Executive Compensation and Labor Expenses

Stefano Colonnello*

February 17, 2020

Abstract

Using data on US public firms, I uncover a strong and positive correlation between executive compensation and labor expenses. On average, a 1% increase in the wage bill translates into a 0.3% raise in total executive pay. This association is driven by wages rather than by employment growth, is stronger for the incentive than for the salary component of executive compensation, and is particulary pronounced in the financial sector.

JEL Classification: G34, J31, J33

Keywords: Executive Compensation, Labor Expenses, Employment

*Ca' Foscari University of Venice, Otto-von-Guericke University Magdeburg, and Halle Institute for Economic Research (IWH). E-mail: stefano.colonnello@unive.it. I am grateful to Roberto Marfè, Konstantin Wagner, and Shuo Xia for insightful comments. *Declarations of interest:* none.

1 Introduction

Over the last decades executive pay has increased more rapidly than that of the average worker, with possible implications for inequality (see references in Edmans, Gabaix, and Jenter, 2017). However, despite the large body of work on the determinants of such an increase in managerial pay, its within-firm relationship with the wage bill remains underexplored. The evidence is particularly scant for the US.

Using data on US public firms from standard databases and looking at the entire top management team, I find that executive-level total pay growth and firm-level labor expense growth are positively related. The relationship is economically stronger for the incentive component of executive pay than for salary. This result points to performance-related pay for non-executive workers as the main underlying channel. The performance pay story is further corroborated by the especially strong relationship between executive pay and labor expenses in the financial industry, where incentive packages are widespread even at lower levels of the firm's hierarchy (Célérier and Vallée, 2019).

When considering the two forces shaping labor expenses—average wage and number of employees—only wages appear to correlate significantly with executive pay. My main finding is thus unlikely to be a by-product of the positive link between executive pay and firm (employment) size (Gabaix and Landier, 2008).

Finally, labor expense growth is only weakly predicted by past executive pay. To put it differently, this lends limited support to the idea that the positive link originates from workers' bargaining for higher wages due to rising inequality within the firm.

This paper adds to the literature on compensation inequality within the firm. Dittmann, Schneider, and Zhu (2018) show how workers' wages respond positively to CEO pay because of employees' wealth concerns relative to the CEO (i.e., envy) in the German context. Faleye, Reis, and Venkateswaran (2013) use a sample of US firms similar to mine and study the determinants of the CEO-employee pay ratio, also showing that higher

ratios do not lead to productivity losses. Consistently, Mueller, Ouimet, and Simintzi (2017), using proprietary data on UK public and private firms, find a positive relation between within-firm pay inequality and firm performance.

2 Data

I obtain information on executive compensation for US public firms covered by ExecuComp between 1992 and 2015. I extract accounting and stock market data for these firms from the Center for Research in Security Prices/Compustat merged (CCM) database. All variables are then winsorized at 1% and 99% and expressed in 2016 USD.

I follow Favilukis, Lin, and Zhao (2019) and compute firm-level labor expense growth as $\frac{\text{XLR}_t - \text{XLR}_{t-1}}{0.5 \cdot (\text{XLR}_t + \text{XLR}_{t-1})}$, where XLR is total staff expenses in CCM. The sample includes the entire team of managers reported by ExecuComp, which usually covers the five most paid executives. In line with Gabaix and Landier (2008), the main measure of executive-level total compensation is the variable TDC1 from ExecuComp, which comprises salary, bonus, restricted stock and stock option awards, long-term incentive plans payouts, and other components. For consistency with labor expense growth, I compute total compensation growth as $\frac{\text{TDC1}_t - \text{TDC1}_{t-1}}{0.5 \cdot (\text{TDC1}_t + \text{TDC1}_{t-1})}$.

