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Innovative approaches used in the 2016 Canadian Census

Session d: Innovations in census methodology and technology, and results of testing

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Presentation to the Expert Group Meeting on Population and Housing Census

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Outline

- The Canadian Census
- The census collection methodologies
- Results from 2016
- Response management
- Adopting corporate systems for the Census
- Tailored communication strategy
- Lessons Learned

The Canadian Census

➤ ***A five years cycle :***

- Canada conducts a census of population and dwellings every 5 years. The most recent one took place in May 2016 and expanded on methodological changes introduced for the 2011 Census.

➤ ***Overview:***

- The wave collection methodology encourages response via internet while ensuring a high level of self-response. The basic approach was extended to a larger portion of dwellings (82%) in 2016.
- **New for 2016** was the use of Statistics Canada's common systems for the census program
- The communication strategy was also revamped.
 - The census brand was modernized
 - Specific strategies were developed for different key populations, including difficult to reach groups
- Collection efforts planned and coordinated based on predictive response model

The census collection methodologies

➤ *Various collection methodologies:*

- Mailout using the information available in an Address Register - 82% of dwellings in 2016
- Questionnaire delivered to the dwellings by a census enumerator as part of a list and leave operation - 16% of dwellings
- Census collected directly at the door by a census enumerator - 2% in First Nations communities, and in remote and northern areas
- Income data obtained directly from the Canada Revenue Agency
- Long-form collected for 1 in 4 households

