

Digitization has led to the rise of.... global consumers.

“Over the last number of years there has been a marked increase in the number of products offered in digital format available to consumers. Music, videos, and other forms of entertainment such as games of chance are almost entirely purchased in digital form and digitally delivered to the consumer. The digitization of these products has had a significant impact in not only how consumers purchase goods but also importantly from where they purchase goods.”

Global Household Consumption



Streaming Music

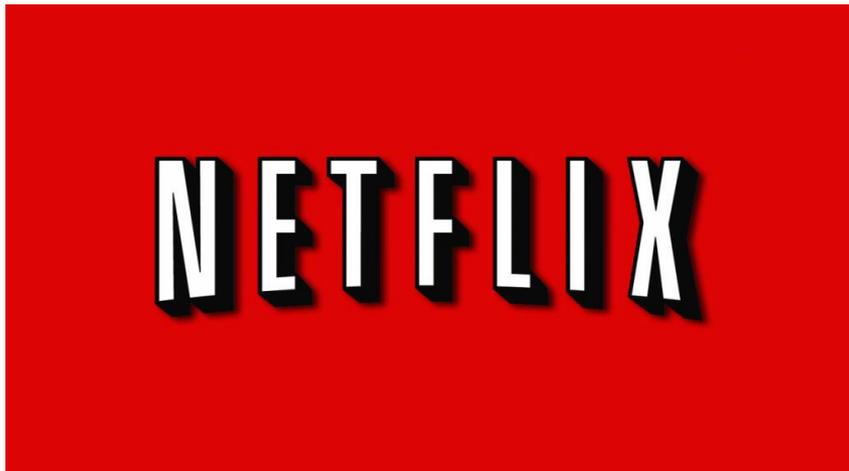
Resources	Uses
NR \$8	H \$8
GDP=\$0	

An imported CD and subsequent retail sale to a household

Resources	Uses
NR \$5	B \$5
B \$10	H \$10
GDP=\$5	



Global Household Consumption



Watching the Dukes of Hazzard

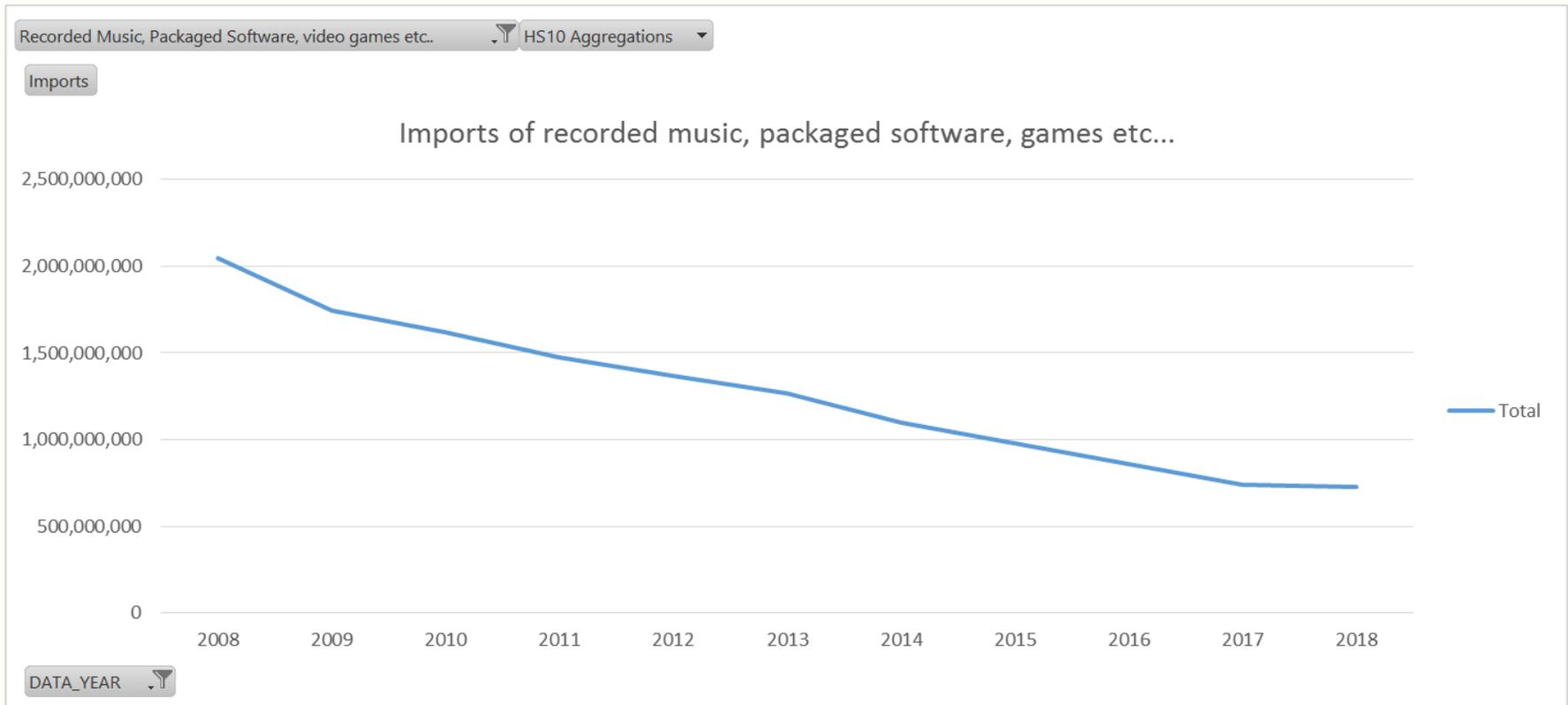
Resources	Uses
GDP=\$0	

Binge watching the Dukes of Hazzard

Resources	Uses
NR \$9.99	H \$9.99
GDP=\$0	



Canadian imports of CDs, video-cassettes, packaged software have declined dramatically in recent years.





Three “strategies” to measure international trade in digital products

- Digital Economy Survey (Household survey)
- Aggregate Credit Card Information
- “Survey” of Digital Platforms

Measuring Imports of Digital Products

Household Survey Approach

Digital Economy Survey

