

IUIGA Case Analytics – Is Omni-channel Worth It?

Background

- **IUIGA – Background**

- A Singapore-based retailer that sells modern home and lifestyle goods via online shop (website, mobile app) and physical stores (pop-up, brick-and-mortar)
- Launched online in May 2017; opened first physical store in May 2018
 - Now operating 9 physical stores (account for 80% of total sales)
- Online vs. Physical Stores – Pros and Cons
 - **Online:** low cost BUT difficulty in promoting brand & increasing sales
 - **Physical stores:** better brand awareness, benefit-to-cost ratio, customer service BUT higher cost & challenges in managing inventory, display, turnover, profit margins

Research Objective & Questions

- **Research Objective**

- Is omni-channel worth it? How should the future retail strategy be designed?

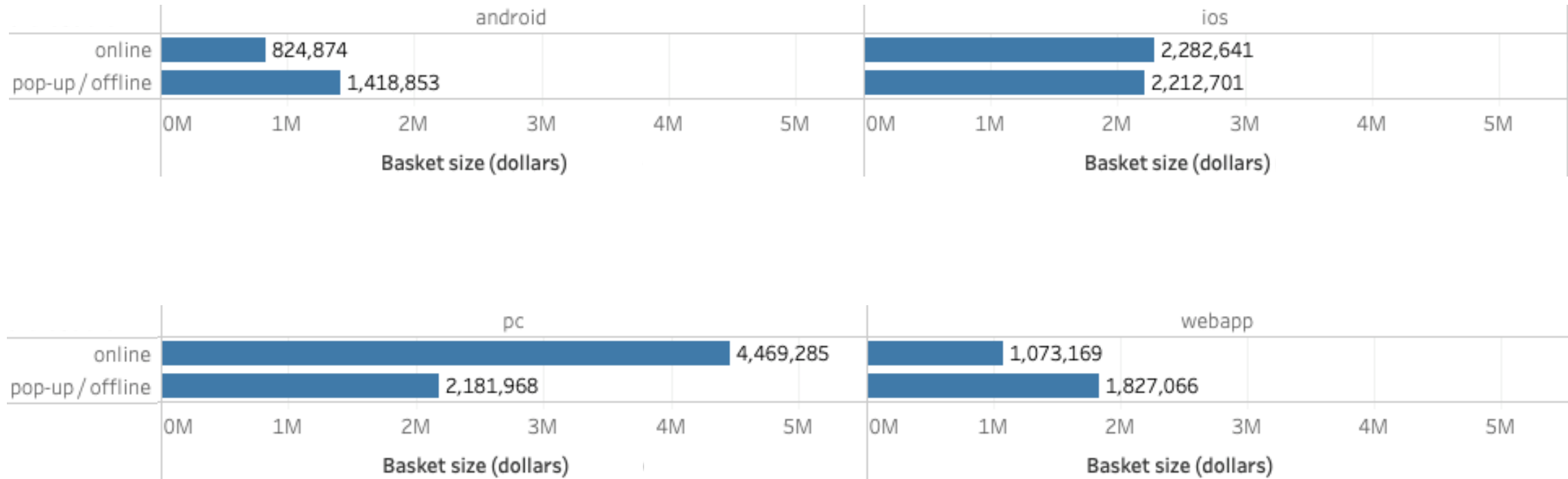
- **Research Questions**

- (1) Are sales and number of customers different among purchase channels and devices?
- (2) How are sales and number of customers changing over the years?
- (3) Are physical stores contributing to market growth collaboratively or cannibalizing online sales?
- (4) Did the purchase behavior of online customers differ from those who shopped offline?
- (5) Are there any associations between purchase channels and devices?

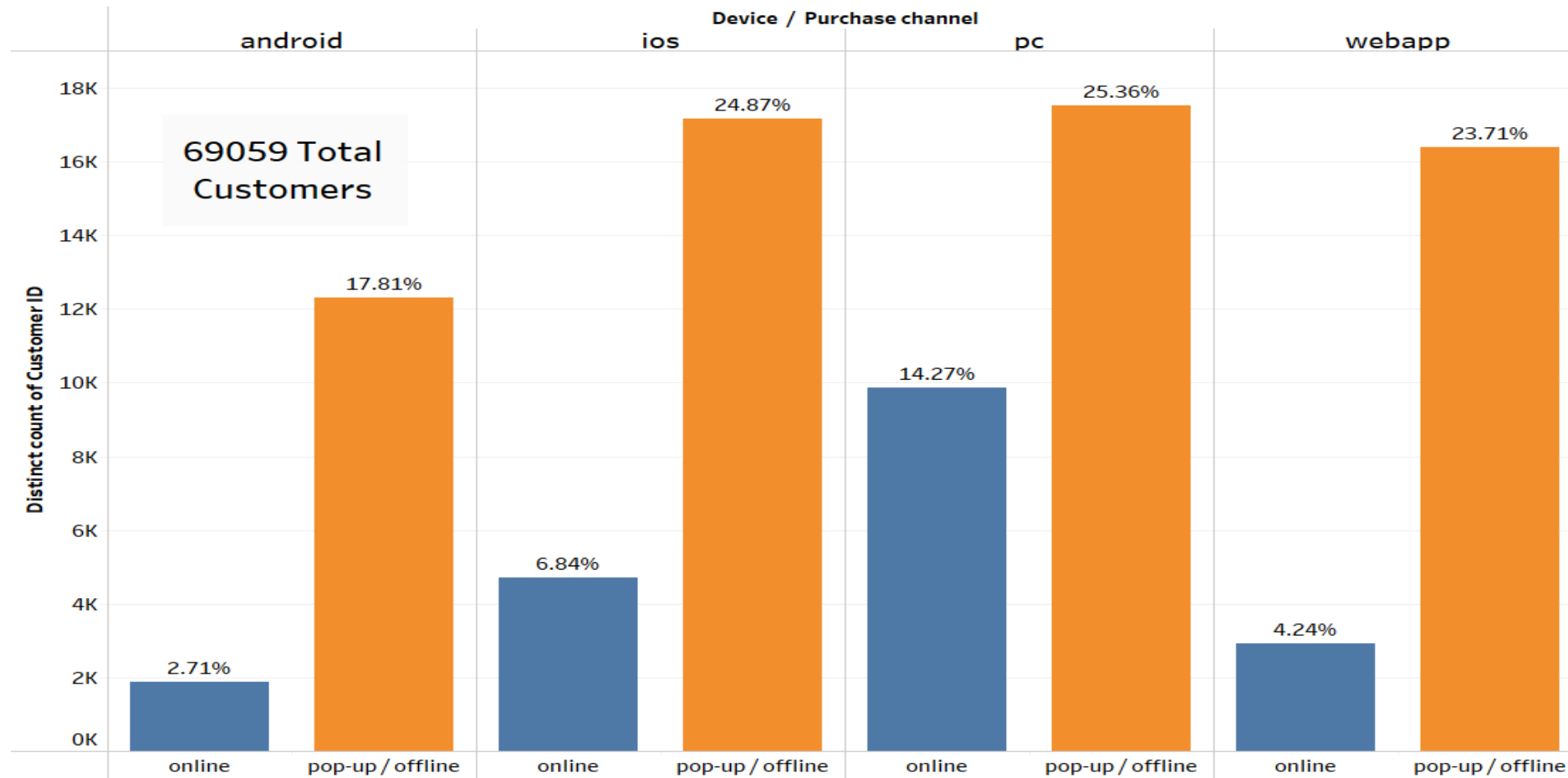
Data and Workflow

- **Data** – 8 variables (columns) w/ 103,315 records (rows)
 - **Transaction ID** (number of transactions), **Customer ID** (number of Customers)
 - **Transaction date** (3 July 2017 – 31 Aug 2019)
 - **Days since first purchase** (return customers)
 - **Basket size in units and dollars** (number of items and dollar amount in a transaction)
 - **Purchase channel** (online, pop-up/offline), **Device** (ios, android, pc, webapp)
- **Newly created variable(s)**
 - Aggregations in terms of purchasing behavior, slicing time periods, sets for grouping
- **Workflow**
 - Visualization & Analysis in Tableau, Power BI, JMP → Results and Discussions → Recommendations

(1.1) Are Sales Different for Purchase Channels and Devices?

