



Wage Pressure Cluster Analysis

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4/13/18



Objective

- Do cluster analysis for the 1150 stores
- Identify the stores that have the highest pressure to increase wages

How To Measure The Similarity Of Stores?



VS





Quantifying The Store Similarity

- ChangeMeasure
 - How do they change over the year?
- DifferenceMeasure
 - How do they compare with all other stores?



How Do They Change Over The Year?

- Calculate change from 4/1/17, 7/29/17, 10/28/17, to 1/28/18
- 9, constantly worse
- -9, constantly improve
- Possible values [-9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9]



How Do They Compare With All Other Stores?

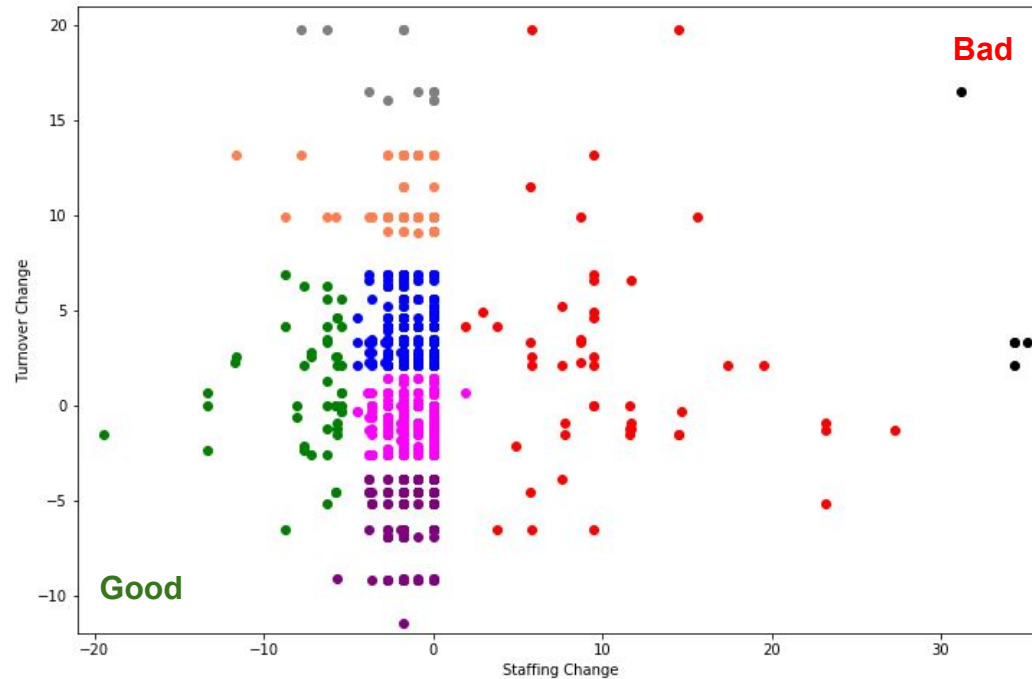
- Calculate the average score for all stores at 1/28/18
- Calculate the difference between a store and all store average at
1/28/18



Utilizing Two Important Features

- Current Staffing Score
- Turnover Score

Store Clusters On Staffing And Turnover



Stores Having Staffing Worsen Constantly

Location	LocationName
980	Santa Rosa
1127	Naples
1197	Smyrna
1276	Kyle fka SE Austin
1349	Collinsville

Location	Location Name	District Number	Region Number	Terr Nur	EFF DT	Current Starting Rate	Current Staffing Staffing Lev	Current Staffing Level	YTD Average Staffing Level	Current Staffing Score	YTD Staffing Score	Total Staffing Score	LY Turn	YTD Turn %	YOY Turn Variance
1349	Collinsville	23	14	1	1/27/18	\$9.00	89%	89%	93.7%	4	3	3.3	51.6%	75.4%	23.85%
1349	Collinsville	23	14	1	10/28/17	\$9.00	94%	94%	94.6%	3	3	3	39.7%	66.7%	26.96%
1349	Collinsville	23	14	1	7/29/17	\$9.00	95%	95%	94.8%	2	3	3	2.7	25.2%	11.84%
1349	Collinsville	23	14	1	4/1/17	\$9.00	100%	100%	94.9%	1	3	2.4	1.5%	9.5%	8.04%

