# HOW HAS SVOD IMPACTED LEGAL AND ILLEGAL CONSUMPTION OF TV AND MOVIES?

Alan Collins<sup>1</sup> Joe Cox<sup>2</sup>
Paul Crosby<sup>3</sup> Jordi McKenzie<sup>3</sup>
Joel Waldfogel<sup>4</sup>

Nottingham Trent University
 University of Portsmouth
 Macquarie University
 University of Minnesota

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## BACKGROUND AND MOTIVATION

In March 2015, Netflix arrived in Australia

Joined other new and existing SVODs: Presto (dissolved),
 Quickflix (dissolved) and Stan (still operating)

Up until this time, Australian TV was dominated by fee-to-air (F2A) with only limited (30%) penetration of pay-TV (Foxtel)

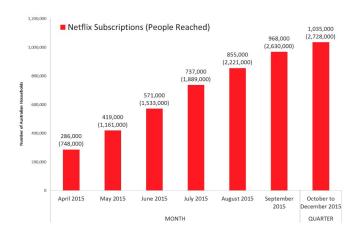
For years, Australia has also been recognised as being one of the worst offending countries with respect to illegal downloading

 For example, Breaking Bad and Game of Thrones have been downloaded more by Australians than any other country

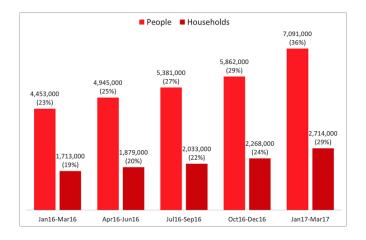
The arrival of Netflix, however, has apparently reduced illegal downloading and has also seen consumers substitute away from traditional pay-TV (and F2A)



## THE GROWTH OF NETFLIX



## THE GROWTH OF NETFLIX IN AUSTRALIA



## HOW HAS NETFLIX AFFECTED LEGAL CONSUMPTION?

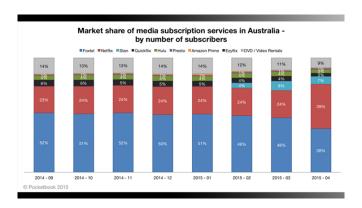
Like other countries, Netflix's arrival has led to a decline in subscription rates for pay TV (Foxtel)

 As a pre-emptive move, Foxtel reduced its base subscription fee in Nov 2014 by 50% prior to the arrival of Netflix

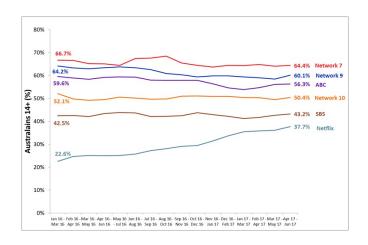
There have also been declines in viewership of traditional F2A

 Over one in seven Australians now watch no commercial television on a normal weekday—over twice as many as in 2008 (Roy Morgan, 2016)

## THE IMPACT OF NETFLIX—PAY TV



## THE IMPACT OF NETFLIX—F2A TV



## HOW HAS NETFLIX AFFECTED ILLEGAL CONSUMPTION?

Like other countries too, Netflix's arrival has reportedly brought about declines in illegal downloading in Australia

 "When we launch in a territory the Bittorrent traffic drops as the Netflix traffic grows." (Ted Sarandos, Netflix 2013)

It has often been noted in surveys that 'price' and 'access' are the most commonly reported reasons given for pirating content

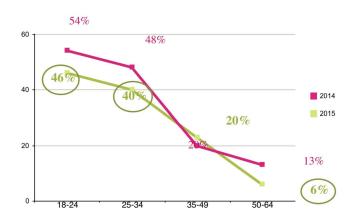
 "Most Australians believe cheaper and easier access to content will solve piracy problems" (Communications Alliance, 2014)

## HOW HAS NETFLIX AFFECTED ILLEGAL CONSUMPTION?

A number of surveys have directly linked Netflix (and other SVOD) entry to reduced piracy activity

- "The number of people regularly pirating in Australia has dropped by a quarter since Netflix launched" (CHOICE, 2014)
- "Internet piracy has dropped considerably in the past year—down 29%... [and] 33% of respondents who ceased pirating cited new access to streaming services like Netflix as the single biggest reason for the change" (IP Awareness Foundation, 2015)

## THE IMPACT OF NETFLIX—ILLEGAL DOWNLOADING



## STATED PREFERENCE EXPERIMENT

- 151 participants presented with 15 upcoming films
- Provided with information on plot, genre, director, cast, etc.
- Asked to select films: 1) 'highly likely' or 2) 'fairly likely' to watch
- Then complete choice tasks:
  - 10 choice tasks based on films 'highly likely' to watch
  - 10 choice tasks based on films 'fairly likely' to watch
- Entire process is repeated for 15 upcoming TV series
- Following completion of choice experiments, answer demographic and survey questions



## MOVIES SHOWN TO PARTICIPANTS































## TV SERIES SHOWN TO PARTICIPANTS































## FILM INFORMATION EXAMPLE

#### Star Wars: The Last Jedi



GENRE Action, Adventure, Fantasy

DIRECTOR Rian Johnson

WRITTEN BY Rian Johnson, George Lucas

CAST Daisy Ridley, John Boyega, Mark Hamill

SYNOPSIS

Having taken her first steps into a larger world in Star Wars: The Force Awakens (2015), Rey continues her epic journey with Finn, Poe and Luke Skywalker in the next chapter of the saga.