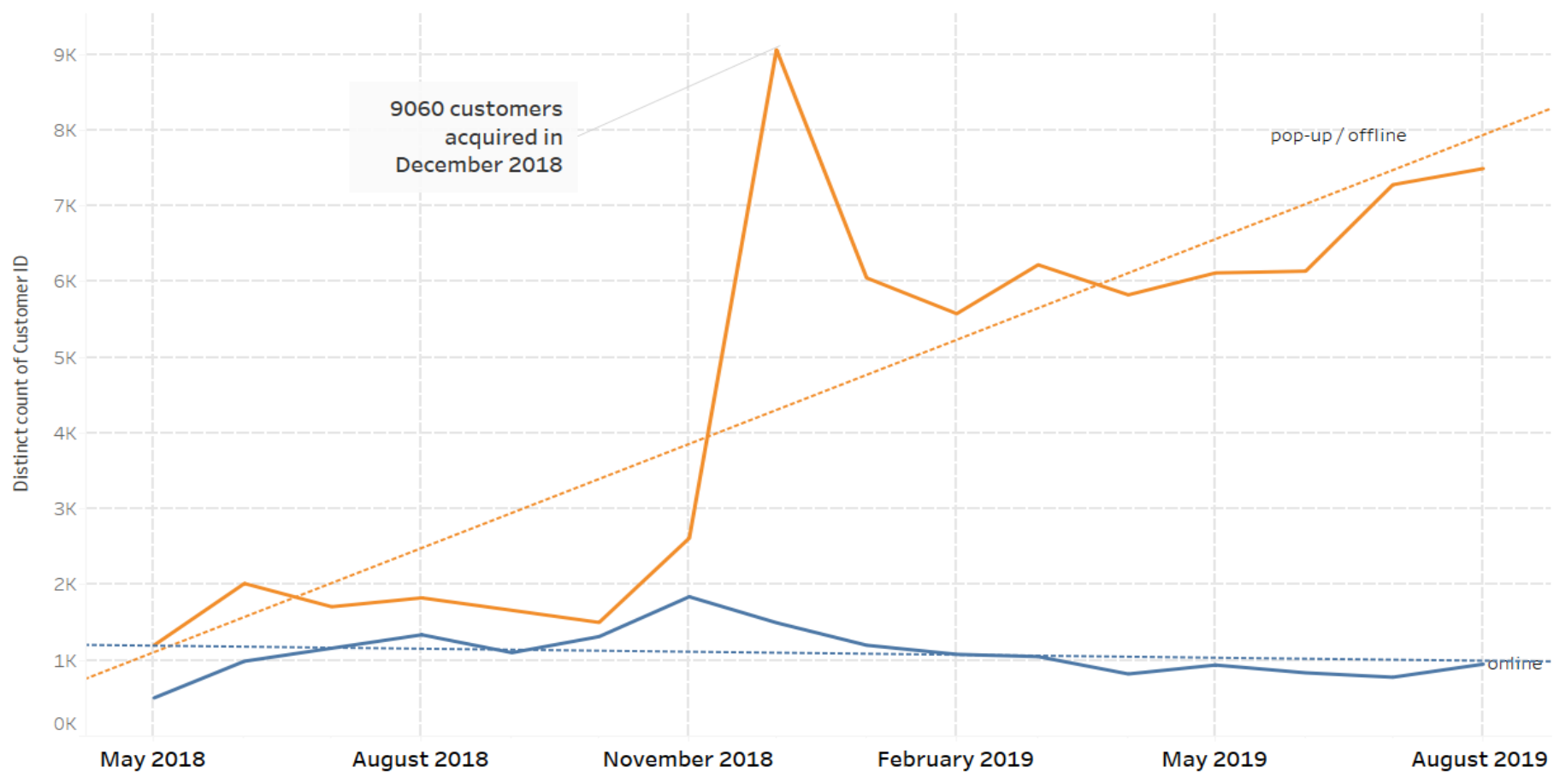


(1.2) Are Customers Different for Purchase Channels and Devices?



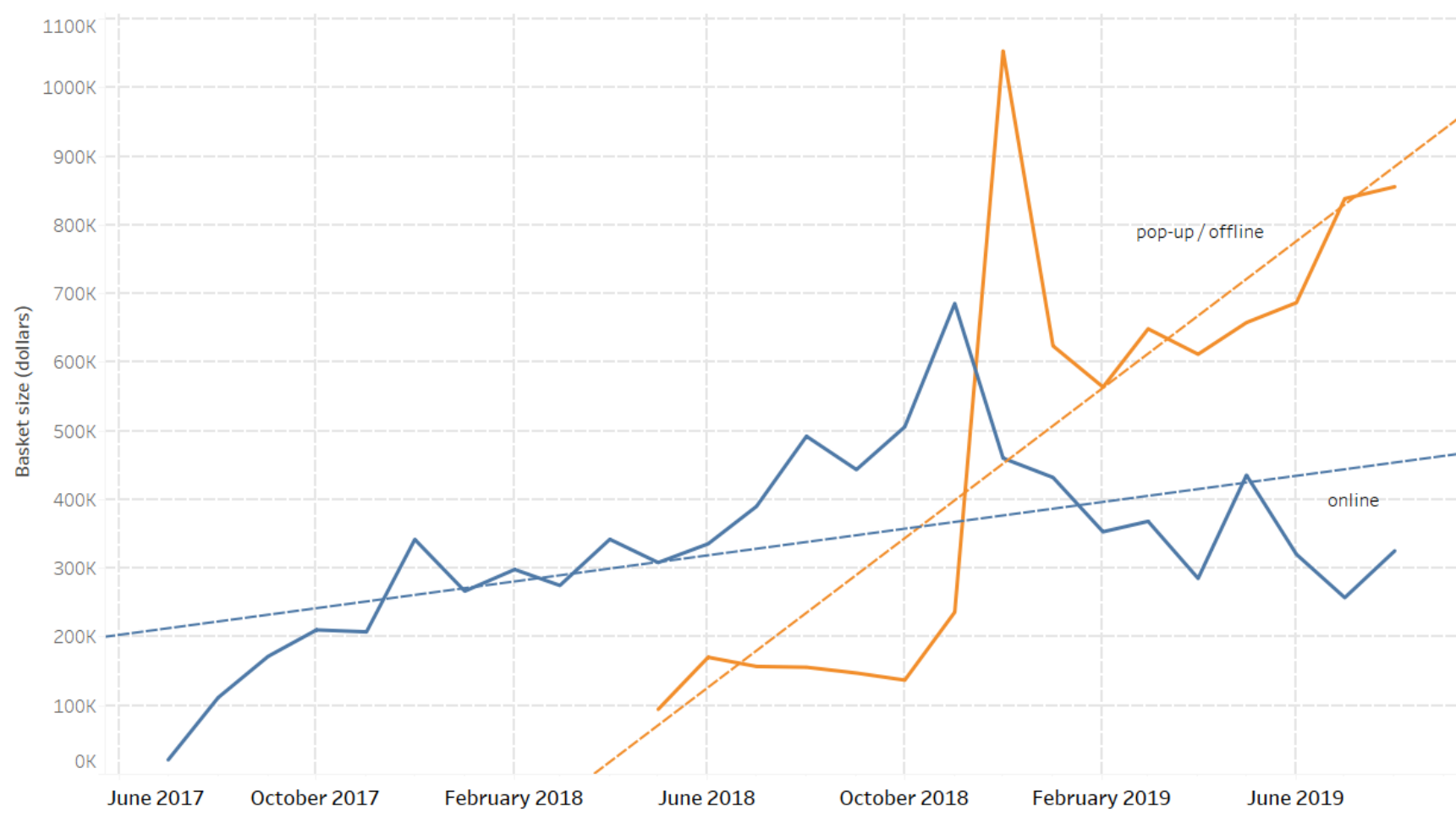
- Since IUIGA started, the offline segment has clearly dominated in terms of the customer base across all devices.

(2.2) How Are Total Customers Changing Over Time?



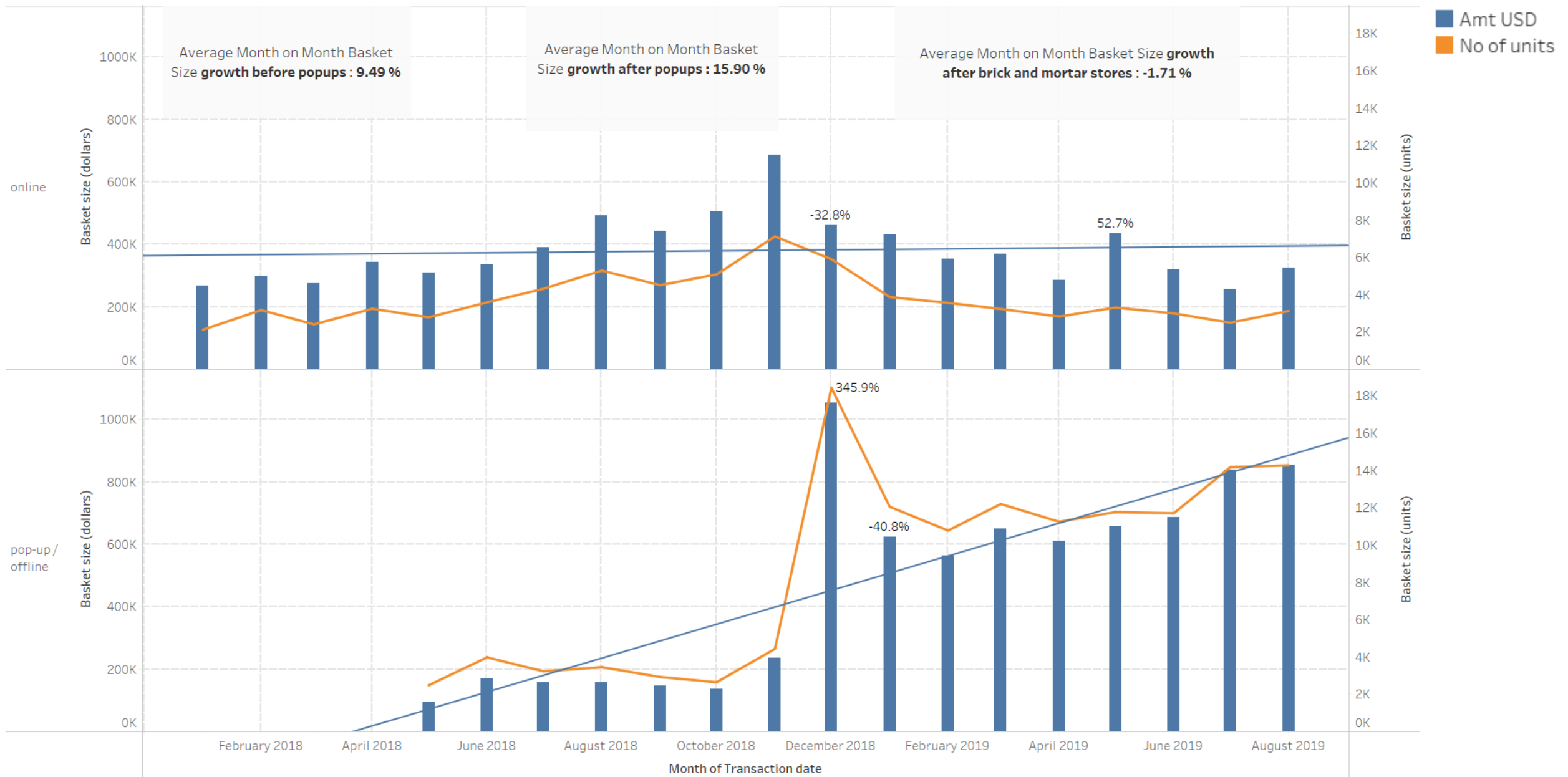
- Pop-ups started : May 2018
- Brick and mortar store started : December 2018

(2.2) How Are Sales Changing Over Time?



