



NATURE VS NURTURE

Unpacking Player Spending in F2P Games



Tammy Levy
VP OF INSIGHTS & ANALYTICS



WHO AM I?

Great question...

VP of Insights & Analytics

Climbing hobbyist

Gaming industry experience

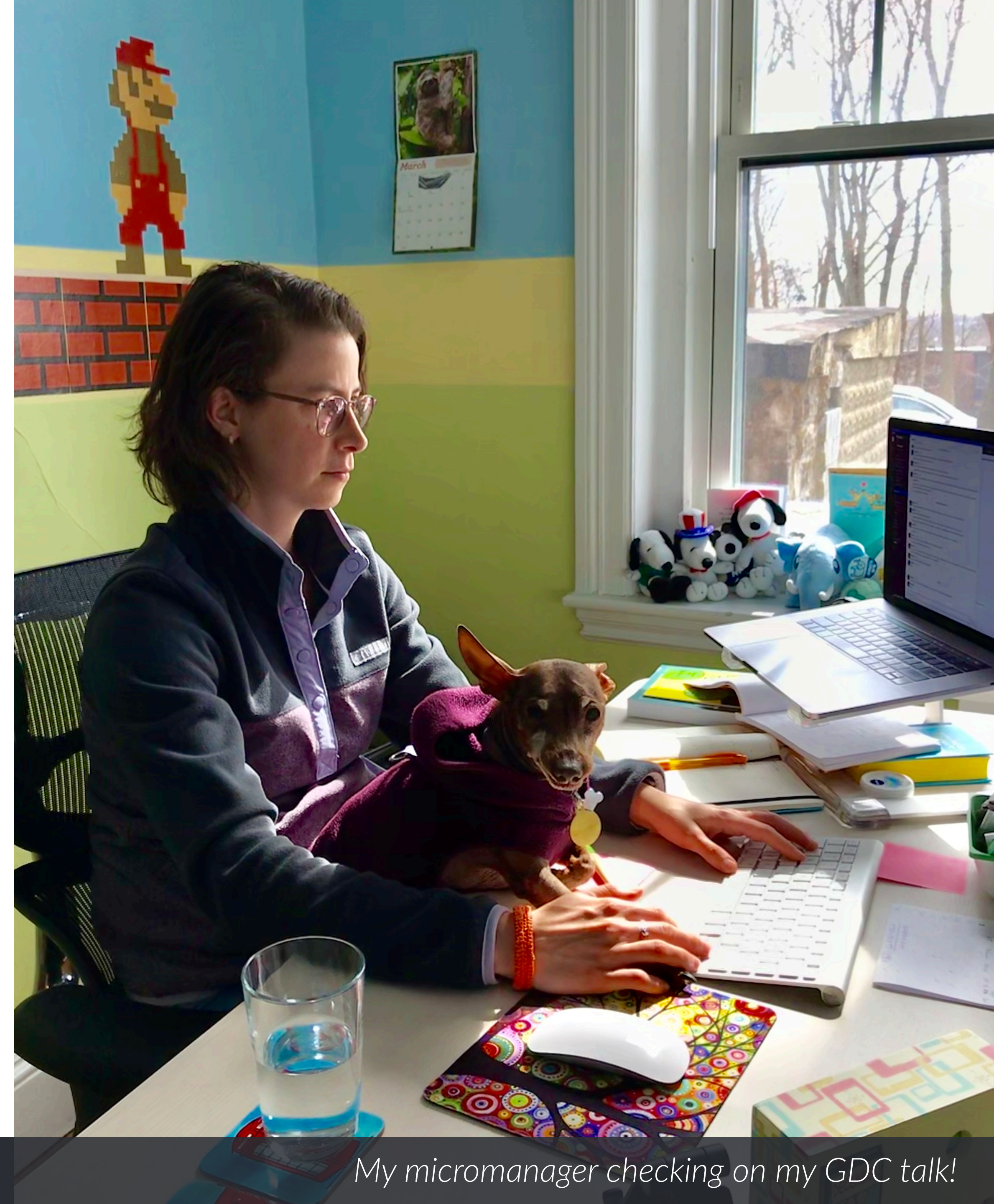
EA's pogo

Zynga

Kongregate

5 years

60+ published games



My micromanager checking on my GDC talk!



KONGREGATE



~200M

Mobile Installs since 2013



>10M

Monthly Active Users



60

Games Published



120k

Games on Kongregate.com

SOME GAMES WE'VE PUBLISHED

Mobile F2P: 6 years, 60 games



WHAT CAN YOU EXPECT TODAY?

Another great question...



Agenda

Monetization data & insights
In-game examples

lots of data!



Goal

Not a checklist of best-practices...
Framework to think about monetization

Inspiration to develop what works for **YOUR** game



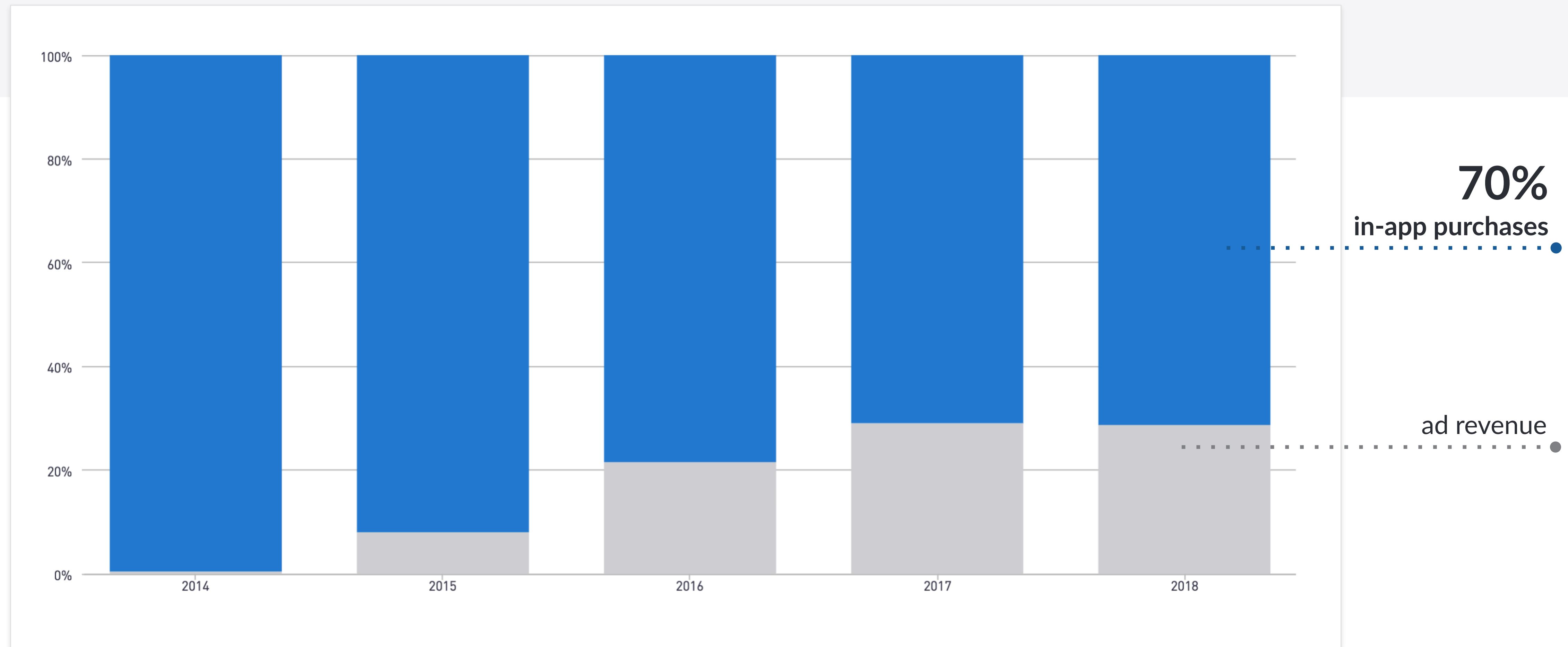




FREE-TO-PLAY MONETIZATION

IN-APP PURCHASES

Are still a big deal!





*“MOST PLAYERS WILL NEVER SPEND
IN YOUR GAME.”*

An illustration of three stylized figures in the background, each holding a mobile device. The figure on the left wears a cap and holds a tablet. The middle figure holds a smartphone. The figure on the right holds a tablet. Several dollar coins are floating around them. The text is overlaid in the center.

*“MOST REVENUE WILL COME FROM A (VERY) SMALL
PERCENTAGE OF PLAYERS.”*



CAN ANYONE BECOME A **SPENDER**?

% BUYERS BY GENRE

% of players who spend, mobile games

Midcore



Idle / Incremental



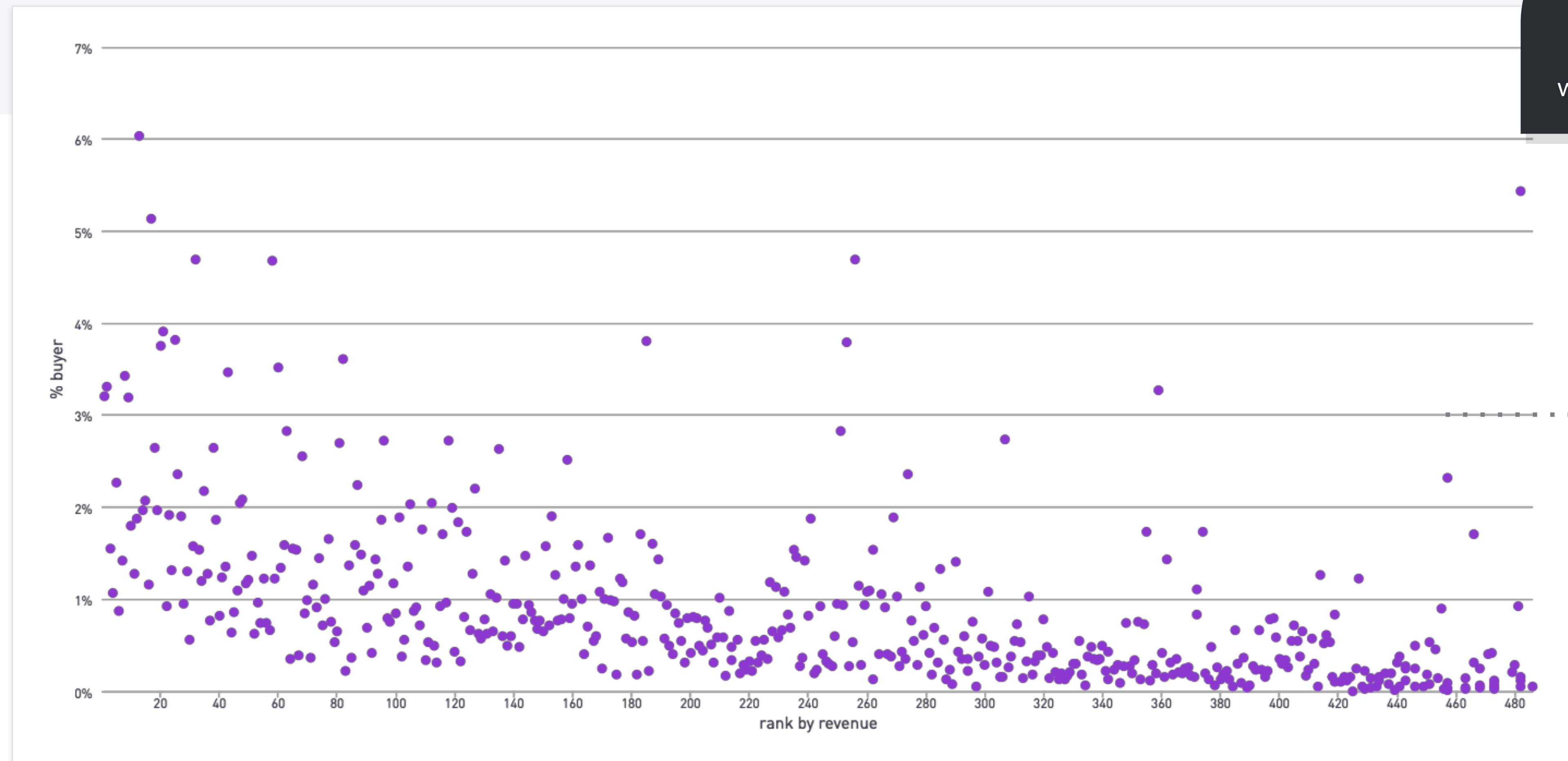
Casual / Hyper Casual



5%
max for most
mobile games

% BUYERS ON KONG.COM

Top 500 games since 2014



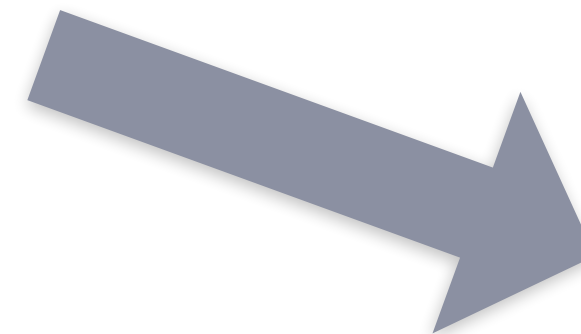
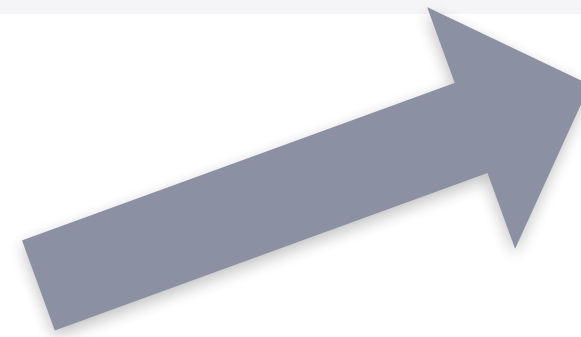
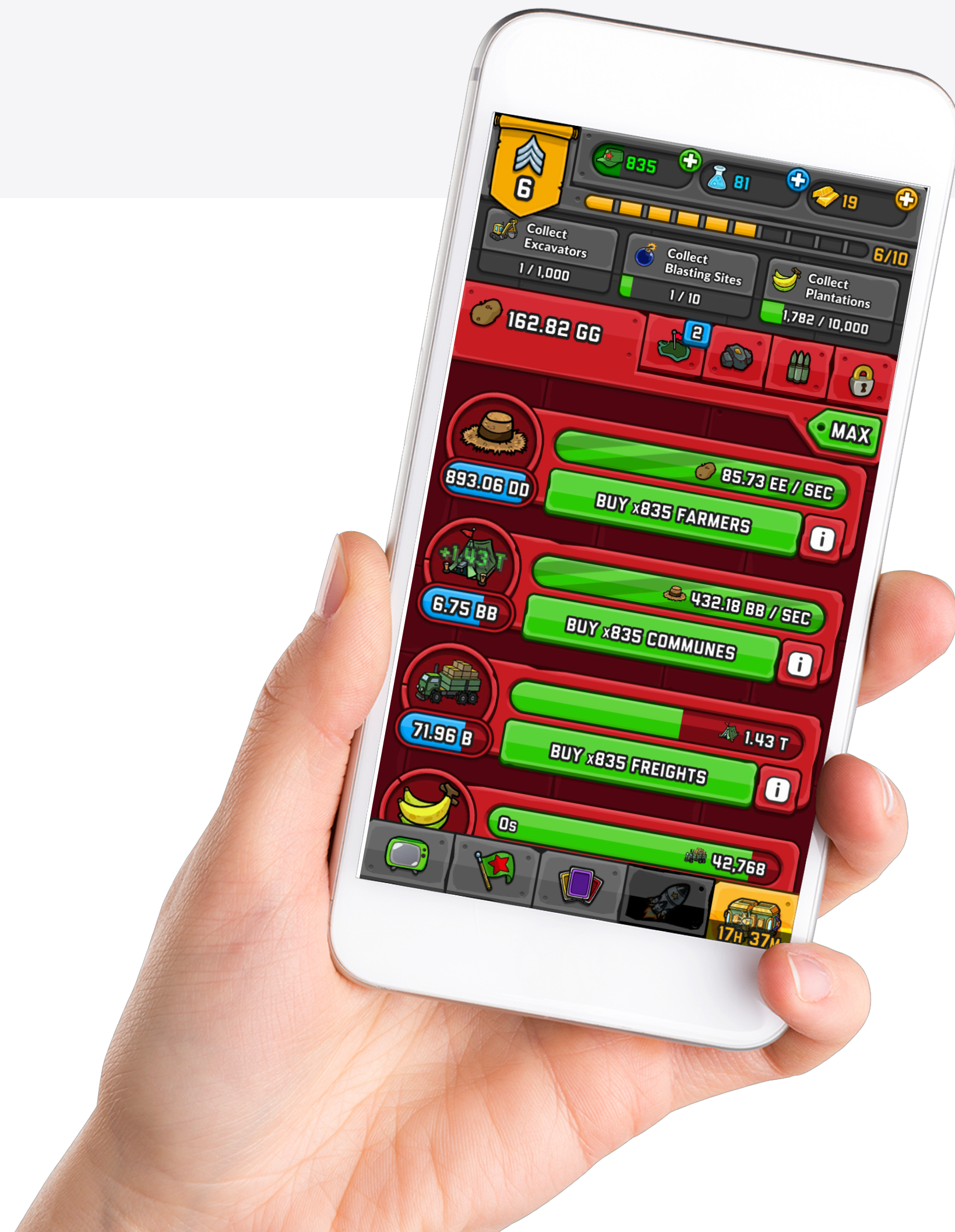
6%

max for
web games

1% - 3%
for most games

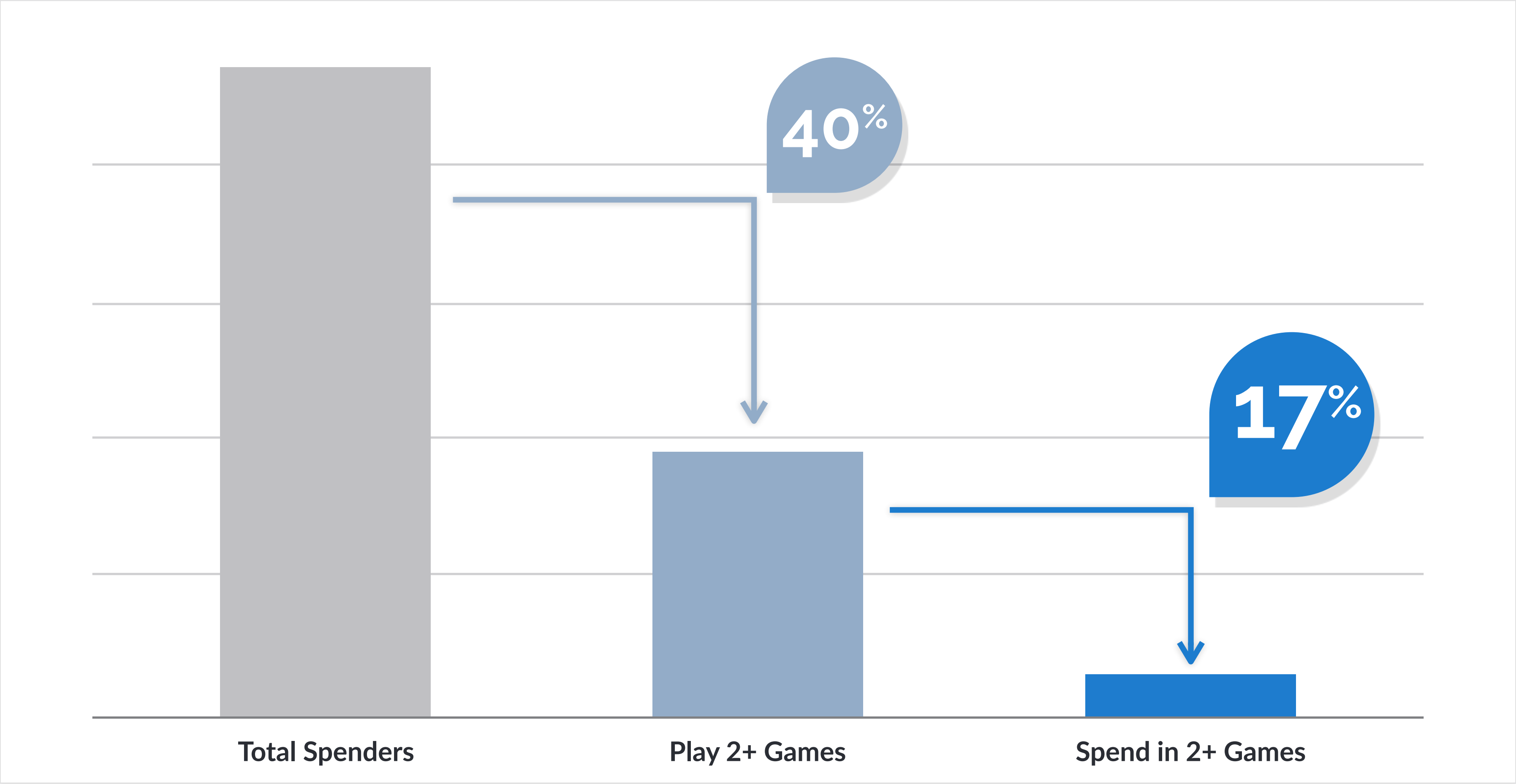
ARE SOME PLAYERS **MORE LIKELY TO SPEND?**

Is a spender in one game more likely to spend in another?



SPENDING ACROSS GAMES


Players who have spent in one game **are more likely to spend in another game**



SPENDING PLAYERS MATTER

Some players are more likely to spend

Narrow band of spenders (% buyers)

Please, don't call them whales! 

GROW LTV! ARPU!

Successful F2P games focus on
Player's Lifetime Value
or Average Revenue Per User

But...



KPI LETTER SOUP

Which KPIs should you focus on? What do they mean?

conversion rate

% repeat spenders

ARPPDAU

avg rev per daily active user

ARPT

avg rev per transaction

retention

ARPU

average revenue per user

num of transactions

lifetime sessions

DAU

ARPPU

avg revenue per paying user

% buyers

MAU



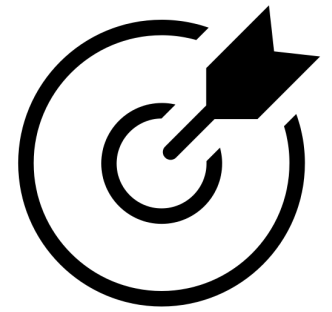
KPI

Key Performance Indicator

NOT ALL “KPIs” ARE CREATED EQUAL



DETERMINE WHICH KPIS MATTER MOST



Goal ➡ strong ARPU



Which KPIs have a strong
relationship with ARPU?



