

PIRATES IN THE LAB: USING INCENTIVIZED CHOICE EXPERIMENTS TO EXPLORE PREFERENCE FOR (UN)AUTHORIZED CONTENT

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Appendix A

Web-Based Pilot Survey

We started the project by selecting the movies on which our subjects were to place a value. We picked 30 movies produced after 1990 from the “TOP 250” list posted by a leading website (imdb.com) with the duration of each movie being between 100 and 125 minutes. We developed a web-based pilot survey showing the title, genre, year of premiere, short description, and trailer of each production. Our 49 student responders were asked to imagine they were planning to spend the following 2 hours watching movies and to rate each of the titles on a scale of 1 to 6, where 1 indicated they did not want to see the movie at all and 6 meant they did want to see it very much. We were able to come up with a list of seven movies where 78% of the subjects surveyed rated at least one of them as a 5 or 6. The screenshot of the typical question from the pilot survey is presented in Figure A1.

Festen (1998)

Genre: Drama


Country: Denmark, Sweden

Director: Thomas Vinterberg

Cast: Ulrich Thomsen, Henning Moritzen

Watch trailer: <http://www.youtube.com/watch?v=f5UozqwA3KY>

A wealthy businessman is celebrating his 60th birthday. At the dinner, in front of gathered together many family and friends, the eldest son publicly accuses his father of sexually abusing him during his childhood. But parents dismiss accusations as a figment of Christian's vivid imagination.



THOMAS VINTERBERG'S
FESTEN
(THE CELEBRATION)

THE FIRST DOGME FILM
"PURE GENIUS" - INDEPENDENT

Written and directed by Thomas Vinterberg. Screenplay: Oleksandr Horvath, Henrik Steinfeld.
Titled by Larsen, Bente Nilsen, Peter Aasen, Bent Brundage, Helle Dreyer.
Cinematography: Morten Rasmussen. Production Design: Christian Skjold. Music by Morten Dalgaard.
Edited by Oleksandr Horvath. Production Office: Nordisk Film.

Produced by Christian Skjold and Morten Dalgaard

BLIND LIGHT

Have you seen this movie?

YES

NO

DON'T KNOW

How good do you think it is/may be?

1 2 3 4 5 6

I don't like it at all I like it very much

Would you like to see this movie now?

1 2 3 4 5 6

I wouldn't like to see it at all I would like to see it very much

Next

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Figure A1. Rating of a Movie in the Web-Based Pilot

Appendix B

Explanation of Movie Attributes

In the experiment proper, participants were seated in a computer laboratory and asked to read printed instructions. They were shown the list of seven movies (picked in the web-based pilot described in Appendix A) and asked to select the one they wanted to see during the course of the experiment. Then they went on to learn about possible characteristics of the copy to be watched. We provide the complete description of the attributes available for participants of experiment below.

Price

This attribute determines the price you will have to pay to view a given copy. It can take one of four values:

- free: 0 PLN
- low: 5 PLN
- medium: 10 PLN
- high: 15 PLN

For example, if, given your decisions and the outcome of the random mechanism described before, you watch a movie with “medium” price, your earnings will be reduced by 10 PLN.

Delay

This attribute determines how much you will have to wait after the last decision screen before you can watch the movie. It has two levels:

- movie available immediately: you will not have to wait to watch the movie
- movie available in 15 minutes: you will have to wait idly for 15 minutes before you can watch the movie

The total time you will spend in the lab will also be longer if you have to wait for the movie.

Legality

This attribute indicates the source of the copy. It has two levels:

- A legal copy: the movie was acquired from an authorized source. The copyright holders are aware of the viewing and approve of it. The price you are paying is transferred to [BC: the copyright holders] [GCC: the Polish Film Institute].
- An illegal copy: the movie was acquired from an unauthorized source. The copyright holders are unaware of the viewing and have not approved of it. The price you are paying is transferred to the owners of a website hosting unauthorized movies.

In any case, the authors of this article guarantee that the relevant entity receives the appropriate amount. We will give you additional information momentarily.

Picture Quality

This attribute determines quality of the copy. It takes two levels:

- high quality: the movie will be shown in DVD picture quality.
- low quality: the movie will be shown in inferior picture quality. You can access samples of high and low quality by clicking the blue buttons at the bottom of the screen.

All legal copies come in high quality. High quality is just as high, no matter whether a copy is legal or not.

Risk

This attribute determines if watching the copy is associated with a risk of inspection and penalty. It takes two levels:

- no penalty
- penalty possible: a penalty of 25 PLN will follow with probability 30%

A legal copy is never associated with a risk of penalty. Should you watch a copy for which a penalty is possible, the computer will randomly determine at the end of the experiment whether you lose 25 PLN (which will happen with probability 30%) or not.

Appendix C

Choice Set Design

Typical Choice Set in the Main Study

In the example presented in Figure C1, the responder has already indicated Alternative 1 as the best and Alternative 3, “I don’t watch anything,” as a second-best choice.

