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Determining the Effects of Corporate Social Responsibility Programs and Annual Salary on Employee Turnover Rates for Fortune 500 Companies

Jacob Wacaster | April 22, 2020

Abstract

Over the last few decades the turnover rates of employees of Fortune 500 companies have continued to rise. As this rate continues to get higher, companies begin to lose efficiency as they have to devote more time to training new employees and less time toward production. My research project involves looking at the effects of Corporate Social Responsibility programs and wages on turnover rates for Fortune 500 companies in order to assess whether investing in CSR programs or raising wages will better help address this issue. To determine the effect of CSR investing, I will compare the median tenure of employees in Fortune 500 companies vs their CSR score to determine a correlation coefficient between tenure and CSR score. I will then do the same process to determine the effects of wages on labor turnover, swapping CSR scores for median pay within the same companies. Once I am able to isolate the effect of CSR scores and wages on median employee tenure, I will be able to perform a cost-benefit analysis to determine whether it would be more efficient for these companies to invest in CSR programs or raise median pay to increase median tenure and reduce employee turnover. From this analysis, conclusions will be drawn about how a Fortune 500 company should invest capital should it wish to reduce turnover in an effort to increase productivity and efficiency.

Literature Review

Turnover Costs and Productivity

Why should a Fortune 500 company care about labor turnover? Labor turnover creates inefficiencies for companies because of the costs associated with searching for, hiring, and training new employees. These replacement costs are extremely high, ranging from $7000 to $19000 per worker replaced for Fortune 500 companies depending on the industry of the firm (O'Connell and Kung 2007). With increasingly large workforces, these replacement costs can add up quickly for a Fortune 500 company with high labor turnover. Additional research has shown that labor turnover correlates negatively with worker productivity (McKinney, Bartlett, Mulvaney 2007). This decrease in productivity can be attributed to the manner in which turnover impacts the employees who stay. These employees often feel lower job satisfaction after watching a coworker find a better job elsewhere, leading to a decrease in productivity beyond just that directly created by the turnover (Sheehan 1993). Thus, Fortune 500 companies have incentive to keep turnover rates low in order to minimize costs and maximize productivity.

Impacts of Wages on Turnover

The traditional method of reducing turnover for companies is to simply pay higher salaries for individuals the company wishes to prevent leaving. However, the effects of increasing wages on labor turnover are not linear as one might assume. Duhautois, Gilles, and Petit 2016 shows us that increasing wages has diminishing returns on reducing turnover as

wages increase. The research uses spline regression to show the non-linear effects of wages on turnover rate. Further, the research shows a positive correlation between wages and turnover rate at the highest end of the wage variable, implying that continuing to use raises as the primary incentive to keep employees in the company actually has the opposite effect above a certain salary level. This observation provides further justification for research into alternative methods of reducing CSR as it shows that salary raises are not always a viable strategy for reducing turnover. Thus, alternative methods must be evaluated to determine their viability when salary increases are no longer effective.

<u>Impact of CSR on Turnover</u>

A newer proposed method of reducing turnover calls for companies to invest in Corporate Social Responsibility (CSR) programs in order to increase employees' job satisfaction and reduce turnover. Research has shown the effects of CSR on turnover through both regression modelling and employee surveys. Regression modelling shows that companies which adopt CSR programs have quit rates 3%-3.5% lower than companies without CSR programs, resulting in a 25-30 percent decrease in employee turnover (Vitaliano 2009). We see similar results in survey-based research on the effects of CSR programs. Regression models of employee survey results show that the prevalence of Corporate Social Responsibility programs correlate positively with work engagement and negatively with burnout (Lin and Liu 2016). These findings show exactly why CSR programs reduce turnover; employees with higher job satisfaction are less likely to leave. Thus, research into both employee survey responses and hard labor turnover data shows that Corporate Social Responsibility programs reduce turnover rates.

Methodology

The first step in my research was to collect data on CSR scores, median salaries, and median employee tenures at Fortune 500 companies. For CSR scores, I gathered the data from csrhub.com, a website which measures and compares CSR scores for companies across the globe. For my purposes, I used the data set for Fortune 500 Companies in 2018. The CSR score given to each company is based on 4 categories: Community, Employees, Environment, and Governance. Each of these categories can be weighted however the user wishes, so I left the weights on the default setting of "user average." I did this based on the logic that any worker looking up a company's CSR score will likely keep the default settings. Thus, I wanted my data to reflect what these workers would see if they clicked on the website and altered nothing. The weights for each category are as follows:

CSR Score Priorities	
Community	2.6
Employees	2.8
Environment	3.7
Governance	2.9

The data for median tenure and salary came from payscale.com, a website designed to compare various aspects of potential employers for individuals looking for work.

Now that the data exists in one Excel table, I will begin to run regression analysis and look for statistically significant correlation. For the purposes of my analysis, I will consider any P-value below 0.1 to be potentially statistically significant and any P-value below 0.05 to be definitely statistically significant. I will begin by setting up 2 regression models in order to analyze the entire data set as a whole. The first regression model will measure the effect of

salary, and the second one will measure the effect of CSR. I do not expect these individual

aggregate models to explain the whole story of how CSR and salaries affect turnover, but these

models will help to form a baseline view of their effects, which I can compare to a multiple

regression model and draw conclusions. From there, I will then break the data into smaller

categories as necessary in order to adjust for any outside variables which may skew the

aggregate data.

