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# MARKUPS, PROFITS AND LIVING WAGES IN THE GARMENT INDUSTRY

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## ABSTRACT

Garment industry is sadly characterized by the endemic problem of labor exploitation. This research has discussed how the difference between gross margin and markup biases the perception of consumers regarding profits of sellers when reporting discounts. Because of this different form of presenting such price information, consumers evaluation of possible labor exploitation is more difficult to make. Finally, we show with an empirical example what do $14 and $9.6 shirts really cost, providing the gross margin, markup and how these quantities would vary after paying a living wage to workers. Doubling or tripling the workers' salary would make big brands also highly profitable.

**KEYWORDS:** Garment industry; Labor exploitation; Living wage; Markup; Gross margin

## 1. INTRODUCTION

The economist Robert Hall studied 35 major American industries between 1958 and 1992, and found that there was no connection between increases in demand and increases in price, suggesting that companies decided on the price independently of what was happening to the demand. Clothing distributors, for example, generally apply a simple rule: charge 50% more than the total selling price, and then make discounts if the garment is not sold [1].

Nowadays, it is usual in the textile industry to see discounts of products that can reach up to 70% of its selling price (and even more). But this way of quantifying discounts is based on the concept of gross margin, which companies use in an advantageous way. And they do it because the margin that can be taken out of a product can be calculated not only on the sales price, but on the cost (markup). And from the point of view of consumers' perception, things would look quite different if they were made with that second option.

Garment industry is sadly characterized by the endemic problem of labor exploitation [2,3,4,5,6] and, as the author of [7] explained, big companies could pay living wages and still remained highly profitable.

The aim of this short communication is to discuss how the difference between gross margin and markup biases the perception of consumers regarding profits of sellers when reporting discounts. Because of this different form of presenting such price information, consumers evaluation of possible labor exploitation is more difficult to ascertain. Finally, we show with an empirical example, what do

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$14 and $9.6 shirts really cost, providing the gross margin, markup and how these quantities would vary after paying a living wage to workers.

## 2. Gross margin and markup

The gross margin (GM) is calculated as follows (1):

$$GM(\%) = \frac{P - C}{P} * 100 \quad (1)$$

Where $P$ is the retail final price (including taxes) and $C$ is the cost of acquiring the product for the seller. For example, when a shirt is sold at $20 and the cost for the retailer was $10, then $GM(\%) = 50\%$.

The markup ($M$), however, is calculated as follows (2):

$$M(\%) = \frac{P - C}{C} * 100 \quad (2)$$

Only the denominator changes, which is now the cost of the product ($C$). But things are quite different, and that margin is now significantly higher. Using the prior example, when a shirt is sold at $20 and the cost for the retailer was $10, then $M(\%) = 100\%$.

In order to empirically illustrate this difference, we employed Nike's results for the 1988-2018 periods, taken from [7] and other several official Nike reports. Figure I clearly shows the divergence between both type of margins.