The final sample features 33,195 executive-years for which information on both total executive compensation and labor expense growth is available.[1] Figure 1 visualizes the evolution through time of mean total executive compensation against mean labor cost per employee (Panel A) and mean labor expense growth (Panel B). As one would expect, executive pay is more cyclical and grows more over the sample period than workers' mean compensation. For both CEOs and non-CEO executives, the correlation of executive compensation with labor expense growth is large and positive at 51.04% and 56.39%,

[1] The regression sample features only 25,597 observations, because I look at executive compensation *growth* as dependent variable.

respectively.[2]

Labor expenses are only sparsely reported in CCM, making the final sample skewed towards the service sector (finance, in particular).[3] To reduce such a sample bias, I also carry out the analysis using a measure of labor expense growth that relies on the extended XLR measure proposed by Donangelo (2016) and Hartman-Glaser, Lustig, and Xiaolan (2019). More specifically, I compute the average labor cost per employee (XLR/EMP, where EMP is the number of employees in CCM) across the 17 Fama-French industries and 20 size groups (as proxied by total assets: AT in CCM). Then, for each firm-year with missing XLR, I impute a value of XLR equal to the average labor cost per employee in the corresponding industry-size group times the firm's actual number of employees EMP in that year.[4]

3 Results

To study the relation between total compensation growth and labor expense growth (both in percentage), I estimate the following regression equation:

$$\begin{aligned}\text{Total compensation growth}_{j,t} = \alpha + \beta \cdot \text{Labor expense growth}_{i,t} \\ + \theta \cdot X_{j(i),t} + \gamma_t + \gamma_{j(i,s)} + \epsilon_{j,t},\end{aligned} \tag{1}$$

where the subscripts j, i, t, and s denote manager, firm, year, and industry, respectively. This specification sheds light on the contemporaneous dynamics of executive compensation and labor expenses, which arguably originate from intertwined bargaining processes within the firm. The vector $X_{j(i),t}$ contains a parsimonious set of control variables: firm

[2]Table A.1 in the appendix presents summary statistics.

[3]See Table A.2 in the appendix.

[4]As argued by Favilukis et al. (2019), XLR and EMP in CCM suffer from a timing mismatch that makes the computation of the labor cost per employee potentially noisy. Because of this, I use non-extended labor expense growth described above as the baseline measure and rely on the extended measure only for robustness.

size (as proxied by the natural logarithm of market capitalization), executive age, and executive tenure. I include year fixed effects γ_t to control for changes in business cycle conditions. To take into account time-invariant unobservable differences across industries, firms, and executives, I progressively include the corresponding fixed effects γ_s, γ_i, and γ_j. The benchmark specification is the most saturated one, namely with executive fixed effects, which de facto amount to executive-firm fixed effects because of the definition of executive identifiers in ExecuComp (variable CO_PER_ROL). Standard errors are clustered at the firm-level.

Table 1 reports estimates for regression (1), starting from the specification with year fixed effects only (column 1) up to the benchmark specification with year and executive-firm fixed effects (column 4). The coefficient estimate for labor expense growth is positive and statistically significant at the 1% level. In terms of economic magnitude, the coefficient is in each case between 0.307 and 0.323, hence a 1% increase in labor expenses translates into an average increase by about 0.31% in total executive compensation. In column 5, to deal with the under-reporting of labor expenses in CCM, I use the extended measure of labor expense growth described above. As a result, the sample size increases from 24,198 to 150,562 executive-years. The coefficient estimate shrinks in magnitude to 0.063, but it remains statistically significant at the 1% level.

Using the extended measure, in Figure 2 I illustrate how the correlation between executive compensation and labor expense growth varies through time and across the 17 Fama-French industries. The link between the two quantities is always positive between 1992 and 2015, but becomes weaker after 2004 (Panel A).

The heterogeneity across industries is substantial (Panel B). The strong relationship between executive compensation and labor expense growth—while generally positive—appears to be quite pronounced in service sectors (such as finance, and "other", which to a large extent includes services), whereas for numerous sectors (e.g., food and chemicals)

it is statistically indistinguishable from zero.[5]

The especially strong relationship in the finance industry seems to point to the role of widespread incentivization below executive-level. In other words, executive compensation and labor expenses will have a stronger tendency to co-move in those industries in which they are both commonly linked to performance. In line with this conjecture, Table 2 illustrates that the relationship is considerably weaker for the salary component (column 1) than for the incentive component (column 2) of executive compensation.[6]

The positive and significant relationship continues to hold when looking at the level (in natural logarithm) rather than the growth of executive compensation (column 3). Also the economic magnitude is consistent—although slightly smaller—with the baseline estimate: a 1% increase in labor expenses is associated with a 0.25% raise in executive pay. The positive link is also robust to using the level (in natural logarithm) of labor expenses (column 4).

