

Economic consequences of movie piracy

AUSTRALIA

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Key findings

A joint study undertaken by Ipsos and Oxford Economics on behalf of AFACT: Australian Federation Against Copyright Theft (AFACT) has indicated the scale of harm caused by movie piracy to the Australian economy in the 12 months up to Q3 2010, amongst adults aged 18 years and over.

The approach taken in building up these estimates offers a *conservative* view of piracy and does not treat every pirate view as a lost sale. As such, readers should consider these as indicators that piracy is *at the very least* causing this level of harm.

Economic impact of movie piracy on Australia:

- 6,100 Full Time Equivalent (FTE) jobs were forgone across the entire economy (equivalent to more than six times the number of job cuts announced by Telstra in October 2010) including nearly 2,300 forgone directly by the movie industry and retailers. These impacts of piracy on employment persist as long as piracy persists.
- Allowing for effects on other industries, some A\$1,370m in Gross Output (Sales) was lost across the entire Australian economy.
- This was equivalent to a loss of GDP of A\$551m across the Australian economy – reducing national economic growth and Australia’s ability to invest in its future.
- Tax losses are A\$193m, representing money that government could employ for other social uses in areas such as education and health care.

Level of piracy and impact on movie industry:

- Direct consumer spending losses to the movie industry, i.e. cinema owners, local distributors, producers and retailers, were A\$575m - equivalent to more than three times the combined revenues of AFL clubs Collingwood, Hawthorn, Carlton and Geelong.
- A third of the Australian adult population (aged 18+) is active in some form of movie piracy (downloading, streaming, buying counterfeit, borrowing unauthorised, burning), with an estimated 92m pirated movies obtained or watched in the 12 months up to Q3 2010.
- Both borrowing and viewing pirated copies are high volume piracy activities. Overall the highest volume of pirated movie content is from receiving digital copies of movies - an activity that accounts for a quarter of all pirated movies.
- Just under half (45%) of all people consuming pirated movies claim they would have paid to view the movie via an authorised channel had the unauthorised channel not been available.

A\$1,370m

Gross Output (Sales) loss
to Australian economy

A\$551m

GDP loss

A\$193m

Tax loss

6,100

Jobs (FTE) forgone

How we arrived at these figures

Ipsos (a market research organisation) and Oxford Economics (an economics consultancy) were commissioned to conduct a study on behalf of AFACT to measure the economic impact of movie piracy in Australia.

This study defines and measures movie piracy as anyone viewing a full length movie via ‘unauthorised’ means, including: digital (downloading, streaming, digital transfer of pirated copies), physical (buying counterfeit/copied DVDs), and secondary (borrowing or viewing pirated copies).

In order to encourage survey respondents to be honest about their pirate activity, we avoided using emotive words such as ‘illegal’ within our survey question wordings. The term ‘unauthorised’ covers all formats of pirated movies obtained/viewed.



Steps in measuring the impact of movie piracy

The approach used for this study can be divided into two steps:

Step 1:

Measuring the direct consumer spending loss to the movie industry and retailers from movie piracy based on survey work undertaken specifically for this study

Step 2:

Measuring the “ripple effects” (also known as “multiplier effects” or “flow on effects”) of the consumer spending loss to determine the total economic losses from movie piracy across the entire Australian economy

The direct consumer spending loss to movie industry (step 1)

Direct consumer spending losses were A\$575m - equivalent to more than three times the combined revenues (A\$178m) of AFL clubs Collingwood, Hawthorn, Carlton and Geelong.

Approach

The approach for measuring direct consumer spending losses to the movie industry is based on the analysis of results from a nationally representative telephone survey of 3,500 adults aged 18 and over conducted by Ipsos in July to August 2010. Further details are provided in Annex 2.

The survey results show that a third of the adult population of Australia has participated in movie piracy in the 12 months up to Q3 2010 – with an estimated volume of pirated movies viewed or obtained at 92m in this period.