The Wave collection methodology

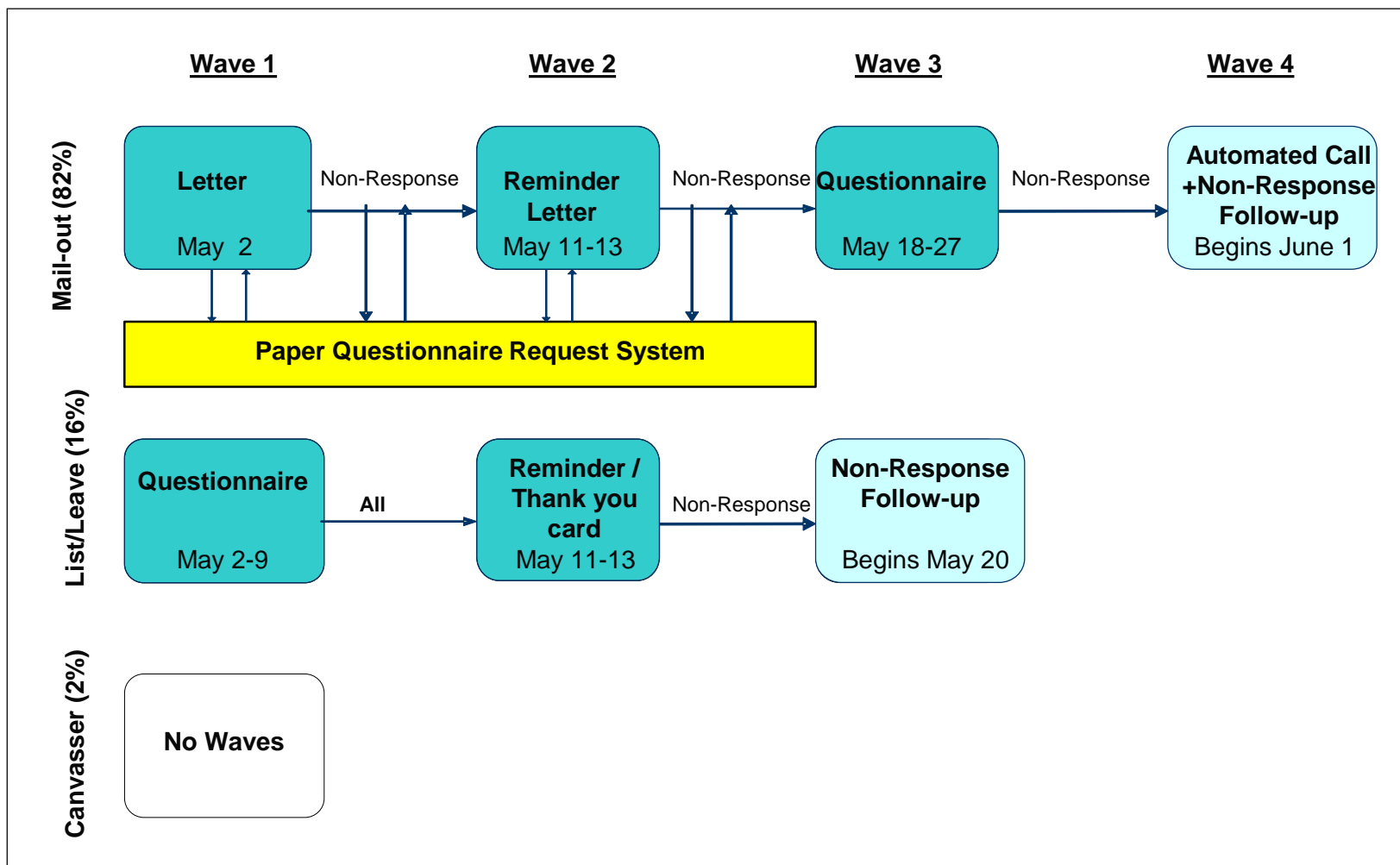
➤ ***A little bit of history:***

- The wave collection methodology used for the 2016 Canadian Census is largely based on the theory of Dilman, and was first introduced for the 2011 Census.

➤ ***The process:***

- Based on the results of tests conducted during the 2011 Census, the method was applied more uniformly for 2016, with a single treatment for mailout areas as opposed to two different treatments in 2011.
- It was left unchanged for list and leave areas.
- The choice of treatments in mailout areas in 2011 (letter only or paper questionnaire delivered in wave 1) was determined based on the propensity of the population to self-enumerate as demonstrated in the 2006 census and on the 2006 Census internet take-up rate by area.