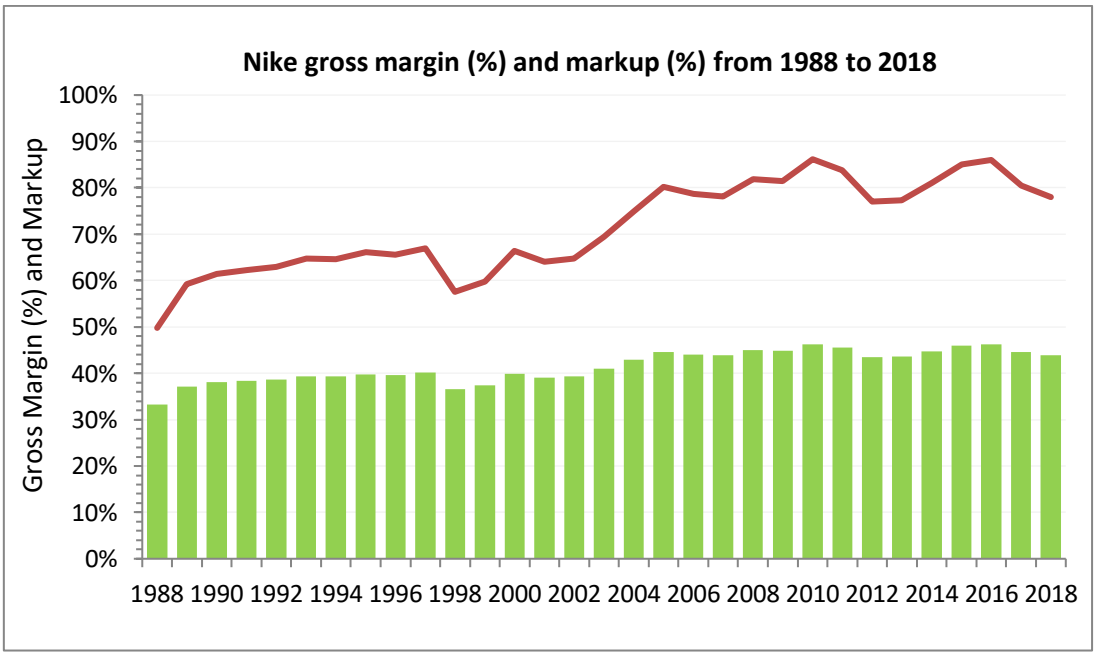

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Figure I: **Nike gross margin (green bars) and markup (orange line) for the 1988-2018 period**

The problem comes in that the relationship between $GM(\%)$ and $M(\%)$is non-linear. And, as human beings, understanding non-linear phenomena is not easy for us; our brain is more comfortable handling linear relationships [8,9].

A simple algebraic operation takes us to the following formula (3):

$$GM(\%) = 100\left[\frac{M(\%)}{M(\%) + 100}\right] \qquad (3)$$

And this equation indicates that GM(%)will never reach 100% even if M(%) always grows . More accurately, the GM(%) limit when M(%) tends to infinite is 100%.

Therefore, companies may charge an extremely high price to the product in relation to its cost while the GM(%) will always have a threshold level (the value of 100%), regardless of the price that the brand or store decides to put to the product.

Figure II shows the non-linear relationship between both variables.

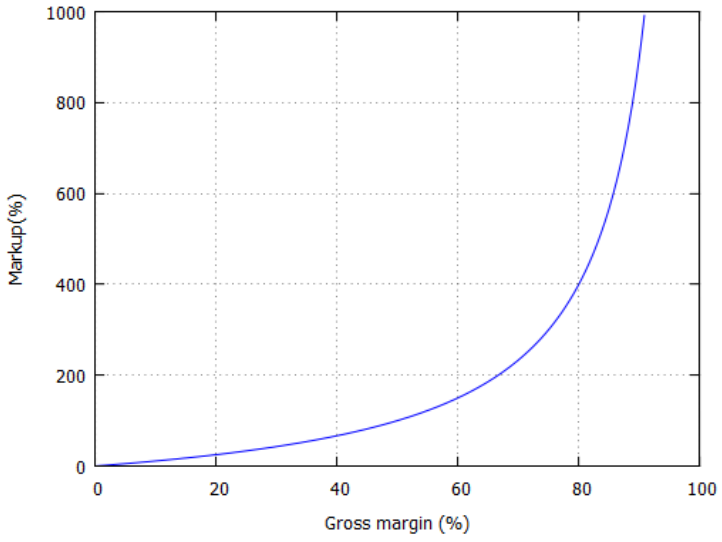


**Figure II: Non-linear relationship between the gross margin and the markup**

And this is where the manipulation happens; consumers receive information that would have a very different interpretation if it were showed in a dissimilar way. Let's back to the example of the shirt

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that is sold at $20 when the cost for the retailer is $10. The $GM(\%) = 50\%$ but the $M(\%) = 100\%$. However, if that shirt is sold at $50, then $GM(\%) = 80\%$, but $M(\%) = 400\%$. Therefore, while $GM(\%)$rises 30 percentage points, $M(\%)$rises 300 percentage points.

The problem arises because consumers are in trouble with inferring what is the real price that is being charged if the information is given using $GM(\%)$. This has important implications for sale seasons.

When a brand puts a shirt down by 70% on sales, it is using a discount in order to obtain a specific $GM(\%)$. But the consumer should ideally know first (at least approximately) what was the $M(\%)$ of that garment in the period when no discounts are made. Let's suppose that the worth of that shirt was $33 in the normal period without discounts, and its cost was $10. Then, gross profit would be $23 and $GM(\%) = 70\%$.

But in this case, $M(\%) = 230\%$, that is, the price at which the store sells the product is 230% higher than the cost to acquire it. In the period of sales, if discount is 70%, the retail price would drop to $10, leaving the store without margin (although this would be the extreme case and it is usual to keep a margin, so in this case the maximum discount would not be less than 70%).

This fact connects with what the economist Robert Hall argued, as we have indicated at the beginning of this paper, and it is the "madness" of increasing prices in textile products, to then go on making discounts. Therefore, in some instances, buying in periods where there are no discounts is a high risk situation of paying a disproportionate premium price for these products.

**3. Net profit**

Of course, we were talking about margins and not about net profits. Each brand and situation will have a different context, but we can make a simulation taking as reference a case where data exists. We will employ data about Nike from its official financial reports.

