



## **Effects of Factory Labour Costs on Annual Returns to Tea Growers: A Case Study of KTDA Managed Factories in Kenya**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.*

**Case Study**

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### **ABSTRACT**

The study sought to determine the effects of factory labour costs on annual returns to tea growers in Kenya. A case study design was adopted and data was collected through questionnaires. The research was conducted between September 2013 and March 2014. Descriptive and inferential statistics as well as multiple regression analysis was used to analyze the data. The study targeted a sample size of 89 respondents from which 74 was achieved. The sampling frame did consist of employees working in all departments and sections of the KTDA region 6 office and factories. The respondents were drawn from management, directors and external auditors of the 6 KTDA managed factories and stratified random sampling was applied. 52.5% of the respondents were male whereas 47.3% were female. 87.8% of the respondents had attained diploma and degree certificates while 87% of the respondents had served the organization for a period of  $\geq 5$  years. 97% of the respondents concurred with labour cost as the deciding factor of profitability. Regression results signpost to a variation of 56.50 on annual returns to tea growers was due to changes in factory labour costs. There was a strong positive relationship between factory labour costs and annual tea growers' returns at 0.885. The study established that tea growers under KTDA are paid a monthly first payment; known

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as initial green leaf payment at a fixed rate of Kshs14 per kilogram of green leaf delivered to the factory but the second and annual return made after closure of financial period vary by factories depending on revenues received and costs incurred. Factory labour was identified in the study as one of the key factors that is negatively affecting annual returns to tea growers. Correspondingly, the collective bargaining agreements (CBA) negotiated by KTDA has led to above average seasonal labour payments.

*Keywords:* Labour costs; annual returns to tea growers; labour compliment; labour productivity; labour laws.

## 1. INTRODUCTION

The tea industry in Kenya contributes to about 14 percent of the agricultural gross domestic product (GDP), which is equivalent to 4 percent of Kenya's GDP [1]. The Tea growing industry in Kenya has 2 separate sectors: Plantation sector owned by large scale tea producers, mostly multinationals and small holder sector which is owned by small scale growers [2]. The latter sector tea factories are run by Kenya Tea Development Agency (KTDA). The associated tea growing and manufacturing are undertaken in rural areas, thereby contributing to the development of rural infrastructure alongside enhancing the economic well-being of rural communities through employment and ventures. Small holders continue to dominate tea production in Kenya where small-scale production accounts for 65 percent of area and about 62 percent of production [2]. However, the average yield per hectare is higher in large estates than small holder farms largely due to better use of technology, inputs and economies of scale. While yields in the estates have declined and/or stagnated in the last decade, smallholder yields have continued to rise overtime [3]. This is attributed to the quality of the leaf processed in small holder tea factories. KTDA has a leaf quality policy of two leaves and a bud which is not easily obtained in the estates because tea plucking in the estates is mechanized unlike in the smallholder sector where farmers use traditional plucking methods.

The remarkable growth of Kenya's tea industry has been ascribed to the supportive role of Tea Board of Kenya (TBK) and the management of the small holder sector by KTDA [4]. TBK is both a producer body that promotes and represents the tea industry, and a parastatal appointed by government to regulate the industry. KTDA pays a fixed monthly initial green leaf payment also called first payment at the rate of Kshs14 per Kilogram of Green Leaf delivered to the factories under her management for processing. However, the second and final returns to growers per Kilogram of Green Leaf delivered in the year vary with factories depending on levels of revenue received and costs incurred in the financial period. The annual return to tea growers by factories under KTDA management is made in the month of October annually, after closure of the financial year every 30<sup>th</sup> June. In the recent past, the tea industry has been facing several challenges ranging from over reliance on 5 traditional export markets of Pakistan, Afghanistan, United Kingdom, Egypt and Sudan which account for 70 percent of the total export volume [4], besides high production costs and limited value addition. While global tea production has been steadily increasing over the past two decades; the implied demand has not kept pace leading to oversupply affecting tea prices and competition [5].

