Mediapulse TV Measurement

Methodological Specifications

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1 Introduction

The following document describes the television measurement system (hybrid TV measurement system) in Switzerland for which Mediapulse is responsible and on the basis of which television usage data has been collected since July 2022 and made available to the TV market as a currency. The purpose of the document is to provide a generally understandable and transparent explanation of the methodological principles of this system and the research process based on it. This should enable data users to understand and assess the collection, processing and quality of the data collected with the hybrid TV measurement system.

2 Object of research

Mediapulse's hybrid TV measurement system collects data on all forms of television video and audio use by people aged three and above in private households in Switzerland with at least one television set used for television consumption. Linear and time-shifted television consumption (up to seven times 24 hours after the first broadcast) is shown specifically for the referenced channels and in categorical summary form for the non-referenced channels. The location-independent consumption of TV programmes on so-called small screen devices (computers, laptops, tablets and smartphones) is also surveyed, as long as the providers of the media players used for this purpose technically support TV research.

3 Universe

The TV universe comprises the permanent resident population in Switzerland aged three years and above in private households with an operational TV set. Collective households are excluded.

The size of the TV universe is recalculated at the beginning of each calendar year.

The basis for the calculation of the TV universe is the survey data from the Establishment Survey conducted by Mediapulse and official population figures from the Federal Statistical Office.

4 Methodological design

Mediapulse's hybrid TV measurement system is based on a hybrid measurement approach with three central elements:

- The basic collection of TV consumption data is performed with the help of a TV measurement panel that is representative of the defined TV universe. This TV measurement panel is operated by Kantar Media on behalf of Mediapulse AG.
- In addition to this, the TV consumption data collected from digital set-top boxes (STBs) is transformed, profiled and stored in the form of a virtual STB panel, in a process developed by Mediapulse AG.
- In the process of hybridisation, the person-based TV consumption data of the TV measurement panel is enriched with the profiled TV consumption data of the virtual STB panel.

TV consumption on small screen devices is exclusively surveyed on the basis of the TV measurement panel and is not taken into account during hybridisation, meaning that it is shown in the TV consumption data in non-granularized form.

5 TV measurement panel

5.1 Panel recruitment

A household panel that is representative of the defined TV universe and can provide valid, reliable and objective TV consumption data serves as the basis for measurement.

The basis for the recruitment of the panel households is the address pool of the households surveyed in the Establishment Survey.

Panel households are recruited by phone or in writing.

Recruitment takes place continuously throughout the year.

When recruiting the panel, no households are systematically excluded within the defined TV universe.

5.2 Panel size and structure

The panel is designed as a language-regional disproportionate quota sample at household level.

The net size of the panel is at least 1,870 households per day. These are split between the three language regions (subpanels) as follows:

- German-speaking Switzerland: 1,000 households
- French-speaking Switzerland: 600 households
- Italian-speaking Switzerland: 270 households

The panel is recruited in the three language-region subpanels according to the following household characteristics:

- Households per language region (German, French or Italian);
- Number of TV sets (1, 2, 3 or more);
- Household size (1, 2, 3, 4, 5 or more persons);
- Presence of children aged 0 to 14 (yes/no);
- Reception platform (IPTV, cable, satellite/terrestrial/app);
- Households per elementary zone (EZ)

The elementary zones (EZ) result from the overlap of the coverage areas and the language regions.

The specifications for the panel structure are recalculated at the beginning of each calendar year, in exceptional cases also halfway through the year.

5.3 Ensuring panel quality

Kantar Media verifies the net size of the three language-regional subpanels before each data release. If the contractually agreed net size is not reached, Mediapulse is informed immediately.

Kantar Media seeks to ensure a high level of compliance among panel members. This includes the correct instruction of panel members, the ongoing surveying of compliance-relevant behavioural indicators, the tracking and timely adjustment of changes in demographic or technical characteristic data, and the identification and prevention of data manipulation by panel members.

Kantar Media produces continuous reports on the most important quality characteristics, which it also verifies every working day. This quality assurance system generates notifications (work orders) as soon as households are identified that have (potential) problems in measurement or registration behaviour. The work orders are processed by Kantar Media in a timely manner. Mediapulse keeps track of the implemented work orders and is informed of all changes.

5.4 Technical measurement

The method of data collection for TV consumption on TV is a technical measurement with three central elements: the measurement of TV consumption and the respective TV users in the panel households with the help of meter devices, the recording (referencing) of the audio signals of the TV stations to be measured and the identification of the stations used by linking these two elements in the process of audio matching.

Kantar Media gathers data on the technical equipment of the panel household and installs a meter device in the recruited panel households for each operated TV set to measure TV consumption.

The meter devices are used to record the audio signals of all operational TV sets in the panel households as well as the login information of the individual panel members and transmit them to a processing centre on a daily basis.

The audio tracks of a list of TV stations agreed with Mediapulse are referenced simultaneously.

Using audio matching, the audio signals from the panel households are compared with the referenced audio tracks and attributed to the individual TV stations.

