

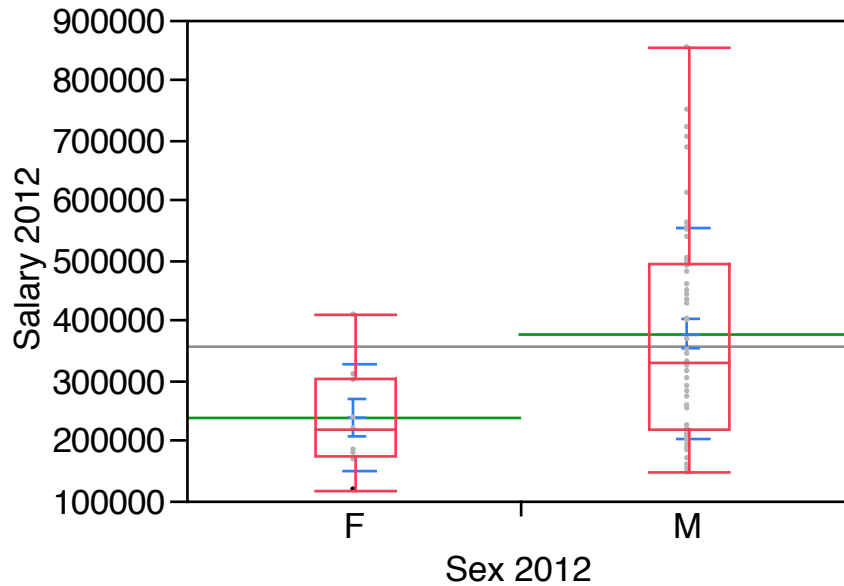
An Analysis of the Forward's Salary Surveys From 2009 to 2013 (With Data From 2008 to 2012)

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I. Introduction

Since 2008, The Forward has collected data chronicling CEO salaries for Jewish organizations. They discovered the presence of a large gender gap in salary. For example, women CEO in 2011 earned only 66 cents for every dollar earned by a male CEO.

The data for 2012 has not changed much in this respect:



| Level | Mean | Median |
|--------|--------|--------|
| Female | 237298 | 220450 |
| Male | 377364 | 332260 |

Figure 1: Plot of Men and Women's Salaries

The median salary for the 9 female CEO in the dataset is only 66% of the median¹ male CEO salary.

Though there is indeed a large gap in median salary, this does not necessarily imply that women are being vastly underpaid solely because they are females. There are many factors that contribute to a CEO's salary and while gender may be one of them it is not the only factor. It may not even be the largest.

In this report, we endeavor to explore these factors as best as possible. Since the dataset is limited in size and scope a statistical analysis is required.

II. What are the factors that influence salary? Talent and skill can have a sizeable effect on salary. These are factors that are specific to the CEO. Other factors are specific to the nature of the organization. Indeed, common sense predicts that the perhaps the largest driver of salary is organizational size; the CEO salary for a small organization is expected to be lower than the salary of a CEO in a large organization. Although we do not have data on experience and skill level for individual CEOs, we do have data on the organizational size as measured through total expenses and number of employees. To test our common sense assumption we can graph for each organization its size (as measured through expenses) against its CEO's salary:

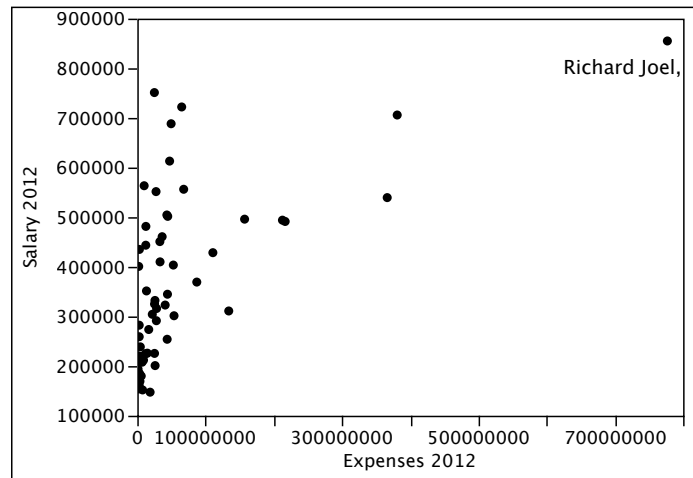


Figure 2: Organizational Expenses vs CEO Salary

Oh, no. Except for Richard Joel (largest CEO salary) of Yeshiva University (largest organizational expenses) there appears to be only a weak relationship between size and salary. Can intuition and common sense be so wrong?

¹ It is standard practice to compare medians since the mean salary can be heavily influenced by an extreme point. Nevertheless, the comparison of mean salary is similar.