Focus on these!



CORRELATION ANALYSIS

You can use excel, R, etc

Model relationship between two variables

Can x predict or influence y ?

Calculate R^2

0: No relationship between x and y

1: Perfect correlation, x predicts y





WHICH **KPIs** HAVE A STRONG
RELATIONSHIP WITH **ARPU**?

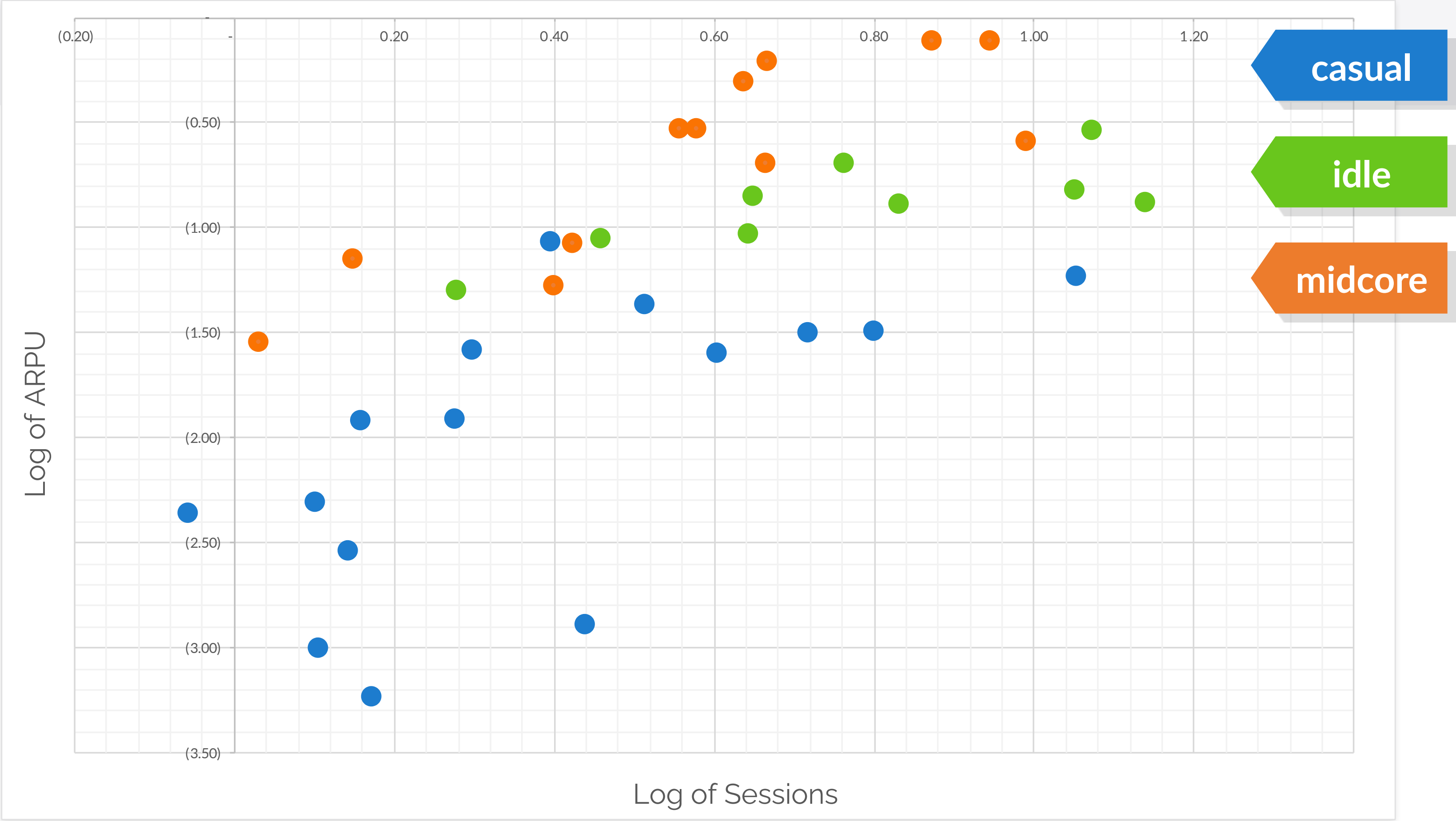
KPIs BY GENRE

Most frequent behavior ranges. There will always be outliers.

genre	# of games	arpu
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Idle	9	\$0.50 - \$1.50
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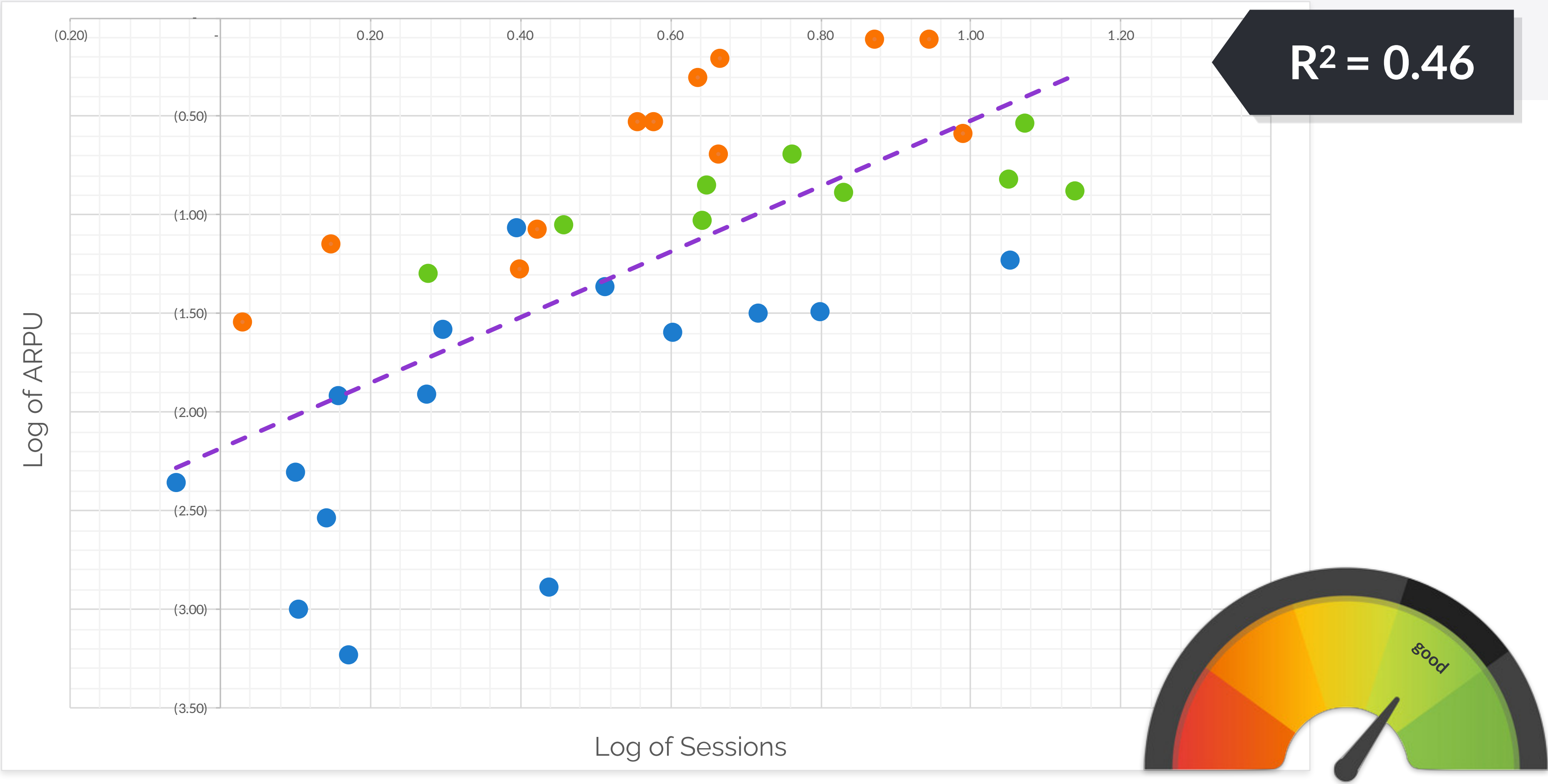
SESSIONS & ARPU

Using sessions as a proxy for engagement



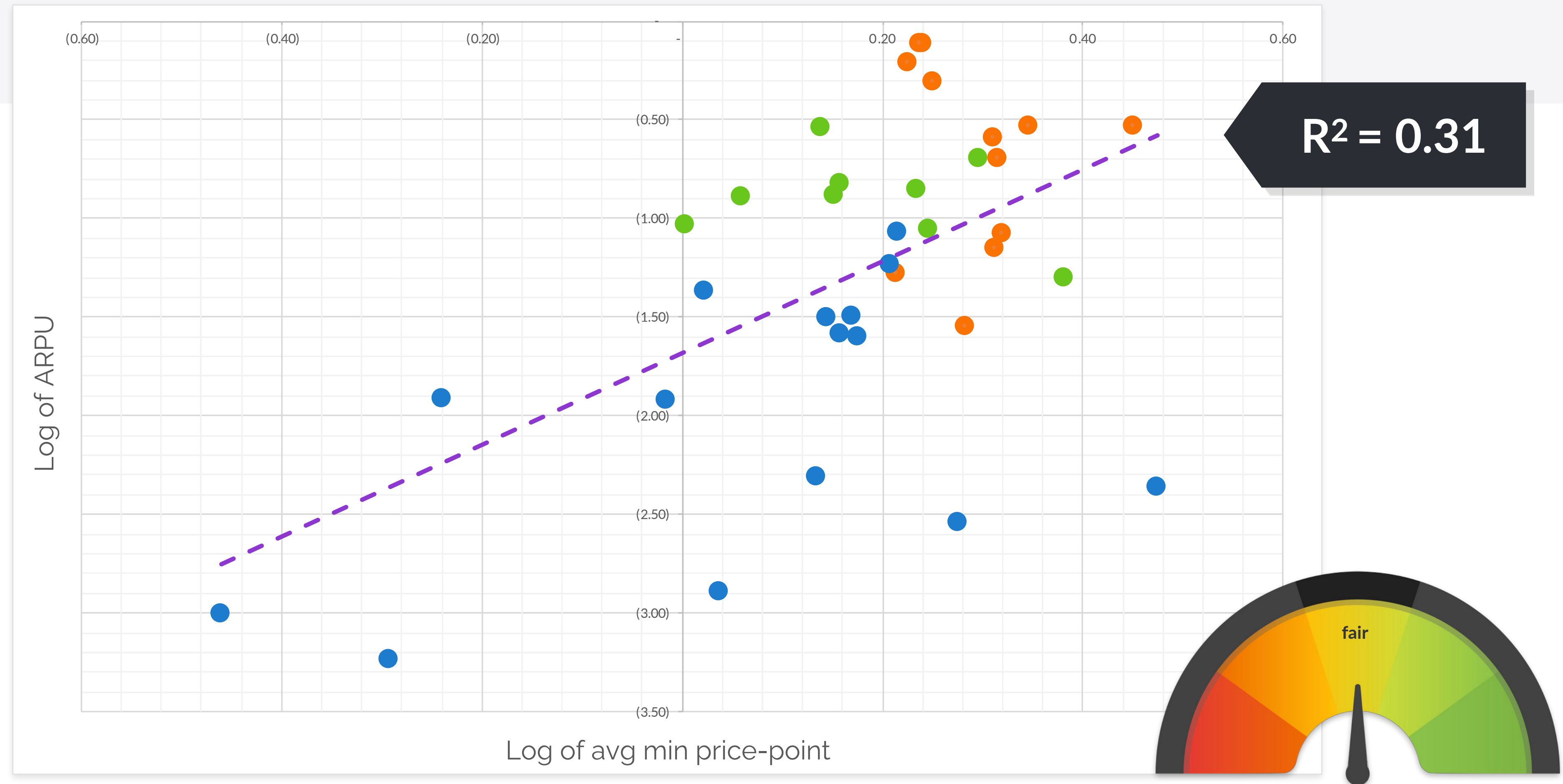
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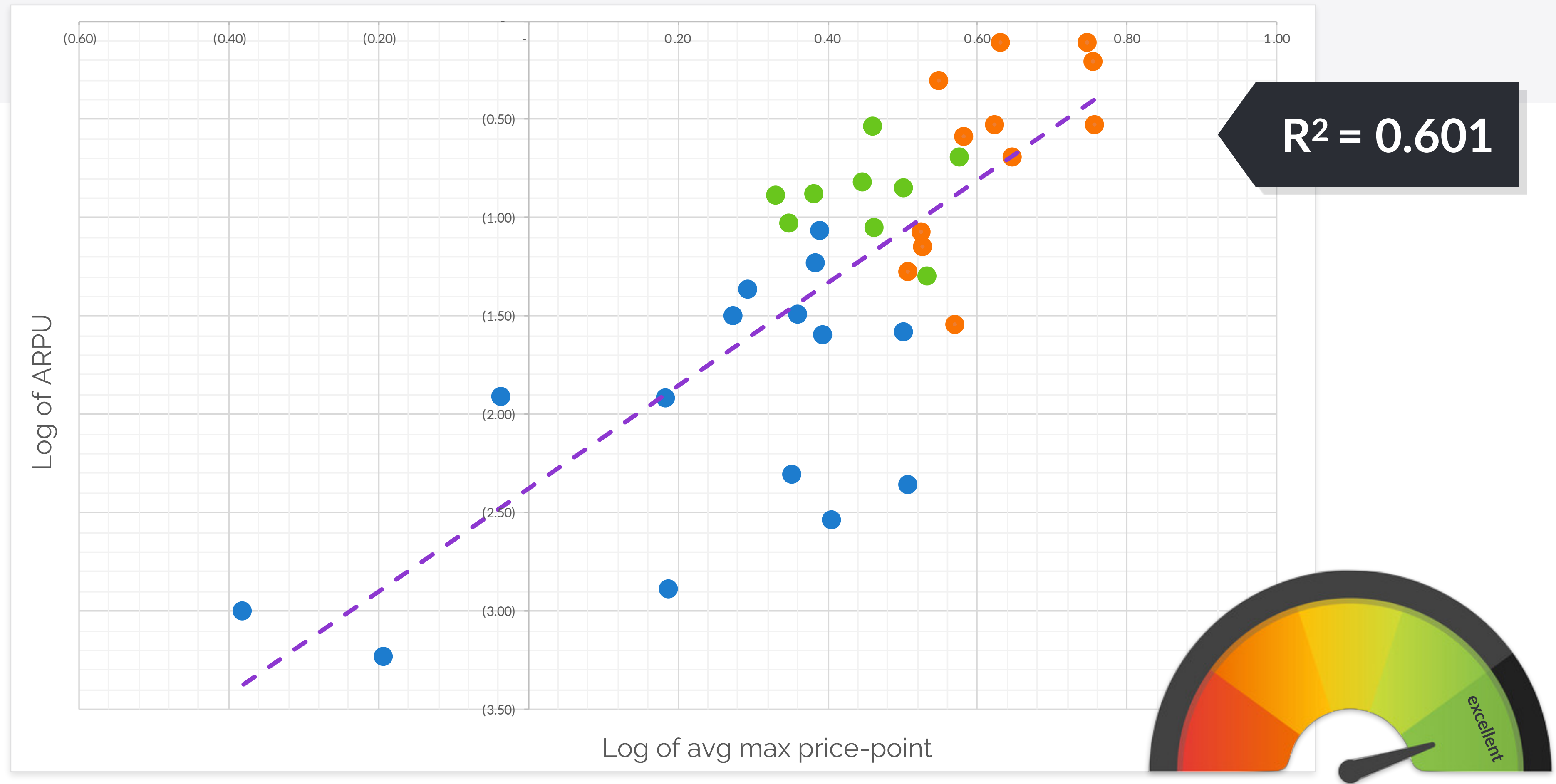
MIN PRICE POINT & ARPU

“Just get a player to spend, even if it is a low price-point”



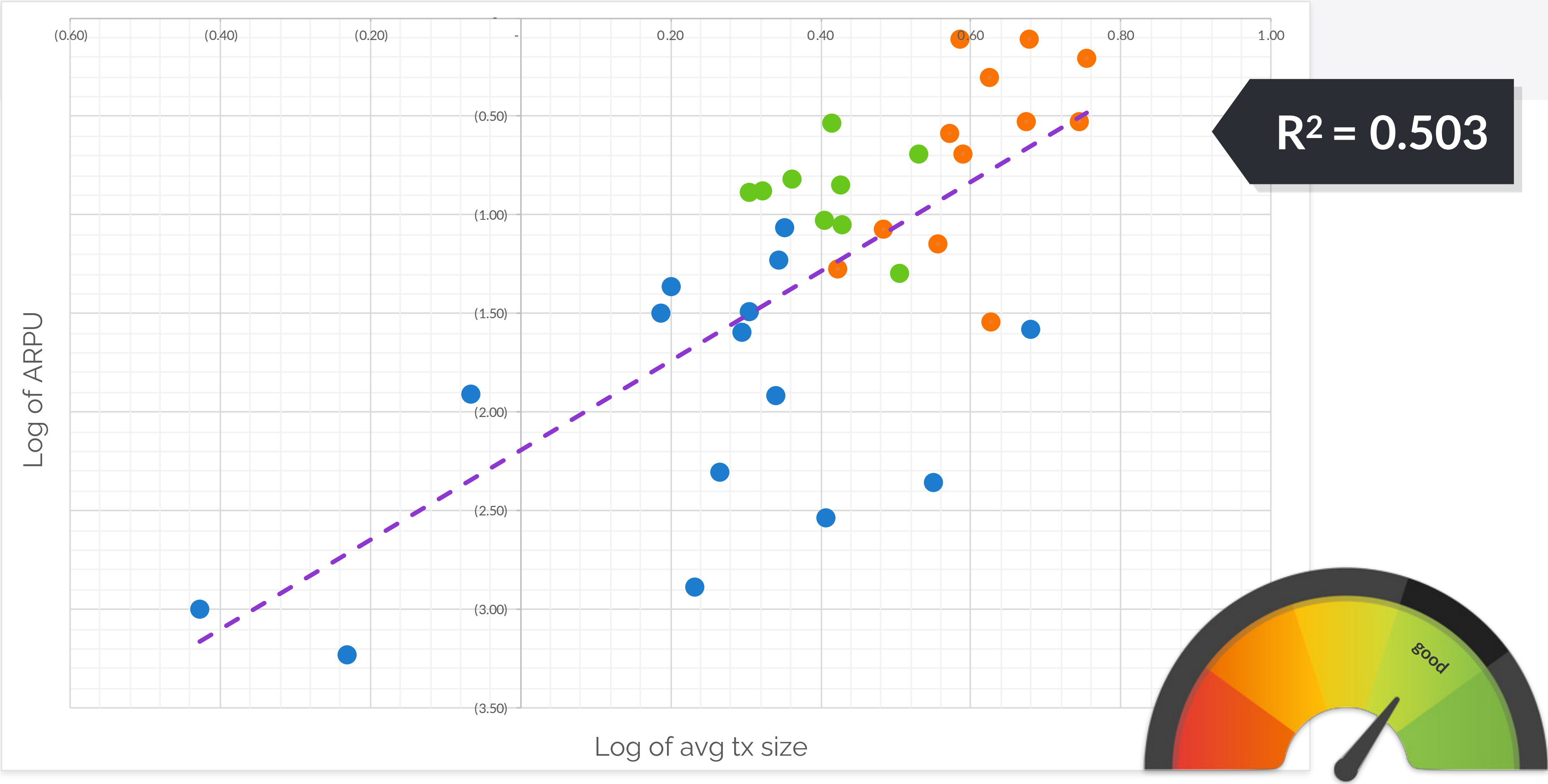
MAX PRICE POINT & ARPU

Give enough options to your players that want to spend!



ARPT & ARPU

Aim for higher transaction size



LESSONS

1 Sessions Matter

2 Price-Points Matter

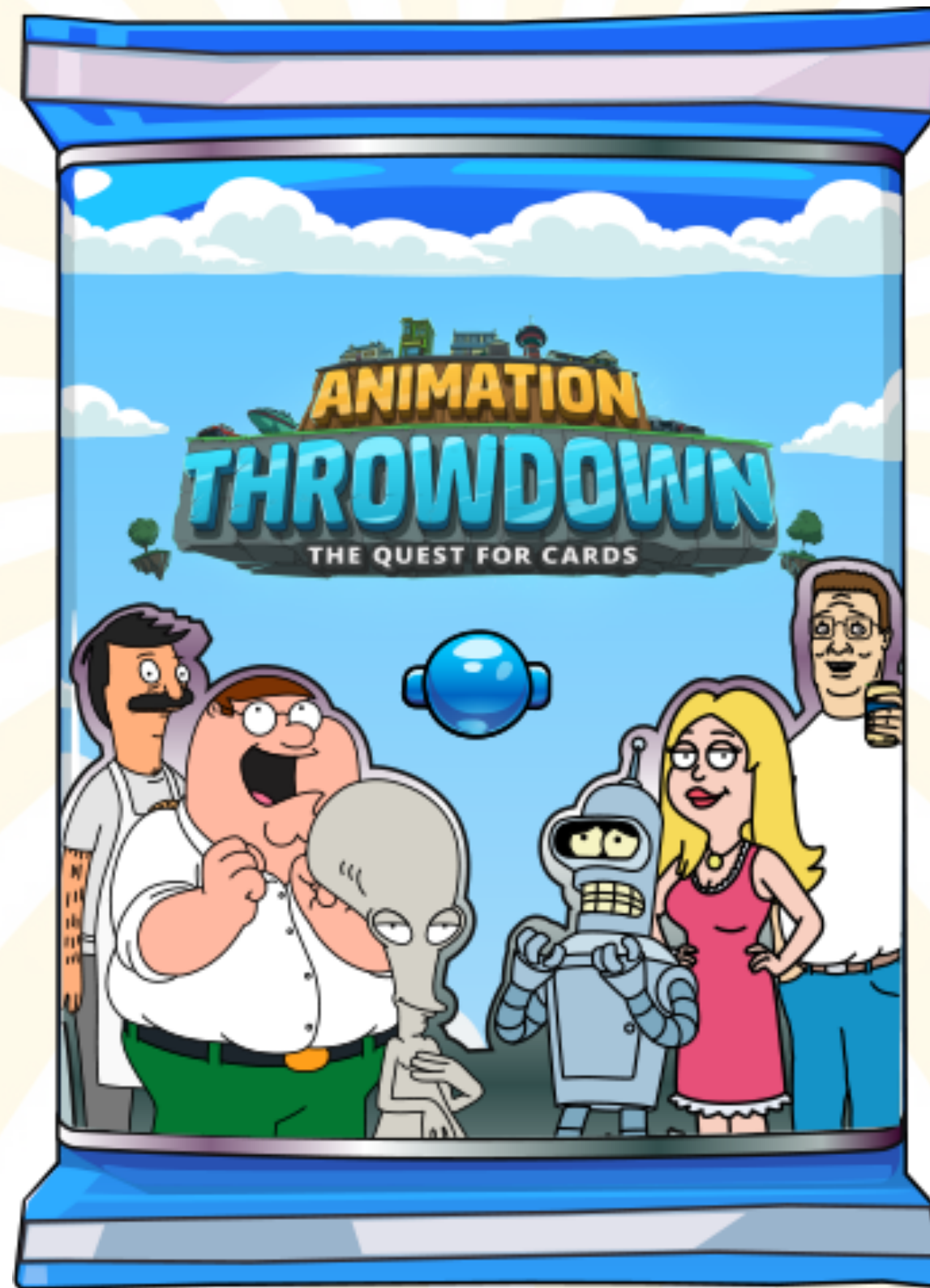
make a fun game!

