



# MILLE LACS CORPORATE VENTURES

University of Minnesota – Twin Cities  
MSBA 6410 - Fall 2019  
GROUP 1

# Executive Summary



## Problem

Headcount and promotion redemptions have been declining for MLCV from year to year. What can we do to stop this trend, or possibly reverse it?



## Analysis

- Demographic breakdown of players
- Breakdown of successful vs unsuccessful promotional campaigns
- Association rules testing
- Yelp sentiment analysis



## Conclusions

- Cultivating the customer experience should be a key improvement area
- Opportunity for targeting customers from the Twin Cities
- Negative returns on Event, Gift, and Free Table Gaming Promotions
- Massive drop in redemptions entering 2018
- Smoking is damaging customers' views of the casinos
- Opportunity for entering new and growing markets in the gaming industry (sports betting)

# Current Problem



- Overall headcounts have declined by 9% on average from 2015 to 2018; moreover, redemptions have also declined by 1.2%
  - Questions to be answered:
    - Which promotions are popular or not? Which promotions drive trip decisions?
    - What are the demographics behind offer utilization?
    - How do we use promotions to improve the headcounts?
- Long term success:
  - “Smooth” out player headcount - remove volatility
  - Improved customer engagement and experience for players through the enhanced marketing program

# Adverse Macroeconomic Trends



CONSUMER  
DEBT LEVELS



REAL WAGE  
DECLINE



CONSUMER  
CONFIDENCE



Adverse macroeconomic conditions will put further pressure on casino industry in the coming years. Value-for-money strategies and promotions will be critical.

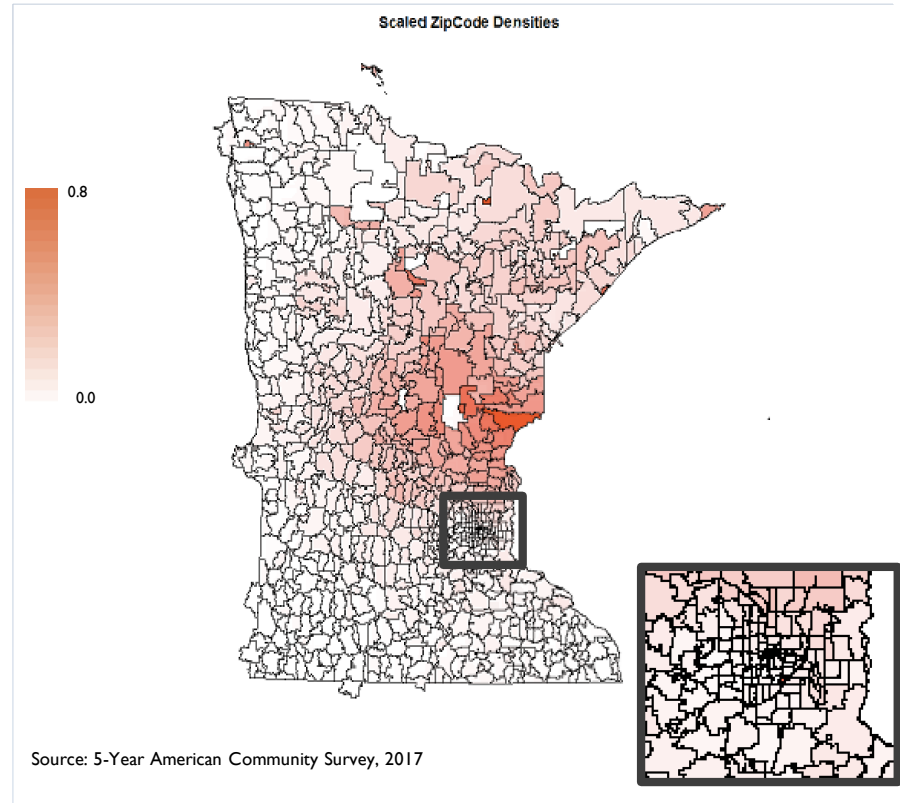
# Summary of Data analyzed

- Data received summary
  - Player Dimension - demographics & attributes describing players
  - Coupon Dimension - attributes describing gaming coupon
  - Coupons Redeemed Fact - metrics related to all coupons that were redeemed
  - Coupon Group Fact- metrics related to all coupons that were issued
  - Player Day Fact - metrics related to all player visits and their gaming history
- External Data Sources summary
  - Yelp Reviews - customer reviews of experience at MLCV
  - American Community Survey - population densities



# Customer Locations

- Customer densities (right) peak in nearby and northeastern zip codes.
- Metro-area Minnesota is undersaturated.



