Data Task for the Committee on Oversight and Investigations

Marium Sultan

Feb 19, 2020

Strengthening Department of Education Pay Distribution

TITLE: An investigation into the Department of Education's payroll data, looking into the growing income inequality among DOE employees and the skewed allocation of budgetary resources towards the top earners

I. INTRODUCTION AND BACKGROUND

Citywide Payroll data is collected and accessible to the public due to "public interest in how the City's budget is being spent on salary and overtime pay for all municipal employees". The Department of Education as a whole draws the largest budget of any one agency[1] from the NYC government, and has the most employees on payroll by far.

Online research led me to find many articles about misuse of funds within the DOE, including large salary hikes for top employees[2][3], and the paying of teachers who have no hours of actual work[4].

In this report I use both the Citywide Payroll Dataset from NYC open data[5], and the Expense Budget dataset, from the same site[6], to investigate the allocation of budgetary resources in the pay of DOE employees. This report focuses on growing income inequality within the DOE between the years 2017 and 2019, and additionally calls for better payroll data reporting.

II. DATA CLEANING AND ANALYSIS

I started by looking into the Citywide Payroll Dataset from NYC open data, downloading the dataset and reading it in as a csv. The columns included name, agency, year, various kinds of pay, and regular and overtime hours. I cleaned out negative hours and negative

[1] *Explore the Expense Budget,* NEW YORK CITY COUNCIL, http://budget.council.nyc/

[2] *Salaries 'gone wild': Carranza cronies pocket pay hikes as high as 35%,* Susan Edelman, NY POST, August 17, 2019, https://nypost.com/2019/08/17/salaries-gone-wild-carranza-cronies-pocket-pay-hikes-as-high-as-35/

[3] City probing DOE pension fund exec's 'crazy' pay rise, NY POST, Susan Edelman and Mary Kay Linge, August 17, 2019, https://nypost.com/2019/08/31/city-probing-doe-pension-fund-execs-fat-raise/

[4] *700 NYC teachers paid to do nothing*, NBC NEWS, Karen Matthews, July 22, 2009, http://www.nbcnews.com/id/31494936/ns/us_news-education/t/nyc-teachers-paid-do-nothing/#.Xk3vQhNKh0t

[5] *Citywide Payroll Data (Fiscal Year),* NYC OPEN DATA, *https://data.cityofnewyork.us/City-Government/Citywide-Payroll-Data-Fiscal-Year-/k397-673e*

[6] *Expense Budget*, NYC OPEN DATA, https://data.cityofnewyork.us/City-Government/Expense-Budget/mwzb-yiwb

pay values, to remove possible reporting errors. Then I added column values to create total pay and total hours columns, simplifying later analysis.

On further investigation into DOE specific payroll reporting I noticed that hours were only reported in the administration segment (Figure 1). Without data on hours worked, the public is not getting accurate information about how income is correlating with hours, leading to a lack of transparency on how the DOE is choosing to spend its payroll budget.

Many DOE employees in the dataset are paid $0, which made calculating statistics difficult, because they skewed so far towards 0 due to these rows. Employees who worked on hourly pay also tended not to be full-time employees, skewing analysis of total pay. For my investigation into pay trends over time, I filtered the dataset for employees making above 25,000 a year, with a per annuum salary. $25,000 is about $500 above the 2020 minimum yearly wage[7], but is a choice that could be edited in further research. This left me with 149491 records for 2019, and $139783 records for 2017.

Then I took the top 500 and bottom 500 earners in each dataset, in order to look into another indicator of income inequality in the DOE. From here I calculated summary statistics of both the top and bottom categories to determine the delta in mean, median and sum of employee pay between 2017 and 2019. This is shown in a table (Figure 4) and a graph (Figure 3).

I also downloaded and read in the Expense Budget Dataset as a csv. In trying to sum the Adopted Budget Amount by category I was finding far too high total budget results. I guessed that there were duplicate entries of the same Adopted Budget and needed a way to clear these out. I chose to drop duplicates of the same Adopted Budget Amount. If there were multiple different budgets with the exact same Adopted Budget Amount, this would drop true information. This method gave a sum total Adopted Budget of $23,411,024,134 for 2018, which is close to the 2018 total found online, so it passes a sanity check, although it may not be entirely accurate[8].

