MEST JOURNAL
DOI 10.12709/mest.01.01.02.01

EFFICACY VERIFICATION OF SOME MOTIVATION STRATEGIES ON CLOTHING COMPANY EXAMPLE

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JEL category: **L60, M11, M12, M54**

Abstract

The goal of this study was to research the effects of different motivation strategies on the productivity of workers in a clothing industry. For this purpose an experimental research was conducted, which included 138 workers in clothing company, divided into three experimental groups. Standard productivity before research was used as a control group. The efficacy of motivation strategies was checked with regard to two basic questions: 1) differences in productivity of workers measured in natural form in regard to three different motivation strategies; 2) differences in profitability of researched motivation strategies calculated in money (currency EUR). As a matter of fact, it is stated that the best productivity results are obtained by means of material motivation strategy with stimulating pay (411.24 jackets produced per day), followed by motivation strategy of new job contracts and new job challenges (training and control of new workers') (407.10 jackets produced per day), and motivation strategy of new machines with job rotation (405.78 jackets produced per day), while the worst results were found in the control group used as standard comparison measure (without special motivation strategy, which means strategy of motivation according to the Labour Law), where the productivity was 400.20 jackets produced per day. The most profitable motivation strategy for the researched company were new job contracts and new job challenges, followed by the motivation strategy of new machines with job rotation, and economically the worst (in terms of profit) was the motivation strategy of stimulating pay.

Keywords: efficacy, motivation, motivation strategy, productivity, profitability, textile (clothing) industry

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1 INTRODUCTION

Motivation is an important subject area for researchers and practitioners of management all over the world, and the ability to motivate employees is a fundamental requirement of effective management in the workplace. According to the definition of motivation in organizational context, motivation concerns those psychological processes that arouse, direct and sustain the behaviour and performance (Greenberg & Baron, 1994). Work motivation is also one of the fundamental problems in the area of maximising the productivity and profitability, strenghtening the feeling of job satisfaction, work involvement and in energizing the working people. On the question why people work hard Robertson, Smith & Cooper, 1992 clearly answered that effort and performance at work are determined by ability, temperament and motivation. In this sense work motivation is an important problem in the construction of effective motivation system by means of establishing an effective motivation strategy. Motivation strategies can be very stimulative for work and productivity so they can strenghten the total organizational success and competitiveness. Namely, the goal of specific motivation strategy is to accomplish individual and group work motivation so that the workers, by accomplishing their own interests, at the same time accomplish the organizational goals (Buble, 2006). If management does not ensure the perception of workers about realisation of their personal goals, the accomplishment of organizational goals cannot be fully expected. It is therefore important for management to establish the harmony between organizational expectations and the expectations of workers. This is not simple because effective implementation of motivation strategy means creation of combined material and nonmaterial motivators, which is a complex matter because of several important aspects:

A. In practice there are numerous motivation theories and practical sugestions by which work motivation can be explained. Literature cites at least tens of relevant motivation theories and several techniques by which work motivation can be explained and practically implemented, such as: material rewarding, workdesign, work enrichment, work enlargement, management style, goal setting, flexibile worktime, recognition, congratulation, perfection, career development and similar techniques (Schultz & Schultz, 1990; McCormik & Ilgen, 1996; Greenberg & Baron, 1997; Beck, 2003; Gagne & Deci; 2005; Buble, 2006);

B. Work motivation is also a variabile rather than constant human characteristic, which needs various motivational adjustments through the time (Galetić & Pavić, 1996);

C. In an organization there is quite wide spectrum of motivation possibilites in the strategy formulation context, which opens up the question of optimal motivation strategy choice for each of real organizations (Milkovic & Boudreau, 1988; Bahtijarević-Šiber, 1999; Noe & all, 2006; Milkovic & Newman, 2006).;

D. Rational choice of motivation strategy does not depend only on its efficiacy measured in natural measures (productivity) but also on real cost of its implementation and conduction.

Therefore there is no universal effective solution in implementing motivation system/strategy, yet it depends on policies of each company and its specific solutions as answers to specific organizational needs. In the creation of effective motivation strategies material and nonmaterial compensations are usually used (also called motivation compensations) which can basically include (Marušić, 2006, 343; Buble, 2003, 149-152; Bahtijarević-Šiber, 1999, 614):

A. Material motivation compensations (salary, bonus, stimulating pay, benefit for innovations and improvements, benefit for knowledge spread and flexibility, benefit connected with organizational results and profit, other material benefits (stimulii), profit share, ownership share (distribution of stocks), fees, travel costs, representation costs - as direct material compensations; and social duty, pension fund, social assurance, life assurance, compensations for life and health improvements, payed holidays, payed annual leave and shorter

leave, sick-leave pay, material flat credit, nutrition on the job - as indirect material compensations);

B. Nonmaterial motivation compensations (challenging job, interesting tasks, responsibility on the job, self affirmation, education, promotion, achievement, social connections on the job, impact on company's policies, leading, partners on the job, status, condensed work week, flexible working time, work share, job rotation, job enlargement, job enrichment, ergonomical organization of the workplace (biosociopsycho arrangement of the workplace), specific job contracts and others techniques connected with the working conditions.