Perhaps this is not the correct view of the data. Since most of the organizations are of similar and smaller size, the data in the graph is clustered to the left with a few organizations sprinkled outward and with no discernible pattern. In order to correct for this skewed distribution, we plot the log of size of organizations instead of the actual size². Mathematically, a logarithmic transformation of the data changes the scale so that space on the graph is allocated according to percentage differences in the data. This makes sense when data is naturally measured and discussed on a percentage basis, as is the case for salaries. A graph on the log scale (Figure 2) clearly confirms our intuition: on average larger organizations pay its CEOs larger salaries. This factor by itself goes a long way towards explaining the difference in salary among the CEOs (correlation is .7)

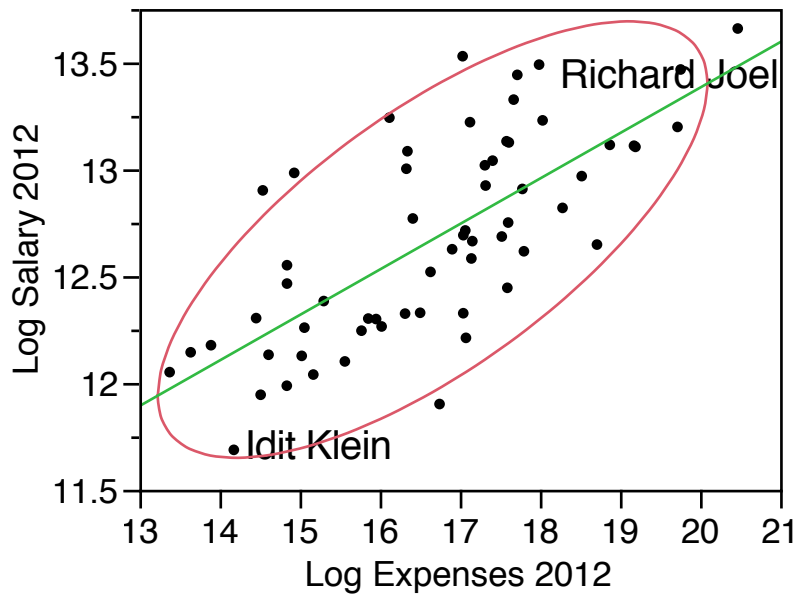


Figure 3:

*Natural Logarithm of Organizational Expenses vs. Natural Logarithm of CEO Salary.
The correlation is .71*

Now back to sex differences. Women head smaller organizations on average than men:

² Log size is the number that, when we raise e to it, returns our original organization size. This transformation returns values between 13.5 and 20.5 (representing sizes of $e^{13.5}$ to $e^{20.5}$, or about \$730,000 to \$800,000,000), allowing us to work with size on a manageable scale that will elucidate its relationship with salary. Salaries have the same clustering problem, so we can transform this variable as well. Similarly, we can transform salaries to values between 11.5 and 13.5 that represent salaries from $e^{11.5}$ to $e^{13.5}$, or about \$98,000 to \$730,000. This way, we do not lose any information, we simply correct for the skew present in the data by transforming the units of size and salary.

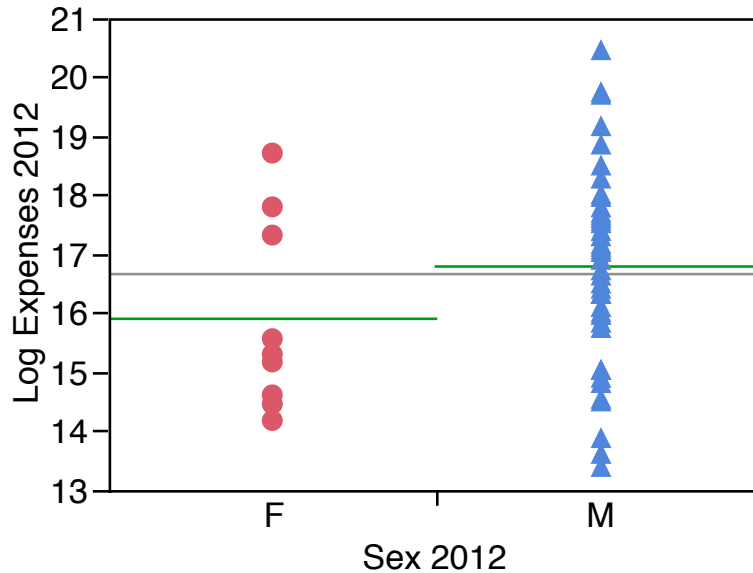


Figure 4: Comparison of Organization Size (Expenses) by Sex in 2012

Thus, they can be expected to earn less money, on average, than men. This sex driven organizational “size bias” may explain much of the gap in pay. In fact, it is possible for females might be paid the same as- or even more than- their male counterparts heading similarly sized organizations, yet have a much lower median salary than men as a group.

