

# Digital Economy and Consumer Prices

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Statistics



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STATISTICS CANADA  
ONE HUNDRED YEARS AND COUNTING

# Agenda



Overview of Digital Economy



Opportunities presented by digitalization



Analysis initiatives



The Bottom Line



In a few words

Digitalization

# Digital Economy

Sharing economy Big Data Internet of things

E-commerce



# Data Sources



Source	Retailers	Data availability
Scanner Data	Food retailers	Prices, characteristics and quantity
Web-scraping	Canadian retailers: miscellaneous categories	Prices and characteristics
Application Programming Interface (API)	Aggregators for hotels, flights, car rentals, package holidays, etc.	Prices and characteristics
Other Data	3rd party providers	Prices and some characteristics

# Prices from digital sources



## Web Scraping data for:

- Clothing stores
- General Merchandisers
- Home improvement
- Electronics and Appliances

## API data for:

- Airlines
- Hotels
- Car Rentals

## Scanner data for:

- Food
- Personal Care
- Household operations

## In-house Internet collection of:

- Travel
- Transportation
- Communications
- Furniture
- Services



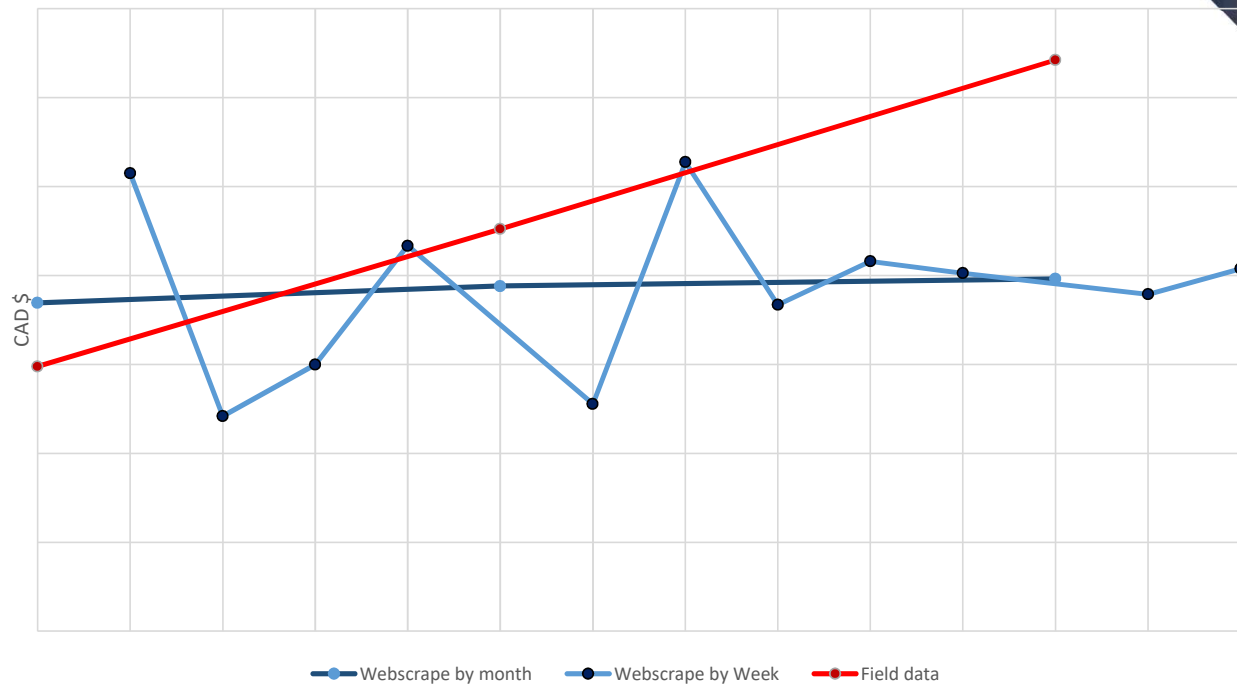
# Comparing instore vs online data



VS

onlinestore.ca

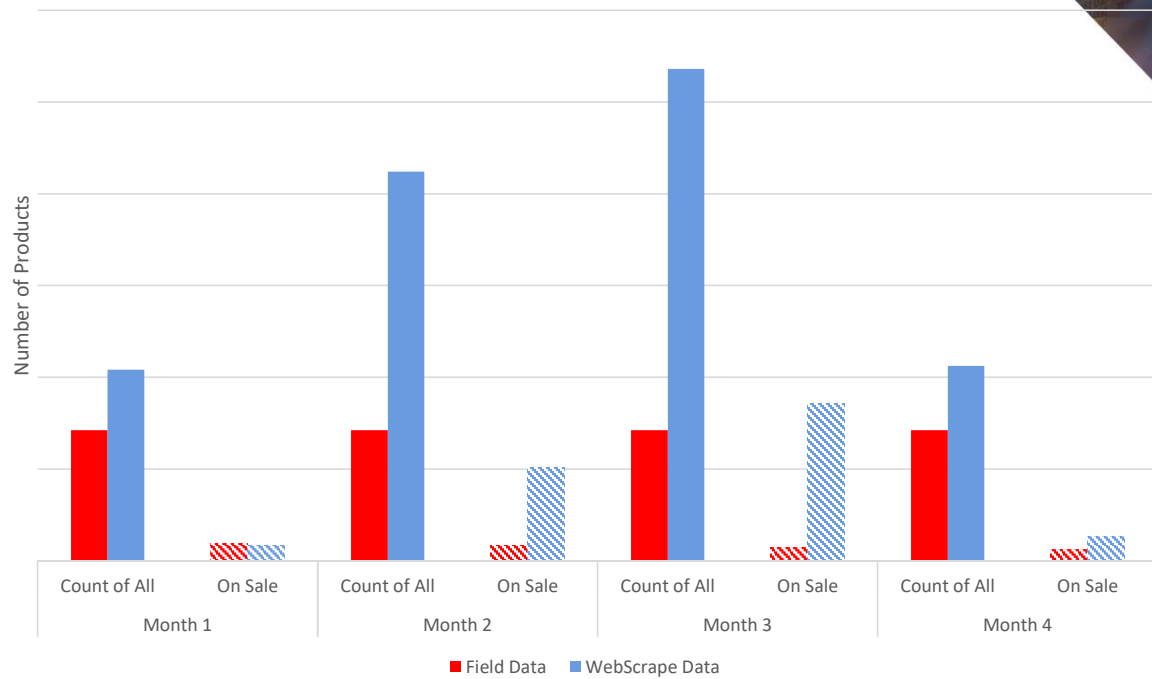
Average Price of Web Scraped vs In-store, same product



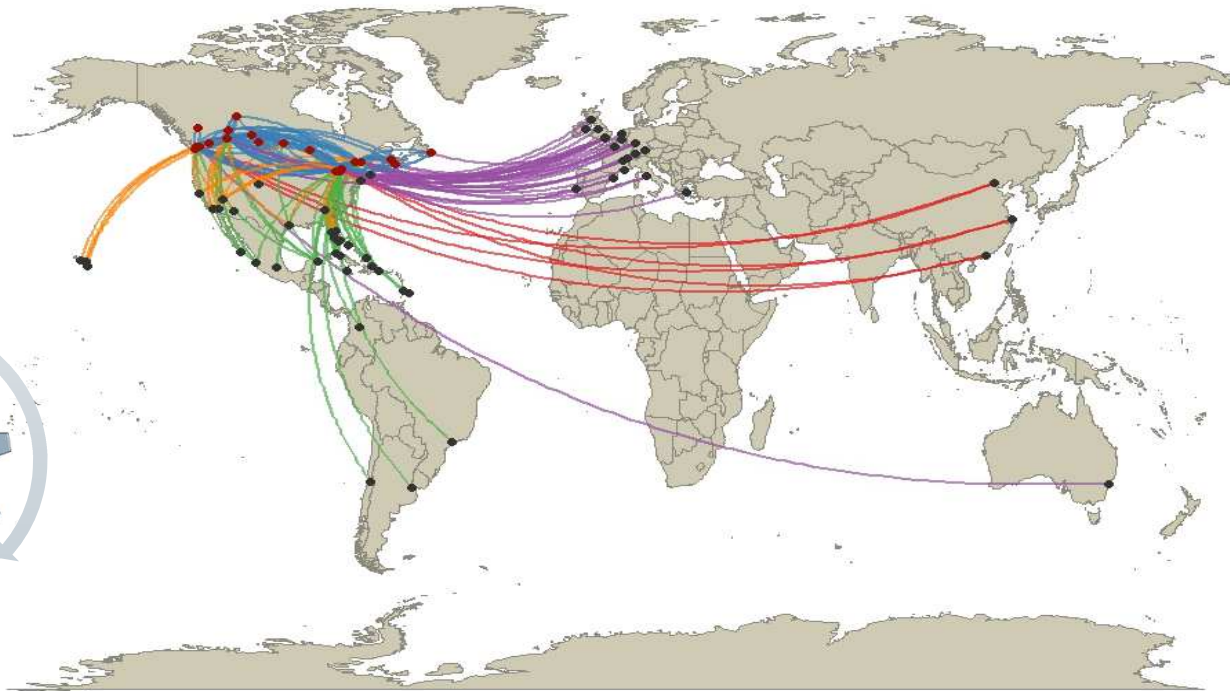
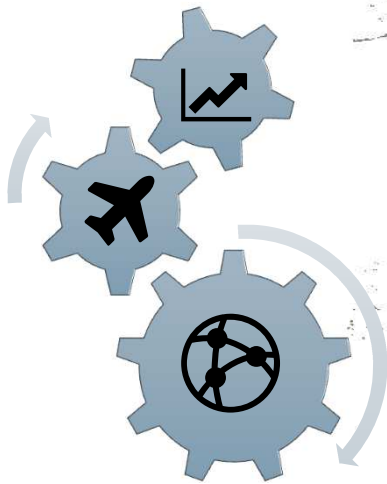
# Increased product coverage



