

Using Expected Utility to Model A Murderer's Behavior: A Game-Theorist's Approach¹

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This paper attempts to model a parent's behavior when they perceive their child's actions to have stolen their honor. The author uses the expected utility approach to perform an interesting behavioral analysis. This study aims to provide a useful insight to the administration who might wish to take steps to stop such crimes from happening and to the game theorists who might want to model the strategic interaction between possible murderers and rules.

Introduction

Almost every social system we know has had the past of putting their honor in a household's females' inability to make their own decisions and determining a person's occupation on the basis of their caste, religion, gender, etc., and in some regions, the color of one's skin. This has resulted in visible differences in social status within a community which then translates into a particular group of society ending up believing that it is superior to one group and inferior to another.

This makes an interesting case for game-theorists where multiple tools from the field could be applied. One such interesting tool is that of expected utility from two different strategies. The tool has been used by the administration, economists, all sorts of social scientists, to study the behavior of an agent of interest. The study of an agent's behavior can prove to be incredibly helpful in altering their response to a given situation. For example, an e-commerce site can use its customers' search history to offer various alternatives in a way that maximizes the firm's interests; police can study the behavior of a homogeneous group of a particular type of criminal and consider ways to minimize the probability of a person belonging to such a category attempting to commit the crime, or a professor could study how students behavior leads to most of them cheating in a home assignment and then design a mechanism or a system that would attempt to minimize the likelihood of a student engaging in such a malpractice.

This paper uses the tool of expected utility to model a parent's behavior when they face a situation that offers them with two strategies: to kill their kid or not to kill their kid. The intuition of the subject of this paper at times relates to the psychological aspect underlying the perception of honor for parents. This paper makes an attempt to

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discuss and model the behavior that underlies the decision-making process behind an *honor killing*³

Literature Review

Mayell (2002) discusses the intense gravity of the situation in various cultures in her work for National Geographic. There are thousands of women who are killed for honor. This points to the patriarchal roots of honor (*izzat*). Baker, Gregware, and Cassidy (1999) discusses the role of “*cultural and personal systems of honor*” that are an integral part of honor killings. Chesler (2010) provides an interesting analysis of worldwide trends in honor killings. Eisner and Ghuneim (2013) try to explain the role of aggressive behavior in the crime and Lowe, Khan, Thanzami, Barzy, and Karmaliani (2018) discuss the domestic violence cum honor killings. In an incredibly interesting study, Goldstein (2002) studies the biological roots of this crime.

This paper is one of the first attempts to try to model a murderer-specific behavior in an honor killing. The author hopes that this study would be a fruitful addition to the literature on the subject.

Study and Motivation

When someone from a relatively inferior group (generally a male) tries to marry into a so-called superior group (generally a female), it supposedly ‘hurts’ the latter’s ego and their fraudulent honor.⁴ (1) And to relieve themselves of the lifelong disdain from other members of the society the parents (most often belonging to the upper-class) decide to kill their own blood and the lover. Such killings are known to us as honor killings. From India to the US, it is hard to find a region which at least hasn’t had a past of such killings. In fact, interestingly, according to a BBC study, honor killings are more acceptable than being gay in Arab nations.

As an economics student, I ask myself these questions when I come across articles where a father slaughters his own daughter to save his corrupt honor: Can we model this crime to determine the optimal punishment which could put an end to these events? Can we change the incentives to kill the couple into an incentive to maybe, at least, not commit an ‘honor killing’? The paper attempts to enable us to try and answer such questions.