Data and Analysis

For each regression model, the summary output will be shown, followed by analysis of the

output. Any graphs can be seen at the end of the paper in the Figures section.

Aggregate Salary Regression (Figure 1)

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.240815664							
R Square	0.057992184							
Adjusted R Square	0.055961995							
Standard Error	1.820860777							
Observations	466							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	94.70794653	94.70794653	28.56491516	1.42364E-07			
Residual	464	1538.407762	3.315533969					
Total	465	1633.115708						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.448925051	0.299062042	8.188685635	2.57908E-15	1.861241289	3.036608812	1.861241289	3.036608812
X Variable 1	2.47469E-05	4.63025E-06	5.344615529	1.42364E-07	1.5648E-05	3.38457E-05	1.5648E-05	3.38457E-05

Aggregate CSR Regression (Figure 2)

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.001156519							
R Square	1.33754E-06							
Adjusted R Square	-0.002419967							
Standard Error	1.934609998							
Observations	415							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	0.002067488	0.002067488	0.000552403	0.981260189			
Residual	413	1545.741643	3.742715843					
Total	414	1545.743711						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	4.025464153	0.822371031	4.894948875	1.41278E-06	2.408909215	5.642019092	2.408909215	5.642019092
X Variable 1	-0.00035816	0.01523873	-0.02350326	0.981260189	-0.030313305	0.029596985	-0.030313305	0.029596985

The salary regression model shows a firmly positive regression slope and a p-value well below 0.05, so the effect of variable 1 (pay) is shown to have a statistically significant positive correlation with employee tenure. According to this model, a firm can expect a 0.2 year increase in median employee tenure should the firm increase median employee pay by $10,000. Another key observation stands out: when looking at fortune 500 companies as a whole, CSR appears to have virtually zero impact on turnover. In fact, the P-value of the regression line indicates a 98% chance that the coefficient for Variable 1 (CSR) is zero, and the slope of the regression line is actually slightly negative in the regression model anyway. We can also see in the aggregate regression for salary that while increasing pay does correlate significantly with an increase in employee tenure, the slope of the line is actually very shallow (2.5E-5). This indicates that in order to raise tenure to significant degree, and thus reduce turnover and increase productivity, a firm would need to pay well above their current salaries.

Aggregate Multiple Regression

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.240615665							
R Square	0.057895898							
Adjusted R Square	0.053322577							
Standard Error	1.880050796							
Observations	415							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	2	89.49222061	44.7461103	12.65948744	4.61713E-06			
Residual	412	1456.25149	3.534590996					
Total	414	1545.743711						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	3.446018196	0.80743308	4.267868482	2.45124E-05	1.858815831	5.03322056	1.858815831	5.03322056
X Variable 1 (Pay)	2.63083E-05	5.22848E-06	5.031738263	7.27351E-07	1.60305E-05	3.65862E-05	1.60305E-05	3.65862E-05
X Variable 2 (CSR)	-0.020232085	0.01532664	-1.320060069	0.1875479	-0.050360253	0.009896082	-0.050360253	0.009896082

Aggregate Multiple Regression With Age Included

SUMMARY OUTPUT (Age included)								
Regression Statistics								
Multiple R	0.55171663							
R Square	0.30439124							
Adjusted R Square	0.299313803							
Standard Error	1.617448102							
Observations	415							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	3	470.5108443	156.8369481	59.94979105	3.62884E-32			
Residual	411	1075.232866	2.616138361					
Total	414	1545.743711						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-5.931308878	1.042263392	-5.690796517	2.40706E-08	-7.980140933	-3.882476823	-7.980140933	-3.882476823
X Variable 1 (Pay)	1.27401E-05	4.63655E-06	2.747753071	0.006264664	3.62578E-06	2.18544E-05	3.62578E-06	2.18544E-05
X Variable 2 (CSR)	0.002917837	0.01332464	0.218980582	0.826773875	-0.023275109	0.029110784	-0.023275109	0.029110784
X Variable 3 (Age)	0.25005926	0.020720498	12.06820691	6.48149E-29	0.209327885	0.290790635	0.209327885	0.290790635

Until now, we have looked at each variable independently. But in reality, employees must evaluate both of these variables at once when deciding whether or not to change employers. This multiple regression model, incorporating both variables, can answer one very important question: when both variables are in play, which one impacts an employee's decision

more? The Aggregate Multiple Regression model gives a very clear answer: salary matters far more than CSR on an aggregate level for Fortune 500 companies. The multiple regression model continues to show the same negative coefficient and large P-value for CSR that we saw in the individual regression models, and it also shows an even larger coefficient for Pay than we saw in the individual model. However, this coefficient is still fairly small and thus does not change the conclusion reached earlier that a firm will need to raise wages well above their current level to significantly reduce turnover. Thus, the analysis of the multiple regression model reaches the same conclusions as the individual models: increasing a company's CSR score will have little to no impact on employee turnover; raising wages will likely yield the desired results, but only if the firm is capable of providing significant raises.