Location	Location Name	Unemployment Score	Kohl's to County Comp Score	County Score	Applicant Flow	Acceptance Rate	Acceptance Rate Score	Applicant Flow Score	Recruiting Score	Cost of Labor Zone	Wage Pressue Score	Wage Score Col	Starting Rate Buckets
1349	Collinsville	4	3	3.5	5.63	0.94	2	3	2.4	2	3.54	Yellow	\$9.00
1349	Collinsville	4	3	3.5	6.01	1.05	1	3	1.8	2	3.3	Yellow	\$9.00
1349	Collinsville	3	3	3	8.73	0.96	1	2	1.4	2	3.01	Yellow	\$9.00
1349	Collinsville	3	3	3	37.00	1.00	1	1	1	2	2.57	Green	\$9.00

Stores Having Turnover Worsen Constantly

Location	LocationName
48	La Crosse
109	Oak Creek
180	Homewood
238	Westgate
579	Lima
967	Loveland

		District	Region				Current Starting	Current Staffing	YTD Average	Current Staffing	YTD Staffing	Total Staffing		YOY Turn		
Location	Location Name	Number	Number	Terr Nur	EFF DT	Rate	Staffing Lev	Level	Staffing Level	Score	Score	Score	LY Turn	YTD Turn %	Variance	
109	Oak Creek	3	6	2	1/27/18	\$9.00	100%		100%	99.4%	1	2	1.7	45.0%	60.7%	15.73%
109	Oak Creek	3	6	2	10/28/17	\$9.00	100%		100%	99.7%	1	2	1.7	43.9%	48.1%	4.17%
109	Oak Creek	3	6	2	7/29/17	\$9.00	100%		100%	99.6%	1	2	1.7	23.4%	23.0%	-0.42%
109	Oak Creek	3	6	2	4/1/17	\$9.00	100%		100%	99.5%	1	2	1.7	5.6%	5.2%	-0.36%

Location	Location Name	Turnover Score	Unemployment Score	Kohl's to County Comp Score	County Score	Applicant Flow	Acceptance Rate	Acceptance Rate Score	Applicant Flow Score	Recruiting Score	Cost of Labor Zone	Wage Pressue Score	Wage Score Col
109	Oak Creek		5	5	2	3.5	2.95	0.87	3	1	2.2	2	3.01 Yellow
109	Oak Creek		4	5	2	3.5	2.55	1.19	1	1	1	2	2.46 Green
109	Oak Creek		3	4	2	3	1.98	0.85	3	1	2.2	2	2.41 Green
109	Oak Creek		3	3	2	2.5	3.31	0.78	5	2	3.8	2	2.71 Green

Stores Having Staffing Improving Constantly

Location	Location Name	District Number	Region Number	Terr Nur	EFF DT	Current Starting Rate	Current Staffing Level	YTD Average Staffing Level	Current Staffing Score	YTD Staffing Score	Total Staffing Score	LY Turn	YTD Turn %	YOY Turn Variance
711	South Burlington	57	3	4	1/27/18	\$12.25	86%	86%	63.3%	4	5	4.7	109.4%	-18.52%
711	South Burlington	57	3	4	10/28/17	\$12.25	66%	66%	62.9%	5	5	5	77.0%	15.51%
711	South Burlington	57	3	4	7/29/17	\$11.75	70%	70%	62.4%	5	5	5	43.3%	12.48%
711	South Burlington	57	3	4	4/1/17	\$11.25	65%	65%	61.0%	5	5	5	9.6%	10.71%