The claim regarding the unequal pay gap is that a woman would be paid a lower salary than a man for doing *the same* job. Of course, we cannot know what a salary might have been in another circumstance; we only know salaries as they currently stand. However, we can assume that leading an organization of the same size is like doing the same job, and, on the whole, CEOs of bigger organizations will be paid more than those of smaller organizations- just like the CEO of a huge corporation would be paid more than that of a small company. We can thus compare male and female salaries after statistically controlling for organizational size to evaluate the inequality in pay not caused by differences in organizational size.

In order to control for the presence of a size bias in salary amount we perform a linear regression analysis. This analysis aims to discover the relationship between variables, namely how a dependent variable (like salary) varies as a function of one or more independent variables (like size). In this case, we looked at whether size was linked to salary amount.

In controlling for size, we used two variables as proxies: expenditure and employees. Since charitable organizations’ goal is to distribute aid, which we would measure in terms of expenditure, we decided that this was the most appropriate measurement of size to control for in evaluating CEO compensation. However, an organization’s size and CEO’s responsibilities are also functions of the number of

people employed, so this is another important factor in controlling for size bias in salary.

In addition to a simple regression with one independent variable, we can also perform multivariate regression. This type of regression teases out the relationship between two or more independent variables and the dependent variable. This way, we are able to control for both expenditures and employees to control for size bias.

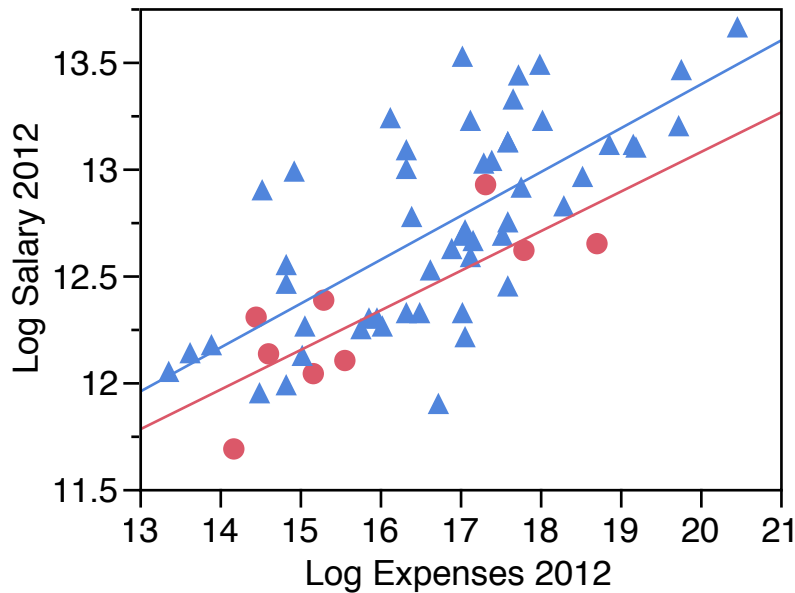


Figure 5: Linear Regression Analysis of Log Salary vs. Expenditures. (women: red/circle, men: blue/triangle)

Regression analysis produces a formula that describes the general trend of the relationship among variables. This formula can be used to predict a salary given a certain organization size, which we can then compare to the actual salary. The regression equation for *male* CEO 2012 salary is as approximately:

$$\text{Log (Salary)} = 9.28 + 0.2 * \text{Log (Expenses)}$$

This slope of the equation has a simple interpretation: a 10% increase in organizational expenses corresponds, on average, to a CEO salary that is 2% larger. The formula for women has the same slope but a smaller intercept. This means that women can expect to earn less than men even after controlling for the size of the organization. To measure the average difference in salary after controlling for size, we compute for a given CEO the difference between his or her actual salary and his or her predicted salary using the male regression equation³ above. This is called a residual. A negative residual indicates underpayment while a positive residual indicates overpayment; the larger the residual, the farther the salary from what

³ The male regression line is used as a baseline. For the female CEO we calculate their predicted salary if they were men.

would be expected given the organization size. Since this subtraction produces an absolute amount in dollars that is difficult to compare when CEOs have salaries of varying magnitudes, we then divided all of the residuals by the predicted amount to obtain a scaled residual, which functions as a percentage. In other words, the scaled residual can be thought of as the percent underpayment or overpayment after controlling for size, which we use to produce the “cents on the dollar” values.

After controlling just for size as expenditure, a gender gap remains, though it is not as large as it is without controlling for organization size.

