

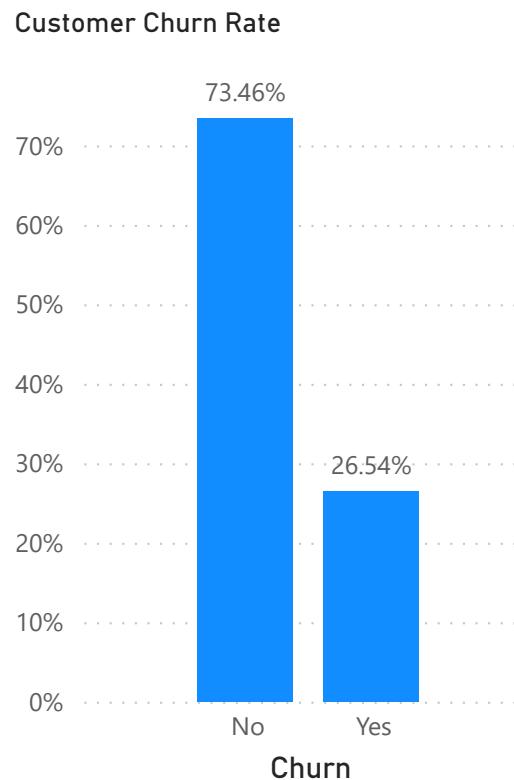
The telecommunications industry is highly competitive. As such, discerning, price-sensitive and/or flexible customers are likely to try a new service provider. This analysis will focus on the customer profiles that led to higher churn rates and insights to potentially prevent at-risk customers from leaving for a competitive product or service.



Capstone 1 Project  
Mary Thorpe

The sample data tracks a fictional telecommunications company's customer churn based on a variety of possible factors. The churn data indicates whether or not the customer left within the last month. Other data includes gender, dependents, monthly charges, and many with information about the types of services each customer has. Source: IBM. Location: *Team content > Samples > Data*.

This analysis is based on one month of customer sales data that includes a variety of factors including demographics, contract and service details, payment schedule, payment options, tenure and monthly charges. But which of these factors are tied to customer churn? Based on descriptive statistical analysis, some factors have a higher churn rate than the overall rate of 26.5%.

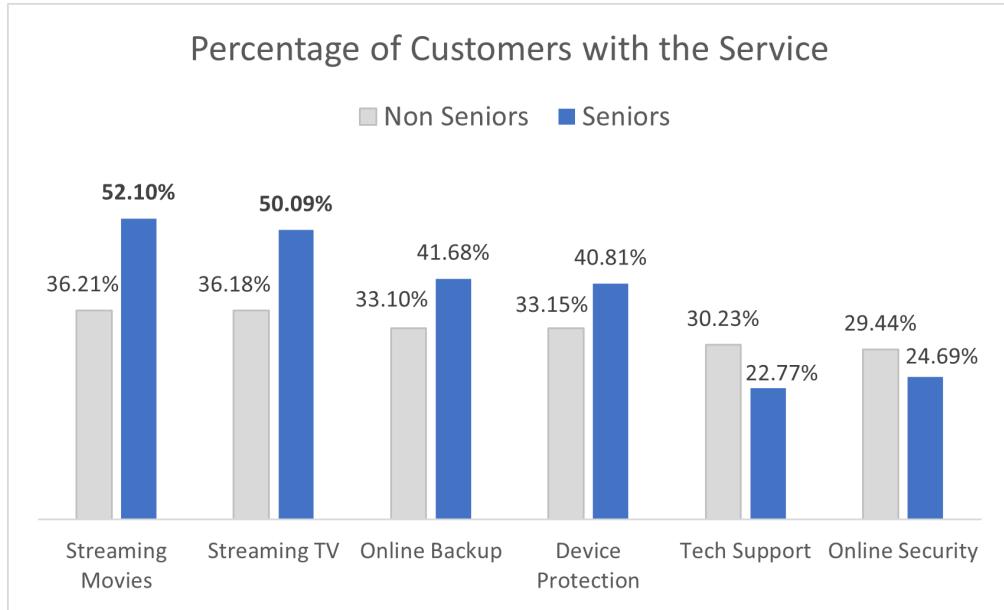


Variable Type	Factor	Factor Churn Rate
Payment Method	Electronic check	45.29%
Type of Contract	Month-to-Month	42.71%
Internet Service	Fiber Optic	41.89%
Demographics	Senior	41.68%
Payment Method	Paperless billing	33.57%
Demographics	No Partner	32.96%
Demographics	No Dependent	31.28%
Service	Streaming TV	30.07%
Service	Streaming Movies	29.94%
Service	Phone service	26.71%
Service	Device Protection	22.50%
Service	Online Backup	21.53%
Demographics	With Partner	19.66%
Payment Method	Mailed check	19.11%
Internet Service	DSL	18.96%
Payment Method	Bank transfer (automatic)	16.71%
Demographics	Dependent	15.45%
Payment Method	Credit card (automatic)	15.24%
Service	Tech Support	15.17%
Service	Online Security	14.61%
Type of Contract	One year	11.27%
Type of Contract	Two year	2.83%