Study Design

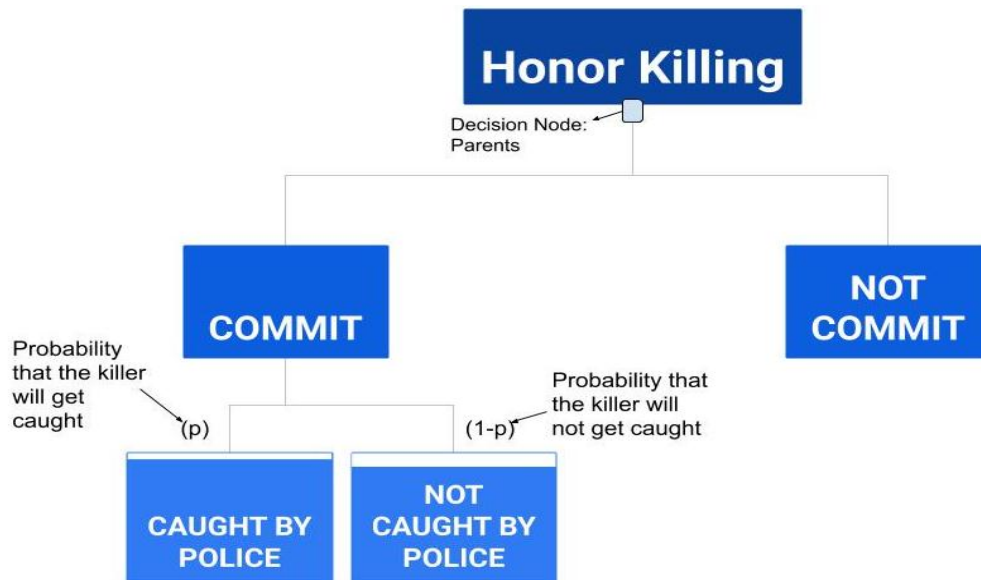
A parent is the decision-node. Their daughter/son has made them perceive that they have lost their honor. They are now faced with two strategies: 1. To kill the child, 2. To not kill the child. Whatever decision they choose to go with leads them to some satisfaction over a period of time. I compare the two utilities resulting from the two different actions. I then analyze the possible implication from this comparison and make it a point to highlight some key findings at the end.

The chart represents various possibilities when a child ‘runs away’, or do something which their parents perceive as staining their honor. The various possibilities arise

³ Honor Killing typically refers to a family members murdering another familymember or friend in an attempt to restore their lost honor. Honor, I assume, is a psychological concept and hence such a murderer’s perception of honor is different from what could be generally perceived.

⁴ Latter’s ego, and their fraudulent honor:- The belief that they are supposed to be privileged with protecting their beliefs as they want.

from whether they decide to commit or not commit the murder; the likelihood that the police will catch them after they choose to commit the crime, etc.



Model

I try to find an expression for **parents' payoffs**, which is basically the expected satisfaction that they get in terms of some relevant variables, corresponding to the 2 different strategies available to them- to kill (**K**) or not to kill (**NK**).

Know Your Variables

Variable	What does it depict?
S	Utility/Satisfaction that a parent gets because of the perception of saved honor and appreciation/acceptance from their social circle.
N	The number of months they might end up spending in jail.
J	Negative utility/satisfaction from spending one month in jail.
s_d	Negative utility due to the perception of lost honor and social disdain.
$U_j(s, n, j)$	Utility function measuring the parents' satisfaction when they are caught, a function of s, n, and j.
$U(s)$	Utility function measuring the parents' satisfaction when they commit the filicide but are not caught.

Expected Payoff when the killing is happening, EP_K :

$EP_K = \text{Probability that killer is caught} * U_j(s, n, j) + \text{Probability that killer is not caught} * U(s)$

$$= p * (s - nj) + (1-p) * (s)$$

$$= ps - pnj + s - ps$$

$$EP_K = s - pnj \quad \text{----- (1)}$$

Expected Payoff when the killing is not happening, EP_{NK} :

$$EP_{NK} = s_d \quad \text{----- (2)}$$

Any rational agent, which here is one of the lovers' parents, would go with the strategy which gives them a higher payoff. In simple terms, if the expected payoff from killing their child is higher than that of from letting them stay alive ($EP_K > EP_{NK}$), they will choose 'to kill' - and vice versa.

What does $EP_K \leq EP_{NK}$ tell us?

$EP_K \leq EP_{NK}$ translates into $s - pnj \leq s_d$.