While looking through the data, I realized that one variable was potentially skewing my data significantly: the demographics, specifically age, of the employees at each firm. The previous multiple regression model assumed that each firm had similar age employees, but upon further inspection I found this to not be the case. The average age of employee ranges from 26 to 50 years old, so I created another multiple regression model to see how much age may be impacting the models I had created. The model shows that, when including median age of employee as a variable, CSR is extremely likely to have no impact on tenure. Including age also reduces the coefficient for the Salary variable to half of what it had been previously. This follows what we should expect to see; younger employees are more likely to job hop, skewing the data against firms which employ primarily young workers. Thus, I concluded from this model that I needed to separate the data into two categories in order to properly isolate the effects of CSR and Pay on employee turnover. Each firm was put into two categories: Millennial

(median employee age <38) or Gen X (median employee age 38+). These categories were

defined based on the age of the oldest millennials (generally defined as born between 1980 and

1995) in 2018.

Gen X Salary Regression (Figure 3)

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.312532201							
R Square	0.097676377							
Adjusted R Square	0.092273241							
Standard Error	2.357554018							
Observations	169							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	100.4770763	100.4770763	18.07772123	3.52069E-05			
Residual	167	928.1961781	5.558060947					
Total	168	1028.673254						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.540178697	0.800992697	1.922837376	0.056202122	-0.041197922	3.121555316	-0.041197922	3.121555316
X Variable 1	5.21716E-05	1.22705E-05	4.251790355	3.52069E-05	2.79463E-05	7.63969E-05	2.79463E-05	7.63969E-05

Gen X CSR Regression (Figure 4)

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.043076836							
R Square	0.001855614							
Adjusted R Square	-0.005173572							
Standard Error	2.598740811							
Observations	144							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	1.782824115	1.782824115	0.263987016	0.60819274			
Residual	142	958.9904398	6.753453801					
Total	143	960.7732639						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	5.985136644	1.960451391	3.052938049	0.002706088	2.109694782	9.860578506	2.109694782	9.860578506
X Variable 1	-0.018896274	0.036777728	-0.513796668	0.60819274	-0.091598892	0.053806344	-0.091598892	0.053806344

The first key observation from the Gen X single regression models is that Salary has a much larger impact than was shown by the aggregate models. Whereas the aggregate model showed an increase in estimated tenure of 0.25 years for every $10,000 pay increases, the Gen X model shows an increase in estimated tenure of 0.52 years for every $10,000 pay increases. The standard error for Salary is also much smaller in the Gen X model; the standard error for Gen X is approximately 1/3 that of the aggregate model. This indicates that by separating put Gen X Companies, the model is much stronger and tells a more uniform picture than the aggregate model. Thus, we can see that among Fortune 500 companies which primarily employ Gen X workers, pay is a more effective method of reducing turnover compared to all Fortune 500 companies by a factor of approximately 2 times. In contrast, the CSR model continues to show no statistical significance. There is a 60% chance, based on the P-value, that the coefficient for the CSR variable is 0, so we can conclude that CSR has no impact on tenure for Gen X companies.

Gen X Multiple Regression

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.326631844							
R Square	0.106688362							
Adjusted R Square	0.094017275							
Standard Error	2.467188854							
Observations	144							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	2	102.5033256	51.25166281	8.419827065	0.000351327			
Residual	141	858.2699383	6.087020839					
Total	143	960.7732639						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	5.118098912	1.873375784	2.73201936	0.007100187	1.414563334	8.82163449	1.414563334	8.82163449
X Variable 1 (Pay)	6.19913E-05	1.52396E-05	4.067771465	7.86348E-05	3.18636E-05	9.2119E-05	3.18636E-05	9.2119E-05
X Variable 2 (CSR)	-0.078700588	0.037885017	-2.077353878	0.039583	-0.153596671	-0.003804504	-0.153596671	-0.003804504

The multiple regression model for Gen X Fortune 500 Companies continues to show an increase in the impact of pay on tenure. This model now shows an expected increase in tenure of 0.62 years for every $10,000 increase in pay. This is up from a 0.52 year expected increase in the Gen X Salary Regression Model. So what about CSR? Whereas every model up to this point shows no statistical significance for CSR on tenure, this multiple regression model has a P-value for CSR of 0.03, giving us a definite statistical correlation. However, the correlation coefficient for CSR is -0.078, implying that we would expect to see a lower median tenure and more turnover at Gen X companies with higher CSR scores. This appears to contradict the point of CSR programs, so how can we interpret this data? I believe that this apparent contradiction results from the fact that companies must choose whether funds are put toward CSR programs or toward pay increases. Because money cannot be spent on both things at once, and companies have limited funds to work with, any money spent on CSR programs directly results in lower salaries offered to employees of the company. There is a tradeoff being made: increased CSR benefits for slightly lower salaries across the board. Thus, the negative coefficient we see here is a result of this tradeoff plus the fact that salary has such a steep correlation with tenure. By increasing CSR scores, and thus decreasing median employee salary relative to other Fortune 500 companies who choose to raise salaries instead of their CSR score, the expected net change on median tenure is negative because Salary is far and away the biggest factor for Gen X employees. Thus, increasing CSR does not directly cause employee tenure to decrease, but rather the opportunity cost of not increasing Salary is so high that the net result is a negative shift in expected median employee tenure.

