JC Penney Location Analysis Report

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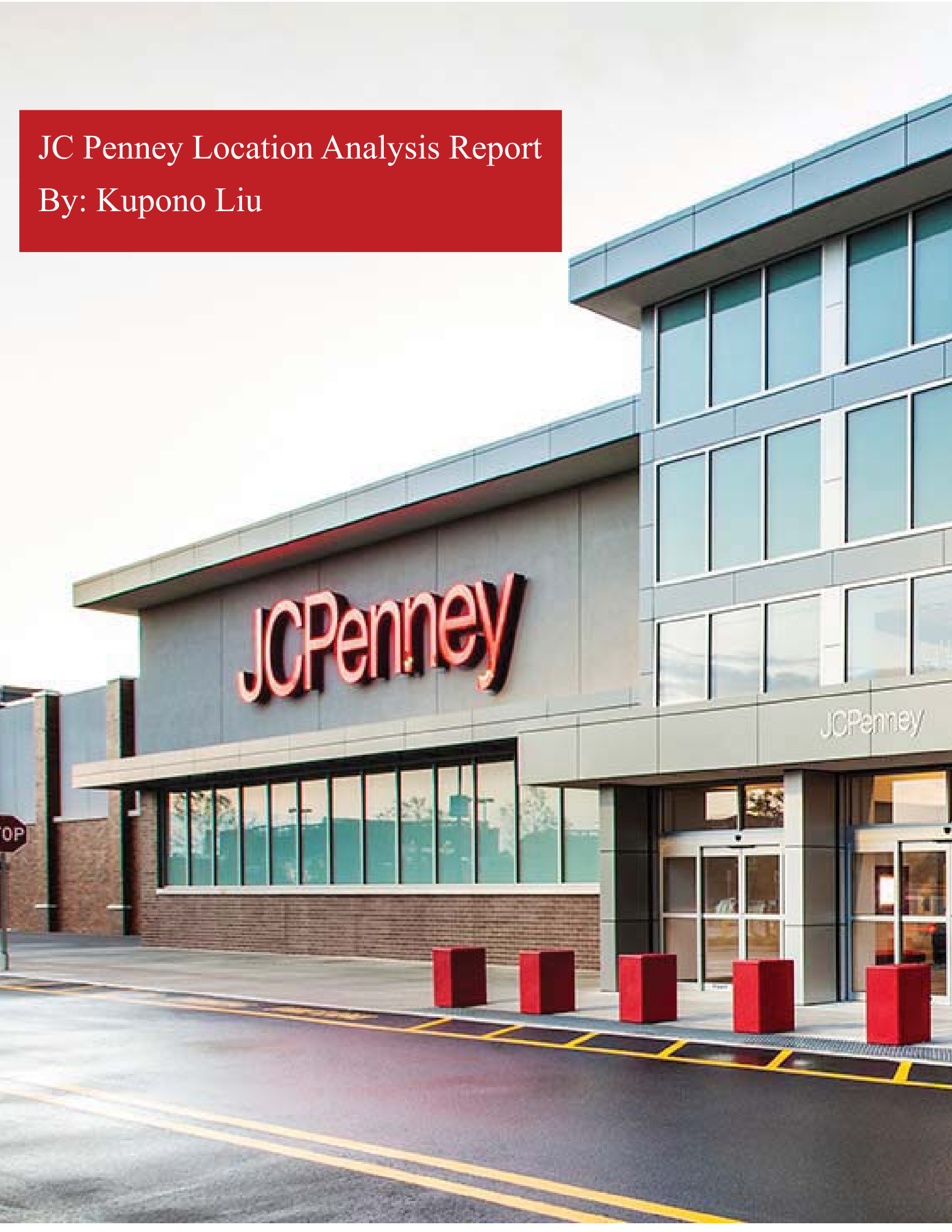

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power and more foot traffic that can positively impact JCP's sales. As a result, when we test Cluster 19 with all the aforementioned variables, we get the positive impact on sales and positive correlations that we expect ex-ante.