2016 Census Wave Methodology



Results from 2016

- Response objectives for the 2016 census were surpassed:
 - Overall collection response rate: **98.4%**
 - with fairly low variance in rates at the Census sub-division level (communities)
 - Internet collection rate: **68.3%**
 - Overall collection self-response rate: **88.8%**
 - Collection response to the long-form: **97.8%**

- The higher quality of responses received by internet has been demonstrated in previous censuses.
 - Lower rates of item non-response in 2016 compared to 2006 and 2011



CENSUS • RECENSSEMENT

Wave 1
Received on
May 2

2016

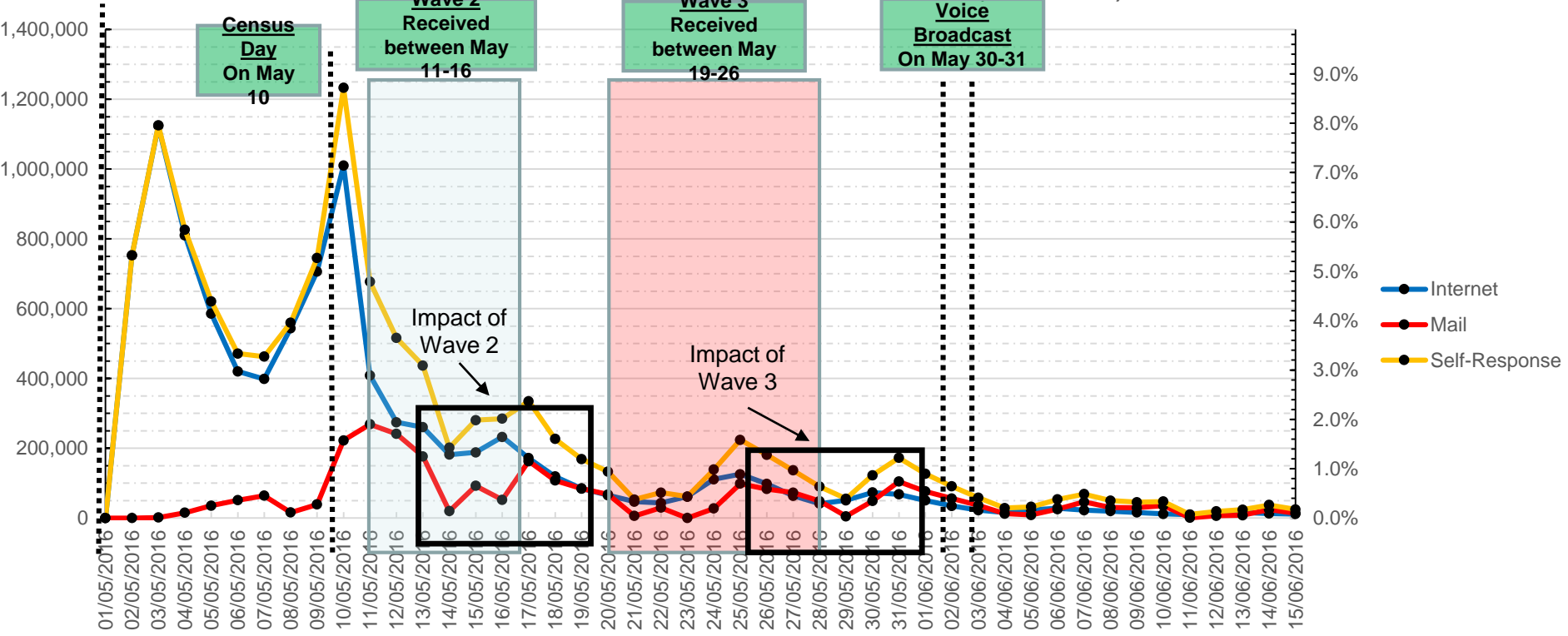
Internet and Mail daily return rate (National)