Location	Location Name	Turnover Score	Unemployment Score	Kohl's to County Comp Score	County Score	Applicant Flow	Acceptance Rate	Acceptance Rate Score	Applicant Flow Score	Recruiting Score	Cost of Labor Zone	Wage Pressue Score	Wage Score Col	Starting Rate Buckets
711	South Burlington	2	5	3	4	3.09	0.89	3	2	2.6	2	3.36	Yellow	Over \$10.50
711	South Burlington	5	5	3	4	3.76	1.12	1	2	1.4	2	3.9	Orange	Over \$10.50
711	South Burlington	5	5	3	4	3.79	0.87	3	2	2.6	2	4.2	Red	Over \$10.50
711	South Burlington	5	5	3	4	3.05	0.93	2	2	2	2	4.05	Red	Over \$10.50



Store Clustering Using All Features

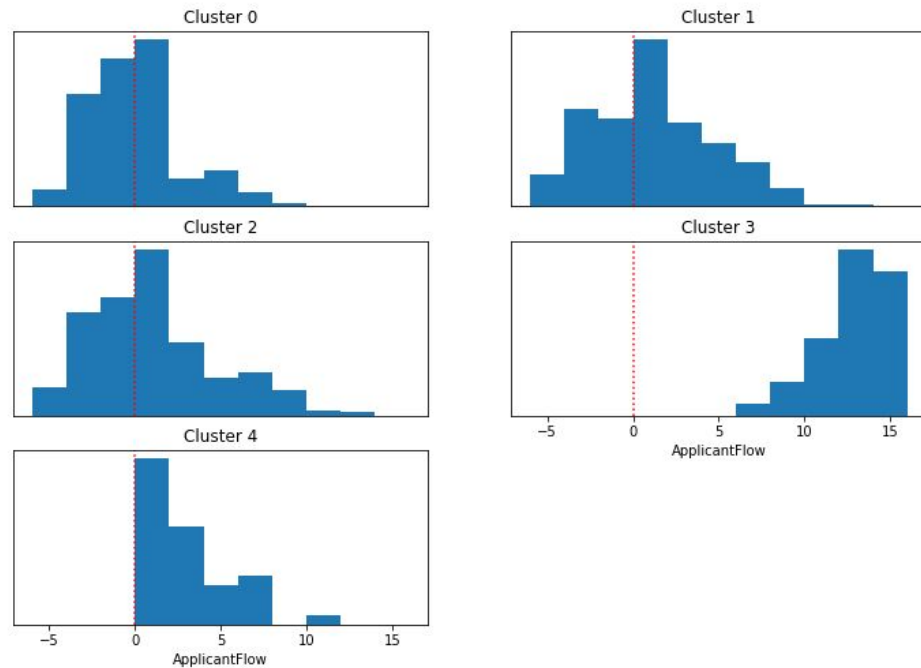
- Features Used: 'CurrentStaffingScore', 'TurnoverScore', 'RecruitingScore', 'UnemploymentScore', 'KohlstoCountyCompScore', 'CountyScore', 'AcceptanceRateScore', 'ApplicantFlowScore'
- Measure the change and difference of these features
- Use Hierarchy clustering to cluster the stores into 5 clusters



