Building Models

Deviant aggressive behavior

1. If Theory 1 were correct, to reduce deviant aggressive behavior, the government may aim to employ a more punitive approach. Specifically, as one implication of this approach is that individuals learn from experience and perform a cost-benefit analysis in whether to perform a deviant act, the government could employ the death penalty law to increase the "cost" of performing these deviant acts. Faced with a high "cost" in acting out in a deviant aggressive manner, individuals will be less likely to act out. For example, Singapore is well-known for utilizing this approach controlling drugs and drug users- in October 2018 alone, the Singapore government has executed six men convicted of drug offences[1] and has boasted one of the lowest crime rates in the world, despite international criticism for being too harsh to its citizens.

   If theory 2 were correct, the government may aim to reduce aggressive behavior by decreasing the anger and hostility felt by employees in workplaces. For example, by conducting inspections at workplaces, the government could ensure that all businesses treat employees fairly and must provide sufficient compensation so that the workplace environment remains comfortable for their employees. With this government policy, employees will presumably be less likely to resent their managers and will thus be less likely to act out in an aggressive manner. For example, the Danish government ensures that workplaces remain comfortable by conducting surprise inspections at workplaces and penalizes workplaces that have employees who are undercompensated by fining them[2]. From this theory, the Danish government could then be said to implement this policy to reduce deviant aggressive behavior among employees.

   If theory 3 were correct, to reduce deviant aggressive behavior, the government may aim to reduce discrimination and create a more equal society. For example, the government could lower the systematic discrimination of females by ensuring that there are policies penalizing sexual harassment in all institutions, a crime with mostly female victims. In higher education for example, the government has mandated the enactment of the sexual harassment policy, to ensure that perpetrators of sexual harassment are sufficiently punished and corrective action is taken[3]. By harshly penalizing those who sexually discriminate against others and thereby reducing the number of perpetrators, this policy would ensure there are fewer victims of sexual harassment and would suggest a lower number of cases of deviant aggressive behavior.

   If theory 4 were correct, to reduce deviant aggressive behavior, the government would aim to reduce contact with a deviant subculture. Specifically, the government could

[1] ABCnews, "Singapore executes six men over drug trafficking despite international pleas," Accessed January 12, 2019. https://www.abc.net.au/news/2018-10-27/singapore-condemned-for-executions/10434958

[2] Arbejdstilsynet, "Inspection of the Enterprises," Accessed January 12, 2019. http://engelsk.arbejdstilsynet.dk/en/inspection

[3] US Department of State, "Sexual Harassment Policy," Accessed January 12, 2019. https://www.state.gov/s/ocr/c14800.htm

segregate or limit interactions with deviant subcultures. If we define "contact" as intimate knowledge of a deviant subculture or deviant acts, one possible policy that the government could employ is the censorship of information about the deviant subculture or deviant acts. For example, to prevent its citizens from engaging in violence, the Chinese government has decided to ban violent online games so that its citizens will not be exposed to violent acts and cause 'its young people to be adversely affected', even if these acts are not "real"[4]. According to this theory, the Chinese government is minimizing contact with deviant subcultures to reduce the frequency of these deviant aggressive acts.

2. One case of an "experiment" would be the cases of school shootings in 2018. In the recent decade, school shooters were largely active or recent students at the school who have largely experienced anger and resentment towards the student population, who perceived themselves as victims of others' students' bullying and who have felt unfairly treated by teachers and have acted out towards them. Additionally, some of them also have been reported to have a fascination with morbid violence portrayed in the media and wish to "copy" the actions of previous school shooters.[5]
   Applying this "experiment" to the four theories then, it is most apparent that theories 2, 3 and 4 are applicable. Specifically, according to theory 2, school shooters seem to feel anger towards those who are in charge of them - the teachers and many of them have expressed their anger towards them. Additionally, school shooters typically feel oppressed and discriminate against by their schoolmates as seen in theory 3, as they feel that they are victims of bullying. Lastly, applying theory 4, one could even suggest that school shooters are socialized to act out violently through exposure to news about previous school shootings and shooters, to whom they identify with. Perhaps one could even add that most American teenagers are also exposed to violent games and media, suggesting some exposure to this deviant subculture, which could also increase their propensity to act out violently. That being said, although theory 1 does not seem to apply when having a discussion about a typical school shooter profile, when we go deeper by understanding why these shooters have this particular profile, we can also argue for the evidence of theory 1. In particular, perhaps an explanation for why these shooters come to be resentful of parents and other students, is because the students and teachers are not penalized for acting unfairly to the student or even bullying the student. Following this logic then, the interaction of theory 1 with the rest of the other theories could suggest a more in-depth and complex explanation for explaining deviant aggressive behaviors.