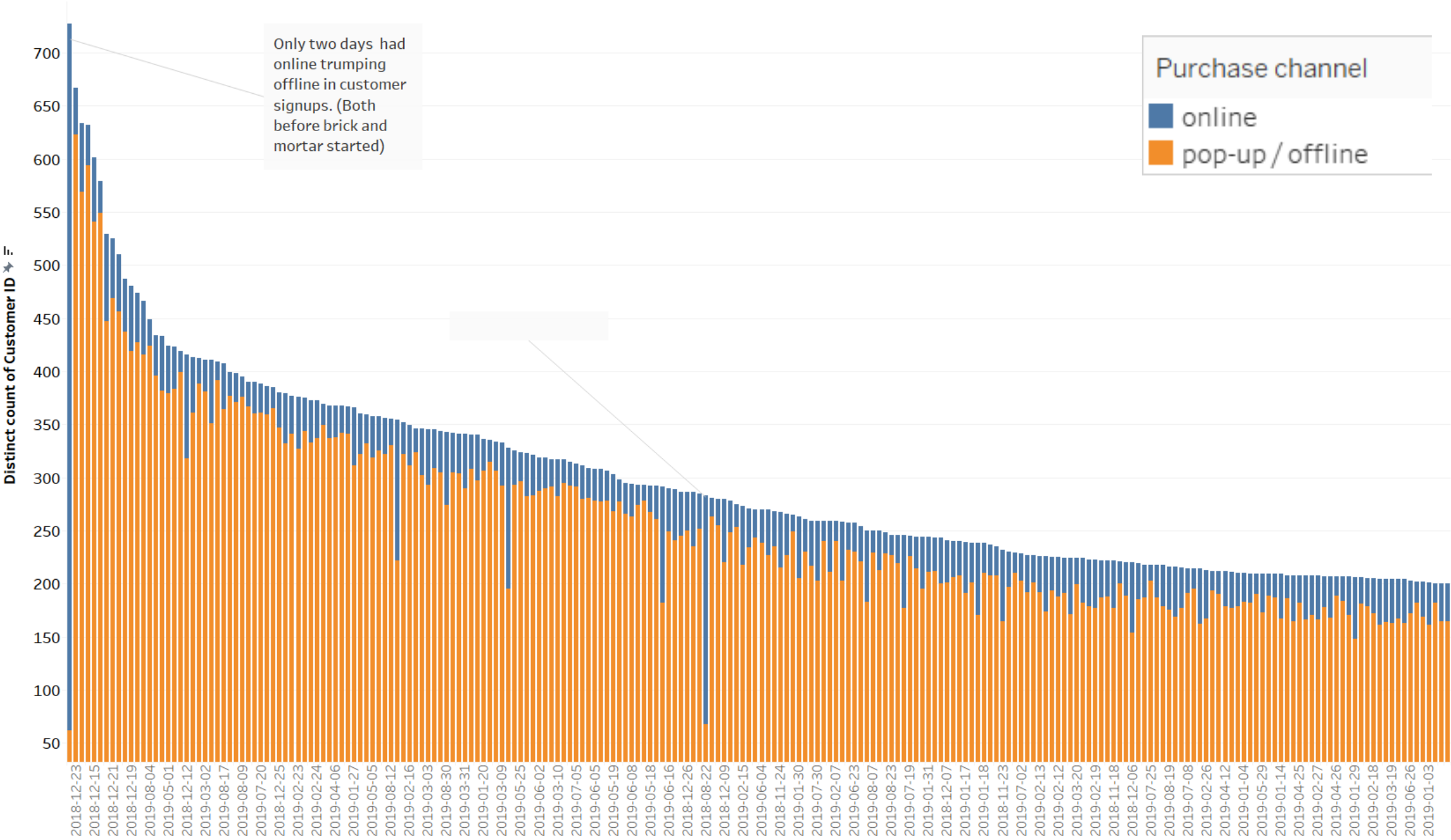
- Overall basket size (USD) : Grows exponentially for physical channel after Brick and mortar store opens in December 2018.

(3) Growth Trends of Online and Offline → Inclusive Or Exclusive?

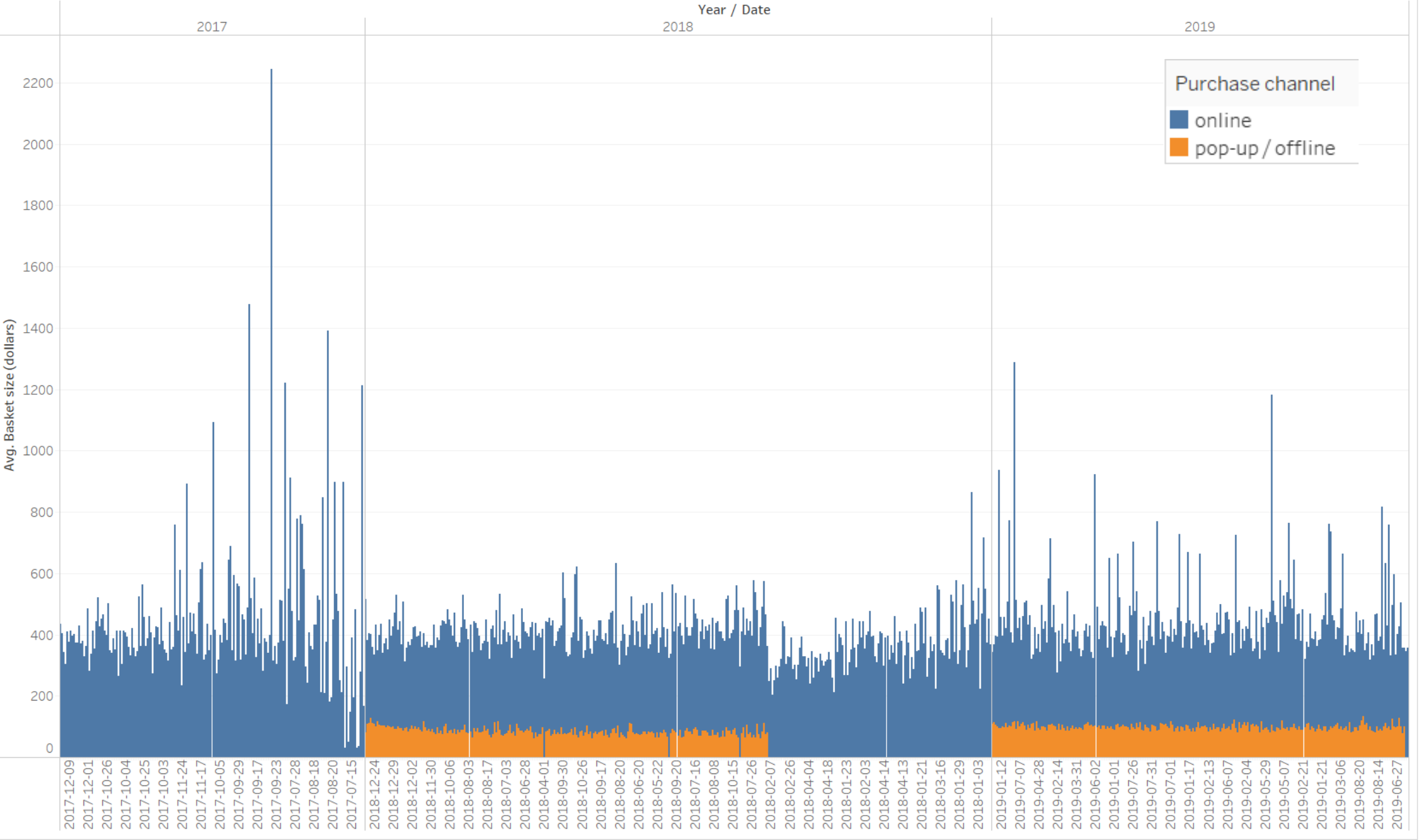


Days with **over 200 customer signups**

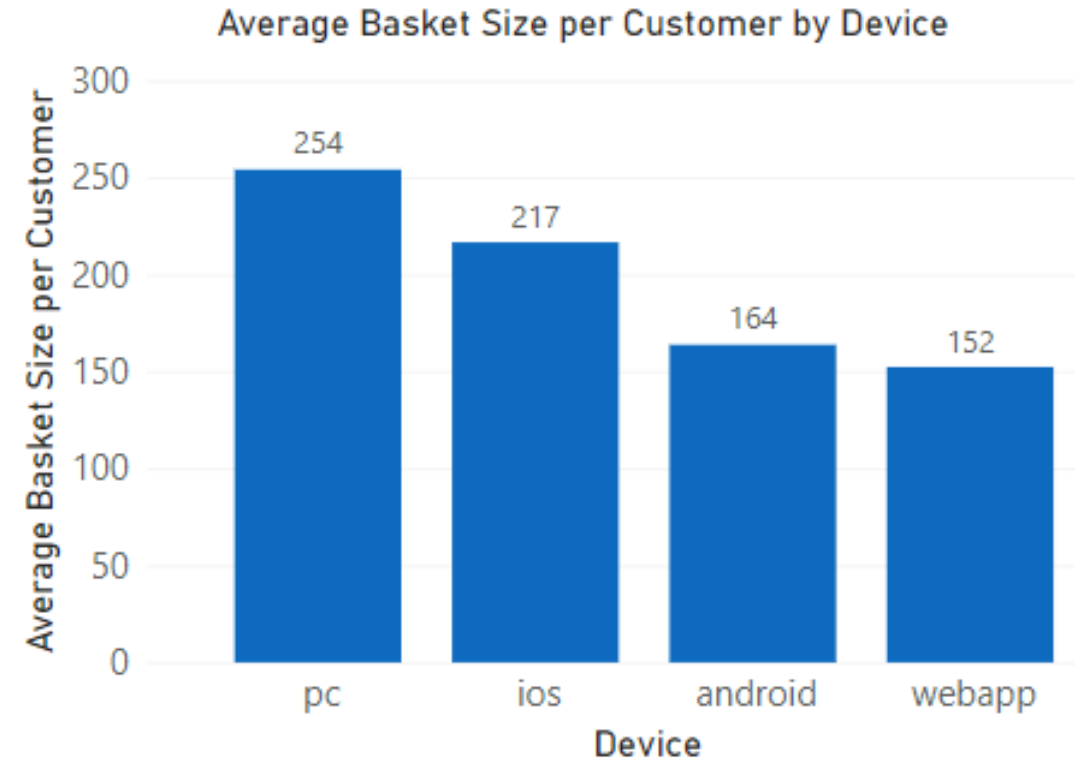
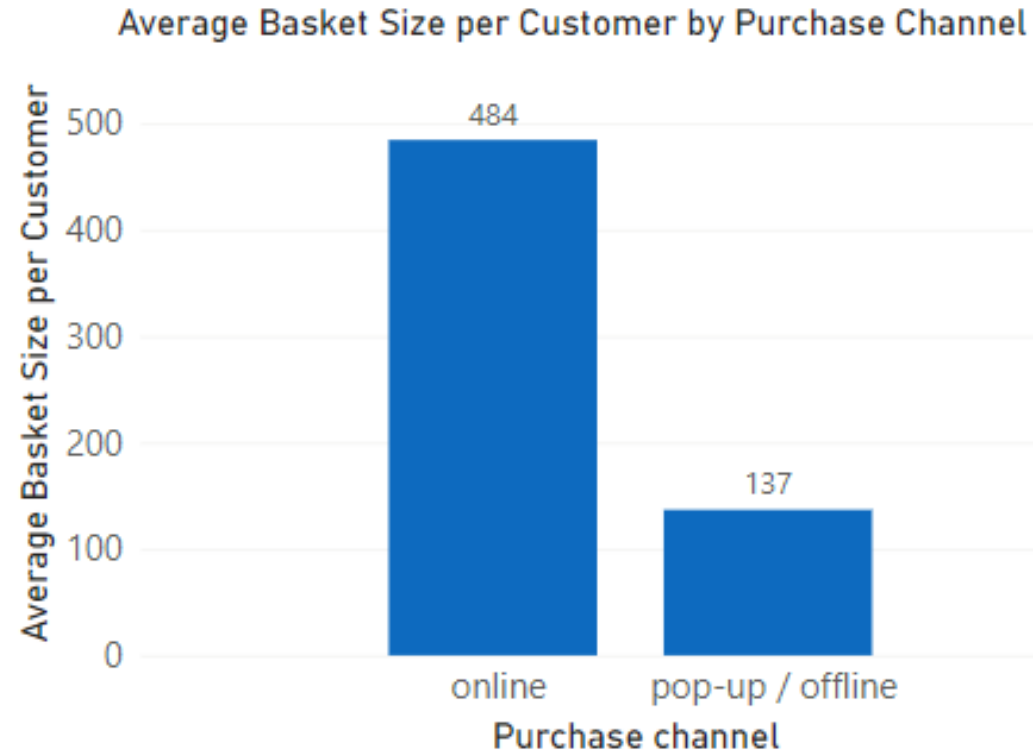
Date