## OTHER STUFF...

- Done under experimental conditions during August and October 2017 at MGSM
- Participants received A\$20 participation fee
- Participants to complete follow-up survey in approximately six months re actual consumption
- 'Availability design' (Rose, Louviere and Bliemer, 2013)



## CONSUMPTION ALTERNATIVES

#### Subsets of the following alternatives are presented:

- 1. Cinema
- 2. Free-to-Air Television
- 3. Streaming Video on Demand—Subscription
- 4. Streaming Video on Demand—Purchase
- DVD—Purchase
- 6. DVD-Rental
- 7. Pay TV—Subscription
- 8. Pay TV—Pay Per View
- 9. File Sharing Site—Download
- 10. File Sharing Site—Stream



## ATTRIBUTES AND LEVELS

#### Subsets of the following attributes are presented:

- 1. Picture Quality
  - Levels: SD, HD, Poor Definition (illegal option)
- Months Since Film/TV Worldwide Release
  - Levels: 0, 3, 6, 9, 12
- 3. Probability of Being Fined (illegal options)
  - Levels: 0%, 25%, 50%, 75%
- 4. Fine if Caught Watching Without Paying (illegal options)
  - Levels: A\$50, A\$100, A\$150, A\$200
- Price Per Film / TV Series
  - Film levels: A\$5, A\$10, A\$15, A\$20, A\$25, A\$30
  - TV levels: A\$10, A\$20, A\$30, A\$40, A\$50



## CHOICE TASK EXAMPLE 1

#### Task 1 of 10

Keeping in mind the films you selected as being highly likely to watch are:

Jigsaw, Pitch Perfect 3, Star Wars: The Last Jedi, Thor: Ragnarok

If you had to choose 1 of the 5 viewing options in the table below in order to watch these films, which viewing option would you choose?

|   |                                   |                                     | Viewing Optio                             | ins                                  |  |
|---|-----------------------------------|-------------------------------------|---|--------------------------------------|--|
|   | Cinema                            | Free-to-Air<br>Television           | Streaming Video on<br>Demand - Purchase   | DVD - Purchase                       | File Sharing Site - Stream                               |
|   | (standard ticket to local cinema) | (e.g. ABC, SBS,<br>Channel 7, etc.) | (e.g. Apple iTunes,<br>Google Play, etc.) | (outright purchase of physical disc) | (e.g. 4Shared, Megaupload, or other file streaming site) |
| Picture Quality   | High Definition                   | Standard<br>Definition              | High Definition                           | Standard Definition                  | High Definition  |
| Number of Months<br>Since Film's<br>Worldwide Cinema<br>Release | 3 Months                          | 9 Months                            | 9 Months                                  | 6 Months                             | 12 Months  |
| % Chance of Being<br>Fined for<br>Watching Without<br>Paying    | N/A                               | N/A                                 | N/A                                       | N/A                                  | 40%  |
| Fine (in AU\$) if<br>Caught<br>Watching Without<br>Paying       | N/A                               | N/A                                 | N/A                                       | N/A                                  | \$150  |
| Price (in AU\$)   | \$15                              | \$0                                 | \$25                                      | \$10                                 | \$0  |

The viewing option I would choose is:

- o Cinema
- Free-to-Air Television
- Streaming Video on Demand Purchase
- DVD Purchase
- File Sharing Site Stream

## CHOICE TASK EXAMPLE 2

#### Task 4 of 10

Keeping in mind the films you selected as being highly likely to watch are:

Jigsaw, Pitch Perfect 3, Star Wars: The Last Jedi, Thor: Ragnarok

If you had to choose 1 of the 5 viewing options in the table below in order to watch these films, which viewing option would you choose?

|  |  |   | Viewing O  | otions  |   |
|--|--|---|--|---|---|
|  | Streaming Video on<br>Demand -<br>Subscription | DVD - Purchase                          | Pay TV - Pay Per<br>View                           | File Sharing Site - Download                                    | File Sharing Site - Stream                                  |
|  | (e.g Netflix, STAN,<br>Presto, etc.)           | (outright purchase<br>of physical disc) | (e.g. Faxtel Store,<br>Faxtel Box Office,<br>etc.) | (e.g. The Pirate Bay, Torrentz,<br>or other BitTorrent sources) | (e.g. 4Shared, Megaupload,<br>or other file streaming site) |
| Picture Quality  | Standard Definition                            | Standard<br>Definition                  | Standard Definition                                | High Definition   | High Definition   |
| Number of<br>Months Since<br>Film's<br>Worldwide<br>Cinema Release | 9 Months                                       | 12 Months                               | 6 Months   | 3 Months  | 3 Months  |
| % Chance of<br>Being Fined for<br>Watching<br>Without Paying       | N/A  | N/A                                     | N/A  | 20%   | 80%   |
| Fine (in AU\$) if<br>Caught<br>Watching<br>Without Paying          | N/A  | NIA                                     | N/A  | \$100   | \$100   |
| Price (in AU\$)  | \$20   | \$5                                     | \$15   | \$0   | \$0   |