Waiting until the last minute

a. Based on my experience, some people wait until the very last minute to complete a task because they might have no motivation to complete it and therefore procrastinate when completing the task. For example, if a student takes a class to finish his or her degree requirements but may not be actually interested in the class, the student may only feel

[4] ABCNews, "China to ban violent video games," Accessed January 12, 2019. https://abcnews.go.com/Technology/story?id=8194306&page=1

[5] George Everly, "Profiling School Shooters," Accessed January 12, 2019. https://www.psychologytoday.com/us/blog/when-disaster-strikes-inside-disaster-psychology/201803/profiling-school-shooters

motivated to finish an assignment in that class if there is an impending deadline. For some very important tasks, some individuals may have some anxiety in completing a task and therefore procrastinate and put the task off. For example, if the task was to submit a well-written assignment for someone they really respect to impress him/her, the individual may feel stressed to complete it and avoid starting the task until right before the deadline. On the other hand, some people also may wait till the very last minute because they plan to do so and not because they procrastinate- they might have other tasks that are more urgent and important in their minds, that is, some people plan the number of days or hours it takes to finish their tasks, and finishing a task last minute might be inevitable based on their schedule.

b. Based on the various explanations above, one possible model is that the more overwhelming anxiety felt towards the task, the more one leaves the task till the last minute. More precisely, this overwhelming anxiety can be quantified in two ways- both the perceived importance of the task ("I") and the individual's respect for the source of the task ("R"), like a well-respected boss or professor. This model will also include a threshold of "overwhelming" and "normal" anxiety. That is, only at the level of "overwhelming" anxiety could make an individual more likely to put it off, and this anxiety is constituted of both "I" and "R". This is because the individual may, before reaching this threshold, be actually motivated to perform the task well and may in fact start early to have adequate time to complete the task instead. It must also be noted that "I" is perceived- the actual level of importance of the task to the source of the task does not matter, the perceived importance of the task by that individual matters (although there should be a correlation between the actual importance of the task and the perceived importance of the task). To operationalize "I" and "R", we can run a survey to ask individuals about the perceived importance of an assignment and the respect for the source of the task, and ask them to rate their answers from 1-5. For example, to train the model, we can gather data by asking students at University of Chicago to complete surveys about their tasks. As some students have to complete a writing assignment that is worth 10% of their grade with other students and some students have to write a literature review for their professor, we can generalize their "I"- writing assignments and literature reviews, and their "R"- whether the task is for other students and for their professor. From this training data, we can generalize and predict other "I" and "R" for other students.

c. Alternatively, based on the idea generation in part (a), another model to explain waiting until the last minute is when the individual is not motivated. Motivation can be split into two variables – an interest in performing the task ("Int") and a perceived high reward for performing the task ("Re"). It must also be said that a high interest for performing a task could also be connected to a high reward for performing a task- for example, if an individual is very interested in finishing an assignment in a class they are interested in, they could also perceive that there is a high reward for finishing the task- for example, they could feel that they are also rewarded by their sense of accomplishment for an assignment they are very interested in. To operationalize "Int" and "Re", we can again run a survey to ask individuals about their interest in finishing an assignment and their perceived reward after completing the task, and rate their answers from 1-5. As seen above, we can train the model using these surveys as we can generalize their "Int" ad their "Re".

