

Economic consequences of movie piracy

CANADA



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Key findings

A joint study undertaken by Ipsos and Oxford Economics on behalf of the CMPDA: Canadian Motion Picture Distributors Association (CMPDA) has indicated the scale of harm caused by movie piracy to the Canadian 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 Canada:

- 12,600 Full Time Equivalent (FTE) jobs were forgone across the entire economy (equivalent to over 12 times as many as the 1,000 jobs cut by Hudson's Bay Co. at the height of the recession in February 2009) including over 4,900 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 C\$1,803m in Gross Output (Sales) was lost across the entire Canadian economy.
- This was equivalent to a loss of GDP of C\$965m across the Canadian economy – reducing national economic growth and Canada's ability to invest in its future.
- Tax losses are C\$294m, 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, distributors, producers and retailers, were C\$895m - well over the annual revenues of Cirque du Soleil (C\$768m) in 2008.
- Considering all forms of movie piracy (downloading, streaming, buying counterfeit, borrowing unofficial, burning), an estimated 133m pirated movies were obtained or watched in the 12 months up to Q3 2010 amongst Canadian adults.
- In volume terms, downloading and streaming films is the most prolific method of piracy, with particularly high levels of activity amongst males aged 18-24 years (42% participating in the last year).
- Just under half (48%) of all people consuming pirated movies claim they would have paid to view the movie via an official channel had the unofficial channel not been available.

C\$1,803m

Gross Output (Sales) loss
to Canadian economy

C\$965m

GDP loss

C\$294m

Tax loss

12,600

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 CMPDA to measure the economic impact of movie piracy in Canada.

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 Canadian economy



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

Direct consumer spending losses were C\$895m - well over the annual revenues of Cirque du Soleil (C\$768m) in 2008.

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 3,325 adults aged 18 and over conducted by Ipsos in June to September 2010. Further details are provided in Annex 2.

The survey results show that amongst the adult population of Canada in the 12 months up to Q3 2010, an estimated 133m pirated movies had been viewed or obtained in this period.

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

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

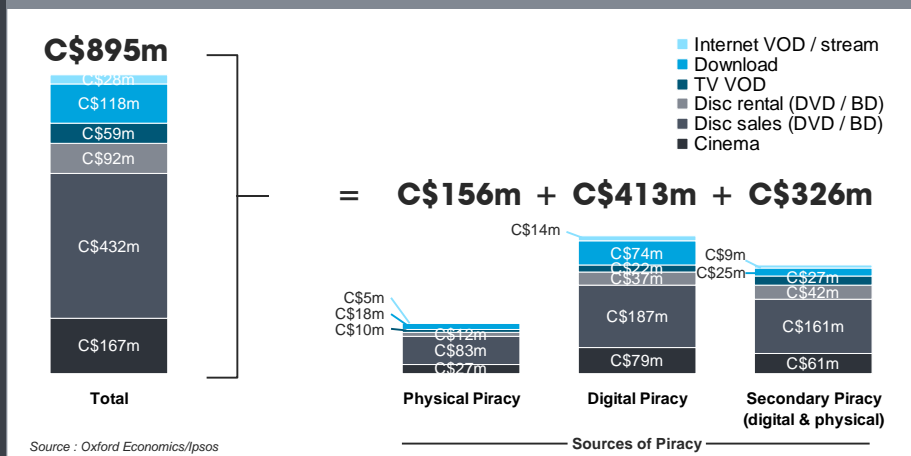
The size of this loss is significant and is well over the annual revenues of Cirque du Soleil (C\$768m) in 2008 or nearly C\$27 for every man, woman and child in the country.

Direct losses to the movie industry are divided across the three main forms of piracy, with the highest losses from digital piracy at C\$413m, C\$326m from borrowing or viewing pirated copies and C\$156m from physical piracy.

Value of direct losses

Translating this pirate activity into financial loss indicates that the direct consumer spending loss attributable to movie piracy in Canada was C\$895m in the 12 months up to Q3 2010. This represents the direct retail value (including Federal Goods and Services Tax (GST) and Provincial Sales Taxes (PST))

Direct consumer spending losses to the movie industry from piracy (C\$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 12,600 (FTE) jobs is equivalent to over 12 times as many as the 1,000 jobs cut by Hudson's Bay Co. at the height of the recession in February 2009.