I then look at the two drivers of the firm's labor expense growth, i.e., the number of employees (column 5) and the average labor cost per employee (column 6). Though both exhibit a positive coefficient, only the labor cost per employee is statistically significant. A 1% increase in the average labor cost per employee (number of employees) is associated with a less than proportional raise by 0.2% (0.01%) in executive pay. To put it differently, the main finding appears to be related to workers' wages rather than to a mere size effect, as proxied by the number of employees.

In the appendix, I show that the positive and significant relationship between executive compensation and labor expenses

– holds for CEOs, for non-CEO executives, for firms with (almost) complete information

[5] The large point estimate for fabricated products is hard to interpret, as only few observations are available for this sector.

[6] To compute incentive compensation in ExecuComp, I subtract salary (SALARY) and other forms of compensation (OTHANN for pre-FAS 123R of 2006 observations, OTHCOMP afterwards) from total compensation (TDC1). To compute growth rates of both the salary and the incentive component, I use the same approach as for total compensation growth.

on XLR, for nonfinancial firms, and for financial firms (Table A.3);

– is robust to adjusting labor expense growth for executive pay and to using pension expense growth (Table A.4);

– is robust to using compensation adjusted for FAS 123R of 2006, but reverses in a lagged specification (Table A.5);[7]

– is robust to controlling for performance measures and other labor-related quantities (Table A.6);

– is robust to including additional control variables and industry-year fixed effects, as well as to using alternative clustering schemes for standard errors (Table A.7).

4 Discussion

This paper documents a novel, positive relationship between executive pay and labor expense growth within US public firms. An avenue for research is to shed light on the economic mechanisms behind such a relationship. For instance, future work could quantify the role of the joint matching of executives and workers to firms as a possible channel. Empirically, it would also be important to carry out a similar analysis using databases that—unlike CCM—do not suffer from the underreporting of labor expenses, such as the Bureau of Labor Statistics' Longitudinal Database of Establishments.

[7] Column 4 of Table A.5 shows that executive compensation predicts only weakly labor expense growth. Using establishment-level data, Dittmann et al. (2018) show instead that wages respond strongly to past increases in CEO pay in Germany.

References

Célérier, C., and B. Vallée. 2019. Returns to talent and the finance wage premium. *Review of Financial Studies* 32:4005–4040.

Dittmann, I., C. Schneider, and Y. Zhu. 2018. The additional costs of CEO compensation: The effect of relative wealth concerns of employees. Working paper, Erasmus University Rotterdam.

Donangelo, A. 2016. Labor leverage and the value premium. Working paper, University of Texas at Austin.

Edmans, A., X. Gabaix, and D. Jenter. 2017. Executive compensation: A survey of theory and evidence. In *The Handbook of the Economics of Corporate Governance*, vol. 1, pp. 383–539. Elsevier.

Faleye, O., E. Reis, and A. Venkateswaran. 2013. The determinants and effects of CEO–employee pay ratios. *Journal of Banking & Finance* 37:3258–3272.

Favilukis, J. Y., X. Lin, and X. Zhao. 2019. The elephant in the room: The impact of labor obligations on credit markets. *American Economic Review* (Forthcoming).

Gabaix, X., and A. Landier. 2008. Why has CEO pay increased so much? *Quarterly Journal of Economics* 123:49–100.

Hartman-Glaser, B., H. Lustig, and M. Z. Xiaolan. 2019. Capital share dynamics when firms insure workers. *Journal of Finance* 74:1707–1751.

Mueller, H. M., P. P. Ouimet, and E. Simintzi. 2017. Within-firm pay inequality. *Review of Financial Studies* 30:3605–3635.