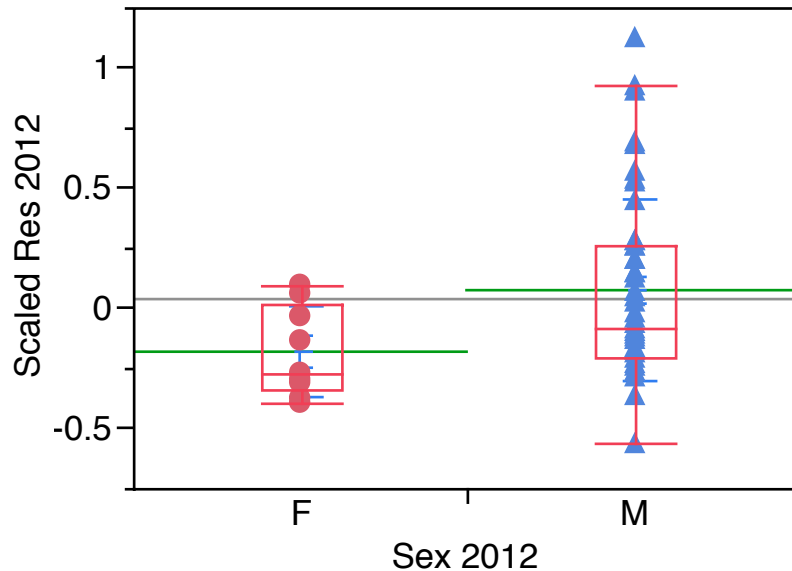


Figure 6: Comparison of the scaled residuals for male (blue) and female (red) CEOs in 2012.

The residuals for the women are mostly negative. The median salary for a woman is predicted to be 18% less than the salary for a man, after controlling for organizational size as measured through total expenses. Thus, a gender driven “size bias” among the organizations explains about half the underpayment in salary.

We can repeat this analysis for every year we have data. In 2008, females were paid 73 cents on the dollar relative to men, which rose to 82 cents by 2012. After controlling for both size as expenditure and number of employees for the years that we have the data for, the story changes only slightly: females CEOs were paid 84 cents on the dollar for their work in 2011 with both analyses, and 81 cents in 2012. This is the case because the two variables of size measurement are highly correlated- organizations that spend more tend to have more employees as well- so controlling for one takes us a long way to controlling for the overall effect of size.

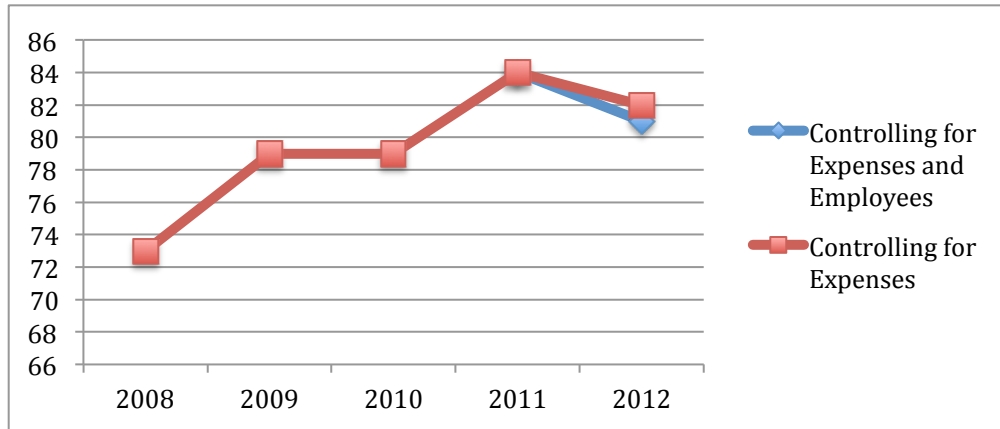


Figure 7: Women's pay in cents on the men's dollar after controlling for size

The state of affairs appears less grim and even seems to be improving, yet it remains unclear why women's relative standing improves over these few years. By tracking the changes of all females in the sample, we aim to determine the root of this ostensible improvement.

The overall number of females in our dataset increased from 7 in 2008 to 8 in 2009, then up to 9 in 2010. Five of the original seven organizations with female CEOs kept female CEOs: Jewish Community Federation of San Francisco, American Jewish World Service, National Council of Jewish Women, Workmen's Circle/Arbeter Ring, and Foundation for Jewish Culture. Four of their five CEOs remained the same, while the CEO of the National Council of Jewish Women was replaced by another female.

In 2009, Maggie Bar Tura of the Foundation for Jewish Camp was replaced by a male and two new organizations joined the dataset with female CEOs: Americans for Peace Now with Debra DeLee and The Israel Project with Jennifer Laszlo Mizrahi.

In 2011, Mizrahi was replaced by a male, Stand With Us joined the dataset with Roz Rothstein, a female CEO, and Janice Weinman became CEO of Hadassah, replacing a male predecessor.

Finally, in 2012, Karen Rubinstein of the American Zionist Movement was removed from the dataset and Idit Klein of Keshet was added to the dataset.

In order to observe any meaningful differential treatment, we first compared the group of CEOs, both male and female, who retained their jobs throughout the five years of the study (2008-2012) in order to discover how their salaries were changing over time.