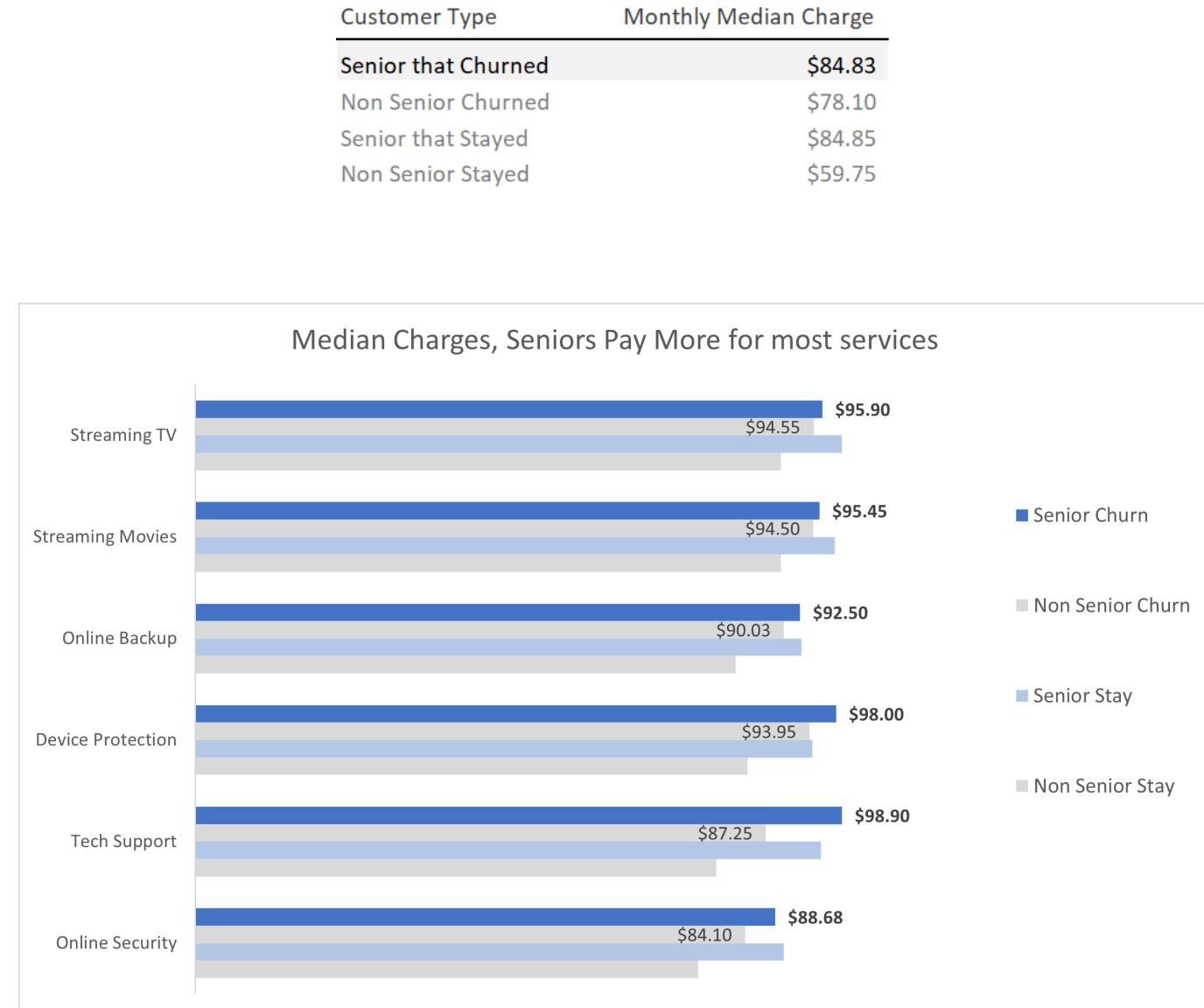
Some factors are churning over **40%** of customers

Based on analysis of customer demographics, nearly 42% of seniors left this month.

Most seniors are subscribed to fiber optic internet and more than 50% of seniors pay for streaming movies and TV, significantly more than other customers. Interestingly, the median monthly charges for senior customers is slightly more than non-senior customers.

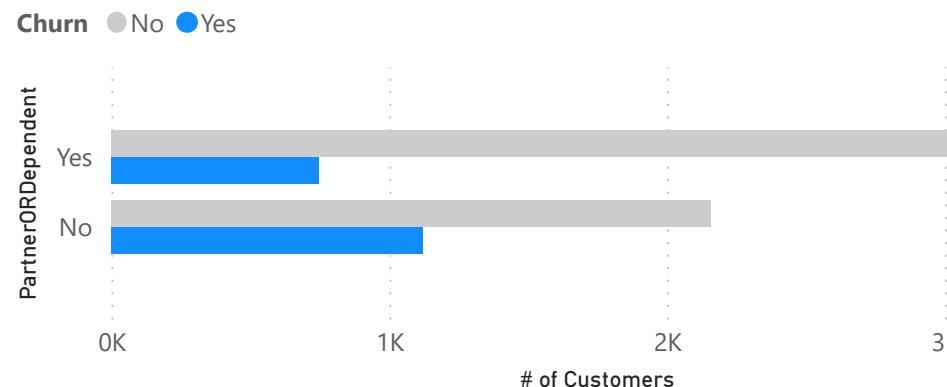


Service	Rank	Churn Rate	
		Senior	Non Senior
Streaming Movies	1	41%	26%
Streaming TV	2	40%	27%
Online Backup	3	32%	20%
Device Protection	4	31%	19%
Online Security	5	23%	13%
Tech Support	6	20%	14%