#### The viewing option I would choose is:

- Streaming Video on Demand Subscription
- DVD Purchase
- O Pay TV Pay Per View
- File Sharing Site Download
- File Sharing Site Stream



## **UTILITY FUNCTION**

#### Observed utility can be defined

$$U_{nj} = \alpha_j + \mathbf{x}'_j \beta + \varepsilon_{nj}$$

#### where

- n is the decision maker
- *j* is the alternative
- $\mathbf{x}$  is the  $(k \times 1)$  vector of attributes associated with alternative j
- $\varepsilon$  is type-1 extreme value error

Estimated parameters are used to estimate elasticities (w.r.t. attributes) and willingness to pay (simply calculated as  $\hat{\beta}_k/\hat{\beta}_{price}$ )

Computing Elasticities



## SUMMARY STATISTICS OF SELECTIONS

|                          |            | Fil              | lm               |                  | TV               |
|--------------------------|------------|------------------|------------------|------------------|------------------|
| Alternative              | Design No. | Highly<br>Likely | Fairly<br>Likely | Highly<br>Likely | Fairly<br>Likely |
| Cinema                   | 755        | 443              | 144              |                  |                  |
| Free to Air              | 755        | 168              | 482              | 334              | 548              |
| Streaming - Purchase     | 755        | 175              | 84               | 191              | 165              |
| Streaming - Subscription | 755        | 208              | 110              | 174              | 98               |
| DVD - Purchase           | 755        | 128              | 148              | 169              | 69               |
| DVD - Rental             | 755        | 54               | 118              | 33               | 14               |
| Pay TV - Subscription    | 755        | 76               | 63               | 104              | 68               |
| Pay TV - Purchase        | 755        | 51               | 43               | 117              | 141              |
| Download                 | 755        | 117              | 201              | 130              | 164              |
| Streaming                | 755        | 90               | 117              | 107              | 92               |
| Total                    | 7550       | 1510             | 1510             | 1359             | 1359             |

## FILM MNL RESULTS

|                    | Highly     | Likely    | Fairly     | Likely    |
|--------------------|------------|-----------|------------|-----------|
|                    | Coef.      | S.E.      | Coef.      | S.E.      |
| Alternatives       |            |           |            |           |
| Cinema             | 3.63700*** | (0.25306) | 2.78371*** | (0.26952) |
| F2A                | 1.63353*** | (0.19631) | 2.45091*** | (0.19990) |
| SVOD_P             | 2.38489*** | (0.22699) | 1.79354*** | (0.23934) |
| SVOD_S             | 2.71526*** | (0.21715) | 2.54634*** | (0.23690) |
| $DVD_P$            | 1.86243*** | (0.19407) | 1.93801*** | (0.19293) |
| $DVD_R$            | 1.34544*** | (0.24163) | 1.79329*** | (0.23786) |
| PAY <sub>-</sub> S | 1.56451*** | (0.20922) | 1.62079*** | (0.21869) |
| PAY_P              | 1.26890*** | (0.24220) | 1.02817*** | (0.23895) |
| Download           | 1.50690*   | (0.77887) | 1.06323    | (0.69803) |
| Attributes         |            |           |            |           |
| Quality            | .32156***  | (0.10704) | .26917**   | (0.10936) |
| Release            | 12301***   | (0.00999) | 09109***   | (0.01080) |
| Price              | 09641***   | (0.00730) | 16863***   | (0.01011) |
| Fine Prob          | -0.00982   | (0.01410) | -0.0068    | (0.01253) |
| Fine Dollars       | -0.00458   | (0.00317) | -0.00248   | (0.00265) |
| Log likelihood     | -1875.26   |           | -1788.15   |           |
| AIČ/N              | 2.502      |           | 2.387      |           |
| Obs                | 1510       |           | 1510       |           |

## PRICE ELASTICITIES—FILM

#### TABLE: Film—Highly Likely

| PRICE | CIN    | SVP    | SVS    | DVDP   | DVDR   | PAYS   | PAYP   | F2A   | DL    | ST    |
|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| CIN   | -0.604 | 0.108  | 0.000  | 0.640  | 0.901  | 0.197  | 0.518  | 0.185 | 0.223 | 0.219 |
| SVP   | 0.051  | -0.762 | 0.199  | 0.009  | 0.028  | 0.047  | 0.061  | 0.192 | 0.105 | 0.173 |
| SVS   | 0.000  | 0.367  | -0.869 | 0.060  | 0.053  | 0.145  | 0.135  | 0.216 | 0.276 | 0.218 |
| DVDP  | 0.110  | 0.003  | 0.009  | -0.689 | 0.187  | 0.040  | 0.070  | 0.011 | 0.068 | 0.118 |
| DVDR  | 0.049  | 0.013  | 0.032  | 0.106  | -1.134 | 0.086  | 0.027  | 0.022 | 0.016 | 0.040 |
| PAYS  | 0.027  | 0.034  | 0.058  | 0.034  | 0.046  | -0.632 | 0.029  | 0.044 | 0.014 | 0.014 |
| PAYP  | 0.017  | 0.029  | 0.058  | 0.031  | 0.026  | 0.059  | -1.039 | 0.043 | 0.070 | 0.036 |