Census Day
On May 10

Wave 2
Received between May 11-16

Wave 3
Received between May 19-26

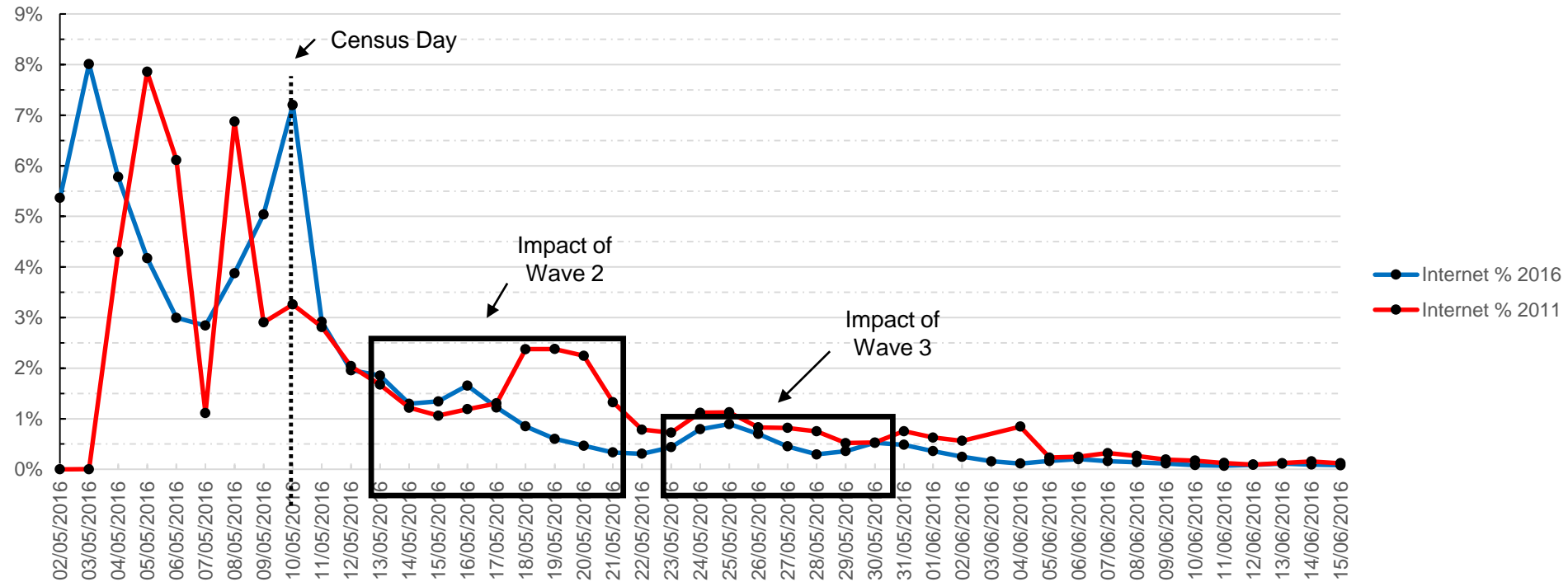
Voice
Broadcast
On May 30-31





CENSUS • RECENSEMENT

Internet daily return rate (2011 vs 2016)