Millennial Salary Regression (Figure 5)

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.22265144							
R Square	0.04957366							
Adjusted R S	0.04635188							
Standard Err	1.13724088							
Observations	297							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	19.9002945	19.9002945	15.3870222	0.00010901			
Residual	295	381.52846	1.29331681					
Total	296	401.428754						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.68849231	0.21338982	12.5989718	2.0539E-29	2.26853302	3.10845161	2.26853302	3.10845161
X Variable 1	1.3039E-05	3.3242E-06	3.9226295	0.00010901	6.4974E-06	1.9582E-05	6.4974E-06	1.9582E-05

Millennial CSR Regression (Figure 6)

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.109966222							
R Square	0.01209257							
Adjusted R Square	0.008420052							
Standard Error	1.172211895							
Observations	271							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	1	4.524461411	4.524461411	3.292718776	0.070701518			
Residual	269	369.6277157	1.374080728					
Total	270	374.1521771						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.394701098	0.605996696	3.951673523	9.92339E-05	1.201601487	3.587800709	1.201601487	3.587800709
X Variable 1	0.020246015	0.01115738	1.814585015	0.070701518	-0.00172088	0.042212911	-0.00172088	0.042212911

The single regression models for Millennial workers tell a different story than that of the

Gen X model. The Millennial model shows an expected tenure increase of only .13 years for

every $10,000 increase in pay. This number is significantly lower than both the aggregate model

(.25) and the Gen X model (.52). Based on this comparison, the data shows that offering

increased salaries is less effective in preventing turnover of younger workers. Another

observation of note is that the standard error for the Millennial salary regression model for

salary is roughly ¼ that of the standard error for the Gen X salary regression model. This

indicates that Millennial workers are more uniform in how salary influences their turnover

intentions. Not only do these workers tend to be less persuaded by salary increases compared

to their older counterparts, but Millennial workers also are less likely to deviate from that

tendency on average. A second key observation comes from the CSR Regression Model for

Millennial firms. For the first time, we see a positive, potentially statistically significant

correlation between a firm's CSR and the median tenure of their workers. This indicates that

CSR programs have some merit as potential methods for lowering turnover for firms which hire

younger Millennial workers. However, the magnitude of the correlation coefficient must be

considered when evaluating CSR programs as potential methods of reducing turnover. The

model shows that for every 10 points a firm raises its CSR score, the firm would expect to see

an increase in median tenure of 0.2 years. From the standard error, we see that this expected

increase would likely range anywhere from 0.1 to 0.3 years in practice. Thus, a firm would need

to implement many CSR programs and significantly raise its CSR score in order to expect a

significant rise in expected tenure.

Millennial Multiple Regression

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.21741033							
R Square	0.047267252							
Adjusted R Square	0.040157306							
Standard Error	1.153299989							
Observations	271							
ANOVA								
	df	*SS*	*MS*	*F*	*Significance F*			
Regression	2	17.68514512	8.84257256	6.648046617	0.001520991			
Residual	268	356.467032	1.330100866					
Total	270	374.1521771						
	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	2.126670301	0.602277961	3.531044534	0.000487128	0.940872222	3.31246838	0.940872222	3.31246838
X Variable 1 (Pay)	1.14274E-05	3.63286E-06	3.145552499	0.001844518	4.27478E-06	1.85799E-05	4.27478E-06	1.85799E-05
X Variable 2 (CSR)	0.012259804	0.01126715	1.088101609	0.277527806	-0.009923582	0.03444319	-0.009923582	0.03444319

Using the Millennial Multiple Regression model, we can see how workers at Millennial

firms behave when both salary and CSR are allowed to vary. Right away we can see that with a

P-value of 0.277, the CSR variable is no longer statistically significant. From this, we can state

that when that a higher salary will outweigh higher CSR scores even among Millennial workers.

However, we see that the correlation coefficient for salary is still smaller than that of the

Aggregate and Gen X Multiple regression models. From this model, a Millennial firm would

expect a $10,000 pay raise to raise median tenure by only .11 years, less than half that of the

aggregate model. This model shows that while pay raises are still the primary method for

Millennial firms to decrease turnover, firms should expect this method to be less effective as

their workforce shifts from Gen X to Millennial workers. Further, the model continues to show a

positive, albeit statistically insignificant, correlation between CSR and tenure. This lends further

credibility to the previous logic that the opportunity cost of using funds for CSR programs

instead of pay raises led to the negative correlation coefficients observed in the Gen X models.

By the logic used in reaching that conclusion, a lower correlation coefficient for salary should see a higher correlation coefficient for CSR. The Millennial multiple regression model follows this expected relationship, providing additional support for the validity of the logic.

Conclusions

The primary conclusion reached by the analysis of these regression models is that increasing salary continues to be the most effective method of reducing turnover for Fortune 500 companies. For every multiple recession model in this paper, salary was the strongest correlating variable to turnover among Fortune 500 companies. Based on this finding, Fortune 500 companies can most effectively reduce turnover by offering pay raises to individuals deemed at risk for leaving. However, the lower correlation coefficients for salary among Millennial firms imply that pay raises are less effective at preventing Millennial workers from leaving than Gen X workers. As Gen X workers approach retirement and Millennial workers occupy an increasingly larger percentage of the workforce, Fortune 500 companies must either raise salaries even more to keep turnover low, or they must consider alternative methods.