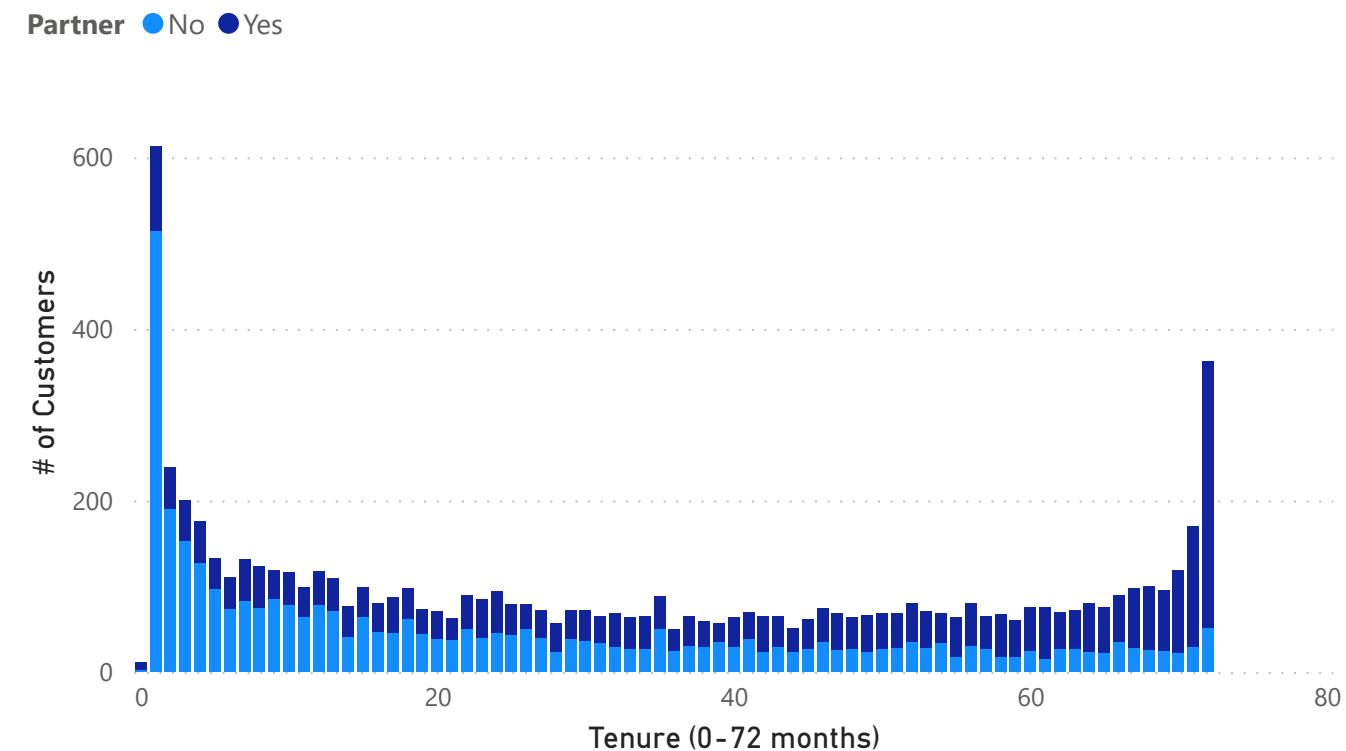


Customers that do not have dependents or partners have over 30% churn rate. Consequently, customers with Partners in particular tend stay much longer than those that do not have partners

Customers without Partner or Dependents have Higher Churn Rate



Customers with Partners Stay Significantly Longer



Breakdown of Churned Customers

% of Customers	Dependents	Partner
60.09%	No	No
22.47%	No	Yes
13.32%	Yes	Yes
4.12%	Yes	No

Tenure Comparison in Months

Dependents	Partner	Median of tenure
No	Yes	47
Yes	Yes	44
Yes	No	18
No	No	16

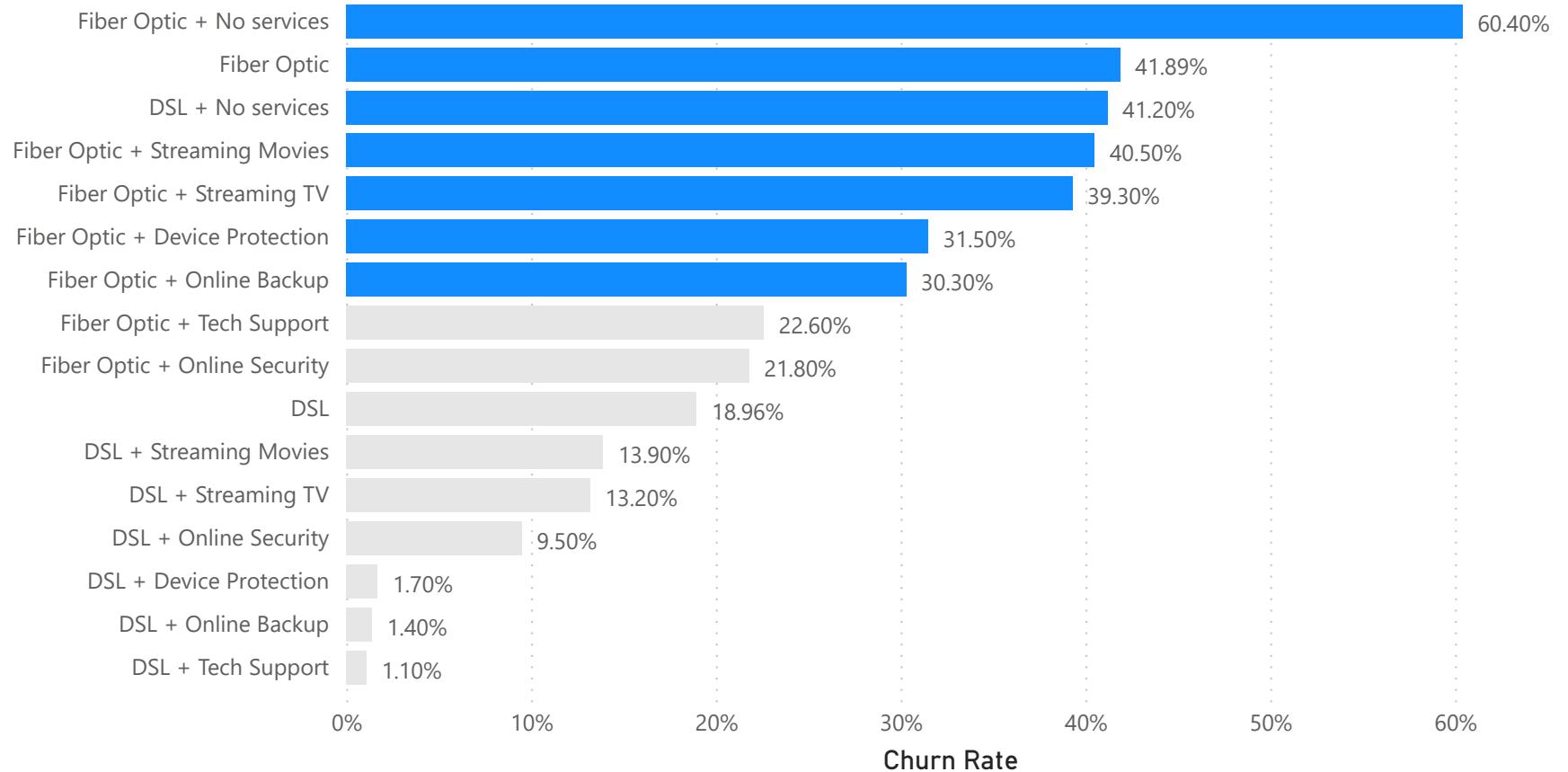
The Fiber Optic customers had a significant churn rate. Over 41% of customers using Fiber Optic decided to leave this month. Notably, internet customers without any additional services are more likely to churn.

