

WEEKLY VARIATION IN WORK-OUTPUT OF PLUCKERS IN TEA GARDENS IN NORTHERN WEST BENGAL

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Summary. Data on daily work-output (kg of leaves plucked) of Oraon pluckers in tea gardens of Jalpaiguri district, West Bengal, India, are analysed. While on any particular day of the week there is no significant difference in work-output of males and females, there is a significant between-day variation in work-output for both sexes. Mean work-output steadily decreases as the week progresses, perhaps due to the cumulative effect of fatigue.

Introduction

Tea-leaf pluckers constitute an important proportion of the total labour force in the state of West Bengal in eastern India, and both males and females are employed in the numerous tea gardens of this region. The work requires skill, since only leaves of a particular size and maturity can be used, and as the worker moves along the bushes these must be identified visually, picked without damaging the plant and placed in the basket carried on the back. Training takes several years. Each adult plucker earns a weekly wage at the rate of Rs 10-80 (approximately \$1-00) per day, with a minimal expected work-output (i.e. weight of tea leaves plucked) of 23 kg per day. If a plucker, on a particular day, has a work-output greater than the minimum, the payment is made over the minimum wages, at the rate of Rs 0-15 per kg for the extra amount plucked. The records kept daily for each worker provide a source of data for the study of day to day variation in work-output within and between the sexes, and of any trends that there may be throughout the week. Yet little use has been made of these records to examine labour productivity and how it varies.

Method

A total of 490 adult pluckers—201 males and 289 females—belonging to the Oraon tribe were chosen from the tea gardens of Birpara and Dalgain in the Jalpaiguri district of West Bengal. The daily work-output in terms of kg leaves plucked of each selected individual was noted for 7 consecutive work days (16, 17, 19-23 August 1985, Friday to Friday inclusive but excluding Sunday which is a rest day).

The Oraons are a Dravidian-speaking population thought by some to have originated from southern India (Dalton, 1872) but who are known to have inhabited the Chotanagpur plateau in Bihar for centuries. The data concern two subgroups of the Oraon tea labourers/pluckers who migrated to their present habitat about the end of the last century, i.e. those of Birpara and Dalgaon tea gardens in Jalpaiguri district, West Bengal.

Results

In Table I are presented the basic statistics on the daily work-output and the total work-output for the 7 consecutive days, separately for males and females. The distributions of daily work-output, as well as the total work-output (Fig. 1), are slightly positively skewed for both the sexes. Although the mean work-output for males (32.7 kg/day) is slightly higher than that for females (32.3 kg/day), mainly on account of a few individuals with very high performance, for none of the 7 days nor overall is the difference statistically significant.

Table I. Work-output (kg) of tea-leaf pluckers for 7 consecutive working days, separately for males and females

| Output | Fri | Sat | Mon | Tues | Wed | Thurs | Fri | Total |
|--------------------------|------|------|------|------|------|-------|------|-------|
| Males (N = 201) | | | | | | | | |
| Minimum | 8 | 8 | 7 | 6 | 10 | 7 | 8 | 72 |
| Maximum | 92 | 114 | 101 | 107 | 108 | 106 | 100 | 568 |
| Mean | 29.5 | 30.1 | 37.1 | 36.1 | 32.9 | 31.8 | 31.4 | 229.0 |
| SD | 16.8 | 17.5 | 17.8 | 20.0 | 16.7 | 15.3 | 15.3 | 90.6 |
| Females (N = 289) | | | | | | | | |
| Minimum | 4 | 4 | 3 | 4 | 4 | 5 | 4 | 38 |
| Maximum | 69 | 74 | 91 | 87 | 86 | 82 | 75 | 475 |
| Mean | 28.8 | 30.2 | 33.5 | 34.9 | 33.0 | 35.4 | 30.7 | 226.5 |
| SD | 12.7 | 13.4 | 14.8 | 15.3 | 15.4 | 17.9 | 13.9 | 85.0 |

Whether within each sex there are differences in work-output among the 7 days was tested, using Hotelling's T^2 statistic which compares the mean difference between days with the sample dispersion matrix. The values of T^2 statistic for males and females are 47.3 and 107.7 respectively. The corresponding F-values are 7.68 (with 6 and 195 df) and 17.63 (with 6 and 283 df), both of which are significant ($P < 0.05$). Thus, while on any particular day there is no significant difference in work-output of males and females, there is a significant between-day variation in work-output for both the sexes. It is clear from Table I that among males the mean work-output steadily decreases as the week progresses, perhaps due to the cumulative effect of fatigue. This trend, however, is not so clear among the females. Finally, as can be calculated from Table I, both males and females earn approximately Rs 1200 a day on average.

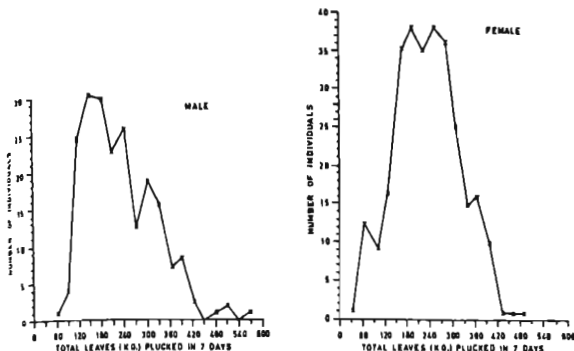


Fig. 1. Distribution of individuals by total (green) tea leaves plucked in 7 days, separately for males and females.

Discussion

There is little in the literature with which these results can be compared. Rahmathullah & Pothi (1981) in South India showed that after a break from working the women's daily production rose by 4.4 kg and the lowest yield was on pay-day. These findings appear to be supported in the present analysis.

Rahmathullah & Pothi (1981) drew attention to the extent of individual variation in performance both in level, in which age and experience were important factors, and in variability; the best performance came after 4 years' experience, at which point it remained at a plateau, while females aged 20-30 had a higher mean yield per day than those over 30 and the lowest yields were by females over 45. Such variation does not affect the present results since the same individuals were included in the sample every day.

Bradley, Rahmathullah & Narayan (1988) drew attention to the effect of health upon yield. Workers receiving an iron supplement over 3 months showed an average increase in monthly yield of 92 kg, a 22% rise in productivity and an increase in the number of days worked per month; there was a lesser effect of antihelminthic treatment. It is not possible to eliminate the effects of day to day variation in health from the present figures, but in view of the relatively short time of the survey they are likely to be small.

There is a curious difference in performance between the women in the present study and that of Rahmathullah & Pothi (1981), the former achieving an output nearly twice that of the daily average of the latter. In the present sample it was approximately 33 kg whereas in the South India study it was 17 kg (Bradley *et al.*, 1988). Possible explanations may lie in the nature and duration of the investigation, or the composition of the samples—perhaps a special effort was made by the West Bengal females.

To our knowledge there are no studies on the daily variation in productivity. There are, however, a few studies including sex differences in productivity, of which the most pertinent is the study by Wolgemuth *et al.* (1982), who measured the productivity of road construction labourers in Kenya (138 males and 86 females) in terms of the volume of earth moved per hour. They found that the difference in productivity was significantly higher among males than among females, in agreement with the tendency in the present study. There are also theories stating that women are able to regulate their energy consumption more efficiently than males (Wolgemuth *et al.*, 1982). This may, in part, explain the consistent decrease in work-output among males with the progression of the week and the lack of such a pattern among the females.

References

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