➤ Postal codes near casinos are relatively saturated, but Twin Cities metro area under visiting. Consider marketing campaign in Metro area.

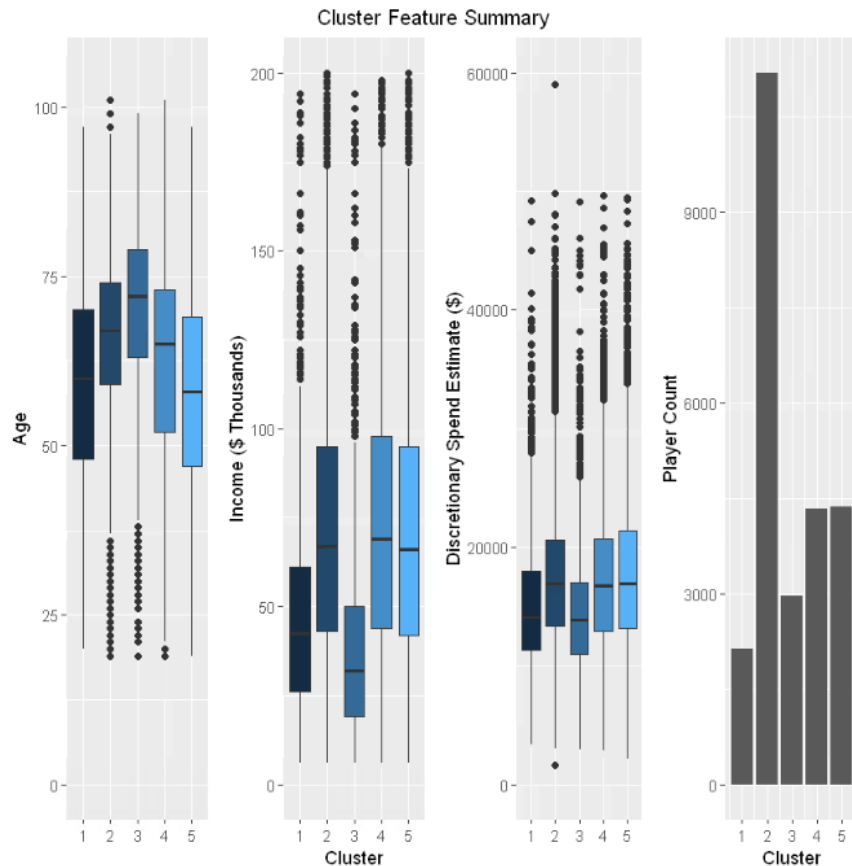
# Cluster Analysis

Cluster analysis of players who redeemed coupons shows five distinct clusters.

- Cluster 1 had a high proportion of players from St. Paul, MN (50% of the cluster).
- Cluster 2, 4, and 5 have high mean household income, high discretionary spend estimates, and a relatively low mean age.

t-SNE graphing shows dense clustering. (Appendix 5)

**Silhouette Coef. = 0.34**

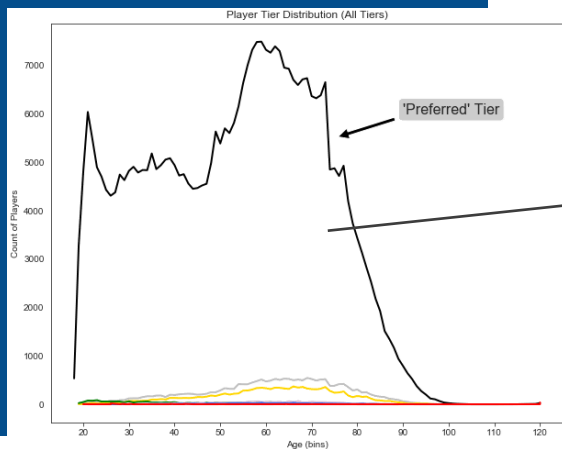


Cluster analysis shows five distinct clusters of players who are redeeming the promotions. Each of these clusters likely requires a unique experience and should be tailored to accordingly.

