

An Investigation of Improving the Productivity of Production Department in Hosiery Manufacturing Industry

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ABSTRACT

The study was carried out in one of the Hosiery manufacturing organization in Sri Lanka, which produces socks and tights. The research is mainly focused on the productivity problem of the production department in the organization. During the study, an attempt was made to identify how productivity is changing and what are the reasons for varying the productivity in the production department. While carrying out the research it was found that absenteeism directly affect to the lower productivity in the organization. The research identified the barriers to increase the productivity and finally research suggests solutions to resolve the barriers to improve the productivity; such as an effective annual performance appraisal, employee assistant programs, realistic job preview and rewarding system.

KEY WORDS: Absenteeism, Dial Linking, Stitching, Labor Productivity, Productivity

INTRODUCTION

Hosiery is knitted coverings for the legs and feet. Also referred to as leg wear, hosiery describes garments worn directly on the feet and legs. Most hosiery garments are made by knitting methods. Modern hosiery is usually tight-fitting by virtue of stretchy fabrics and meshes. Older forms include binding to achieve a tight fit. Due to its close fit, most hosiery can be worn as an undergarment, but it is more commonly worn as a combined under/outer garment.

This industry comprises establishments primarily engaged in knitting hosiery for men, women and children. Establishments classified in this industry may finish the clothing that they knit. Knitting activities are;

- Anklets, hosiery or socks, knitting
- Athletic socks, knitting
- Hosiery mill
- Knitting hosiery and socks

- Leg warmers, manufacturing
- Nylons, sheer, women's, misses' and girls' full-length and knee-length, knitting
- Panty hose, manufacturing
- Socks, knitting
- Stockings, manufacturing
- Tights, knitting

The group of companies was established in 1980. This group is an Italian business venture having hosiery manufacturing factories registered under Board of Investment of Sri Lanka.

Group is operating its business in Sri Lanka within the limits of ethically accepted & committed practice follow Sri Lanka's labour and other business regulations as well as ILO labour standards that are applicable to employers around the world. Italian investor Viscotex S. R. I. of Italy with local counterparts has gone into an aggressive expansion of their Sri Lankan operation to manufacture garments & socks for the EU market investing Rs.144 million for this new expansion. They are mainly producing tights (for ladies & children) and Socks (for men, ladies and children) for the European market. Due to the high demand for the company's products in the European market, the company has decided to set up their

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second factory to cater this demand with state-of-the-art computerized Knitting machines. The total number of employees of the three factories currently stands at 700. The company's total production is exported to Europe and marketed through a distribution network in Germany, which is also owned by the same investors. The main shareholders of the company are from Italy.

Departments in the factory are Production department, Planning and Human Resource department. Sub departments in the Production department are Knitting department, Linking department, Ironing department and Stitching department.

RESEARCH OBJECTIVES

The main objectives of this research were to identify the root causes for productivity loss and to examine the ways to control, eliminate, or reduce the causes and to improve the labor productivity in the organization. Therefore the study was carried out not only in the production section, but also in the Human Resource department. To study about the labor productivity, it is essential to study about the working conditions, and other monetary and non monetary benefits for employees that is provided by the company.

LITERATURE REVIEW

Productivity

Monday and Noe (2005) have suggested simply productivity means the ratio of what is produced to what is required to produce. An organization is productive if it achieves its goals and does so by transferring inputs to outputs at the lowest cost.

Labour Productivity

Monday and Noe (2005) have suggested Labour productivity is the ratio of

(the real value of) output to the input of labour. Where possible, hours worked, rather than the numbers of employees, is used as the measure of labour input. With an increase in part-time employment, hours worked provides the more accurate measure of labour input. Labour productivity should be interpreted very carefully if used as a measure of efficiency. In particular, it reflects more than just the efficiency or productivity of workers. Labour productivity is the ratio of output to labour input; and output is influenced by many factors that are outside of workers' influence, including the nature and amount of capital equipment that is available, the introduction of new technologies, and management practices.

Factors Influencing Lower Productivity

Monday and Noe (2005) have suggested most common factors affecting for lower productivity has been categorized as follows:

- Waste of Time
- Waste of Methods and Resources
- Ignoring Potentially Good Ideas
- Causes of Poor Space Utilization
- Common Causes of Accidents

METHODOLOGY

The research is an applied research. (Purpose of this research is to improve the productivity by finding the root causes for the lower productivity). The research is mostly based on quantitative data. Both secondary data and primary data were used. As the secondary data, monthly performance reports of every department were used. Interviewing and questioners were used as the primary data collection methods. This study carried out on past 10 month data. Data analysis was carried out using statistically tools to illustrate the influence of the root causes for the lower productivity. Based on the results obtained from the analysis alternative solutions were introduced and then the best feasible

solution was selected to minimize the productivity problem of the organization.

DATA COLLECTION AND ANALYZING

As it was planned, daily data were gathered from every section in the production department. The data for productivity and absenteeism were gathered for ten months (from January to October 2009).

Questionnaire was delivered to all the non managerial employees work in the entire production department. More accurate data for absenteeism were collected, by going through the absenteeism report.

As identified main causes of lower productivity are;

- Waste
- Lack of raw material
- Unnecessary absenteeism
- Failure to inform human resources department when more labor is required
- Allowing workers to get habit of talking, visiting, killing time
- Machines stoppage
- Labour turn over

Due to the time limitation and the difficulties the data for waste, unavailability of man power, machine breakdown and unavailability of yarn are considered for the analysis. The following graph illustrates the reasons for the lower productivity in the entire production department.

