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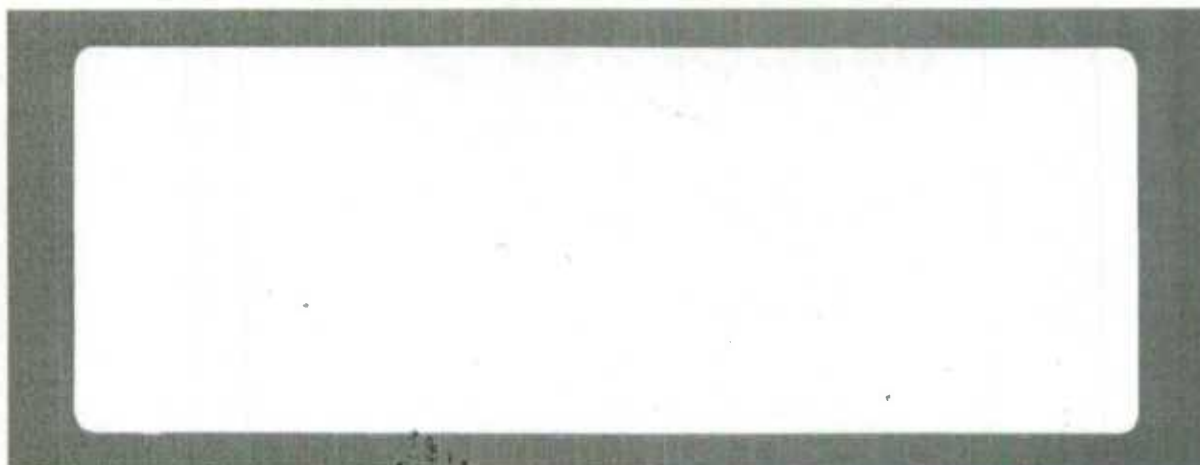


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DATA QUALITY STATEMENT FOR 2001 FILM, VIDEO AND  
AUDIO-VISUAL PRODUCTION SURVEY

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## DATA QUALITY STATEMENT FOR 2001 FILM, VIDEO AND AUDIO-VISUAL PRODUCTION SURVEY

Caroline Brais and Jack Singleton<sup>1</sup>

### ABSTRACT

The Film, Video and Audio-visual Production Survey is an annual census of companies (producers) involved in the industry. As well as producer revenue, expenses and employment data, the survey collects information on each production undertaken by the companies surveyed. Results are available by province and by region. In addition, results relating to production activities are also available by type of producer. The survey is a component of the Culture Statistics Program of Culture, Tourism and the Centre for Education Statistics (CTCES).

A Data Quality Statement (DQS) provides information to users as required by the Policy on Informing Users of Data Quality and Methodology. The Policy requires that users have access to information to permit evaluation of the quality of statistical products in relation to their intended use. DQSs are produced for many Statistics Canada surveys and are a component of the survey documentation made available to users. The DQS in this document corresponds to the 2001 Film, Video and Audio-visual Production Survey. Topics covered by the DQS include populations, collection methodology, survey errors, data processing, comparability of data and confidentiality. Emphasis is placed on items of particular relevance to the Film, Video and Audio-visual Production Survey. The DQS also provides statistics specific to the survey, such as response rate and measures quantifying the impact of imputation. *Statistics presented in this document are based on preliminary results of the 2001 Film, Video and Audio-visual Production Survey, and are provided for illustrative purposes only. For actual figures, please contact CTCES.*

Key words: Data Quality Statement; Culture Statistics Program; film and video industries surveys; survey errors; response rate; historical imputation; donor imputation.

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**ÉNONCÉ DE LA QUALITÉ DES DONNÉES -  
L'ENQUÊTE SUR LA PRODUCTION CINÉMATOGRAPHIQUE,  
VIDÉO ET AUDIOVISUELLE DE 2001**

Caroline Brais et Jack Singleton<sup>2</sup>

**RÉSUMÉ**

L'Enquête sur la production cinématographique, vidéo et audiovisuelle est un recensement annuel des compagnies (producteurs) œuvrant dans cette industrie. En plus de recueillir des données sur les recettes et les dépenses des producteurs et sur l'emploi, l'enquête recueille de l'information sur chacune des productions réalisée par les compagnies recensées. Les résultats sont disponibles selon la province et la région. En outre, les résultats portant sur les activités de production sont aussi disponibles selon le type de producteur. L'enquête est une composante du Programme de la statistique de la culture de Culture, Tourisme et Centre de la statistique de l'éducation (CTCSE).