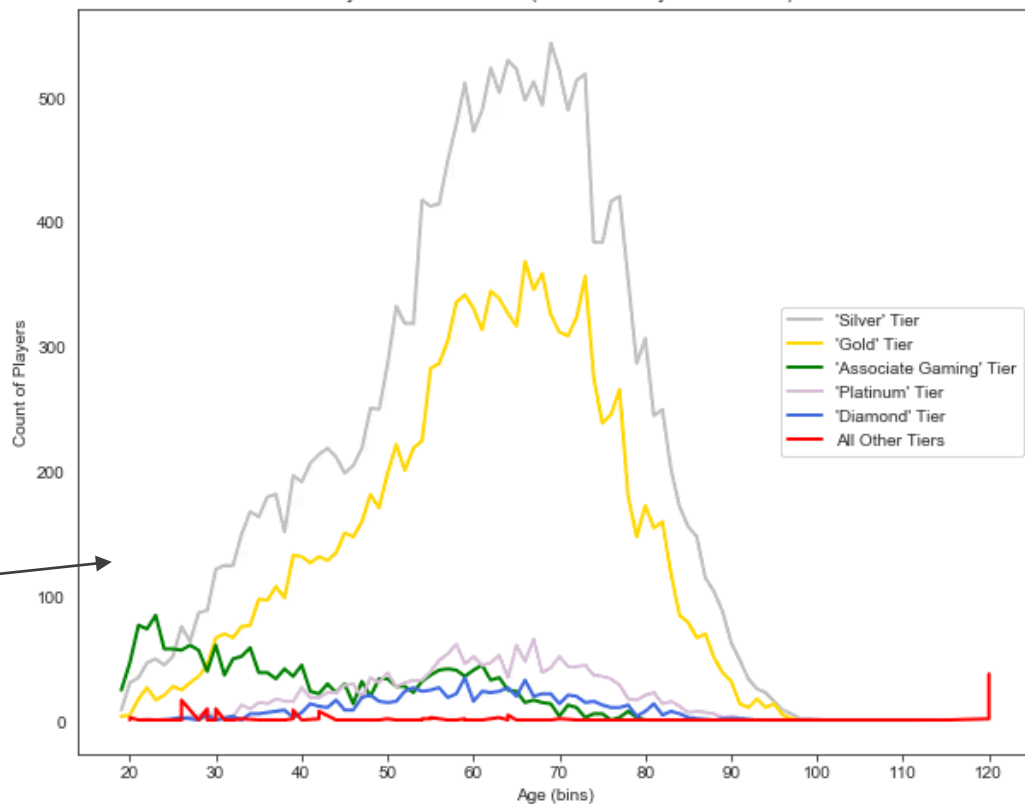
## Player Tier by Age

Age distribution of players indicates disproportionately older players.

Cycling consumer base important to sustained growth.



Player Tier Distribution (Preferred Players Excluded)



Player tiers follow the same distributions among age groups; most players fall between the ages of 50 through 80.