   It should also be noted that the models above do not explicitly state the length of time one leaves a task till the last minute. That is, Y- the probability of whether one leaves a

task till the last minute or not does not explicitly define when and how long is "last minute". Therefore, Y is a binary variable and can be coded as the following – "1" is waited until the last minute, and "0" is did not wait till the last minute. As such, to operationalize this outcome variable, we can ask the same respondents from the surveys above if they have perceived to have left their tasks till the last minute or not.

d. For the first model, two predictions could arise: firstly, one prediction is that the higher the level of "R" and "I", the more likely the individual will put the task off to the last minute. However, this is only after certain threshold- even if "R" and "I" increase, but it does not reach the threshold, the individual will not put the task off, as indicated earlier. To apply this to a more concrete example, if for example, the task is to write a report for your well-respected manager around the time when one is seeking a promotion, the level of "R" and "I" will be high, and if it surpasses the "normal" anxiety, this individual will more likely to put it off. A second prediction is that even if "I" is low, the individual might still put the task off till the last minute if "R" is high and both "R" and "I" surpass "normal" anxiety to reach "overwhelming" anxiety. Perhaps the perceived importance of the task is low- for example, writing a few lines of code for a very large project, but "R" is high because that individual highly respects that person who is receiving the code.
The above predictions also assume that the individual in question chooses to take an avoidance approach in the face of overwhelming anxiety. That is, some individuals, in the face of overwhelming anxiety, choose to cope with this anxiety by venting to loved ones or investing time in their hobbies as a break. In this case, even though the perceived level of importance of the task to the source and the individual's respect for the source of the task may still induce "overwhelming" anxiety for the individual, that individual may not put the task off as he or she is not taking the avoidance approach. It must also be said that this model heavily depends on the individual- that is, the general model- the relationships between "R" and "I", and "Y" should be the same for all individuals but the actual threshold of "normal" anxiety to "overwhelming" anxiety may depend on the sensitivity of the individual to anxiety.
For the second model about motivation, two other predictions could arise: one prediction is that the higher their "Re" and "Int", the less likely the individual will put the task off to the last minute. To apply this to a more concrete example- if for example, the task is to code an assignment for a machine learning class that one is interested in, the level of "Re" and "Int" might be high and this individual will be less likely to put off an assignment. On the other hand, even if their interest in the model is low ("Int"), but their perceived reward for accomplishing a task is very high, the individual might still not put the task off. For example, if the individual is not interested in learning about machine learning but sees a high reward for learning machine learning- because it increases their employability, the individual might not put the task off. In terms of the assumptions, the individual is assumed to not only recognize and perform a cost-benefit analysis in performing the task, it is also assumed that he or she would recognize the high rewards and act accordingly.

Selecting and Fitting a Model

a. When the sample size is very large and the number of predictors is small, the flexible statistical learning method would perform better than an inflexible method. As the more flexible, the more it will fit the observed data, and with a large sample size, which

suggests that the observed data is approximate to the "real" population parameter, a flexible method will have a smaller error than an inflexible method.

b. When the number of observations is small, a flexible method will perform worse than an inflexible method as it is highly likely that a flexible model will overfit the small number of observations instead.

c. When the relationships between predictors and response is highly non-linear, a flexible method will perform better than an inflexible method as the flexible method will be better suited to fit non-linear shapes as compared to a non-flexible method.

d. When the variance of the error terms is extremely high, a flexible method will perform worse than an inflexible method as it would fit to the noise in the error terms, which will increase variance as a result.

The rest of the assignment is in a Rmarkdown file.

References

ABCnews, "Singapore executes six men over drug trafficking despite international pleas," 27 October 2018, Accessed January 12, 2019. https://www.abc.net.au/news/2018-10-27/singapore-condemned-for-executions/10434958

ABCNews, "China to ban violent video games," Accessed January 12, 2019. https://abcnews.go.com/Technology/story?id=8194306&page=1

Arbejdstilsynet, "Inspection of the Enterprises," Accessed January 12, 2019. http://engelsk.arbejdstilsynet.dk/en/inspection

Everly, George, "Profiling School Shooters," March 29, 2018, Accessed January 12, 2019. https://www.psychologytoday.com/us/blog/when-disaster-strikes-inside-disaster-psychology/201803/profiling-school-shooters

US Department of State, "Sexual Harassment Policy," Accessed January 12, 2019. https://www.state.gov/s/ocr/c14800.htm