The background of the slide features a conceptual illustration of construction workers building a structure from large gold coins. Several workers in hard hats and work clothes are shown: some are standing on tall stacks of coins, while others are on the ground. One worker is using a lever to move a coin from a lower stack to a higher one. The scene is set against a dark, hazy background, suggesting a construction site at night or in low light. The overall theme is one of building, growth, and the value of money.

ECON 101 LETS TALK **PRICING**

YOUR GAME, YOUR MONOPOLY

You are the only game that offers **THAT** (virtual) good



KONGREGATE

How Should You Decide Your Game's **PRICING**?



ELASTICITY OF GOODS

The key to pricing



If you **decrease** your *gems* price and:

Revenue Increases

- Purchases go up, quickly
- Then gems are **elastic**

Revenue Decreases

- Purchases go up, slightly
- But, not enough to make up the change in price
- Then gems are **inelastic**



The background of the slide features a conceptual illustration of several workers in hard hats and work clothes building a wall out of large, stacked gold coins. The workers are positioned at various heights, some standing on the stacks, others on the ground, and one is using a lever to move a coin. The scene is set against a dark, hazy sky. Two short red horizontal lines are placed above and below the main text.

VIRTUAL GOODS ELASTIC OR INELASTIC?

ADVENTURE capitalist\$T

CASE STUDY
LOWERING PRICES

Studio: HyperHippo



LOWERED PRICE-POINT

Similar **value** proposition

\$7.99 → **\$2.99**
old price new price



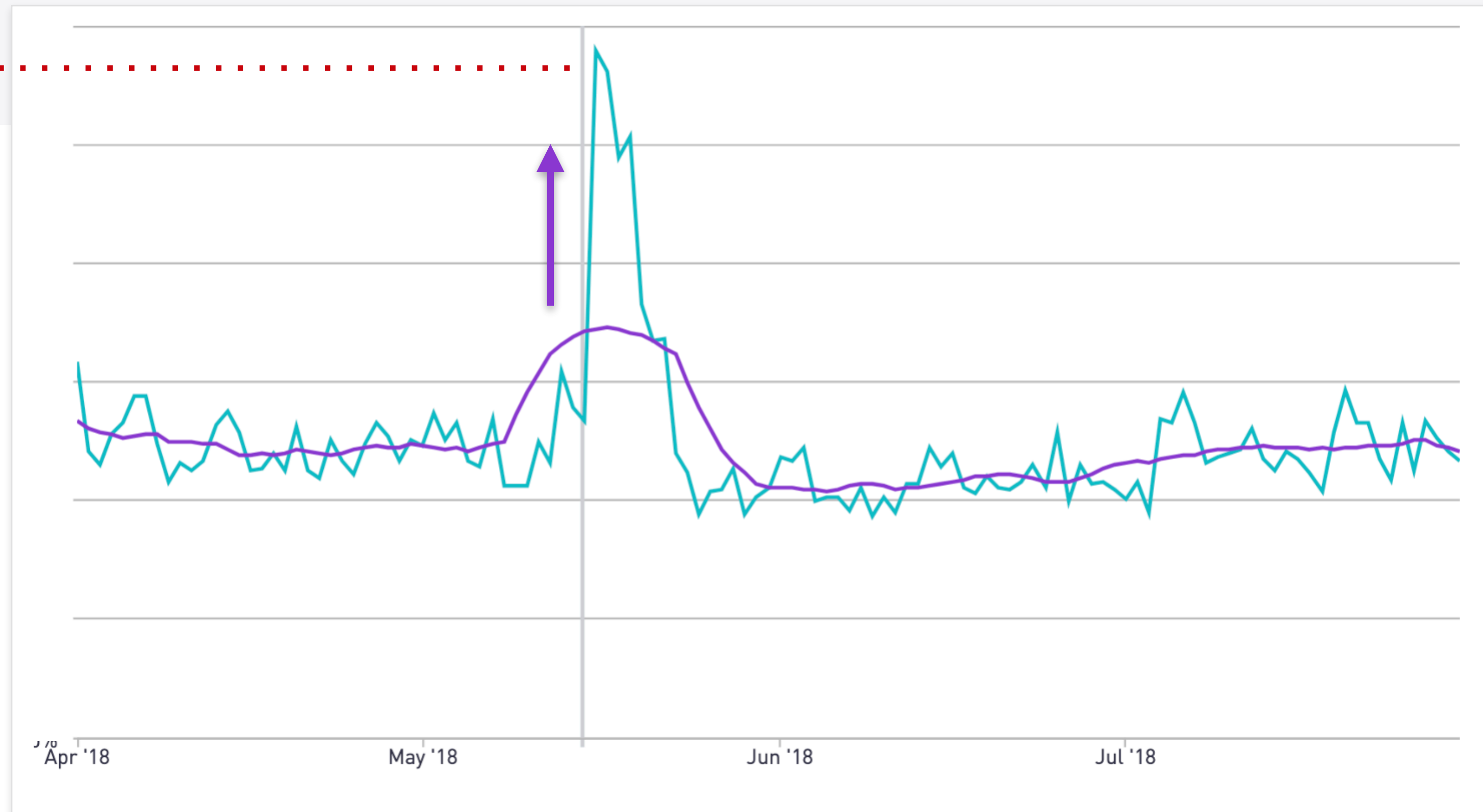
KONGREGATE



FIRST PURCHASE % SPIKED

Even converted legacy players who hadn't spent! But...

● lowered price

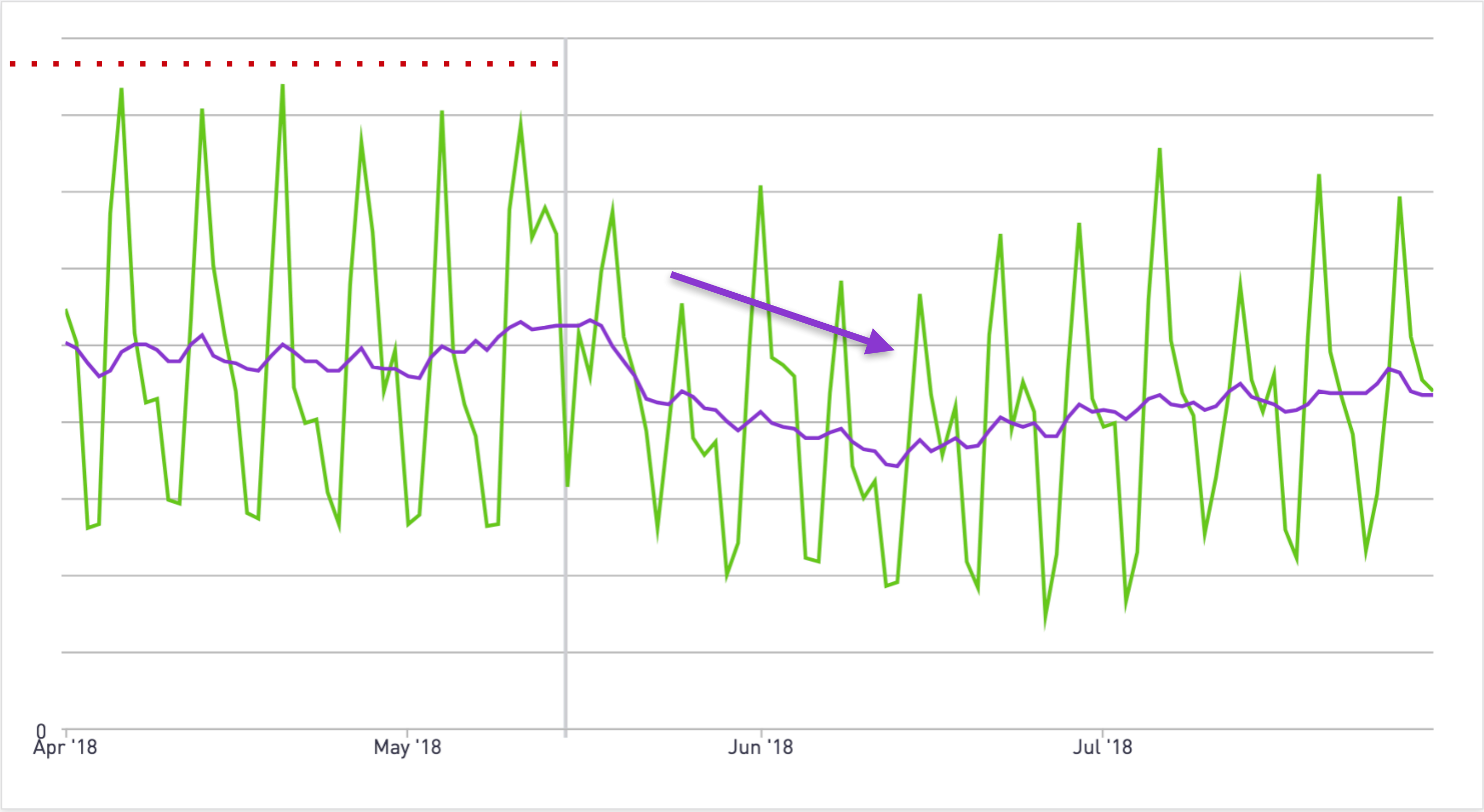


—
Did revenue spike?

ARPPDAU DECLINED

but... games are messy ecosystems

● lowered price



Revenue Declined

ELASTICITY OF GOODS

Virtual goods: elastic or inelastic?

- ✓ Purchases went up
- ✓ Not enough to compensate the price drop
- ✓ Revenue decreased

VIRTUAL GOODS ARE
(MOSTLY) **INELASTIC!**



GOOD NEWS!

The team identified this quickly

Reacted right away

All was good in the capitalist world!



REPEAT SPEND

WILL A LOWER PRICE HELP?



REPEAT PURCHASE RATE

Overall Portfolio 2nd Purchase %



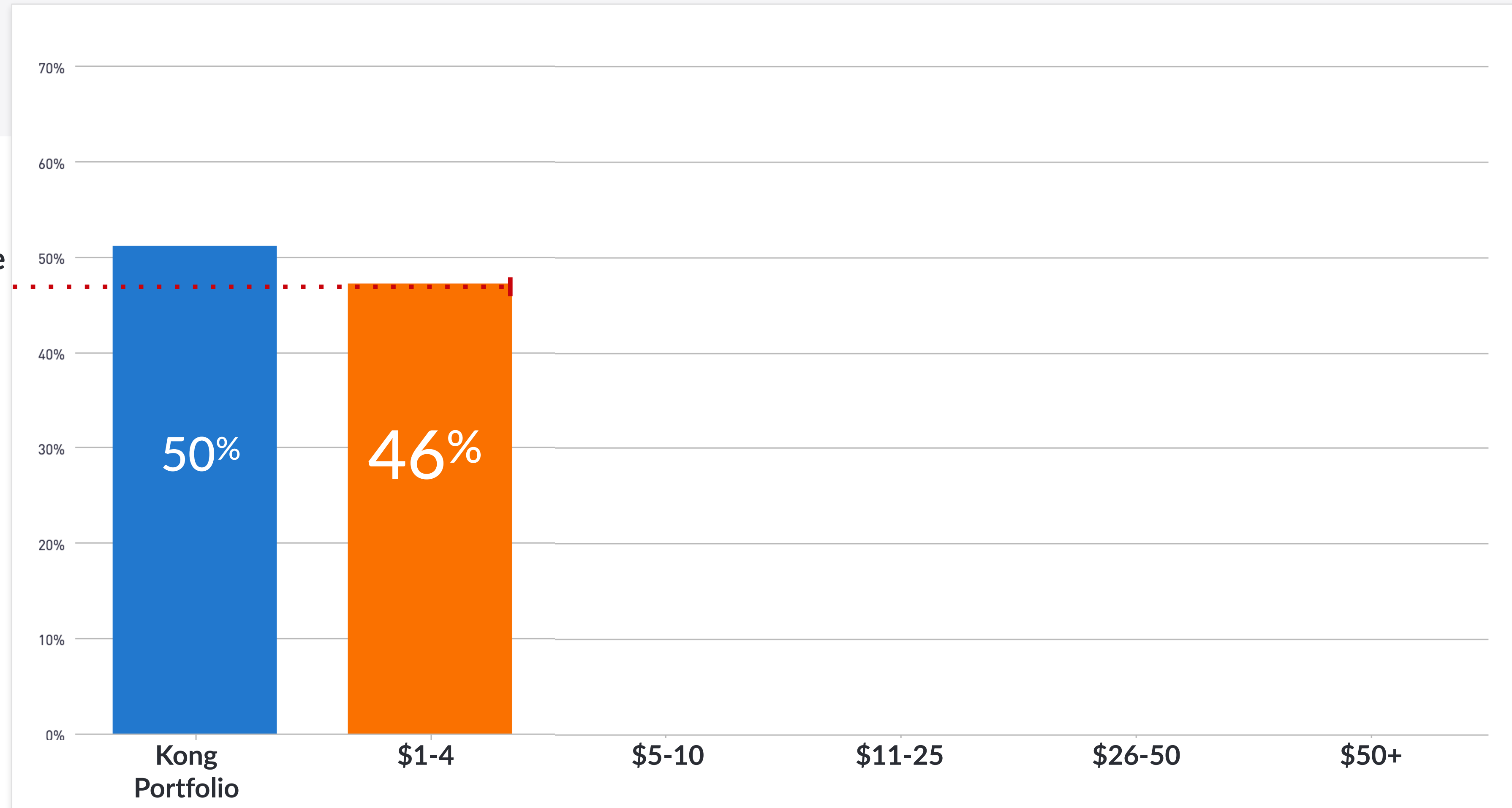
PORTFOLIO **VS** 1ST PURCHASE \$

Compare overall portfolio & first purchase price-point



REPEAT PURCHASE RATE

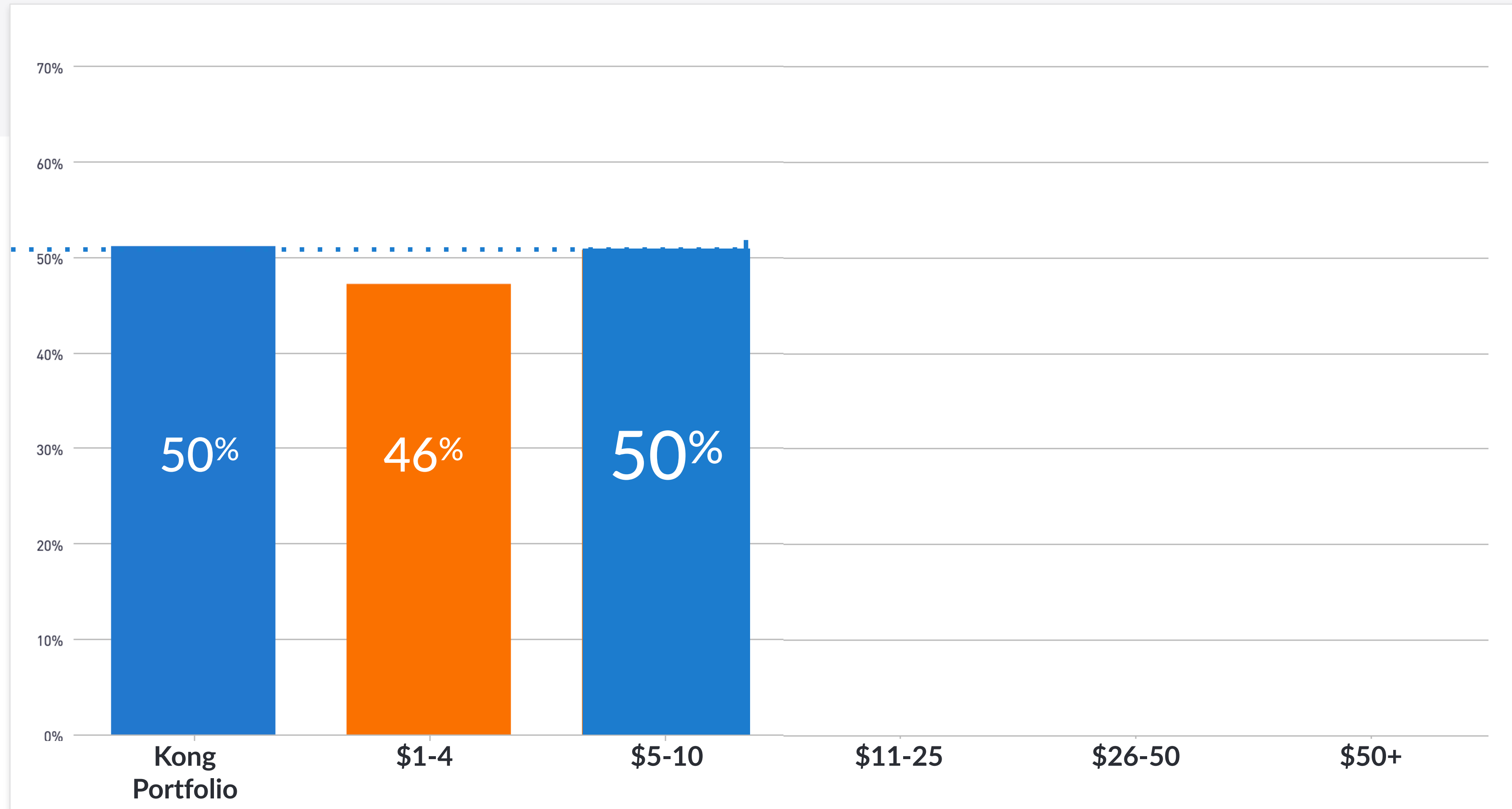
Lower price-point, lower repeat rate!



REPEAT PURCHASE RATE

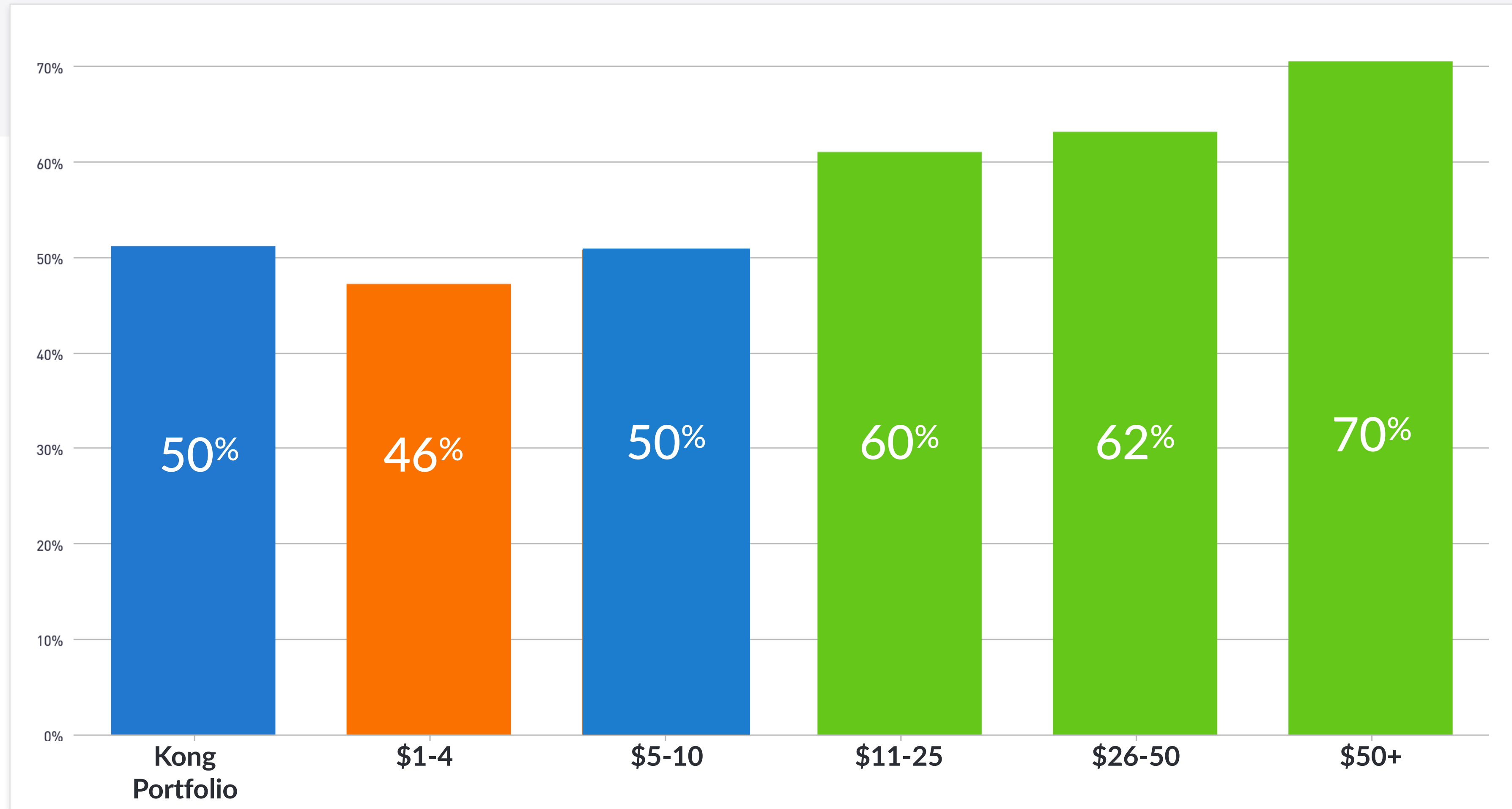
Most players' first purchase is in the \$5-10 range

in line
with portfolio



REPEAT PURCHASE RATE

Higher price-point, higher repeat-rate!