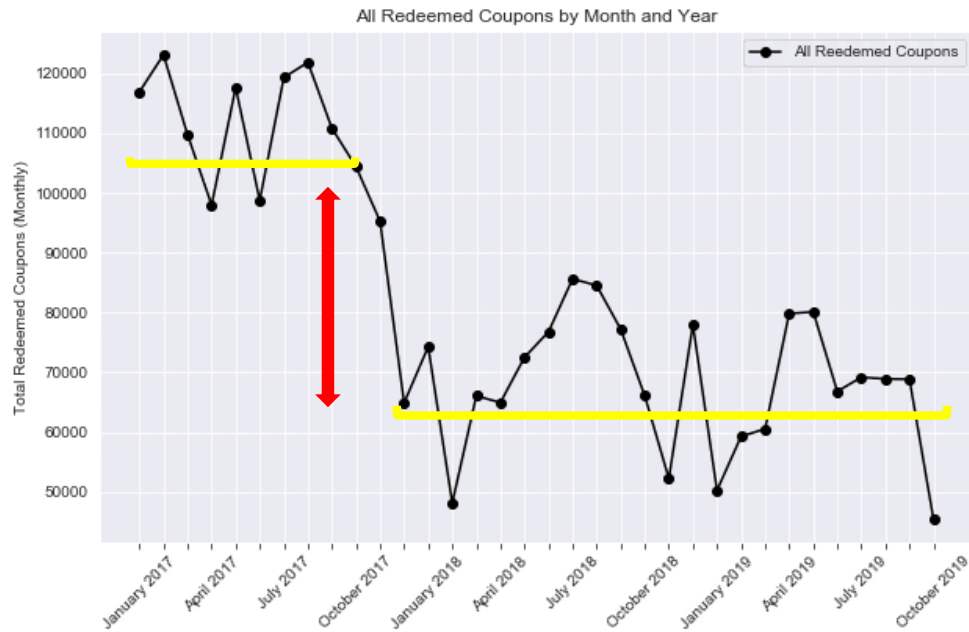


# Promotions Redeemed by Type

- Top Categories
  - Cash - Bonus
  - Hotel - All
  - Free Slot Gaming
  - Cash - Mystery
  - Cash - Cash

Coupon Type	Coupon Subtype	Redemption Count	% of Overall Total	Cumulative % of Overall Total
Cash	Bonus	688847	24.700808	24.700808
Hotel	All	638501	22.895492	47.596300
Free Slot Gaming	Grand Play	290835	10.428817	58.025117
Cash	Mystery	290224	10.406908	68.432025
Cash	Cash	187025	6.706378	75.138404
Hotel	HK	135938	4.874491	80.012895
Other	Other	116120	4.163853	84.176748
Gift	Other	84195	3.019081	87.195828
Points	Match Point	79035	2.834052	90.029881
Hotel	ML	63634	2.281800	92.311681

➤ Cash, Hotel and Free Slot Gaming coupons boast the highest redemption rates. Focus future marketing endeavors around these channels

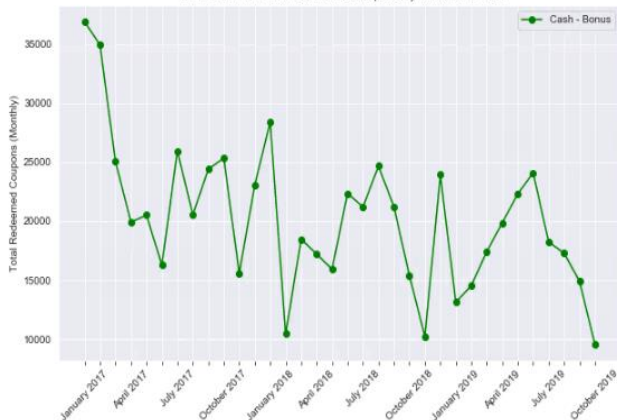


## Redeemed Promotions

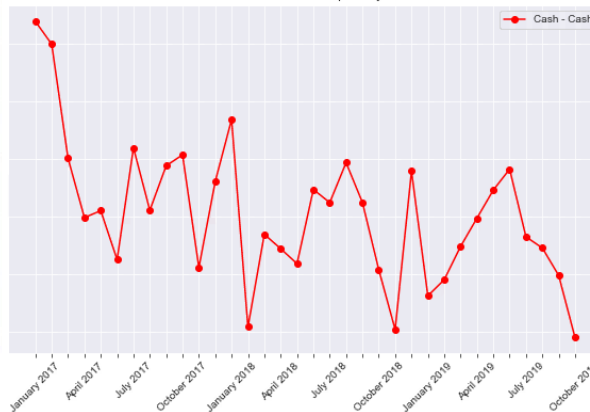
- What happened after 2017?
- Number of coupons redeemed drop dramatically.