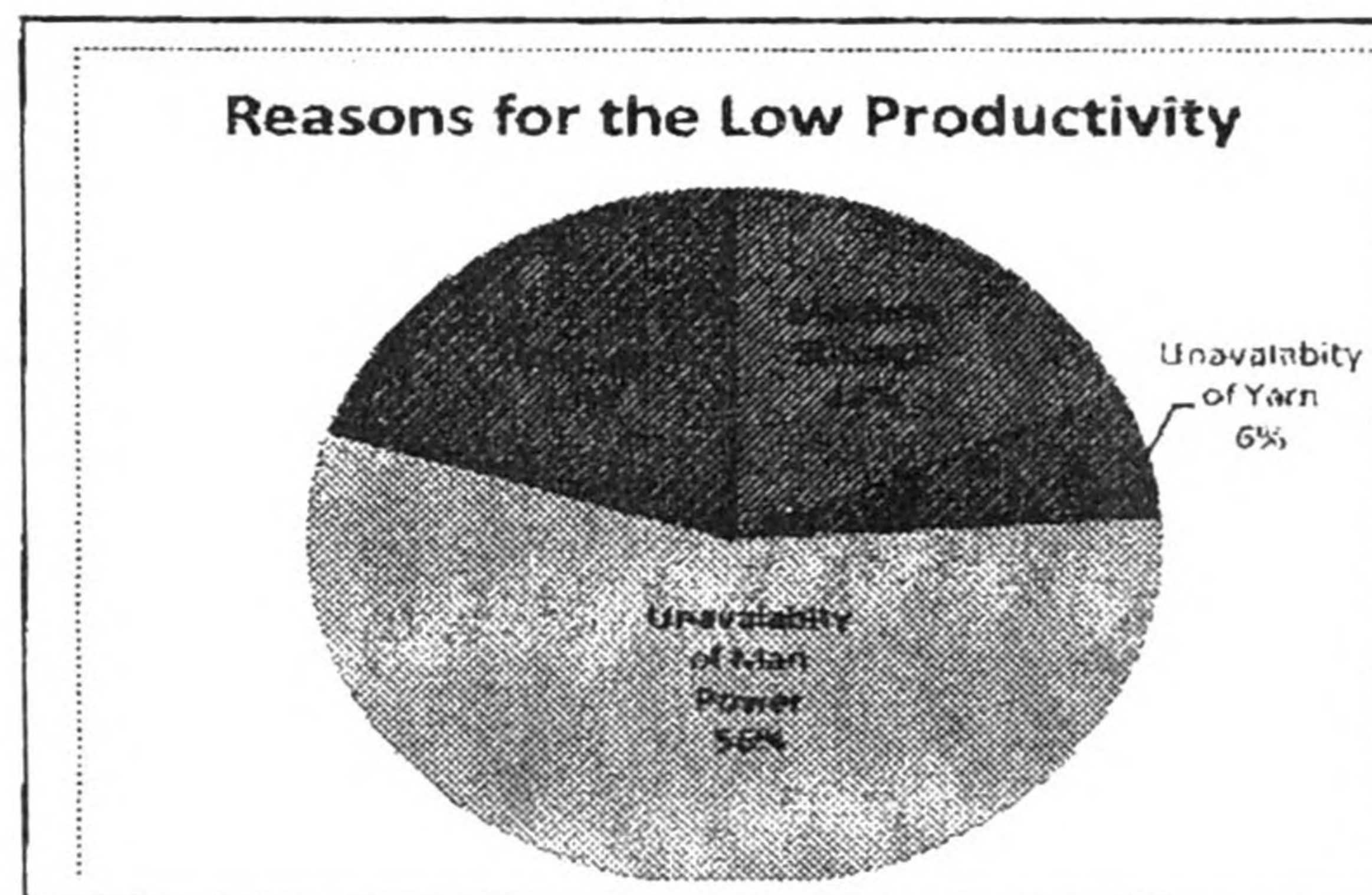


Figure 1. Reasons for the Lower Productivity

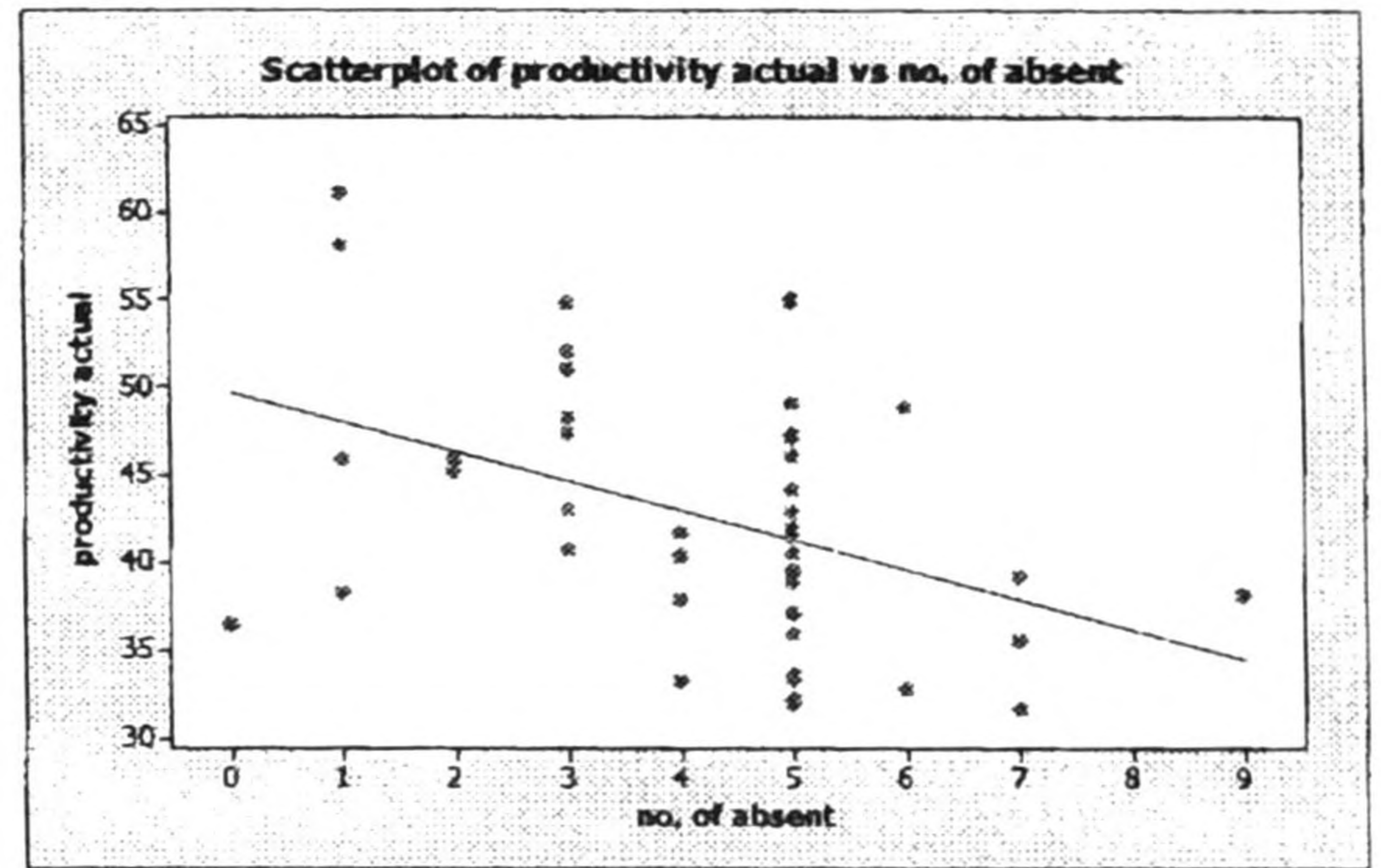


Figure 2. Scatter Plot (Actual Productivity Vs. No. of Absents)

Pearson correlation of productivity actual and no. of absent = -0.408.

There is a negative correlation between two variables. In means Productivity tends to increase when the number of absent decrease.

Hypothesis Testing

H0: No correlation between productivity actual and absent percentage

H1: There is negative correlation between productivity actual and number of absent

P-Value = 0.005

P-Value (0.005) < 0.05

Reject H0.

I.e. there is negative correlation between productivity actual and number of absent.

So it was proven that there is negative correlation between productivity actual and absent.

Analysis of Production Variations

Figure 1 and figure 2 illustrate the relationship between the actual production and the target production of the Dial linking section and the Stitching department for the month of August. Figure 3 and figure 4 are illustrating the relationship between the actual production and the target production of the Ironing and the Knitting departments for August and September 2009. As the most critical part of the production process

Dial linking section play a major role in the production process. The Linking department consist four sections: First reverse, Dial linking, Conti linking and Second reverse. So the productivity calculates for separately only for each 2 sections.