We computed the gross margin performance (GMP(%)) i.e. the percentage of gross margin that remains as net profit. Consequently, we may estimate the relationship that exists between GMP(%)and GM(%), without needing to know the costs of marketing, infrastructures, etc. that reduce gross margin.

Data base comprised 31 years of Nike results, so the sample size was small but enough to explore the relationship between both variables. We implemented the analysis using two similar approaches: factional logit and beta regression, which were run in Stata 13.0. Results are shown in Table I.

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Table I. **Association between gross margin and gross margin performance between 1991 and 2018**

| | Fractional logit | Beta regression |
|---|---|---|
| Variables | Coef. (std. err.) | Coef. (std. err.) |
| Gross margin (GM%) | 3.34** (1.67) | 3.58** (1.64) |
| Constant | -2.79** (0.71) | -2.89** (0.70) |

**$p$<0.001

As expected, results derived from both methods were very similar. Gross margin was positively associated to gross margin performance.

Using the estimated coefficients derived from the fractional logit model we calculated a predicted value for $GMP(\%)$once known $GM(\%)$. Predicted value for $GMP(\%)$ was derived as follows (4):

$$GMP(\%) = \frac{1}{1 + e^{-(-2.79 + GM(\%)3.34)}} \quad (4)$$

In this way, a shirt that has a cost for the seller of $10, and it is sold at $20, then it would have a GM(%)=50% and a GMP(%)=23.15%, which would give seller a net profit (after taxes) of $2.46. Consequently, for each shirt sold at $20 euros the seller would earn $2.46.

For a shirt sold at $33 euros and a cost of $10, then the seller would have a net profit of $8.94. Thus, if that shirt is sold with a 70% discount, i.e. the gross margin is zero; that means that if a consumer purchased it in season the seller earned a net profit practically almost 90% of the cost of the product.

Model was estimated in the 1991-2018 period because when all years were included results were not significant. In Figure III we show the evolution of the estimated parameter (the importance of GM(%) to predict gross margin performance) with years. Straight line represents significance at 95%.

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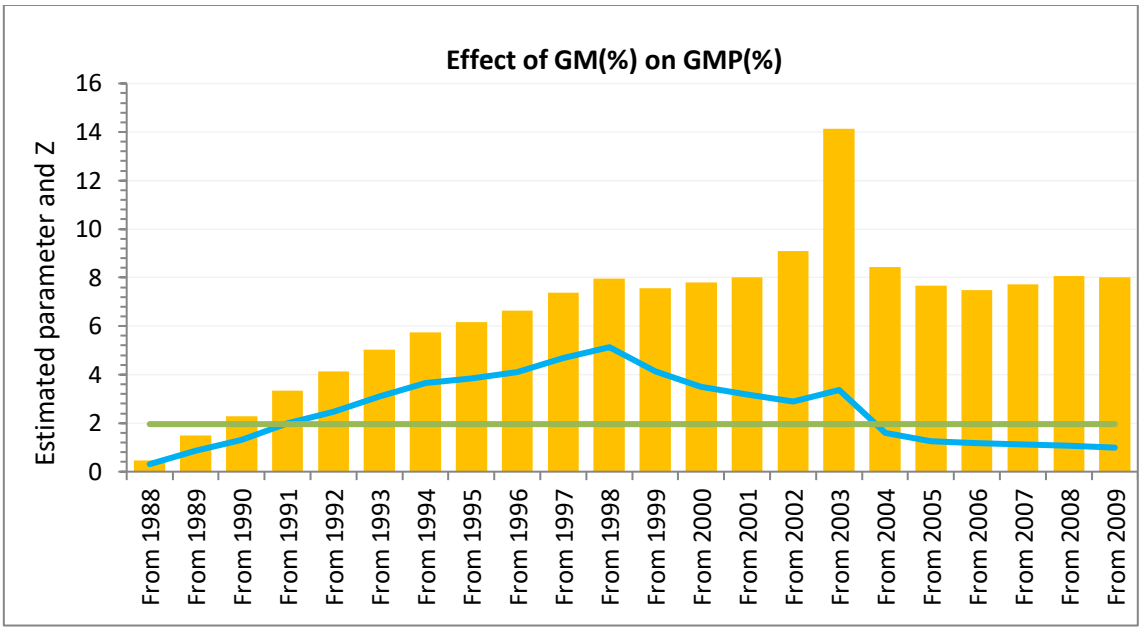


Figure III: **Effect of GM (%) on GMP(%) depending on time**

It is clear that if we want to predict GMP(%) using GM(%) we have to use a significant period of data. As Figure III shows there are periods where the effect is non-significant, which indicates that we are at risk of cherry-picking data to obtain the desired prediction. However, because of the exploratory nature of this research, this is only an approximation we chose to indicate how to estimate labor costs, as we will explain further.