Un énoncé de la qualité des données (EQD) fournit de l'information aux utilisateurs conformément à la Politique visant à informer les utilisateurs sur la qualité des données et la méthodologie. Cette politique stipule que les utilisateurs doivent avoir accès à l'information qui leur est nécessaire pour évaluer la qualité des produits statistiques par rapport à leur utilisation prévue. Les EQD sont produits dans le cadre de nombreuses enquêtes de Statistique Canada et sont une composante de la documentation d'enquête mise à la disposition des utilisateurs. L'EQD compris dans le présent document correspond à l'Enquête sur la production cinématographique, vidéo et audiovisuelle de 2001. Les sujets abordés dans l'EQD sont les populations, les méthodes de collecte, les erreurs dans les enquêtes, le traitement des données, la comparabilité des données et la confidentialité. L'accent est mis sur les points qui s'appliquent particulièrement à l'Enquête sur la production cinématographique, vidéo et audiovisuelle. L'EQD fournit aussi des statistiques propres à l'enquête, telles que des taux de réponse et des mesures quantifiant l'impact de l'imputation. *Les statistiques présentées dans le présent document sont tirées des résultats provisoires de l'Enquête sur la production cinématographique, vidéo et audiovisuelle de 2001, et sont fournies à titre indicatif seulement. Pour connaître les chiffres réels, veuillez communiquer avec CTCSE.*

Mots clés : Énoncé de la qualité des données; Programme de la statistique de la culture; enquêtes sur les industries du cinéma et vidéo; erreurs dans les enquêtes; taux de réponse; imputation historique; imputation par donneur.

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## **1 Introduction**

### **1.1 Preamble**

Statistics Canada data describing the Canadian film and video industry are collected through four separate surveys, covering individually the production, post-production, distribution and exhibition segments. Data on producers and production activities are collected by the Film, Video and Audio-visual Production Survey, an annual census that started in 1952. The survey is a component of the Culture Statistics Program (CSP) of Culture, Tourism and the Centre for Education Statistics (CTCES). The survey collects producer financial and employment data as well as information on each production. Data are compiled nationally, by region and by province. In addition, results relating to production activities are compiled separately by type of producer. The survey data provide indicators of the health and vitality of the industry for purposes of market research, policy-making and academic research. For the balance of this document the term Production Survey will be used to refer to the Film, Video and Audio-visual Production Survey.

### **1.2 Purpose of the document**

This Data Quality Statement provides information to users regarding the data obtained by the 2001 Production Survey, as required by the Policy on Informing Users of Data Quality and Methodology (PIUQDM). The primary purpose of this Policy is to ensure that users have access to the information they need to evaluate the quality of the data in relation to their intended use. Data Quality Statements are produced for many Statistics Canada surveys and are a component of the survey documentation made available to users. The Policy requires that all statistical products contain information on:

- concepts and definitions
- methodology
- data accuracy.

### **1.3 Organization of the document**

Section 2 contains a list of important survey concepts and definitions of key survey variables. Section 3 provides information to users on survey methodology and data quality. Section 3 is organized into subsections as follows: population and reporting period; sampling frame, collection and editing; survey errors; imputation; comparability of data and confidentiality.

*Statistics on response rate and contribution of imputed companies presented in this document are based on preliminary results of the 2001 Production Survey, and are provided for illustrative purposes only. For actual figures, please contact CTCES.*

## **2 Concepts and definitions**

Here are the main concepts measured by the Production Survey:

Full-time paid employees  
Part-time paid employees  
Freelancers  
Working proprietors  
Production revenue  
Operating revenue  
Non-operating revenue



Operating expenses

Production activities (theatrical feature films, television productions, video clips, etc.)

Production and development budget for theatrical feature films

Production and development budget for television productions

Definitions of some key variables are provided below. Some definitions have been abbreviated or condensed in this document. For complete definitions please see the 2001 Film, Video and Audio-visual Production Survey questionnaire.

These key variables address the concepts listed above, although a one-to-one correspondence may not exist since some concepts correspond to multiple key variables. With the exception of Revenues incidental to production and Other operating expenses, these key variables appear on the Production Survey questionnaire, either as one data item (e.g., Total Production Revenue) or as a sum of multiple data items (e.g., Non-operating revenue, which is the sum of three items). Because Operating Revenue and Operating Expenses are both sums of several items, two new quantities Revenues incidental to production and Other operating expenses have been defined below, as collections of data items. These two quantities do not appear explicitly on the Production Survey questionnaire, and have been defined only to facilitate explanation in this document.