The Digital Economy Survey (DES) was a household survey targeting individuals aged 18 and older. Data was collected over the period: 2018-06-15 to 2018-07-12

The Digital Economy survey was the first to focus on Canadians' use and purchases of digital products, such as music and video streaming services, e-books, online gaming, mobile apps and software.

For this survey the term digital product refers to goods and services that were both ordered and delivered online (that is, in digital format). Internet purchases of physical goods and in-store purchases of digitally formatted goods were not in scope for this survey.

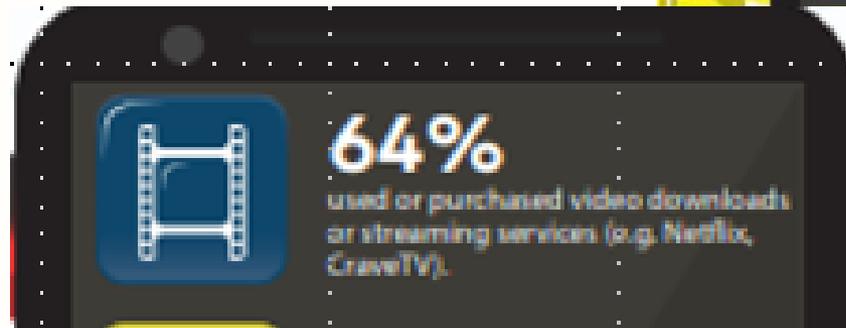
Digital Economy Survey

- While respondents were able to provide information related to their purchase of digital products.... they were unable to provide any information related to the origin of the purchase.

What was the average amount spent on digital products?

Canadians spent an average of

\$412
on digital products.



A glimpse at Canadians' digital use or purchases of digital products



64%

used or purchased video downloads or streaming services (e.g. Netflix, CraveTV).



57%

used or purchased mobile apps, computer software and other online subscriptions.



51%

used or purchased music downloads or music streaming subscriptions (e.g. Spotify, Google Music, Apple Music).



33%

used or purchased e-books, e-books, online newspapers, magazines or podcasts.