Looking more deeply at cash promotions which make up 40% of the redeemed promotions. Over the past three years, redemptions on cash promotions have exhibited seasonal volatility

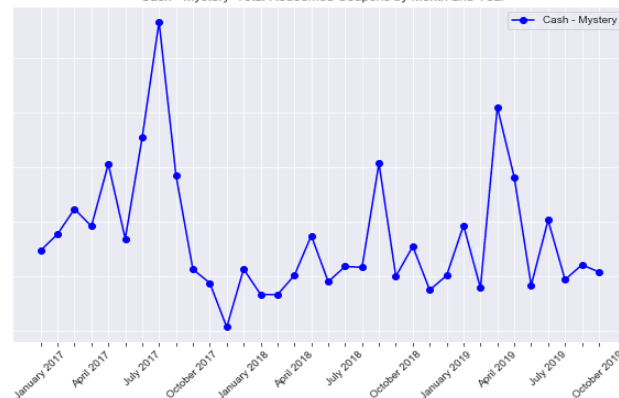
'Cash - Bonus' Total Redeemed Coupons by Month and Year



'Cash - Cash' Total Redeemed Coupons by Month and Year



'Cash - Mystery' Total Redeemed Coupons by Month and Year



## Cash Promotions

- Major peaks from month to month
- Appears to be sporadic
- Highest Peaks follow August

# ASSOCIATION RULE TESTING

- In 2017, Gold & Silver tiered payers redeemed coupons valued at \$29 for hotel stays; these coupons were targeted at "Loyalty" players.
- In 2018, we see similar redemption activity, but now we see the inclusion of Gazette being the program type; in addition, we see that "Preferred" players also redeemed coupons related to hotel stays.
- In 2019, redemption activity mirrors the first set of rules; the combination of targeting to "Loyalty" players, for hotel related coupons, using the Gazette lead to a significant amount of redemptions.

**Support:** how often do these "items" appear together?

**Confidence:** how strong is my association between these "items"?

**Lift:** how often do these items appear together, compared with pure chance?

**Count:** count of redeemed coupons

2017

	LHS	RHS	support	confidence	lift	count
	{ValidYear=17,TargetPop=Loyalty,TypeDescription=Hotel,TierName=Gold}	{RedeemValue=29}	0.2871111	0.9810343	1.1008715	35588
	{ValidYear=17,TargetPop=Loyalty,TypeDescription=Hotel,TierName=Silver}	{RedeemValue=29}	0.2033690	0.9491321	1.0650723	25208

2018

	{ValidYear=18,TargetPop=Loyalty,ProgramType=Gazette,TypeDescription=Hotel,TierName=Gold}	{RedeemValue=29}	0.2625140	0.9671325	1.1140885	29484
	{ValidYear=18,TargetPop=Loyalty,ProgramType=Gazette,TypeDescription=Hotel,TierName=Preferred}	{SubTypeDescription=All}	0.3363071	0.9995501	1.0004498	37772

2019

	{ValidYear=19,TypeDescription=Hotel,SubTypeDescription=All}	{RedeemValue=29}	0.5572722	0.7744302	1.1602410	63772
	{ValidYear=19,TargetPop=Loyalty}	{ProgramType=Gazette}	0.8663532	0.9501184	1.0966870	99142
	{ValidYear=19,TypeDescription=Hotel,SubTypeDescription=All,TierName=Gold}	{TargetPop=Loyalty}	0.2122234	0.9986430	1.0951989	24286

# Which Promotions are Working?

## ■ Major Findings:

- Gold tier players prefer "Cash" and "Hotel"
- Preferred tier players prefer "Hotel", "Cash", and "Free Slot Gaming"
- Silver tier players prefer "Cash" and "Hotel"
- Platinum tier players prefer "Cash"
- Diamond tier players prefer "Cash"

