

AN INVESTIGATION INTO THE INFLUENCE OF EDUCATIONAL AND SOCIOLOGICAL FACTORS OF SEWING MACHINE OPERATORS ON PRODUCTIVITY

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INTRODUCTION

Clothing industry is a labour intensive industry all over the world and the capital investment required to enter the clothing industry is low compared to many other industries. The present state of the global clothing industry could be characterised by the low through put time, high work-in-progress, higher quality, low cost, shorter product development, shorter delivery times, smaller order quantities etc. (Perera, 2006). Presently Sri Lankan clothing manufacturers face greater competition from other developing countries in South and South East Asia such as India, Bangladesh, Pakistan, Indonesia, Cambodia, Laos and Vietnam. In addition to that China has also emerged as a dominant force in the global clothing industry with its massive supply capability and relatively low labour costs compared with other countries.

(Values are in US \$ /hour)			
Country	1991	1993	2002
Bangladesh	0.11	0.16	0.4
India	0.25	0.27	0.6
Pakistan	0.24	0.27	0.4
Sri Lanka	0.35	0.39	0.5
China	0.24	0.25	0.7
Indonesia	0.18	0.28	0.3
Thailand	0.59	0.71	1.2
Italy	13.5	13.0	14.7
UK	7.99	10.0	12.7
USA	6.77	8.9	14.2

Table 1: Comparison of cost of labour (Joshi, 2002)

The cost of electricity related to the clothing industry is not the lowest in the region. Table 2 shows the costs of electricity related to the clothing industry in the region.

One of the most significant factors, which affect the competitiveness of the Sri Lankan garment industry, is low productivity. It has become evident that Sri Lankan clothing manufactures cannot compete on the basis of low labour costs alone (Table 1) and the emphasis has been shifted to improve the productivity of both labour and the manufacturing operation as a whole.

Cost of Electricity	
Country	US \$/ kwh
Sri Lanka	11.44
Indonesia	2.92
Singapore	5.43
India	8.01
Bangladesh	10.74

Table 2: Comparison of cost of electricity (Joshi, 2002)

In addition to the high labour and the electricity costs, the level of productivity among the Sri Lankan clothing industry is low. The average productivity level of the clothing manufacturing plants in China is more than 60 % (Kelegama, 2005). The productivity levels of 18 leading clothing manufacturing plants in Sri Lanka are given in the table 3. Most of clothing manufacturing plants have the productivity between 30% and 60% (Mataraarachchi, 2008).

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Productivity level	Less than 30%	30% to 60%	More than 60%
Large category apparel manufacturing organizations	0	7	2
Small & medium category apparel manufacturing organizations	2	7	0

Table 3: Productivity levels in selected plants (Mataraarachchi, 2008).

Therefore it is very important to improve the productivity levels in order to compete in the dynamic clothing market.

The objectives of this study are:

- to identify the educational & sociological factors that could affect the productivity of the sewing machine operators in Sri Lanka
- to investigate the influence of them on the productivity.

METHODOLOGY

- 1) A comprehensive literature survey was carried out to identify possible educational & sociological factors that could affect the productivity of the sewing machine operators.
- 2) Thereafter a questionnaire was designed and developed to gather the data related to educational & sociological factors to from sewing machine operators.
- 3) The questionnaire was tested using 45 sewing machine operators and it was improved by using the comments and the results.
- 4) A total number of 865 questionnaires were distributed among 10 clothing manufacturing plants in different districts in Sri Lanka. A convenient sampling method was selected.
- 5) The data was analysed to find out the influence of educational & sociological factors of sewing machine operators on the productivity.

DATA COLLECTION AND ANALYSIS

The letters S (less than 500 workers), M (between 500 to 1000 workers) and L (more than 1000 workers) were used to categorized the size of the manufacturing plants. Out of 865 questionnaires, 638 were received and 15 were rejected due to lack of information about the productivity details. The summary of the distribution and the receipt of questionnaires are given in the table 4.

Manufacturing plant	Category of Manufacturing plant	Amount distributed	Amount received	Usable amount
F (A)	L	120	86	86
F (B)	S	150	149	148
F (C)	M	100	56	50
F (D)	L	110	64	64
F (E)	M	110	58	55
F (F)	S	20	17	16
F (G)	M	110	52	50
F (H)	L	110	65	64
F (I)	M	110	71	70
F (J)	S	25	20	20
Total		865	638	623

Table 4: Summary of the distribution and the receipt of questionnaires

RESULTS AND DISCUSSIONS

The data was used to analyse the influence of formal education, vocational education, experience, gender, age and civil status on productivity. A brief analysis is given below.