The present study spur was informed by Dinardo et al. [6] findings that showed minimum wages eats into profit margins of an organisation. The study addresses a fissure on effects of rising factory labour costs on annual green leaf payments. Substantial research has

previously been done on varied issues affecting the tea industry in Kenya but no known local findings have been brought forth on factory labour costs and annual returns to tea growers in Kenya. Over the years Kenya has expanded its tea production to be the fourth-largest tea producer, after China, India, and Sri Lanka, and the second-largest tea exporter after Sri Lanka. Currently, Kenya is the world's leading exporter of black tea. The total area under tea production expanded from 3,480 hectares (ha) in 1964, to 115,000 ha in 2012 [4,5]. Kenya tea production represent around 20 percent of the world's tea exports, this makes the Kenyan tea industry one of the major contributors to national income and private sector main employer. The country consumes only 5 percent of the tea it produces; the remaining 95 percent is exported, either directly or through the Mombasa Tea Auction [4].

The industry has remained the top foreign exchange earner for 3 consecutive years growing to Kshs112 billion in 2012 up from Kshs 109 billion in 2011 and Kshs. 97 billion in 2010 [7] however, the average annual returns to tea growers per kilogram of green leaf delivered to the factory has been on the decline from the financial period of 2012-2013 to date. The Kenya Government recognizes the rights to effective collective bargaining in accordance with the trade union act cap 233. Factory employees are represented in collective bargaining agreements (CBA) discussions with KTDA by the Kenya Plantation Agricultural Workers Union (KPAWU) where the terms and conditions of services are expressed. The performance of the Tea industry in Kenya has been on an upward trend with each year registering improved performance until June 2012; thereafter the performance at the tea auction has been on the decline. Past collective bargaining agreements have been hinged on among other factors industry performance, however, high net wages for hiring many unskilled labours typically leads to low profits [8]. Determining staffing levels is an important decision in factory operations nonetheless; the importance of attending to process discipline need not be overemphasized [9] whereas minimum wages directly eats into profit margins of an organization [6]. The main objective of the study was to establish effects of factory labour costs on annual returns to tea growers. The study narrowed down to factory labour costs, annual returns to tea growers' labour compliment, automation and mechanization of production processes and labour laws.

## **2. METHODOLOGY**

The study was conducted in Nyamira County, which is located in the former Nyanza province. It covers an area of 899.3 square kilometers with temperature ranges of 10.1°C to 28.7°C and rainfall of between 600 to 2300 millimeters per annum. The County has 6 tea factory companies under KTDA management. Nyamira County was selected through random sampling. The relationship between KTDA and the factories are twofold. The first is that of KTDA as an investor where factories own shares while the second is with KTDA as a managing agent via a management agreement. According to the KTDA annual reports, 2012, a total average of 12,559,820 Kilograms of Green Leaf was received by the factories in the financial period 2011-2012; this was processed to produce an average of 2,869,299 Kilograms of Made Tea. The volumes sold generated average annual revenue of Kshs.461,633,689 translating to an average total annual rate per Kilogram of green leaf delivered and processed of Kshs.36.75.

Data were collected through the use of structured questionnaires. The population of the study comprised KTDA managers both at the factories and the regional office, factory directors and external auditors. The total population was used therefore 89 respondents constituted the sample population for the study. A case study design was adopted. The sampling frame was a list of employees working in all departments and sections of the KTDA region 6 offices which is charged with the administration of the 12 tea factories in both

Nyamira and Kisii Counties. Stratified sampling was applied to ensure inclusion in the sample of sub groups which otherwise would have been omitted by other sampling methods. The subgroups comprised the external audit managers and audit assistants besides the audit partners. A sample size of 5 was chosen randomly by selecting the sample size to form the pilot study in order to measure validity and reliability of data collection. A questionnaire was systematically developed to reduce measurement errors. Reliability of the questionnaire was evaluated through Cronbach's alpha which measures internal consistency. Cronbach's alpha was calculated by application of Statistical Package for Social Sciences (SPSS) for reliability analysis. The value of the alpha coefficient ranges from 0-1 and may be used to describe reliability of factors extracted from dichotomous and multi-point formatted questionnaires or scales. A higher scale shows a more reliable generated scale. An alpha ( $\alpha$ ) score of 0.7 is considered satisfactory [10]. Labour cost had an alpha of 0.719. Both primary and secondary data were collected. Primary data was collected using structured questionnaire while secondary data were sourced through reviews of past empirical and theoretical literatures.