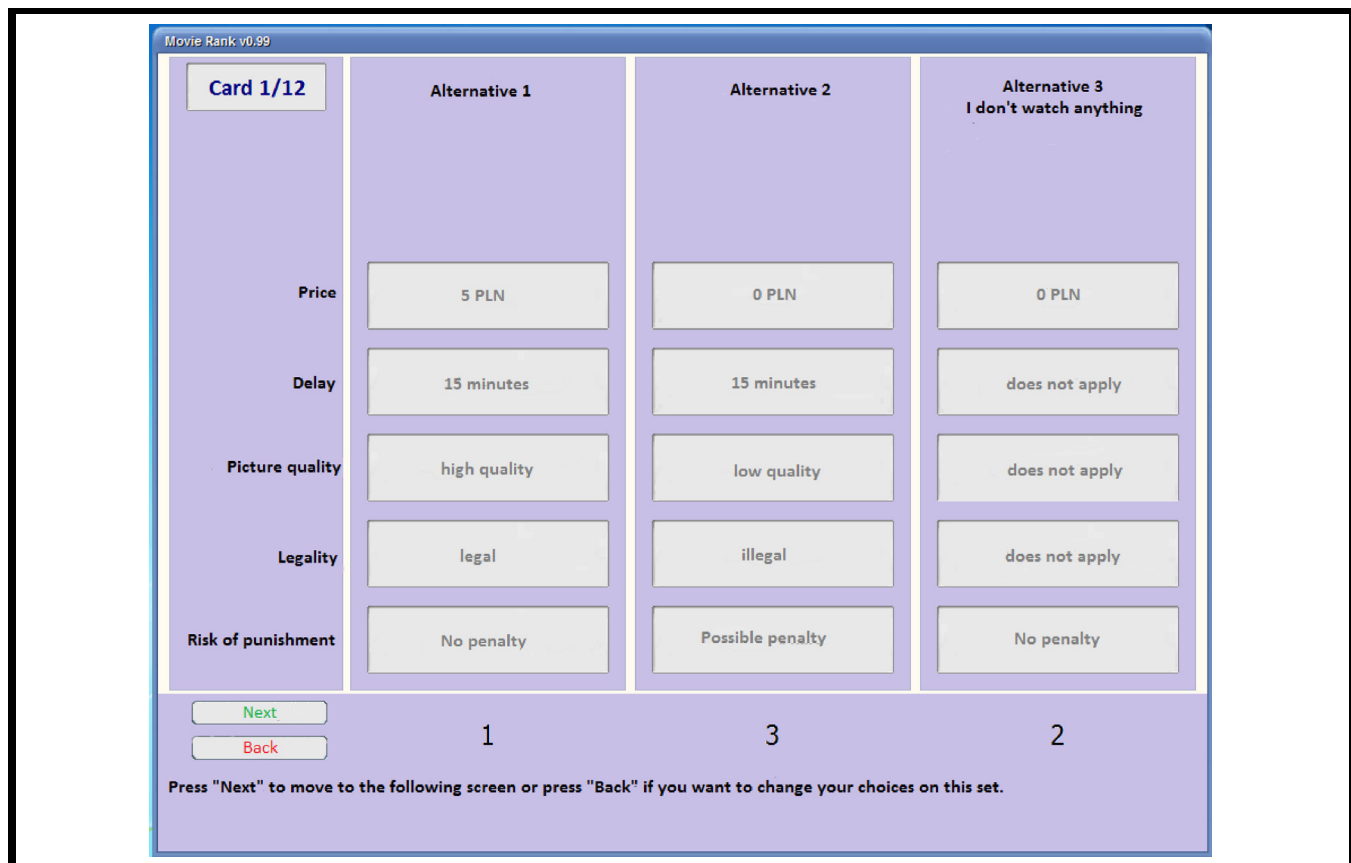


Figure C1. Typical Choice Set in the Main Study

In order to maximize the amount of information, the subjects were asked to rank the options from the best to the worst (rather than simply pick what they liked most) on each of 12 choice sets. The Bayesian *d*-efficient design optimized for the multinomial logit model (MNL) model was used to generate the choice sets in sessions 5 through 12 based on the priors taken from sessions 1 through 4, in which optimal-in-difference design was used.

Tables C1 and C2 show all choice sets used in our design. Note that each set had one legal and one illegal alternative; additionally, the option “I don’t watch anything” was always available. The latter was always presented as Alternative 3 on the right side of the screen, while the remaining two were shown in a balanced order: each subject would have the illegal option as Alternative 1 in six choice sets and as Alternative 2 in remaining six sets. The order of the 12 choice sets was also randomized between subjects.