## Availability (Web Scraped vs Field Data)



# API data for Air Transportation



sector ■ Asia ■ Domestic ■ South ■ Trans-Atlantic ■ Transborder





# Integration of online pricing

- Some CPI aggregates are fully or partially priced online
- Necessitates close monitoring of evolving consumer shopping habits

## CPI aggregates fully priced online

- Hotel accommodations
- Air fares
- Rental cars
- Telephone services (local and cellular)
- Internet access services
- Inter-city trains and buses
- Local transit
- Driver's licenses
- Passports
- Passenger vehicle registration fees
- Retail club memberships
- School books
- Cars

## CPI aggregates partially priced online

- Travel tour packages
- Furniture
- Mattresses
- Household textiles (sheets, towels, window coverings)
- Toys, games and hobby supplies
- Household appliances
- Cookware
- Tableware
- Tablets
- Photographic equipment and supplies
- Audio equipment

Source: MRTS 2017-04 to current

# Implementing more online data in the future

## Web Scraped

- Online vs instore
  - Clothing
  - Electronics

## Application Programming Interfaces (APIs)

- Travel



## Sharing Economy

- Netflix & Spotify
- Uber & Lyft
- Airbnb



## Future Trends

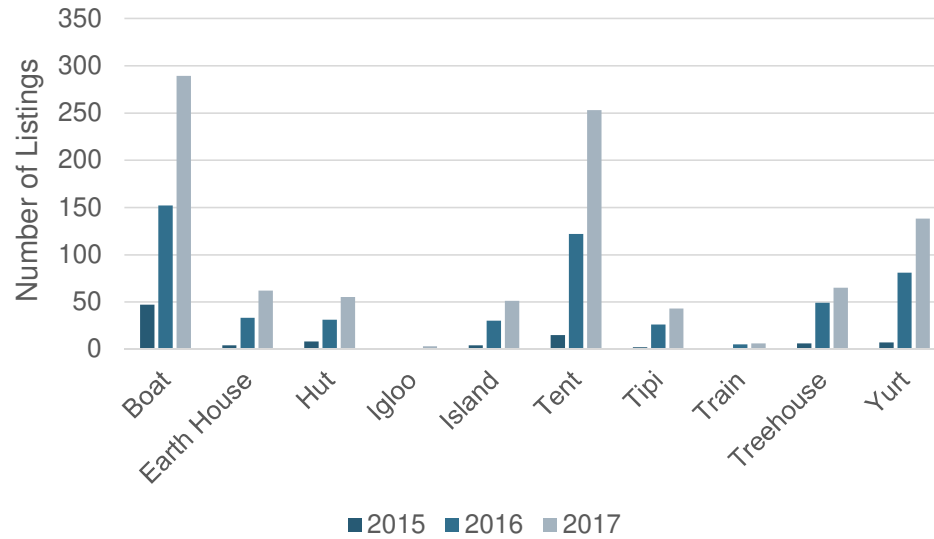
- Scope definition could extend beyond country
- Growth online marketplace
- New product offers: Internet Of Things