Super-regional malls are highly and positively correlated with all its associated variables (listed above) except for regional malls. Ex ante, these are the results that I expect. Super-regional malls have more anchor tenants (5) than regional malls (3) do. As a result, regional malls will generate less foot traffic and will create a negative correlation in combination with other variables. Each of these variables (Macy's, Total GLA, 2020 Population, Number of Businesses, Number of Employees, 2015 Consumer Spending, Traffic Volume, Population (Perm + Daytime), Percentage 25-54), creates the large enough population of customers, spending power and space that is necessary to justify a super-regional mall's existence and location.

As a co-tenant, Lord and Taylor is positively correlated with all its associated variables (look above). Ex ante, these are the results that I expect. The Total GLA variable creates more space for more attractions and tenants who then create the necessary sales traffic for Lord and Taylor. Number of businesses and consumer spending provide a large amount of foot traffic and spending power that is necessary to justify a Lord and Taylor's location. The variable of percentage of 25-54 year-olds is the idea customer base age that would be interested in shopping in a Lord and Taylor store.

Macy's is correlated the way it is expected to be ex-ante. Its associated variables (look above) provide the necessary spending power, sales traffic and shopping center space to hold and justify a Macy's store. Macy's is negatively correlated with blue collared workers because Macy's appeals to more white-collared workers with upper-middle incomes. Blue-collar workers may be disinterested in Macy's office and work clothing lines.

The remaining bolded variables have correlations that are expected ex-ante with their respective associated variables. Variables that increase traffic volume and spending power justify the location of new businesses, increase in employment, anchor tenants and larger shopping centers. The percentage of blue collar workers is negatively correlated with variables that increase spending power. Blue collar workers are more likely to be budget conscious and have less disposable income.

7. Series of Regressions

Based on all 6 regressions, the following independent variables are statistically significant: Cluster 12 (Bright Lights Lil City), Cluster 28 (Traditional Times), Emerald City, Rustbelt Traditions, CT_Kohls, Target, Center Age, Percentage Anchor of GLA, Percentage Blue Collar and Percentage of 25-54 year-olds (Appendix 7). Even though there were independent variables that were significant in the case of simple regression, they weren't necessarily significant in these 6 regressions. Some variables are now insignificant because they exhibit collinearity and are too highly correlated with other

variables. If a variable has collinearity, then it will bring redundant information into the model and it shouldn't be included in the regression model. When variables display the wrong signs in regression models, this is because the variables exhibit collinearity. From an economic standpoint, the signs of the statistically significant variables have correct signs.

In terms of its customer segment strategy, JCP is going towards white collar, middle-aged consumers who are younger than 55 years-old. These targeted customer segments also have more disposable income and shop in their free time. JCP is going towards more white collar segments such as Brite Lites, Lil City who have higher median incomes at $124,495. The company is also going towards segments that are college educated and are more adventurous and comfortable with technology (ie. Emerald City). JCP is de-emphasizing customer segments such as Traditional Times (Cluster 28) who have moderate incomes at $66,262 and are older than 55 years-old. JCP is also de-emphasizing rustbelt traditions because they have lower incomes and are more blue collar workers. Blue-collar workers would not be interested in the work and office clothing that JCP sells; these workers also have less spending power.

JCP is also trying to move away from major discount stores that cater to lower middle income customers such as Kohls. Instead, JCP is trying to locate in newer and larger shopping centers that have anchor tenants occupying a larger percentage of gross leasable area. In addition to this, JCP wants to locate near anchor tenants that share its target customers (upper-middle class customers that are middle-aged) such as Target. This locational strategy will create better shopping experiences and generate more foot traffic that will lead into the JCP stores.

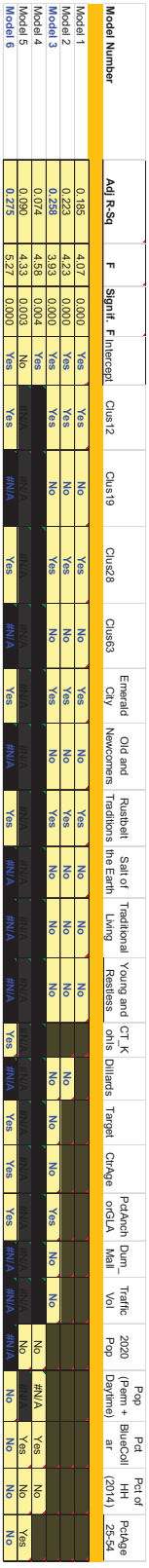
8. Predicting Which Stores to Close and Which Stores Will Remain Open

Both Model 3 and Model 6 are good at predicting which stores to close and to remain open. Both models correctly predicted the status of closed stores 73.5% of the time. These two models also correctly predicted the status of open stores 76.5% of the time. On a total store basis, both models correctly predicted the status of JCP stores 75% of the time. These models are effective and are better than flipping a coin (Appendix 8A & 8B).