Significant Decrease in Fiber Optic Customers

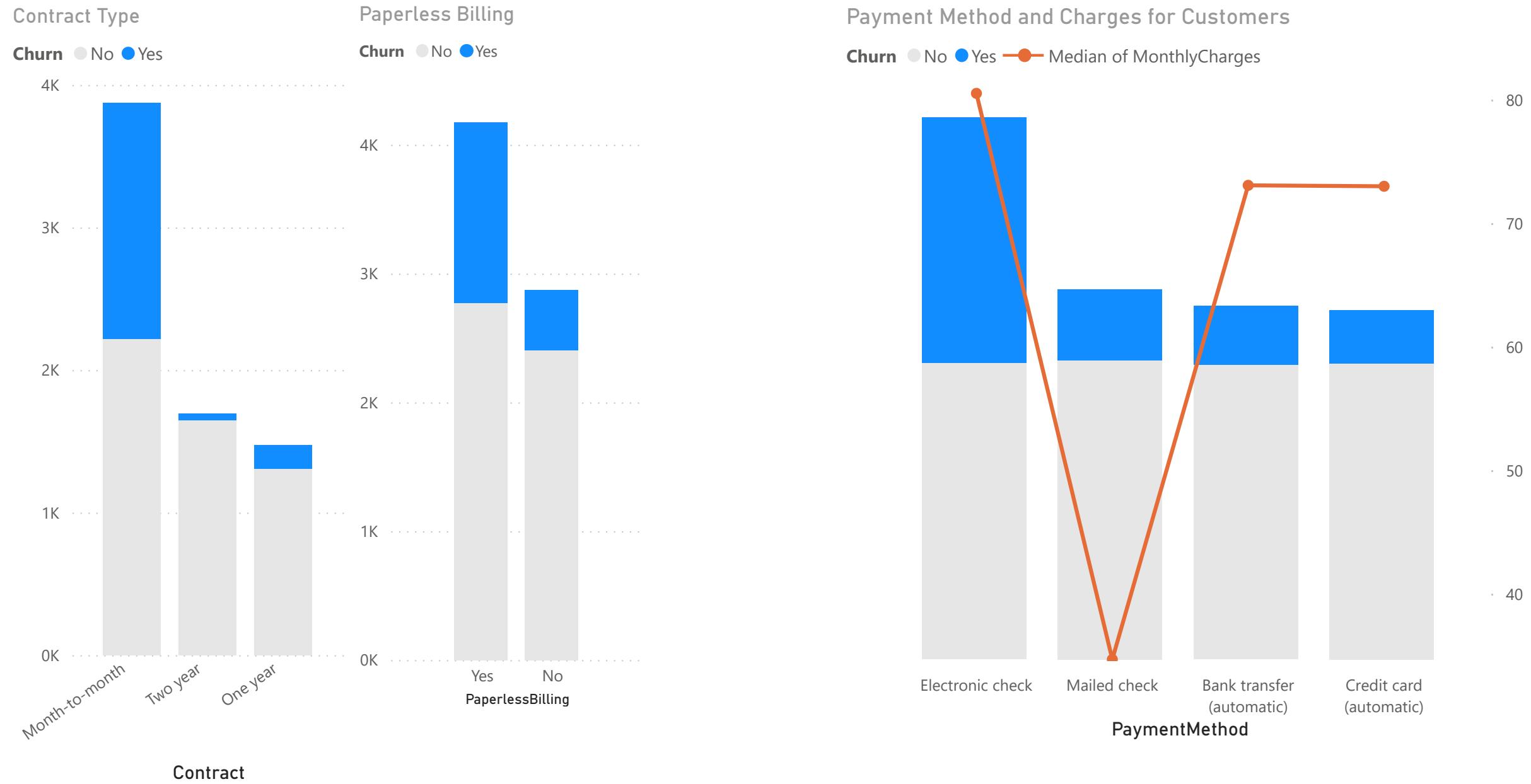
● DSL ● Fiber Optic



### Churn Rate and Internet Services

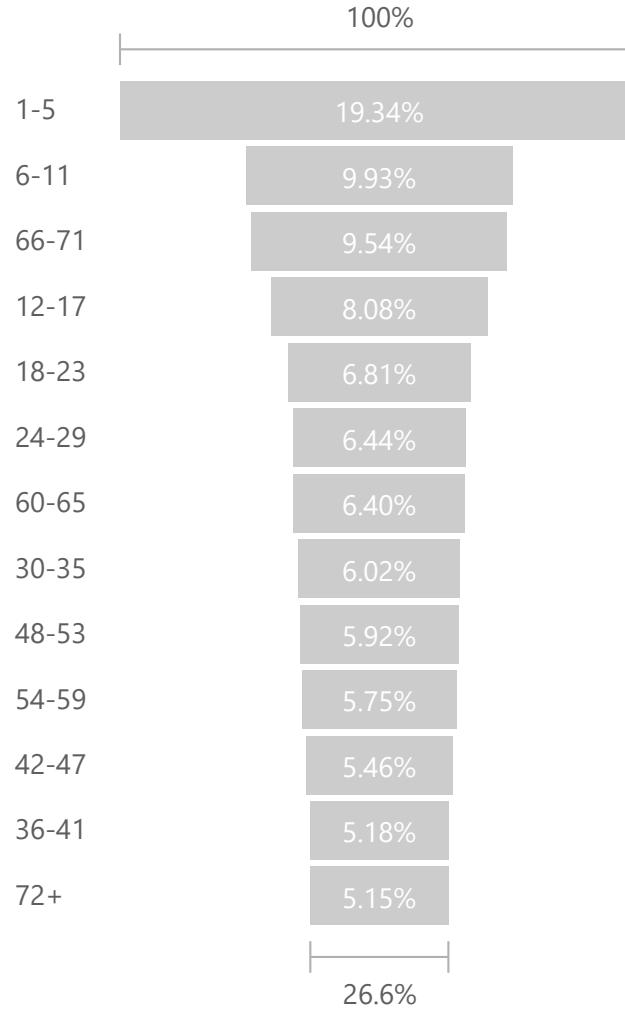


The month-to-month contract and paperless billing are the most popular for customers, however churn rate is also high for these factors at 43% and 32%, respectively. Meanwhile, churn rate is high