---

[7] *New York Minimum Wage,* MINIMUM-WAGE, https://www.minimum-wage.org/new-york

[8] *Explore the Expense Budget,* NEW YORK CITY COUNCIL, http://budget.council.nyc/

I looked into the change in budget amount by category (Figure 4 and 5) and compared relevant categories to the changes in pay. Findings are in the following section.

Graphs were produced in Tableau, while all data manipulation was done in Python. After creating dataframes with relevant information, I downloaded them as csvs, and read them into the Tableau software.

III. FINDINGS

My main task was to examine income inequality and unequal budget distribution related to salaried employees pay. I did this through calculating deltas between 2017 and 2019 for both payroll data and budgetary data.

A Post[9] article claims that "at least 36 executives now slated to rake in more than $200,000 per year — up from 21 last fiscal year". The amount of DOE employees with a base salary over $200,000 has actually gone up from 23 in 2017 to 51 in 2019. However, looking at total pay, the figure is more egregious, with 354 employees earning more than $200,000 in 2019, all income combined.

Looking at the top 500 and bottom 500 earners, we can see that in increase in mean, median and sum[10] of total income has gone up for the top 500, and has gone down for the bottom 500[11],. The increase in mean income for the top 500 has gone up $26,668, landing at $203,815 in 2019. Medians are similar to means in this sample. The mean income for the bottom 500 employees, was $25,114 in 2019.

Adding in budget data we can see more evidence of skewed resource allocation. Totaling all categories seeming to have to do with salaried employee pay -Full Time Salaried, Additional Gross Pay, and Other Salaried- I found that 1.13% of the additional budget is going to the top 500 earners, despite them being .33% of the total sample in 2019 and .35% of the total sample in 2017. This is a highly disproportionate total.

Between 2017 and 2019, the sum of adopted budget amounts for salary related budget categories went up $1,182,701,313. The total pay for salaried employees making more than

[9] *Salaries 'gone wild': Carranza cronies pocket pay hikes as high as 35%,* Susan Edelman, NY POST**,** August 17, 2019, https://nypost.com/2019/08/17/salaries-gone-wild-carranza-cronies-pocket-pay-hikes-as-high-as-35/

[10] pay of all employees in this category combined

[11] employees with incomes below $2500 were removed from sample

$25,000 went up $2,040,691,984. The mean pay per employee, for employees making above $25,000, has gone up $9761, and was $79,941 as of 2019.

VII. CONCLUSION

The Department of Education has been spending a higher portion of its salary related budget on the top earning employees than can be determined to be equitable with the given information. That subset grew dramatically in mean, median and sum of pay between the years of 2017 and 2019, while the bottom 500 earners[12] collectively have a negative delta in all these categories. Investigation is made more difficult by the lack of reporting on hours of work across nearly all agencies within the DOE. The suggestion is to have the DOE report payroll hours henceforth, save a compelling argument against this, for the sake of data transparency. The rational for increasing pay among the top earners should be looked into, and perhaps modified in future years. These are all just preliminary findings and suggestions, much more research needs to be done before coming to any solid conclusions.