9. Assessing the Success of Opening a New Store

Five of the proposed JCP stores should be closed based on Model 3. Five of the proposed JCP stores should be closed based on Model 6. The models are not always consistent in identifying which stores should be closed. The models disagreed two out of nine times. Specifically, with respect to the Viewmont Mall, Model 3 says the store should be closed while Model 6 says it should remain open. For Pear Tree Center,

Appendix 7: Series of Regressions



Model Number	Adj R-Sq	F	Signif. F	Intercept	Clus12	Clus19	Clus28	Clus63	Emerald City	Old and Newcomers	Rustbelt Traditions	Salt of the Earth	Traditional Living	Young and Restless	CT_Kohls	Dillards	Target	CtrAge	PctAnch orGLA	Dum_Mall	Traffic Vol	2020 Pop	Pop (Perm + Daytime)	Pct BlueCollar	Pct of HH (2014)	PctAge 25-54
Model 1	0.185	4.07	0.000	Yes	Yes	No	Yes	No	Yes	No	Yes	No	No	No		No										
Model 2	0.223	4.23	0.000	Yes	Yes	No	Yes	No	Yes	No	Yes	No	No	No		No										
Model 3	0.258	3.93	0.000	Yes	Yes	No	Yes	No	Yes	No	Yes	No	No	No		No										
Model 4	0.074	4.58	0.004	Yes	Yes																					
Model 5	0.090	4.33	0.003	No	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	No	#N/A	Yes	No	Yes
Model 6	0.275	5.27	0.000	Yes	Yes	#N/A	Yes	#N/A	Yes	#N/A	Yes	#N/A	#N/A	#N/A	Yes	#N/A	Yes	Yes	Yes	#N/A	#N/A	#N/A	No	Yes	No	No

Dependent Variable: Dum_Open
Model: 1
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.496
R Square	0.246
Adjusted R Square	0.185
Standard Error	0.453
Observations	136

ANOVA

	df	*SS*	*MS*	*F*	*Signif. F*
Regression	10	8.348	0.8348	4.06789	0.00
Residual	125	25.652	0.20522		
Total	135	34			

	Coefficients	*t Stat*	*P-value*	
Intercept	0.519477481	7.35	0.00	Yes
Clus12	0.379557874	2.60	0.01	Yes
Clus19	0.070261513	0.60	0.55	No
Clus28	-0.201638494	-1.82	0.07	Yes
Clus63	-0.155670519	-1.35	0.18	No
Emerald City	0.357173694	1.80	0.07	Yes
Old and Newcomers	0.176939353	1.61	0.11	No
Rustbelt Traditions	-0.303051338	-2.08	0.04	Yes
Salt of the Earth	-0.07655367	-0.61	0.54	No
Traditional Living	-0.095828761	-0.83	0.41	No
Young and Restless	0.170759991	1.20	0.23	No

Dependent Variable: Dum_Open
Model: 2

Regression Statistics	
Multiple R	0.540
R Square	0.292
Adjusted R Square	0.223
Standard Error	0.442
Observations	136

ANOVA

	df	*SS*	*MS*	*F*	*Signif. F*
Regression	12	9.9258	0.82715	4.23	0.00
Residual	123	24.074	0.19573		
Total	135	34			

	Coefficients	*t Stat*	*P-value*	
Intercept	0.421905752	5.39	0.00	Yes
Clus12	0.302194846	2.08	0.04	Yes
Clus19	0.002154079	0.02	0.99	No
Clus28	-0.187461104	-1.72	0.09	Yes
Clus63	-0.135363612	-1.18	0.24	No
Emerald City	0.332888469	1.72	0.09	Yes
Old and Newcomers	0.12322454	1.13	0.26	No
Rustbelt Traditions	-0.326009385	-2.27	0.03	Yes
Salt of the Earth	-0.009439887	-0.08	0.94	No
Traditional Living	-0.119422628	-1.06	0.29	No
Young and Restless	0.111555706	0.78	0.44	No
Dillards	0.172932243	1.46	0.15	No
Target	0.192731041	2.18	0.03	Yes