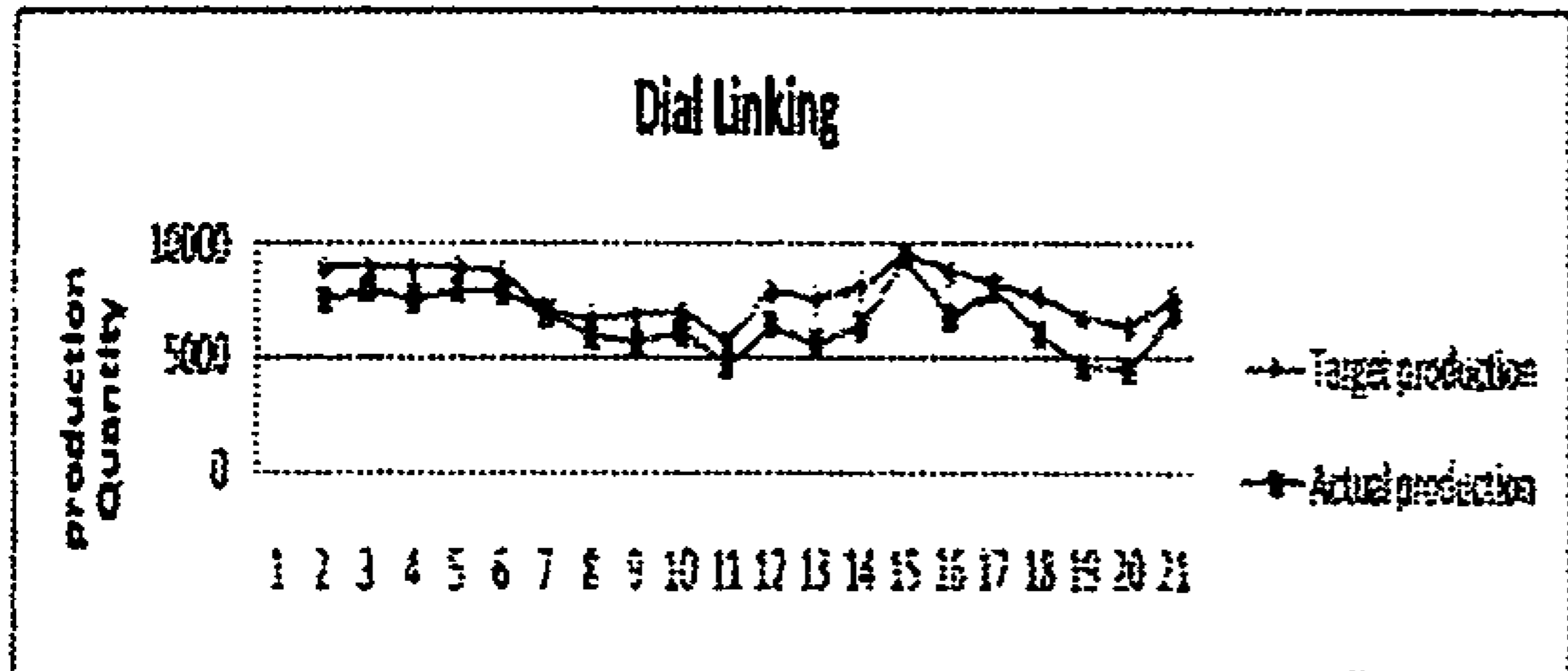


Figure 3. Variation between the Actual and Target Dial Linking Productions

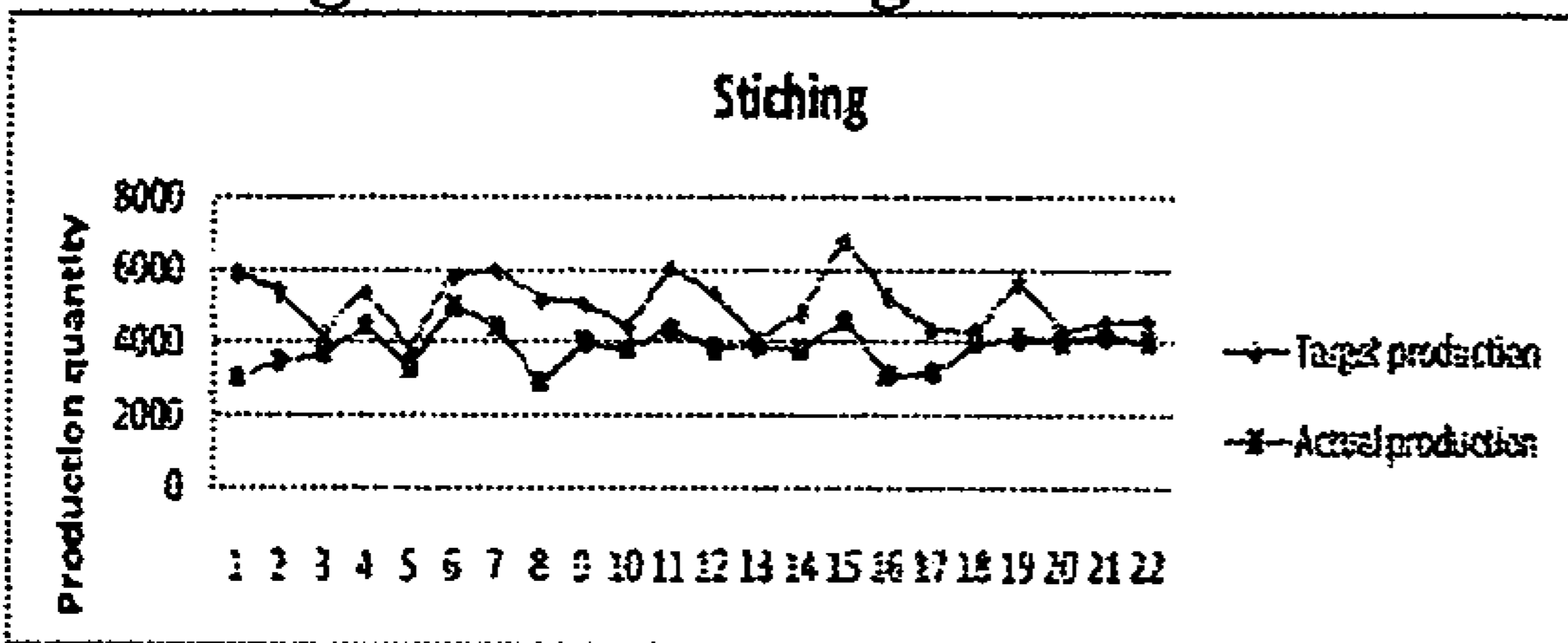


Figure 4. Variation between the Actual and Target Stiching Productions

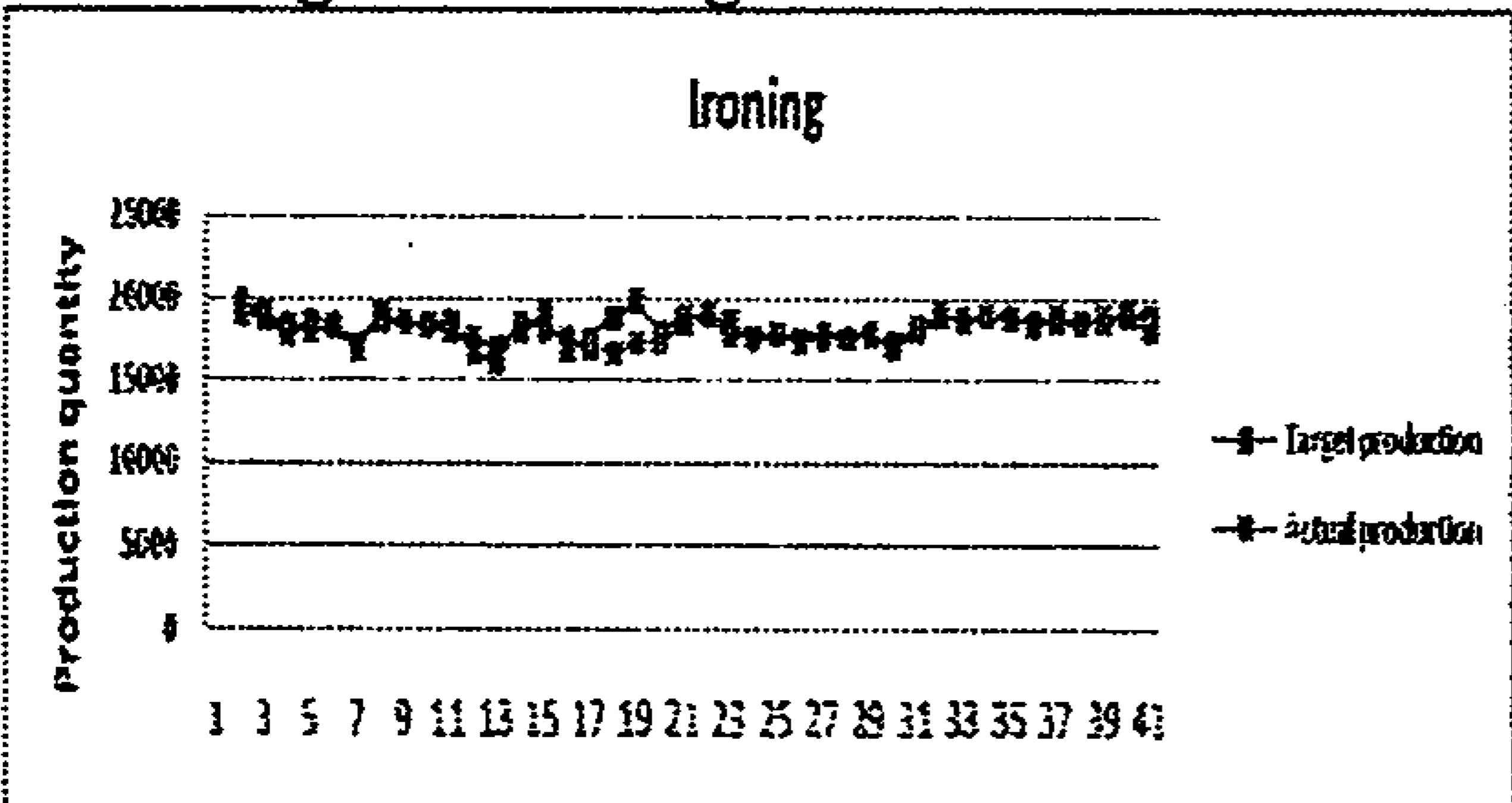


Figure 5. Variation between the Actual and Target Ironing Productions