[12] With a floor of $2500 per annum

APPENDIX

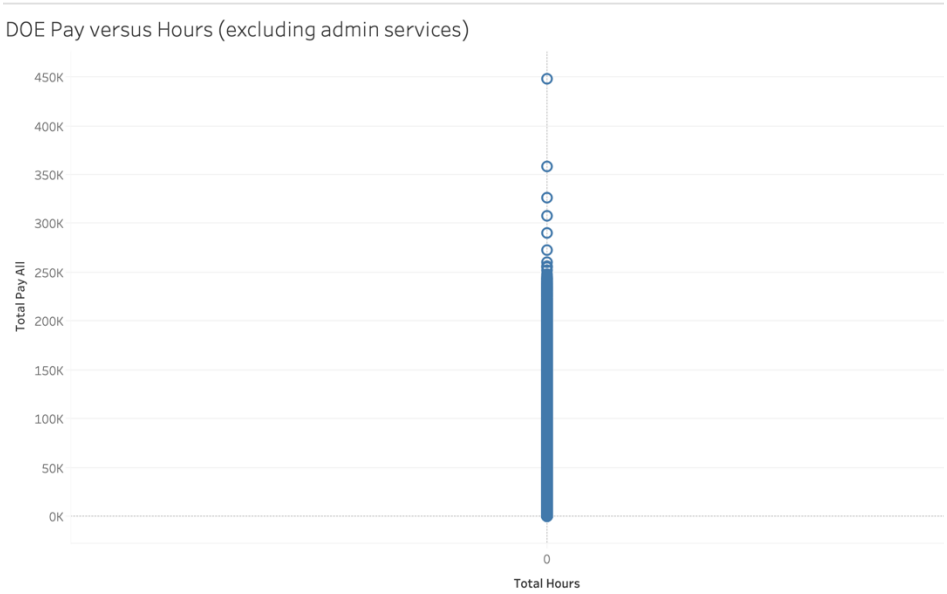

Figure 1. Lack of Hour Reporting

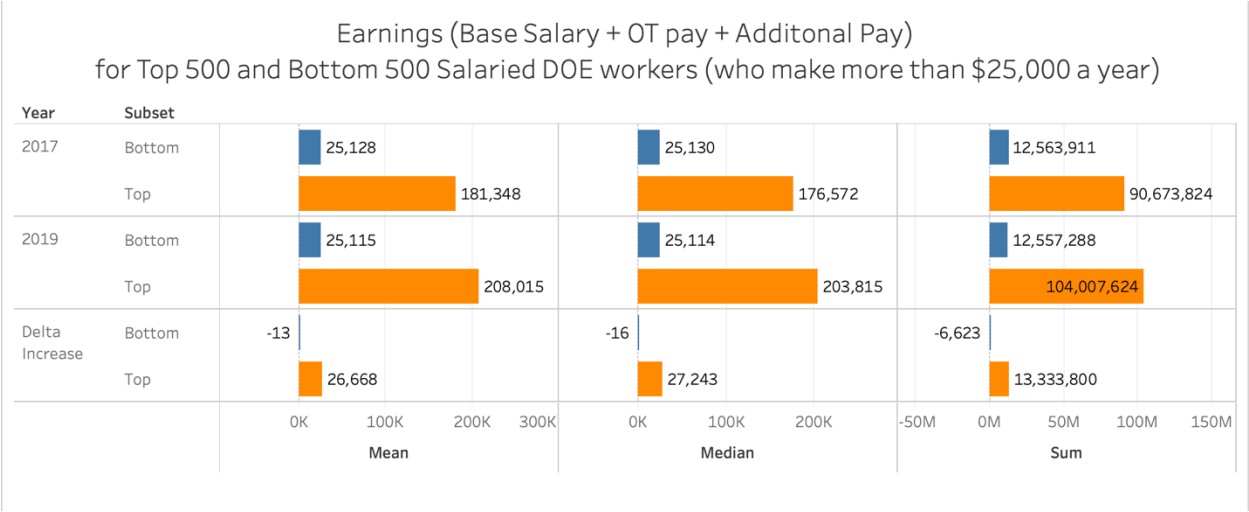

Figure 2. Earnings for Top 500 and bottom 500 Salaried Employees (who make more than $25,000) – graph

:

	Year	Subset	Median	Mean	Sum
0	2019	Top	203814.525	208015.24714	1.040076e+08
1	2017	Top	176571.825	181347.64700	9.067382e+07
2	2019	Bottom	25113.910	25114.57598	1.255729e+07
3	2017	Bottom	25130.175	25127.82286	1.256391e+07
4	Delta Increase	Top	27242.700	26667.60014	1.333380e+07
5	Delta Increase	Bottom	-16.265	-13.24688	-6.623440e+03

Figure 3. Earnings for Top 500 and bottom 500 Salaried Employees (who make more than $25,000) – table