Avg Daywise Basket Size

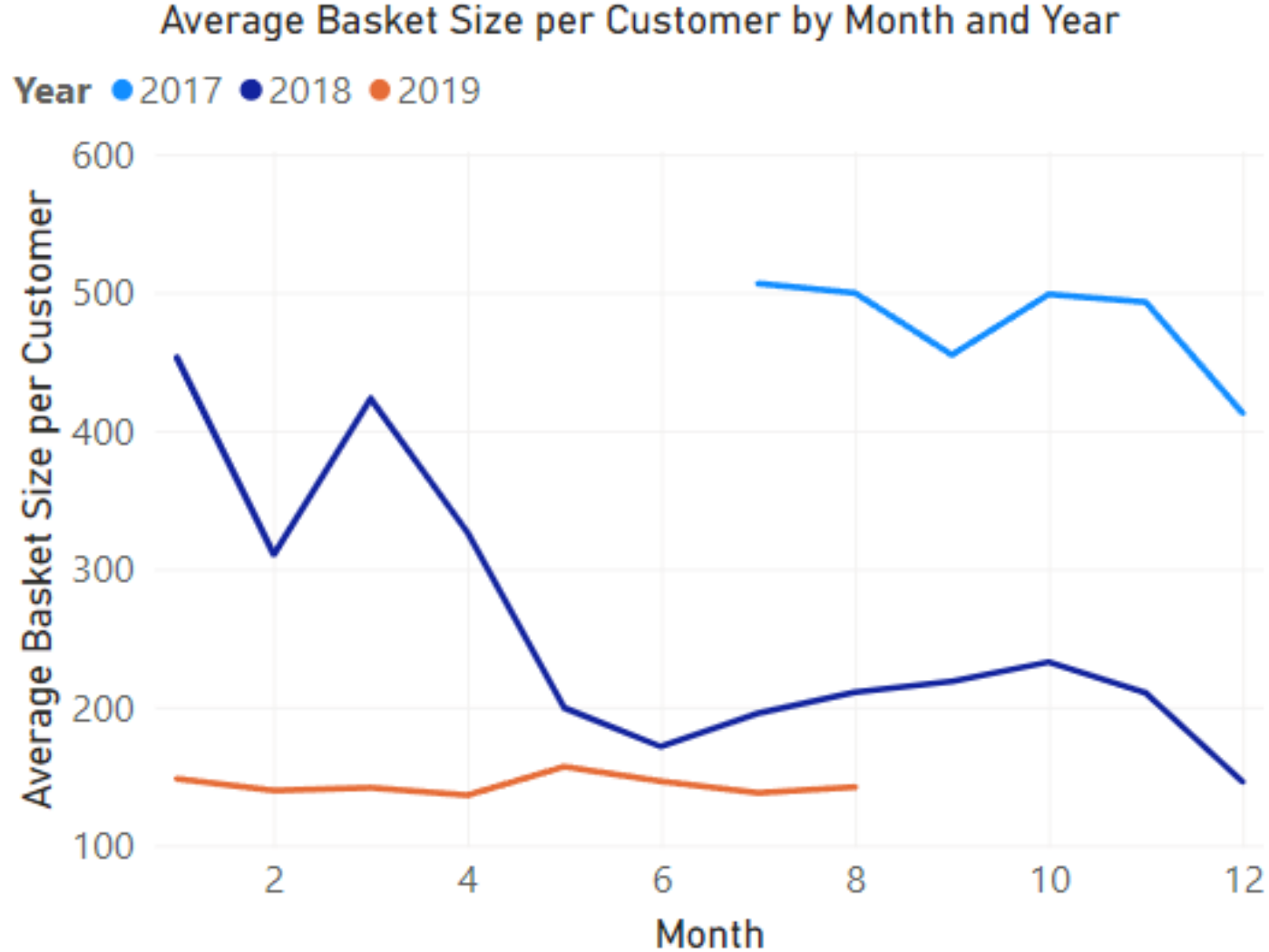


(4) Online vs. Offline Customers – Do Purchasing Behaviors Differ?



- Average basket size (\$) per Customer vs. Channel & Device:
 - By Purchase Channel (left): online (484) is distinctively higher than pop-up/offline (137)
 - By Device (right): highest in PC (254), lowest in webapp (152)

(4) Online vs. Offline Customers – Do Purchasing Behaviors Differ?

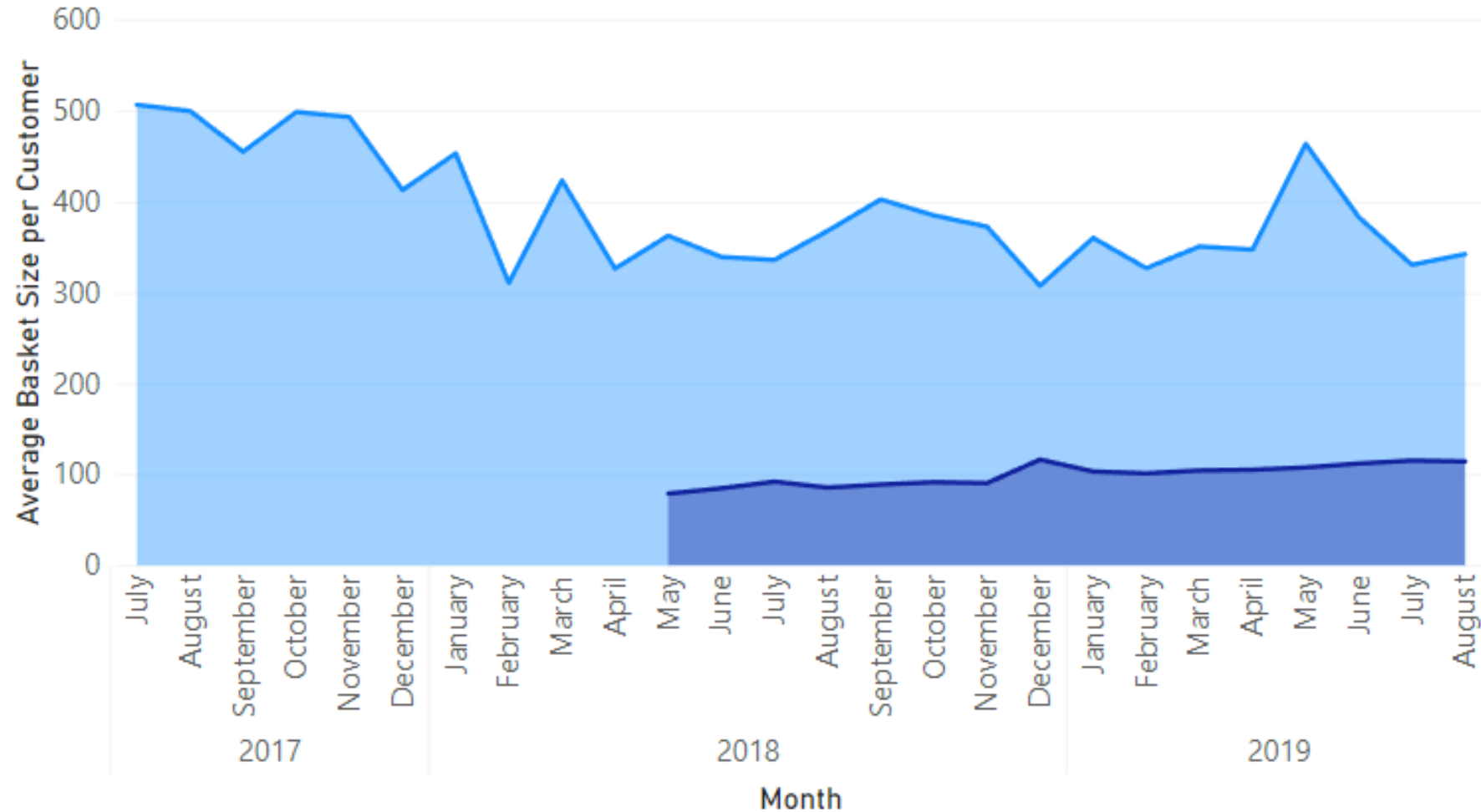


- Average Basket Size (\$) by Time:
 - 2017: flat w/ lowest values
 - 2019: gently declining w/ highest values
 - 2018: declining

(4) Online vs. Offline Customers – Do Purchasing Behaviors Differ?