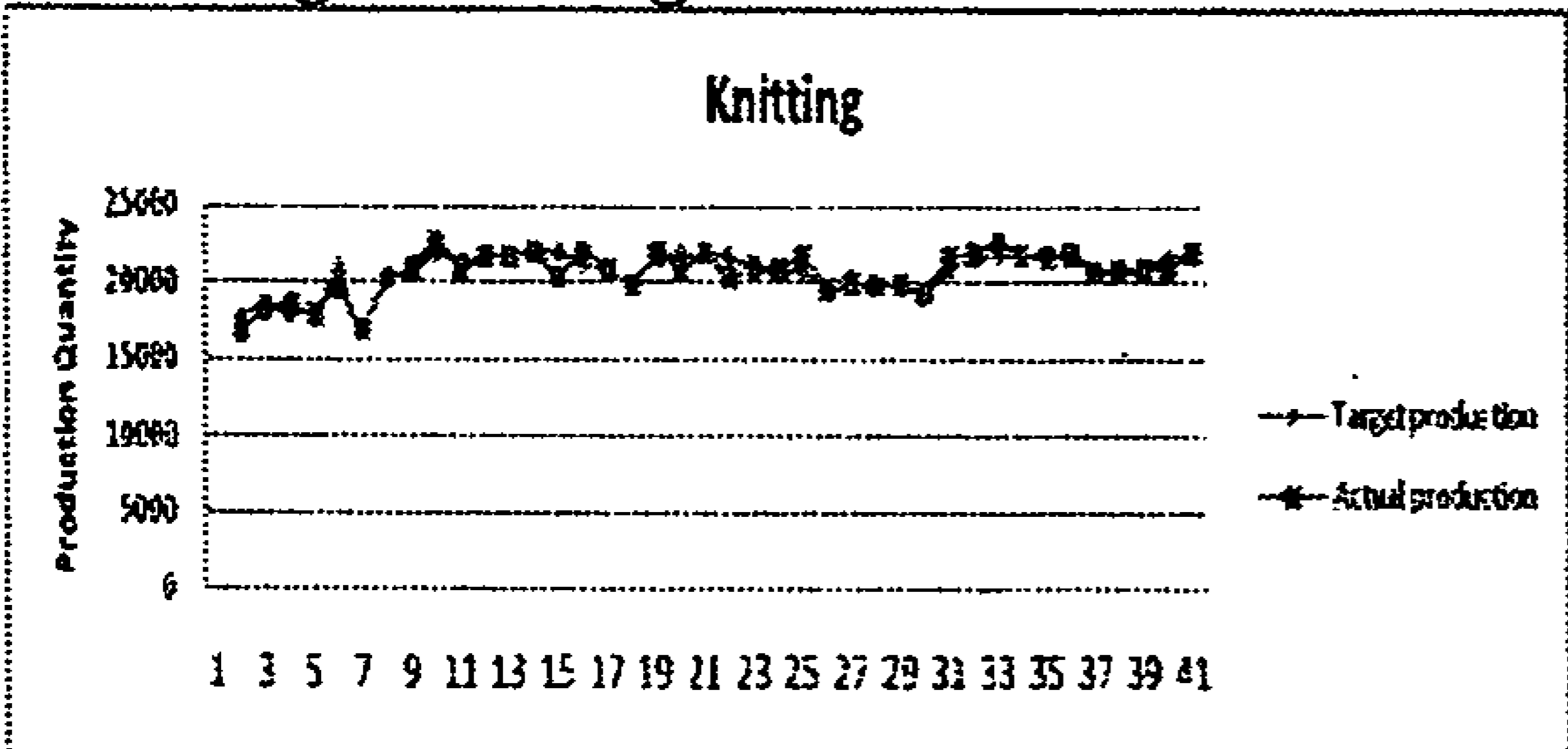


Figure 6. Variation between the Actual and Target Knitting Productions

As from the figure 1, figure 2, figure 3 and figure 4, it is clear that Knitting & Ironing departments are achieving their daily target oftently. But there is a considerable variation in the actual production and the target production of the Stiching and the Dial linking sections. It is obvious that the workers in the Dial linking and the Stiching sections are unable to achieve their given target.

Analysis of Productivity Variations

Variation of the Labor productivity for Dial Linking, Stiching and first reverse sections for the month of August and September are shown in below figures. (figure 7, figure 8, figure 9)