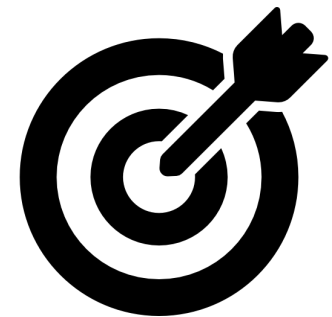


REPEAT PURCHASE

Lower purchase price-point will not impact it!



Lower price-points
Do not increase repeat spend!



Our “sweet spot”
\$5 - \$25 price range

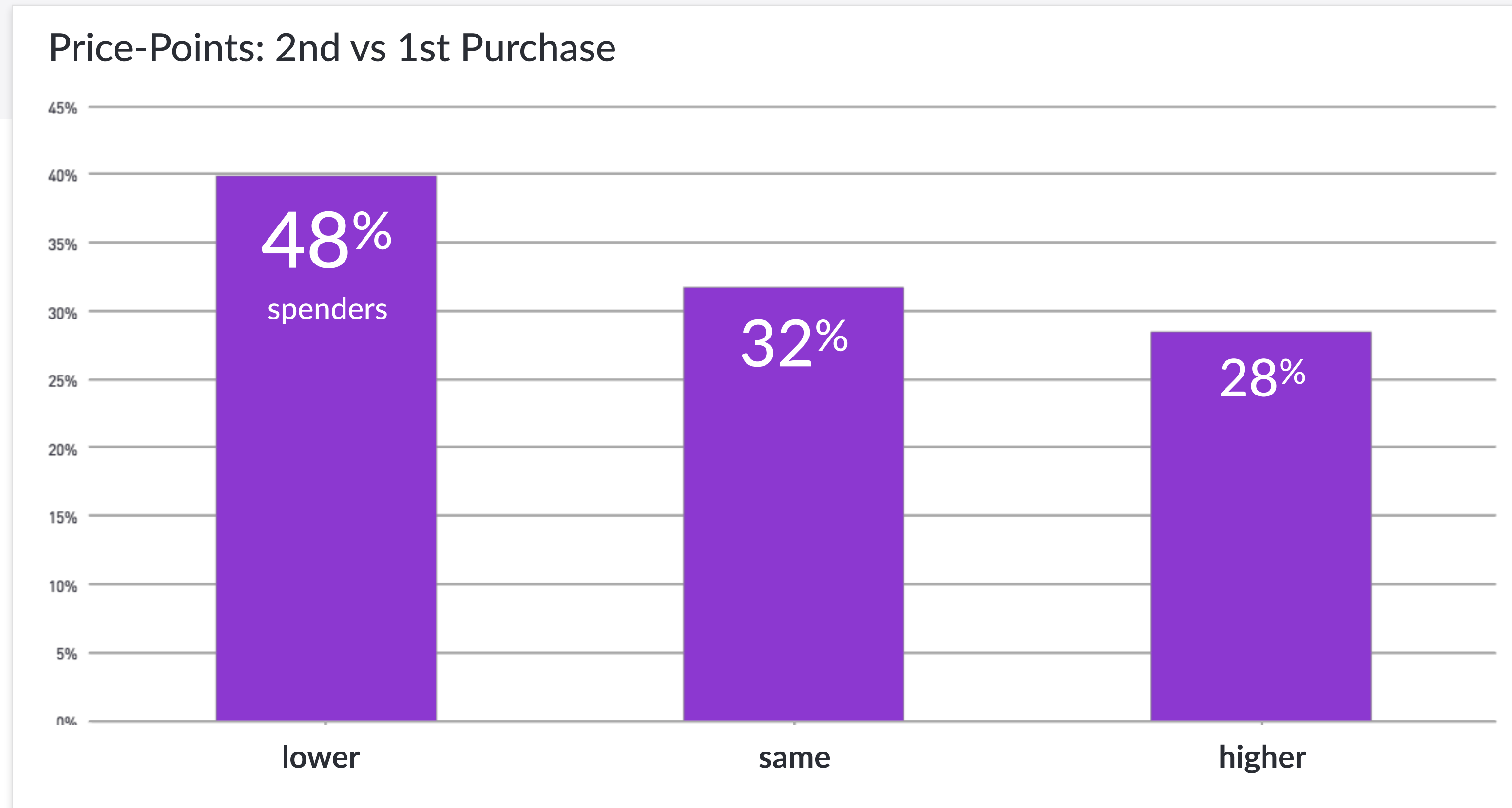


Find **YOUR** game's sweet spot



FIRST PURCHASE SETS EXPECTATIONS

Most players will spend less on their second purchase



LOWERED PRICE-POINT

Similar **value** proposition

\$7.99 → **\$2.99**
old price new price



KONGREGATE

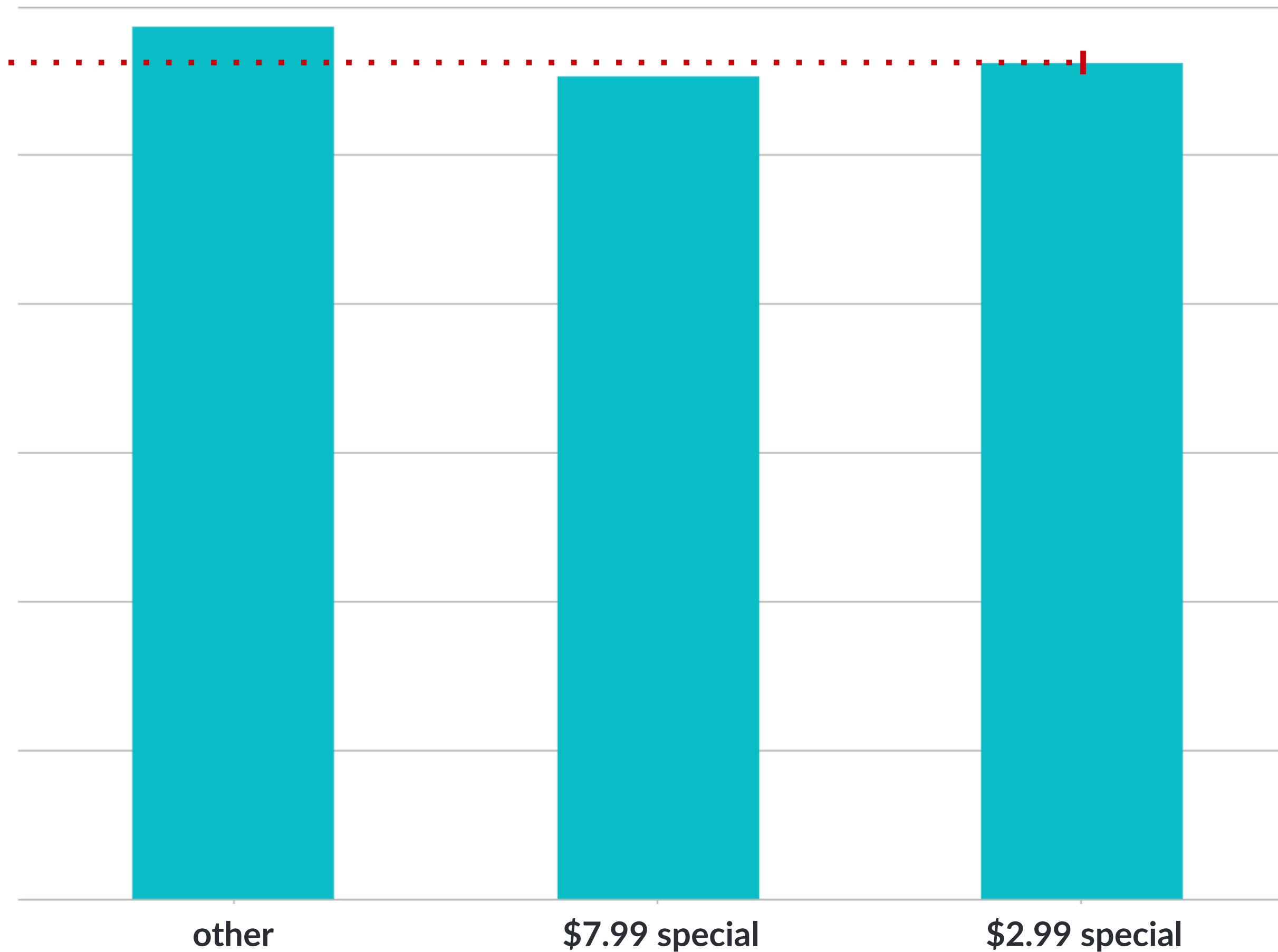


HIGHER TRANSACTIONS

For players that converted with the lower price-point

higher
lifetime transactions

Transactions based on First Purchase

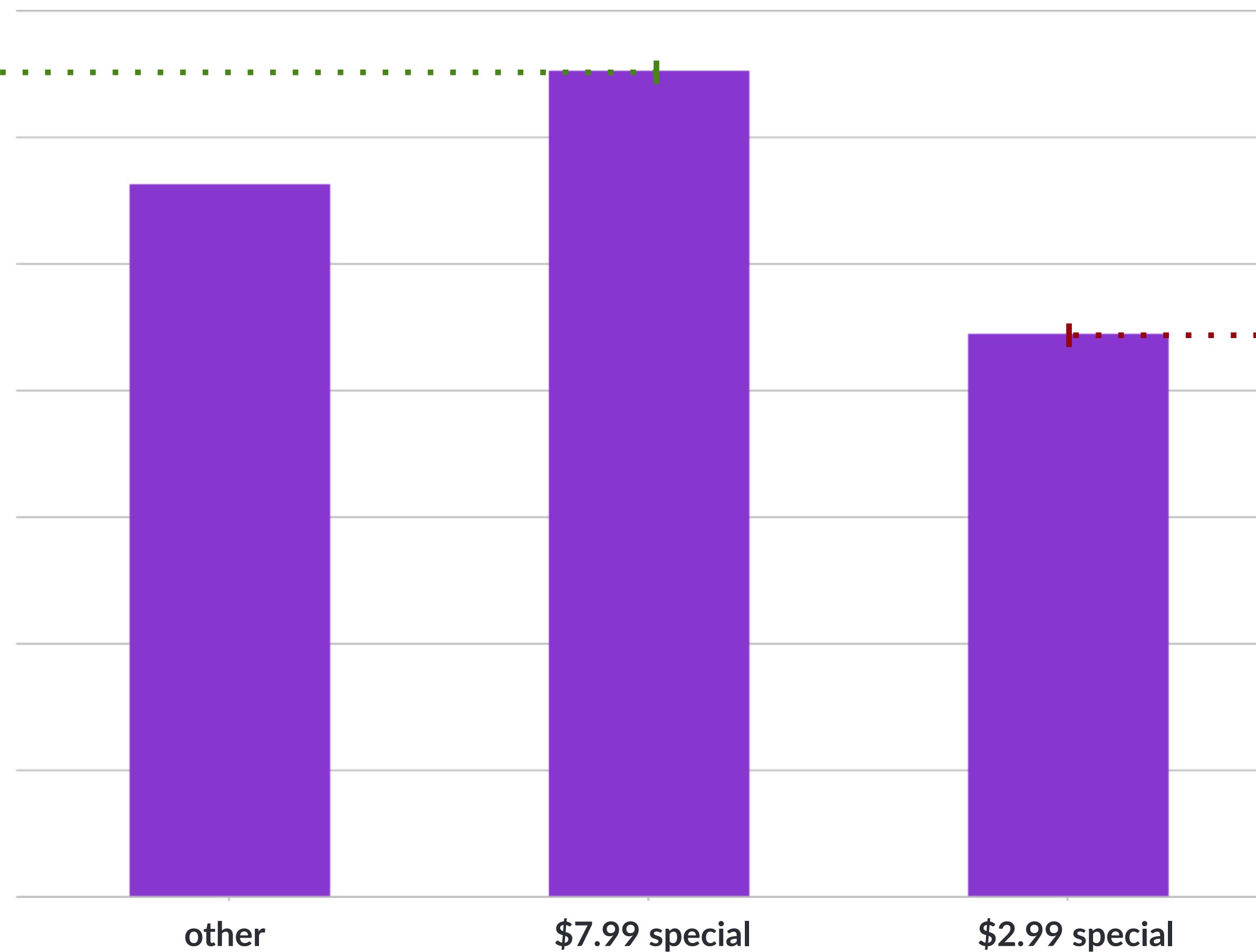


LOWER ARPPU

For players that converted with the lower price-point

highest ARPPU

ARPPU based on First Purchase



lowest ARPPU



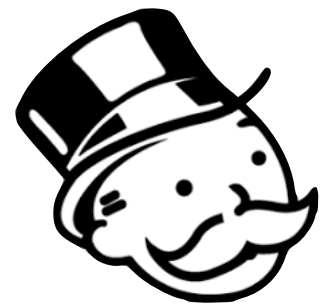
PRICE ANCHORING

Don't set too low of a bar



Anchoring

First piece of info ➡ future decisions



Your game, your monopoly

Price comparison ➡ within the game



Price Anchoring

First price ➡ perception of future prices



—

THEN...

INCREASE ALL THE **PRICES?**

—



Price

Value



CAREFUL BALANCE!

PRICING MATTERS

Don't under-price your game!

Correlations with ARPU

- min tx size
- ✓ max tx size
- ✓ avg tx size (ARPT)

Games are (mostly) **inelastic**

Watch out for **price anchoring**





WHICH **KPIs** HAVE A STRONG
RELATIONSHIP WITH **ARPU**?

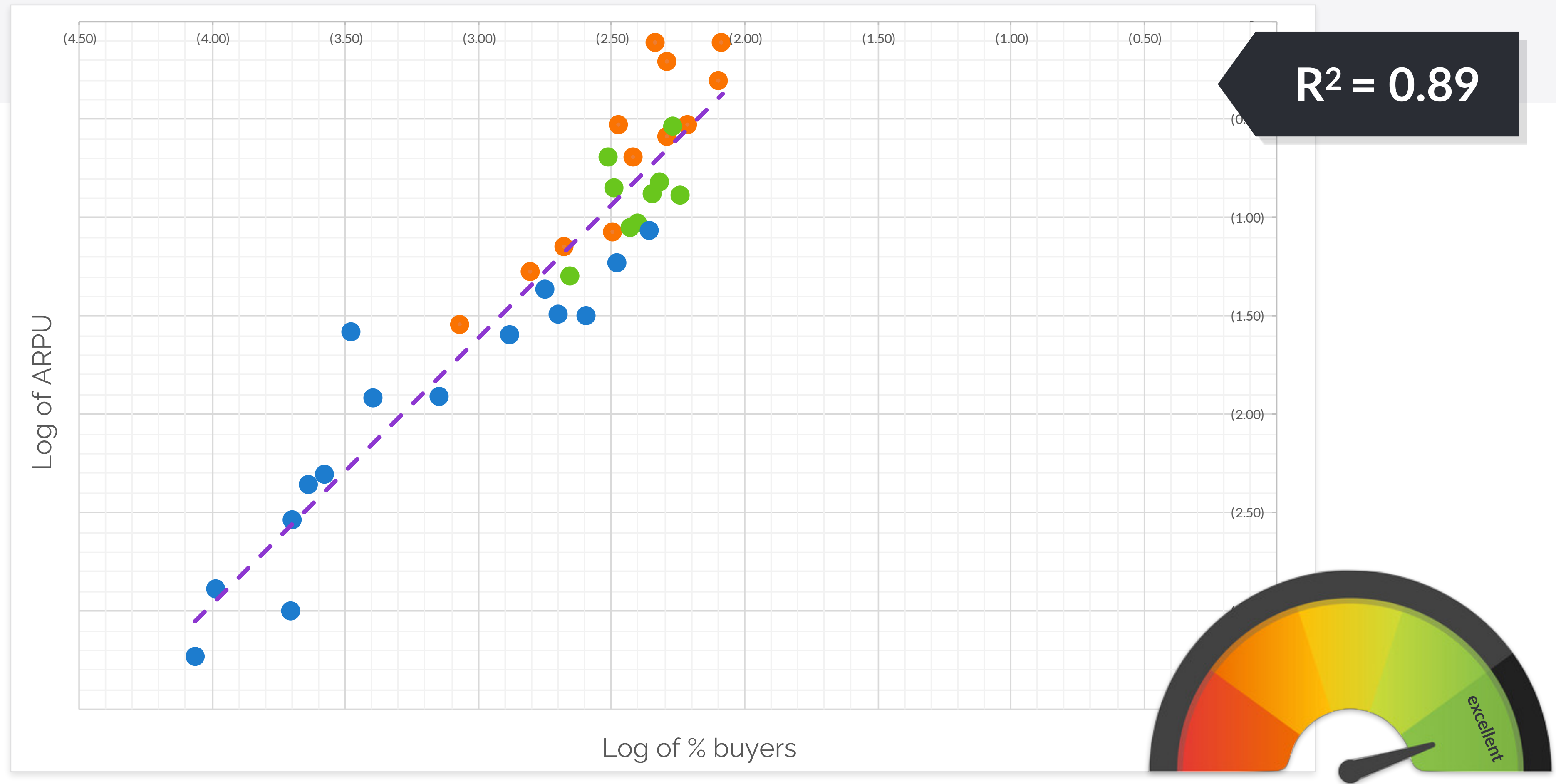
KPIs BY GENRE

Most frequent behavior ranges. There will always be outliers.

genre	# of games	arpu	% buyers
Midcore	12	\$1.5 - \$5.0	2.5% - 4.5%
Idle	9	\$0.50 - \$1.50	0.5% - 2.5%
Casual & Hyper Casual	16	\$0.10 - \$0.30	0.3% - 1.5%

% BUYERS & ARPU

Get more players to spend, get higher ARPUs!



% BUYERS & ARPU

Get more players to spend, get higher ARPUs!



LESSONS

- 1 Sessions Matter
- 2 Price-Points Matter
- 3 Maximizing % buyers is important



WHICH **KPIs** HAVE A STRONG
RELATIONSHIP WITH **ARPU**?