As indicated, it is estimated that the direct consumer spending losses to the motion picture industry and retailers due to movie piracy totalled C\$895m 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 Canadian goods and services. This can be modelled as a "demand shock" to the rest of the economy through an input-output model.

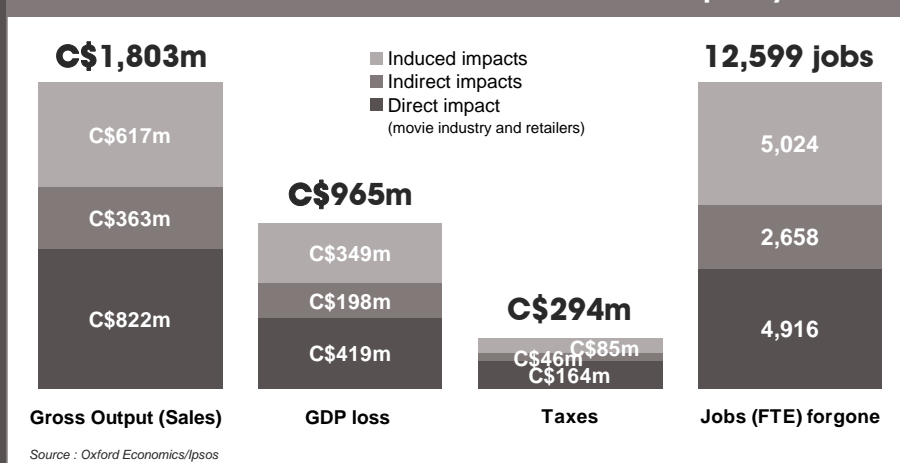
The input-output analysis indicates that movie piracy in the 12 months up to Q3 2010 produces a total (i.e. direct, indirect and induced) loss in Canadian national Gross Output (Sales) of C\$1,803m, a loss in GDP of C\$965m, a reduction in taxation revenue of C\$294m and forgone

employment of 12,600 Full Time Equivalent (FTE) jobs. These losses occur across the entire Canadian economy and incorporate losses to the movie industry and retailers.

Putting some of these figures into context:

- The total Gross Output (Sales) loss is C\$1,803m - equal to nearly C\$54 for every man, woman and child in Canada.
- The loss in GDP of C\$965m is a direct blow to national economic growth and reduces Canada's ability to invest in its own future.
- The forgone employment of 12,600 (FTE) jobs is equivalent to over 12 times as many as the 1,000 jobs cut by Hudson's Bay Co. at the height of the recession in February 2009.

Total economic losses to all industries due to movie piracy*



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 C\$294m represents money which government could employ for other social uses in areas such as education or health.

*Chart Note: While the direct consumer spending loss of C\$895m is inclusive of Federal Goods and Services Tax (GST) and Provincial Sales Tax (PST), this was adjusted to exclude these taxes for modelling purposes. This produced the direct consumer spending loss figure of C\$822m indicated in the chart. Annex 1 provides further details. The tax impacts are inclusive of GST and PST (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