*Full-time and part-time paid employees:* Persons drawing pay for services rendered or for paid absences, and for whom the employer is required to complete a Canada Revenue Agency T-4 Supplementary Form. Included are executives of incorporated companies but excluded are working proprietors of unincorporated firms.

*Freelancers:* Persons for whom the employer is required to complete a Canada Revenue Agency T-4A Supplementary Form. Freelancers include talent and technical workers (actors, authors, cameramen). However, employees of companies that perform contract work are not considered freelancers.

*Working proprietors:* Proprietors of unincorporated firms.

*Total Production Revenue:* Includes revenue received from private- and public-sector clients for current and previous years' productions. It also includes outright sales and rentals, contracts, sponsors' payments and remittances from distributors after their expenses.

*Revenues incidental to production:* These include revenue from the rental of productions facilities (including equipment and personnel), laboratory and post-production services and distribution of other producers' products.

*Operating Revenue:* Results from the gross proceeds from the sale of goods and services as well as the gains resulting from the sale or exchange of assets. (Films could be considered as either goods or assets, while services could be production or post-production services.) Operating Revenue is equal to the sum of Total Production Revenue and Revenues incidental to production.

*Non-operating Revenue:* Includes revenue such as non-repayable financial aid recognized as revenue (e.g., tax credits, grants and subsidies), dividends and interest. Equity investments and loans from government and private sources are excluded.

*Total Revenue:* The sum of Operating Revenue and Non-operating Revenue. Equity investments and loans are not considered to be revenue for the Production Survey.



*Salaries and wages:* Includes commissions, bonuses, vacation pay and salaries of working executives of incorporated companies. Excluded are employee benefits, withdrawals by working proprietors of unincorporated firms and fees to contract workers.

*Employee benefits:* Includes employers' contributions to pension, medical and unemployment insurance plans, and workers' compensation plans.

*Freelancers' fees:* Fees paid to any person for whom the employer is required to complete a Canada Revenue Agency T-4A Supplementary Form.

*Other operating expenses:* These include depreciation and amortization, interest expenses and fees paid to companies for contract work. Also included are: development, pre-production, production, post-production and laboratory service expenses not already declared with Salaries and wages, Employee benefits and Freelancers' fees; occupancy costs (heat, light, rent, insurance, property taxes, etc.); administration costs (legal and accounting costs, management or consulting fees, office supplies, association membership fees, and expenses related to travel, entertainment, marketing and sales); other miscellaneous operating expenses (e.g., rental and leasing of machinery and equipment).

*Total Operating Expenses:* The sum of Salaries and wages, Employee benefits, Freelancers' fees and Other operating expenses.

*Profit margin:* 
$$\frac{\text{Total Revenue} - \text{Total Operating Expenses}}{\text{Total Revenue}}$$

### 3 Methodology and data quality

This section provides information on key aspects of methodology and data quality. Such information is provided to ensure a better understanding of the strengths and limitations of the data, facilitating effective use and analysis of them. This information is of particular significance in making comparisons with data from other surveys or sources of information and in drawing conclusions regarding changes over time.

#### 3.1 Population and reporting period

The target population of the 2001 Production Survey consists of all companies primarily engaged in film, video or audio-visual production during calendar year 2001. Excluded are companies engaged only in freelance work or post-production services (e.g., set-up, lighting, scenery). Also excluded are companies whose revenue comes solely from investments in the productions of other companies.

Companies that meet at least one of the four conditions listed below are asked to complete the survey questionnaire. The definition of this population, known as the survey population, differs slightly from the target population. The survey results apply to the survey population. The four conditions that define the survey population are:

- The company has revenue from its own film, video or audio-visual productions (either for the current year or for a previous year).
- The company has started or partially completed film, video or audio-visual productions.

- The company has completed film, video or audio-visual productions.
- The company has revenue from the rental of its production facilities.

The Production Survey collects data from government boards (e.g., the National Film Board) but such data are excluded from published estimates.

Like many other CSP surveys, the Production Survey defines its populations based on activity rather than industry. In particular the Production Survey includes companies with production revenue but for which production was not the main activity. It is therefore difficult to establish a correspondence between the Production Survey and certain North American Industrial Classification System (NAICS) values.

Companies are asked to provide data for the calendar year ending December 31, 2001. If they cannot provide data for the calendar year, they are asked to provide data for their fiscal year ending between April 1, 2001 and March 31, 2002. The period to which reported data correspond is known as the reporting period of the company. Companies are asked the number of months in their reporting period as well as the date that the reporting period ends.