The survey also shows that just under half of all pirate consumers would have paid for an authorised version of the movie had they not been able to pirate.

including: cinema revenue, DVD/Blu-ray sales and rentals, TV Video on Demand (TV VOD), downloads and streaming video.

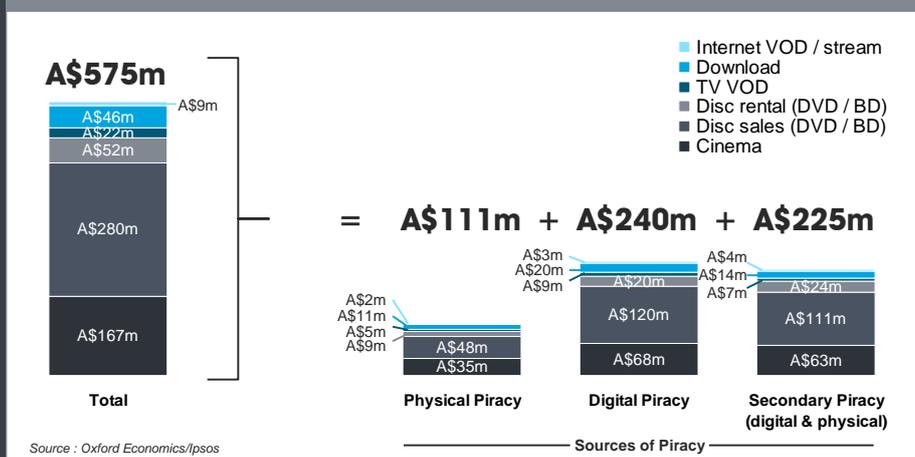
The size of this loss is significant, equivalent to more than three times the combined revenues (A\$178m) of AFL clubs Collingwood, Hawthorn, Carlton and Geelong, or nearly A\$26 for every man, woman and child in the country.

Direct losses to the movie industry are divided across the three main forms of piracy, with similar losses from digital piracy at A\$240m and secondary (borrowing/viewing) piracy at A\$225m. There are lower levels of loss from physical piracy at A\$111m.

Value of direct losses

Translating this pirate activity into financial loss indicates that the direct consumer spending loss attributable to movie piracy in Australia was A\$575m in the 12 months up to Q3 2010. This represents the direct retail value (including Goods and Services Tax (GST)) of losses across a range of formats

Direct consumer spending losses to the movie industry from piracy (A\$m)



*Chart Note: Totals may differ from the sum of the individual figures due to rounding.

Total economic impacts of piracy losses (step 2)

The forgone employment of 6,100 (FTE) jobs is equivalent to more than six times the number of job cuts announced by Telstra in October 2010.



As indicated, it is estimated that the direct consumer spending losses to the motion picture industry and retailers due to movie piracy totalled A\$575m in the 12 months up to Q3 2010.

However, these losses will also flow through from the movie industry to other industries, as the movie industry reduces its own demands for Australian goods and services. This can be modelled as a “demand shock” to the rest of the economy through an input-output model.

The input-output analysis indicates that movie piracy in the 12 months up to Q3 2010 produces a total (i.e. direct, indirect and induced) loss in Australian national Gross Output (Sales) of A\$1,370m, a loss in GDP of A\$551m, a reduction in

taxation revenue of A\$193m and forgone employment of 6,100 Full Time Equivalent (FTE) jobs. These losses occur across the entire Australian economy and incorporate losses to the movie industry and retailers.