31%

used or purchased online gaming subscriptions to gaming services, game downloads and in-game purchases.

Digital Economy Survey

- Prior to conducting the survey we asked a test group of respondents to answer the following questions.
 - 2) What proportion of your total spending on digital products digitally delivered was with Canadian merchants?
- We had to drop the questions because the test groups indicated they had no idea about the origin of the digital products they were purchasing.

Digital Economy Survey

- Post collection, we identified the type of goods purchased and used our business register to determine if there was a Canadian supplier of the goods to arrive at an estimate of domestic purchases

Digital Product	Total Purchases (millions of CAD dollars)	Domestic Market Share	Domestic Purchases (millions of CAD dollars)	International Imports (millions of CAD dollars)
Music streaming and downloads	1,070	5%	53	1017
Video streaming and downloads	1,955	20%	391	1,564
Online video game downloads and streaming	668	5%	33	635
E-books, audiobooks, and online newspapers, periodicals	1,354	10%	135	1,219
Mobile apps, computer software and other online subscriptions	3,072	25%	768	2,304
Total	8,119	17%	1,380	6,739

Measuring Imports of Digital Products - **Aggregated Credit Card Information**

- Over the last year Statistics Canada has been able to acquire aggregated credit card data from a number of credit card providers.
- These original intent of these data was to help measure tourism spending in Canada.
- These data also have the potential to help measure international trade in digital products.

Aggregate Credit Card Information

- **Domestic Purchases** – purchases by Canadians in Canada
- **Outbound Purchases** – purchases from abroad by Canadians (imports)
- **Inbound Purchases** – purchases by non-residents in Canada (exports)

Selected Variables Provided

Month

Country

Customer Postal Code

Merchant Class Code (57 Categories)

Merchant Class Description (57 Categories)

Card Type (Business vs Personal)

Transaction Type (Online or Point of Sale)

Value (Net)

Transaction Count

Card Member Tourism Region

Card Member Province or Territory

International Travel spending categories

Country Code

Country Group

Country Group name

Aggregate Credit Card Information

- The key classification that could provide an indication of international purchases of digital products across all data streams is what is referred to as the MCC class.
- The MCC class is a classification system used by credit card companies to identify the merchant who is party to the transaction. Credit card transactions have been aggregated according to 57 merchant classes.
- The merchant classes range from Restaurants, to clothing and footwear. A few of the merchant classes could be considered predominately digital products.
- These merchant classes include digital goods and purchases from electronic stores. Additionally, there are several classes where it can be assumed that no purchases of digital products occur such as transport and clothing and footwear.

Aggregate Credit Card Information

- Basic methodology – Imports of digital products
 - to identify those merchant classes that would predominately sell digital goods and assume a certain (somewhat arbitrary) share of all sales are digital products.
 - Apply this share to online purchases only.
 - Weight up the value by the credit card companies market share.

Aggregate Credit Card Information

"Imports of digital products – third quarter 2018"

Merchant Class	Online Purchases	Point of Sale / Other Purchases	Total	Digital Product Share	Estimated international imports of Digital Products
Books, Stationery, Jewelry, Tobacco, Pharmaceuticals	142	49	191	30%	42
Clothing and Footwear	283	290	573	0%	-
Direct Marketing	400	119	519	0%	-
Gambling	90	-	90	100%	90
General Merchandise	630	820	1,450	15%	94
Hobby, novelty, souvenir, and toy shops	180	81	261	50%	90
Hotels, other accommodation, restaurants and drinking places	350	1,797	2,147	0%	-
Other	918	93	1,011	0%	-
Professional Services, Telecommunication Services, Digital Goods and Electronic Stores	789	337	1,126	75%	592
Recreation and Entertainment	41	23	63	75%	30
Transfers	9	59	68	0%	-
Transportation	466	469	935	0%	-
Total	4,296	4,136	8,432		939

Measuring imports of digital products

“Sourcing from” Digital Platforms Directly

- The previous two examples of collection instruments propose to obtain the data from the purchaser, namely Canadian households, either through a survey vehicle or the use of payments information.
- An alternative approach would be to obtain the required information from the seller, either by extracting data from the platform or asking the seller to provide aggregate estimates of the activity carried out on their platforms.

