS data *is similar to / differs greatly from* the findings expected under bio-psychological theory of choice.

2b. Briefly explain this finding using bio-psychological theory of choice.

3. In the GUILTHFT --> THEFT50 crosstabulation, _____ (_____%) of the respondents who said they would feel a great deal of guilt if they stole something worth $50.00 or more had actually stolen property worth $50 or more, compared to 39 (_____%) of those said they would feel quite a bit of guilt, _____ (_____%) of those said they would feel some guilt, _____ (_____%) of those said they would feel "not too much" guilt, and _____ (_____%) of those said they would feel very little guilt. This relationship is *weak / moderate / strong*. This relationship *is / is not* statistically significant.

The GUILTHFT --> THEFT50 table *does / does not* show that respondents who say they would experience guilt after theft are less likely to steal property worth $50.00 or more.

The relationship between level of perceived guilt and thefts found using Wave VII of the NYS data *is similar to / differs greatly from* the findings expected under bio-psychological theory of choice.

3b. Briefly explain this finding using bio-psychological theory of choice.

4. In the GUILTHFT --> THEFT50 crosstabulation with MALE as a control variable, 20 (7.3%) of the males who anticipated a great deal of guilt had actually stolen something, compared to _____ (_____%) of those who said they would feel quite a bit of guilt, ____ (_____%) of those who said they would feel some guilt, _____ (_____%) of those who said they would feel "not too much" guilt, and _____ (_____%) of those who said they would feel very little guilt. For males, it appears that as amount of anticipated guilt goes up, likelihood of stealing something worth $50.00 or more goes *up / down*. This relationship is *weak / moderate / strong*. This relationship *is / is not* statistically significant. When we turn our attention to the female rows, we see that _____ (_____%) of the females who anticipated a great deal of guilt had actually stolen something, compared to _____ (_____%) of those who said they would feel quite a bit of guilt, ____ (_____%) of those who said they would feel some guilt, and _____ (_____%) of those who said they would feel "not too much" guilt. For females, it appears that as amount of anticipated guilt goes up, likelihood of stealing something worth $50.00 or more goes *up / down*. This relationship is *weak / moderate / strong*. This relationship *is / is not* statistically significant. Overall, we *can / cannot* say that controlling for gender in our model substantially changes the relationship we found between anticipated guilt and likelihood of committing theft.

4b. Briefly explain this finding using bio-psychological theory of choice.

5. In the ARRTHFT --> THEFT50 crosstabulation with MALE as a control variable, 74 (19.8%) of the males who perceived a low change of arrest had actually stolen something, compared to _____ (_____%) of those who perceived a higher chance of arrest. For males, it appears that as perceived chance of arrest for theft goes up, likelihood of stealing something worth $50.00 or more goes *up / down*. This relationship is *weak / moderate / strong*. This relationship *is / is not* statistically significant. When we turn our attention to the female rows, we see that _____ (_____%) of the females who perceived a low chance of arrest for theft had actually stolen something, compared to _____ (_____%) of those who perceived a higher chance of arrest. For females, it appears that as perceived chance of arrest for theft goes up, likelihood of stealing something worth $50.00 or more goes *up / down*. This relationship is *weak / moderate / strong* and *is / is not* statistically significant. Overall, we *can / cannot* say that controlling for gender in our model substantially changes the relationship we found between perceived chance of arrest and likelihood of committing theft.

5b. Briefly explain this finding using bio-psychological theory of choice.

6. Overall, it appears that our findings using the Wave VII of the NYS *support / do not support* bio-psychological theory of choice.

7. What does all of this mean? Please answer in essay form, summarizing what you have learned about bio-psychological theory of choice from this part of the MicroCase.

Homework for MicroCase #7: "Further exploration" questions
(bio-psychological theory of choice)

Name: _____ Date:_____

TASK: See if the two measures we developed for bio-psychological theory of choice help us predict involvement in violent offenses. Make sure you substitute the measures relevant for VIOLENCE (i.e., ARRVIO and GUILVIO instead of the two theft-related measures).

Answer the following questions by filling in the blanks or circling the appropriate responses. A couple of answers have been filled in for you to make sure you're on the right track.

1. In Wave VII of the NYS dataset, 328 (_____%) of the sample felt their chances of arrest for attacking someone was low (i.e., up to 50%), and _____ (_____%) felt their chances for arrest were high (i.e., more than 50%). _____ (_____%) of the respondents said they would feel a great deal of guilt if they attacked someone, 234 (_____%) said they would feel quite a bit of guilt, _____ (_____%) said they would feel some guilt, _____ (_____%) said they would feel "not too much" guilt, and _____ (_____%) said they would feel very little guilt.

2. In the ARRVIO --> VIOLENCE crosstabulation, _____ (_____%) of the respondents who felt their chances of arrest following a theft were high (more than 50%) had actually stolen property worth $50 or more, compared to 96 (_____%) of those who felt their chances of arrest were low. This relationship is *weak / moderate / strong*. This relationship *is / is not* statistically significant.

   The relationship between perceived certainty of arrest and violence found using Wave VII of the NYS data *is similar to / differs greatly from* the findings expected under bio-psychological theory of choice.

3. In the GUILVIO --> VIOLENCE crosstabulation, _____ (_____%) of the respondents who said they would feel a great deal of guilt if they attacked someone had actually stolen property worth $50 or more, compared to 56 (_____%) of those said they would feel quite a bit of guilt, ____ (_____%) of those said they would feel some guilt, _____ (_____%) of those said they would feel "not too much" guilt, and _____ (_____%) of those said they would feel very

little guilt. This relationship is *weak / moderate / strong*. This relationship *is / is not* statistically significant.

The GUILVIO --> VIOLENCE table *does / does not* show that respondents who say they would experience guilt after attacking someone are less likely to steal property worth $50.00 or more.

The relationship between level of perceived guilt and involvement in violence found using Wave VII of the NYS data *is similar to / differs greatly from* the findings expected under bio-psychological theory of choice.

4. Overall, it appears that our findings using the Wave VII of the NYS *support / do not support* bio-psychological theory of choice.

5. What does all of this mean? Please answer in essay form, summarizing what you have learned about bio-psychological theory of choice from this part of the MicroCase.

Affirmation of Independent Work

Submission of this assignment constitutes a statement on your part that apart from technical help, you completed this assignment on your own. Plagiarism will be reported to University authorities and can result in expulsion from the University.

Your Name: _____ *Signature:* _____

Homework for MicroCase #7: "On your own" questions
(bio-psychological theory of choice)

Name: _____ Date:_____

TASK: Include some control variables of your own in your test of bio-psychological theory of choice. One idea is to insert a control variable into one of the relationships we have already examined. If you cannot find one of your own, you may use one of the two presented in the writeup for this exercise. HINT: if you stick to control variables with two or three categories, your results will be easier to interpret and you will have less of a problem with empty cells.

Directions: Answer the following questions.

Exploring bio-psychological theory of choice on your own:

1. Which control variable did you choose and why did you choose to control that factor?

2. What was the relationship between the independent and dependent variables before the addition of the control variable?

3. Did the control variable include change the relationship between the independent and dependent variables; that is, did the relationship between the two variables vary by control variable subcategory?

4. Based on your findings, what modifications or additions would you make to the bio-psychological theory of choice?

5. Can you say your testing supports bio-psychological theory of choice? Why/why not?

If you included more than one control variable, you may summarize the findings here for future reference.