The basic question in the area of work motivation is to establish how the motivation system (material and nonmaterial motivation methods) can help in achieving economic success of certain enterprise. One of the ways is to research the motives of workers and according to them establish rewarding practice for achieving good motivation. According to the research of Croatian Economic Institute (2000) on the sample of 10 Croatian companies in different area of activity the main motivational factors were ranked as follows: 1. salary 83,5% (was on the top of workmotives); 2. good managers 82,2%; 3. interpersonal relationships 78,5%; 4. acceptance of fellow 75,4%; 5. continuity and security of jobs 72,8%; 6. interesting job 68,7%; 7. responsibility 68,6%; 8. work condition 67,3%; 9. ability affirmation 66,9%; 10. promotion 64,5%; 11. education besides work 62,2%; 12. company image 62,1%; 13. profitshare 60,4% (Marušić, 2006, 329-332). “Good wages”, “job security” and opportunity for advancement were top three work motivation factors in hotel industry research (Simmons & Enz, 1995 according Suliman & Al-Sabri, 2009, 87). Because of salient role of salary (money pay) this material motivation strategy should be included in every research on performance because of its compensation role (recovery of human organism) and motivation role (stimulation for better work). Since money is the oldest and generic factor of work motivation, its strong motivation effect is expected (Noe & all., 2006, Buble, 2006, 442). Also, in some research, salary was a superior motivation tool, it increased the performance for 30%, goal setting for 16% while job enrichment and workers' participaton were even lower (Locke, Feren, McCaleb, Shaw & Denny, 1980, according to Schultz & Schultz, 1990, 349). The following nonmaterial motivation factors and their motivation strength can be interesting for the purpose of research: job contracts (for a determinate or an indeterminate period of time, where the motivation comes from work stability and safety), job challenges (work enrichment), new working machines (in terms of their ergonomic adjustment to workers), job rotation (changes of working operations which are routine and monotonous by nature, by which this monotony can be reduced). Work stability and safety can be important motivation factor (on the fifth place of motivation factors in Croatian enterprises according to Marušić, 2006), especially in times of recession and economic crisis, when canceling job contracts (firing) is unavoidable. In this sense, workers prefer the job contracts on an indeterminate period of time, because they would come later on the firing list. In some researches, workers with job contracts on an indeterminate period of time showed statistically better efficacy than the workers with job contracts on a detereminate period of time (Žugaj & Bogdanović, 2009). Job enrichment and job rotation are standard techniques of job redesigning for motivation purposes (Schultz & Schultz, 1990, 359, Buble, 2006, 499-500). Also, good working conditions (good machines, temperature, humidity, airing, lighting, noise, vibrations, radiation, cleanliness, colours, tidiness and organization of the workplace, and other important conditions lead to good work attitude and regularly result in numerous benefits: higher productivity, better capacity utilization, higher coefficient of inventory turnover, shorter inventories period, reduced scrap, shorter production cycle, shorter delivery time, shorter delays, minimized idle run in production process, improved work energy and health in workers, lower rate of absenteeism, lower costs due to injuries at work and occupational diseases, lower rate of sick leaves, reduced fluctuation costs, and better work satisfaction and motivation in general (Bieneck, 2006; Bogdanović & Mateljak, 2011).

So, new machines can also be treated as techniques for designing the work conditions (effect of job enrichment) because they contribute to the biomechanic efficacy of work with motivation effects (Kroemer & Grandjean, 2000, Žaja, 1991). On this basis it can also be assumed that nonmaterial motivation strategies can show some good production effects and good effects on company profit. Motivation strategies can also have some efficacy limitations such as (Schultz & Schultz, 1990, Greenberg & Baron 1997, Gagne & Deci, 2005):

A. Some workers do not want to work to their full capacity (regardless to the motivation strategy) because there is a lack of trust in management. Namely, there can exist the fear that the production standards will be set too high, so they would be coerced to a very hard work for small bonuses;

B. Some working groups set their own working standards which represent "good daily work" and will not produce more regardless of the motivation strategy. Rather, they will nicely arrange their work in daily working time;

C. Efficacy of motivation strategy can vary in time. What was a good motivating strategy at the beginning time, could be less good by time passing. Therefore, to maintain the efficacy of motivation through the time, according to Adams's theory of justice underpaying and overpaying should be avoided (Greenberg & Baron, 1997);

D. According to the expectancy theory (Porter & Lawler, 1968 according to Gagne & Deci, 2005, 331) optimal motivation means the combination of extrinsic and intrinsic motivators (material and nonmaterial). Also, exstrinsic motivation can harm intrinsic motivation, so, for example, managerial pay must not discriminate high from low performance manager. So, extrinsic motivators (high pay) must not be the only ones that lead to higher performance and this also applies vice versa; namely, intrinsic motivators sometimes must not be the only ones leading to higher performance.

In this study, experimental research was conducted to see the effects of three introduced motivation strategies on the productivity of workers' in clothing industry. Specifically, the impact of one material strategy (stimulating pay) and two nonmaterial motivation strategies (new machines plus job rotation and new job contracts plus new job challenges) on productivity of workers' was measured. The following problems were identified:

1P - What is the impact of introduced motivation strategies on productivity of workers' in clothing industry?

2P - What kind of motivation strategies will result in the highest productivity?