The models analyzed in this paper evaluated the potential of one such alternative, Corporate Social Responsibility programs. CSR scores showed no statistically significant correlation with median tenure in both the aggregate and Gen X models but did show some promise in the Millennial model. While the Millennial multiple regression model showed that salary will ultimately push Millennial workers to job hop regardless of CSR scores, the Millennial CSR Regression model showed positive statistically significant correlation between Fortune 500 companies' CSR score and median tenure. The results of this single regression model show us that CSR effectively reduces turnover among Millennial employees when salary cannot change

or is ineffective. Thus, we see a specific circumstance where CSR programs can be effectively implemented to lower turnover rates in a Fortune 500 company. In order for CSR programs to effectively affect turnover, the firm must primarily hire younger workers, and the firm must compete for labor in a very competitive market where salaries are already as high as firms are willing to pay.

While the previous conclusions were based on the effectiveness of the two proposed strategies, we must also consider the cost of these strategies. Fortune 500 companies hire large work forces; increasing the salary of each worker by $10,000 or $20,000 in order to decrease turnover would require an immense amount of money. This cost would likely outweigh any productivity benefits from lowering turnover even among Fortune 500 companies which primarily hire Gen X workers. As such, companies which choose to use pay raises as their primary strategy for reducing turnover must do so in a discretionary manner. These companies could potentially give pay raises only to specific levels of supervisory employees in order to lower turnover for positions which impact productivity the most. Evaluating the effectiveness of such a strategy will require additional research as this paper only reaches conclusions about company-wide strategies. In contrast, raising a firm's CSR score does not scale with the number of employees hired by the firm. Thus, CSR programs may be more cost effective than even discretionary pay raises for the largest of Fortune 500 companies. Further, some individuals may hold different preferences for the categories of CSR programs used in this paper. Additional research into the effect of each category of CSR scores on labor turnover would provide further clarity in how to effectively use CSR programs to reduce turnover.

Changes in generational dynamic within the labor market over the next ten years are likely to impact the conclusions reached in this paper. As Gen X workers retire, Millennial workers move to executive level positions, and Gen Z students enter the workforce, the manner in which each generation values the aspects of their job is likely to impact the effectiveness of these strategies. We can see evidence of that change in the different correlation coefficients for salary and CSR score for Millennial workers and Gen X workers. Additional research will be necessary over the next ten years to evaluate changes on the effectiveness of the strategies considered in this paper from the addition of Gen Z workers to the work force.