Table C1. Choice Sets Used in Experiment: Sessions 1 through 4

Choice situation	Legality	Price	Delay	Risk	Quality
1	legal	15 PLN	delayed	no penalty	high
	illegal	10 PLN	immediate	penalty	high
2	legal	5 PLN	delayed	no penalty	high
	illegal	5 PLN	immediate	penalty	low
3	legal	10 PLN	immediate	no penalty	high
	illegal	0 PLN	delayed	no penalty	low
4	legal	15 PLN	immediate	no penalty	high
	illegal	5 PLN	delayed	penalty	high
5	legal	0 PLN	immediate	no penalty	high
	illegal	0 PLN	delayed	no penalty	low
6	legal	15 PLN	delayed	no penalty	high
	illegal	15 PLN	immediate	no penalty	high
7	legal	5 PLN	delayed	no penalty	high
	illegal	0 PLN	delayed	penalty	low
8	legal	15 PLN	delayed	no penalty	high
	illegal	5 PLN	immediate	no penalty	high
9	legal	10 PLN	immediate	no penalty	high
	illegal	10 PLN	delayed	penalty	low
10	legal	15 PLN	delayed	no penalty	high
	illegal	15 PLN	immediate	no penalty	high
11	legal	10 PLN	immediate	no penalty	high
	illegal	10 PLN	delayed	penalty	high
12	legal	5 PLN	immediate	no penalty	high
	illegal	0 PLN	immediate	no penalty	low

Table C2. Choice Sets Used in Experiment: Sessions 5 through 12

Choice Situation	Legality	Price	Delay	Risk	Quality
1	legal	10 PLN	immediate	no penalty	high
	illegal	0 PLN	delayed	no penalty	high
2	legal	15 PLN	delayed	no penalty	high
	illegal	15 PLN	immediate	no penalty	high
3	legal	15 PLN	immediate	no penalty	high
	illegal	0 PLN	delayed	no penalty	low
4	legal	15 PLN	delayed	no penalty	high
	illegal	15 PLN	immediate	no penalty	low
5	legal	0 PLN	delayed	no penalty	high
	illegal	0 PLN	immediate	penalty	high
6	legal	15 PLN	delayed	no penalty	high
	illegal	0 PLN	immediate	no penalty	low
7	legal	5 PLN	immediate	no penalty	high
	illegal	0 PLN	delayed	penalty	low
8	legal	5 PLN	delayed	no penalty	high
	illegal	5 PLN	immediate	penalty	low
9	legal	10 PLN	immediate	no penalty	high
	illegal	5 PLN	delayed	penalty	high
10	legal	15 PLN	delayed	no penalty	high
	illegal	0 PLN	immediate	penalty	high
11	legal	15 PLN	immediate	no penalty	high
	illegal	0 PLN	delayed	penalty	low
12	legal	10 PLN	immediate	no penalty	high
	illegal	5 PLN	delayed	no penalty	high

Table C3. Summary Statistics of Attributes of Illegal Alternatives (Sessions 1 through 4)

Variable	Mean	Std. Dev.	Min	Max
price	6.25	5.690902	0	15
delay	0.5	0.522233	0	1
low quality	0.5	0.522233	0	1
risk	0.5	0.522233	0	1

Table C4. Summary Statistics of Attributes of Legal Alternatives (Session 1 through 4)

Variable	Mean	Std. Dev.	Min	Max
price	6.25	5.22233	0	15
delay	0.5	0.522233	0	1

Table C5. Summary Statistics of Attributes of Illegal Alternatives (Session 5 through 12)

Variable	Mean	Std. Dev.	Min	Max
price	3.75	5.690902	0	15
delay	0.5	0.522233	0	1
low quality	0.5	0.522233	0	1
risk	0.5	0.522233	0	1

Table C6. Summary Statistics of Attributes of Legal Alternatives (Sessions 1 through 4)

Variable	Mean	Std. Dev.	Min	Max
price	10.83333	5.149287	0	15
delay	0.5	0.522233	0	1

Appendix D

Modeling Methodology

In a random utility context, respondents are assumed to identify the best alternative or the (partial) preference ordering based on the relative position of the available alternatives in terms of their utility levels. To maximize the amount of information on the underlying preference structure, subjects in our study were asked to provide full preference ordering, not just their first best. The standard way of analyzing this type of data is the use of exploded logit formula, which is a product of standard multinomial logit formulas.

The multinomial logit model (MNL) and exploded logit were thus our baseline models. In the MNL model, the panel specification of the sandwich error estimator was used to accommodate the repeated choice nature of the data (see Hess et al. 2011). In addition to the MNL, the data were analyzed with a mixed logit model (MIXL). In MIXL we used the panel specification (Revelt and Train 1998); it was assumed that taste parameters vary across respondents according to a specified mixing distribution but stay constant across multiple choices for the same respondent.¹ In our work, we assumed the mixing distribution to be a mixture of normal and log-normal densities with unrestricted correlation structure. All non-price coefficients were assumed to follow a normal distribution and the price coefficient was assumed to follow a log-normal distribution. Assuming lognormal distribution for the price coefficient is plausible from a behavioral perspective as it restricts all respondents to have negative price sensitivity. Additionally, this assumption guarantees that the resulting distributions of WTP are useful and meaningful (i.e., have finite moments) (Daly et al. 2012).

References

- Daly, A., Hess, S., and Train, K. 2012. "Assuring Finite Moments for Willingness to Pay in Random Coefficient Models," *Transportation* (39:1), pp. 19-31.
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- Revelt, D., and Train, K. 1998. "Mixed Logit with Repeated Choices: Households' Choices of Appliance Efficiency Level," *Review of Economics and Statistics* (80:4), pp. 647-657.

¹In our exercise, each respondent answered 12 choice situations.