## **2.1 Data Analysis**

Data was collected, tabulated and analyzed using descriptive and inferential statistics. The descriptive statistics used were mainly frequencies and percentiles while inferential statistics utilized linear multiple regression analysis to analyse effects of factory costs on annual returns to tea growers.

### **2.1.1 Measurement of variables**

Statistical Package for Social Sciences (SPSS) version 19 was used as a tool for this study data analysis. The regression equation (1) was:  $Y = \beta_0 - \beta_4 X_4 - \epsilon$ ; where  $Y$  is the dependent variable (Annual Returns to Tea Growers),  $\beta_0$  is the regression constant,  $\beta_4$ , is the coefficients of independent variable,  $X_4$  is labour cost  $\epsilon$  is an error term.

## **3. RESULTS AND DISCUSSION**

The study targeted a sample size of 89 respondents from which 74 filled in and returned the questionnaire making a response rate of 83.15%. The study was limited to management of KTDA both at the regional office and factories. The respondents in this study were drawn from management, directors and external auditors of the 6 KTDA managed factories in Nyamira County. Demographic characteristics of respondents are as shown in Table 1. From the findings, it was evident most of the respondents, 42% were aged between 35 to 50 years, 26% were aged between 20 – 34 years, and 20% of the respondents were aged between 51 to 60 years, whereas 12% were aged above 61 years. This is an indication that respondents were well distributed in terms of their age. In a quest to determine the gender balance and distribution of the respondent it was evident majority were male (52.7 %) whereas 47.3 % were females. This is an indication that both genders were well involved in this study and/or the organization personnel capacity and as a result the findings of the study did not suffer from gender bias.

The study did seek the respondent to specify their highest academic qualification. From the findings, 45.9 % of the respondent indicated their highest academic qualification as college diploma level, 32.4% of the respondent indicated their highest academic qualification as bachelor's degree, 12.2% as college certificate whereas 9.5% of the respondents indicated

their highest academic qualifications as Postgraduate. No participant indicated secondary school certificate or below as his/her highest academic qualification. This is an indication that most of the respondents in the sampling frame and particularly those who engaged in this study had attained diploma and degree certificates. The study further sought to establish the period of which the respondents had served in the organization. Most of the respondents (49%) had served the organization for a period of 11 to 20 years, 22% of the respondents indicated that they had served the organization for a period exceeding 21 years, 16% confirmed having served the organization for a period of 5 to 10 years whereas 13% had been with the organization for less than 5 years. This implies that majority of the respondents had served the organization for a considerable period and thus their vast knowledge of and experience in the organization could be relied upon.

**Table 1. Demographic characteristics of the respondents**

Variables	Frequency	Percentage
<b>Age (years)</b>		
20-34	19	25.7
35-50	31	41.9
51-60	15	20.3
> 60	9	12.1
<b>Gender</b>		
Male	39	52.7
Female	35	47.3
<b>Educational level</b>		
Certificate	9	12.2
Diploma	34	45.9
Degree	24	32.4
Post-Graduate	7	9.5
<b>Years of service in KTDA</b>		
<5 Years	10	13
5-10	12	16
11-20	36	49
>20	16	22

On investigating whether Labour costs affects annual returns to tea growers in Kenya (Table 2), 71.6% of the respondents were of the opinion that Labour costs does affect annual returns to tea growers in Kenya whereas 28.4% of the respondents were of the contrary opinion. The finding concurs with Lutz Stefan and Turrini Alessandro revelations confirming that recruiting many low skilled labours, sometimes beyond the prescribed level of man-days for available tasks leads to a cut in profits [11].

**Table 2. Labour cost affects annual returns to tea growers in Kenya**

	Frequency	Percentage (%)
Yes	53	71.6
No	21	28.4
Total	74	100

On probing the extent to which labour cost affects annual tea earnings in Kenya (Table 3), 40.5% of the respondents indicated to a great extent, 32.4% of the respondents specified to a very great extent, 18.9% to a moderate extent while 8.1% of the respondents indicated to a little extent. This implies labour costs affects annual returns to tea growers in Kenya to a great extent.