An administrator or a policymaker thinking of ways and measures to put a dot on such brutal filicides could maybe have a look at the condition above and deduce that doing so would require for the following conditions to satisfy:

$$EP_K < EP_{NK}, \text{ which is equivalent to } s - pnj < s_d < 0 \quad [\because s_d < 0]$$

$$\Rightarrow s - pnj - s_d < 0$$

$$\Rightarrow (s - s_d) - pnj < 0 \quad ; \quad (s - s_d) \& \; pnj > 0 \quad [\because s_d < 0 \& \; s > 0]$$

$\Rightarrow$ (Utility because of the perception of saved honor and appreciation/acceptance from their social circle - Negative utility due to the perception of lost honor and social disdain) - $pnj < 0$

In a nutshell, if we are able to ensure that $(s - pnj)$ is strictly less than s_d , parents end up not committing filicide. But, what is this inequality really? How do we read it?

Controlling Perception of Honor: s & s_d

What's helpful about the inequality " $s - pnj < s_d$ " are the inferences that we can draw from it. Some important inferences from the above equation are:-

1. The variables, ' s ' and ' s_d ', translate into a society's perception of honor aka '*izzat*'. Greater the incidences and *acceptability* of honor killings more would be ' s ' and consequently, lesser would be the ' s_d '. Hence, it would be harder for us to arrive at our final condition of $s - pnj < s_d$, and vice versa. Studies and observations support and verify this condition.
2. The equation tells us a lot about the other variables put into it too. One could infer that higher the penalty for committing the murder (i.e., j), lower would be the left-hand side of the equation and we would be closer to achieving the *optimal inequality*. Or, higher are the chances that such a case is reported and the murderers are caught (i.e., p), the greater the possibility for the society to satisfy the *inequality*.

We can think of a possibility where even a death penalty would be ineffective in making the inequality satisfy. With this in mind, think of a region where the disdain and *the feel* of losing honor i.e., ' s_d ' tends to a *very negative value* - a value maybe tending to infinity, or where the satisfaction and *the feel* of saving the honor tends to a *very high value* (maybe a positive infinity). There are good chances that no degree of

legal punishment could stop a perpetrator from killing their daughter or son. The instance of the court awarding the death penalty to the culprits in the Manoj-Babli murder case (which, however, never took place and the sentence was reduced later) and consequent rises in honor killings might be seen as one of the possible instances of this inference.

What should not be missed is the role that the administrators and the cops could play in stopping this from happening. Simply put, parents wouldn't be able to kill their children if the couple was provided the protection at the right time. A mistake in the protection of Manoj and Babli was primarily why they had got caught and killed. Police protection is all they can rely on while being chased for their lives. However, there have been instances when the police itself started hunting for the young couple who then didn't have a place to go.

Concluding Remarks

The model places an emphasis on the individual character of a particular region. This could explain why a penalty of a 10-year jail term could be enough in one region to stop the crime but a death penalty might come to be futile in another. This basic model reflects on the relative importance of penalty, social perception of honor, the involvement of the police.

The model takes into account almost all the factors involved in an honor killing. However, one might study the variables and the inequality to obtain a more sophisticated version of this set-up. My intent to have a model in the first place was to maybe infer some key points which we otherwise might not have been able to take note of. Importance of education relative to the duration or degree of a penalty, need to move away from the murderer-based behavioral model to providing protection to potential victims, reassure that the set model's intent was fulfilled.

So what do we do then? In the short-term, the administration must ensure that potential victims are provided with adequate security. Realizing the importance of change in the implicit functioning of a community and the significance of education in doing so- school education must teach its students about such 'bads' prevalent in their vicinity and enable them to question the underlying ideologies.

As far as perpetrators are concerned, behavior which comes out of notions of superiority and following deeply entrenched traditions is hard to be changed merely through awareness drives and strong penalty which are necessary, but definitely not sufficient. Nevertheless, attempts to educate such communities, emphasis on victim security, teaching the society's kids, and making sure that the culprit is given a bold sentence, must continue to be practiced.

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