for those paying by electronic check, a payment type that is not automatic. E-check has the greatest churn rate of all factors, over 45%

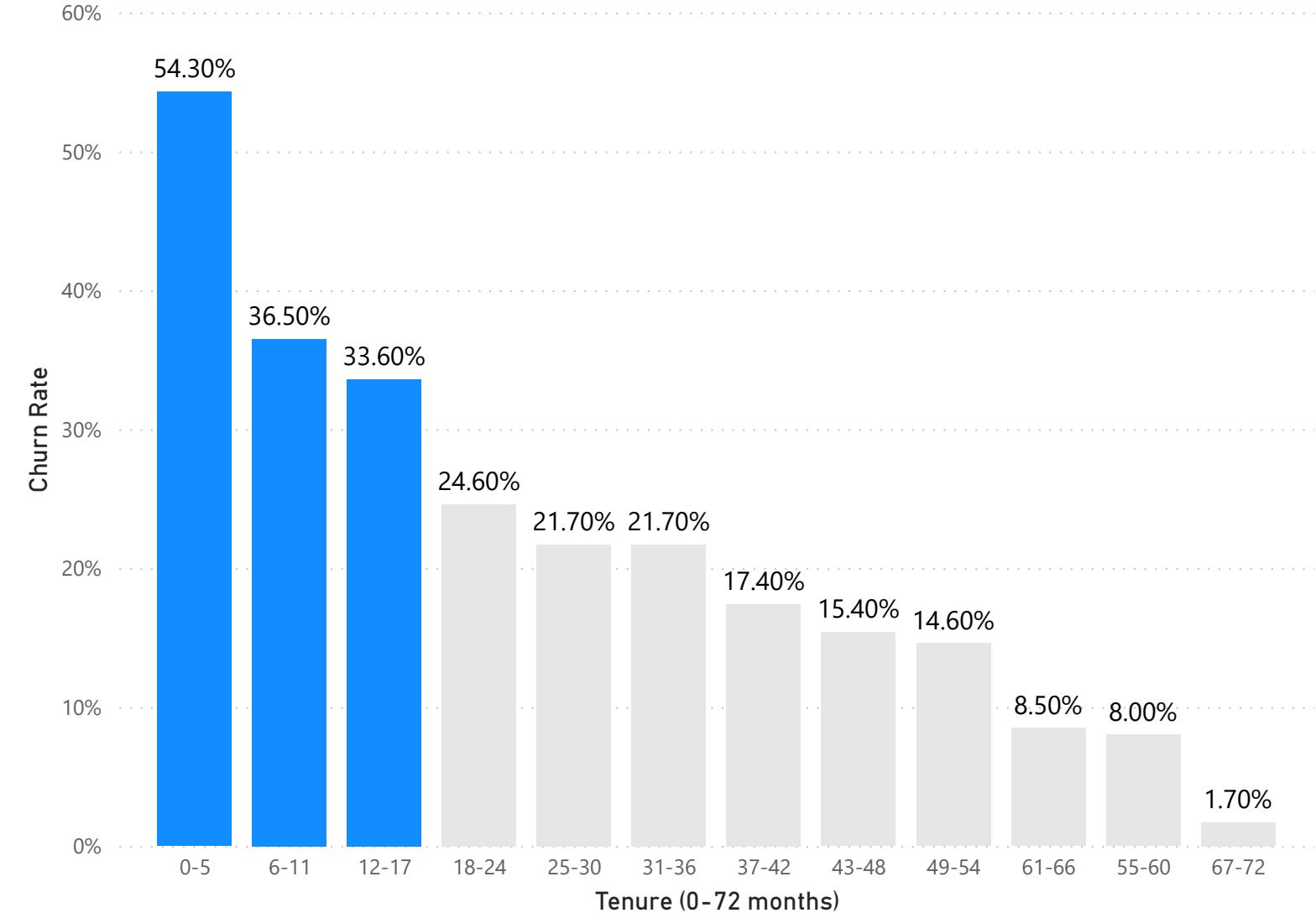


There is a relationship between tenure and churn. Over 54% of customers with less than 6 months of tenure have decided to leave. Customers with less than 18 months of tenure have an increased risk of churn