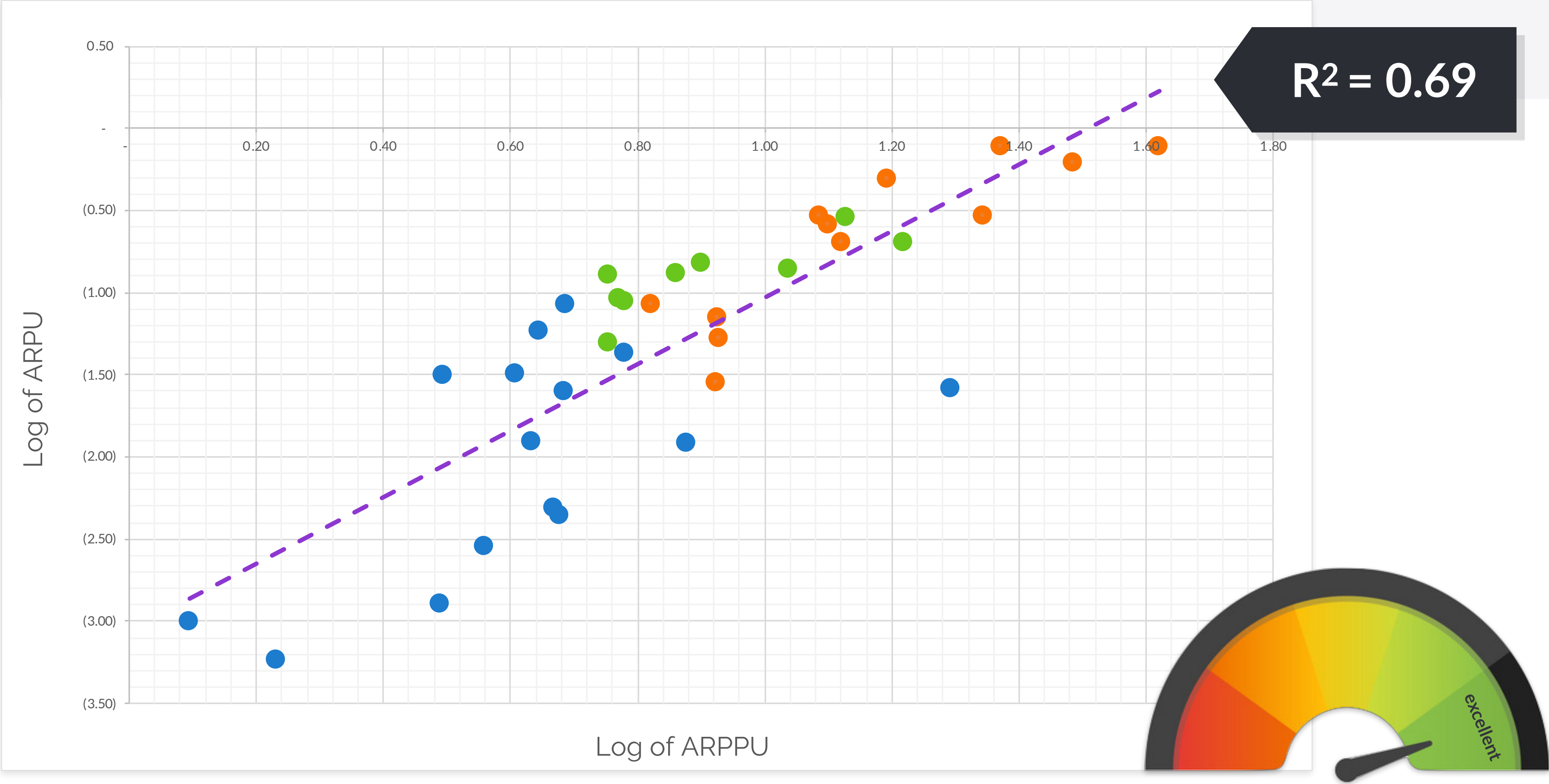
KPIs BY GENRE

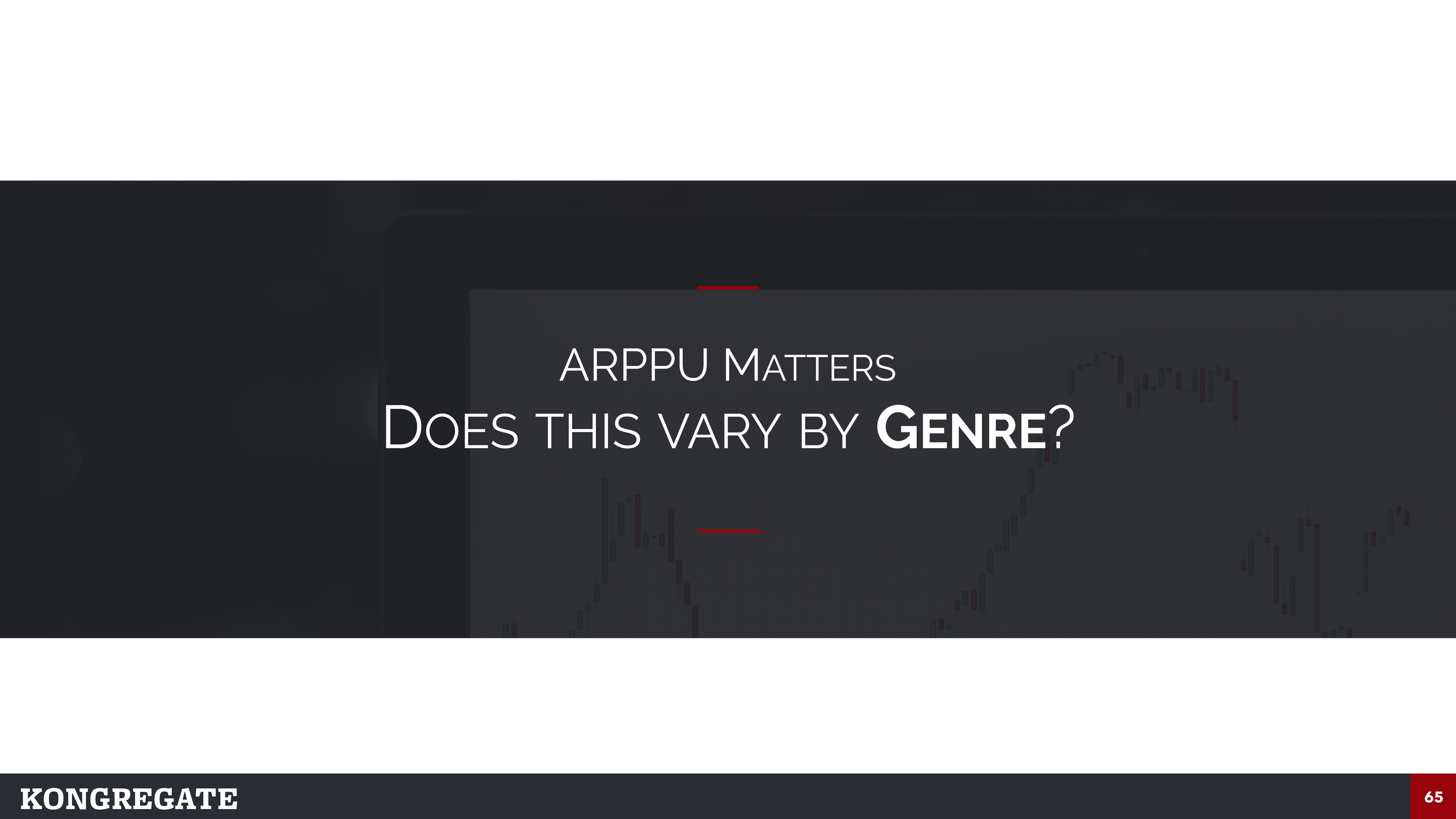
Most frequent behavior ranges. There will always be outliers.

genre	# of games	arpu	% buyers	arppu
Midcore	12	\$1.5 - \$5.0	2.5% - 4.5%	\$50 - \$200
Idle	9	\$0.50 - \$1.50	0.5% - 2.5%	\$30 - \$60
Casual & Hyper Casual	16	\$0.10 - \$0.30	0.3% - 1.5%	\$5 - \$30

ARPPU & ARPU

Avg. Revenue Per Paying User & Avg. Revenue Per User

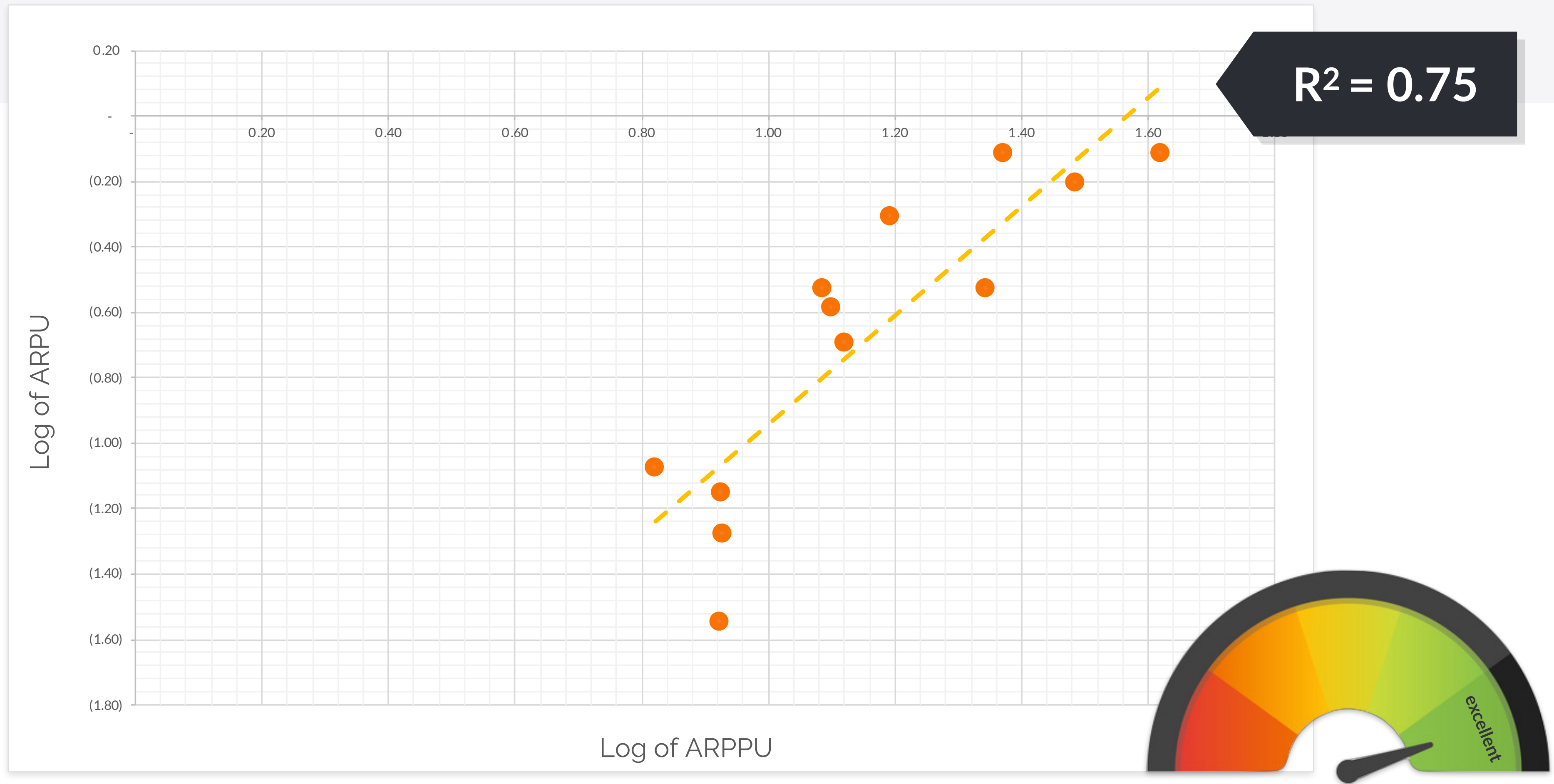




ARPPU MATTERS
DOES THIS VARY BY **GENRE**?

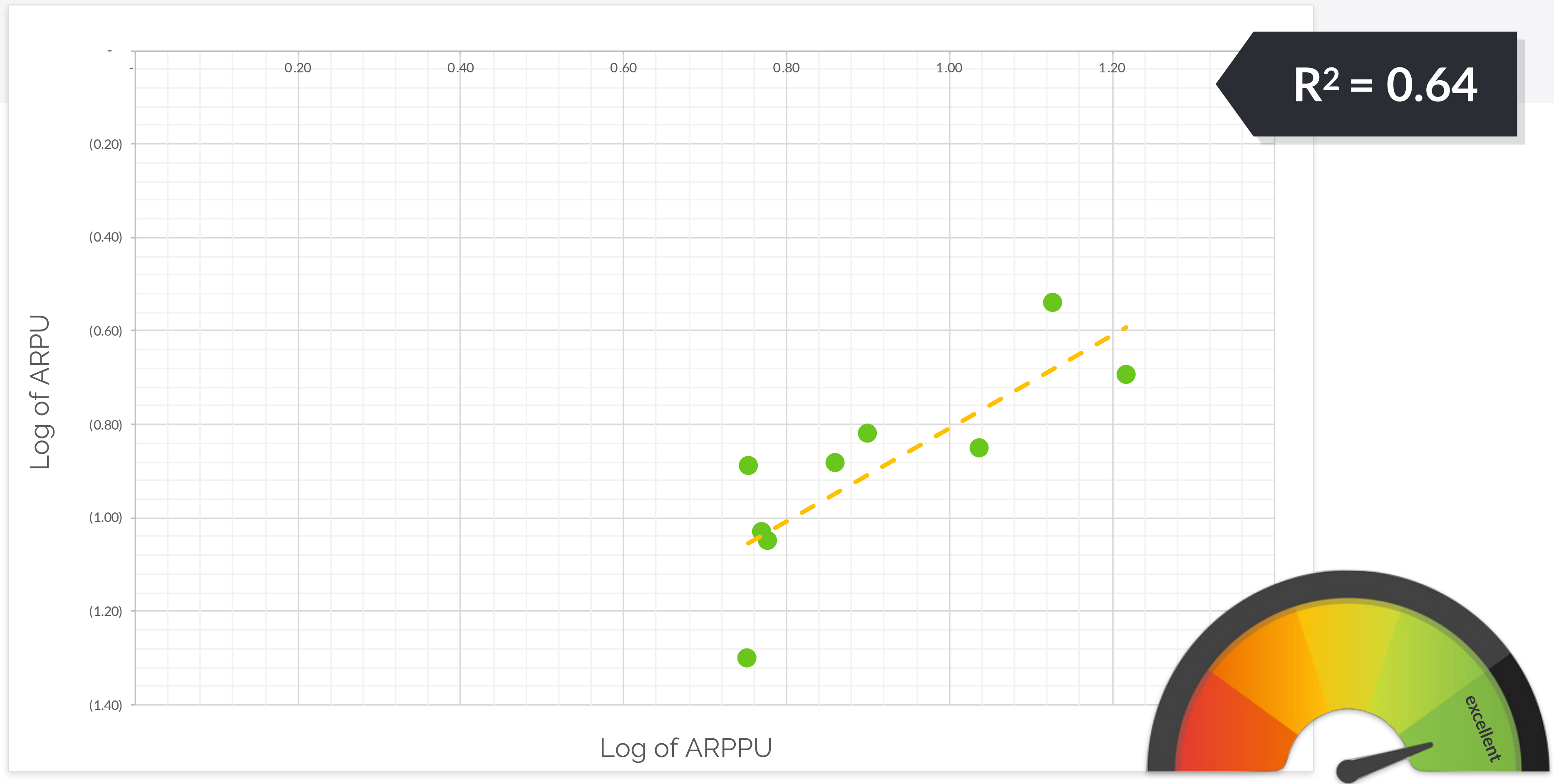
MIDCORE: ARPPU ~ ARPU

Very strong correlation, high investment per payer really matters



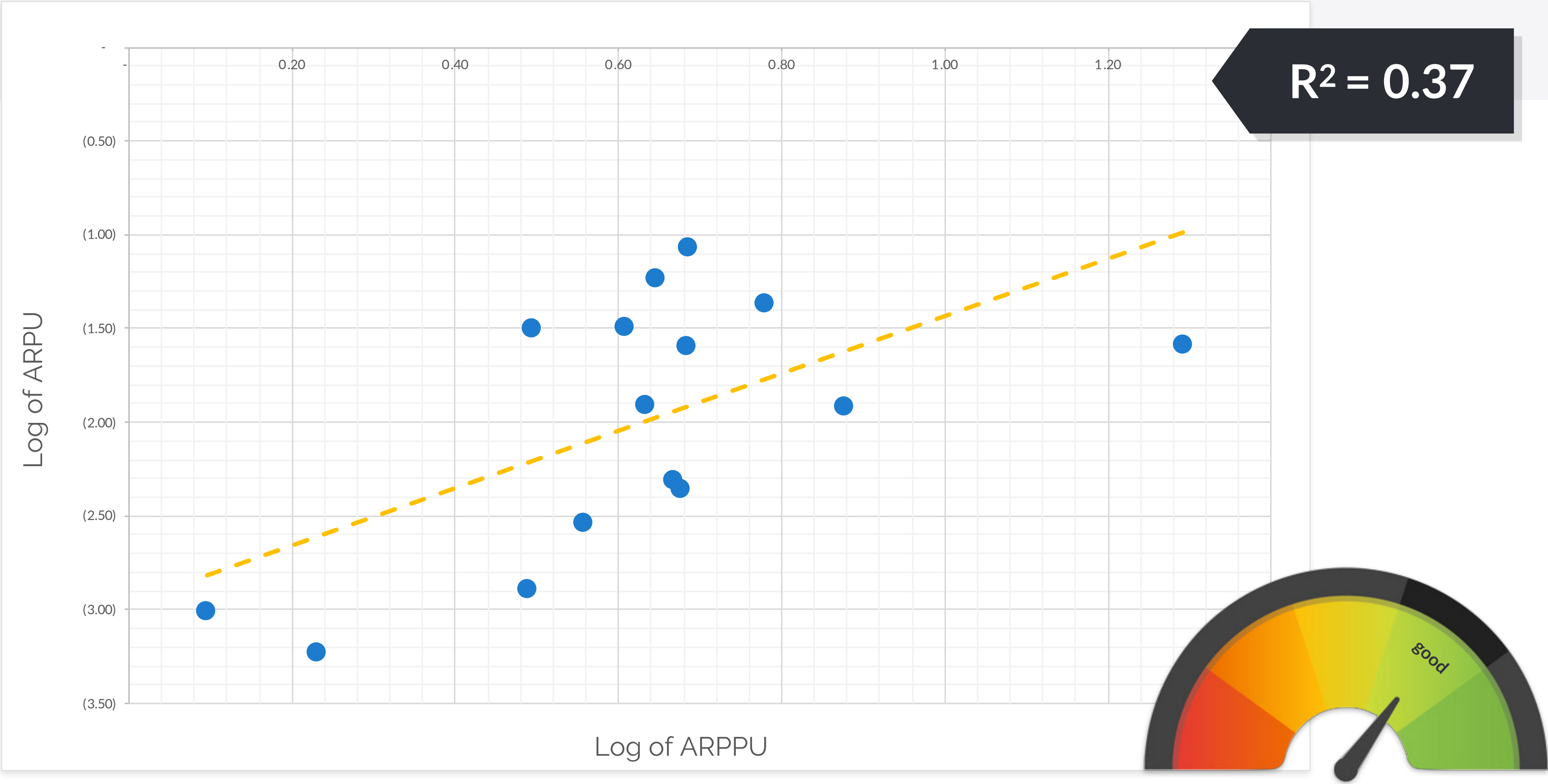
IDLE: ARPPU ~ ARPU

Strong investment per payer also matters



CASUAL: ARPPU ~ ARPU

Not as high correlation but strong investment per payer also matters



LESSONS

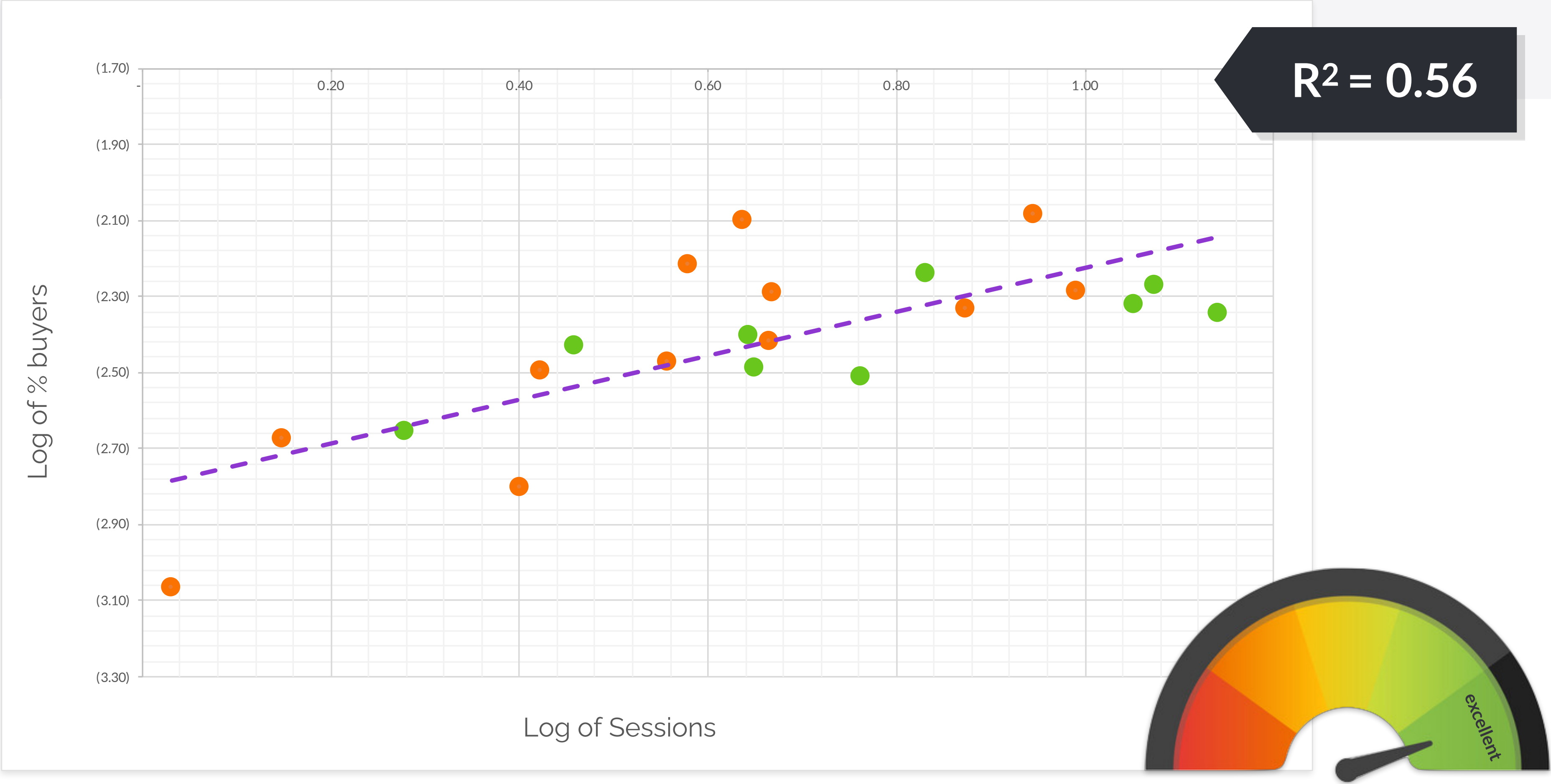
- 1 Sessions matter
- 2 Price-points matter
- 3 Maximizing % buyers is important
- 4 ARPPU matters and varies by genre

A faint, dark candlestick chart is visible in the background of the slide, showing price fluctuations over time. The chart is centered behind the main text.

WHICH **KPIs** HAVE A STRONG
RELATIONSHIP WITH % BUYERS & **ARPPU**?