| PRICE | CIN    | SVP    | svs    | DVDP   | DVDR   | PAYS   | PAYP   | F2A   | DL    | ST    |
|-------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| CIN   | -1.956 | 0.051  | 0.000  | 0.271  | 0.523  | 0.320  | 0.319  | 0.146 | 0.259 | 0.167 |
| SVP   | 0.031  | -1.227 | 0.235  | 0.003  | 0.030  | 0.050  | 0.040  | 0.070 | 0.135 | 0.026 |
| SVS   | 0.000  | 0.479  | -1.525 | 0.041  | 0.043  | 0.130  | 0.029  | 0.104 | 0.241 | 0.072 |
| DVDP  | 0.174  | 0.002  | 0.014  | -1.104 | 0.287  | 0.121  | 0.202  | 0.032 | 0.134 | 0.378 |
| DVDR  | 0.207  | 0.064  | 0.054  | 0.189  | -1.107 | 0.136  | 0.212  | 0.006 | 0.146 | 0.099 |
| PAYS  | 0.100  | 0.064  | 0.084  | 0.069  | 0.063  | -1.373 | 0.025  | 0.045 | 0.057 | 0.049 |
| PAYP  | 0.028  | 0.017  | 0.017  | 0.038  | 0.077  | 0.015  | -1.049 | 0.021 | 0.047 | 0.022 |

## OTHER FILM ELASTICITIES

#### Other film elasticities

- 1. Quality
  - All own elasticities positive, cross elasticities negative
  - Some evidence increasing F2A quality decreases SVOD and Pay TV demand
- 2. Release delay
  - All own elasticities negative, cross elasticities positive
  - Some evidence increasing cinema, F2A or SVOD release delay increases (illegal) download demand
- 3. Punishment
  - All own elasticities negative, cross elasticities positive
  - Some evidence fines have larger deterrent effect





## TV MNL RESULTS

|                | Highly     | Likely    | Fairly I   | Likely    |
|----------------|------------|-----------|------------|-----------|
|                | Coef.      | S.E.      | Coef.      | S.E.      |
| Alternatives   |            |           |            |           |
| F2A            | 1.68967*** | (0.16814) | 2.36228*** | (0.18896) |
| SVOD_P         | 1.62156*** | (0.20270) | 1.57574*** | (0.24384) |
| SVOD_S         | 2.04794*** | (0.22270) | 1.78734*** | (0.28517) |
| DVD_P          | 1.61136*** | (0.21184) | .97458***  | (0.28463) |
| $DVD_R$        | 0.31635    | (0.23739) | -0.23479   | (0.33671) |
| PAY_S          | 1.18454*** | (0.19610) | .99142***  | (0.23914) |
| PAY_P          | .88231***  | (0.18608) | 1.04773*** | (0.19510) |
| Download       | 1.54812*** | (0.48921) | 1.15121**  | (0.47177) |
| Attributes     |            |           |            |           |
| Quality        | .20190***  | (0.07505) | .22048**   | (0.09744) |
| Release        | 10398***   | (0.00976) | 07504***   | (0.01160) |
| Price          | 05798***   | (0.00442) | 07996***   | (0.00624) |
| Fine Prob      | 02003**    | (0.00818) | 02027***   | (0.00745) |
| Fine Dollars   | 00479**    | (0.00194) | -0.0016    | (0.00179) |
| Log likelihood | -1718.3    |           | -1392.25   |           |
| AIC/N          | 2.548      |           | 2.068      |           |
| Obs            | 1359       |           | 1359       |           |
|                | . 200      |           | .000       |           |

## PRICE ELASTICITIES—TV

TABLE: TV—Highly Likely

| PRICE | SVP    | SVS    | DVDP   | DVDR   | PAYS   | PAYP   | F2A   | DL    | ST    |
|-------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| SVP   | -0.499 | 0.084  | 0.013  | 0.138  | 0.140  | 0.019  | 0.080 | 0.095 | 0.168 |
| SVS   | 0.074  | -0.993 | 0.292  | 0.097  | 0.094  | 0.323  | 0.067 | 0.217 | 0.072 |
| DVDP  | 0.006  | 0.193  | -0.783 | 0.076  | 0.076  | 0.233  | 0.099 | 0.160 | 0.058 |
| DVDR  | 0.043  | 0.009  | 0.018  | -0.876 | 0.010  | 0.001  | 0.025 | 0.025 | 0.034 |
| PAYS  | 0.066  | 0.061  | 0.059  | 0.015  | -0.778 | 0.181  | 0.027 | 0.101 | 0.039 |
| PAYP  | 0.012  | 0.072  | 0.062  | 0.002  | 0.087  | -0.508 | 0.039 | 0.080 | 0.016 |