Table 1. Executive compensation and labor expense growth
This table reports panel regressions of executive-level total compensation growth on firm-level labor expense growth for the period 1992-2015. The t-statistics (in parentheses) are calculated with robust standard errors clustered by firm. Significance at the 10%, 5%, and 1% levels is indicated by *, **, ***, respectively.

	Total compensation growth (%)				
	(1)	(2)	(3)	(4)	(5)
Labor expense growth (%)	0.307***	0.312***	0.318***	0.323***	
	(8.08)	(8.01)	(6.72)	(6.22)	
Labor expense growth (ext., %)					0.063***
					(5.13)
ln(Market capitalization)	1.000***	0.877***	2.965***	5.999***	7.945***
	(5.20)	(4.43)	(3.37)	(5.22)	(16.49)
Executive age	-0.345***	-0.353***	-0.376***	0.215	0.204
	(-10.27)	(-10.58)	(-10.89)	(0.42)	(1.20)
Executive tenure	-0.242***	-0.229***	-0.344***	-2.805**	-2.570***
	(-2.89)	(-2.69)	(-3.32)	(-2.08)	(-5.01)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	No	Yes	No	No	No
Firm FE	No	No	Yes	No	No
Firm-executive FE	No	No	No	Yes	Yes
Mean(y)	5.55	5.55	5.55	5.68	4.68
S.D.(y)	48.35	48.35	48.35	47.92	51.81
Observations	25,597	25,597	25,597	24,198	150,562
R^2	0.03	0.03	0.06	0.13	0.12

Table 2. Driving forces
This table reports panel regressions of executive-level compensation measures on several firm-level labor-related quantities for the period 1992-2015. To favor readability, the dependent variable in columns 3-6 ((log) total compensation) is multiplied by 100. The t-statistics (in parentheses) are calculated with robust standard errors clustered by firm. Significance at the 10%, 5%, and 1% levels is indicated by *, **, ***, respectively.

	Salary gr. (%)	Inc. comp. gr. (%)	ln(Total compensation)			
	(1)	(2)	(3)	(4)	(5)	(6)
Labor expense growth (%)	0.077***	0.415***	0.247***			
	(3.45)	(5.46)	(5.85)			
ln(Labor expenses)				8.123***		
				(2.71)		
ln(No. employees)					1.048	
					(0.28)	
ln(Labor cost per employee)						17.732***
						(3.83)
ln(Market capitalization)	2.321***	10.860***	23.658***	23.329***	25.019***	25.094***
	(4.80)	(5.24)	(14.20)	(12.62)	(12.40)	(14.71)
Executive age	0.059	0.953	0.190	0.100	0.487	0.417
	(0.35)	(1.21)	(0.35)	(0.19)	(0.89)	(0.78)
Executive tenure	-2.205***	-5.497**	-0.808	-1.145	-0.966	-0.729
	(-3.08)	(-2.03)	(-0.32)	(-0.46)	(-0.39)	(-0.29)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-executive FE	Yes	Yes	Yes	Yes	Yes	Yes
Mean(y)	4.19	4.99	747.42	747.42	749.06	749.06
S.D.(y)	20.14	77.47	105.48	105.48	105.29	105.29
Observations	24,151	24,095	24,198	24,198	23,438	23,438
R^2	0.25	0.14	0.86	0.86	0.87	0.87