3P - Which motivation strategy will result in the highest profit?

4P - What type of motivation strategy/strategies should be recommended according to the obtained results?

Hypothetical answers are offered for these problems:

1H - Just the introduction of motivation strategies (no matter of what kind) will have the impact on increased productivity of workers' in clothing industry;

2H - Stimulating pay as motivation strategy will have the strongest impact on productivity;

3H - Nonmaterial strategies will be economically better (result in greater profit) than material stimulating pay strategy;

4H - For optimizing the long-term company utility it is desirable to use the combination of researched nonmaterial and material motivation strategies (stimulating pay).

2 RESEARCH METHOD

For the purpose of establishing the effects of introduced motivation strategies on the productivity of workers' in clothing industry, experimental method with one control group (without special motivation strategy, apropos the strategy of compensations and working conditions according to the Labour Law) and three experimental groups, was adopted:

A) First experimental group – implementing the material motivation strategy (stimulating pay). The workers gained stimulating pay of 30% of their basic salary for a job well done;

B) Second experimental group – the workers were provided with new machines (machines for sewing and abrading) together with the weekly job rotation;

C) Third experimental group – the workers' signed new job contracts (for an indeterminate period of time), and they were given greater responsibility by means of job enrichment in the sense of training and control (monitoring) of new workers';

D) Control group/standard productivity – was a group used to compare standards, which means the productivity before introducing any motivation strategies (material compensations according to the existing Labour Law).

Thus, for each experimental group a different motivation strategy is chosen (different motivation elements) which is shown in table 1.

Table 1. Experimental groups and motivation strategies

Experimental group	Motivation strategy
I	Stimulating pay
II	New machines and job rotation
III	New job contracts and new job challenges

Source: Documentation of the researched company

The basic material strategies prescribed by the existing Labour Law were used as a control group (standard measure needed for the comparison with experimental groups). According to this Law the workers in the control group were entitled to receive salary for their work, consisting of:

- Basic salary of the working place on which workers' work (the lowest basic salary for the lowest level of work complexity was approximately 146 EUR), for the full time work of 40 working hours per week, including break of 30 minutes per working day which was counted in total working hours);
- Additional pay for working internship;
- Additional pay for particular (heavier) work conditions;
- Stimulating pay – additional pay for the work which is greater than average (normal) in quality and quantity.

In the control group, except the minimum conditions prescribed by the Labour Law other forms/strategies of work motivation were not present. Because of this it can be expected that the implementation of new motivation strategies will reflect on work productivity in the researched company. The experiment was conducted in the time interval of two months and seven days, apropos 66 days (between 24 April 2010 and 01 July 2010) in the hall for sewing jackets where the work was divided into:

- Work on machines, the workers' work with normal machines (OS), sewing machine or special machine (SS);
- Work with iron box, steam iron box and press (GL);
- Manual work (RR), work of cutting, knitting, cleaning the fibre and
- Work on opening packages of sewing material, work on opening and distribution of material from a tailor room (this work was not included in the experiment).

2.1 Research participants

The experiment was conducted in the hall for sewing jackets with 138 participants (workers') divided into 3 experimental groups. Out of 138 workers', 131 or 94.92% were female and 7 or 5.08% were male. 57 workers' who worked with machines (36 workers' who worked with normal machines and 21 workers' who worked with special machines), together with 33 workers' who worked with iron box and 48 manual workers' directly participated in the experiment. For the

need of experiment record keeping, 10 additional workers' called "registers" were engaged in the period of two months. Their job was to keep record of time spent for doing some specific operations needed for the production of a standard jacket. Because the company produces different models of jackets, for the need of experiment they measured only the time needed for making a standard jacket. Each experimental group consisted of 19 workers' who worked with machines (12 with normal ones and 7 with special ones), 11 workers' who worked with iron box and 16 manual workers' (table 2).

Table 2. Research experimental groups

	Work with normal machine	Work with special machine	Work with iron box	Manual work	TOTAL
Experimental group I	**N=12**	**N=7**	**N=11**	**N=16**	**N=46**
Experimental group II	**N=12**	**N=7**	**N=11**	**N=16**	**N=46**
Experimental group III	**N=12**	**N=7**	**N=11**	**N=16**	**N=46**
Total	**N=36**	**N=21**	**N=33**	**N=48**	**N=138**

Source: Documentation of the company

2.2 Research instruments

For the purpose of measuring time needed for the production of a standard jacket, stopwatch clocks were used. Time for performing specific working operations (there are 187 specific technological working operations needed to produce one standard jacket) is registered in the protocol (diary of working operations) specially designed for this purpose. Measuring was conducted by hired and for that purpose paid "registers" (N=10).

2.3 Research procedure

Due to simplification of administration, production of one standard jacket is reduced from 187 specific operations to 9 major operations. All three experimental groups worked at the same time on the jobs which together constitute the final product – standard jacket. The time schedule in the experiment is shown in table 3.

Thus, for example, from 26 April 2010 until 17 May 2010 the first experimental group worked only on the following jobs: handling the coating, handling the collar and cigar batten.