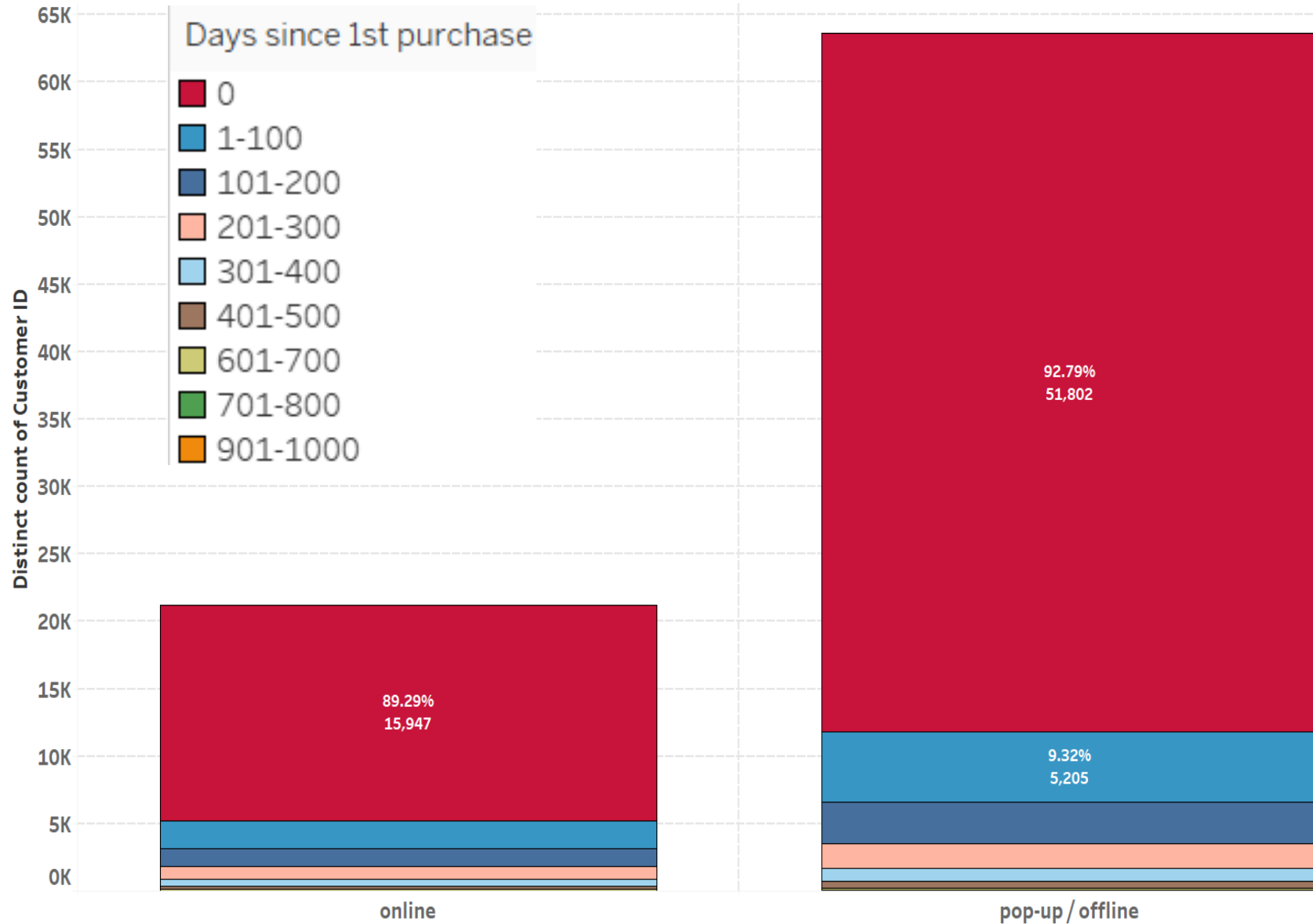
Average Basket Size per Customer by Year, Month and Purchase channel

Purchase channel ● online ● pop-up / offline



- By Purchase Channel:
 - Online w/ higher values at all times
 - Online was declining until May 2018
 - Physical stores opened
 - Since then, online & pop-up/offline were flat

(4) Online vs. Offline Customers – Do Purchasing Behaviors Differ?

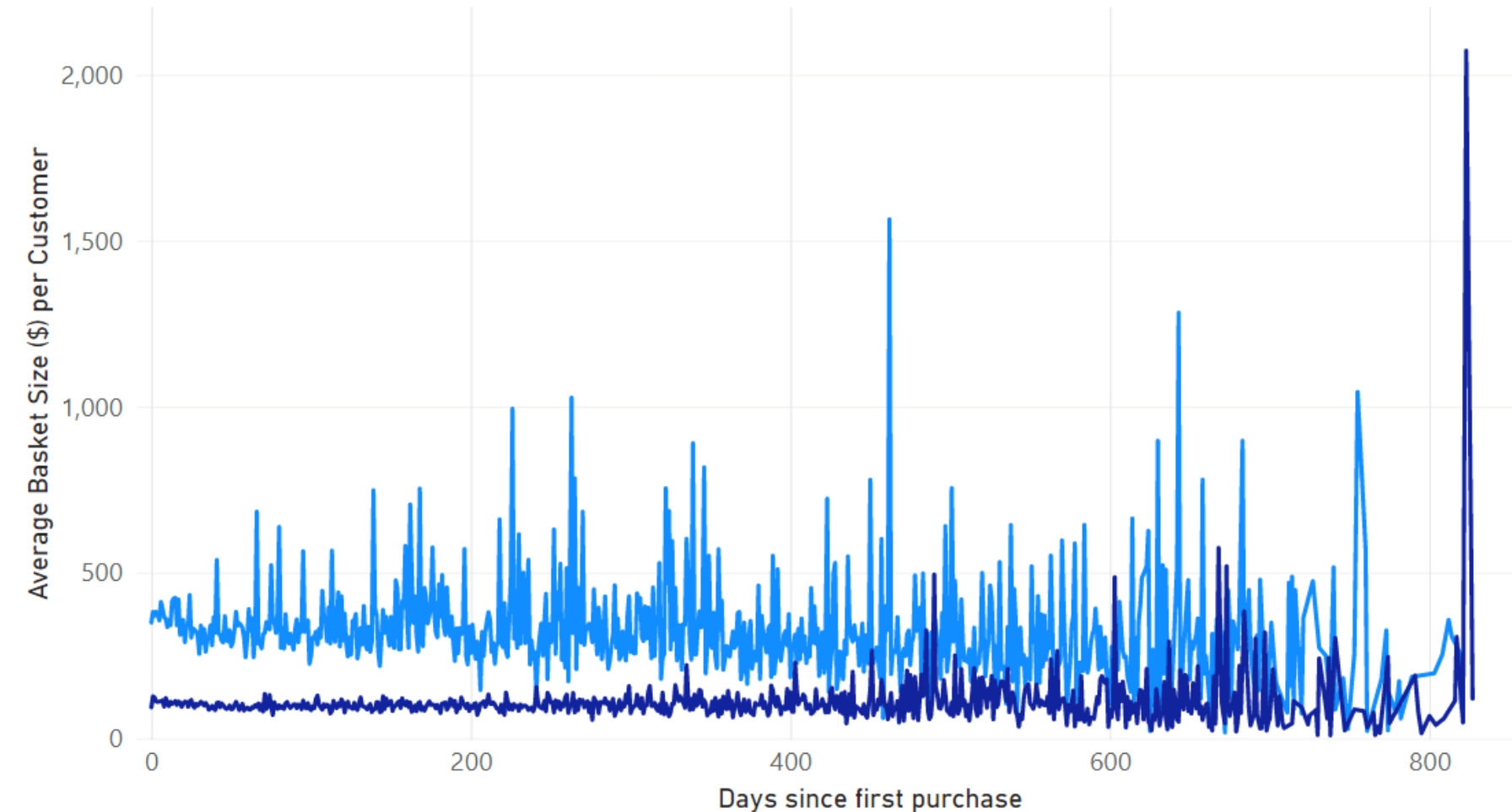


- vs. Count of Customers by Purchase Channel
 - Same patterns in count and % in online vs. pop-up/offline
 - 90% of customers first purchase online or offline then never returned

(4) Online vs. Offline Customers – Do Purchasing Behaviors Differ?

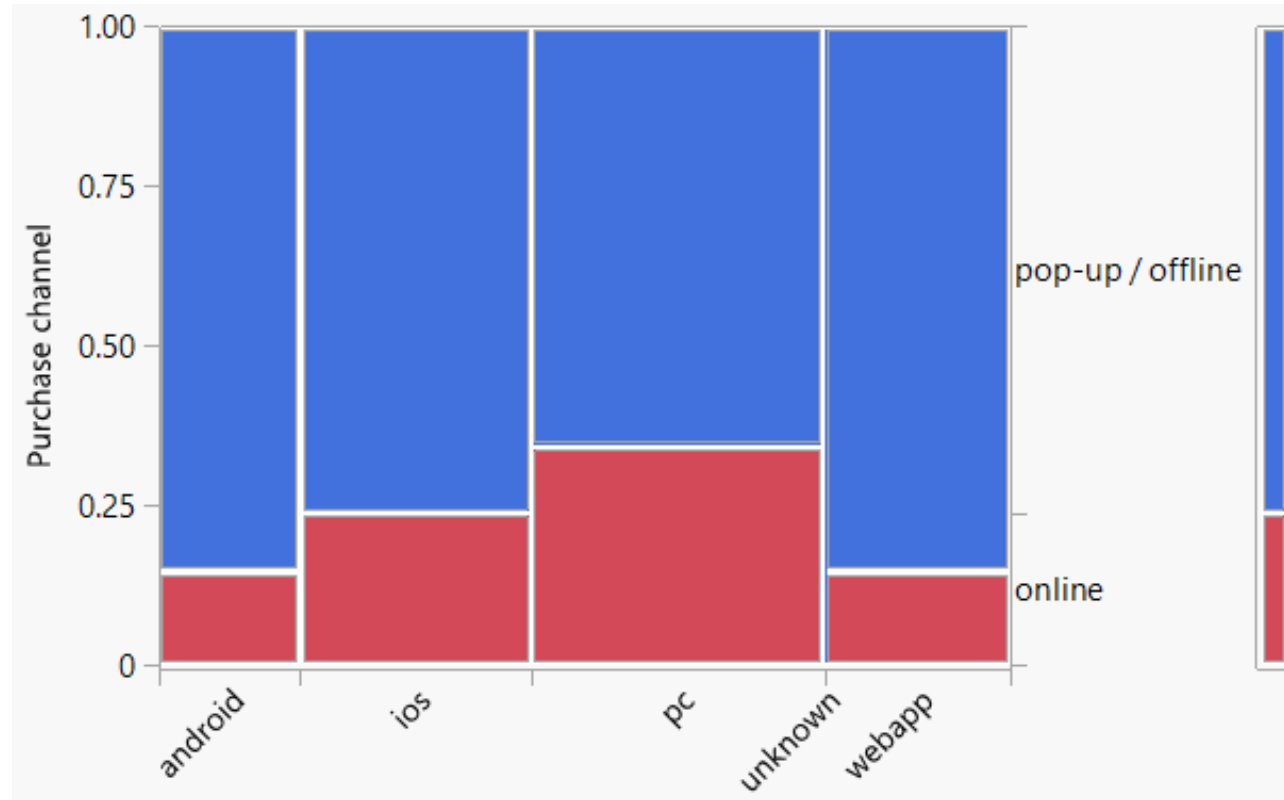
Average Basket Size (\$) per Customer by Days since first purchase and Purchase channel

Purchase channel ● online ● pop-up / offline



- vs. Average Basket Size (\$)
per Customer
 - Online > pop-up/offline
w/ drastic fluctuations
 - Online: overall
decreasing trend; pop-
up/offline: flat

(5) Any Associations Between Purchase Channels and Devices?