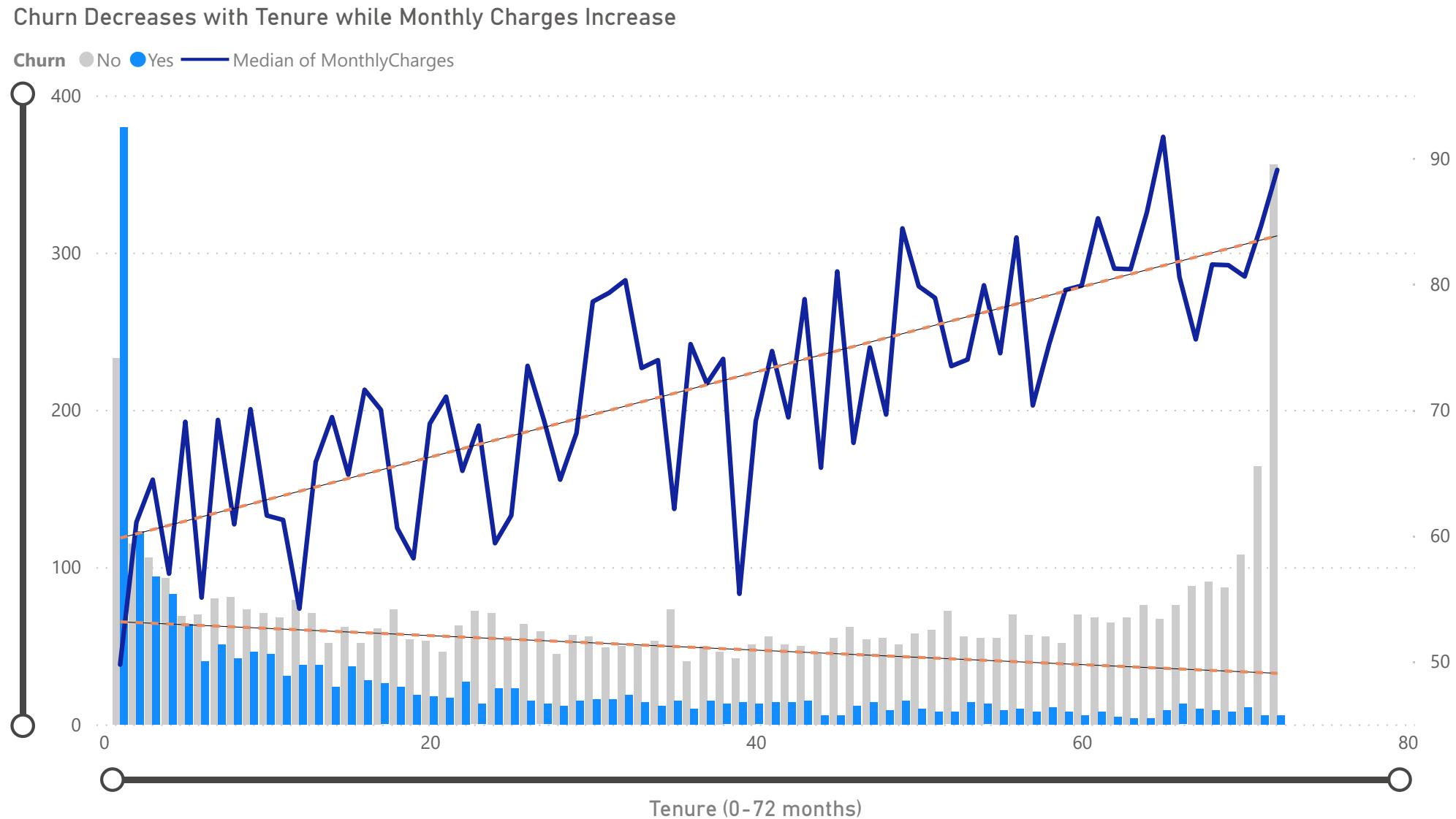
Customer Tenure Distribution



Churn Rate by Tenure



The median monthly charges for customers increase with tenure while churn decreases. Customers that stay beyond 24 months may be paying more for additional services that they deem valuable.



In summary, at risk factors include Seniors, No Dependents or Partners, Electronic Check payment, Paperless billing and Month-to-month contracts, Fiber optic internet and Streaming services.

#### Demographics

Factor	At Risk
Senior	✓
Not a senior	
Dependents	
No Dependents	✓
Gender	
Partner	
No Partner	✓

#### Payment and Contract Options

Factor	At Risk
Credit Card (automatic)	
Bank transfer (automatic)	
Electronic check	✓
Mailed check	
Paperless billing	✓
Month-to-Month	✓
One year	
Two year	

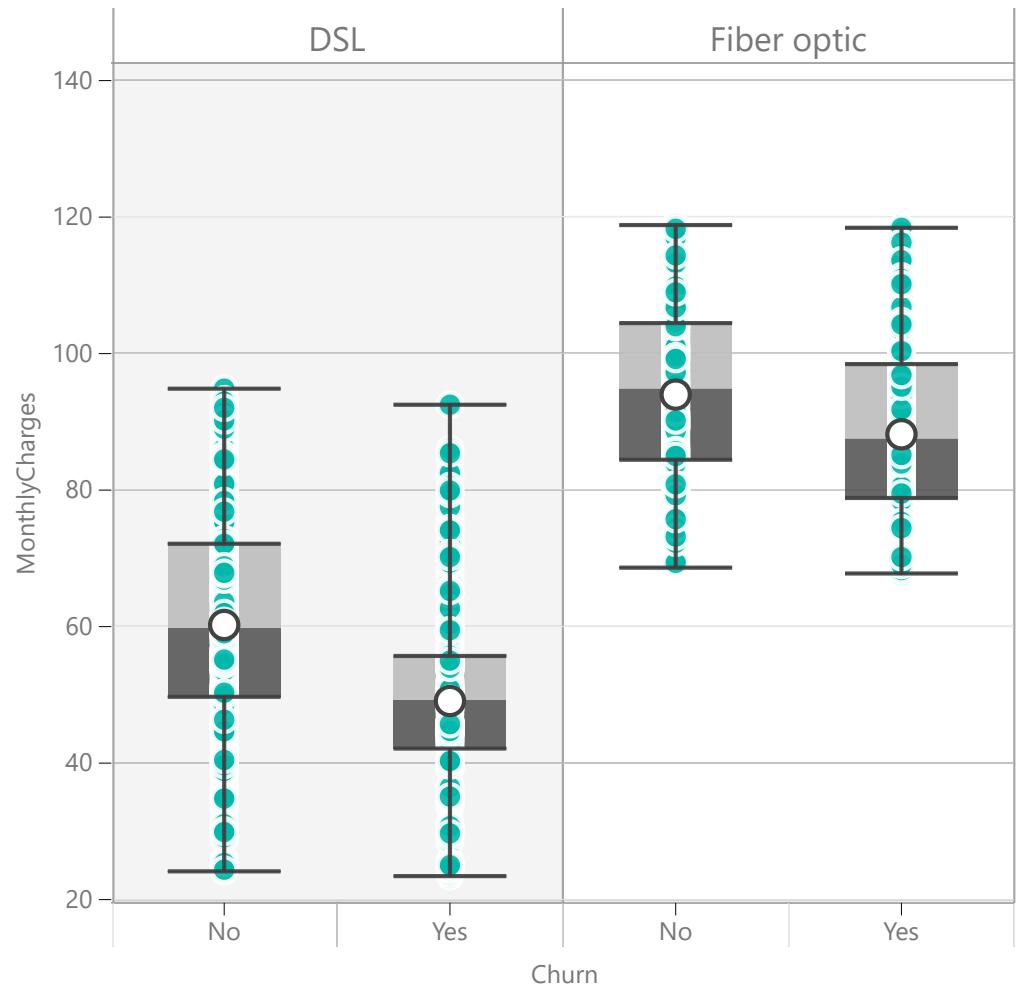
#### Internet and Add-On Services Options