Table 3. Time schedule of experiment executing

	Time of experiment conduction		
	26 April to 17 May 2010	17 May to 07 June 2010	07 June to 01 July 2010
Group I	1. Handling the coating 2. Handling the collar 3. Handling the cigar batten	4. Handling the bottom pocket 5. Handling the shoulder 6. Handling the sleeves with slit	7. Handling the obverse of the jacket 8. Handling the buckram 9. Montage of the jacket
Group II	4. Handling the bottom pocket 5. Handling the shoulder 6. Handling the sleeves with slit	7. Handling the obverse of the jacket 8. Handling the buckram 9. Montage of the jacket	1. Handling the coating 2. Handling the collar 3. Handling the cigar batten
Group III	7. Handling the obverse of the jacket 8. Handling the buckram 9. Montage of the jacket	1.Handling the coating 2. Handling the collar 3. Handling the cigar batten	4. Handling the bottom pocket 5. Handling the shoulder 6 Handling the sleeves with slit

Source: Documentation of the company

From 17 May until 07 June 2010 the same experimental group worked on the following jobs: handling the bottom pocket, handling the shoulder and handling the sleeves with slit. From 07 June until 01 July 2010 the same experimental group worked on the following jobs: handling the obverse of the jacket, handling the buckram and montage of the jacket. Each experimental group worked according to the schedule presented in table 3, on every operation

needed for the production of the standard jacket, so each group worked in the same total time duration. During the performance of each operation, every single operation time (in seconds) was measured and registered, so in the end of each period the average time for each operation was calculated. Every three weeks the groups changed their work duties, so each group worked on all operations needed to produce a jacket in equal period of time. Times of experimental groups for each operation were added so the new time for producing the jacket according to impact of motivation strategy was obtained. New time for producing the jacket according to the experimental group served as comparison to the control group/standard. So, the impact of independent variable (motivation strategy) on the dependant variable (productivity in the production of one standard jacket) was established.

3 RESEARCH RESULTS

3.1 Research results of control group/standard: analysis of existing work productivity

On 138 clothing workers' in one sewing hall involved in the experiment, one technologist was also hired. His work was to establish the time of each operation and then the time of all operations (sum in seconds) needed to finish one standard jacket. The document which was made by technologist was called manufacturing catalogue. The manufacturing catalogue describes one kind of jacket that is to be made, describes all manufacturing operations, and tells the time needed for each specific operation. All the manufacturing times were measured in seconds, than summarized in a way that the total time needed for manufacturing of one jacket is clear. The time of manufacturing of one jacket is divided by the number of effective working hours (7 hours per day) which results in the number of jackets produced per day and per worker. The mentioned manufacturing catalogue is, according to the working theory of value (the value of a product is a function of needed working time for its production), expressed in seconds as needed working time, which is presented in table 4. In the table 4 it can be seen that the production of one standard jacket needed 8693 seconds or app. 145 minutes (144.72 minutes is rounded to 145 minutes and this is so called standard time of manufacturing). Effective working time of the company is 7 hours or 420 minutes per working day. When we divide effective minutes (working time of one worker) with 145 minutes of work needed for the production of one jacket, we get 2.90 jackets per worker, which is the productivity of one worker. Thus, one worker from control group (standard production) in his working day produces in average 2.90 jackets.

Table 4. Manufacturing catalogue for manufacturing the standard jacket expressed in seconds

Number of operation	OPERATION DESCRIPTION	OS	SS	GL	RR	
1.	Handling the coating	658	252	93	167	
2.	Handling the collar	242	229	180	101	
3.	Handling the cigar batten	11	0	69	30	
4.	Handling the bottom pocket	14	64	66	136	
5.	Handling the shoulder	99	50	29	9	
6.	Handling the sleeves with slit	559	200	281	165	
7.	Handling the obverse of the jacket	517	226	449	318	
8.	Handling the buckram	0	169	26	29	
9.	Montage of the jacket	485	1051	614	1105	
	TOTAL	2585	2241	1807	2060	∑=8693

Source: Research results

Bookmark: OS-work on the normal machine; SS-work on the special machine;
GL-work with iron box; RR-manual work

When we multiply number of working hours with workers' productivity we get planned production per day (2.90 x 138 = 400.20 jackets per day). So, without special motivation strategy (with respect to the Labour Law) productivity of control group was at the level of 400.20 jackets per day.

3.2 Research results of the Experimental group I

After nine weeks of measuring and registering the results the manufacturing time needed for each operation and the difference between the new and standard manufacturing time were established. This is shown in table 5.

The material motivation strategy (stimulating pay) was implemented on the first experimental group. This is the strategy in which the workers for a job well done received stimulating pay of 30% of the basic salary. The greatest decline in manufacturing time was 47 seconds and it was registered during the operation of montage of the jacket, and the lowest decline in manufacturing time was 10 seconds and it was registered during the operations of handling of shoulder and handling the cigar batten. The horizontal analysis showed us that the manufacturing time of one jacket declined for 2.82%, so for the production of one jacket we needed 245 seconds less than in the conditions of standard manufacturing time (without any special motivation strategy). The productivity of a worker after the application of this motivation strategy was 2.98 jackets per day or 2.98x138=411.24 jackets per day, which is more than the standard jacket production per day (400.20 jackets).