Tests			
N	DF	-LogLike	RSquare (U)
103315	4	2019.6109	0.0355
Test	ChiSquare	Prob>ChiSq	
Likelihood Ratio	4039.222	<.0001*	
Pearson	3990.584	<.0001*	

Any Associations Between Purchase Channels and Devices?

Device	Purchase channel		
	online	pop-up / offline	
android	14.61%	85.39%	17,210
ios	23.95%	76.05%	28,084
pc	34.33%	65.67%	35,480
unknown		100.00%	2
webapp	14.68%	85.32%	22,539
Grand Total	23.94%	76.06%	103,315

Device	Transaction date / Purchase channel				
	2017 online	2018		2019	
		online	pop-up / offline	online	pop-up / offline
android	2.86%	17.88%	16.25%	16.02%	46.99%
ios	4.32%	27.59%	12.64%	18.86%	36.58%
pc	12.13%	40.82%	8.28%	14.25%	24.53%
unknown			35.16%		64.84%
webapp		15.50%	23.09%	21.51%	39.91%
Grand To..	6.54%	29.50%	13.22%	17.06%	33.69%

Take-aways & Recommendations

- **Take-aways**

- Omni-channel is here to stay: offline channel brings customers, whereas online channel brings more total/average revenue.
- For customer acquisition and sales, offline does affect online, but not so much to cannibalize online
- Purchasing behaviors of online and offline customers differ

- **Recommendations**

- Future retail strategy be designed by combining online and physical stores
- More research for improving offline product portfolio, increase weekend customer acquisition and sales
- Synchronize offline and online inventory to enhance customer experience

Thank you!

Questions?

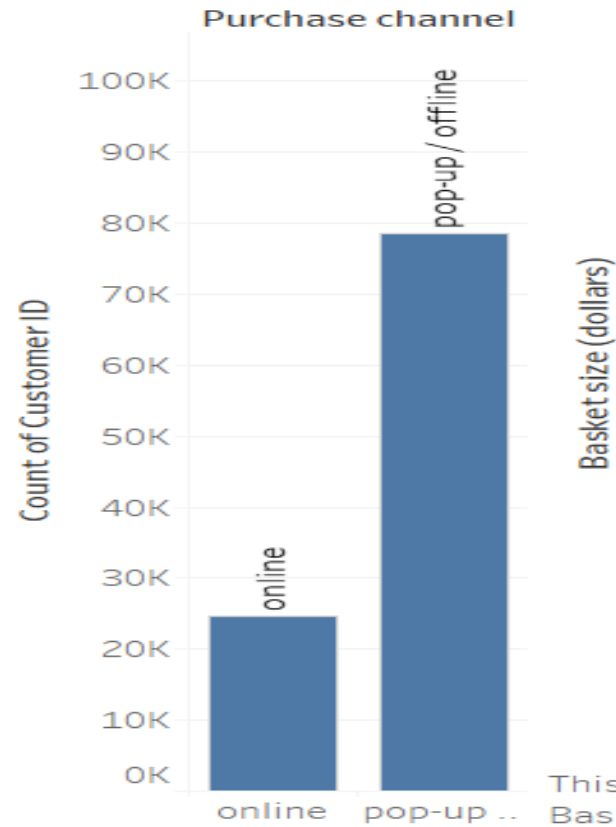
Comments?

BACKUP SLIDES

Count of Customer ID per Purchase Channel VS Basket Size(\$) per Purchase Channel(Online)

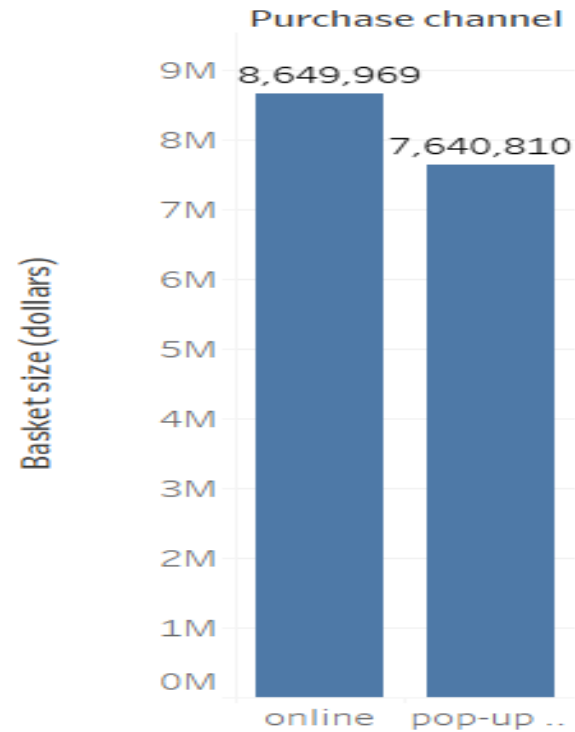
Count of Customer ID per Device VS Basket Size(\$) per Devices

Sheet 1



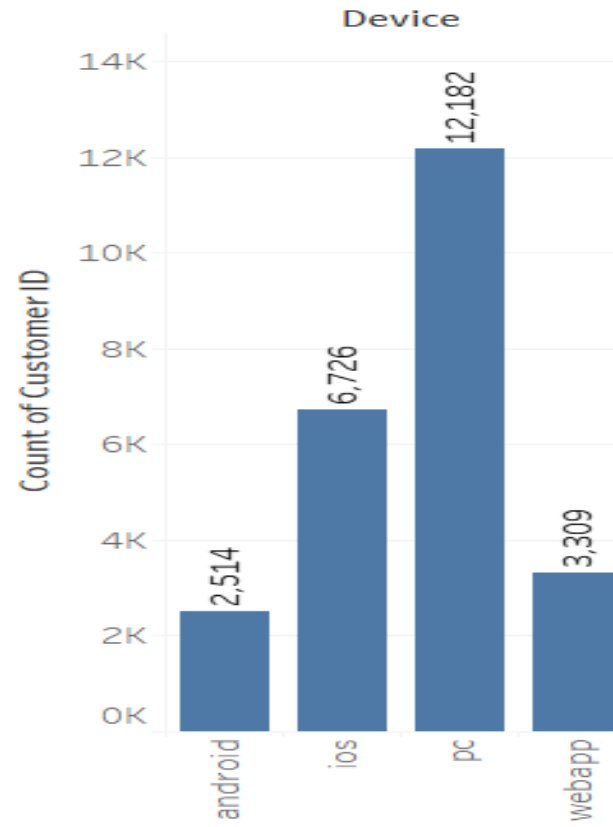
This chart shows a significant difference between the number of online customers and pop-up/offline customers against the total number of customers i.e most of the customers are pop-up/offline.

Sheet 1(b)



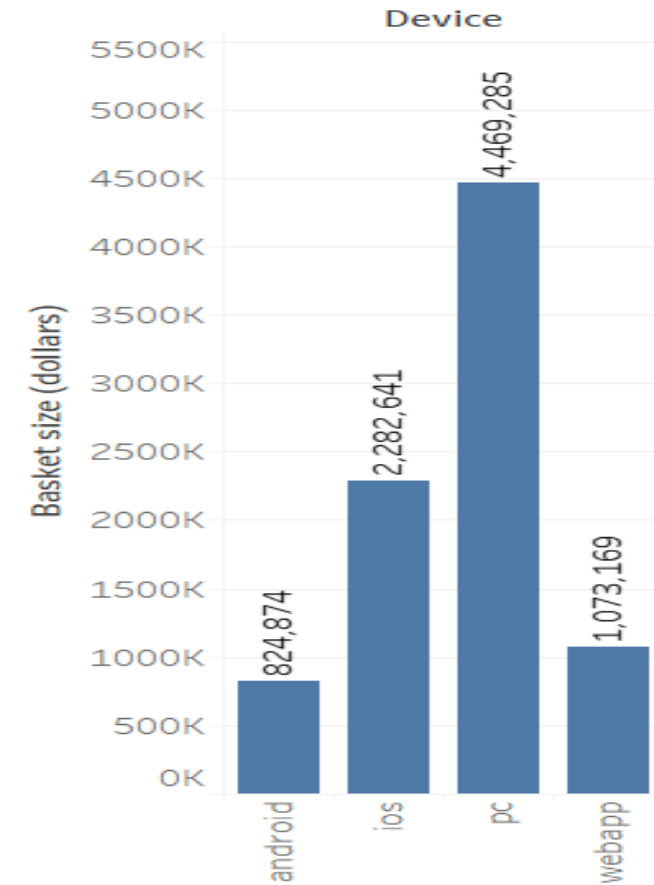
This chart shows the sum of Basket size(dollars) against the Purchase channel. Although sheet 1 shows that online customers are fewer compared to pop-up/offline customers, sheet 1(b) shows that the online purchase channel has the highest number of purchases(i.e basket size in dollars).