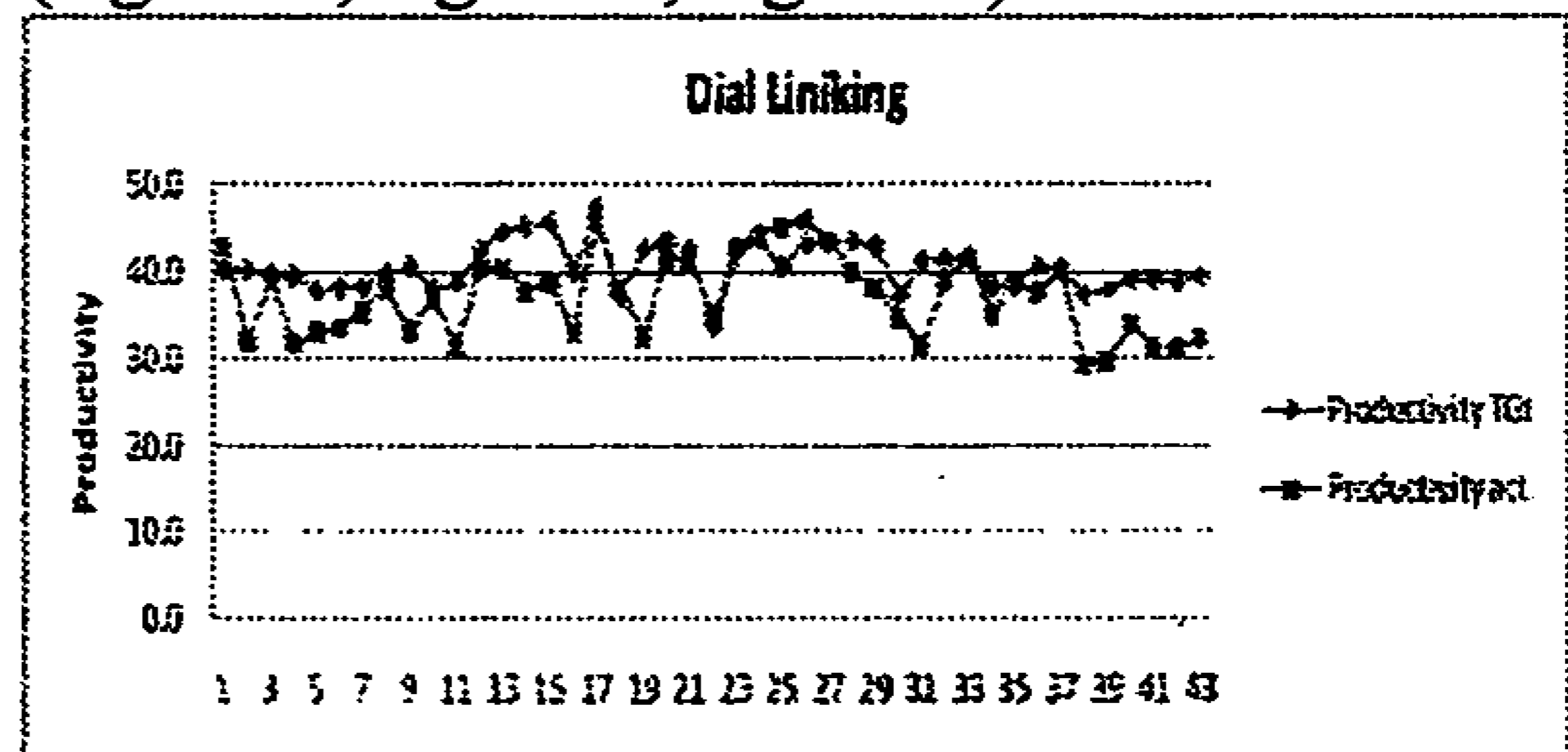


Figure 7. Labor Productivity for Dial Linking Section-August & September

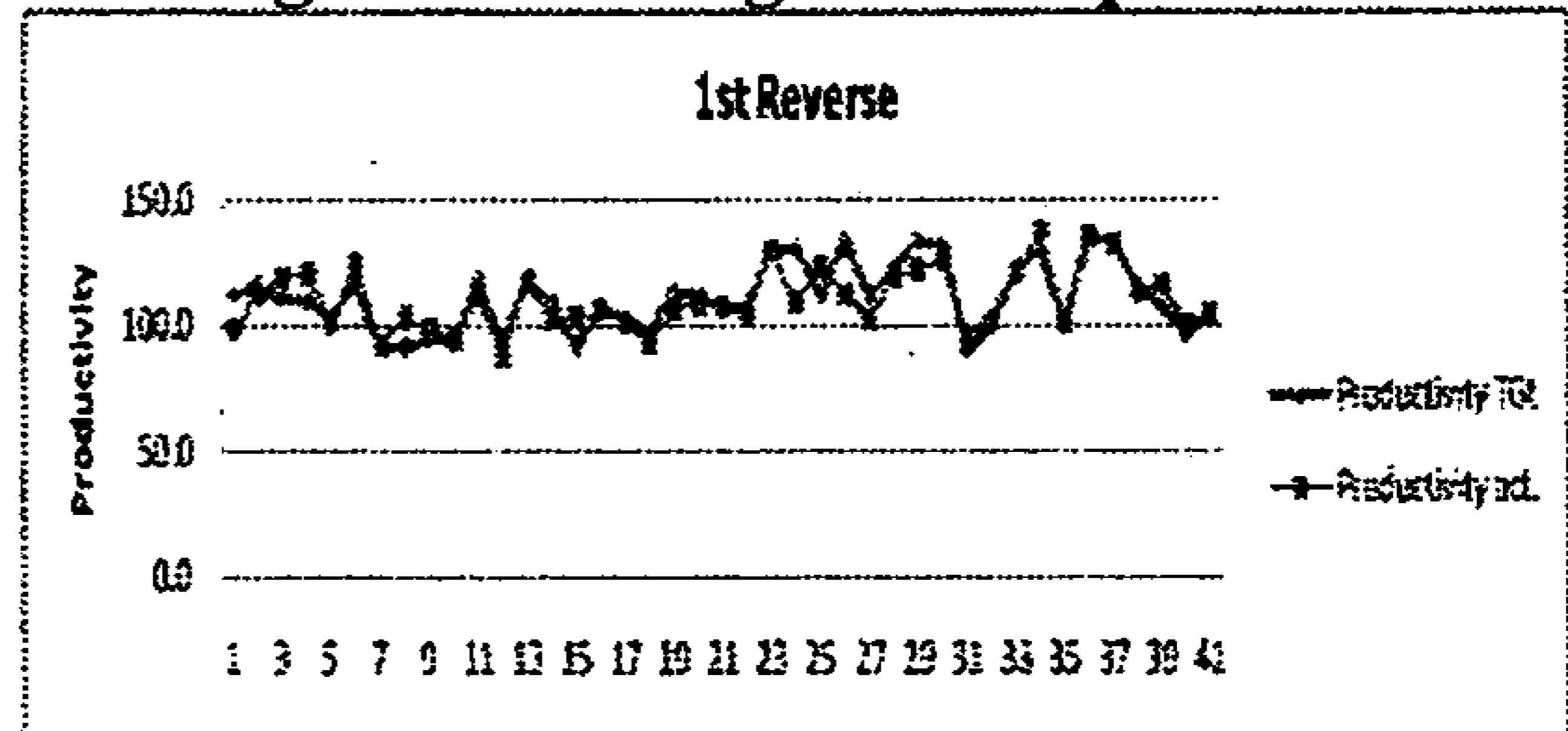


Figure 8. Labor productivity for First Reverse Section

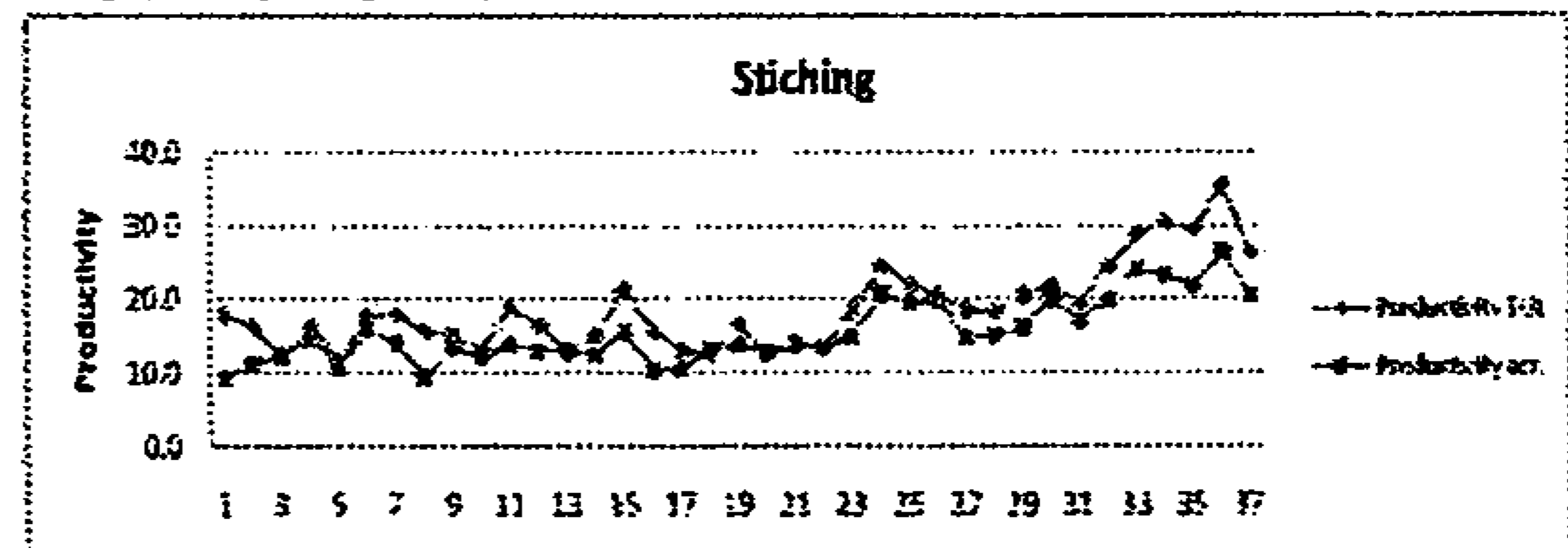


Figure 9. Labour productivity for Stiching Department

Labour productivity for Knitting and Ironing departments are able to reach their

daily target productivity. (Figures were not shown in here) In some situations actual value is higher than the expected value. But in Linking department and Stitching departments there can be seen a reasonable gap between actual and target productivity.

Table 1. Monthly absenteeism for the Production Department

Month	No of absence for the month	Absenteeism%
Jan	233	3.7
Feb	244	4.07
Mar	221	4.6
Apr	183	5.6
May	192	5.8
Jun	202	5.8
Jul	220	5.9
Aug	266	5.9
Sep	244	5.2
Oct	239	5.4
Nov	171	5.7
Dec	187	5.6

As identified from the research, some reasons for the absenteeism are; lack of job satisfaction, excessive work load, lack of awareness of the benefits gain.

Alternative Solutions

Solution 1: Employee Assistant Programs

Work/life benefits: Balancing work & Home Needs

- Child care/elder care referral services
- Time off for children's school activities
- Employer – paid on site or near site child care facilities
- Flexible work hour schedule
- Customized training programs
- Extended temporary or emergency dependent care costs

Solution 2: Realistic Job Previews

Providing a Realistic Job Preview (RJP) is another technique to develop effective and productive workers. An RJP informs applicant about all aspect of the job, including both its desirable and undesirable facets. In contrast, a typical job preview

presents the job in only positive terms. The RJP may also include tour of working area, combined with a discussion of any negative health or safety considerations. Proponents of RJP believe that applicants who are given realistic information regarding a position are more likely to remain on the job and be successful, because there will be fewer unpleasant surprises.