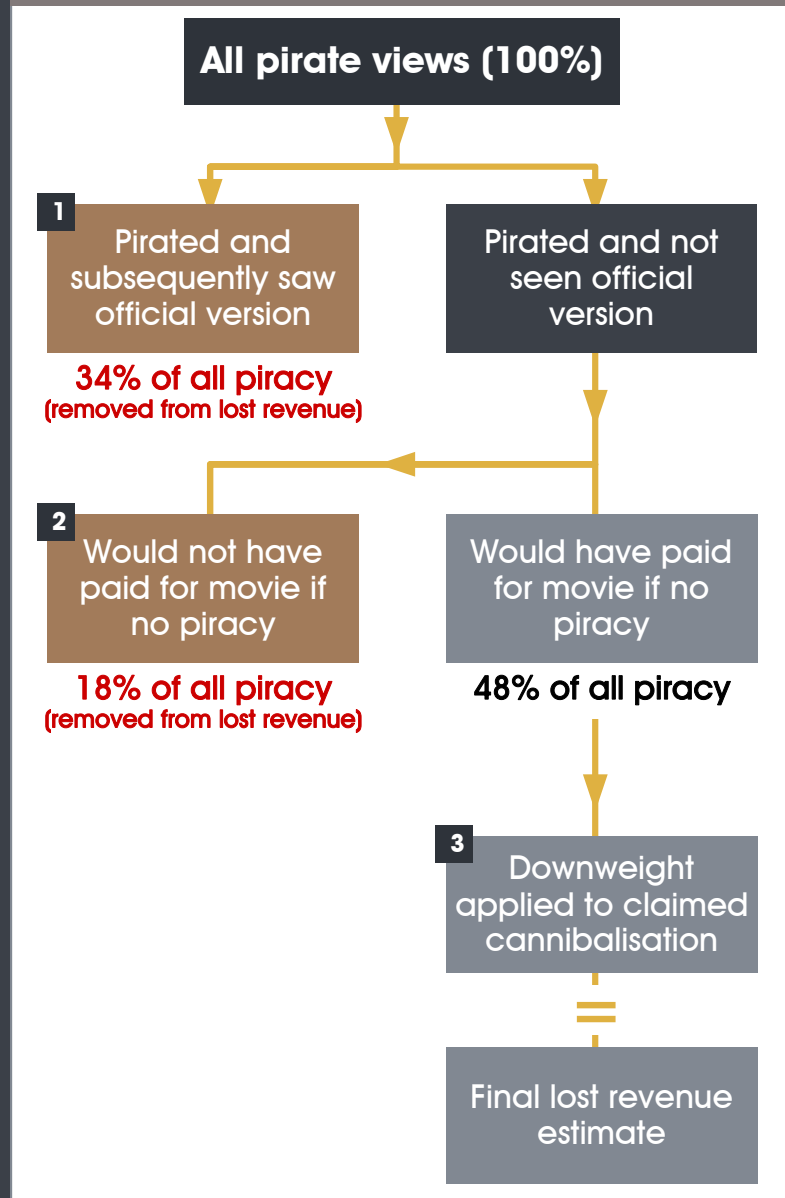
The design of the survey used for stage 1 (and the final direct consumer spending loss figure) addresses three points often used to challenge the lost revenue estimates produced in piracy studies. It allows for the fact that not every pirate viewing is a lost sale; it allows for respondents viewing an official 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 official versions of films after previewing pirated copies. Therefore, some allowance was also made for these potential "sampling effects" (i.e. viewing a film officially after initially viewing a pirated copy) in the survey work. Respondents were asked if they had also viewed an official version of the film they had pirated and, if so, their responses were not included as a part of "lost revenue". Some 34% of respondents said that they viewed an official 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) 48% 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 Canadian 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.

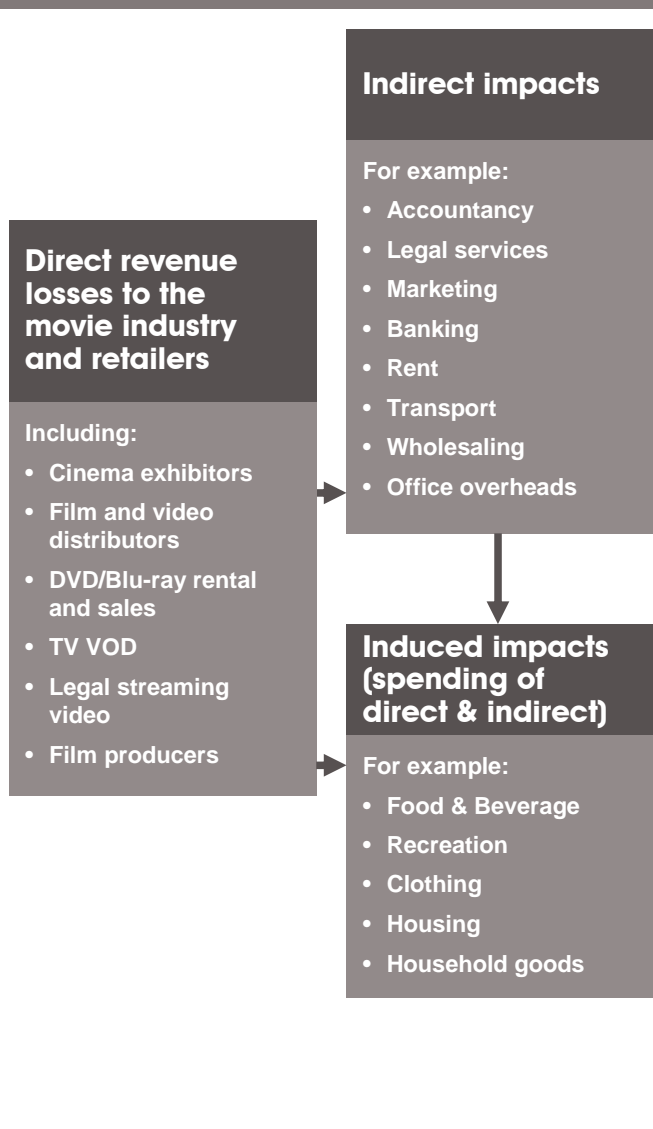
Indirect impacts - reduced revenues to the motion picture industry also result in reduced revenues to other parts of the economy which supply services to the movie industry – such as materials and equipment suppliers, accountants, tradespeople, marketers and lawyers. They, in turn, demand less from their 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 Canadian 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: A Canadian input-output table for 2000 sourced from OECD (2010b) was used for the purposes of this study.