Figures

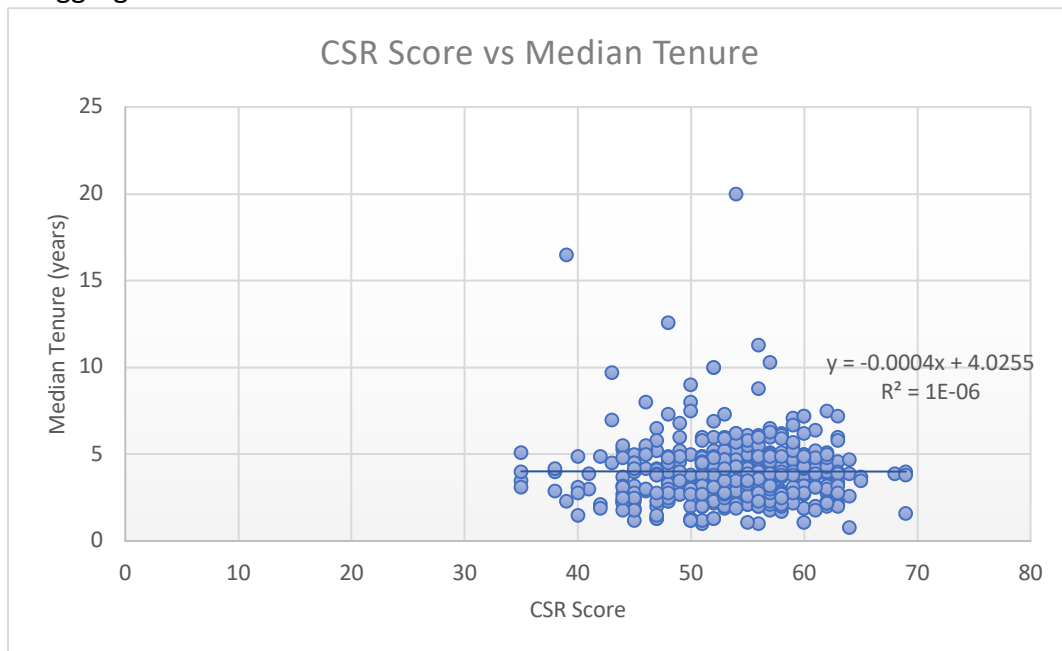Figure 1: Aggregate Salary v Tenure

Median Pay vs Median Tenure

$y = 2E\text{-}05x + 2.4727$
$R^2 = 0.0539$
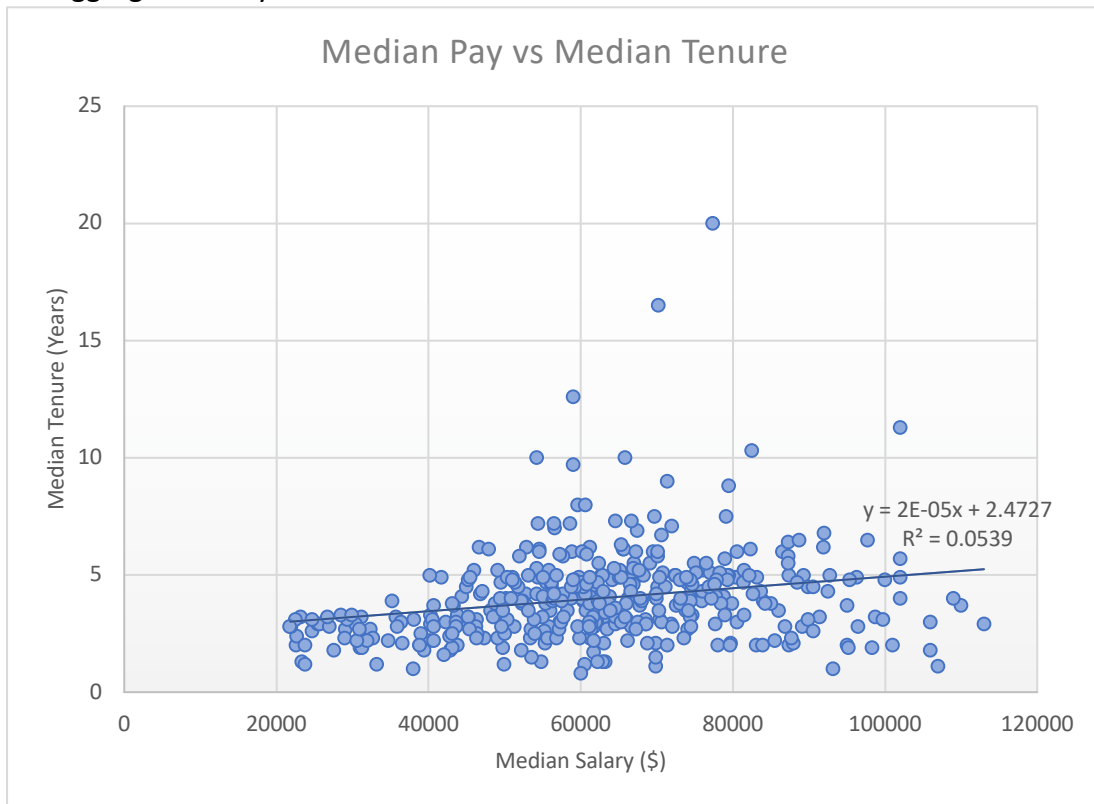
Figure 2: Aggregate CSR v Tenure

CSR Score vs Median Tenure

$y = -0.0004x + 4.0255$
$R^2 = 1E\text{-}06$

Figure 3: Gen X Salary v Tenure

Gen X: Wage vs Tenure

$$y = 5E\text{-}05x + 1.6481$$
$$R^2 = 0.0844$$
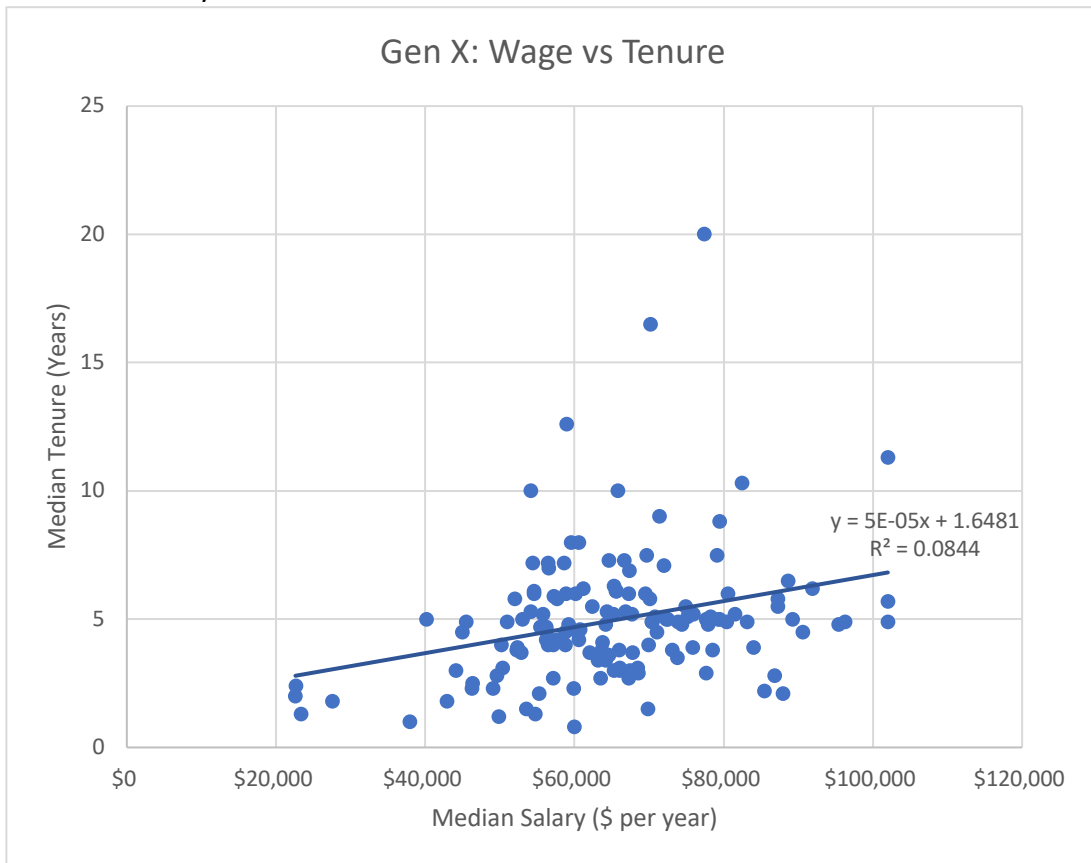
Figure 4: Gen X CSR v Tenure