## ■ Hidden Findings:

- Free Slot Gaming is the third most successful
- "Other" is effective on Preferred customers

\*we removed admin, vendor, and associate from the player tiers so overall customers does not sum to 100%

Player Tier	Cash	Event	Free Slot Gaming	Free Table Gaming	Gift	Hotel	Other	Points	POS	Grand Total	% of Overall Customers
Gold	16.75%	0.18%	2.53%	0.43%	1.49%	7.67%	0.75%	1.17%	0.75%	31.72%	3.1%
Preferred	7.84%	0.10%	5.83%	0.14%	0.77%	11.26%	2.39%	1.24%	0.74%	30.31%	90.7%
Silver	9.11%	0.08%	1.53%	0.19%	0.76%	6.13%	0.43%	0.84%	0.45%	19.52%	4.9%
Platinum	5.12%	0.15%	0.85%	0.15%	0.51%	2.56%	0.24%	0.35%	0.20%	10.13%	0.4%
Diamond	3.66%	0.13%	0.64%	0.12%	0.47%	2.31%	0.23%	0.25%	0.15%	7.96%	0.2%
Grand Total	42.48%	0.64%	11.38%	1.03%	4.00%	29.93%	4.04%	3.85%	2.29%	99.64%	99.3%

➤ Only Cash, Free Slot Gaming, and Hotel are effective promotions

# Sentiment Analysis

Yelp! reviews were extracted and a TF-IDF Trigram based SVM sentiment analysis was performed. We focus on negative responses:

- [Smoking] was a frequent indicator of negative review
- 'Was' and 'think' are indicators of negative reviews

SVM Metrics:

- Accuracy: **85%**
- AUC-ROC: **0.717**

Size of trigram (three-word combination) in the word cloud below indicates larger importance in support vector machine model for predicting negative reviews.



Customer reviews are pure ground truth data. Consider implementing a standardized Sentiment Analysis program leveraging Google Reviews

# Sports Betting

MN Senate tax committee estimates \$2B in betting a year.

- Iowa approved legal sports betting August 2019. Iowa model of digital distribution.

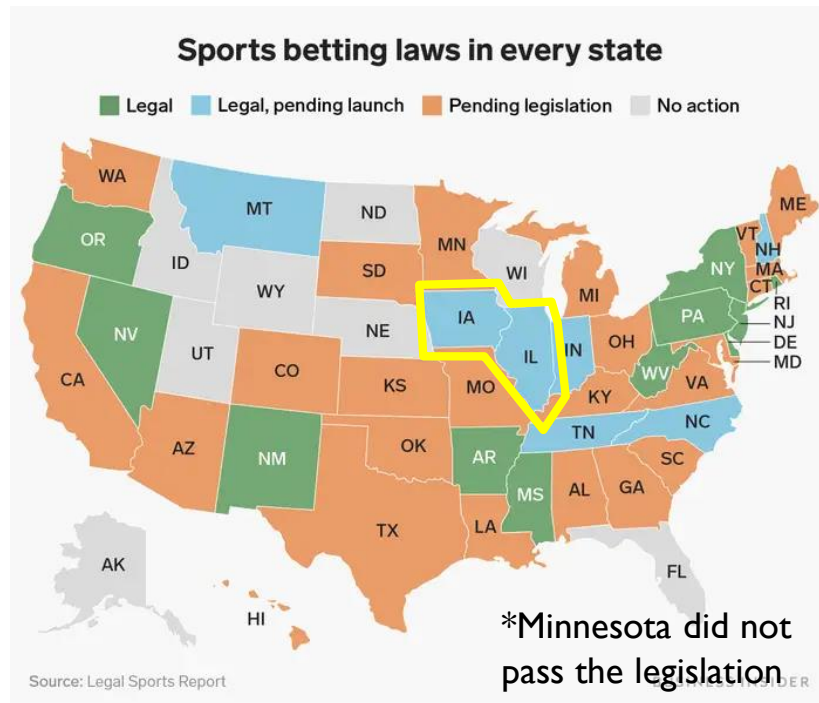
Sports betting would open a brand new micro-segment of consumers that aren't currently making trips to the casino.\*

<https://www.usbets.com/aga-study-sports-betting-demographics/>

Opportunities to market around sports events such as March Madness or the World Cup to draw head count.