Factor	At Risk
DSL	
Fiber Optic	✓
Device Protection	
Online Backup	
Online Security	
Streaming Movies	✓
Streaming TV	✓
Tech Support	

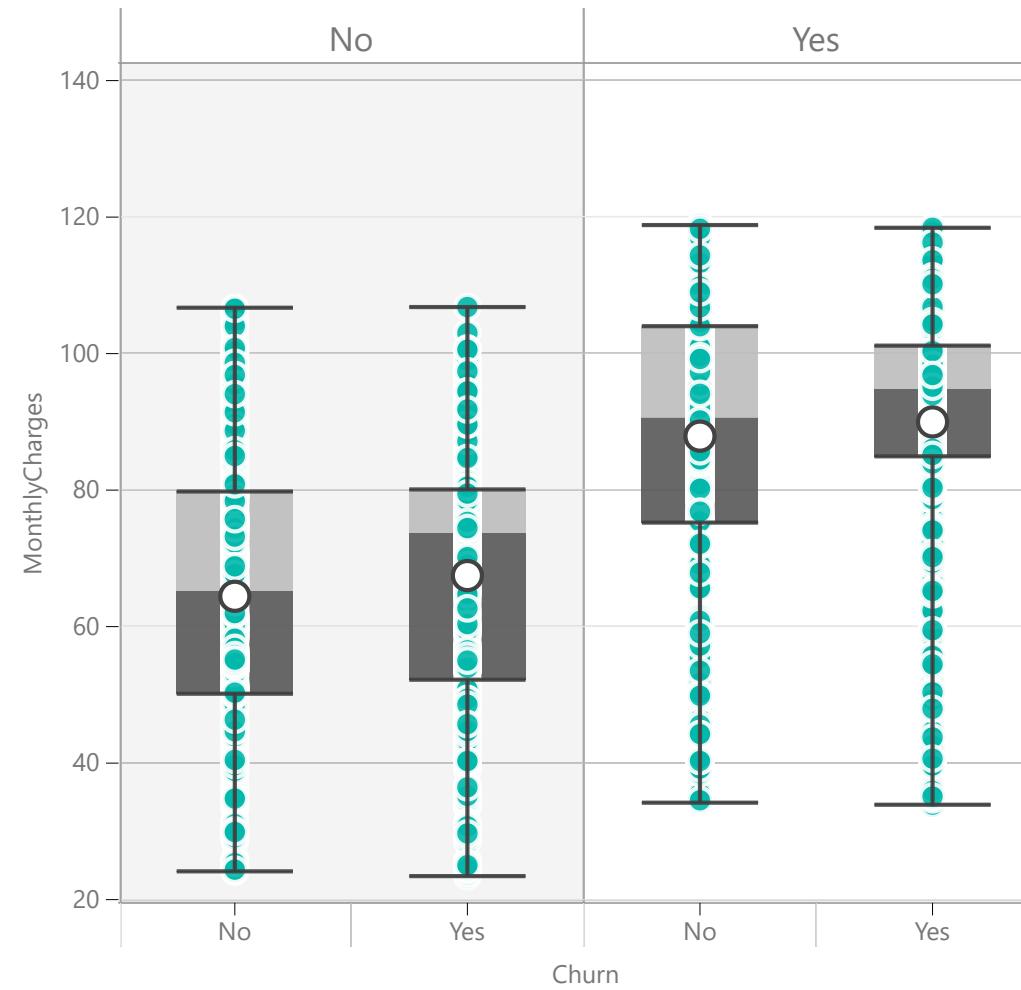
#### Key Insights

- Consider pricing promotions or discounts to seniors
- Add on services for seniors, beyond streaming (without increasing price)
- Evaluate fiber optic internet and streaming services - quality issue? service issue? disconnect in value with customer
- For all customers, add on services other than streaming or streaming + other services
- Those without dependents or partners have flexibility to leave - add services or offer discounts or promotions
- Shift customers to one year or two year contracts and shift customers away from e-check to an automatic payment
- All customers less than 18 months are at increased risk - consider product mix and contract/payment type