Gen X: CSR vs Tenure

$$y = -0.0096x + 5.4602$$
$$R^2 = 0.0005$$
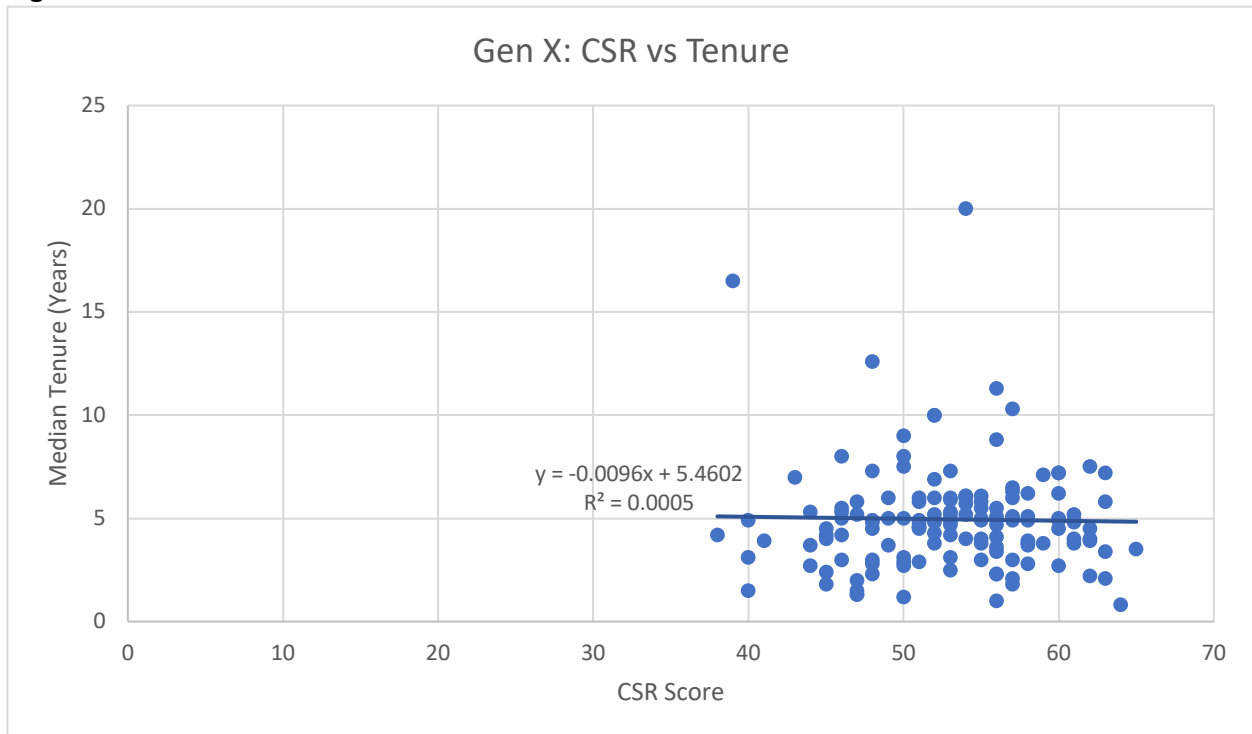
Figure 5: Millennial Salary v Tenure

Millenials: Wage vs Tenure

$y = 1E-05x + 2.7335$
$R^2 = 0.0431$

Median Tenure (Years)