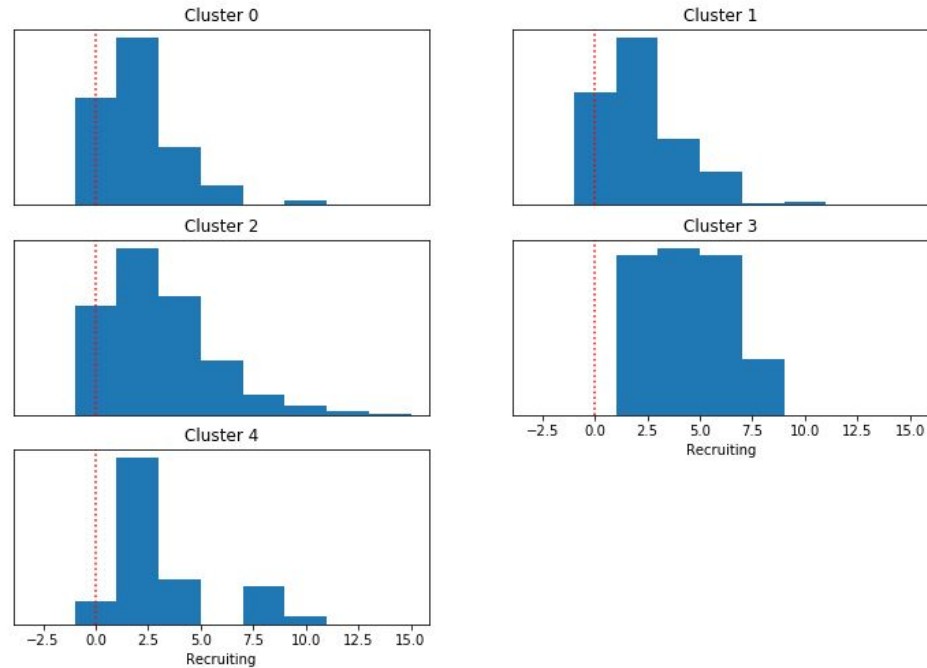
Insights From Clustering

Cluster	Count	AcceptanceRate	ApplicantFlow	County	CurrentStaffing	KohlstoCountyComp	Recruiting	Turnover	Unemployment
Measure < -1, Large is Good.									
0	192	3%	40%	34%	63%	11%	2%	29%	31%
1	301	6%	29%	4%	58%	1%	6%	57%	6%
2	451	2%	34%	42%	59%	10%	2%	71%	42%
3	69	0%	0%	15%	56%	3%	0%	60%	21%
4	38	5%	30%	16%	0%	3%	5%	46%	14%
Measure > 1, Large is Bad.									
0	192	60%	14%	19%	1%	34%	59%	60%	12%
1	301	55%	34%	94%	1%	83%	57%	18%	39%
2	451	68%	28%	11%	0%	27%	68%	3%	6%
3	69	72%	100%	57%	12%	65%	76%	16%	29%
4	38	65%	38%	70%	97%	70%	65%	30%	30%