MonthlyCharges by Customer, Churn and InternetService

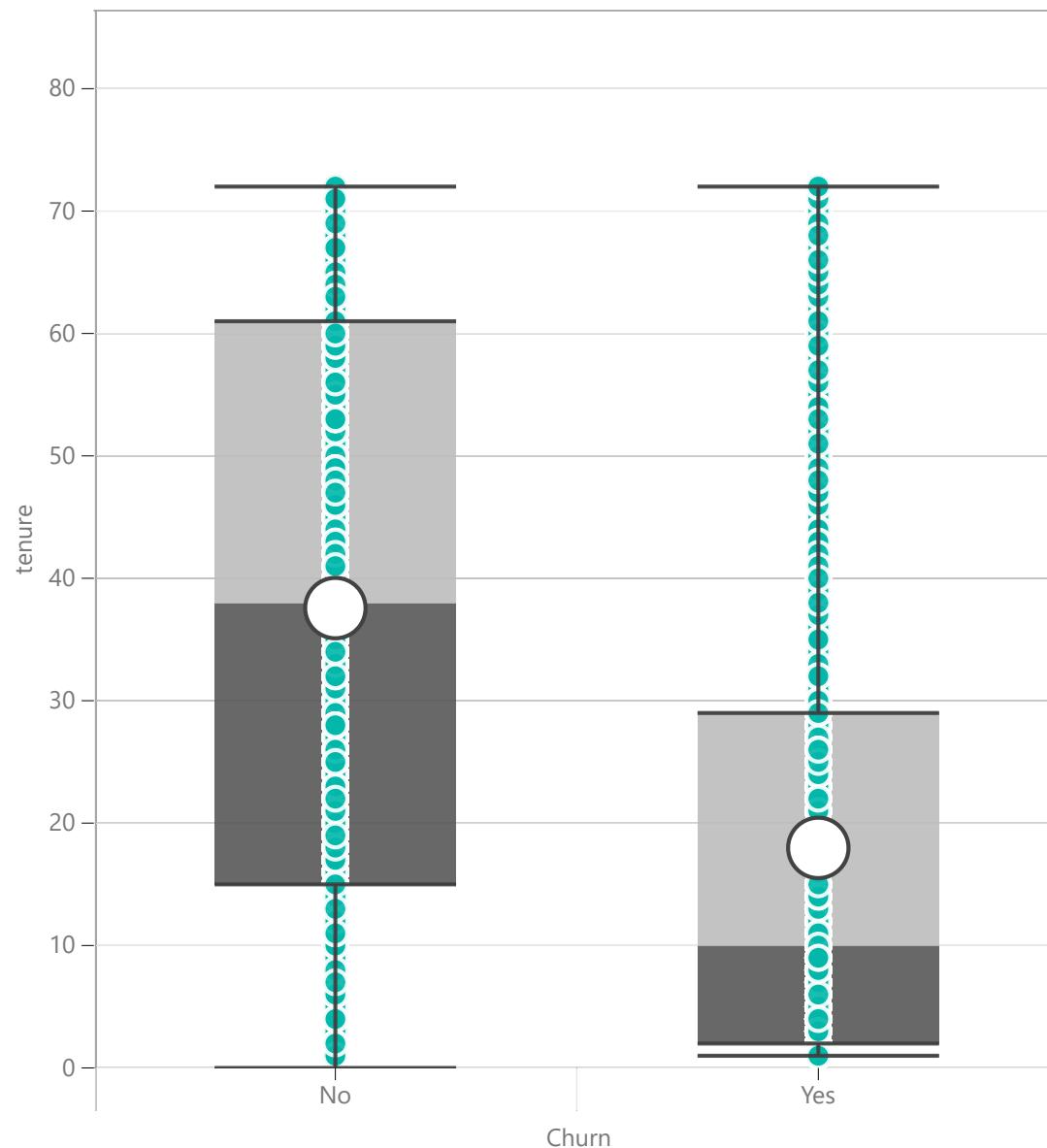


MonthlyCharges by Customer, Churn and StreamingMovies

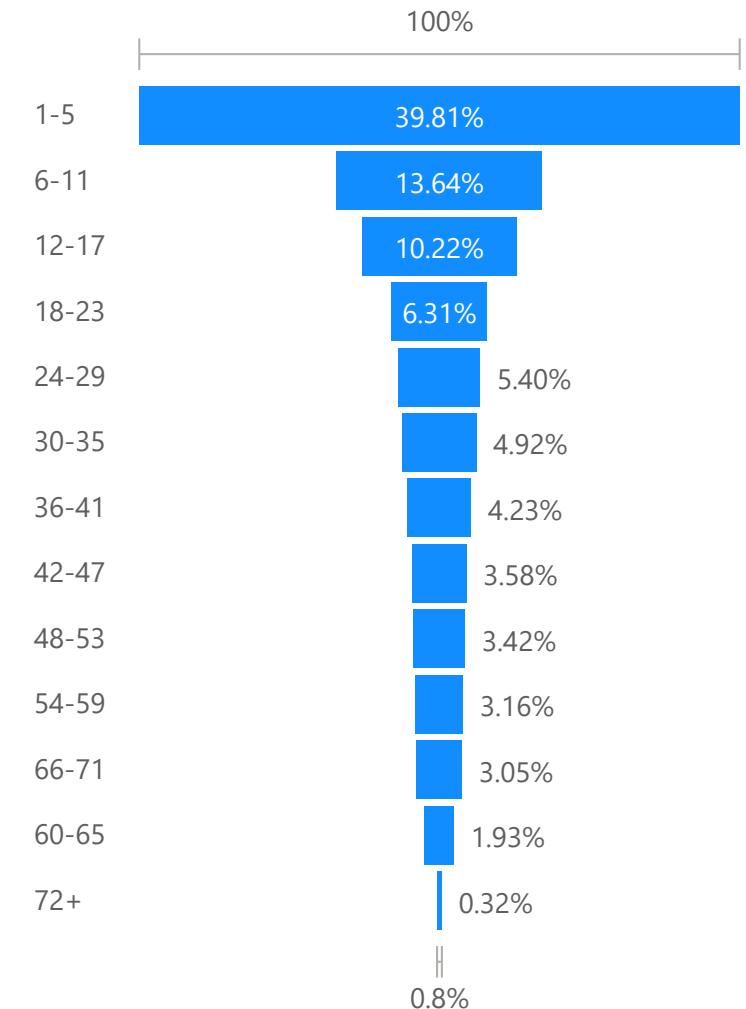


## Tenure and Churn

Median Tenure:  
38 vs. 10 months  
Customers with tenure <24 months at risk. Promotion or discount to these customers



## Churned Customers Tenure Distribution



### Non Sr Median of MonthlyCharges by Churn    Sr Median of MonthlyCharges by Churn