Sheet 2



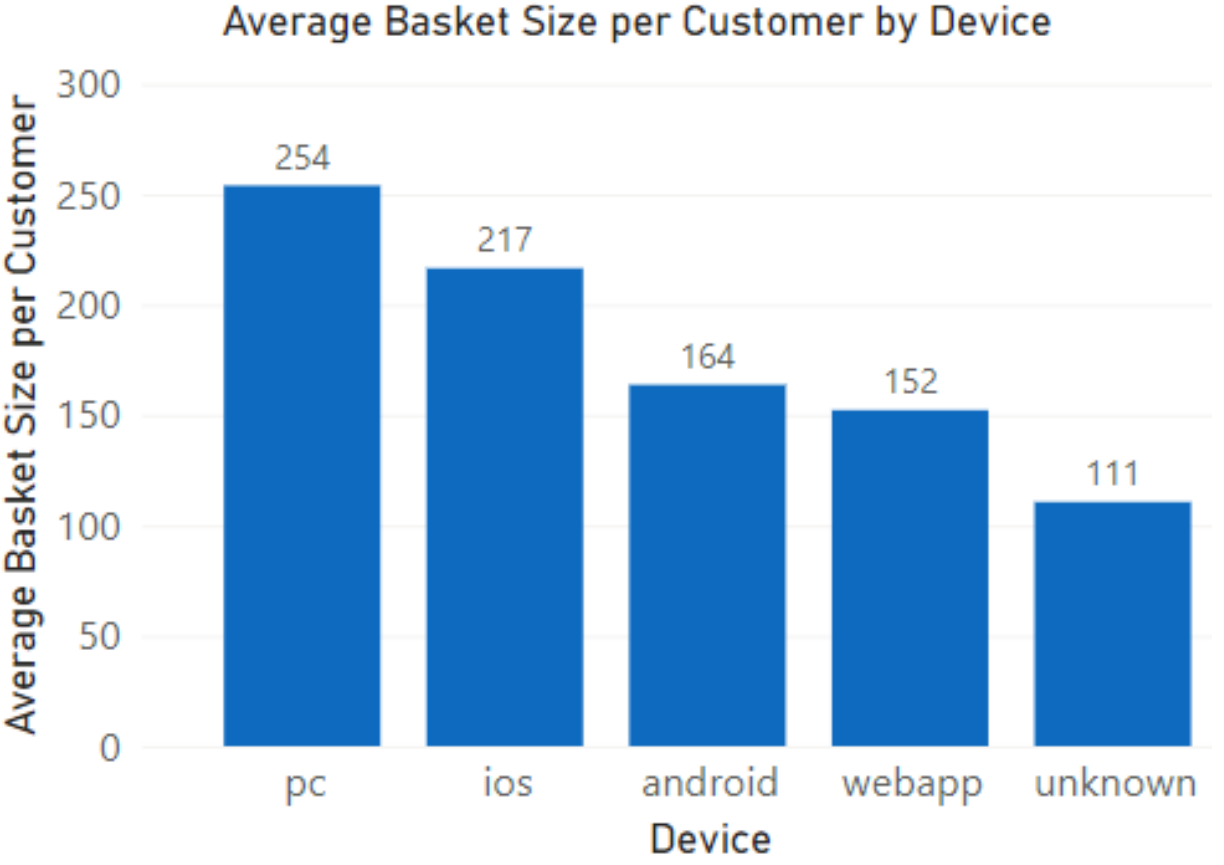
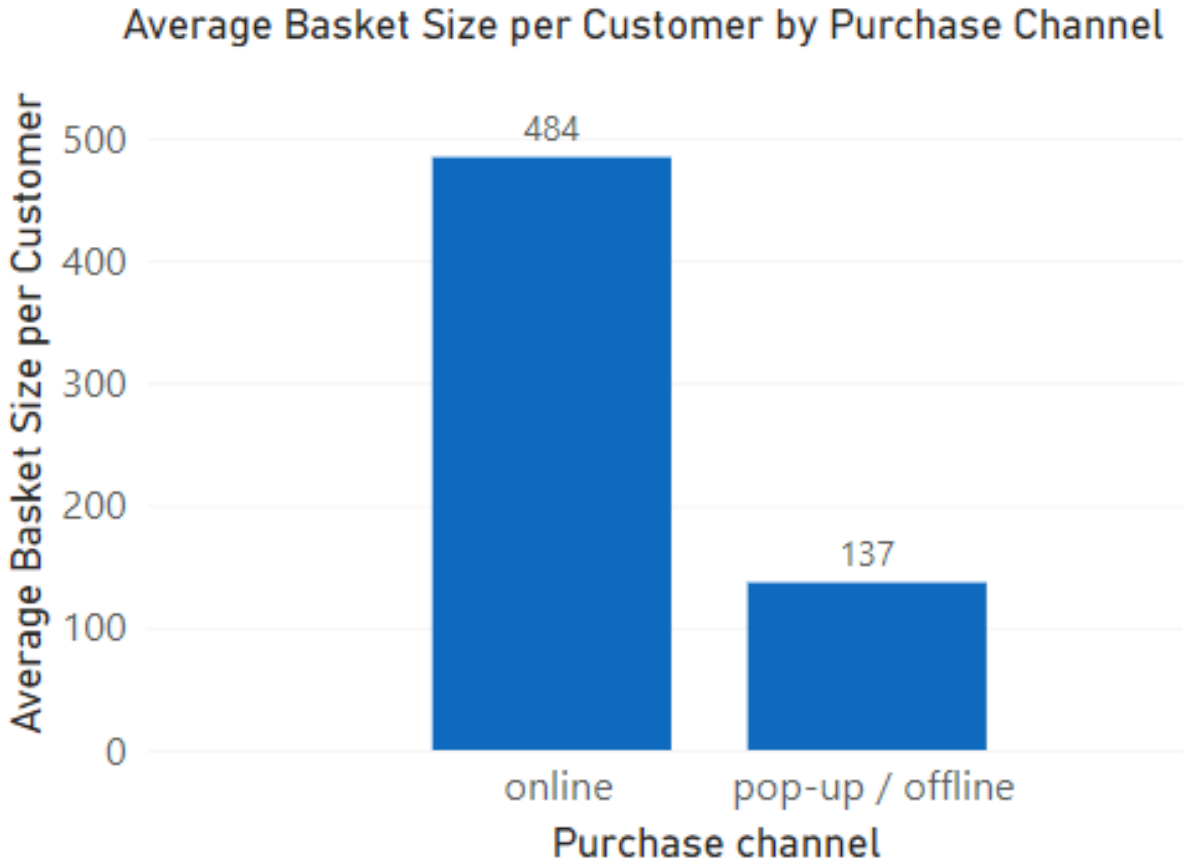
This chart shows the count of Customer ID for each Device. PC devices has the highest number of online customers compared to other devices. The data was filtered on Purchase channel to show only Online customers.

Sheet 2(b)

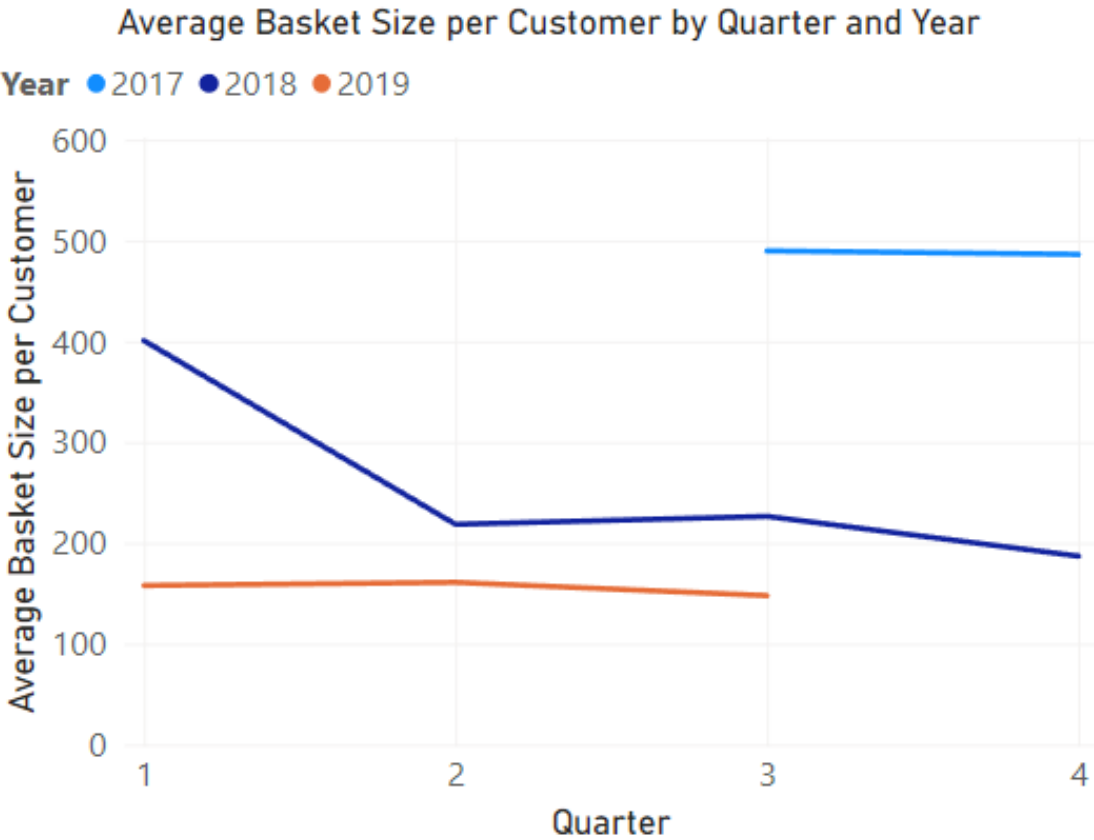
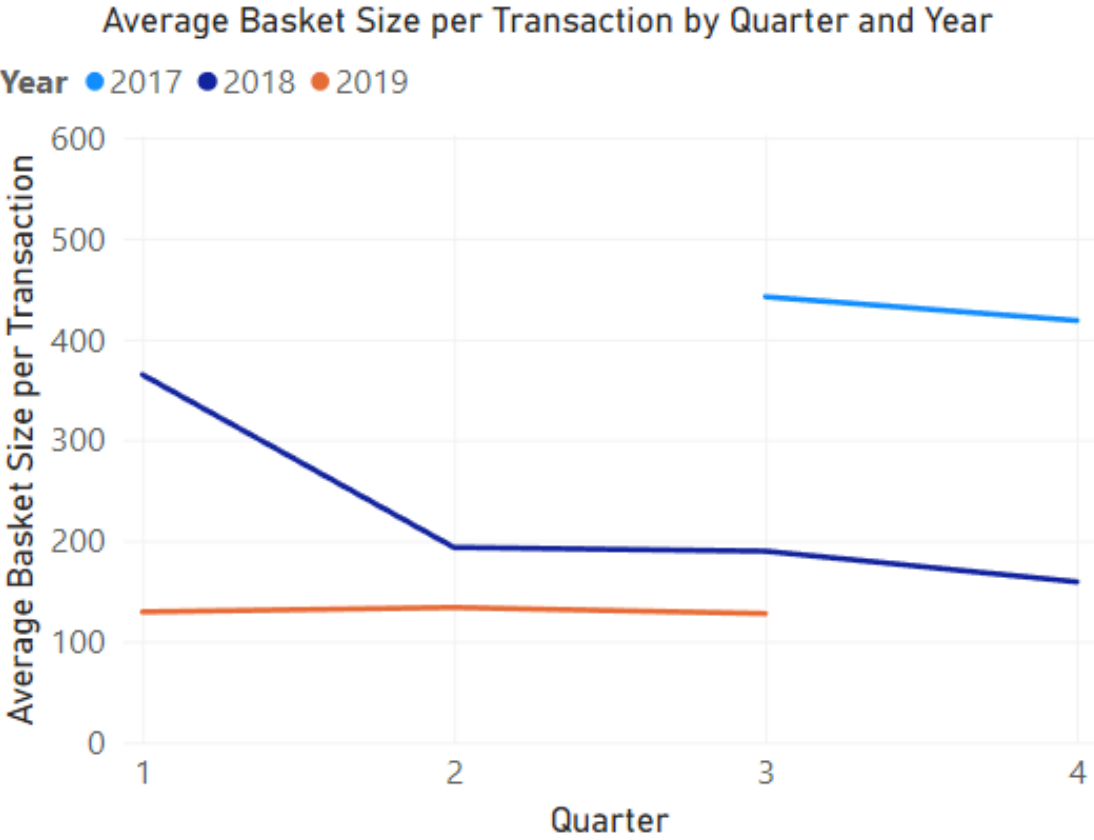


