Effect of Labour Productivity on Overall Tea Productivity in case of Small Tea Growers: A Study of Golaghat District in Assam

Anitabh Kakoty and Ratan Kaurinta

ABSTRACT

The contribution of labour is vital in a labour-intensive production organization. The continuous growth of the farm is ensured by the labours participation. In recent years, the tea industry is facing an unexpected situation of labour supply which can be considered the problem due to changing dynamics. The emergence of small tea growers in place of an earlier form of large estates in the tea growing district of Assam seems to be prominent and a significant supplier of green leaves. It is observed that, it is over 23000 registered small tea growers under Tea Board of Indiathose who are by definition hasa plantation area of 10.12 ha or below and the question of labour productivity to the total tea productivity is of paramount importance. The study was conducted as descriptive by nature and a questionnaire was administered to extract the labour productivity in two ways such as man day plucking of labour and input–output ratio of labour to assess its contribution. Data collected was analysed to find out the correlation between labour productivity to the total productivity and whether the variances in between total productivity and labour productivity is similar. The study has concluded that although variations in the labour productivity and total productivity of tea are equal, they maintain a low correlation. In this regard, recommendations can be put forward like better skill formation of labour along with more stimulating benefits to them to boost motivation for ensuring growth and performance for small tea growers in Golaghat district of Assam.

Keywords: Input output ratio, Labour productivity, Man day plucking, Productivity, Small tea growers.

I. INTRODUCTION

Assam is well known for its tea which has a distinct variety known as Camelia Sinensis var. Assamica (Wang et al., 2017). The state of Assam in India has a prominent place among the tea producing region (Biggs et al., 2020). The Golaghat district of Assam which falls under the South Bank agro-climatic zone has some distinguished characteristics favourable for producing Tea (FAO report, 2016). As per definition of Tea Board of India, 2021 report on Tea Development and Promotion scheme, Small Tea Growers are the tea producers which have land acreage of 10.12 hectares or below. Small Tea Growers has been in the forefront of supply chain of tea production system and maintained a steady flow of raw materials which is the green tea leaves (Paul et al., 2020).

The earlier form of producing tea in large estates especially during the colonial times is being taken over by the emergence of number of small tea growers more popularly known as STGs in the production landscape (Sarma et al., 2017). It has also impacted the lifestyle of the populace in the tea growing region along with changes in market dynamics of demand and supply. The growth of small tea growers has also enhanced the scale of competitiveness in the system (Das, 2012). The growing of tea also attracted the small tea holding farmers being considered as a profitable venture which ensures competitive return. (Lightonet al., 2014). As per study of Hannan (2016), the size of the tea holding matters in maintaining productivity.

Tea productivity is highly impacted by the trend of the climate and concentration of old tea bushes whereas the performance of labour is of paramount importance as the tea industry is highly labour intensive (ILO Report, 2015).

The large tea estates are waved by absenteeism of labour clubbed with excess burden of maintenance of working and living conditions whereas small tea growers are comparatively facing lesser thrust of it.

II. STATEMENT OF THE PROBLEM

Tea industry in India is passing through a visible transition and the recent trend of yield of the large tea estates due to its old aged bush concentration and other management problems emitting signals of it. India is a populous country and has a strong domestic market (Dhakre, 2015). The home base demand for tea has a positive trend of demand which creates a lesser scope of export. But for a continuous demand pattern, it has become imperative for the tea gardens to maintain its productivity. The falling trend in productivity which is measured as Kg of production per hectare has paved the way for the small tea holdings to come to the scene and contribute to the overall production. As the small holding concept is

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of productivity in case of tea in Assam could be viewed after 1970’s with more and more small tea growers has increased in terms of area of tea cultivation and yield (Mishra et al., 2008).

Small tea holding is an institution of post-colonial era which was designed progressively to use the resources to develop a cash crop farming (Saeteurn, 2019). As per Sarma (2017) and Baruah (2017) small tea growers are subcontractors at the lowest level of decision-making dependent on the price fixing by the estate owner and bought leaf factories along with factors such as climate and other factors which influences yield. But is viewed that the formation of skill and knowledge, is low among STGs, other related issues, the marketing and capital is prominent due to lack of support from the government of Assam (Deka, 2019). The growth of small tea growers may be cited as being managed by family members and it is considered as family enterprise (Yujiro, 2004). Small tea growers initially propped up as periphery farming to the large tea estates (Sivapalan, 1993).

However, the growth of small tea growers is due to suitable alluvial soils, presence of highland, ideal climate with expected rainfall range between 1200–1400 m per annum with long sunny days (Kagira et al., 2012). Day by day, small tea cultivation has become a primary cultivation which brings regular and sustainable source of income (Mudoi et al., 2016). The demonstration effect of it has induced more and more growers to adopt it as an alteration crop (Ghosh et al., 2017)

B. Labour Productivity in Small Holding Tea Gardens

The contribution of labour is crucial to maintain productivity of tea in small holdings. Human resource management factors and operational management factors has a higher correlation to labour productivity. (Ranasinghe, 2020). Sivaram (1996) has cited that small tea holdings have comparative advantages of hiring labour at minimal wage rate. The rapid plucking and processing have negative impact on quality of tea which eventually fetch low price (Hannan, 2017). Labour productivity of Small Tea Growers is connected with the incentive wage for additional plucking, but labour has a weaker bargaining power in the unorganized sector like STGs (Savur, 1973). The individual’s plucking volume determined labour productivity (Sangetha et al., 2017). Dishanka (2014) and Ikemoto (2014) has cited that outmigration of labour with low participation in tea gardens is affecting labour productivity. Financial benefits, social welfare measure, management behavior is crucial for labour productivity (Kodithuwakku et al., 2007).