Table 5. Manufacturing time for standard jacket expressed in second for Experimental group I

GROUP I	Standard time for manufacturing (SV)				New time for manufacturing (NV)				Difference between SV and NV
OPERATION DESCRIPTION	OS	SS	GL	RR	OS	SS	GL	RR	
Handling the coating	658	252	93	167	644	239	88	158	-41
Handling the collar	242	229	180	101	232	220	174	91	-35
Handling the cigar batten	11	0	69	30	9	0	66	25	-10
Handling the bottom pocket	14	64	66	136	12	60	63	127	-18
Handling the shoulder	99	50	29	9	93	47	28	9	-10
Handling the sleeves with slit	559	200	281	165	545	190	272	160	-38
Handling the obverse of the jacket	517	226	449	318	505	219	440	311	-35
Handling the buckram	0	169	26	29	0	161	25	27	-11
Montage of the jacket	485	1051	614	1105	473	1035	609	1091	-47
TOTAL	2585	2241	1807	2060	2513	2171	1765	1999	∑=-245

Source: Research results

Table 6. Manufacturing time for standard jacket expressed in second for Experimental group II

GROUP II	Standard time for manufacturing (SV)				New time for manufacturing (NV)				Difference between SV and NV
OPERATION DESCRIPTION	OS	SS	GL	RR	OS	SS	GL	RR	
Handling the coating	658	252	93	167	650	247	91	165	-17
Handling the collar	242	229	180	101	229	218	179	100	-26
Handling the cigar batten	11	0	69	30	8	0	68	30	-4
Handling the bottom pocket	14	64	66	136	10	59	66	136	-9
Handling the shoulder	99	50	29	9	95	46	29	9	-8
Handling the sleeves with slit	559	200	281	165	550	194	280	165	-16
Handling the obverse of the jacket	517	226	449	318	510	220	448	317	-15
Handling the buckram	0	169	26	29	0	164	25	29	-6
Montage of the jacket	485	1051	614	1105	476	1038	612	1100	-29
TOTAL	2585	2241	1807	2060	2529	2183	1798	2050	∑=-130

Source: Research results

Table 7. Manufacturing time for standard jacket expressed in second for Experimental group III

GROUP III	Standard time for manufacturing (SV)				New time for manufacturing (NV)				Difference between SV and NV
OPERATION DESCRIPTION	OS	SS	GL	RR	OS	SS	GL	RR	
Handling the coating	658	252	93	167	654	247	88	160	-21
Handling the collar	242	229	180	101	238	225	177	95	-17
Handling the cigar batten	11	0	69	30	9	0	66	25	-10
Handling the bottom pocket	14	64	66	136	12	60	63	134	-11
Handling the shoulder	99	50	29	9	93	47	28	9	-10
Handling the sleeves with slit	559	200	281	165	555	190	276	161	-23
Handling the obverse of the jacket	517	226	449	318	510	219	446	314	-21
Handling the buckram	0	169	26	29	0	161	25	29	-9
Montage of the jacket	485	1051	614	1105	478	1039	609	1092	-37
TOTAL	2585	2241	1807	2060	2549	2188	1778	2019	∑=-159

Source: Research results

3.3 Research results of the Experimental group II

For the second experimental group new sewing machines (of the same sort as in standard control conditions) were provided, as well as other special machines with job rotation. The manufacturing times in these motivation conditions are shown in table 6. It can be noted from table 6 that the manufacturing time is usually declining when machines are used, while the time of manual work remains identical. The greatest decline in manufacturing time is noted in the operation which greatly uses machines such as montage of the jacket. The horizontal analysis shows that the total decline for the jacket production time was about 1.49%. The new productivity was 2.94 jackets per worker. By means of this motivation strategy 2.94 x 138=405.78 jackets per day were produced, which was also better than standard (400.20 jackets).

3.4 Research results of the Experimental group III

The third experimental group consisted of workers with whom new job contracts were signed and new job challenges settled. The manufacturing time for each operation in the implementation of this motivation strategy is shown in table 7.

After signing new job contracts and settling new job challenges (techniques of job enrichment), the third experimental group recorded 159 seconds better performance in comparison to standard jacket manufacturing time. The greatest decline in manufacturing time is noted during the operation of montage of the jacket. Here the new manufacturing time was 37 seconds better than in the standard conditions. The lowest manufacturing time decline was noted during the operation of the handling the buckram (9 seconds). .

Table 8. Total results of experiment by experimental groups

GROUP	Percent of diminishing time of manufacturing	Productivity of work (produced jackets per worker)	Production per day (productivity per worker x number of workers)
CONTROL (standard production)	0.00%	2.90	400.2
Experimental group I	2.82%	2.98	411.24
Experimental group II	1.49%	2.94	405.78
Experimental group III	1.86%	2.95	407.10

Source: Research results

The horizontal analysis showed that the jacket production time declined for 1.86%. The new working productivity was 2.95 jackets per worker per day, which was also better than the standard (407.10 vs. 400.20 jackets). In the table 8 all experiment results are presented. What can be clearly seen from the obtained results is that the implementation of both, material or nonmaterial motivation strategy, has had the impact on the increase of workers' productivity.

