ECO499 Proposal

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Most people would agree that killing others is morally wrong. After all, most people fundamentally believe that others have stringent moral rights against such treatment (Stanford Encyclopedia of Philosophy, n.d.).

However, what if I were to tell you that some people would be okay with higher murder rates in their communities if it meant being able to save their own skin?

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So how would this happen?

Well, to answer this question, we will focus on how different countries tend to evaluate home self-defense cases from a legislative standpoint.

Keep in mind that this legislation applies in the case of home invasions:
Criminal Code s.34 (Canada): Not guilty if:

- **Reasonable** belief of force/threat against self or others; OR **Reasonable** belief of physical intrusion, private property damage, or offence commission;
- AND force used is **reasonable and necessary**.

Castle Law (present in some U.S. states): No duty to retreat when you are in your home; a lawful occupant may use force (including deadly) against an intruder without first trying to escape.

From these legislatures, we notice some significant differences: the Canadian legislature cares more about the overall well-being of the homeowner and the perpetrator whilst the U.S. legislature focuses more on the well-being of the homeowner at the "expense" of the perpetrator.

Why the difference? Cross-cultural psychology posits that this discrepancy can be explained by differing levels of *individualism* vs *collectivism* across cultures (Triandis, 1989).

Individualism:

- Stands for a society in which the ties between individuals are loose: a person is expected to look after himself or herself and his or her immediate family only.
- Instructs its people to focus on their own goals at the expense of others' goals.

Collectivism:

- Stands for a society in which people from birth onwards are integrated into strong, cohesive in-groups, which continue to protect them throughout their lifetime in exchange for unquestioning loyalty.
- Instructs its people to promote others' goals and to focus on social harmony.

Past research has documented that the U.S. tends to be more individualistic than Canada on the Hofstede individualism scale (Hofstede, 2010).

Therefore, it seems like countries that are more individualistic, such as the U.S., tends to be more **open** about what the homeowner can do to defend themselves as the well-being of the homeowner matters most given the transgression committed by the aggressor.

On the other hand, countries that are more collectivistic, such as Canada, are more **restrictive** about what the homeowner can do to defend their home as the well-being of the homeowner and the aggressor both matter regardless of the transgression committed by the aggressor.

So now picture this, let's say you had to move into a new small community and I told you about each community's **self-defense** legislature, and their number of yearly **murders**, **rapes**, and **robberies** (crimes that Canadians care most about according to Statistics Canada (1998)). Then, I asked you to rank each community in terms of how much you would like to move into said community.

Do you think that an individual's answers would be influenced by where they stand on the **individualism/collectivism** scale?

Given the notion that individualistic people tend to weight their personal outcomes more than others relative to collectivists, one may wonder whether an individualist would prefer more "open" self-defense legislature despite having a higher crime rate.

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All together, there are three research questions that I am interested in answering:

- Do individualists prefer more "open" self-defense legislature?
- Do collectivists prefer more "considerate" self-defense legislature?
- Are individualists willing to have more "open" self-defense legislature at the expense of higher overall crime rate?

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So how will I tackle these questions?

I will use a randomized within-subjects design with two components:

- I will measure how individualistic/collectivistic my participants are using Hofstede's individualism scale
- I will present my participants with a set of communities that vary in terms of the self-defense legislature, and number of murders, rapes, and robberies. Crucially, the self-defense legislature will vary across the "open" to "considerate" dimension.

Here are some examples of the questions present in Hofstede's individualism scale:

INDIVIDUALISM v.s. COLLECTIVISM	**1 2 3 4 5**	**(high score = prefer individualism)**
People have strong loyalty to the group(s) they belong to.	1 2 3 4 5	People choose their friends based on common likes/dislikes/interests.
The conventions and rules of the group I belong to influence my behaviour.	1 2 3 4 5	I have full personal freedom.
I am concerned with what others think about me.	1 2 3 4 5	I am concerned only with my own rules and objectives.
	TOTAL	

Participants respond using a 1-5 Likert scale (ordinal data).

When the participant is tasked with ranking different communities, they may be presented with the following stimuli:

Imagine that you will be moving into a new community very soon. You must **rank the following three communities** in order of preference (1 = most likely to move in, 3 = least likely to move in). Each community has **5,000 residents** but differs in its **self-defense laws towards home intrusions** and **annual crime rates**.