The survey of TV consumption on small screen devices requires that the providers of TV content equip the video players with which this content can be used with a measurement tag provided by Mediapulse. This measurement tag records all access to this player as well as the content used.

All households of the TV measurement panel are also equipped with an additional measurement device. This so-called router meter records all online devices in the panel households, which are then assigned by the panel management to the individual household members. If an online device registered by the router meter now accesses a tagged player, the content used is attributed to the content holder in question. This attribution takes place irrespective of whether the content is used at home or on the move.

5.5 Ensuring the technical measurement quality

During the initial installation in the panel households and at each subsequent visit to the household, Kantar Media carries out a standardised test procedure to verify that the TV consumption is correctly detected on all TV sets being measured.

Referencing is implemented redundantly in order to achieve a high level of reliability. Whenever possible, the audio tracks of a station are recorded at several locations and via different reception vectors.

The correct recording of TV consumption on small screen devices is ensured by validating the completed tagging and monitoring the router meter and its proper functioning.

5.6 Data processing

Data processing combines the TV consumption data collected by means of audio matching or tag recognition with the user data of the registered TV users in order to then cleanse and weight them and extrapolate the weighted results to the TV universe.

The panel implements a daily weighting procedure at the person level. The target specifications for the weighting cells are determined as part of the calculation of the TV universe. Mediapulse and Kantar Media agree jointly on the weighting cells and their characteristics.

5.7 Ensuring the quality of data processing

Kantar Media ensures correct data processing every working day by performing numerous quality checks. The supplementation of the consumption sequences recorded in the technical measurement with the characteristics of the corresponding panel members is the prerequisite for the data verification, weighting and extrapolation of the measured consumption.

Kantar Media verifies the weighting every working day.

5.8 Data output

The TV measurement panel provides the TV consumption data of all persons in the recruited panel households. In the current configuration of the TV measurement panel, their number amounts to approx. 4,500 panel members. The TV consumption data is generated on a daily basis, weighted and extrapolated to the defined TV universe.

6 Virtual set-top box panel (STB panel)

6.1 Data source

The source of data for the virtual STB panel is digital and thus feedback channel-capable set-top boxes (STBs) from cooperating TV distributors are used. Currently, the two largest TV distributors in Switzerland are Swisscom and UPC.

A subset of these STBs is used to build the virtual STB panel.

The boxes selected for the virtual STB panel are randomly selected according to a procedure defined by Mediapulse.

The selection is based on all STBs of the cooperating TV distributors in private households. STBs are not included if the disclosure of usage data is prevented by privacy settings.

The sample size is currently 100,000 STBs from Swisscom and 40,000 STBs from UPC.

The sample of STBs included is updated regularly and systematically.

6.2 Data basis

The data is based on the consumption data from the STBs included and on the available information about the customer contracts per STB.

The STB consumption data provides information on the start and end times of all consumption events of the respective STB, broken down by TV channels and by linear or time-shifted consumption.

The information available on the customer contracts contains information on the age and gender of the contract partner and makes it possible to assign the STBs regionally to the elementary zones (EZ) of the Mediapulse TV survey.

The STB consumption data is structured by the distributors according to Mediapulse's specifications and provided on a daily basis. These data are currently available no later than five days after the day of emission or measurement.

6.3 Data transformation

In a three-stage process, the STB consumption data is transformed into person-specific TV consumption data according to a procedure developed by Mediapulse.

In the first stage, STB usage data that is not based on real consumption is identified and excluded from further processing. The result of this stage is cleansed STB usage data at the household level.

In the second stage, the household size and the demographic household structure behind one or more STBs are estimated and fixed. This estimate is based firstly on the cleansed STB consumption data, secondly on the available information from the customer contracts and thirdly on the consumption and user data from the TV measurement panel.

In the third stage, the cleansed STB consumption data at the household level is attributed to the estimated household members.

6.4 Data output

These three transformation stages result in a virtual STB panel that contains daily updated TV consumption data from currently around 300,000 virtual panel members, which can be structured according to the most important household-related, socio-demographic and regional characteristics.

7 Hybrid TV measurement panel

7.1 Data source

The hybrid TV measurement panel was developed by supplementing the TV consumption data of the TV measurement panel generated from consumption on TV (cf. chapter 5) with the TV consumption data of the virtual STB panel (cf. chapter 6).

7.2 Hybridisation of TV channels

The hybrid TV measurement panel hybridises the use of the TV channels relevant to Mediapulse. Currently, this comprises about 90 TV stations with commercial or journalistic relevance in the Swiss TV market.

All other TV channels as well as TV consumption via small screen devices are not hybridised, i.e. their use remains within the existing granularity of the TV metering panel. The same applies to other offers which are surveyed in the TV measurement panel but not in the virtual STB panel (e.g. DVD, gaming, playback, online TV etc.).

7.3 Hybridisation process

Multiple imputation is used as the technical basis for hybridisation. The implementation is carried out via three process steps that build on each other: the boosting of the TV measurement panel, the matching of statistical twins and the substitution of TV consumption data.