“Sourcing from” Digital Platforms Directly

- Statistics Canada purchased data from AirDnD which ‘scrapes’ the AirBnB platform.
- Key information extracted includes the price of the rental, location of the rental, blackout dates...
- Using this information Statistics Canada was able to produce estimates of peer to peer accommodation revenue in Canada.

<i>Estimated host revenue</i>	2015	2016	2017	2018
	thousands of dollars			
Canada	265,190	814,164	1,930,292	2,760,023
Newfoundland and Labrador	435	3,430	18,239	29,406
Prince Edward Island	451	6,928	19,264	29,768
Nova Scotia	1,115	18,599	44,778	70,870
New Brunswick	421	4,127	12,287	20,510
Quebec	65,192	215,569	467,938	634,588
Ontario	93,967	257,200	628,405	909,421
Manitoba	1,538	4,376	9,784	16,052
Saskatchewan	836	2,508	6,465	11,208
Alberta	8,818	30,916	96,974	151,929
British Columbia	92,020	268,692	620,590	876,080
Yukon	308	1,071	2,777	4,678
Northwest Territories	77	699	2,556	4,797
Nunavut	10	48	234	715

“Sourcing from” Digital Platforms Directly

- From this data it was possible to model the host fees and the guest fees.
- All host fees would be international imports while a portion of guest fees (reservations by Canadians) would be international imports.

<i>Estimated total host and guest fees paid to platforms.</i>	2015	2016	2017	2018
	thousands of dollars			
Canada	20,829	62,752	160,329	196,601
Newfoundland and Labrador	33	259	1,515	1,625
Prince Edward Island	34	534	1,600	1,807
Nova Scotia	80	1,434	3,719	4,863
New Brunswick	33	318	1,021	1,143
Quebec	5,117	16,638	38,866	42,589
Ontario	7,384	19,806	52,192	63,613
Manitoba	123	338	813	1,061
Saskatchewan	68	194	537	584
Alberta	685	2,367	8,054	10,534
British Columbia	7,236	20,718	51,545	67,855
Yukon	27	85	232	466
Northwest Territories	8	55	213	404
Nunavut	4	6	22	56

“Sourcing from” Digital Platforms Directly

- Statistics Canada will start engaging with international companies that have large global sales of digital products. This includes companies such as:
 - Amazon
 - Apple
 - Spotify
 - NetFlix
- Statistics Canada will ask these companies to report on the activities of Canadians on their platforms.

“Report” of Peer to Peer Platforms

	Number of active listings	Total host revenue (\$)	Total guest fees collected by Airbnb (\$)	Total host fees collected by Airbnb (\$)
Canada				
Newfoundland and Labrador				
Prince Edward Island				
Nova Scotia				
New Brunswick				
Quebec				
Ontario				
Manitoba				
Saskatchewan				
Alberta				
British Columbia				
Yukon				
Northwest Territories				
Nunavut				



“Report” of Digital Platforms

	Total Sales (\$)	Sales of physical goods online (\$)	Sales of movie or music streaming services/downloads (\$)	Total sales of mobile apps (\$)	Commission from sales of mobile apps (\$)	Sales of other digital products (\$)
Canada						
Newfoundland and Labrador						
Prince Edward Island						
Nova Scotia						
New Brunswick						
Quebec						
Ontario						
Manitoba						
Saskatchewan						
Alberta						
British Columbia						
Yukon						
Northwest Territories						
Nunavut						



“Sourcing from” Digital Platforms Directly

- The reports will be customized to the platform
- The collection will most likely be undertaken by our Large Cases Unit.
- In order for this to be successful we need to demonstrate the benefit to the data supplier.

Conclusions

- A growing number of households are directly importing digital products from a growing number of digital platforms.
- Traditional method (e.g. Household Budget Surveys, Business Surveys) are not capable of capturing this information
- Alternative data sources are required to address this growing statistical issue (at least in Canada)
- We need to move fast because this is growing rapidly