### **3.2 Sampling frame, collection and editing**

The sampling frame provides contact information for the survey population units. The frame is updated annually using provincial film association membership lists, information from provincial and federal agencies, specialized trade publications and Internet sites. Data for the 2001 Production Survey are collected using a questionnaire sent out by mail on July 15, 2002. Companies are asked to complete the questionnaire and return it by mail within 21 days of receipt. If a response is not received, OIS of Statistics Canada follows up by telephone.

Data from received questionnaires are manually checked for completeness and comparability with previously-reported data and information from other sources. When reported information does not meet verification criteria, an employee follows up with the respondent to confirm or complete data. Data are entered into the data capture software Blaise. Once information for all questionnaires has been entered into an electronic file, data undergo an automated verification, which includes range, relationship and historical edits. Subsequently, the data file is sent to CTCES for further verification, editing, imputation and data quality analysis.

For the 2001 survey, 728 producers were sent and asked to complete a questionnaire.

### **3.3 Survey errors**

Errors in surveys are divided into two types: sampling errors and non-sampling errors. As a census and not a sample survey, errors in the Production Survey are limited to non-sampling errors. Non-sampling errors may lead to bias, and efforts are made in all steps of CSP surveys to minimize and reduce their impact.

For purposes of discussion in the context of the Production Survey, non-sampling errors will be divided into four types: coverage, response, processing and non-response.

Differences between the survey population and the sampling frame are called coverage errors. Coverage errors are divided into undercoverage (units missed on the sampling frame) and overcoverage (units included erroneously on the sampling frame). Coverage errors are attributable to omissions, erroneous inclusions, duplicates or classification errors. An effort is made to keep

coverage errors to a minimum by updating the sampling frame from several sources, as described in Section 3.2.

Response errors occur when the responding unit does not fully understand a survey question or answers the question in a manner different than what was intended. Response errors may skew survey results. The preferred method of minimizing the impact of response errors is to test survey questions on groups of people as part of questionnaire development. Based on their understanding of the questions and response to them, questions may be modified. Such consultation was done for the Production Survey.

Processing errors occur during the transformation of data from the point of collection into a form suitable for tabulation and data analysis, in processes such as capture, coding and editing. Systematic processing errors may introduce bias and skew survey estimates. Processing errors are minimized by the inclusion of quality checks and indicators in the processing system and by comparison of results before and after processing.

Non-response errors occur when the survey is unable to contact a company or a company does not provide the information required by the survey. Non-response errors may skew estimates if companies that do not respond differ from those that respond in terms of measured characteristics.

Despite Statistics Canada efforts, non-response is inevitable in surveys. The rate will vary, however, depending on the budget and the time available for the survey. Criteria defining complete response and partial response are specified, and based on these companies are classified as complete respondents, partial respondents or (total) non-respondents.

For the 2001 Production Survey, 728 producers in the survey population were sent a questionnaire and asked to complete it. Among these, 496 producers (68%) responded completely or partially. Thus the response rate of the 2001 Production Survey is 68%. The remaining 232 producers (32%) are considered non-respondents. These units could not be contacted in follow-up, did not respond at all or responded to too few questions to satisfy the criteria for partial response. Adjustments for non-response and partial response are made through an imputation process, as discussed in the next section.

### **3.4 Imputation**

Imputation is the primary technique used for non-response adjustment in CSP surveys, including the Production Survey. Imputation is a process that assigns values to replace missing or invalid responses. Imputed values are subjected to verification to ensure internally-consistent data for the respondent. There are two types of imputation: total and partial.

Total imputation is used when imputed values are required for all data items, either because no data were provided or so little data were provided that the response is not usable.

Partial imputation is used when imputed values are required for some, but not all, data items. The data for companies imputed by partial imputation are a combination of imputed values and data provided by the respondent. It is necessary to ensure that imputed values are consistent with the values reported by the respondent. An example is a company which provides Total Revenue but not values for Operating Revenue and Non-operating Revenue. A breakdown between operating and non-operating is obtained through partial imputation, and this imputed breakdown is applied to the reported value of Total Revenue to give values of Operating Revenue and Non-operating Revenue.



For the Production Survey, two imputation methods are used: historical imputation and donor imputation.