Median Salary ($ per year)
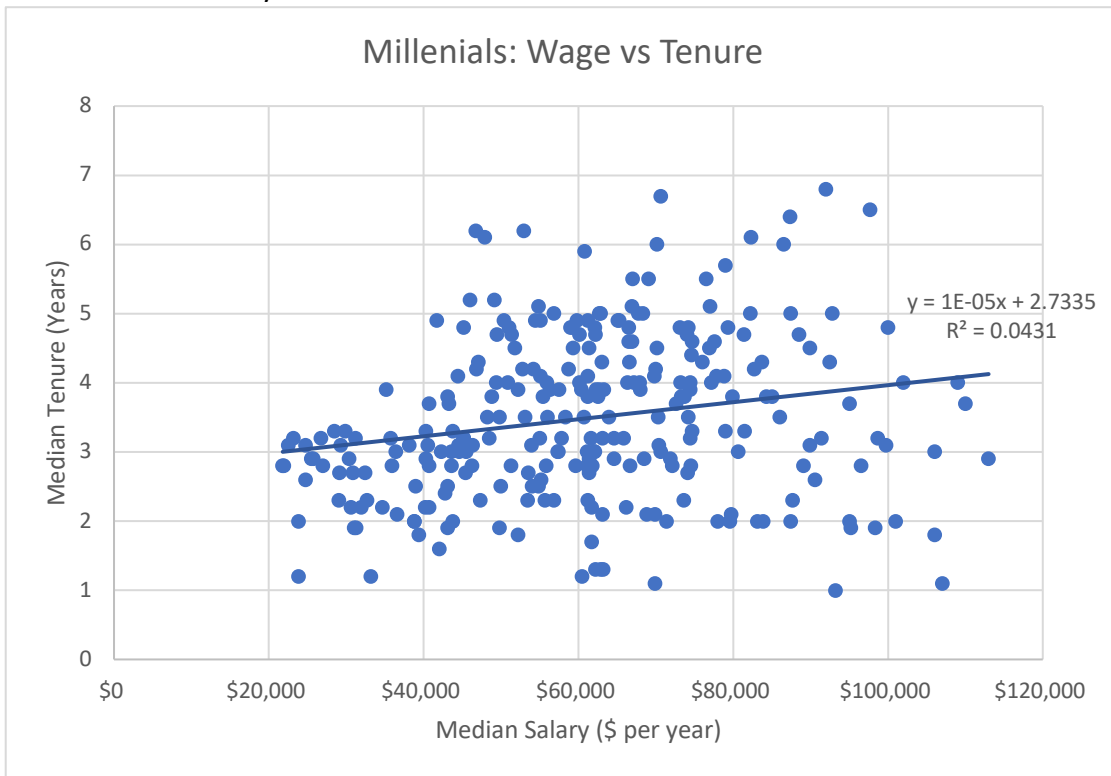
Figure 6: Millennial CSR v Tenure

Millenials: CSR vs Tenure

$y = 0.0202x + 2.3947$
$R^2 = 0.0121$

Median Tenure (Years)

CSR Score
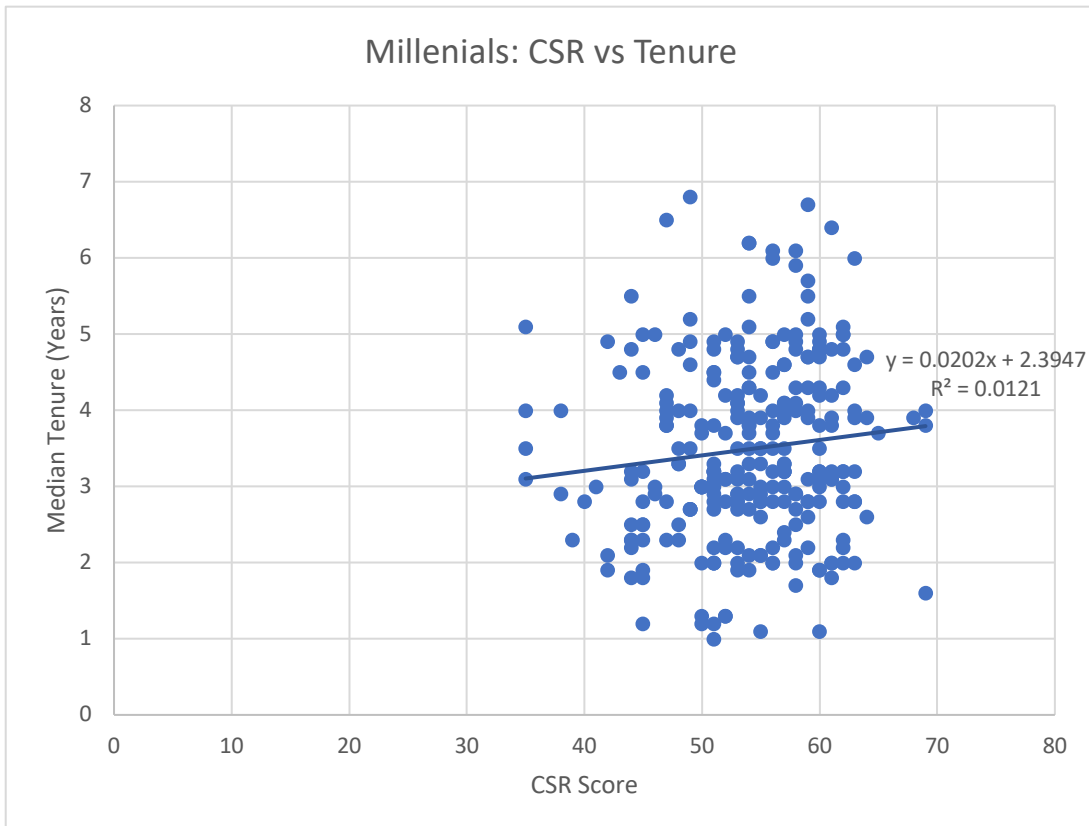
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