An alternative (and probably more conservative and prudent) way to explore the relationship between GM(%) and GMP(%) is to rely on median values of both variables (Table II).

Table II. **Median of gross margin and gross margin performance between 1988 and 2018**

| | Median | 95% IC |
|---|---|---|
| Gross margin (GM%) | 41.0% | (38.6% - 43.3%) |
| Gross margin performance (GMP%) | 21.6% | (20.2% - 22.9%) |

## 4. Labor exploitation

From a marketing point of view everything we have explained does not have to be infamous, as long as the consumer has complete information and the manufacturing process and the sale of the product are done in decent conditions. After all, and obviously, stores and brands have the right to put the price they want if consumers are willing to pay for it.

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But the problem comes when textile products are made in unworthy conditions, human rights are violated, and companies give consumers incomplete information, using GM(%) and avoiding talking about M(%).

To illustrate this way of doing business, we employ Figure V, which was taken from [10]. In this image, we see that a textile worker charges $0.12 for a shirt with a selling price of $14. But in the image on the left there is an incorrect reference to the markup (M(%)), since in fact it is talking about GM(%). Consequently, M(%)would be much larger, as illustrated in the image on the right, up to 147% on the cost of acquiring the product. Meanwhile, the labor cost (workers' wages) is only 0.86% of the final price. They are extremely asymmetric figures, and they demonstrate the injustice of this way of understanding the industry.


Figure V: **Labor wages for a $14 shirt, gross margin (left) and markup (right). Left figure is the original with an incorrect computation of markup**

**5. It is profitable to pay a living wage?**

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As [7] pointed out, in many cases living wages would be obtained if the salary of workers is doubled or, in some instances, tripled. Living wage is a human right as The Universal Declaration of Human Rights suggests.

Based on the results of the fractional logit model, and the information provided in the picture of the shirt, we can estimate what would happen if the labor cost is multiplied by 2 and 3. The results are shown below (Figure VI):


Figure VI: **Labor wages for a $14 shirt, gross margin and markup when workers' wages are doubled and tripled**

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Tripling the worker's salary while maintaining the selling price would mean moving from a $GM(\%) = 59.5\%$ to a $GM(\%) = 57.8\%$, and moving from a $M(\%) = 146.9\%$ to a $M(\%) = 136.9\%$, and moving from a net profit for each shirt sold from \$2.57 to \$2.41.

If we use a more prudent and conservative approach, we can employ the median values of GM% and GMP% to simulate the effect of doubling or tripling workers' wages. To achieve this aim we have lowered the price of the shirt from \$14 to \$9.6 in order to be congruent with the median GM% computed for Nike in the period 1988-2018. Figure VII shows the results.


Figure VII: **Labor wages for a \$9.6 shirt, gross margin and markup when workers' wages are doubled and tripled**

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As it is shown, tripling the wages would only reduce the net profit from $0.85 to $0.79, i.e. only about a 7% the net profit for unit sold. Therefore, this situation should not be allowed even a minute longer, in which the greed and inhumanity of some brands which sacrifice the dignity of thousands of people and their families to obtain a few cents more per unit sold. Paying a fair wage to workers would also make big companies profitable, as [2,3] also suggested.

**5. Conclusion**

In this paper we have shown that sellers can influence the consumer perceptions of their profits by providing the gross margin on the price $GM(\%)$instead of reporting the gross margin on the cost $M(\%)$, also known as markup. Perhaps someone might think it is trivial to move from one indicator to another, but the reality is that people mismanage non-linear thinking, and from the point of view of consumer perception there is a big difference between knowing $GM(\%)$or knowing $M(\%)$.

Due to the lack of perfect information, consumers find it difficult to assess what $GM(\%)$really means in terms of net benefit. In fact, consumers can't know $GM(\%)$ because the do not know the costs for the seller; consumers only may infer $GM(\%)$ in the sales period when high discounts are made.

And this becomes sad when the labor exploitation of the workers employed in the first steps of the supply chain comes into play. Doubling or tripling the workers' salary would make big brands involved in labor exploitation also highly profitable. Consequently, it is outrageous that this situation has been consenting for years [11,12,13,14].

Obviously, this study has limitations, mainly concerned about the exploratory nature of the analysis, the low sample size employed, and because it has focused only in one brand. In addition, results derived from the Nike financial data do not have to be necessary transferred to the example of that specific T-shirt. Further research could expand the scope of the analysis and provide more reliable estimations of what would happen after doubling or tripling workers' wages.

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