Response management

- Strategy to manage the collection process
 - Dynamic predictive microsimulation model improved from 2011 to optimize use of human and financial resources in pursuit of response objectives.
 - Projected the end of collection by region based on a number of parameters such as:
 - Self-response levels;
 - Productivity of enumerators;
 - Projected attrition of enumerators;
 - Remaining number of cases to be resolved;
 - Hours worked per day by enumerator by area and by collection supports units (telephone follow-up capacity).
 - Also forecast collection costs until the end of collection
 - Modeled every week during collection
 - Estimate the number of work hours to be added in any given region/area to complete collection operations by the end of July at the targeted response level.

Response management (cont'd)

➤ *The results:*

- Because of actual and predicted favorable conditions during the 10 weeks of non-response follow-up, most areas in the country never moved below tier 2.
- At tier 2, collection continued in any given geographic area until a response rate of 98.5% was reached for the short-form and 96% for the long-form.
- The preliminary assessments show that the predictive power of the model was very accurate.

Adopting corporate systems for the Census

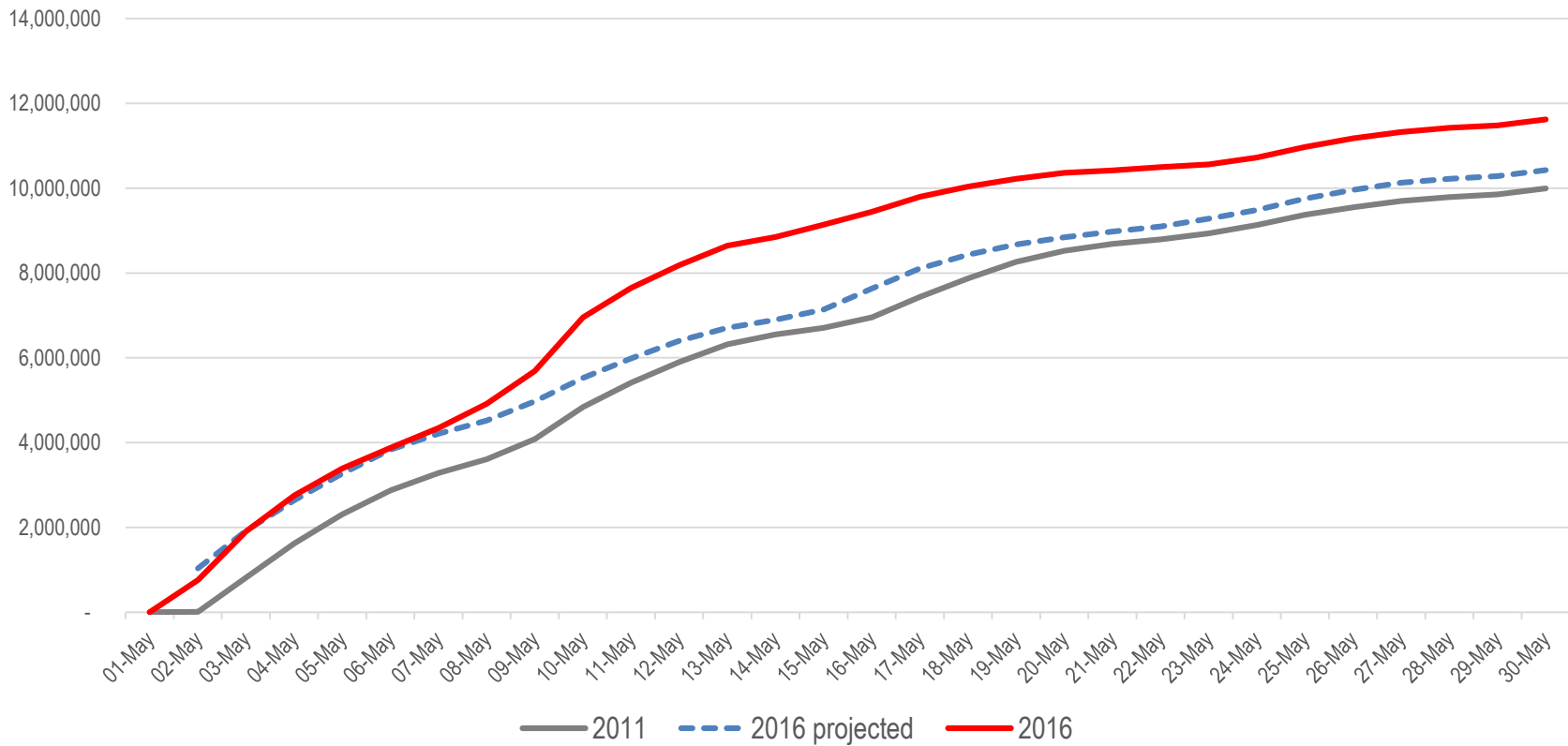
- Corporate Business Architecture
 - IT solutions and business processes developed for corporate use rather than for individual program specific requirements.
- The Census Program successfully adopted such solutions for 2016, allowing economies of scale for the department and the census program itself.
 - Common internet application (eQ) to replace the census-specific application used since 2006.
 - Collection Management Portal (CMP) to replace the Field Management System used in 2011.
- Overall, the adoption of corporate solutions for the Census was successful in 2016, and it is expected that their re-use in 2021 will allow for important efficiencies