Dependent Variable: Dum_Open
Model: 3
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.588
R Square	0.346
Adjusted R Square	0.258
Standard Error	0.432
Observations	136

ANOVA

	df	*SS*	*MS*	*F*	*Signif. F*
Regression	16	11.754	0.73463	3.93	0.00
Residual	119	22.246	0.18694		
Total	135	34			

	Coefficients	*t Stat*	*P-value*	
Intercept	0.446791156	2.18	0.03	Yes
Clus12	0.263867781	1.83	0.07	Yes
Clus19	0.003229364	0.03	0.98	No
Clus28	-0.215248488	-2.00	0.05	Yes
Clus63	-0.111915015	-0.98	0.33	No
Emerald City	0.34828647	1.82	0.07	Yes
Old and Newcomers	0.138140081	1.25	0.21	No
Rustbelt Traditions	-0.300883207	-2.11	0.04	Yes
Salt of the Earth	0.01238213	0.10	0.92	No
Traditional Living	-0.064569406	-0.58	0.57	No
Young and Restless	0.082765001	0.58	0.56	No
Dillards	0.149094649	1.28	0.20	No
Target	0.120495092	1.34	0.18	No
CtrAge	-0.005399221	-1.53	0.13	No
PctAnchorGLA	0.445293932	1.81	0.07	Yes
Dum_Mall	-0.081413612	-0.93	0.36	No
Traffic Vol	0.00000055	0.42	0.67	No

Dependent Variable: Dum_Open
Model: 4
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.307
R Square	0.094
Adjusted R Square	0.074
Standard Error	0.483
Observations	136

ANOVA

	df	*SS*	*MS*	*F*	*Signif. F*
Regression	3	3.2064	1.0688	4.58	0.00
Residual	132	30.794	0.23328		
Total	135	34			

	Coefficients	*t Stat*	*P-value*	
Intercept	0.710431394	2.76	0.01	Yes
2020 Pop	0.0000008998	1.55	0.12	No
Pct BlueCollar	-0.014093178	-2.11	0.04	Yes
Pct of HH (2014) >75K	0.000136505	0.03	0.97	No

Dependent Variable: Dum_Open
Model: 5
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.342
R Square	0.117
Adjusted R Square	0.090
Standard Error	0.479
Observations	136

ANOVA

	df	*SS*	*MS*	*F*	*Signif. F*
Regression	4	3.974	0.99351	4.33	0.00
Residual	131	30.026	0.22921		
Total	135	34			

	Coefficients	*t Stat*	*P-value*	
Intercept	0.192147637	0.50	0.62	No
2020 Pop	0.000000416	0.66	0.51	No
Pct BlueCollar	-0.017972365	-2.58	0.01	Yes
Pct of HH (2014) >75K	-0.003382924	-0.75	0.46	No
PctAge 25-54	0.019177737	1.83	0.07	Yes

Dependent Variable: Dum_Open
Model: 6
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.583
R Square	0.340
Adjusted R Square	0.275
Standard Error	0.427
Observations	136

ANOVA

	df	*SS*	*MS*	*F*	*Signif. F*
Regression	12	11.551	0.96255	5.27	0.00
Residual	123	22.449	0.18252		
Total	135	34			

	Coefficients	*t Stat*	*P-value*	
Intercept	0.771042351	1.83	0.07	Yes
Clus12	0.283709712	1.91	0.06	Yes
Clus28	-0.237481016	-2.25	0.03	Yes
Emerald City	0.482418205	2.33	0.02	Yes
Rustbelt Traditions	-0.375361072	-2.82	0.01	Yes
CT_KohIs	-0.414996118	-2.50	0.01	Yes
Target	0.159087634	1.85	0.07	Yes
CtrAge	-0.005953022	-1.74	0.08	Yes
PctAnchorGLA	0.522204912	2.19	0.03	Yes
Pop (Perm + Daytime)	1.20892E-07	0.31	0.76	No
PctAge 25-54	-0.006033942	-0.56	0.57	No
Pct BlueCollar	-0.004285008	-0.62	0.54	No
Pct of HH (2014) >75K	-9.08455E-05	-0.02	0.98	No