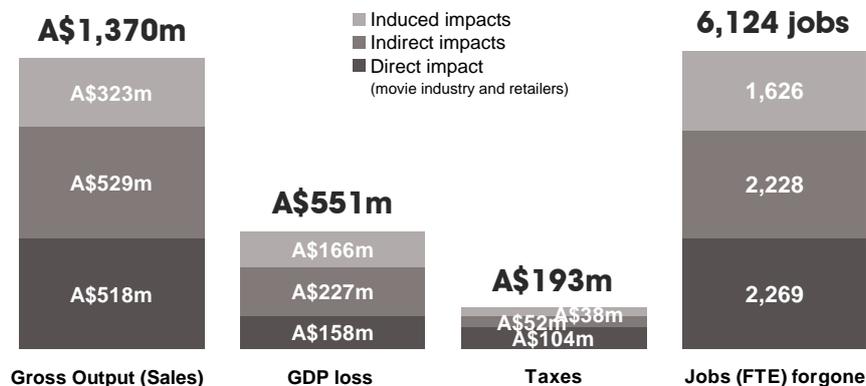
Putting some of these figures into context:

- The total Gross Output (Sales) loss is A\$1,370m - equal to over A\$63 for every man, woman and child in Australia.
- The loss in GDP of A\$551m is a direct blow to national economic growth and reduces Australia’s ability to invest in its own future.
- The forgone employment of 6,100 (FTE) jobs is equivalent to more than six times the number of

job cuts announced by Telstra in October 2010. Moreover, unlike the impact of the recession, the impact of piracy will not pass but will persist, impacting on employment as long as piracy persists.

- The tax loss of A\$193m represents money which government could employ for other social uses in areas such as education or health.

Total economic losses to all industries due to movie piracy*



Source : Oxford Economics/Ipsos

*Chart Note: While the direct consumer spending loss of A\$575m is inclusive of Goods and Services Tax (GST), this was adjusted to exclude GST for modelling purposes. This produced the direct consumer spending loss figure of A\$518m indicated in the chart. Annex 1 provides further details. The tax impacts are inclusive of GST (as well as of direct and corporation taxes).

**Chart Note: Totals may differ from the sum of the individual figures due to rounding.

Considerations in estimating direct consumer spending loss

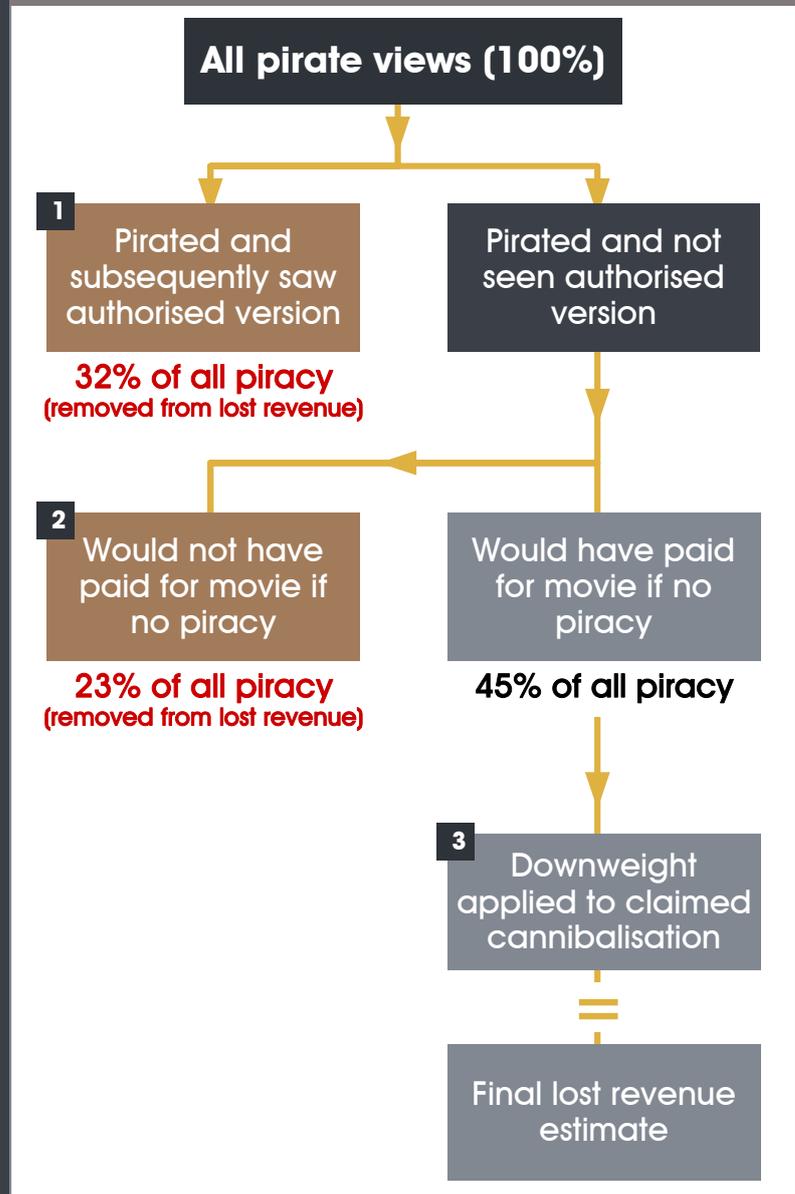
The design of the survey used for stage 1 (and the final direct consumer spending loss figure) addresses three points often used to challenge the lost revenue estimates produced in piracy studies. It allows for the fact that not every pirate viewing is a lost sale; it allows for respondents viewing an authorised version after viewing pirated material (sampling); and it applies a downweight to claimed cannibalisation behaviour. Further explanation is provided below:

1. Allowance for "sampling" effects – some potential moviegoers may go on to watch authorised versions of films after previewing pirated copies. Therefore, some allowance was also made for these potential "sampling effects" (i.e. viewing an authorised version of a film after initially viewing a pirated copy) in the survey work. Respondents were asked if they had also viewed an authorised version of the film they had pirated and, if so, their responses were not included as a part of "lost revenue". Some 32% of respondents said that they viewed an authorised version of a movie after watching a pirated version.

2. Not every pirate view is a lost sale - those viewing pirated movies were asked what they would have done if they could not access such material, indicating whether they would have viewed the movie at a cinema, through disc rental or sale, paid-for or free TV broadcasts, digitally and through various other forms of media. This allowed for estimates of the revenue losses for each of these media types. Based on these responses (including sampling allowance) 45% of all viewings of pirated films are cannibalising paid movie consumption, counting as lost revenue.

3. Downweights - these estimates, in turn, are further reduced to allow for the fact that many of those who say that they would have paid to watch in response to survey questions would not, in fact, do so in reality. This is a standard approach used in market research to adjust for likely overclaim.

Allowances made in estimating direct losses



Considerations in measuring the wider economic impacts

Direct revenue losses to the movie industry and retailers (identified in Step 1) only account for part of the total economic impact of movie piracy on the Australian economy as a whole. Employment and taxes will also fall, as industry revenues decline. These revenue losses form the starting point for measuring the economic impact of piracy.

The wider losses must also be considered as when major industries, such as, the film industry and retailers face a consumer spending loss, such as those resulting from movie piracy, the effects "ripple" across the entire economy. The estimation of such total economic impacts is known as economic impact analysis. The chart indicates how direct impacts (such as an increase in movie piracy) can flow through to industries across the economy in the form of indirect and induced impacts.