**Table 3. Extent to which labour cost affects annual tea earnings in Kenya**

	<b>Frequency</b>	<b>Percentage (%)</b>
Very great extent	24	32.4
Great extent	30	40.5
Moderate extent	14	18.9
Little extent	6	8.1
Total	74	100

The study sought to determine the extent to which respondents agreed or disagreed with the Statements relating to labour cost management (Table 4). From the findings the study established that; majority of the respondents strongly agreed that; labour cost is the deciding factor of profitability as shown by a mean of 1.31, Non- compliance to the approved staffing levels has led to excessive labour costs as shown by mean of 1.35, others agreed that; the 3 months break requirements by labour laws leads to inefficiencies which reduce productivity especially where new inexperienced staff are brought in as shown by mean of 1.91. Lack of full automation and mechanization of production processes contributes to high labour costs as shown by mean of 1.93, and that CBA negotiated by KTDA has led to above average casual labour payments as compared to other companies in the industry as shown by mean of 1.96.

Findings from both Purdue and Zei universities in the United States [11] on: "skills labour costs and vertically differentiated industries" agree with the observations of this study that point to the fact that increased factory labour costs are retrogressive to profitability with regard to the percentage annual returns to tea farmers. Our results observed that seasonal workers are hired for 3 consecutive months twice in a given year as spelt out in the CBA but at different intervals after a break of 3 months. This break affects quality of the products through impaired skills and inefficiencies especially where new inexperienced staffs are brought on board in an industry that largely depends on product quality. The values of factory products are largely dictated by other external forces beyond factory control like market forces of demand and supply and the prevailing foreign exchange rates. According to Harvard's Business School upshots, on the effect of labour on profitability through its impact on quality, it was observed that profits can be eroded by too much focus on payroll management forcing managers to operate with insufficient labour [9]. The recruitment of less numbers may be a cost to the enterprise, employees are prone to make mistakes on the job affecting product quality, price and profitability as a result of overworking and burnouts. Noncompliance to approved staffing levels due to over-staffing which is the case observed in the factories under study, contributes to excessive labour costs [9] which eat into the profit margins of an enterprise. There is a need for staff compliment audits to be carried to determine optimal staffing levels and review remuneration policies. Factory labour rates are as a result of negotiations between KTDA and the union representing the workers. The negotiations spell out the minimum monthly wage for various categories of factory labour. This may have adverse effects on the profits of the enterprise because factors dictating the value of factory products are dynamic and not easy to predict accurately whereas profitability would significantly be reduced and wages significantly raised by the introduction of minimum wages [12].

**Table 4. Statements relating to labour cost management**

<b>Attribute</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Moderate</b>	<b>Disagree</b>	<b>Strongly disagree</b>	<b>Mean</b>	<b>Std deviation</b>
	12	57	3	2	0		
Lack of full automation and mechanization of production processes contributes to high labour costs						1.93	0.32
CBA negotiated by KTDA has led to above average casual labour payments as compared to other Companies in the industry	19	46	4	3	2	1.96	0.25
The 3 months break requirements by labour laws leads to inefficiencies which reduce productivity especially where new inexperienced staff are brought in	15	54	3	1	1	1.91	0.31
Non-compliance to the approved staffing levels has led to excessive labour costs	57	12	2	2	1	1.35	0.32
Labour cost is the deciding factor of profitability	53	19	2	0	0	1.31	0.31

Regression analysis of the effects of Factory labour cost on annual returns to tea growers in Kenya are as shown in Table 5 and 6. Multiple regression analysis was conducted based on secondary data to test the influence among predictor variables. The number of observations was 74. The results indicates that labour costs negatively and significantly had an effect on annual returns to tea growers. Outcomes revealed that 56.50 % of the total variability of the annual returns to tea growers was accounted for by labour cost. This is reflected in the coefficient of multiple correlations of adjusted R squared which is the coefficient of determination tells us the variation in the dependent variable due to changes in the independent variable. From the findings, the value of adjusted R squared was 0.565, an indication that there was variation of 56.5% on annual tea earnings due to changes in factory labour cost at 95% confidence interval. Moreover, 56.5% changes in annual returns to tea growers could be accounted for by labour cost. The findings show that there was a strong positive relationship between the study variables by 0.885 as revealed by the correlation coefficient R. The established regression equation was:  $Y = 0.961 - 0.314X_4$ . From the regression equation, it was evident holding labour cost to a constant zero, annual returns to tea growers would stand at 0.961, a unit increase in labour cost would lead to decrease in annual tea returns by a factor of 0.314. The significance value was < 0.05 an indication that the model was statistically significant.