To perform this comparison, we computed the percentage change from 2008-2009, 2009-2010, etc., and then averaged them geometrically⁴. For each CEO, the geometric mean is the annualized percentage change in salary. For the 31 men who retained their posts, the annualized percentage change was 4.7%, while the value for the 4 females who retained their positions, was 2.6%. To explain the closing gap in pay between genders, we would expect female salaries to be growing at a faster rate than males. Instead, we observe that female CEOs' salaries are actually growing at a slower rate. In fact, these four women's relative salaries demonstrated the opposite trend as the general population of CEOs, worsening from 77 cents on the dollar to 73 cents from 2008 to 2012. Thus, the alleged improvement in female salaries must be explained elsewhere, namely the organizations that underwent a change in leadership.

The first source of improvement is the only organization that changed CEOs from one female to another. After replacing Stacy Kass as CEO of National Council of Jewish Women, Nancy Kaufman's salary rose from Kass' 77 cents on the male's dollar in 2008 to 97 cents by 2012.

However, the most important factor in the improvement of relative female salary by 2011, and the most promising discovery in favor of gender equality moving forward, is the fact that two of the three new female CEOs introduced by 2011 were earning a salary very comparable to that of male counterparts. In fact, the CEOs of Americans for Peace Now and Hadassah were both paid even more than we would predict for a male: \$1.06 and \$1.10 in 2012, respectively. Only the third newly included female CEO, Roz Rothstein of Stand With Us, lagged behind at 69 cents on the dollar. Nonetheless, this represents a marked improvement, and explains the narrowing of the gap in pay we see for female CEOs on average.

Finally, the decline in average female pay from 2011 to 2012 can be mostly attributed to the addition of Idit Klein of Keshet to the dataset, as she is being paid only about 61 cents on the males' dollar. With her, the average of the other, better paid females declined markedly.

In addition to elucidating trends in the data, regression analysis allows us to identify individual data points that have very large scaled residuals- or CEOs that are being drastically over or underpaid. Another glaring differences (see Figure 4) between the male and female CEOs is the variation in salary. After controlling for the organizational size, the salary of female CEO is quite predictable, varying very little. All the women are within 20% give or take from their predicted salary based on the size of the organization. In contrast, the male variation is enormous. The regression model does not predict their salary very accurately at all; some men earn more than twice their predicted salary and others half.

⁴ The usual (arithmetic) average sums the values and divides by the number; a geometric average performs a similar operation but with multiplication instead of addition. To compute the geometric mean, one multiplies all of the values and then finds the n th root of that product, where n is the number of values. Since salary changes are reported on a percentage basis, accumulated salary increases are products of annual increases. This necessitates a geometric mean.

| Organization | Expenses | CEO | Sex | Salary | Predicted | Underpayment |
|--|---------------|-------------------|-----|-----------|-----------|--------------|
| Agudath Israel of America | \$18,774,154 | David Zweibel | M | \$147,456 | \$332,149 | 56% |
| Keshet | \$1,438,951 | Idit Klein | F | \$119,000 | \$196,179 | 39% |
| Jewish Community Federation of San Francisco | \$134,027,819 | Jennifer Gorovitz | F | \$311,044 | \$496,967 | 37% |
| American Jewish University | \$25,244,968 | Robert Wexler | M | \$225,560 | \$352,938 | 36% |
| Jewish Federation of Metropolitan Detroit | \$43,766,340 | Scott Kaufman | M | \$254,042 | \$395,081 | 36% |

Table 1: Five most underpaid CEOs after controlling for organization size (2012)

In 2012, the worst paid CEO was David Zweibel of Agudath Israel of America, earning a mere 44 cents on dollar of his expected salary. The next worst paid executive was Idit Klein of Keshet, earning 61% of what we would expect a man to earn in a similar position. Next is Jennifer Gorovitz of Jewish Community Federation of San Francisco at 63 cents, followed by Robert Wexler and Scott Kaufman with salaries of 64 cents on the dollar.

While these CEOs are being underpaid relative to their fellow executives, their salaries are still not exorbitantly low. Zweibel is the CEO with the second lowest salary in 2012, yet is still paid a salary of \$147,456. The worst residuals are still only around 50%, or 50 cents on the dollar, because there is an inherent limit to how low a CEO can be paid. To explain this fact with an extreme example, a CEO can't have a residual of -1, or be paid 0 cents on the dollar, but a CEO can have a residual of +1, or be paid 200 cents on the dollar or even more. Therefore, we can expect there to be much more extremely overpaid CEOs than underpaid ones. This most certainly appears to be the case.