Sports betting offers untapped micro-segments that target a new customer base.



<https://www.businessinsider.com/states-where-sports-betting-legal-usa-2019-7>

# Conclusions

- Adverse macroeconomic conditions will put further pressure on casino industry in the coming years.
- Postal codes near casinos are relatively saturated, but Twin Cities metro area under visiting.
- Cluster analysis shows five distinct groupings of player that are redeeming promotions
- Cash, Hotel and Free Slot Gaming promotions boast the highest redemption rates
- Sentiment analysis of Yelp! reviews indicates [smoking] was a frequent indicator of a negative review
- Sports betting offers untapped micro-segments that target a new customer base



# Recommendations

- Consider value-for-money strategies to combat adverse macroeconomic conditions and target underrepresented demographics.
- The player experience needs to be tailored with great care. Consider more targeted promotions and customer service.
- Reduce the number of promotions (Event/Gift/Free Table Gaming), focus on what works.
- Adopt sentiment analysis program and integrate consumer feedback into business management plans.
- Consider sports betting, within legislation, to get more people from the Twin Cities area throughout the year to visit the casino or adopt Iowa model of digital betting.
- Improve data capture methods.



# Appendix

## ABOUT MLCV

**Mission:** To improve the quality of life of Mille Lacs Band members, those in East Central Minnesota and the communities in which we do business.

**Vision:** To be a force that improves businesses and communities by infusing passion and ideas.

**Businesses:** Gaming | Hospitality | Marketing and Technology | Local Businesses



# INDUSTRY TRENDS



GROWTH



ONLINE  
GAMING



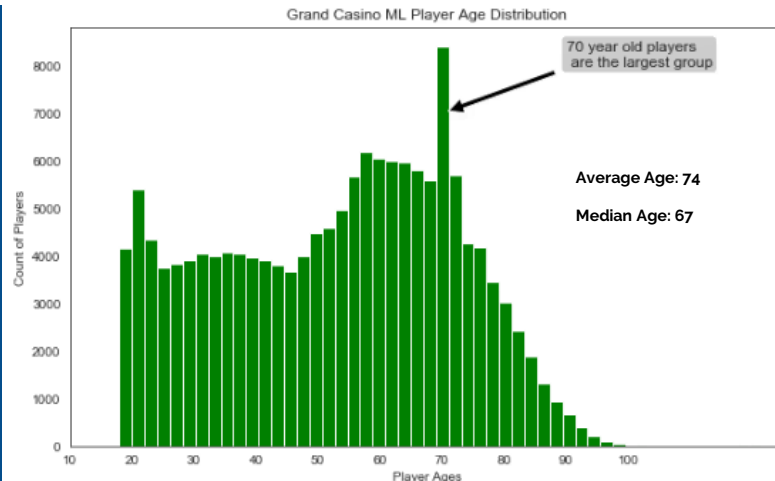
REGULATIONS



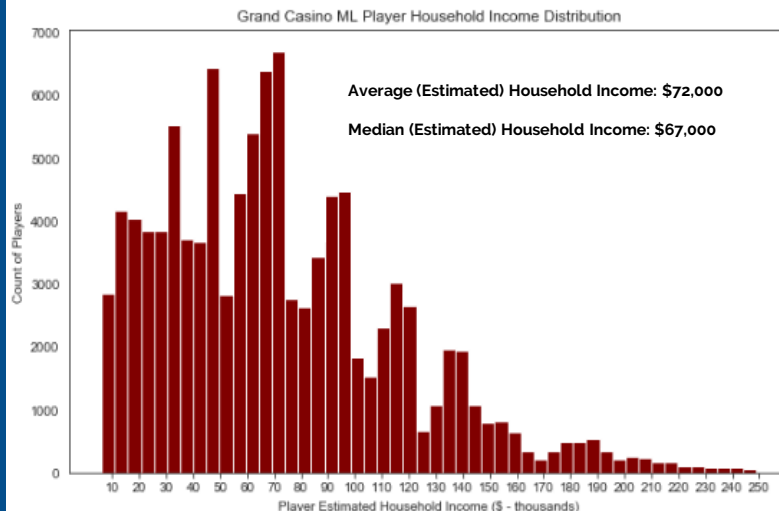
Some organizations are finding success in the industry by navigating new trends successfully