Solution 3: Performance Appraisal

Performance appraisal is a most helpful tool an organization can use to maintain & enhance productivity & facilitate progress toward strategic goals.

Solution 4: The Pay for Performance Standards

It's a standard by which managers tie compensation to employee efforts and performance. Without this standard, motivation to perform with greater effort will be low, resulting in high wage costs to the organization. The term "pay for performance" refers to a wide range of options, including merit based pay, bonuses, salary commissions, team group incentives, various gain sharing programs.

Solution 5: Rewarding System (proposal for awarding them in a monthly gift)

All two departments (Linking and Stiching) have to keep their weekly absenteeism maximum 2%, separately.

- Each department has to maintain this level all 4 weeks in months is eligible to win the gift pack.
- Leave for infectious diseases and maternity leave and the death of a close family member (maximum 05 days) will not taken in to account when doing calculations.
- If all wins cost of the program will be Rs. 25000.

RESULTS AND DISCUSSION

From the analysis done to find the reasons for lower productivity, it found that

the unavailability of man power (absenteeism) is the most significant reason for the lower productivity in the production department. So the research considered only about the labour productivity of the company. According to the correlation value, there is a negative value. So there is a negative relationship between the productivity and absenteeism. When absenteeism increases productivity decreases.

When analyzing the productivity variation, department wise, it is obvious that Knitting and the Ironing departments have been achieve their daily production target, any way there are no any big differences between the actual and the target. High absenteeism can't be seen in these 02 departments. Any way if there were no enough labour they were able to achieve their target. Problem of slow in productivity improvement is highly affected to the Linking and the Sticking departments. The problem was remaining same for the departments for the recent months also.

From the analysis for the absenteeism percentages in First reverse and the Dial linking section there is a high absenteeism percentage in Dial Linking section comparing to First reverse. Since from April the total absenteeism percentage for the production department remains more than 5% daily. But the company management needs to keep the daily absenteeism percentage as at or below 2%. From the analysis done for the type of absent majority of employees are taking leave without the approval of the management. Also majority of employees are not having a knowledge about the performance evaluation function of the company. So for a high level of productivity it is needed to keep the human resource of the company in a better position.

CONCLUSION

Main goal of this research investigate techniques to improve the productivity of the entire production

department. Whilst doing the research it was found that the company was unable to achieve the target labour productivity, due to the high level of absenteeism. The company target is to keep the daily level of absenteeism at 2%. But current situation is level of absenteeism remains more than 5% daily.

As the results of the research findings it is obvious that to enhance the productivity of the organization, it is essential control or eliminates the level absenteeism. Employees play a significant role in the productivity of an organization. Motivational techniques are some essential tool for an organization for their employee survival. Motivational techniques such as merit based pay, bonuses, incentive payments, effective performance appraisal, employee assistant programs, will easily enhance the satisfaction of employees.

So introducing a good performance appraisal method will be the best feasible solution for the organization.

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