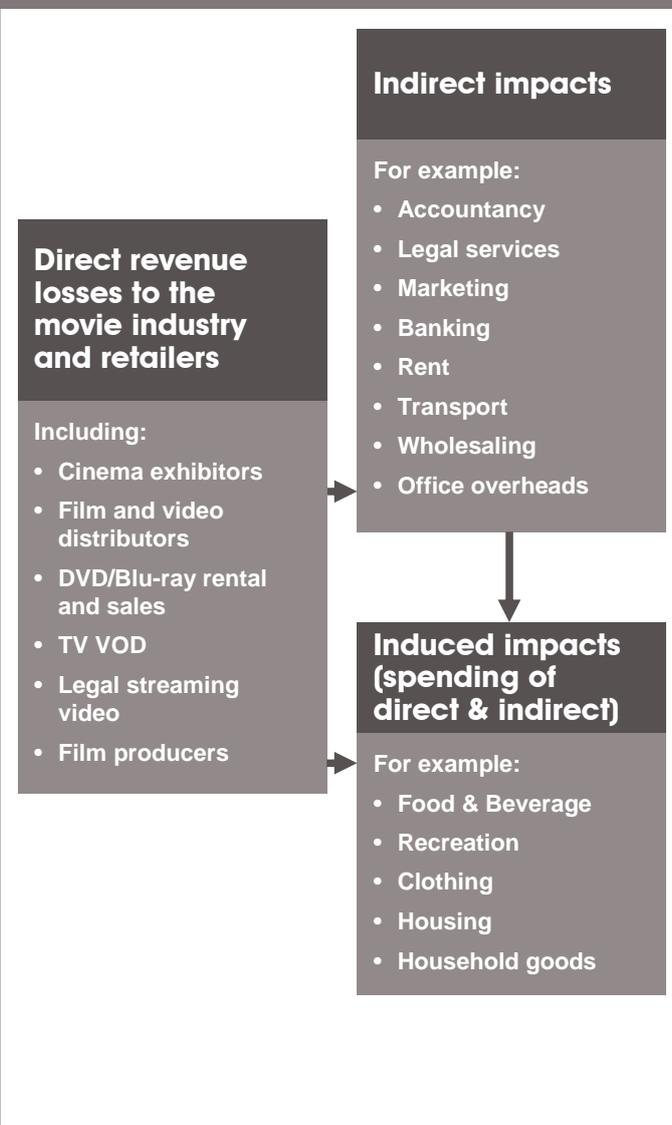
Indirect impacts - reduced revenues to the motion picture industry also result in reduced revenues to other parts of the economy which supply services to the movie industry – such as materials and equipment suppliers, accountants, tradespeople, marketers and lawyers. They, in turn, demand less from their own suppliers and so on. Piracy therefore also reduces output, profits and employment along the supply chain.

Induced impacts - Further, because of this fall-off in demand, employment in all of these industries is reduced and workers have less to spend on other goods and services for their own consumption – be it travel, computers or cars, etc. This leads to further rounds of reduced output, employment and taxes.

Economic impact modelling allows for the estimation of the combined direct, indirect and induced impacts – i.e. the total economic impacts. The total economic impacts measure the losses to the Australian economy as a whole in terms of the losses in total Gross Output (Sales), GDP losses, forgone jobs and government taxes.

Further details on the estimates used to derive the economic impact results are in Annex 1.

Flow of direct losses across wider economy



Annex 1: The input-output approach adopted by this study

Input-output table: An Australian input-output table for 2005-06 sourced from the Australian Bureau of Statistics (ABS) (2009) was used for the purposes of this study. This table is the latest one available for this purpose.

Allocation of impacts to industries: Modelling of input-output shocks (such as direct losses due to film piracy) requires the allocation of these shocks to different industries. No specific sector which quite captures all of the activities of the motion picture industry exists within I-O tables, as these are split among several industries and the I-O tables aggregate many industries together.

However, most activities covered by the motion picture sector would fall under the "Motion picture, radio and television services" industry category, which covers services including: cinema projection and the production and distribution of content such as films and DVDs (to digital and physical outlets). Based on a review of relevant industry category descriptors, internet VOD and downloads were also allocated to this category while TV VOD was allocated to the "Communication services" category. DVD and Blu-ray rentals were allocated to the "Personal Services" category.

In addition, based on Australian market data, 19% of total consumer spending (excluding Goods and Services Tax or GST) on DVD and Blu-ray sales, internet VOD and downloads was allocated as a margin to retailers through the "Retail trade" category.