Historical imputation attributes the previous survey's value to the current survey for each data item. This method may not be appropriate if there is a significant gap of time between the previous and current surveys. It is also necessary to ensure that the company has been relatively stable over the years and that data are coherent and representative. Ideally historical imputation is used only for companies that were complete respondents to the previous survey, to ensure the previous survey's data were response data and not imputed data. However, when no other data are available, data of a partial respondent may be used for historical imputation in the Production Survey. Donor imputation is used for producers that were non-respondents to the previous survey. Financial statements for many producers can now be obtained from the Internet. These are used if the data for the survey unit can be separated from other operations covered by the financial statement.

Donor imputation attributes values from another company (the donor) to the company to be imputed (the recipient). The donor is selected among complete respondents that display similar characteristics to the recipient, based on data available on the survey frame. Several methods exist for donor selection. The method most common in CSP surveys is to identify a pool of potential donors based on size, geography and type of company (e.g., type of producer) and select a donor randomly from the pool.

A third option of imputation based on averages or ratios can also be used for partial imputation. (Imputation based on averages or ratios is not generally possible for total imputation, because the resulting data may be not valid or not internally consistent.)

To give an indication of the impact of total and partial imputation, the survey estimates of three variables (Total Revenue, Total Operating Expenses and Total Production Revenue) are decomposed into values obtained by total imputation, by partial imputation and without imputation. The set of companies with total imputation is the same for all three variables, as total non-response is defined at the company level. However, the set of companies with partial imputation (and hence the set with no imputation) differs among the three variables. For example, a company for which Total Production Revenue was obtained by partial imputation may have required no imputation for Total Operating Expenses. Results, in dollar amounts, are given in Table A.

**Table A – Breakdown by type of imputation - three variables**

	Total imputation (million)	Partial imputation (million)	No imputation (million)	All (million)
Total Revenue	\$674.2	\$77.2	\$1834.1	<b>\$2585.5</b>
Total Operating Expenses	\$687.4	\$14.6	\$1852.6	<b>\$2554.6</b>
Total Production Revenue	\$486.5	\$59.6	\$1127.4	<b>\$1673.5</b>

For each of Total Revenue, Total Operating Expenses and Total Production Revenue, the dollar amounts of Table A can be expressed as percentages of the survey estimate. Such percentages are given in Table B, with the same decomposition into values obtained by total imputation, by partial imputation and without imputation. Each entry of Table B is obtained by dividing the corresponding entry in Table A by the respective row total. (Some rows may not add to 100 due to rounding.)

**Table B – Percentage breakdown by type of imputation – three variables**

	Total Imputation	Partial Imputation	No imputation	All
Total Revenue	26.1%	3.0%	70.9%	100%
Total Operating Expenses	26.9%	0.6%	72.5%	100%
Total Production Revenue	29.1%	3.6%	67.4%	100%

Values imputed for total non-respondents contribute between 26.1% and 29.1% of the survey estimates of Total Revenue, Total Operating Expenses and Total Production Revenue. These percentages are slightly lower than 32%, the percentage of companies that were total non-respondents. This relationship indicates that total non-respondents are, on average, slightly smaller than respondents in terms of the three variables considered above.

Many other survey variables, in particular components of revenue and operating expenses, are related to the three variables studied above. For such variables, the contribution of values imputed for total non-respondents generally would be similar to the three variables considered above. However, the contribution of values obtained by partial imputation could be higher than for the three variables above. Total Revenue, Total Operating Expenses and Total Production Revenue are among the variables deemed critical in the Production Survey. Critical variables are subject to greater follow-up than other variables, leading to less partial non-response. Consequently, the contribution of partial non-response is quite low in the tables above.

### 3.5 Comparability of data

The CSP began to use imputation for non-response in 1995. Consequently, data collected for the Production Survey prior to 1995 cannot be compared to 1995 and subsequent surveys.

Data from the Production Survey may not be comparable to film, video and audio-visual production data from other sources. Reasons include differences in scope, definitions and data collection methods. Two examples are described below.

Production Survey estimates may not match data in the publication *Profile* of the Canadian Film and Television Production Association (CFTPA). The CFTPA obtains data from the Canadian Audio-visual Certification Office (CAVCO) for domestic producers that receive tax credits. Estimation is used by CFTPA for producers that do not receive tax credits.

Provincial estimates from the Production Survey may not match provincial film association estimates of film production done in that province. The Production Survey classifies a producer to the province in which its headquarters are located and does not attribute data to the province(s) in which production took place.

### **3.6 Confidentiality**

All survey data are confidential and respondent confidentiality is protected by the *Statistics Act*. Data that are tabulated are also checked by the survey manager as an additional guarantee that disclosure will not identify a respondent, which would be contrary to the *Statistics Act*.

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