This chart shows that PC devices has the highest number of sales (i.e basket size in dollars). The data was filtered on Purchase channel to show only Online customers.

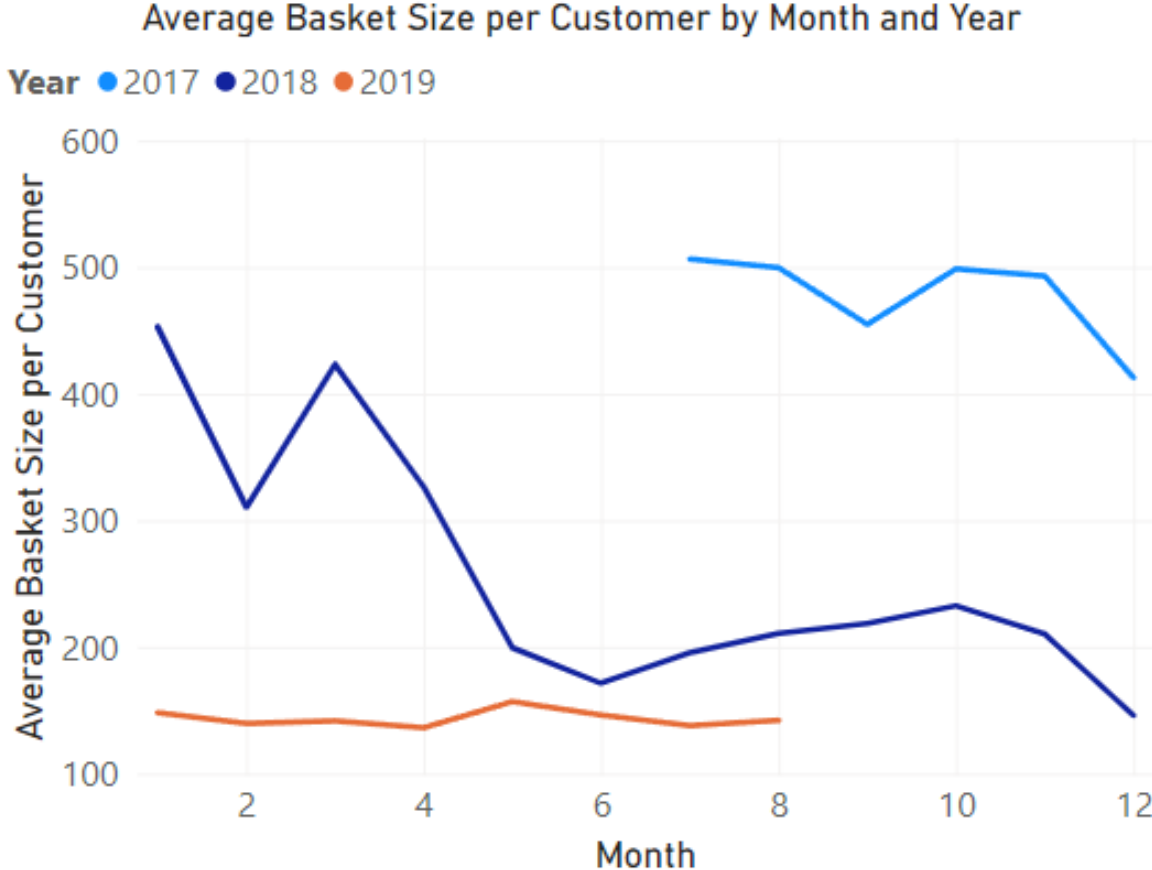
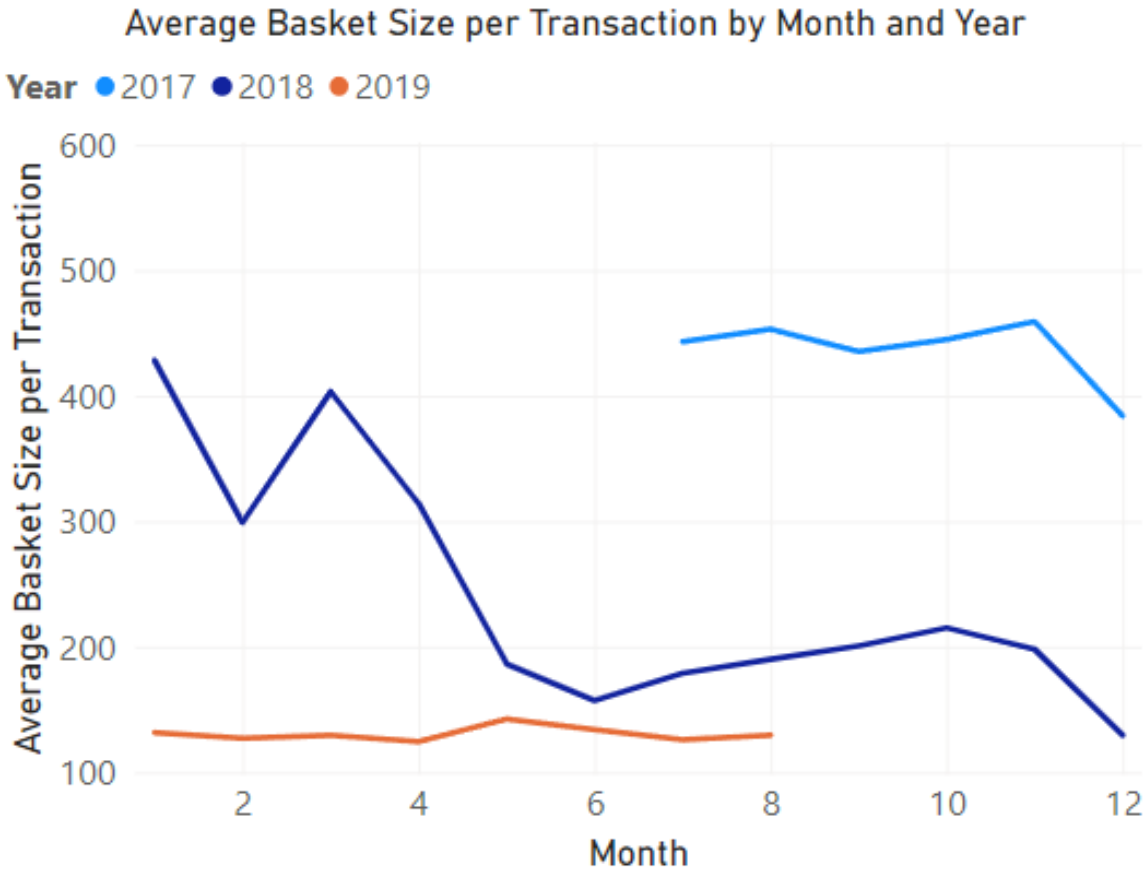
Average Basket Size (\$) per Customer vs. Channel & Device



Average Basket Size (\$) per Transaction / Customer Over Time



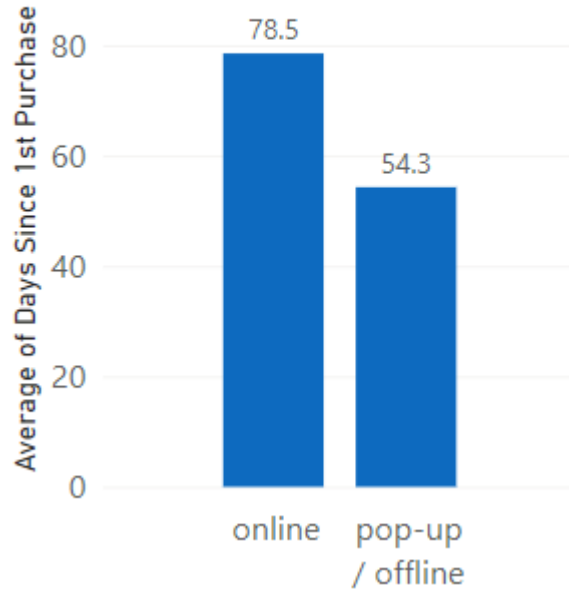
Average Basket Size (\$) per Transaction / Customer Over Time



- Per Transaction (left): overall flat in 2017 & 2019 (incomplete data); declining trend in 2018
- Per Customer (left): similar trends and data range, except for 2017 w/ higher range of values

Online vs. Offline Customers – Do Purchasing Behaviors Differ?

Average of Days since first purchase
by Purchase channel



- Average Days Since 1st Purchase (left): online > pop-up/offline

- vs. Average Basket Size (\$)
per Transaction (right):

- Online > pop-up/offline w/ drastic fluctuations
- Online: overall decreasing trend;
pop-up/offline: flat

Average Basket Size (\$) per Customer by Days since first purchase and Purchase channel

Purchase channel ● online ● pop-up / offline