In order to obtain higher levels of accuracy for forgone employment estimates, supplementary estimates of labour productivity in the motion picture production, distribution and exhibition industries, the pay TV industry and retail and rental industries were derived from Access Economics (2009).

Basic price adjustment and tax estimates: The tax estimates cited in this report incorporate GST, direct taxes; and corporation tax.

As I-O tables use data expressed in basic prices (exclusive of tax) to model the effects of demand impacts such as piracy losses, the original retail prices derived from the survey work were adjusted to exclude the 10% GST applicable to most goods and services in Australia. That is why the direct consumer spending loss figure of A\$518 million differs from the retail value loss of A\$575 million recorded by Ipsos.

An allowance for GST on direct purchases (only) was, however, included in the final indirect tax estimates. This amounted to A\$58 million (i.e. the GST on the retail loss figure of A\$575 million).

Data for Australia, accessed via the Haver database, indicate that the income tax payable by workers accounted for some 22% of employee compensation in Australia in 2009. An average Australian full time gross income of A\$64,813 per annum was estimated based on Full Time Equivalent (FTE) employee estimates for 2009 and the data for employee compensation noted above. These figures allowed for the estimated change in income due to lost wages and the determination of direct tax impacts.

Corporation tax was determined by using the GDP loss estimate of A\$551 million using the Gross Operating Surplus/GDP ratio and applying this to the rate of corporation tax in Australia (30%). An allowance was also made for a depreciation-related tax write off of 33%, based on input-output table data on the ratio of consumption of fixed capital to Gross Operating Surplus. This had the effect of reducing estimated tax losses.

The table below indicates the split of tax losses.

GST impacts	A\$58m
Income and other employee tax impacts	A\$87m
Corporation tax impacts	A\$49m
Total	A\$193m

Multipliers: Broadly speaking, input-output multipliers measure the relationship between the initial shock (in this case the direct consumer spending loss) and final outcomes across the whole of the economy in terms of Gross Output (sales) or GDP.

This study uses "Type II" multipliers. "Type II" multipliers is the technical term for those that incorporate induced effects due to changes in household income (along with the direct and indirect (supply chain) effects) accounted for by what are known as Type I multipliers). Type II multipliers allow for the fact that employees who lose work due to the flow-on effects of film piracy would also reduce their spending on goods and services.

However, the Type II multipliers used in this study were adjusted to reflect the fact that employees who lose their jobs (or are never employed) due to an economic shock (such as film piracy) will not generally receive a zero wage – i.e. they will receive some level of government benefit and will use this to spend on goods and services.

Accordingly, employee wages reported in the I-O tables were adjusted by 0.77 in deriving the induced impacts. This factor was based on OECD estimates of gross replacement rates for Australia – i.e. the relative rate of benefits payments to the average gross wage (OECD 2010a). This has the effect of reducing the Type II multipliers (and therefore reducing the total economic losses arising from film piracy).

Type II multipliers of 2.5 (Gross Output) and 1.1 (GDP) were estimated. This covers activity in the Australian motion picture exhibition, production and distribution industries as well as TV VOD, internet VOD, downloads of motion pictures and the retailing of these motion pictures.

Treatment of motion picture earnings by foreign countries ("foreign earnings"): This study accounts for the fact that some portion of consumer spending on films will ultimately flow out to foreign countries, based on the popularity of foreign films in the market. The outflow of these earnings to foreign countries ("foreign earnings") is often referred to as "leakage" by economists.

The I-O tables themselves already allow for some leakage, however the motion picture industry is likely to have higher leakage than the broad industries listed in I-O tables, given the importance of foreign films.

The initial "demand shock" to Australia was therefore modified to allow for this higher motion picture leakage. First, the foreign film share of forgone consumer spending on both foreign and domestic films was estimated. This was done by taking into account the market share of pirated domestic (Australian) films, using data on the proportion of box office gross earned by Australian films, relative to all films.