In all three experimental groups the positive increase of workers' productivity is registered and therefore the total production of jackets per day. This proves the main **first hypothesis** that only the introduction of the motivation strategies has the impact on the workers' productivity level in the company. The greatest growth of work productivity was registered by using the material motivation strategy (stimulating pay) with 411.24 jackets produced per day. It is clear that nonmaterial motivation strategies where lower in productivity so there was lower number of produced jackets. So, by using the second experimental motivation strategy (new machines and job rotation) the produced amount of jackets was N=405.78 per day, and by using the third experimental motivation strategy (new job contract and job challenges) the produced amount of jackets was N=407.10 per day which was somewhat lower than the material motivation strategy in the first experimental group N=411.24. This result proves the **second hypothesis**, which confirmed that the greatest productivity was measured by using the stimulating pay motivation strategy. The **third hypothesis** about economic value of each strategy is discussed in chapter below under economic consideration of each motivation strategy, and the **forth hypothesis** that tells about needed combination of material and nonmaterial motivation strategies for optimizing the future productivity is affirmed in the discussion part.

3.5 Economic consideration of implemented motivation strategies

For the practical implementation of motivation strategies a very important question is which strategy is economically better. For example, is the strategy of stimulating pay (whose costs amount to 30% on basic salary) reasonable or is it better for the company to implement other economically more profitable motivation strategies (other nonmaterial motivation strategies)?

By doing the calculation we come to the results of economic effectiveness (profitability) for each of the motivation strategies.

Table 9. The projected enlarged economic benefit of clothing company by the means of the three implemented different motivation strategies on monthly level

Experimental Group	Enlarged number of produced jackets in comparison with control group –standard (X–400.20)	Enlarged revenue	Enlarged costs (stimulating pay)	Financial balance/profit (Total enlarged revenue – total enlarged cost)
Group I	**11.02**	**6303.44 EUR**	**6072.00 EUR**	**231.44 EUR**
Group II	**5.58**	**3191.76 EUR**	**0 EUR**	**3191.76 EUR**
Group III	**6.90**	**3946.80 EUR**	**0 EUR**	**3946.80 EUR**

Source: authors' calculation

Remark: *For all the calculations it is assumed that in one month there are in average 22 working days and that a wholesale trade price of one standard jacket is on the level of 26 EUR.*

3.5.1 Motivation strategy of stimulating pay

On the revenue side (TR= Q x P)[1] : 11.02 (produced jackets more in comparison to standard) x 22 working days per month (average) = 242.44 jackets per month (more) x 26 EUR (estimated price per jacket) = 6303.44 EUR (monthly more).

[1] Total revenue of applied motivation strategy = greater produced quantity than the standard x wholesale trade price of one jacket (estimation).

On the cost side (TC = stimulating part of pay x number of workers) = 44 EUR per month of stimulating pay x 138 workers = 6072 EUR (monthly more).

Financial balance/profit of motivation strategy = Total increased revenue - total increased costs = (6303.44 – 6072 = 231.44 EUR).

So, by introducing the material stimulating pay it is calculated that the company will achieve the positive financial balance/profit of 231.44 EUR per month per working group of 138 clothing workers.

3.5.2 Motivation strategy of new machines plus job rotation

With the motivation strategy of experimental group 2 (new machines and job rotation) the enlarged financial balance in comparison with standard (400.20 jackets per day) would be 5.58 (produced jackets more per day) x 22 (average working days in one month) = 122.76 (produced jackets more in one month) x 26 EUR=3191.76 EUR (because the cost of stimulating pay is not present). So, the company would by means of this motivation strategy achieve the economic benefit/profit of 3191.76 EUR, which is better than the strategy of stimulating pay.[1]

3.5.3 Motivation strategy of new machines plus job rotation

With the motivation strategy of experimental group 3 (new job contracts and new challenges) the enlarged financial balance in comparison with standard would be 6.90 (produced jackets more per day) x 22 (average working days in one month) = 151.80 (produced jackets more in one month x 26 EUR = 3946.8 EUR (because the cost of stimulating pay is not present). The company would by means of this motivation strategy achieve the economic benefit/profit of 3946.8 EUR which is the best motivation strategy for the company regarding the achieved economic benefit. Summary of all economic repercussions of three different motivation strategies implemented is shown in table 9.

On the basis of presented calculations it can be summarized that in economic sense (profit) third motivation strategy (new job contracts and new job challenges) is the best one. Also, the second nonmaterial motivation strategy (new machines and weekly job rotation) was more profitable strategy than the strategy of stimulating pay. Reason for this was that nonmaterial motivation strategies did not have enlarged costs of their implementation. This result confirmed the **third hypothesis**.