SESSIONS & % BUYERS

The more time a player spends in a game, the likelier the are to invest in the game



% REPEAT SPENDER & ARPPU

Enable steady investment from players who want to spend



KPIs BY GENRE

Most frequent behavior ranges. There will always be outliers.

genre	# of games	arpu	% buyers	arppu	repeat purchase %
Midcore	12	\$1.5 - \$5.0	2.5% - 4.5%	\$50 - \$200	35% - 70%
Idle	9	\$0.50 - \$1.50	0.5% - 2.5%	\$30 - \$60	30% - 55%
Casual & Hyper Casual	16	\$0.10 - \$0.30	0.3% - 1.5%	\$5 - \$30	15% - 40%

LESSONS

- 1 Sessions matter
- 2 Price-points matter
- 3 Maximizing % buyers is important
- 4 ARPPU matters and varies by genre
- 5 Keep % repeat spending in mind

ANIMATION THROWDOWN

THE QUEST FOR CARDS



BEST-IN-CLASS
REPEAT SPEND

—
Studio: Synapse Games

SYNAPSE'S CCGs

Iteration: take what's working, improve what isn't



2013
Tyrant Unleashed



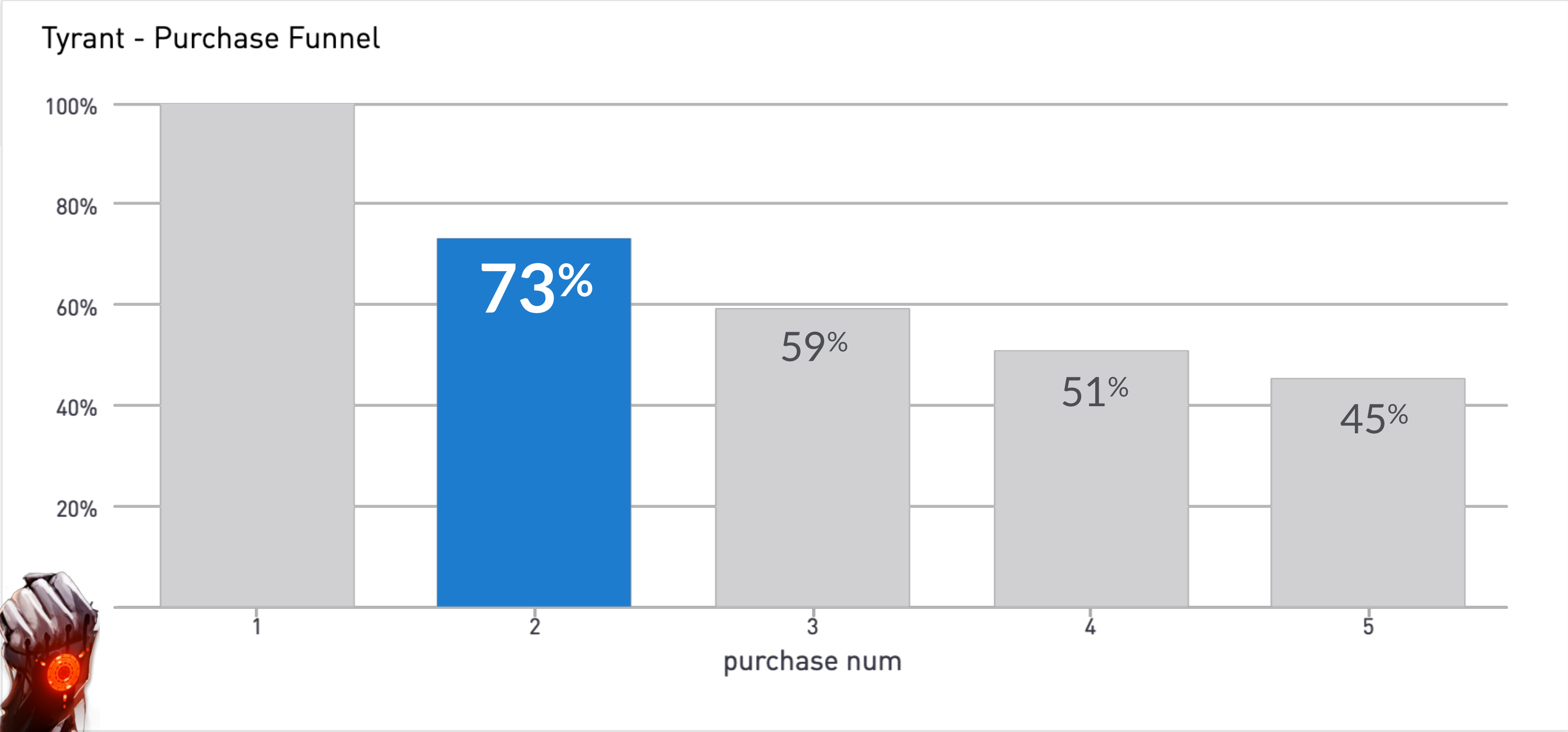
2015
Spellstone



2016
Animation Throwdown

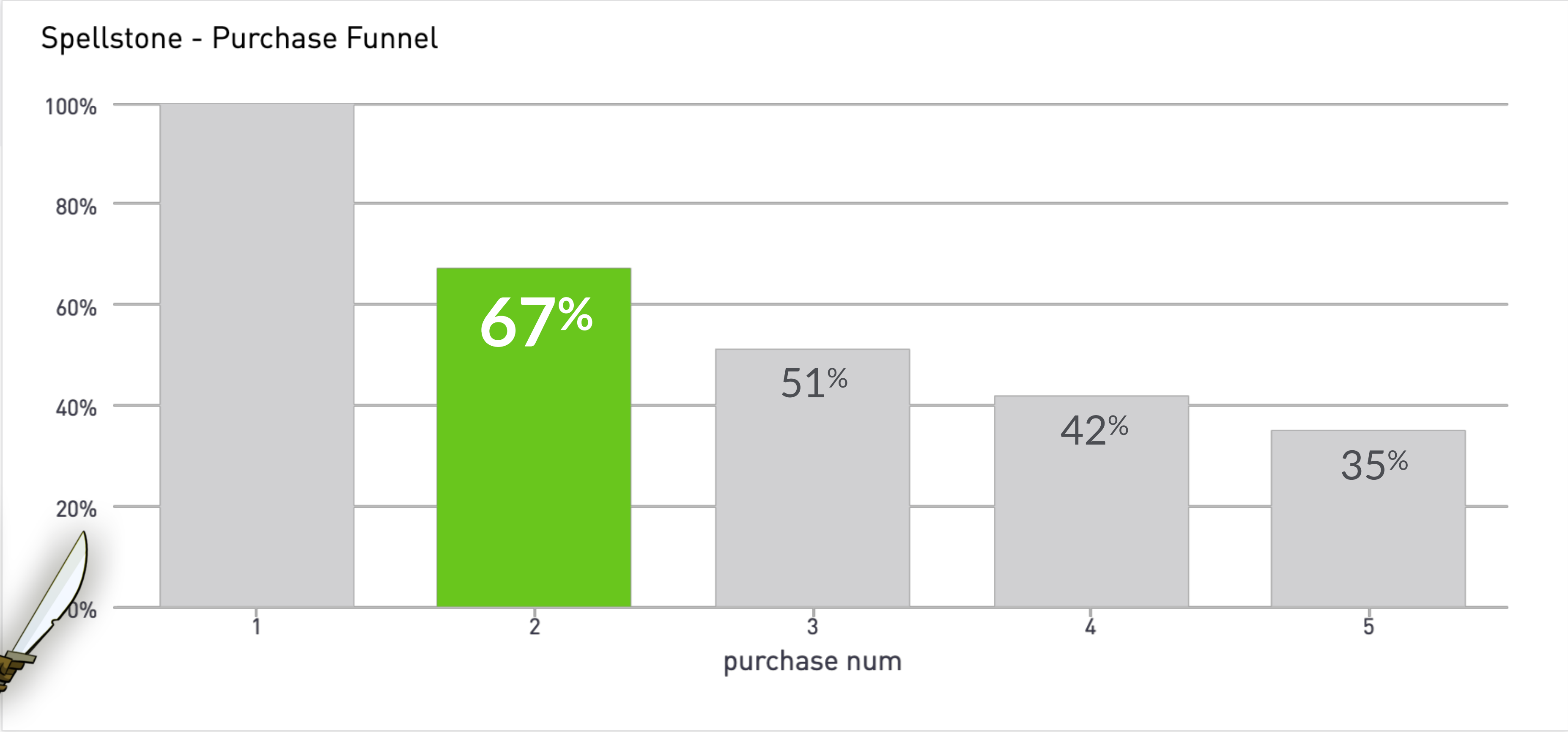
TYRANT UNLEASHED

First mobile game from Synapse. Very niche.



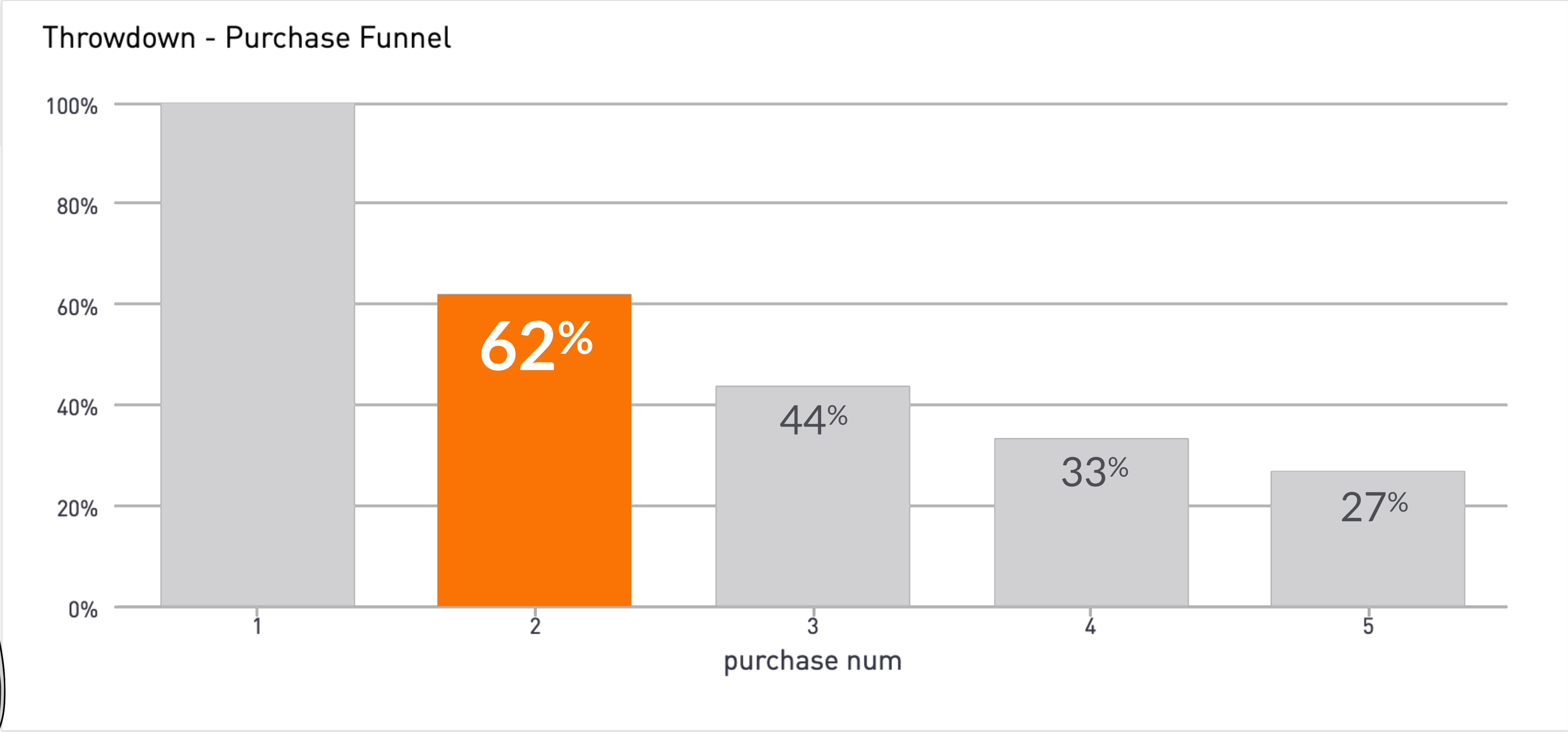
SPELLSTONE

Expand audience reach with a more approachable theme



ANIMATION THROWDOWN

Strong monetization even if, with a bigger audience, metrics take a small hit



Balance Reach
and Monetization

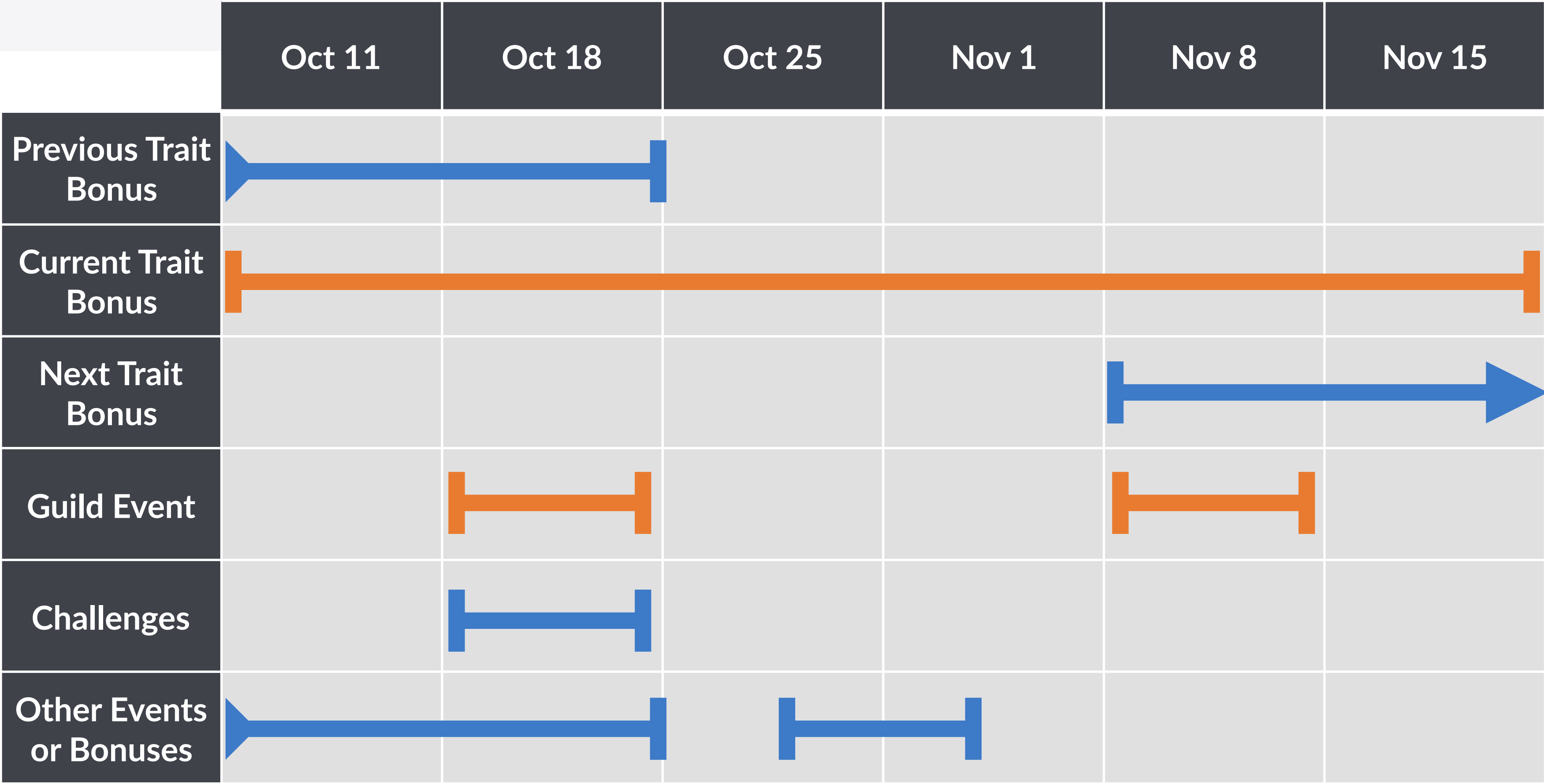


LIVE SERVICING STRATEGY

Taking what has worked

LIVE OPS CALENDAR

Well defined cadence of events.



THE STRUCTURE OF A CARD

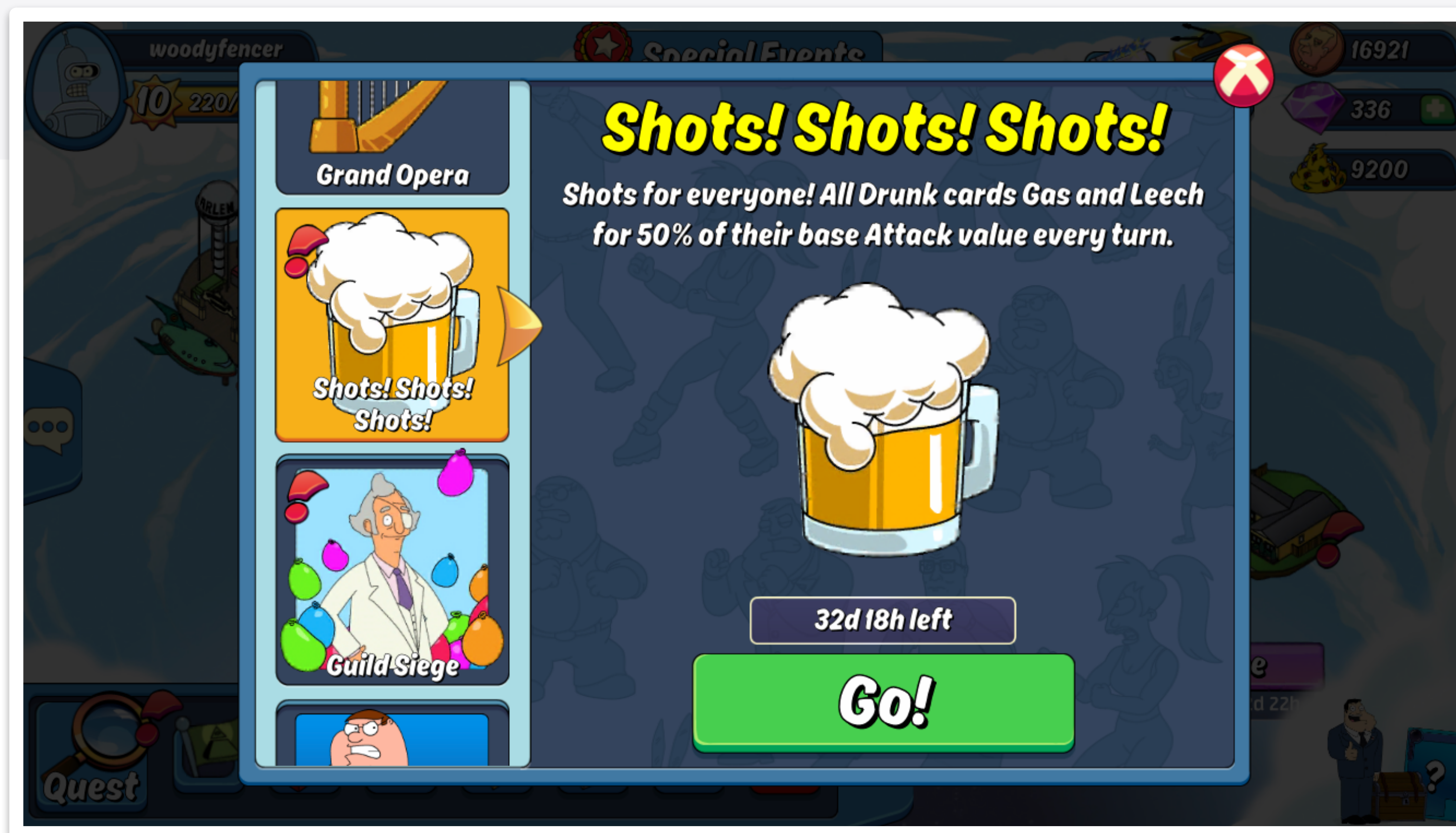
Traits don't have stats... Are they useless?





LIMITED TIME BONUSES

Grant a specific bonus or penalty based on a trait



Leach: healing skill 

 Gas: attack skill



LIMITED TIME BONUSES

Puzzle solving, the right combination will give you a **more powerful deck**

reddit

r/AnimationThrowdown

Search r/AnimationThrowdown

Posted by u/dsmerf214 3 days ago

2

Best drunk BGE combos?

What are your favorite? Trying to refine my deck

6 Comments Share Save

63% Upvoted

What are your thoughts? Log in or Sign up

LOG IN SIGN UP

SORT BY TOP (SUGGESTED)

Dangevin 4 points · 3 days ago

Someone asked me this in PM, and I wrote this up before the newest BGE combos, so it's a bit dated.

Here are the tier 1 combos. Some I didn't mention are better for Rumble, some better for Siege defense, but when the BGE rolls in, expect to use, abuse, and lose to:

Peter - Viking Peter Klaus - Whiskey Bartender Hayley - Rooftop Drunk Bullock - Drunk Bullock Louise - Fever Dreams Bender - Time for Hard Liquor Leela - Tropical Drinks Fry - Another Lousy Millennium

There are a ton of honorable mentions that are very playable. Drunk Peter, Party All the Time (Meg), Drunk at the Clam, Stan's three combos (Rough Night, Martini Drunk, Hungover) are all fair, Eggnog Roger, Chef Cat Munchies Eugene), Beta Beer Chug (Bob), Beer Bottle Toast (Boomhauer), Jose Servo (Bender), Mowing While Intoxicated (Hank), Drunk Peggy

Many others are borderline, they may have good skillsets, but just don't get enough of them to really push them over the edge. Usually because they're older and their input stats don't measure up.

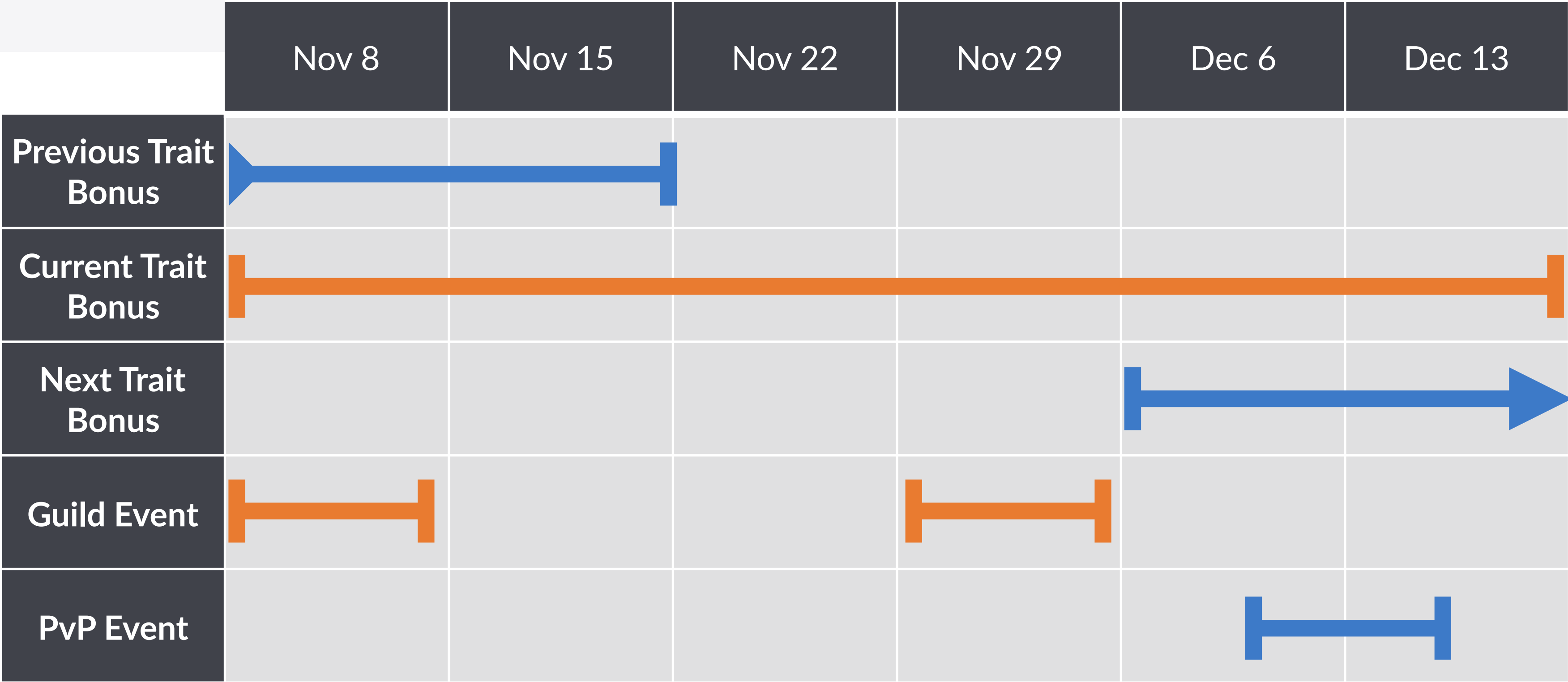
Important note on that: Drunk's had four generations so far, and they've gotten mostly, progressively better. What items you use means everything. I'm sure I don't need to tell you this, but you'll see some commonality when reviewing those combos, and what items go into them.