C. STGs Productivity

The productivity of tea is affected by the composition of factors ranging from climatic changes, inputs, infrastructure, and management practices related to the field, plucking, and pruning of tea and overall supply chain till the end market. As per audit report of CAG (2011) the productivity of tea is highly affected by the concentration of old aged tea bush, abysmal performance in replantation of tea, low on new plantation and rejuvenation with lack of irrigation facility. According to Martinich (1997) the productivity is the output received against this input. Productivity is high if the output gained from a limited quantity of input. The total productivity of tea is affected by workers input, energy input, capital input,
material input, and welfare input with miscellaneous inputs (Lashkar et al., 2018). As per Sedaghathoor et al. (2009) tea yield is highly influenced by quantity of fertilizer used such as nitrogen (N), Potassium (K), Magnesium (Mg) and Micronutrients (Zn and Ca) with optional maintenance of pH value. Dutta (2006) has identified that tea yield is dependent on land cover class and tea bush health. Overall tea productivity and quality is determined by solar radiation, plucking rounds, selection of genotypes, biomass in Tea plants, temperature, and biotic factors along with agronomic factors (Madamombe, 2016), Damodoran et al. (2017) has revealed that yield of tea is well maintained in sloppy landscape with high on elevation andplucking is important with pruning to have new shoots with expected height of tea bush. Size of tea plantation has as strong relation with productivity of tea (George, 2020). The small tea holdings as compared to the large estatesshas higher productivity (Das, 2010) The labour cost in the small tea holdings is low due to its unorganized status.

### A. Plucking Productivity in Man-Days-PPMD (2015-2020)

<table>
<thead>
<tr>
<th>Year</th>
<th>Productivity (kg/ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>2250</td>
</tr>
<tr>
<td>2016</td>
<td>3440</td>
</tr>
<tr>
<td>2017</td>
<td>2742</td>
</tr>
<tr>
<td>2018</td>
<td>3059</td>
</tr>
<tr>
<td>2019</td>
<td>3154</td>
</tr>
<tr>
<td>2020</td>
<td>2207</td>
</tr>
</tbody>
</table>

Source: Statistical Division, Tea Board of India.

### VI. FINDINGS BASED ON STATISTICAL RESULTS

The productivity of tea is calculated by the average production of tea in kilograms in a hectare of plantation area during a period of one year. Small tea growers of Golaghat district are facing a homogeneous situation across the district or zones where tea is mostly produced. Labour productivity is an important component, and it also determines the volume of production of tea leaves in the small holding tea gardens. The labour productivity of the tea gardens is indicative in the form of man day plucking during a period of time is calculated in terms of man or labour used in days per hectare taken for the period. However, man day plucking can be viewed in four different stages of a year more commonly known stages are growth stage, active flushing period stage, slower growth stage and extended growth stage. The other factors of production of green leaves assumed to be uniform.

#### B. Input-Output Ratio of Labour (IORLP) Productivity

Another form of labour productivity can be seenas a contribution of labour towards production in a certain period as labour input and output ratio considered for labour productivity taken for 5 years keeping the other factors to be constant.

#### VII. HYPOTHESIS TESTING

**H01:** The improvement in labour productivity has a significant positive relationship with the tea productivity in Golaghat district of Assam.

<table>
<thead>
<tr>
<th>Item</th>
<th>Pearson’s R</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.R between man dayplucking productivity and productivity of tea by STGs of Golaghat in Assam</td>
<td>-0.08</td>
<td>0.897</td>
</tr>
<tr>
<td>2.R between labour input – output ratio and productivity of STGs of Golaghat district of Assam</td>
<td>0.121</td>
<td>0.773</td>
</tr>
</tbody>
</table>

The relationship between man-day plucking and tea productivity of STGs in Golaghat is significantly low. Similarly, labour input output ratio also has very low relationship with overall productivity of STGs tea in Golaghat. In this case, we fail to accept the null hypothesis and accept an alternative.

**H02:** The variances in labour productivity are equal with the variations in tea productivity of Golaghat district of Assam

#### 1. Variances between the plucking productivity (man day) and STGs teaprodactivity.

<table>
<thead>
<tr>
<th>Levenes statistic</th>
<th>Df1</th>
<th>Df2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.598</td>
<td>1</td>
<td>8</td>
<td>0.009</td>
</tr>
</tbody>
</table>

#### 2. Variances between the input output ratio (IOR) and tea productivity of STGs in Golaghat.

<table>
<thead>
<tr>
<th>Levenes statistic</th>
<th>Df1</th>
<th>Df2</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.35</td>
<td>1</td>
<td>8</td>
<td>0.006</td>
</tr>
</tbody>
</table>

In second hypothesis, for both the cases we failed to reject the null hypothesis which means that the variances of tea productivity of STGs in Golaghat district of Assam has equal variances with man day plucking of labour and input output ratio of labour.
VIII. CONCLUSION AND RECOMMENDATIONS

The skill of plucking which is determined through “fine plucking” known as two leaves and a bud is more important than mere volume of plucking which can impact overall tea productivity. Moreover, plucking with more concentration of coarse leave can have an adverse effect on overall productivity. Labour input and output ratio has significantly low correlation with the total productivity of tea. In reality, tea productivity is affected by composition of exogenous and endogenous factors which includes agro-climatic and agronomic factors, infrastructure, market environment, mode of operation. It can be recommended that labour productivity can have better correlation with more skill formation of labour which can be added with speed with accuracy. The labour productivity can be optimal where the employers have stimulating benefits for them which is motivating due to its intrinsic and extrinsic components. The Small tea grower’s domain is unorganized which can be more productive with more training and knowledge application for its optimal gain.

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