# Customer Age

# Household Incomes

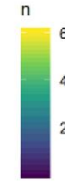
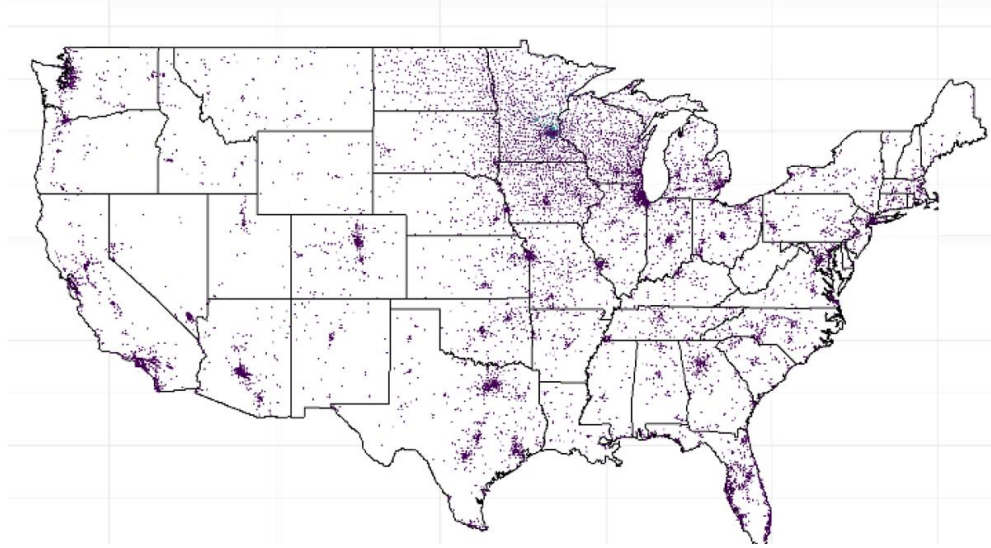


➤ Player ages are mostly normal distributed, with the largest group being 70 years old.

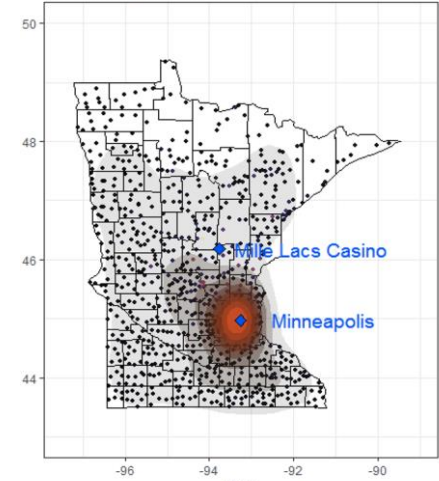


➤ Estimated Household Income for players is right skewed distributed; this means most of the population has an estimated household income less than or equal to \$70,000.

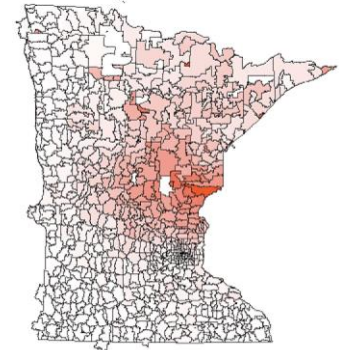
Customer Zip Code Density



Customer Zip Code Density



long Customer Zip Codes per Zip Code Resident



# CUSTOMER LOCATIONS

# t-SNE Plot

- t-SNE plot of cluster analysis shows 5 distinct clusters of player who redeem the promotions.
- Cluster features are mapped into low dimension features.