**Table 5. Regression model summary**

<b>Model</b>	<b>R</b>	<b>R square</b>	<b>Adjusted R square</b>	<b>Std. error of the estimate</b>
1	.885	.782	.565	.0309

**Table 6. Coefficients**

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.
	B	Std. error	Beta		
1 Constant	.961	.412		2.198	.006
Labour cost	-.314	.145	-.017	-1.166	.024

Factory labour is a large expense taking on average more than 4 percent of annual factory revenues annually [13]. Table 7 shows the average absolute figures of cash paid towards labour cost in the financial periods ending June 2012 and 2013. The increase in cash outflows towards labour cost has been attributed to the annual increments of the CBA awards and increasing numbers of seasonal workers by factories. Gratuity provisions do not involve cash outflows until a factory undergoes reorganization however, provisions are annually made in the financial statements in line with the CBA policy and international financial reporting standards. The percentage of labour cost to total operational costs was 19.31 percent in 2011-2012 and 20.22 percent in 2012-2013. Rising labour costs negatively affect annual returns to tea growers as established in the last column which relates labour cost against the green leaf received at factory. The financial period 2011-2012 shows that for every kilogram of green leaf delivered at the factory for processing, Kshs 3.38 was consumed by labour cost. The figure for 2012-2013 declined to Kshs. 3.03 as a result of increased crop volumes which absorbed the rising cost.

**Table 7. KTDA nyamira county factories average labour costs**

Financial Period	Average actual Paid kshs provisions (absolute in kshs figures)	Average gratuity cost in kshs	Average total labour kshs	Average total operational costs in kshs	Verage percentage of labour to total operational costs	Average annual green leaf delivered	Average labour rate per kilogram of green leaf
2012-2013	47,477,146	3,074,674	50,551,820	249,474,530	20.22	16,655,868	3.03
2011-2012	39,474,784	2,769,902	42,244,686	217,992,969	19.31	12,559,820	3.38

Table 8 shows the monthly salary paid to seasonal workers as spelt in the CBA. The rates are perceived to be high especially at this time when the Kenyan tea industry is facing a lot of challenges ranging from persistently falling market prices, arising from oversupply of black tea and declining demand, political unrest in the traditional markets and rising production costs. Seasonal workers are the majority of the workforce and form the lowest cadre of staff at the factories .According to the CBA seasonal workers must break for 3 months after every 3 months engagement. This has been counter productive to the product quality especially where new inexperienced staffs are brought in.

**Table 8. Seasonal labour monthly rates (Kshs)**

Jan-12	Jan-13	Jan-14
16,580	18,570	20,800

## 5. CONCLUSION AND RECOMMENDATION

Factory labour cost was identified as one of the key costs affecting the annual returns to tea growers mainly because of increasing numbers of factory employees; exceeding the

recommended staffing levels when compared to factory capacities. This calls for a need for labour audit to ensure skills are matched. Moreover, seasonal employees are hired for 3 months despite fluctuating crop volumes hence the need to map seasonal contracts to expected crop volumes to monitor the costs.

The study established that all tea growers who supply their raw materials are treated equally in terms of first payment which is made monthly at a flat rate of Kshs14 per kilogram of green leaf delivered for processing; discounting diversity of factories expenditure patterns. This is also called initial green leaf payment. Nonetheless, the annual returns to farmers vary from factory to factory depending on the revenues received and costs incurred.

The 65 small holder tea factories in Kenya under KTDA management have been divided into 12 electoral zones in 7 regional administrative blocks in a bid to improve services. The case study factories are all under the same area of jurisdiction with a lot of similarities in terms of factory operations. Factories are independent legal entities but under one management. As such, centralization of some of the activities done at the factories which can be effectively handled by a thin clerical staff through regional centers would significantly reduce operation costs.

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## **COMPETING INTERESTS**

Authors have declared that no competing interests exist

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