TABLE: TV—Fairly Likely

| PRICE | SVP    | SVS    | DVDP   | DVDR   | PAYS   | PAYP   | F2A   | DL    | ST    |
|-------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| SVP   | -0.530 | 0.041  | 0.010  | 0.176  | 0.191  | 0.006  | 0.042 | 0.125 | 0.247 |
| SVS   | 0.040  | -1.564 | 0.249  | 0.096  | 0.071  | 0.317  | 0.072 | 0.211 | 0.050 |
| DVDP  | 0.002  | 0.119  | -1.279 | 0.060  | 0.039  | 0.173  | 0.052 | 0.116 | 0.011 |
| DVDR  | 0.031  | 0.007  | 0.012  | -1.162 | 0.007  | 0.000  | 0.010 | 0.011 | 0.020 |
| PAYS  | 0.074  | 0.051  | 0.048  | 0.014  | -1.070 | 0.133  | 0.017 | 0.112 | 0.058 |
| PAYP  | 0.005  | 0.135  | 0.120  | 0.000  | 0.099  | -0.536 | 0.025 | 0.198 | 0.006 |

## OTHER TV ELASTICITIES

#### Other TV elasticities

- 1. Quality
  - All own elasticities positive, cross elasticities negative
  - Some evidence increasing F2A quality decreases SVOD, DVD and (illegal) streaming demand
- 2. Release delay
  - All own elasticities negative, cross elasticities positive
  - Some evidence increasing F2A release delay increases SVOD, DVD and (illegal) streaming demand
- Punishment
  - All own elasticities negative, cross elasticities positive
  - Some evidence increasing enforcement increases Pay TV demand
  - Some evidence probability has larger deterrent effect

TV Quality Elasticities

TV Release Delay Elasticities

TV Punishment Elasticities



## WILLINGNESS TO PAY

|                          | Fi               | lm               | Т                | V                |
|--------------------------|------------------|------------------|------------------|------------------|
|                          | Highly<br>Likely | Fairly<br>Likely | Highly<br>Likely | Fairly<br>Likely |
| Cinema                   | \$ 37.72         | \$ 16.51         |                  |                  |
| Free to Air              | \$ 16.94         | \$ 14.53         | \$ 29.14         | \$ 29.54         |
| Streaming - Purchase     | \$ 24.74         | \$ 10.64         | \$ 27.97         | \$ 19.71         |
| Streaming - Subscription | \$ 28.16         | \$ 15.10         | \$ 35.32         | \$ 22.35         |
| DVD - Purchase           | \$ 19.32         | \$ 11.49         | \$ 27.79         | \$ 12.19         |
| DVD - Rental             | \$ 13.96         | \$ 10.63         | \$ 5.46          | -\$ 2.94         |
| Pay TV - Subscription    | \$ 16.23         | \$ 9.61          | \$ 20.43         | \$ 12.40         |
| Pay TV - Purchase        | \$ 13.16         | \$ 6.10          | \$ 15.22         | \$ 13.10         |
| Download                 | \$ 15.63         | \$ 6.31          | \$ 26.70         | \$ 14.40         |
| Fine %                   | -\$ 0.10         | -\$ 0.04         | -\$ 0.35         | -\$ 0.25         |
| Fine \$                  | -\$ 0.05         | -\$ 0.01         | -\$ 0.08         | -\$ 0.02         |
| Quality                  | \$ 3.34          | \$ 1.60          | \$ 3.48          | \$ 2.76          |
| Release                  | -\$ 1.28         | -\$ 0.54         | -\$ 1.79         | -\$ 0.94         |

## SUMMARY AND NEXT STEPS

Clear evidence people substitute between alternatives because of price, quality and access

Limited evidence that punishment deters illegal consumption

Cinema (F2A) is still highly valued for popular films (TV) but SVOD has seriously disrupted market and is highly valued by consumers

## Next steps:

- Latent class model
- Different markets (US and UK)
- Match with revealed-preference data

## **COMPUTING ELASTICITIES**

MNL produces choice observation specific elasticities

- Own attribute elasticity:  $\varepsilon_{X_{ik}}^{P_i} = \frac{dU_i}{dX_{ik}} X_{ik} (1 P_i)$
- Cross attribute elasticity:  $\varepsilon_{x_{jk}}^{P_i} = \frac{dU_j}{dx_{jk}} x_{jk} P_j$

Because MNL is non-linear, aggregation of the individual-specific elasticities may return biased elasticities. Louviere et al. (2000) use probability-weighted sample enumerated elasticities:

$$arepsilon_{X_{jk}}^{ar{P}_i} = \left(\sum_{n=1}^{N} \hat{P}_{in} arepsilon_{X_{jkn}}^{P_{in}}\right) / \sum_{n=1}^{N} \hat{P}_{in}$$

where  $\hat{P}_{in}$  is an estimated choice probability and  $\bar{P}_i$  refers to the aggregate probability of choice of alternative i