| Organization | Expenses | CEO | Sex | Salary | Predicted | Overpayment |
|--|--------------|------------------|-----|-----------|-----------|-------------|
| Simon Wiesenthal Center | \$25,047,310 | Marvin Hier | M | \$751,054 | \$352,370 | 113% |
| Republican Jewish Coalition | \$10,037,372 | Matthew Brooks | M | \$563,372 | \$292,136 | 93% |
| Zionist Organization of America | \$3,058,183 | Morton Klein | M | \$435,050 | \$228,967 | 90% |
| Conference of Presidents of Major Jewish Organizations | \$2,065,734 | Malcolm Hoenlein | M | \$400,815 | \$211,273 | 90% |
| Anti-Defamation League | \$49,567,222 | Abraham Foxman | M | \$688,280 | \$405,292 | 70% |

Table 2: Five most overpaid CEOs after controlling for organization size (2012)

Abraham Foxman of the Anti-Defamation League is highly overpaid at about \$1.70 on the dollar they are expected to earn (a 70% higher salary), followed by Malcolm Hoenlein of the Conference of Presidents of Major Jewish Organizations and Morton Klein of Zionist Organization of America who are both earning \$1.90 on the dollar (a 90% larger salary). The second most overpaid CEO is Matthew Brooks of the Republican Jewish Coalition, making \$1.93 more per dollar than expected (a 93% larger salary) . Finally, Marvin Hier of Simon Wiesenthal Center **is by far the most**

overpaid CEO, receiving \$2.13 (113% larger) more dollars of compensation than expected given the size of the organization.

Though CEOs of federations do not appear systematically overpaid given the size of their organizations, this is only the case when we control for size as expenditure. The CEOs of these organizations are paid comparably to those of other organizations that spend similar amounts, but expenditures do not fully capture size when the role of federations is considered. While other organizations distribute the aid to the end recipients themselves, federations are pass-through organizations that raise money and then pass it along to other charitable organizations. Thus, overall expenses might be a misleading proxy for size.

The misleading nature of this measurement of size becomes clear when we look at the number of employees in these organizations. Though the average expenses for federations is actually higher than non-federations (60 million versus 57 million), the average number of employees at the former is only 156 compared to 550 at the other organizations. Though we will not make a normative claim as to whether or not these CEOs deserve to receive the salary they have, we are simply stating that though these CEOs are paid appropriately upon controlling for expenses, they are overpaid by about 20 cents on the dollar when only controlling for number of employees.

When any difference among groups is observed, it is impossible to investigate it and definitively determine causality. Causal relationships can be claimed only after performing controlled and randomized experiments when only one factor is altered between two groups, necessitating that any difference in outcome is a result of that one factor. In the real world, however, there is never just one difference; there will always be myriad other factors that could be underlying a given pattern. When some of these factors are not externally assignable, such as sex, no random assignment will ever be possible, and thus a causal relationship will never be able to be determined. The best we can do is identify trends and control for as many other potentially confounding factors as possible to more confidently assert the relationship among two variables.

In this case, in determining the gap in pay between male and female CEOs of Jewish organizations, we took a step towards reaching the unattainable truth by removing the size bias from the disparity. Though this was certainly an improvement in the analysis, this does not imply that everything has been controlled for and the sex bias has been proven. Other confounding factors still might be playing a role in widening (or shrinking) the pay gap, such as location of organization, years of experience, CEO age, etc. And even if there is a gap that boils down to sex, this still does not necessarily entail discrimination, but perhaps reflects inferior ability to negotiate or a lower reserve price, which in turn might be a result of other factors.

Though we will not claim any causality, there are certainly conclusions to be drawn from this analysis. Firstly, the sheer lack of women in leadership positions in Jewish organizations is concerning. In every year from 2009 to 2012, there have been 53

men in the dataset and only 8 or 9 women. Regardless of salary, this in itself represents a huge disparity between men and women in executive positions within the Jewish community. Similarly, though controlling for size gives us a fairer comparison of salaries, it is still important to consider the fact that women are indeed concentrated in smaller organizations. While the average of expenses of the men's organizations was around 62 million dollars, females were leading organizations with average expenses of less than half that amount. This, too, reflects a blatant lack of female participation in the upper echelons of Jewish philanthropic leadership. Finally, though there may be other factors that, once controlled, further reduce the sex gap, it is certainly the case that when we control for the most glaring potential confounder- size- a substantial difference in pay persists, but is shrinking year after year. Since 2008, and certainly compared to the analysis of median salary, women's pay seems to be converging with men's and will hopefully reach parity in the very near future.