Reply Share Report Save



LIVE OPS CALENDAR

Well defined cadence of events.





LIMITED TIME BOXES

Exclusive cards that match the “active” trait

Featured **Cards** **Gems** **Items**

14744 181

Mythic Bundle
Includes 500 MYTHIC STONES, and 10,000 Gems! Combine 1000 Mythic Stones to craft a MYTHIC Card! Limit 2 per player.
\$99.99

Trashcan Drunk Box
Each pull gives one card from the box, and bonus Legendary Stones that have a chance to turn into MYTHIC STONES!
450

Quad Fused Epic Pack
Includes a random Quad Fused Epic card! Limit 1 per player.
3000

01:27



LIMITED TIME BOXES

Exclusive cards that match the “active” trait

Trashcan Drunk Box

5d 19h left

<div><div>1</div><div>Hank Hill</div><div><div>2</div><div>2</div><div>7</div><div>11</div></div><div>2/8</div></div>	<div><div>1</div><div>Chris Griffin</div><div><div>6</div><div>15</div></div><div>1/8</div></div>	<div><div>1</div><div>Oktoberfest Leela</div><div><div>3</div><div>1</div><div>4</div><div>6</div><div>24</div></div><div>3/8</div></div>	<div><div>1</div><div>Hungover Stan</div><div><div>4</div><div>4</div><div>9</div><div>18</div></div><div>3/8</div></div>
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Buy

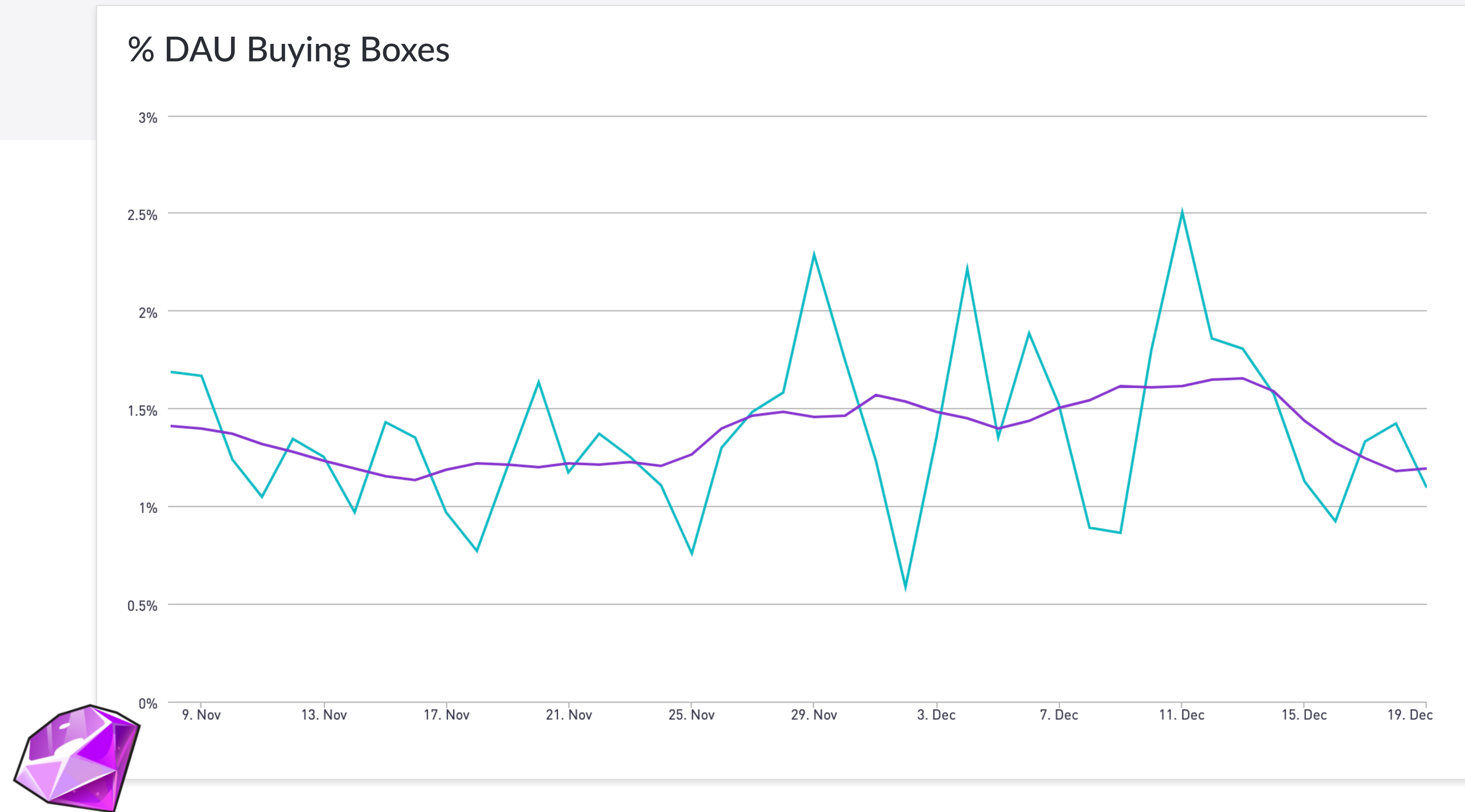
450

Collected: 30/96

03:27

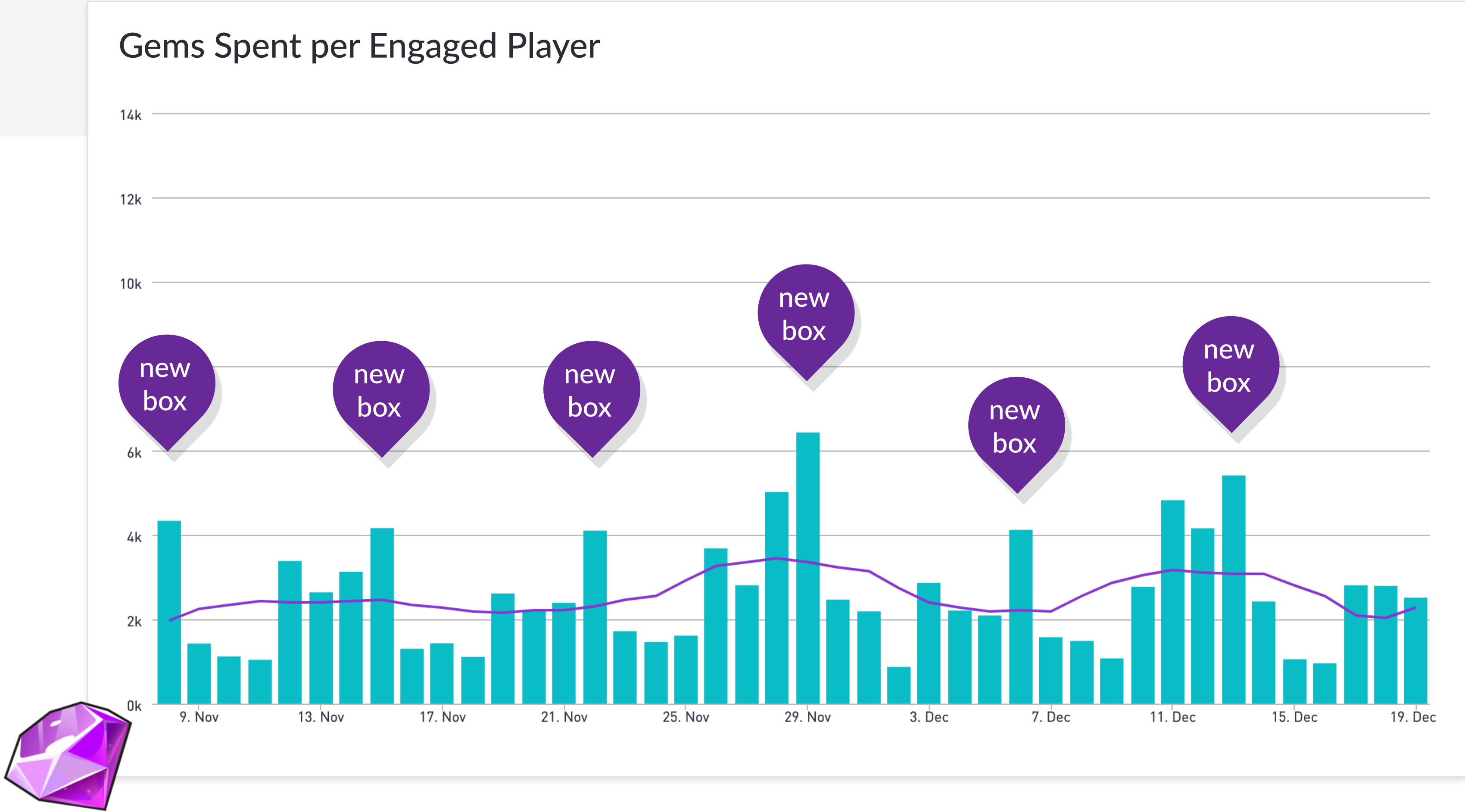
BOX ENGAGEMENT

The most committed players regularly engage with the boxes



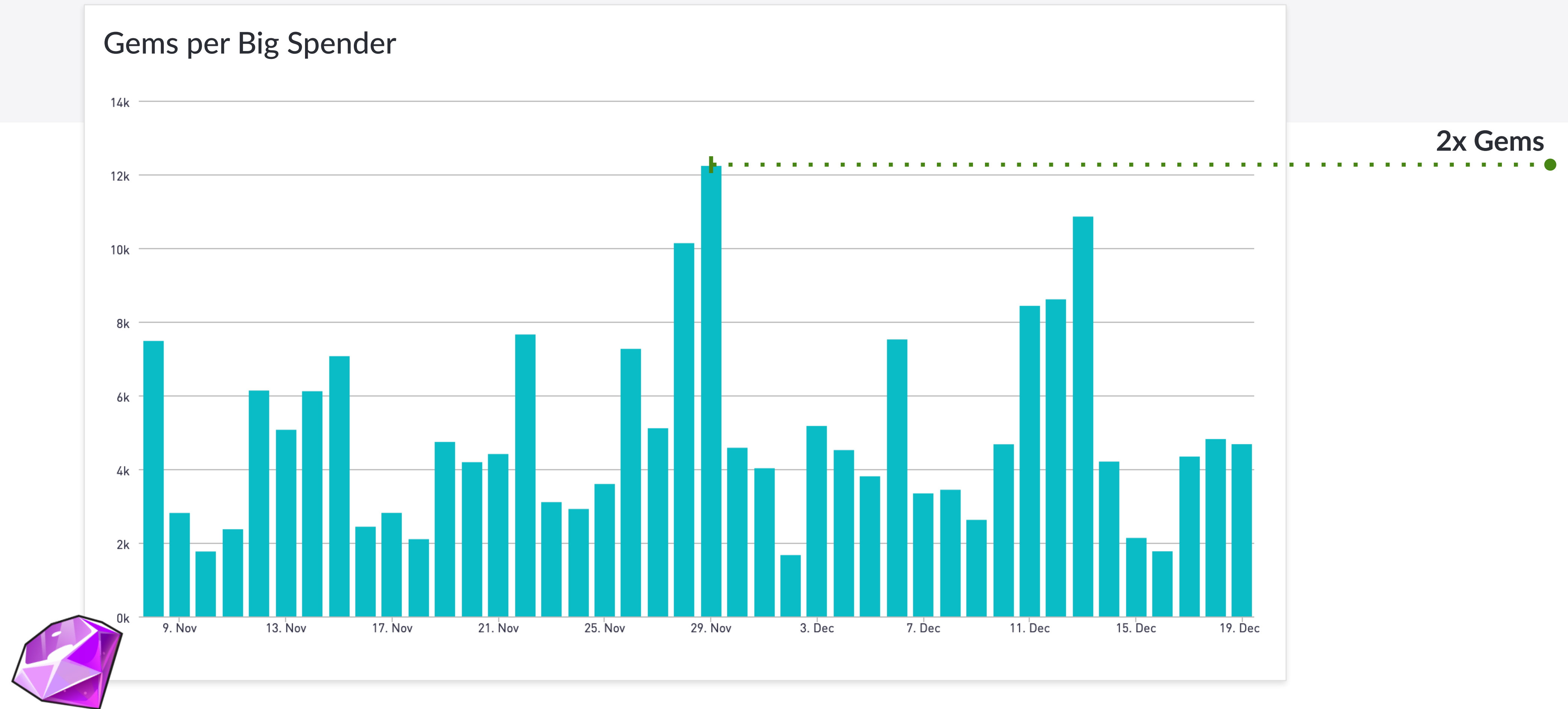
STEADY GEM SINK

Cadence of new boxes keeps spending players engaged



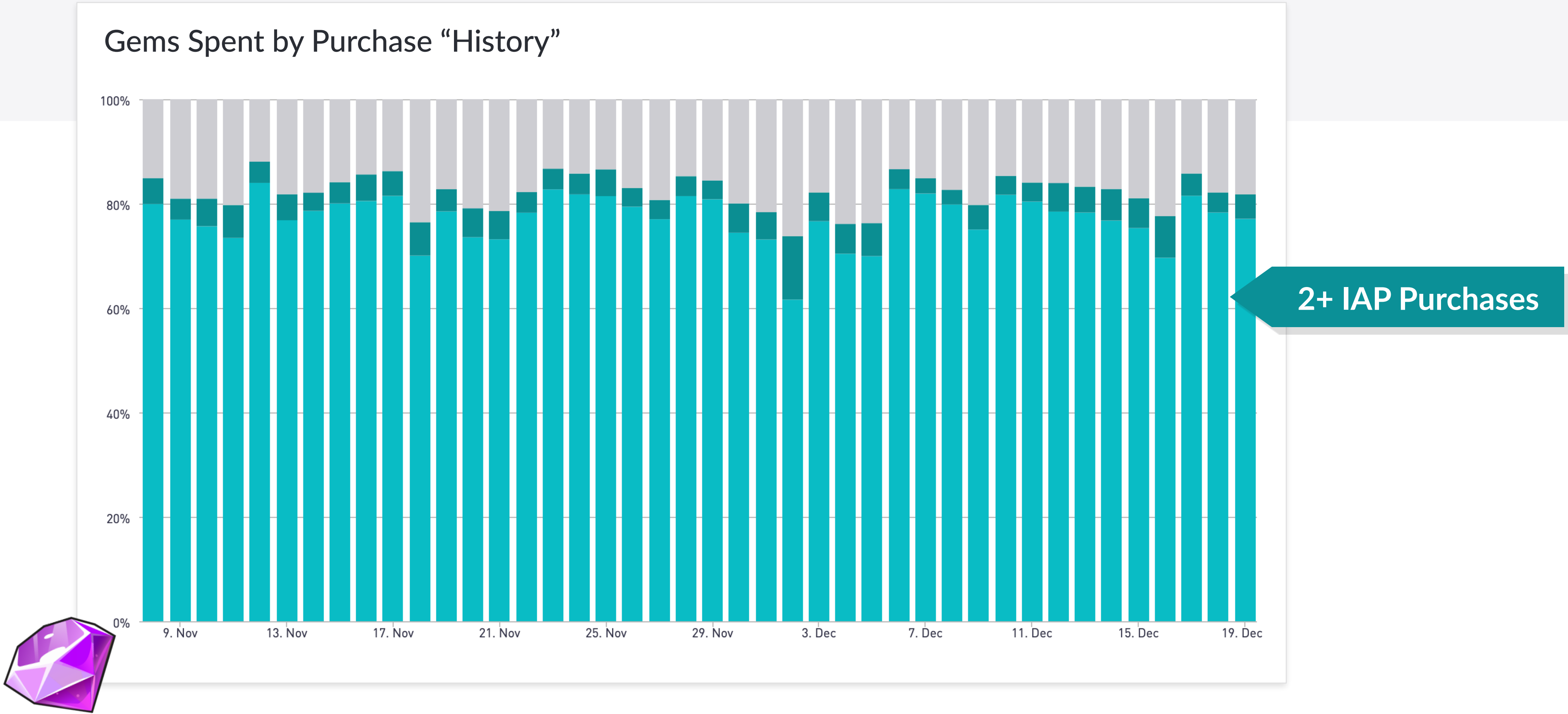
“DEEP” GEM SINK

High spending players, **spend a lot** of gems in boxes!



GEMS SPENT IN BOXES

70-80% of gems spent come from regular spenders



LIVE OPS STRATEGY

Tied to the **core design** of the game



Regular and deep content updates



Result

Strong “depth” of spend



Measure

Repeat purchase %

Spending players will **want to spend**

Purchase satisfaction

If it is worth it!

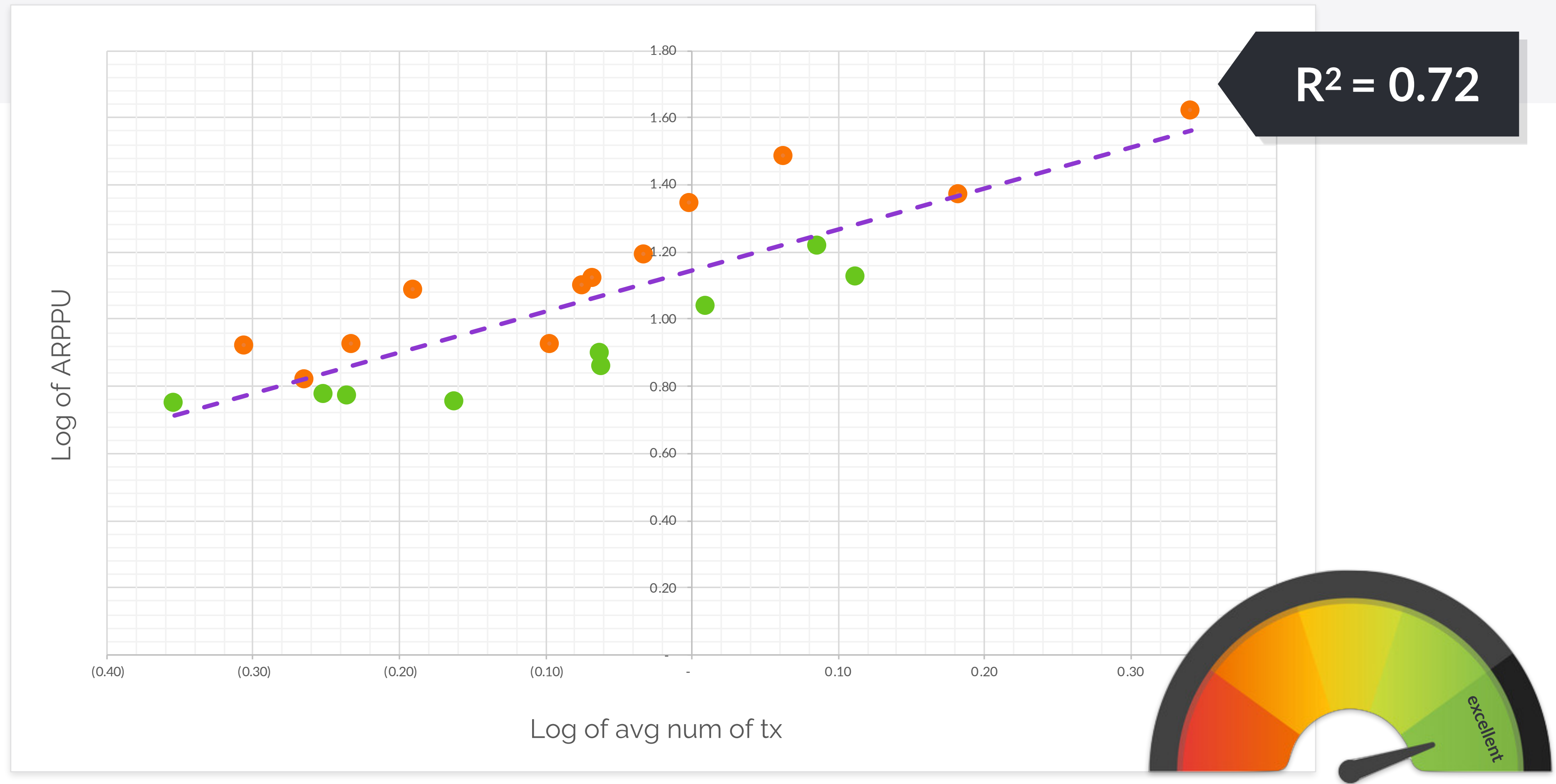


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WHICH **KPIs** HAVE A STRONG
RELATIONSHIP WITH % BUYERS & **ARPPU**?

LIFETIME TRANSACTIONS & ARPPU

Higher ARPT + a lot of transactions => Win!



LESSONS

- 1 Sessions matter
- 2 Price-points matter
- 3 Maximizing % buyers is important
- 4 ARPPU matters and varies by genre
- 5 Keep % repeat spending in mind
- 6 Increase the number of transactions

CASE STUDY

INCREASING TRANSACTIONS

Studio: Synpase



★
**IT'S A
GAME!**
★



TIER BOXES

New design for event boxes!