# QUALITY ELASTICITIES—FILM

#### TABLE: Film—Highly Likely

| QUAL | CIN    | F2A    | SVP    | svs    | DVDP   | DVDR   | PAYS   | PAYP   | DL     | ST     |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| CIN  | 0.236  | -0.097 | -0.065 | 0.000  | -0.214 | -0.287 | -0.094 | -0.192 | -0.080 | -0.084 |
| F2A  | -0.027 | 0.381  | -0.072 | -0.092 | -0.005 | -0.018 | -0.121 | -0.060 | -0.011 | -0.058 |
| SVP  | -0.016 | -0.092 | 0.404  | -0.146 | -0.003 | -0.019 | -0.026 | -0.040 | -0.056 | -0.069 |
| SVS  | 0.000  | -0.089 | -0.134 | 0.325  | -0.010 | -0.039 | -0.158 | -0.050 | -0.068 | -0.037 |
| DVDP | -0.041 | -0.004 | -0.001 | -0.006 | 0.279  | -0.070 | -0.013 | -0.036 | -0.041 | -0.046 |
| DVDR | -0.032 | -0.003 | -0.003 | -0.005 | -0.030 | 0.449  | -0.015 | -0.025 | -0.012 | -0.007 |
| PAYS | -0.008 | -0.027 | -0.011 | -0.032 | -0.008 | -0.019 | 0.268  | -0.015 | -0.005 | -0.003 |
| PAYP | -0.016 | -0.018 | -0.016 | -0.017 | -0.010 | -0.014 | -0.020 | 0.446  | -0.017 | -0.009 |
| DL   | -0.007 | 0.000  | -0.014 | -0.041 | -0.062 | -0.007 | -0.005 | -0.068 | 0.277  | -0.070 |

| QUAL | CIN    | F2A    | SVP    | svs    | DVDP   | DVDR   | PAYS   | PAYP   | DL     | ST     |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| CIN  | 0.399  | -0.038 | -0.016 | 0.000  | -0.045 | -0.090 | -0.070 | -0.059 | -0.051 | -0.029 |
| F2A  | -0.097 | 0.157  | -0.138 | -0.174 | -0.017 | -0.003 | -0.181 | -0.106 | -0.011 | -0.083 |
| SVP  | -0.005 | -0.022 | 0.386  | -0.083 | 0.000  | -0.010 | -0.014 | -0.008 | -0.042 | -0.008 |
| SVS  | 0.000  | -0.031 | -0.098 | 0.348  | -0.003 | -0.010 | -0.062 | -0.004 | -0.043 | -0.007 |
| DVDP | -0.029 | -0.005 | 0.000  | -0.004 | 0.217  | -0.056 | -0.019 | -0.045 | -0.036 | -0.069 |
| DVDR | -0.072 | 0.000  | -0.007 | -0.005 | -0.044 | 0.324  | -0.030 | -0.135 | -0.056 | -0.008 |
| PAYS | -0.015 | -0.012 | -0.010 | -0.021 | -0.008 | -0.010 | 0.253  | -0.004 | -0.009 | -0.005 |
| PAYP | -0.013 | -0.009 | -0.007 | -0.002 | -0.008 | -0.025 | -0.006 | 0.320  | -0.009 | -0.002 |
| DL   | -0.031 | 0.000  | -0.050 | -0.052 | -0.068 | -0.024 | -0.023 | -0.029 | 0.186  | -0.064 |



## RELEASE DELAY ELASTICITIES—FILM

#### TABLE: Film—Highly Likely

| RELEASE | CIN    | F2A    | SVP    | SVS    | DVDP   | DVDR   | PAYS   | PAYP   | DL     | ST    |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| CIN     | -0.165 | 0.056  | 0.038  | 0.000  | 0.254  | 0.122  | 0.061  | 0.052  | 0.000  | 0.119 |
| F2A     | 0.054  | -0.806 | 0.159  | 0.168  | 0.016  | 0.032  | 0.203  | 0.078  | 0.052  | 0.219 |
| SVP     | 0.009  | 0.125  | -0.327 | 0.084  | 0.004  | 0.000  | 0.000  | 0.031  | 0.024  | 0.110 |
| SVS     | 0.000  | 0.163  | 0.028  | -0.431 | 0.035  | 0.053  | 0.323  | 0.088  | 0.108  | 0.094 |
| DVDP    | 0.042  | 0.008  | 0.002  | 0.028  | -0.461 | 0.040  | 0.002  | 0.089  | 0.165  | 0.072 |
| DVDR    | 0.043  | 0.000  | 0.010  | 0.007  | 0.023  | -0.554 | 0.005  | 0.040  | 0.020  | 0.000 |
| PAYS    | 0.022  | 0.002  | 0.013  | 0.007  | 0.034  | 0.027  | -0.295 | 0.005  | 0.008  | 0.014 |
| PAYP    | 0.026  | 0.007  | 0.005  | 0.009  | 0.028  | 0.040  | 0.012  | -0.553 | 0.042  | 0.014 |
| DL      | 0.029  | 0.036  | 0.021  | 0.029  | 0.047  | 0.035  | 0.004  | 0.057  | -0.399 | 0.082 |