Second, the portion of consumer spending on foreign films which actually flows out of the country was estimated. (Only a portion of consumer spending on foreign films in Australia will flow out to foreign countries, as Australian exhibitors and distributors will obviously take a share of such spending.) Analysis by Oxford Economics, based on Screen Australia data indicates that, on average, this portion is 20% (excluding GST).

Foreign earnings lost due to piracy were then estimated by applying this 20% figure to the foreign film share of lost consumer spending. Forgone foreign earnings in excess of those which would be accounted for by the I-O tables were deducted from the initial demand shock.

Note on use of terms Gross Value Added (GVA) and GDP: This report refers to "GDP losses" for convenience and ease of understanding, though technically, the values reported relate to Gross Value Added (GVA) losses. GDP *per se* is (modestly) different to GVA. Technically, GDP at market prices = GVA at basic prices plus taxes on products (such as VAT) less subsidies on products.

Annex 2: The survey method used to estimate direct spending loss

Survey method: Interviews were conducted by telephone amongst a representative sample of adults in Australia aged 18 and over. A total of 3,500 interviews were completed in July to August 2010.

Piracy volume estimates: The volume of each form of movie piracy was calculated as follows:

Population [the population of Australia aged 18 and over] – 16m

X

Penetration [the proportion admitting to being active in each piracy type in the preceding 12 months]

X

Activity rate [the mean number of movies obtained in the preceding 12 months, amongst those active in each piracy type]

Cannibalisation of authorised paid movies: Movie pirates were asked about the last movie they viewed via each piracy type. This was used to calculate the **cannibalisation rate**:

Those who saw an authorised version subsequent to the pirate version are considered to be using piracy for 'sampling' – which is not treated as lost revenue

If the pirate version were not available, the pirate may have waited for a free option (e.g. waiting until it is broadcast on TV or borrowed someone else's authorised DVD) – which is not treated as lost revenue

If the pirate version were not available, the pirate may have paid to see an authorised version. For each authorised option, we establish what proportion of pirates claim they would have done this. A 'credibility down-weight' is applied to this data – allowing for the fact that not everyone claiming they would have paid to see an authorised version would actually have gone on to do so.

Lost consumer spending estimate: The *piracy volume estimates* and the *cannibalisation rates* are used to calculate a lost revenue estimate. This indicates the value of lost sales to each authorised movie channel – from cinema through to DVD sales/rentals and authorised digital channels.

Key considerations in this approach:

This approach addresses three points often used to challenge the lost consumer spending estimates produced in piracy studies:

- We do not assume that every pirate version equates to a lost sale.
- We do allow for 'sampling' - those who see an authorised version subsequent to the pirate version are not treated as contributing to lost revenue. In fact, we make the very cautious assumption that no lost revenue results from piracy if any authorised version is seen subsequently.
- We do allow for 'over-claim' – we apply a 'downweight' to those claiming they would have paid for an authorised version (had the pirate version not been available).

References

Access Economics (2009) *Economic Contribution of the Film and Television Industry*

Australian Bureau of Statistics (2009) *Australian National Accounts: Input-Output Tables* - Electronic Publication 2005-06, Cat. No. 5209.0.55.001

Herald Sun, 2 January 2010, AFL clubs financial premiership stakes <http://www.heraldsun.com.au/sport/afl/afl-clubs-financial-preiership-stakes/story-e6frf9jf-1225815392261>

Organisation for Economic Co-operation and Development (OECD) (2010a) *The OECD summary measure of benefit entitlements, 1961-2007* sourced from <http://www.oecd.org/dataoecd/52/9/42625593.xls>

OECD (2010b) *Taxation of Corporate and Capital Income* (2010) at <http://www.oecd.org/dataoecd/26/56/33717459.xls>

Screen Australia (2010) *Get the Picture: Audiovisual Trade* at <http://www.screenaustralia.gov.au/gtp/pdfs/trade.pdf>



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