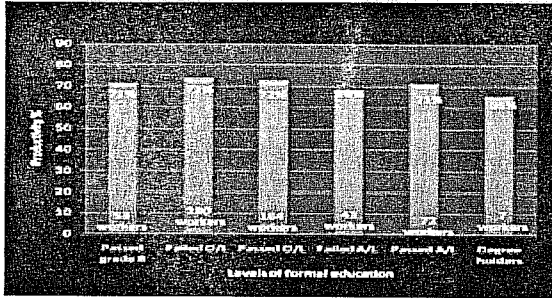


Figure 1: Productivity vs Formal education

The degree holders show the lowest productivity, but they are only 1.13% of the total population.

Those who have sat & failed the O/L (45% of the population) show the highest productivity of 73%.

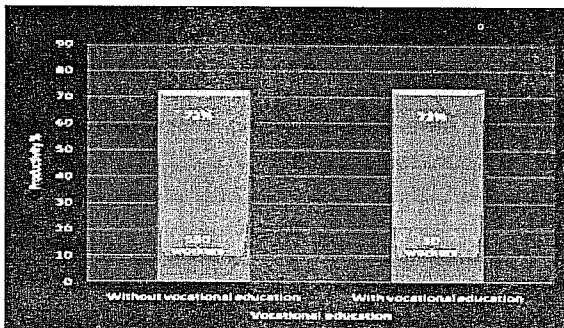


Figure 2: Productivity vs Vocational education

The sewing machine operators with vocational education show slightly higher productivity (1%) than the sewing machine operators without vocational education. Only 5% of the sewing machine operators have received vocational education.

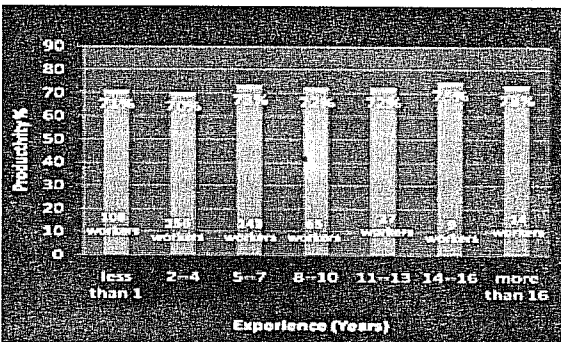


Figure 3: Productivity vs Experience

Sewing machine operators in the group 14-16 years of experience show the highest productivity (75%), but they are only 1.35% of the population.

The sewing machine operators with 5 years experience or more, show higher productivity than the sewing machine operators with less experience.



Figure 4: Productivity vs Gender

Male sewing machine operators show 3% higher productivity than the female sewing machine operators.

The number of male sewing machine operators is relatively lower than the female sewing machine operators.

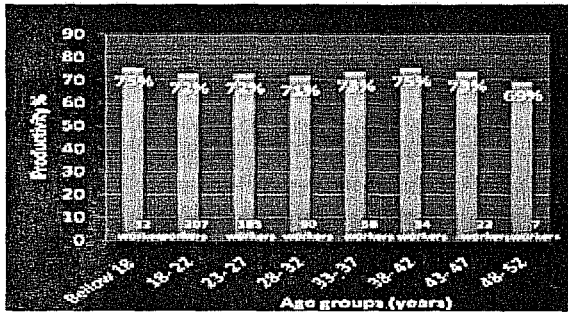


Figure 5: Productivity vs Age

Productivity of the age group below 18 years and the age group between 38-42 years is 75%, but they are only 7% of the population.

Sewing machine operators between the age 33 years and 47 years show the productivity of 73%



Figure 6: Productivity vs Civil status

Divorced or separated sewing machine operators show slightly higher productivity, but number of such sewing machine operators are relatively lower than the unmarried workers and married workers.

The unmarried & married workers have the same productivity of 71%.

CONCLUSIONS AND RECOMMENDATIONS

The productivity levels of Sri Lankan clothing manufacturers are low. The major opportunity they have to be competitive in the clothing business is to increase the productivity of their manufacturing plants.

There are many factors that could affect the productivity. In this research the influence of few selected educational and sociological factors on the productivity were studied. The findings of the research could be used to select ideal sewing machine operators to manufacturing plants. The clothing manufacturers could use the findings as a guide to select appropriate sewing machine operators. By doing so, the productivity could be increased. Furthermore, it is important to find out the interrelationships between the findings to improve the accuracy of the findings in future research work.

REFERENCES

- Joshi, G. (2002). Garment industry in South Asia: *Rags or riches?* Competitiveness, productivity and job quality in the post-MFA environment. South Asia Multidisciplinary Advisory Team (SAAT). International Labour Organization, New Delhi, India
- Kelegama, S. (2005). Ready-Made Garment Industry in Sri Lanka: Preparing to Face the Global Challenges. *Asia-Pacific Trade and Investment Review*.1(1): 51-66
- Matararachchi, R. (2008). An analysis of apparel exports from Sri Lanka. M.Sc. thesis, University of Moratuwa, Sri Lanka.
- Perera, M.E.R. (2006). *Einzel und Kleinserienfertigung der Bekleidungsindustrie*, Dissertation, TU Dresden, Fakultät für Maschinenwesen, Germany.