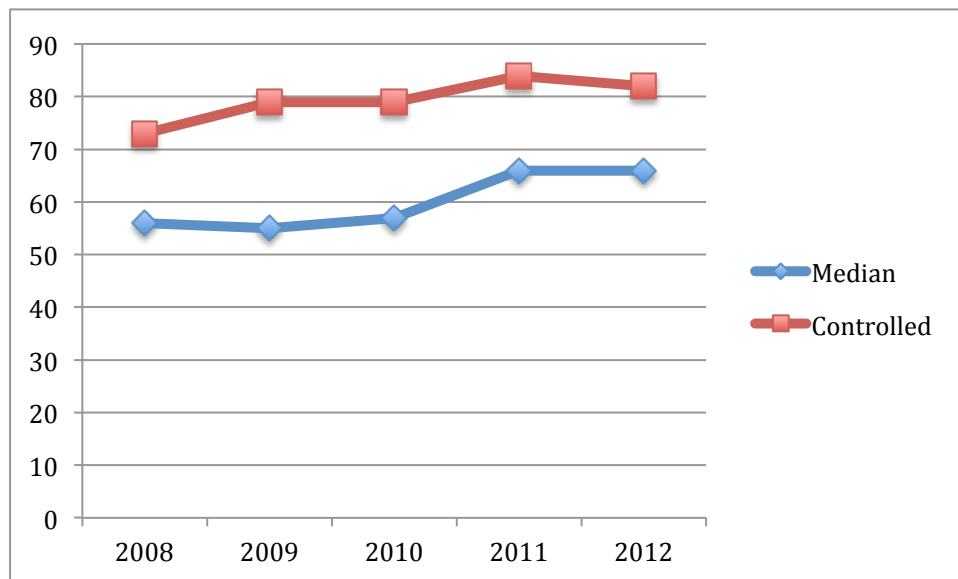


Figure 8: Size of salary gap after performing different analyses

III. Non-Jewish Organizations

After analyzing the relationship between sex, organization size and salary in Jewish organizations, we explored a sampling of non-Jewish organizations that the Forward selected and compared the findings.

Beginning with the same simple operation as our Jewish analysis, we compared the median salaries of the sexes, discovering that women's median salary was only 9% less than the men's, as opposed to the Jewish gap of 32%.

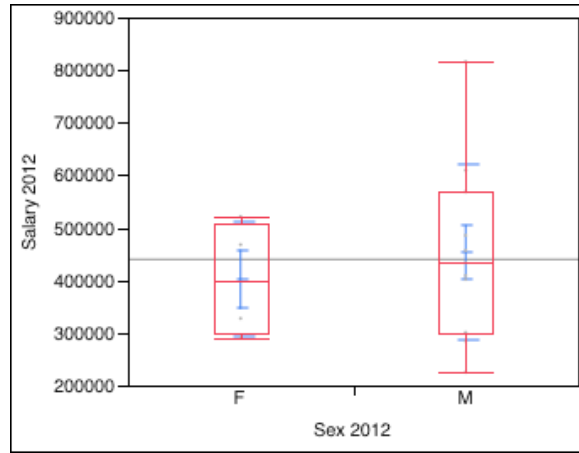


Figure 9: Plot of men and women's salaries

Even though the disparity between the sexes' median salaries is minimal, we cannot make any conclusions regarding the underlying sex bias in CEO compensation. As previously mentioned, salary is a function of organization size, and thus we must control for the size of a given organization in order to compare salaries sensibly. As with Jewish organizations, plotting non-Jewish organizations' log expenses against their log salaries corroborates our intuition that larger organizations pay their CEOs more money.

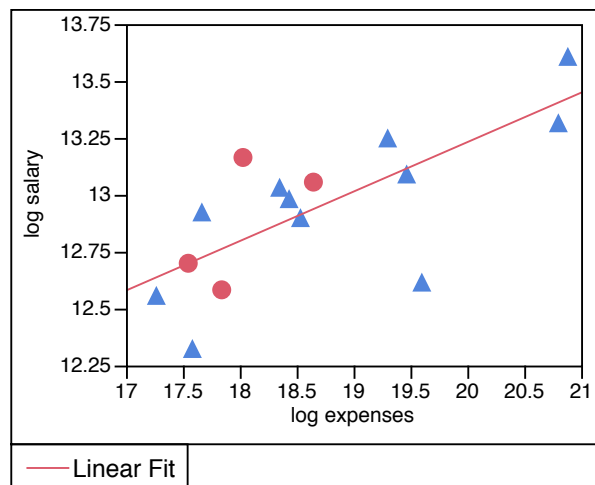


Figure 10: Natural Logarithm of Organizational Expenses vs. Natural Logarithm of CEO Salary for Non-Jewish Organizations. The correlation is .73

Since the size bias is clearly at play here, we can once again perform regression to control for it. Once we fit the appropriate model to the male CEOs⁵, we obtain a regression formula that describes the general trend of the data as follows:

$$\text{Log (Salary)} = 8.66 + 0.2 * \text{Log (Expenses)}$$

With our prediction of both male and female salaries based on the male’s regression formula, we can assess any CEO’s deviation from the expected by calculating scaled residuals, which serve as the “cents on the dollar” values we are now used to. Surprisingly enough, the unfavorable trend towards women that pervaded our analysis of Jewish organizations is absent from the non-Jewish organizations. On average, we observe that the women in this sample of non-Jewish organizations actually make over 10 cents more on the dollar than the male executives once we control for size. In fact, the most overpaid CEO at \$1.49 is a female: Sheena Wright of United Way of New York City. **Of the Jewish organizations, there was not even a female in the top 15 overpaid CEOs.**