Community A

- Self-defense law: You are allowed to use **any** level of force you choose against a home intruder.
- Annual crime levels: 5 murders, 5 rapes, and 5 robberies.

Community B

- Self-defense law: You are allowed to use **any** level of force you choose against a home intruder.
- Annual crime levels: 5 murders, 5 rapes, and 6 robberies.

Community C

- Self-defense law: You need to use a level of force that is **proportionate** to the threat level imposed by the home intruder. In other words, you must "match" the threat level imposed by the aggressor.
- Annual crime levels: 5 murders, 5 rapes, and 5 robberies.

Interestingly, you can convert each community's written description into a vectorized format (bundle representation). Let $x^c = (x_1^c, x_2^c, x_3^c, x_4^c)$ be community c where:

- x_1^c : Self-defense legislature
- x_2^c : Yearly number of murders
- x_3^c : Yearly number of rapes
- x_4^c : Yearly number of robberies

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Participants: We plan to recruit 290 participants via Prolific, an online survey platform. Most of these participants will be from the United States, the United Kingdom, and Canada.

Again, each participant will have to rank x number of communities and complete Hofstede's individualism scale.

The following picture depicts what our ranking data may look like if 6 participants were asked to rank 6 different communities.

	item 1 rk	item 2 rk	item 3 rk	item 4 rk	item 5 rk	item 6 rk
P1	5	3	2	6	4	1
P2	4	2	6	1	3	5
P3	5	3	4	2	6	1
P4	6	3	4	1	5	2
P5	1	6	2	3	5	4
P6	6	5	4	2	3	1

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We will use a IO model to model our consumer's preferences for these "community" bundle rankings. This model is called the exploded logit model.
Suppose individual i is presented with a set of J alternatives communities

$$C_i = \{x^1, x^2, \ldots, x^J\},$$

and provides a complete ranking

$$x^1 \succ_i x^2 \succ_i \cdots \succ_i x^J,$$

where x^1 is the top-ranked alternative, x^2 is second, and so on.
Each alternative x^j has a deterministic utility component

$$V_{ix^j} = X_{ix^j}\beta,$$

and an additive random utility component

$$U_{ix^j} = V_{ix^j} + \varepsilon_{ix^j},$$

In essence, given participant i's ranking, we are looking to estimate the five dimensional β vector (intercept, self-defense legislature, number of yearly murders, number of yearly rapes, numbers of yearly robberies). **The rankings are interpreted by the algorithm as a series of sequential steps**.

At stage x^m, the individual chooses item x^m from the remaining choice set

$$C_i^{x^m} = C_i \setminus \{x^1, x^2, \ldots, x^{m-1}\}.$$

Under the logit assumption, the probability of choosing alternative i_{x^m} from $C_i^{x^m}$ is

$$P(x^m \mid C_i^{x^m}) = \frac{\exp(V_{ix^m})}{\sum_{j \in C_i^{x^m}} \exp(V_{ix^m})}.$$

Therefore, the probability of observing the entire ranking $x^1 \succ_i x^2 \succ_i \cdots \succ_i x^J$ is the product of the sequential choice probabilities:

$$P(x^1 \succ_i x^2 \succ_i \cdots \succ_i x^J) = \prod_{m=1}^{J_i} \frac{\exp(V_{i,i_{x^m}})}{\sum_{x^j \in C_i^{x^m}} \exp(V_{ix^m})}.$$

The β estimation process is quite complicated so I will spare you guys from that, just know that we are tying to fit the β vectors such that they can maximize the likelihood of the observed rankings at a population level.

To determine whether collectivists versus individualists have differing preferences with respect to self-defense legislature and the number of crimes committed in their communities, we will bin participants into two groups based on their Hofstede individualism score: individualists versus collectivists.

We will omit people who score in the in-between portion of responses (around 3). Then, we will estimate the coefficients β for each group and see whether they significantly differ from each other. Overall, this model helps us model ranking choices of a population using a characteristic-based approach.

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- May help inform policy selection that is more tailored to a population's overall preferences given their level of individualism/collectivism.
- May help predict which political campaigns may be more successful given the voting population's culture
- May provide further insight into how people value safety-related public goods

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We want to determine whether people with individualistic versus collectivistic cultural values have differing preferences with respect to self-defense legislature and the number of crimes committed in their communities.