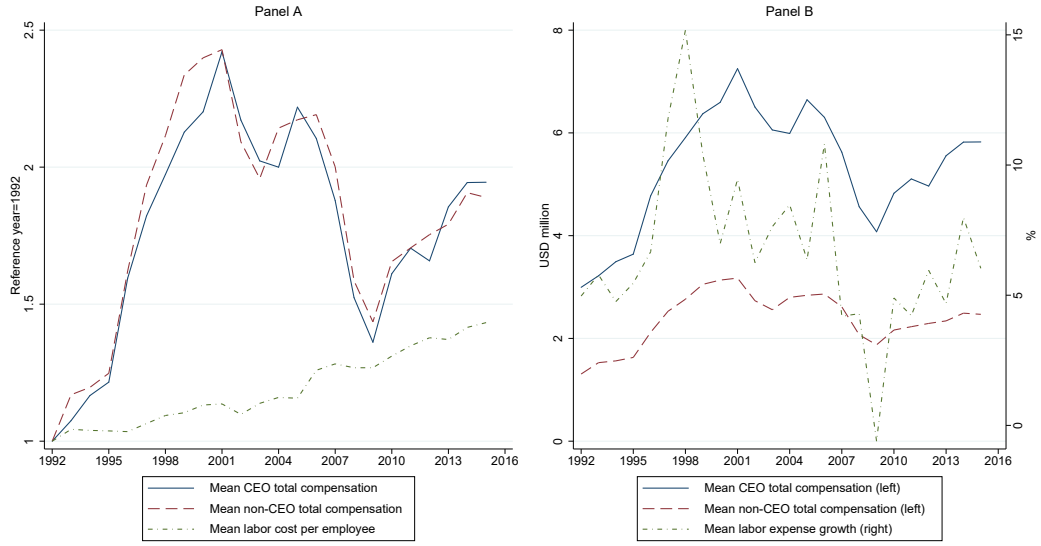

Figure 1. This figure shows the mean compensation for CEOs and non-CEO executives between 1992 and 2015. Panel A compares executive compensation against mean labor cost per employee using 1992 as the reference year. Panel B compares executive compensation against mean labor expense growth.

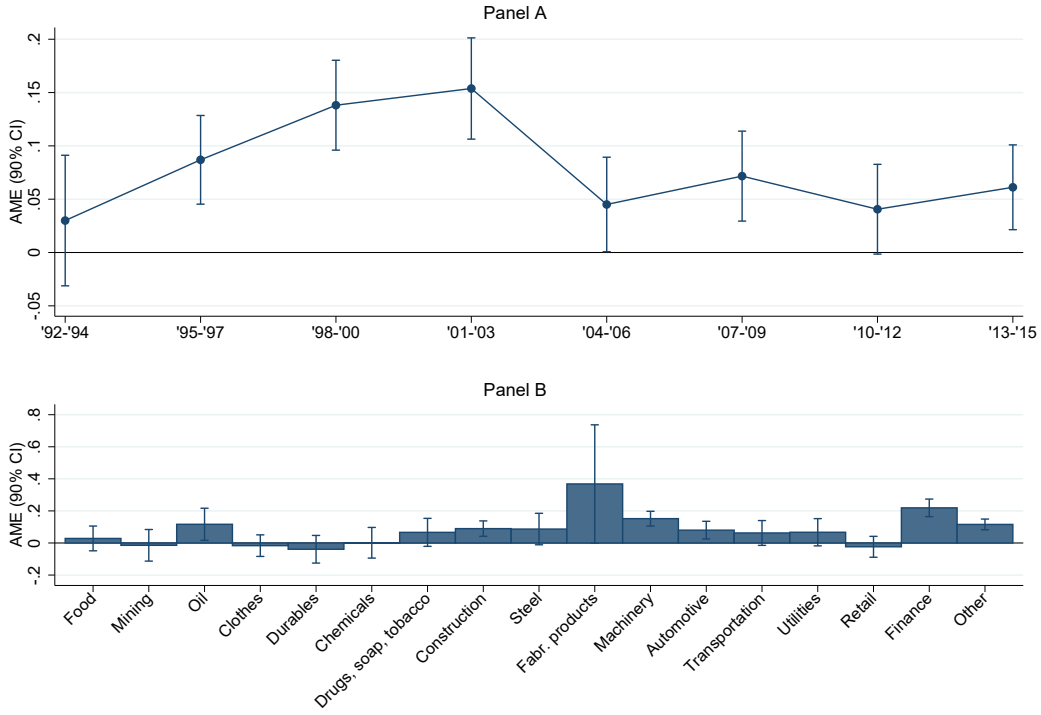

Figure 2. This figure shows the average marginal effect (AME) of the extended measure of labor expense growth on executive compensation with confidence intervals at the 90% level. The plotted AMEs are obtained from specification with time fixed effects only (1), augmented with interactions of labor expense growth with indicators for three-year periods (Panel A) and indicators for Fama-French 17 industry groups (Panel B).