7.3.1 Boosting

Boosting involves selecting all panel members of the TV measurement panel receiving their TV programme via an STB of a cooperating TV distributor and multiplying them by a defined boosting factor. All other panel members are not considered in the further hybridisation steps and thus their TV consumption data and weight remain unchanged.

The boosting factor is determined in agreement with the TV market and is capped by the processing capacity of the data-processing peripheral systems. The current configuration of the hybrid TV measurement panel has a boosting factor of 8. The result is a multiplied TV measurement panel consisting of the original panel members and their clones created by multiplication.

All existing information of the selected panel members is transferred to the clones. This also includes the weight of the original panel member.

7.3.2 Matching

In the matching process, structurally similar panel members from the virtual STB panel are determined for all selected panel members of the TV measurement panel and ordered according to the degree of matching with the original panel member.

The virtual panel members with the highest matches are then defined and fixed as statistical twins of the original panel member. The number of statistical twins per original panel member to be included in further hybridisation is equal to the boosting factor minus 1.

7.3.3 Substitution

In the last step of the process, the consumption data to be hybridised is deleted from the clones (recipients) created by multiplication and substituted by the consumption data of the statistical twins from the virtual STB panel (donors).

All consumption data that is not hybridised remains unchanged (cf. chapter 7.2).

Finally, the weights of recipients and donors are divided by the boosting factor.

7.4 Data output

The hybrid TV measurement panel combines TV consumption data from panel members of the TV measurement panel and virtual members of the STB panel. The current sample size of the hybrid TV measurement panel is approximately 20,000 panel members. The hybrid TV consumption data obtained with the hybrid TV measurement panel is provided daily, weighted and extrapolated to the defined TV universe.

7.5 Quality monitoring

Quality control of the entire hybridisation process is carried out with the help of a comprehensive KPI system on four main dimensions.

Process KPIs measure the technical performance of daily data production at the levels of data input, data processing and data output. Anomalies are addressed immediately and dealt with by the production team.

Accuracy KPIs are aimed at identifying errors in the imported and exported data. If such errors are identified and cannot be corrected immediately, data production follows a defined process for excluding erroneous data.

Model KPIs control the performance of the statistical models in transforming the STB data and in hybridising the panel data. The focus of observation here is particularly on unintended changes in the models used.

Finally, result KPIs are used to check the relationship between the data output of the TV measurement panel and the hybrid TV measurement panel in order to identify any changes at an early stage and, if necessary, to check their plausibility.

If abnormalities are identified in the model KPIs or in the result KPIs, they are analysed and dealt with by the Mediapulse research team or by the responsible research service provider.

8 Data release

8.1 Data release logic

The TV consumption data of the hybrid TV measurement system is released in two stages.

The TV consumption data of the TV measurement panel are regarded as provisional data without currency character.

The TV consumption data of the hybrid TV measurement panel are considered to be final data with currency character.

8.2 Time of data release

The provisional data without currency character are released every weekday by 9:30 a.m. at the latest for TV consumption on the previous broadcast day.

The final data with currency character will be released with a delay of 3 working days after the TV broadcast day on weekdays by 11:00 a.m. at the latest and will replace the provisional data from this time onwards. For the weekdays Thursday, Friday and Saturday, the deadline for the release of the final data is 2 working days after the TV broadcast date.

A tabular overview of the current data status (provisional/final) is provided on the Mediapulse website.

8.3 Completeness of the released data

The Swiss TV currency includes the utilisation of the offerings of a TV broadcasting day even if this takes place up to seven days after the broadcasting day. Due to this market convention, the usage data for a TV broadcasting day is only available in full seven days after the first activation. The provisional data for a TV broadcasting day is supplemented daily with the data for delayed usage until it is replaced by the final data.

The final data for a TV broadcast day will also be supplemented daily with the final data for time-shifted use after the first activation and will be available in full no later than 10 working days after the broadcast day.

A tabular overview of the completeness of the provisional and final data is provided on the Mediapulse website.

8.4 Boosting status of the final data

The co-operating TV distributors undertake to deliver the STB data daily in accordance with Mediapulse's specifications, but cannot guarantee timely and error-free data delivery in every case. Should such a case

occur, Mediapulse intends not to boost the final TV usage data for the day in question, or only to boost it partially, i.e. to enrich it with STB usage data.

This procedure ensures that the TV market has TV usage data at all times, although this may be boosted to varying degrees depending on the data situation. Three boosting scenarios are envisaged for the final data:

- Complete boosting: All STB usage data is available

- Partial boosting Hybridisation: STB usage data is not available for all cooperating distributors

- No boosting: No STB utilisation data is available

A tabular overview of the days with partial or complete boosting failure (boosting status) is provided and continuously updated on the Mediapulse website.

8.5 Evaluation tool

The preliminary and final data is released using an evaluation tool provided by Mediapulse.

The evaluation tool also provides the latest information on data status, completeness and boosting status.

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