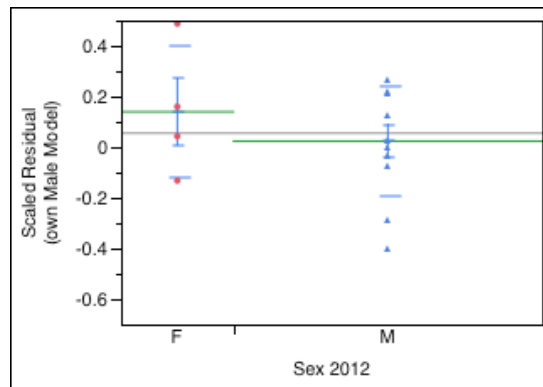


Figure 11: Scaled Residuals by Sex

Using our regression formulas, we can further the comparison between Jewish and non-Jewish organizations. The slope of the equation is the same for male CEOs of Jewish and non-Jewish organizations, indicating that, for both, a 10% increase in an organization’s expenses corresponds, on average, to a 2% larger CEO salary. However, the formula for non-Jewish organizations has a smaller intercept, meaning that we can expect non-Jewish organizations to pay their CEOs less than Jewish ones.

In order to investigate the difference between the groups’ compensations more directly, we predicted non-Jewish CEO salaries based on the Jewish males’ model. This way, we were able to calculate the average scaled residual for non-Jewish CEOs as if there were Jewish and observe the gap between the regression predictions and

⁵ We excluded Matthew Knott from the model. His organization (Feeding America) size is the largest, yet is paid the smallest salary. His complete deviation from the trend was distorting the relationship and therefore the regression analysis.

the reality. The overall average scaled residual was -17%, meaning that non-Jewish CEOs in this dataset are relatively underpaid at 83 cents on their fellow Jewish male CEO's dollar. The non-Jewish female executives fare better than the men, alone earning 90 cents on the Jewish CEO male's dollar, while the males are earning 81 cents. This makes sense given that women are expected to make about a dime more than men for non-Jewish organizations.

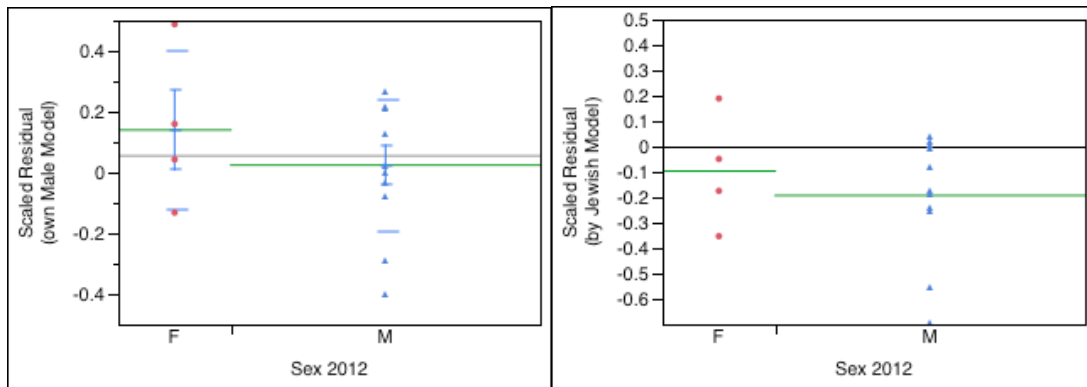


Figure 12: Side by side comparison of Non-Jewish Organizations' Scaled Residuals based on their own males' model (left) and based on the Jewish males' model (right)

Because this is not a very comprehensive selection of non-Jewish organizations, we cannot make sweeping claims regarding all non-Jewish organizations with this sample. However, this analysis provides some interesting insights regardless. First, this clearly shows the possible reversal of a superficially obvious trend once we control for potentially confounding factors. Upon just comparing medians, we observed slight female underpayment, but, after controlling for size, we in fact observed their slight overpayment.

The fact that the trend reversed indicates another tendency, similar to that of the Jewish organizations, which is that females are still less numerous, and are still running the smaller organizations. Only a fourth of the CEOs in the dataset are female, and their average organization size is a mere 23% that of the males'.

Finally, these non-Jewish organizations are systematically paying their executives less than Jewish organizations would. Of the 16 executives in the sample, 13 of them receive a negative residual when predicted with the Jewish model, suggesting that they are relatively underpaid (or rather, Jewish CEOs are relatively overpaid) once we control for size.