| RELEASE | CIN    | F2A    | SVP    | svs    | DVDP   | DVDR   | PAYS   | PAYP   | DL     | ST    |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| CIN     | -0.181 | 0.019  | 0.008  | 0.000  | 0.055  | 0.010  | 0.019  | 0.016  | 0.000  | 0.043 |
| F2A     | 0.158  | -0.268 | 0.169  | 0.237  | 0.050  | 0.005  | 0.257  | 0.109  | 0.045  | 0.242 |
| SVP     | 0.001  | 0.020  | -0.160 | 0.018  | 0.001  | 0.000  | 0.000  | 0.002  | 0.001  | 0.010 |
| SVS     | 0.000  | 0.045  | 0.001  | -0.319 | 0.010  | 0.002  | 0.106  | 0.007  | 0.015  | 0.012 |
| DVDP    | 0.027  | 0.010  | 0.001  | 0.018  | -0.344 | 0.047  | 0.007  | 0.069  | 0.113  | 0.072 |
| DVDR    | 0.083  | 0.000  | 0.021  | 0.015  | 0.050  | -0.417 | 0.029  | 0.206  | 0.079  | 0.000 |
| PAYS    | 0.043  | 0.002  | 0.010  | 0.006  | 0.030  | 0.027  | -0.368 | 0.004  | 0.020  | 0.021 |
| PAYP    | 0.018  | 0.004  | 0.003  | 0.001  | 0.021  | 0.075  | 0.003  | -0.520 | 0.023  | 0.004 |
| DL      | 0.077  | 0.019  | 0.003  | 0.010  | 0.055  | 0.119  | 0.035  | 0.094  | -0.277 | 0.048 |

## PUNISHMENT ELASTICITIES—FILM

#### TABLE: Film—Highly Likely

| FINEPC  | CIN   | F2A   | SVP   | SVS   | DVDP  | DVDR  | PAYS  | PAYP  | DL     | ST    |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| DL      | 0.015 | 0.010 | 0.014 | 0.019 | 0.025 | 0.020 | 0.004 | 0.030 | -0.202 | 0.032 |
|         |       |       |       |       |       |       |       |       |        |       |
| FINEDOL | CIN   | F2A   | SVP   | SVS   | DVDP  | DVDR  | PAYS  | PAYP  | DL     | ST    |
| DL      | 0.008 | 0.017 | 0.050 | 0.056 | 0.046 | 0.015 | 0.009 | 0.052 | -0.367 | 0.069 |

| FINEPC  | CIN   | F2A   | SVP   | SVS   | DVDP  | DVDR  | PAYS  | PAYP  | DL     | ST    |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| DL      | 0.038 | 0.005 | 0.026 | 0.022 | 0.028 | 0.062 | 0.020 | 0.047 | -0.146 | 0.020 |
|         |       |       |       |       |       |       |       |       |        |       |
| FINEDOL | CIN   | F2A   | SVP   | SVS   | DVDP  | DVDR  | PAYS  | PAYP  | DL     | ST    |
| DL      | 0.016 | 0.006 | 0.093 | 0.072 | 0.034 | 0.030 | 0.019 | 0.025 | -0.180 | 0.034 |



# QUALITY ELASTICITIES—TV

TABLE: TV—Highly Likely

| QUAL | F2A    | SVP    | svs          | DVDP         | DVDR         | PAYS         | PAYP         | DL           | ST     |
|------|--------|--------|--------------|--------------|--------------|--------------|--------------|--------------|--------|
| F2A  | 0.148  | -0.020 | -0.036       | -0.068       | -0.113       | -0.027       | -0.018       | -0.061       | -0.105 |
| SVP  | -0.018 | 0.166  | -0.015       | -0.005       | -0.080       | -0.049       | -0.006       | -0.044       | -0.077 |
| SVS  | -0.032 | -0.019 | <b>0.247</b> | -0.052       | -0.016       | -0.020       | -0.067       | -0.041       | -0.037 |
| DVDP | -0.038 | -0.004 | -0.069       | <b>0.234</b> | -0.047       | -0.022       | -0.043       | -0.033       | -0.010 |
| DVDR | -0.008 | -0.008 | -0.005       | -0.010       | <b>0.252</b> | -0.002       | 0.000        | -0.007       | -0.007 |
| PAYS | -0.009 | -0.023 | -0.007       | -0.009       | -0.004       | <b>0.159</b> | -0.023       | -0.019       | -0.014 |
| PAYP | -0.011 | -0.004 | -0.023       | -0.020       | 0.000        | -0.030       | <b>0.161</b> | -0.028       | -0.003 |
| DL   | -0.024 | -0.002 | -0.015       | -0.014       | -0.038       | -0.009       | -0.031       | <b>0.156</b> | -0.013 |

TABLE: TV—Fairly Likely

| QUAL  | F2A   | SVP   | svs  | DVDP   | DVDR  | PAYS   | PAYP  | DL   | ST   |
|---|---|---|--|--|---|--|---|--|--|
| F2A<br>SVP<br>SVS<br>DVDP<br>DVDR<br>PAYS<br>PAYP<br>DL | 0.076<br>-0.008<br>-0.024<br>-0.022<br>-0.004<br>-0.004<br>-0.006<br>-0.012 | -0.016<br>0.176<br>-0.006<br>-0.001<br>-0.004<br>-0.021<br>-0.001 | -0.082<br>-0.009<br><b>0.325</b><br>-0.034<br>-0.003<br>-0.004<br>-0.036<br>-0.026 | -0.113<br>-0.003<br>-0.035<br><b>0.345</b><br>-0.007<br>-0.005<br>-0.033<br>-0.024 | -0.151<br>-0.091<br>-0.013<br>-0.033<br><b>0.300</b><br>-0.003<br>0.000<br>-0.015 | -0.033<br>-0.053<br>-0.012<br>-0.009<br>-0.001<br><b>0.183</b><br>-0.027<br>-0.015 | -0.013<br>-0.002<br>-0.050<br>-0.028<br>0.000<br>-0.012<br><b>0.142</b><br>-0.064 | -0.038<br>-0.053<br>-0.032<br>-0.019<br>-0.002<br>-0.017<br>-0.055<br><b>0.130</b> | -0.117<br>-0.107<br>-0.019<br>-0.002<br>-0.003<br>-0.016<br>-0.001 |