4 DISCUSSION OF RESEARCH RESULTS

Only the implementation of motivation strategies has resulted in better productivity. Namely, the control group had 400.20 jackets produced per day, and other experimental groups were better (E1=411.24; E2=405.78; E3=407.10), which proved the **first hypothesis**. This effect is known since the time of Hawthorn studies in the Western Electric Company in the USA where the productivity of workers increases regardless of independent variable impact, such as illumination, temperature, humidity (McCormick & Ilgen, 1996). According to this fact, only the introduction of new work techniques and increased dealing with the workers (psychosocial component of working conditions) by means of communication, human relationships, moral and motivation can increase the performance, which probably happened in the conducted experiment. The differences in the productivity in different experimental situations can be at least partly attributed to the effect of such non-systematic variable, and not only to the effect of independent variables. In such a context it would be interesting to follow and examine if after the elimination of all the changes (motivation strategies) the performance of the groups would

1 In the researched company the costs of machinery replacement were not included because they were treated as amortizations costs. This real amortizations costs (for machinery replacement purpose) are included in accounting system as monthly costs of amortization (deminished monthly value of machinery calculated by time method). Amortizations costs calculated by time method, were payed every month, and this sum of money by time (for example in 10 year or 120 month what is for example duration of machinery) create a fund from which was financed the machinery replacement in this research. Therefore this costs should not be connected with costs of motivation strategy.

remain the same, decline or grow, as was the case in the original Hawthorne research (Schultz & Schultz, 1990, 13). Material motivation strategy (stimulating pay) showed the production growth from 2.90 to 2.98 jackets per worker per day, while the nonmaterial motivation strategies showed lower growth of productivity from 2.90 to 2.94 jackets per worker per day, which was registered in the second experimental group, and the growth from 2.90 to 2.95 jackets per worker per day which was registered in the experimental group III. These results proved the **second hypothesis**, so the material motivation strategy (stimulating pay) in comparison with nonmaterial motivation strategy had stronger effect on the productivity growth in the researched company. According to the results from the Economic Institute from Zagreb, Croatia, the salary (material compensation) was the first ranked motivation factor (Marušić, 2006, 332; Simons & Enz, 1995 according to Suliman & Al-Sabri, 2009, 87), so the highest motivation engagement could be expected as a fact of increased motivation by means of money stimulation, measured by productivity. Material motivation factor in the research was stimulating pay, while nonmaterial motivation factors were new job contracts and new job challenges as well as the work on new machines and job rotation. When we compare the effect of material factor (stimulating pay) in regard with nonmaterial factors, then we can calculate the work productivity which is higher in the material motivation factor than in the nonmaterial motivation factors. Namely, material motivation factor in regard of nonmaterial motivation factors had stronger effect on the productivity (411.24 jackets produced per day) in comparison with nonmaterial motivation factors (405.78 apropos 407.10 jackets produced per day). These findings can be expected because the clothing workers' are in general lower-paid category of workers' (this is the characteristic of work intensive industry, to which the clothing industry belongs), so material motivation incentives can have stronger effect on the motivation. It is also an interesting finding that motivation strategy of job enrichment and giving greater responsibility (experimental group III) showed somewhat more effective than new machines plus job rotation (407.10 to 405.78 jackets produced). Thus, if we discuss the individual economic adequacy, apropos the use of individual strategies, the motivation strategy of the experimental group III can be considered as better than strategy of the experimental group II (new machines plus job rotation). The shortage of this research, when it comes to the effects of new machines and job rotation is that their individual effects cannot be separated so it is still unclear what would be the effect of job rotation alone on the work productivity. Of course, in practical implementation in the context of productivity growth it would be good to combine these two nonmaterial motivation strategies, because they do not require additional financial load to the company. Analysis of economic benefit/profit of each of motivation strategy confirmed the **third hypothesis**. This analysis showed that strategy III is the most profitable for the company (3946.80 EUR), followed by strategy II (3191.76 EUR) while the least profitable strategy was strategy I (231.44 EUR), because of relatively high costs related to the stimulating pay. What also needs to be discussed is that the obtained experimental results could degenerate in time during practical application, if the salary stays low, which could lead to dissatisfaction (according to Herzberg theory where the salary is the basic hygienic factor, so if it is perceived low it could provoke dissatisfaction) so the production can be returned to the standard level or even below it. The effect of group norms and group standardization on the productivity level below maximum effort is not an insignificant factor, because of distrust towards management and possible belief that management can request maximum working effort for minimum bonus (Schultz & Schultz, 1990, 351). This possibility was not additionally measured in the experiment, although this could have a significant effect on the results obtained, and also on the implementation of an optimal motivation strategy. Namely, since the Hawthorne experiment, the social nature of work is often crucial for productivity (Baron & Birne, 1997). If we take into account the economic crisis and the recession in the Balkans and EU economies, and the fact that there is a lack of financial resources in companies, the choice of the best motivation strategy could be the most profitable option in the short term, but this could not be the best strategy in the long term. Because of the lack of financial

resources and relatively high costs of work related to the material motivation strategy it could be expect that the company management decides to implement nonmaterial motivation strategies, which means new job contracts and job enrichment by new challenges, job rotation and eventually new machines in the context of their regular change, which could be simultaneously effective in the motivation sense. Such nonmaterial motivation strategies cause minimal financial cost, but make the job interesting, heterogeneous and challenging. Also, the above mentioned nonmaterial strategies can be good supplement to the regular change of depreciated machines. Although the implementation of material motivation strategy with stimulating pay cannot be considered as optimal strategy (due to high costs of stimulating pay), in order to prevent dissatisfaction it is recommended to incorporate this material strategy as well. If this strategy is financially not completely applicable, then perhaps it is possible to create somewhat smaller stimulating pay in order to establish confidence between workers and management. For example, it is possible to introduce premium system of stimulation instead of linear proportional stimulation system for all good performances (for example, 20% greater performance gives 40 EUR of stimulation pay, 25% of greater performance gives 60 EUR, and so on). Such system would stimulate only very high performance optimizing the cost effectiveness of this motivation strategy. The **forth hypothesis** can be approved by this explication, so it is advisable to use the combination of material and nonmaterial motivation strategies for the optimization of long-term efficacy.