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 capturing 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 “Other community, social & personal 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 “Post and telecommunication services” category. DVD and Blu-ray rentals were allocated to “Renting of machinery and equipment” category. In addition, based on Canadian market data, 11% of total consumer spending (excluding GST) on DVD and Blu-ray sales, internet VOD and downloads was allocated as a margin to retailers through the “Wholesale and retail trade” category.

In order to obtain higher levels of accuracy for forgone employment estimates, supplementary estimates of labour productivity in the motion picture and sound recording industry, the pay and speciality television industry and the consumer goods rental industry (which is largely comprised of DVD, Blu-ray and similar rentals) were derived from the Haver database and Statistics Canada (2009).

Basic price adjustment and tax estimates: The tax estimates cited in this report incorporate Goods and Services Tax (GST), Provincial Sales Tax (PST), 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 5% GST applicable to most goods and services in Canada. Where applicable, an estimated national average PST of 6.7% was also added to GST. (The national average PST was derived by weighting the various PSTs, prior to 1 July 2010, for each province by population. These calculations were based on tax rates prior to the introduction of Harmonised Sales Tax (HST) in Ontario and British Columbia on 1 July 2010 because the Ipsos survey work mainly related to the period prior to July 2010 (i.e. the 12 months to September 2010) and because people’s perceptions and behaviours were not likely to immediately adjust in full to the new tax rates in these provinces.) The exclusion of these taxes is why the direct consumer spending loss figure of C\$822 million differs from the retail value loss of C\$895 million recorded by Ipsos.

An allowance for GST and PST on direct purchases (only) was, however, included in the final indirect tax estimates. This amounted to C\$74 million (i.e. the GST and PST on the retail loss figure of C\$895 million).

OECD data for Canada, accessed via the Haver database, indicate that the taxes on income and wealth accounted for some 20% of combined employee compensation and property income in Canada in 2008. This proportion was used as an average direct tax rate. An average Canadian full time gross income of C\$52,928 per annum was estimated based on Statistics Canada Full Time Equivalent (FTE) employee data for 2008 and the OECD 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 C\$965 million using the Gross Operating Surplus/GDP ratio and applying this to an estimated average rate of corporation tax in Canada (31.3%), derived from the OECD. An allowance was also made for a depreciation-related tax write off of 14%, 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 and PST impacts	C\$74 m
Income and other employee tax impacts	C\$133 m
Corporation tax impacts	C\$87 m
Total	C\$294 m

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 0.86 in deriving the induced impacts. This factor was based on OECD estimates of gross replacement rates for Canada – 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 2.2 (Gross Output) and 1.2 (GDP) were estimated. This covers activity in the Canadian 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 Canada 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 estimated market share of pirated domestic (Canadian) films by using cinematic market data on the proportion of Canadian films’ box office gross relative to the box office gross for 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 Canada will flow out to foreign countries, as Canadian exhibitors and distributors will obviously take a share of such spending.) Specific data on this portion was not available for Canada. However, analysis by Oxford Economics, based on UK and Australian film data (UKFC 2010, Screen Australia 2010) indicates that, on average, this portion is 20% (excluding local VAT/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 PST and GST) 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 Canada aged 18 and over. A total of 3,325 interviews were completed in June to September 2010.

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

Population [the population of Canada aged 18 and over] - 27M

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 official 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 official 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 official DVD) – which is not treated as lost revenue

If the pirate version were not available, the pirate may have paid to see an official version. For each official 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 official 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 official movie channel – from cinema through to DVD sales/rentals and official 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 official 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 official version is seen subsequently.
- We do allow for 'over-claim' – we apply a 'downweight' to those claiming they would have paid for an official version (had the pirate version not been available).

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