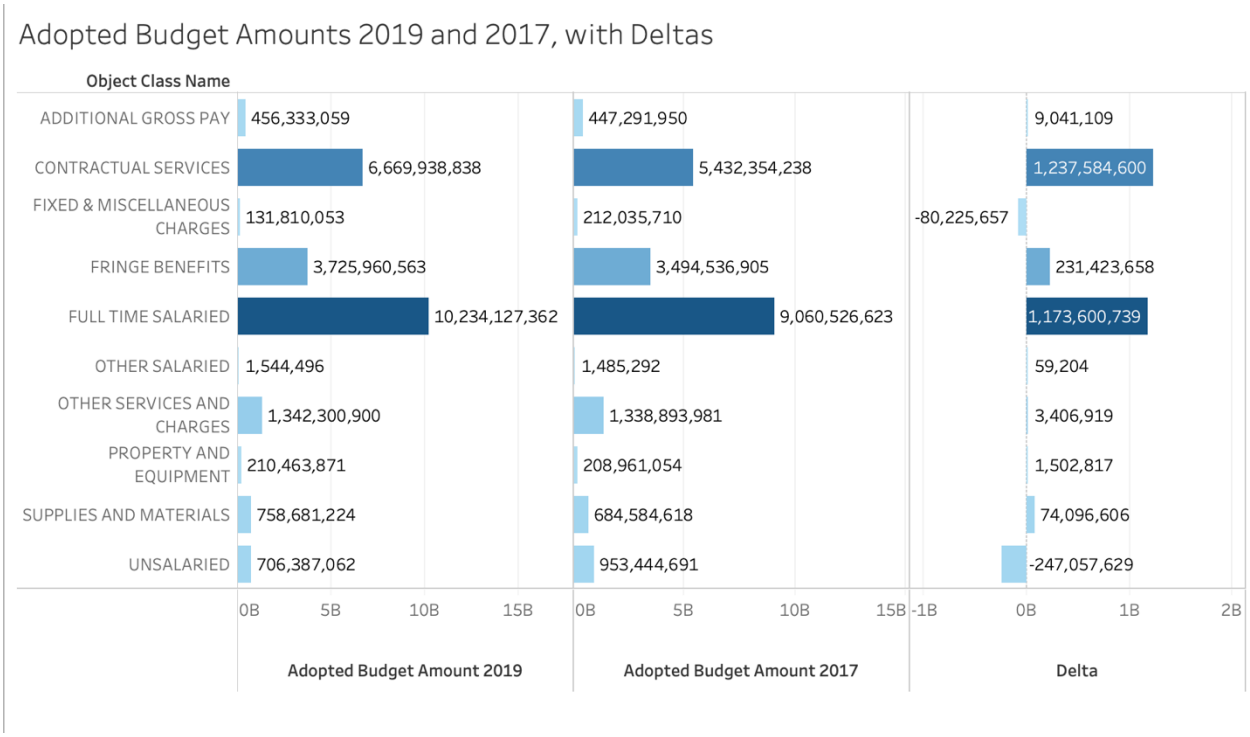

Figure 4. Adopted Budget Amounts with deltas - graph

:

	Object Class Name	Adopted Budget Amount 2017	Adopted Budget Amount 2019	delta
0	FULL TIME SALARIED	9.060527e+09	1.023413e+10	1.173601e+09
1	CONTRACTUAL SERVICES	5.432354e+09	6.669939e+09	1.237585e+09
2	FRINGE BENEFITS	3.494537e+09	3.725961e+09	2.314237e+08
3	OTHER SERVICES AND CHARGES	1.338894e+09	1.342301e+09	3.406919e+06
4	UNSALARIED	9.534447e+08	7.063871e+08	-2.470576e+08
5	SUPPLIES AND MATERIALS	6.845846e+08	7.586812e+08	7.409661e+07
6	ADDITIONAL GROSS PAY	4.472920e+08	4.563331e+08	9.041109e+06
7	FIXED & MISCELLANEOUS CHARGES	2.120357e+08	1.318101e+08	-8.022566e+07
8	PROPERTY AND EQUIPMENT	2.089611e+08	2.104639e+08	1.502817e+06
9	OTHER SALARIED	1.485292e+06	1.544496e+06	5.920400e+04

Figure 5. Adopted Budget Amounts with deltas - table