## Release Delay Elasticities—TV

TABLE: TV—Highly Likely

| RELEASE   | F2A   | SVP   | svs   | DVDP  | DVDR  | PAYS  | PAYP  | DL  | ST  |
|---|---|---|---|---|---|---|---|---|---|
| F2A<br>SVP<br>SVS<br>DVDP<br>DVDR<br>PAYS<br>PAYP<br>DL | -0.327<br>0.016<br>0.050<br>0.059<br>0.007<br>0.001<br>0.008<br>0.000 | 0.023<br>-0.106<br>0.036<br>0.012<br>0.013<br>0.000<br>0.001<br>0.042 | 0.180<br>0.000<br>-0.363<br>0.009<br>0.011<br>0.016<br>0.031<br>0.038 | 0.209<br>0.004<br>0.045<br>-0.232<br>0.022<br>0.016<br>0.036<br>0.027 | 0.162<br>0.015<br>0.028<br>0.006<br>-0.367<br>0.003<br>0.001<br>0.011 | 0.005<br>0.065<br>0.044<br>0.042<br>0.006<br>-0.117<br>0.006<br>0.080 | 0.017<br>0.005<br>0.125<br>0.053<br>0.000<br>0.035<br>-0.169<br>0.109 | 0.047<br>0.027<br>0.042<br>0.012<br>0.004<br>0.017<br>0.032<br>-0.334 | 0.226<br>0.027<br>0.059<br>0.031<br>0.008<br>0.000<br>0.008 |

## TABLE: TV—Fairly Likely

| RELEASE   | F2A  | SVP  | svs  | DVDP   | DVDR   | PAYS   | PAYP   | DL  | ST  |
|---|--|--|--|--|--|--|--|---|---|
| F2A<br>SVP<br>SVS<br>DVDP<br>DVDR<br>PAYS<br>PAYP | -0.137<br>0.005<br>0.025<br>0.013<br>0.004<br>0.001<br>0.002 | 0.011<br>-0.067<br>0.009<br>0.002<br>0.005<br>0.000<br>0.000 | 0.281<br>0.000<br>-0.319<br>0.002<br>0.005<br>0.007<br>0.038 | 0.310<br>0.001<br>0.019<br>-0.152<br>0.010<br>0.008<br>0.052 | 0.251<br>0.005<br>0.014<br>0.000<br>-0.336<br>0.001<br>0.000 | 0.006<br>0.051<br>0.016<br>0.010<br>0.002<br>-0.079<br>0.010 | 0.006<br>0.001<br>0.051<br>0.010<br>0.000<br>0.016<br>-0.123 | 0.020<br>0.016<br>0.028<br>0.004<br>0.002<br>0.010<br>0.050 | 0.178<br>0.024<br>0.021<br>0.003<br>0.003<br>0.000<br>0.000 |
| DL  | 0.000  | 0.049  | 0.050  | 0.031  | 0.014  | 0.089  | 0.137  | -0.268  | 0.035   |

## PUNISHMENT ELASTICITIES—TV

#### TABLE: TV—Highly Likely

| FINEPC  | F2A   | SVP   | SVS   | DVDP  | DVDR  | PAYS  | PAYP  | DL     | ST    |
|---------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| DL      | 0.047 | 0.060 | 0.070 | 0.074 | 0.098 | 0.056 | 0.107 | -0.608 | 0.053 |
|         |       |       |       |       |       |       |       |        |       |
| FINEDOL | F2A   | SVP   | SVS   | DVDP  | DVDR  | PAYS  | PAYP  | DL     | ST    |
| DL      | 0.014 | 0.068 | 0.037 | 0.023 | 0.049 | 0.070 | 0.107 | -0.413 | 0.041 |

#### TABLE: TV—Fairly Likely

| FINEPC  | F2A   | SVP   | SVS   | DVDP  | DVDR  | PAYS  | PAYP  | DL     | ST    |
|---------|-------|-------|-------|-------|-------|-------|-------|--------|-------|
| DL      | 0.021 | 0.097 | 0.107 | 0.123 | 0.069 | 0.088 | 0.221 | -0.555 | 0.069 |
|         |       |       |       |       |       |       |       |        |       |
| FINEDOL | F2A   | SVP   | SVS   | DVDP  | DVDR  | PAYS  | PAYP  | DL     | ST    |
| DL      | 0.002 | 0.038 | 0.023 | 0.012 | 0.019 | 0.036 | 0.061 | -0.147 | 0.024 |