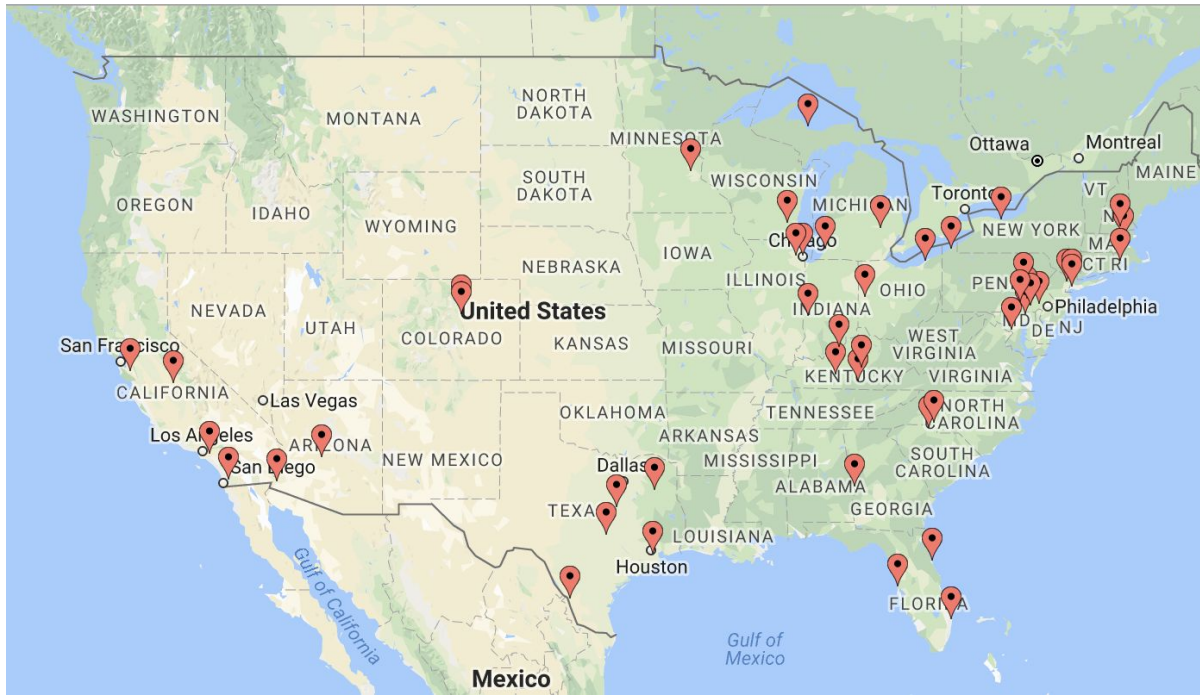
ApplicantFlow Measure In Clusters



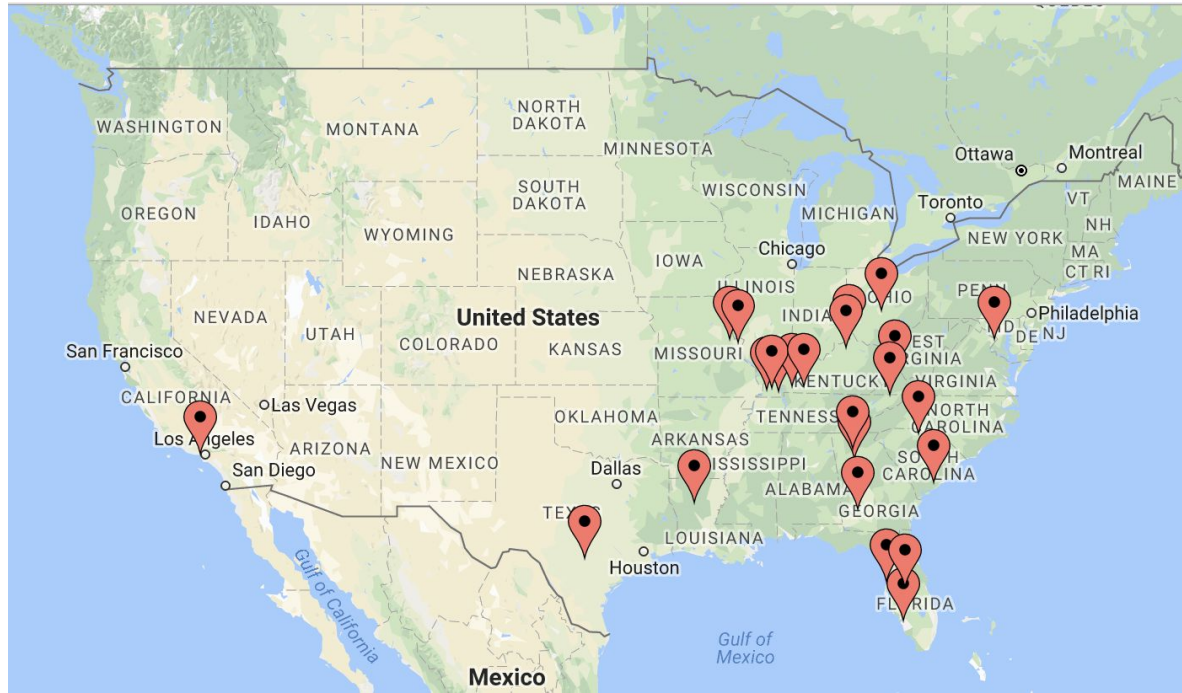
Recruiting Measure In Clusters



Stores Have Bad Recruiting And Bad Application



Stores Have Bad Staffing



**Stores In Cluster 3 and 4 Are The Ones Need
To Look Into To Increase Wage**