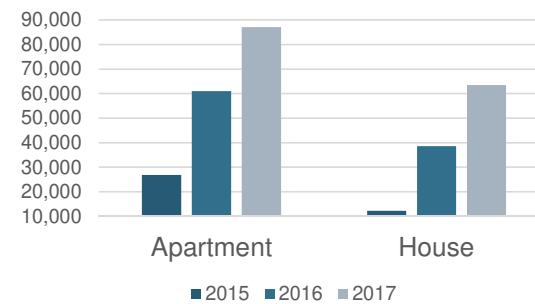
# Growing supply



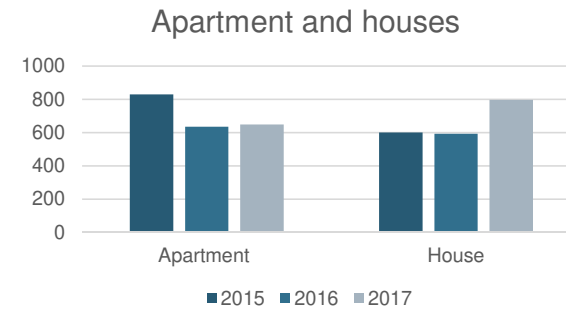
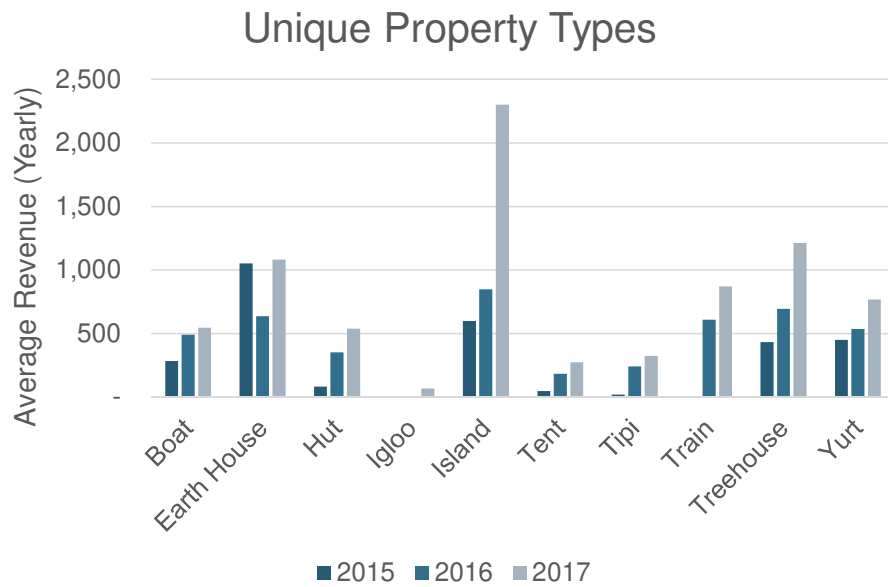
### Unique Property Types



### Apartment and Houses



## And growing demand



# Prices Investigation areas



Driver	Analytical Questions
<b>Assessing exchange rate pass-through</b>	Should the scope of the Canadian CPI be broadened to US or international online retailers?  Are Canadian and US prices moving in tandem for the same good?
<b>Pricing dynamics</b>	Is the price collection frequency affecting the measured inflation?
<b>Price differentials</b>	Are prices moving differently for online vs brick-and mortar stores for the same good?  Are online prices uniform across all Canadian regions? Does it depend on retail sectors?

# Conceptual challenges

- Bundling of services – Communications / Cable / Internet
- Shipping charges - Variable depending on purchase amount
- Quality adjustment - Service level and shipping speed
- Scope of Canadian CPI – Geographical boundary definition to reflect changing consumer shopping habits



# The Bottom Line

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Prices are less static. A dynamic approach needed for the CPI measurement.



Digital Economy presents an opportunity to improve the quality and coverage of price statistics



The growing impact of the digital economy will continue to be analyzed and monitored.

# THANK YOU!

For more information  
please visit,  
[www.statcan.gc.ca](http://www.statcan.gc.ca)



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