Tailored communication strategy

- The Integrated Communications Strategy (ICS) was designed as a social marketing campaign.
 - Emphasis on research, segmentation, targeting and positioning.
 - Targeting strategy consisted of full market coverage and use of differentiated marketing to reach difficult to enumerate audiences.
- Statistical analyses guided the design, implementation and monitoring of census communications activities.
 - ICS employed behavioral economics and sociodemographic segmentation to identify hard-to-enumerate audiences.
 - Some adjustments to these solutions will be necessary for 2021.
- Contributed to the overall increase in self-response compared to 2016.

Preliminary results analysis

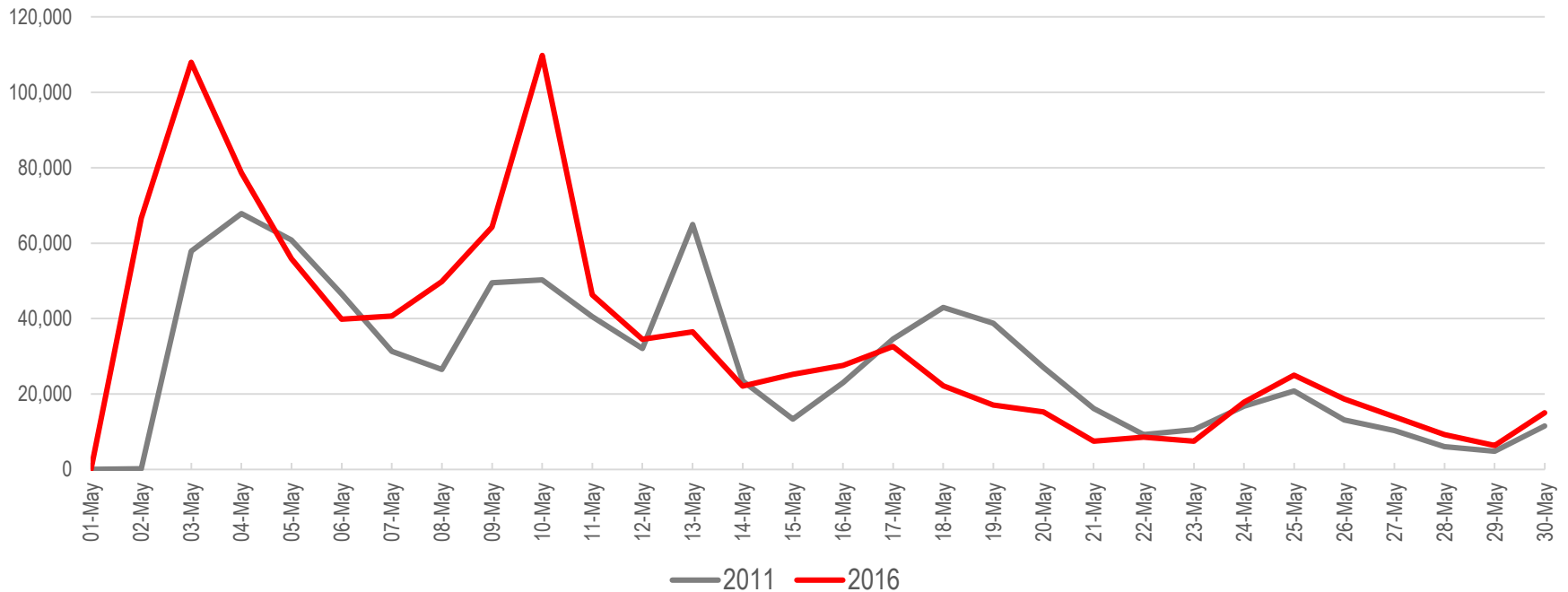
Cumulative Returns - All Segments





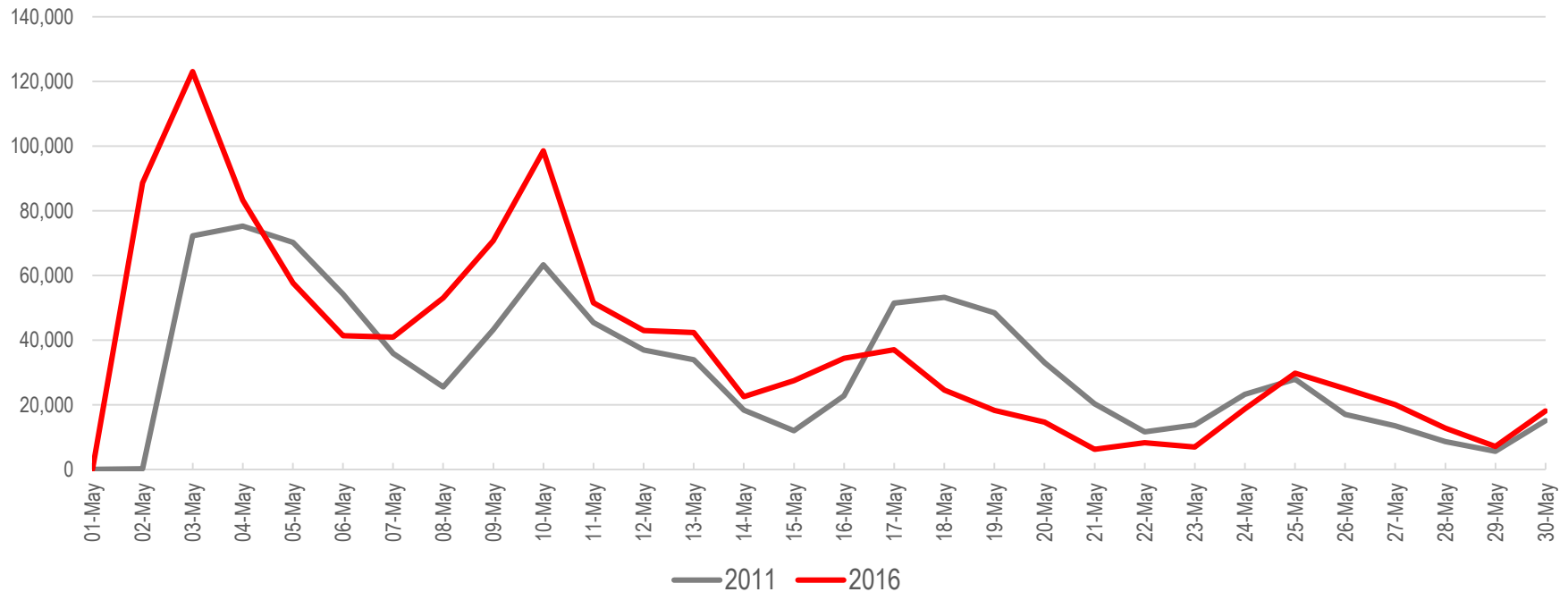
Preliminary results analysis

Daily Returns - Low-income Tenant



Preliminary results analysis

Daily Returns - Single Unattached Mobile



Lessons Learned

➤ ***What's next for Statistics Canada? :***

- The approaches used to increase internet and self-response in the Canadian census have again proven to be a success in 2016, following the successful introduction of many of these in 2011.
- The focus of the evaluations from 2016 will be on the potential for expansion of the mailout universe which would increase the benefits of the methodology further for 2021.
- Particular attention will be dedicated to improving the methods of contact with dwellings, anticipating that the efficiency of using traditional mail as the primary mode of contact will diminish in the next 5 years as more and more people rely on other means of communication, such as Internet.



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