CONCLUSIONS

The purpose of this work was to establish the impact of motivation strategies on the work productivity in a clothing company (1683 workers), and to choose the best one. The basic motivation strategy before the beginning of the experiment was the one prescribed by the Labour Law which basically defined compensations, so no other motivation strategy for stimulating the workers was implemented. The results of the experiment discovered that all three experimental groups showed positive influence of motivation strategies measured by the work productivity, which proved the **first hypothesis**. So all implemented motivation strategies showed greater impact on work productivity. Anyway, the effective motivation strategy in the sense of productivity was material motivation strategy (stimulating pay) which was better in productivity than nonmaterial strategies, and nonmaterial strategies were better than control group/standard which proved the **second hypothesis**. Specifically, the implementation of material motivation strategy by stimulating pay resulted in 411.24 jackets produced per day, followed by nonmaterial motivation strategies: a) new job contracts and new job challenges with 405.78 jackets produced per day; b) new machines plus job rotation with 407.10 jackets produced per day. The lowest production was in the control group (without special motivation strategy, apropos the motivation strategy according to the Labour Law) with 400.20 jackets produced per day. Analysis of the financial effects (profit) of each motivation strategy showed that the most profitable one was the nonmaterial strategy of new job contracts plus new job challenges with the enlarged economic benefit of 3946.50 EUR per month. It was followed by the motivation strategy of new machines plus job rotation with enlarged benefit/profit of 3191.76 EUR per month, and economically the worst motivation strategy was the strategy of stimulating pay (the best strategy when it comes to the productivity) with enlarged benefit/profit of 231.44 EUR because of relatively high cost of work related to the stimulating pay. This result gave us the answer on the **third hypothesis.** If we discuss the acceptability of each individual motivation strategy we can conclude that nonmaterial motivation strategy of new job contracts and new job challenges together with the strategy of new machines plus job rotation was good in the context of productivity growth, especially in the context of cost-effectiveness (because they do not cause any additional costs). Because of that fact (not increasing the working costs) these strategies are attractive for management, and the work with new machines can be used as motivating strategy (without any financial costs) by the ordinary change of depreciated machines. The

conclusion which can be made on the basis of presented research results is that the productivity growth in work intensive industry such as clothing industry can be achieved in the fastest possible way by the implementation of material motivation strategy. Because of the higher working costs needed to compensate the stimulating pay, it may be cost-effective for the company and management to choose nonmaterial motivation strategies, although their sole implementation, if material needs of workers are not taken into consideration, can produce dissatisfaction and motivation decline, so the optimal motivation strategy should require their combination. Because of the complexity of work motivation and its broader connection with more complex factors (individual characteristics, social characteristics, job characteristics and organizational characteristics), in the context of preventing the possible dissatisfaction of workers (low salary and inappropriate stimulating motivation strategies) it is suggested that the motivation package should also include the material motivation strategy. If such stimulating pay represents temporary financing and is not completely applicable then it is perhaps possible, instead of the linear proportional stimulation system for all good performances, to introduce the premium system of stimulation (for example 20% greater performance gives 30 EUR stimulation pay, 25% greater performance gives 60 EUR, and so on). Such system would stimulate only very high performance and so could optimize the cost effectiveness of this motivation strategy. The **forth hypothesis** can be approved by this explication, so it is advisable to use the combination of material and nonmaterial motivation strategies for the optimization of long-term efficacy.

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Received for publication: 24.04.2013
Revision received: 06.06.2013
Accepted for publication: 21.06.2013

How to cite this article?

Style – **APA** *Sixth Edition:*

Bogdanović, M., & Filipović, I. (2013, 07 15). Efficacy verification of some motivation strategies on clothing company example. (Z. Čekerevac, Ed.) *MEST Journal, 1*(2), 1-15. doi:10.12709/mest.01.01.02.01

Style – **Chicago** *Fifteenth Edition:*

Bogdanović, Mario, and Ivan Filipović. "Efficacy verification of some motivation strategies on clothing company example." Edited by Zoran Čekerevac. *MEST Journal* (MESTE) 1, no. 2 (07 2013): 1-15.

Style – **GOST** *Name Sort:*

Bogdanović Mario and Filipović Ivan Efficacy verification of some motivation strategies on clothing company example [Journal] = Efficacy verification of some motivation strategies // MEST Journal / ed. Čekerevac Zoran. - Belgrade : MESTE, 07 15, 2013. - 2 : Vol. 1. - pp. 1-15.

Style – **Harvard** *Anglia:*

Bogdanović, M. & Filipović, I., 2013. Efficacy verification of some motivation strategies on clothing company example. *MEST Journal,* 15 07, 1(2), pp. 1-15.

Style – **ISO 690** *Numerical Reference:*

Efficacy verification of some motivation strategies on clothing company example. **Bogdanović, Mario and Filipović, Ivan.** [ed.] Zoran Čekerevac. 2, Belgrade : MESTE, 07 15, 2013, MEST Journal, Vol. 1, pp. 1-15.