Tiers **guarantee** cards

Buy more ➡ go up tiers

Higher tier ➡ higher price

Higher tier ➡ better value!

Reduce Randomness!





Similar idea to the old gacha boxes, reduced risk for players



rewards available



TIER BOXES

Similar idea to the old gacha boxes, reduced risk for players

best card

Topped Off Tier Box

3d 3h



1 Topped Off Wine

6 6 7 26

Legend Guaranteed on Tier 5!

Tier 1/8

Reward Pool:



Tap to see all cards

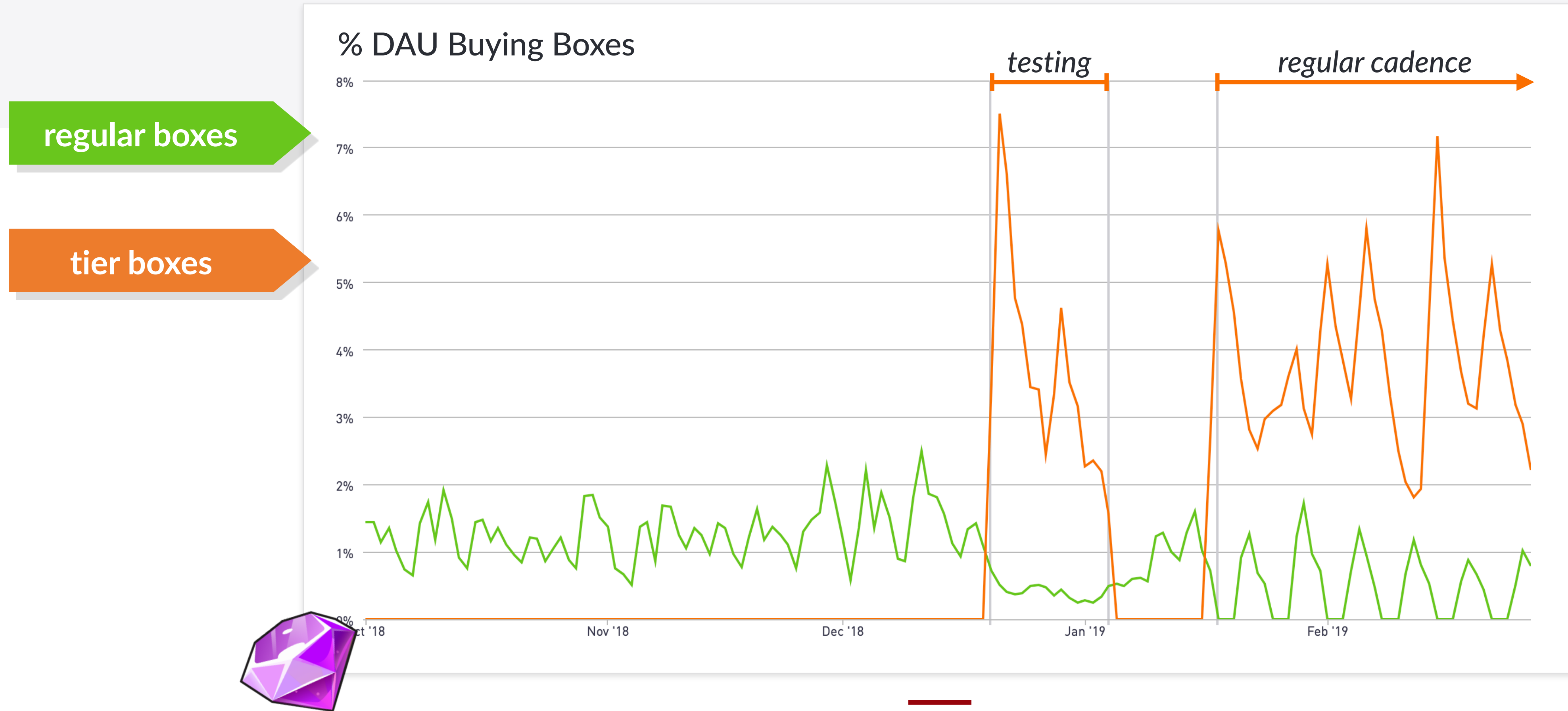
You Get:

Lvl. 1 Dinner Wine Bob	1
Lvl. 1 Epic or better	1
Research Speedup +8	2
Legendary Stone	200
Giggitywatts	100

Buy  200

INCREASED ENGAGEMENT

Breadth: More players engaged with **Tier Boxes**

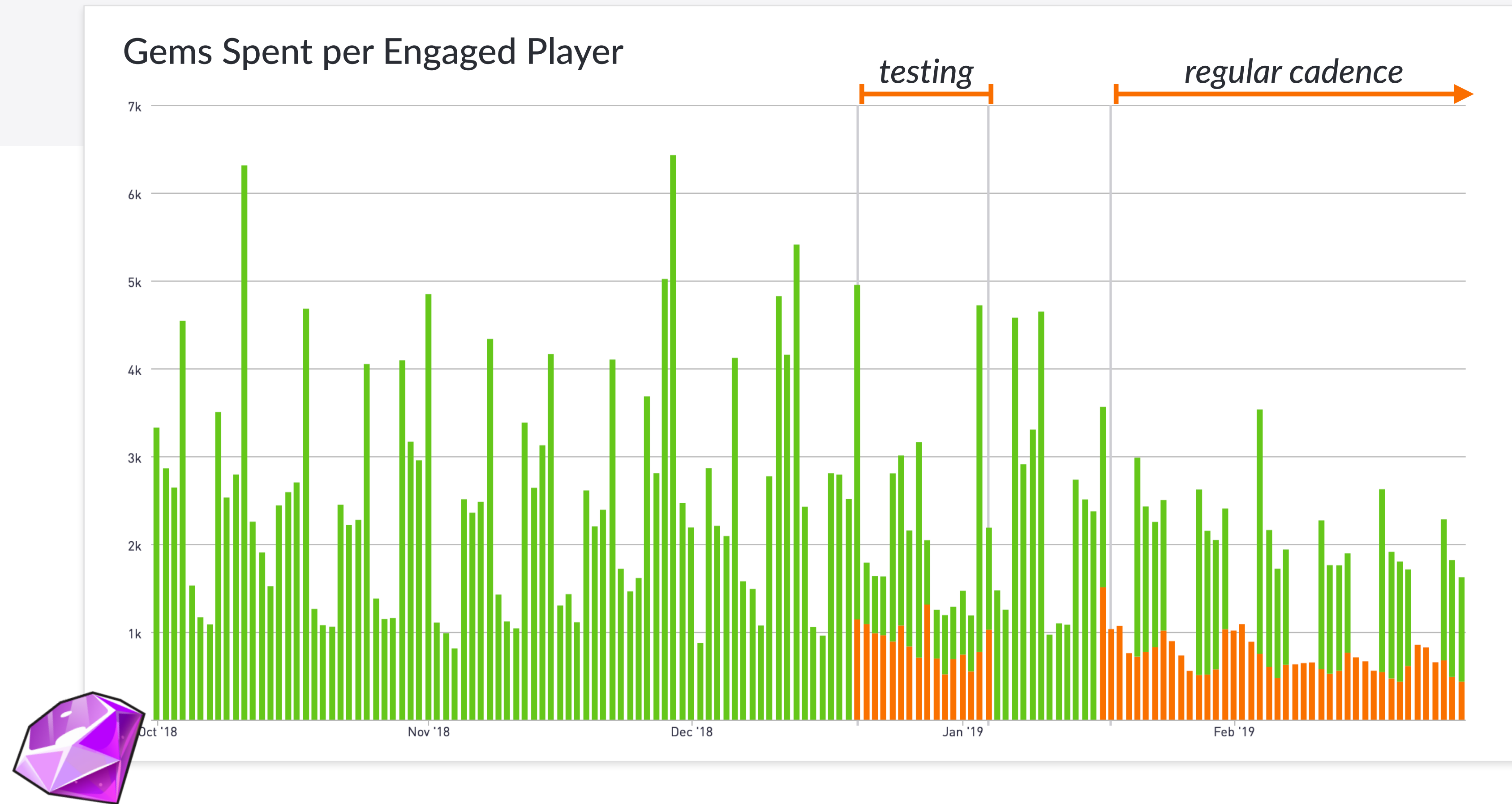


Similar System

More Approachable

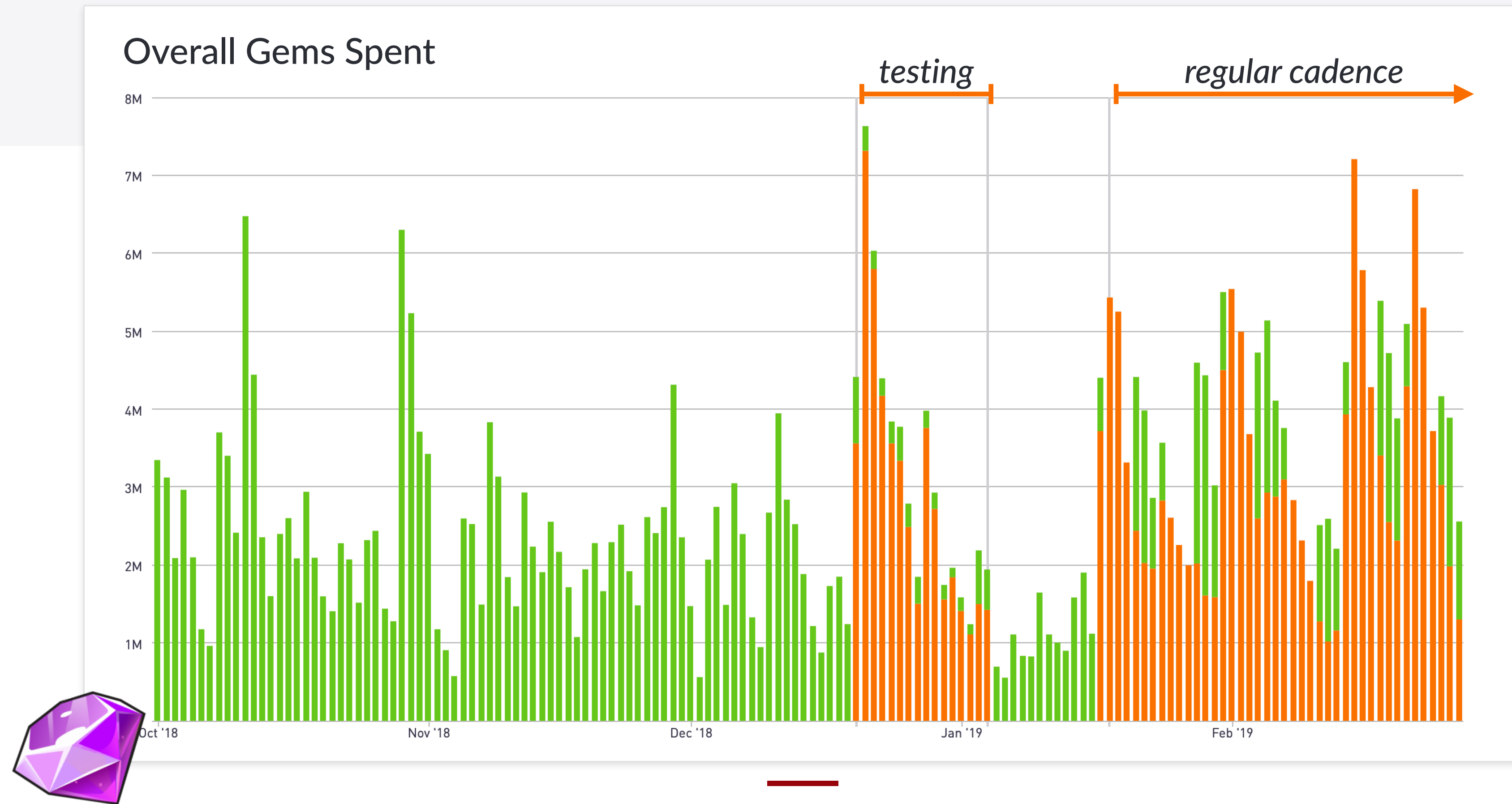
LOWER GEM SPEND

Then... Is the system viable?



INCREASED GEM SPEND

Found the right balance and system that scales up

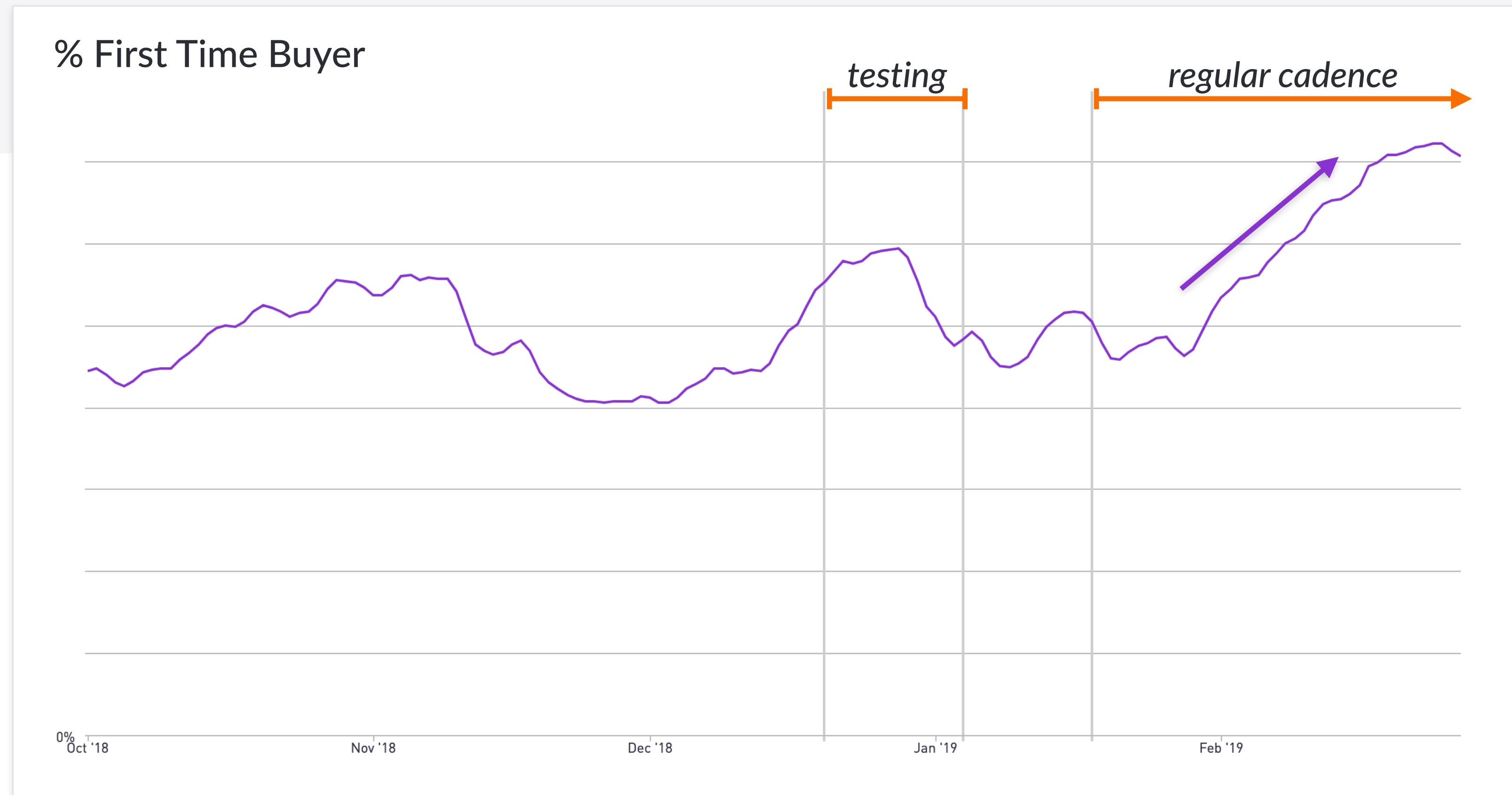


Lower Starting Price

Much Higher Engagement

INCREASED CONVERSION

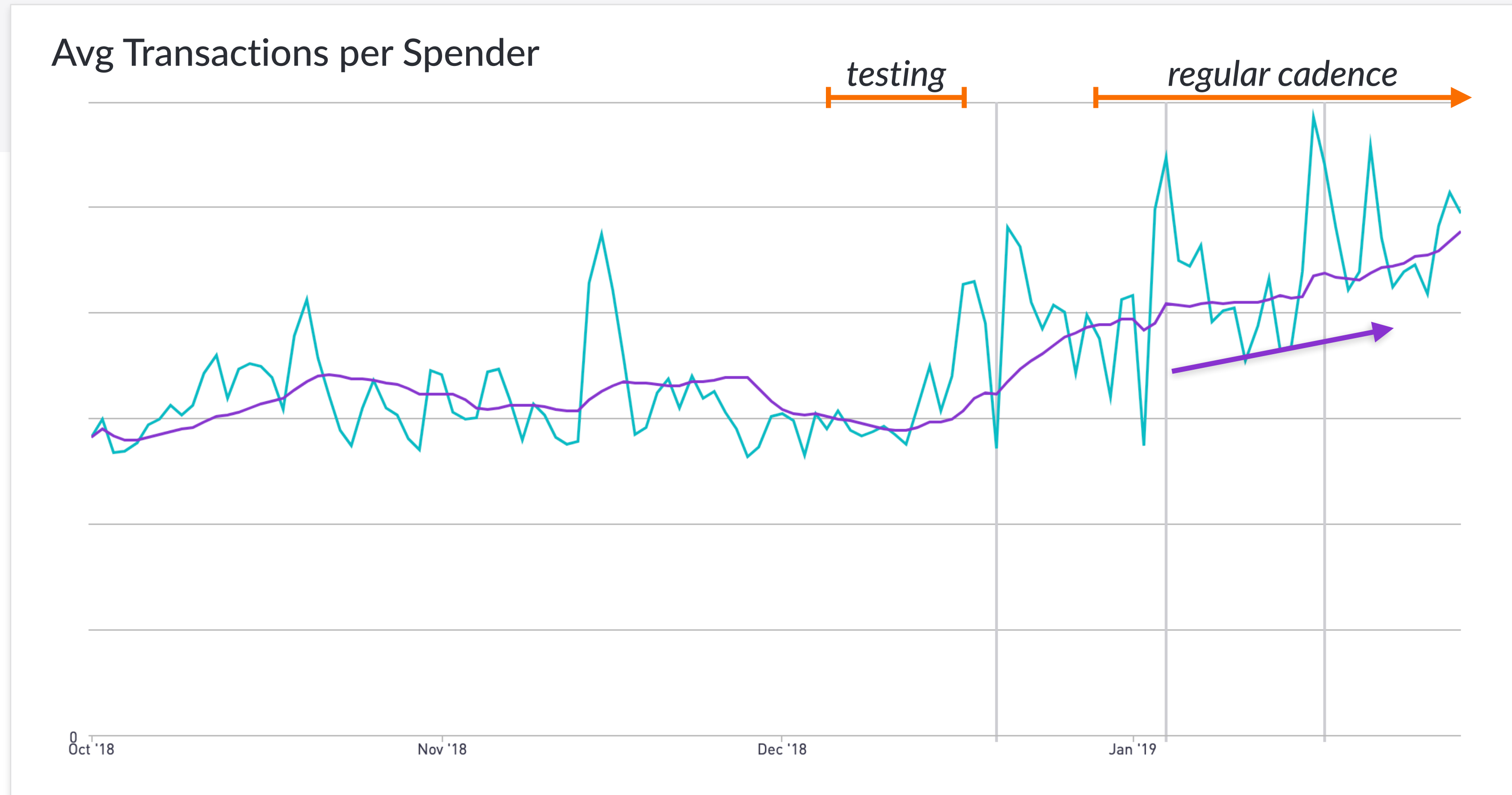
Didn't you say we shouldn't focus on this too much?!



Breadth: Higher Engagement

INCREASED AVG TRANSACTIONS

Win, win: players also increased how many times they purchase!




Breadth: Higher Engagement

Depth: Increased IAP Transactions

LIVE OPS STRATEGY

There is always room for improvement

 Iterate and test different approaches

 **Find the balance**
Between breadth and depth

 **Results**
You can increase both

Spending players will **want to spend**

Without underpricing

If it is worth it!





—
To SUMMARIZE

An illustration of three stylized figures (two men and one woman) holding mobile devices. The man on the left wears a cap and holds a tablet. The man in the center holds a smartphone. The woman on the right holds a tablet. They are all looking down at their devices. The background is dark blue with several gold dollar coins floating around. The text is centered over the figures.

SOME PLAYERS ARE **MORE LIKELY** TO SPEND
% BUYERS NARROW BAND

An illustration of three people (two men and one woman) from the chest up, holding and looking at mobile devices. The person on the left is a man wearing a black cap and a black t-shirt. The person in the middle is a man with short dark hair, wearing a black t-shirt. The person on the right is a woman with dark hair, wearing a dark blue t-shirt. They are all looking down at their devices. The background is a dark blue-grey color with several gold dollar coins floating around. The text is centered over the illustration.

WHEN OPTIMIZING MONETIZATION Go **DEEPER**, THINK BEYOND % BUYERS

KPIs TO WATCH

% buyers (still matters)

ARPPU

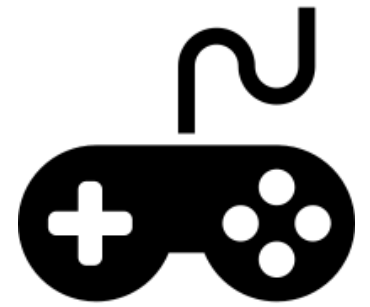
% repeat spenders

Number of transactions



KEY TAKEAWAYS

If you don't remember anything else



Sessions

It all starts with a fun engaging game!



Pricing

Don't underprice your game



Depth

Spending players will want to spend
Provide the content to go deeper





THANK YOU

and to everyone that made this talk possible



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ACRONYM DICTIONARY

F2P = Free to Play

KPI = Key Performance Indicator

IAP = In-App Purchases

CCG = Card Collecting Game

LTV = Lifetime Value

ARPU = Average Revenue Per User

ARPPU = Average Revenue Per Daily Active User

ARPT = Average Revenue Per Paying User

ARPT = Average Revenue Per Transaction

DAU = Daily Active User

MAU = Monthly Active User