

# Motivational factors impact the labor productivity of customs' officials in Vietnam

## Factores motivacionales impactan la productividad laboral de los oficiales aduaneros en Vietnam

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### ABSTRACT

The study primordially focuses on the critical analysis of the extrinsic factors affecting the work productivity of customs officers in three major provinces in Vietnam. In this research undertaking, the investigators purposively evolved a model theory after a careful, thorough and an extensive analysis on the multifarious factors that impact the productivity of Vietnam's customs officers with reference to their perceived tasks. The researchers used a descriptive research using a survey floated to 190 customs officers connected in 34 Customs Departments in various provinces in the Central, Northern and Southern regions of Vietnam since last April 2017 and 2018 respectively. By performing the multivariate regression analysis, the researchers were able to provide a clear account and predictions following the Binary logistic regression. The results show that there are five major factors, which have positively and statistically bear significant effects on the productivity level of the respondents, which include the following: (i) customs modernization; (ii) working time of customs officers; (iii) the knowledge and skills of customs operations for customs officers; (iv) motivation and attitude of customs officers; (v) working conditions. The research also analyzes and suggests possible solutions.

**Key words:** work productivity, custom's officers, customs modernization program and Binary Logistics Regression

### RESUMEN

El estudio se centra principalmente en el análisis crítico de los factores extrínsecos que afectan la productividad laboral de los funcionarios de aduanas en tres provincias principales de Vietnam. En esta tarea de investigación, los investigadores desarrollaron deliberadamente una teoría modelo después de un análisis cuidadoso, exhaustivo y extenso sobre los múltiples factores que afectan la productividad de

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los funcionarios de aduanas de Vietnam con referencia a sus tareas percibidas. Los investigadores utilizaron una investigación descriptiva utilizando una encuesta que se distribuyó a 190 funcionarios de aduanas conectados en 34 departamentos de aduanas en varias provincias de las regiones central, norte y sur de Vietnam desde abril de 2017 y 2018 respectivamente. Al realizar el análisis de regresión multivariante, los investigadores pudieron proporcionar una cuenta clara y predicciones después de la regresión logística binaria. Los resultados muestran que hay cinco factores principales, que tienen efectos positivos y estadísticamente significativos en el nivel de productividad de los encuestados, que incluyen lo siguiente: (i) modernización aduanera; (ii) tiempo de trabajo de los funcionarios de aduanas; (iii) el conocimiento y las habilidades de las operaciones aduaneras para los funcionarios de aduanas; (iv) motivación y actitud de los funcionarios de aduanas; (v) condiciones de trabajo. La investigación también analiza y sugiere posibles soluciones.

**Palabras clave:** productividad laboral, oficiales de aduanas, programa de modernización de aduanas y regresión logística binaria.

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## 1. Introduction

There is no other way to lift up the workers from the ruin of poverty and relieve the stress of employees of any given organization other than making them highly productive in their respective unit or department. Thus, the ASEAN (Association of Southeast Asian Nations) Ministers and high –ranking officials from various countries involved in this study were one in their objective and mission to discuss and find solutions by coming out with doable strategies that will accelerate the human capital development through an integrated policy, investments and innovative policy reforms (See the World Bank Report) Sept 2019. The American Chamber of Commerce Vietnam in coordination with the Ministry of Planning and Investment asserted that the labor productivity in Vietnam has improved but its level of productivity is still low compared to its ASEAN counterparts. (Labor productivity in Vietnam needs to catch up with ASEAN neighbors). The Customs Department in Vietnam is one of the many divisions of the Vietnam government whose officers must be motivated to level up their productivity in order to achieve its goal of hitting a bigger export-import rate bigger than the 480.16 billion dollars as per their achievement last year.

At the General Conference in Hanoi held last August 2019 which was attended mostly by top government officials in Vietnam was spearheaded by His Excellency Prime Minister Nguyen Xuan Phuoc and his Deputy Prime Minister Vu Duc Dam. They came out with some palatable recommendations on matters of improving the national labor productivity of the country. Among those important recommendations elicited by the government practitioners and administrators were : To establish an effective incentive mechanism that will attract experts and well –experienced talents and managers within and outside of Vietnam and the other one is for the national government and local government of Vietnam to heighten the quality of education of Vietnamese workers and the government machinery human resources in aid of an improved technology in order to provide quality services to its people.

Statistical data from 2011 to 2018 indicates that Vietnam’s total export-import turnover has increased continuously in both absolute and relative value. The average annual growth rate reaches 13.11%, equivalent to average worth of 322.67 billion dollars per year, particularly with the achievement of 351.38 billion dollars in 2016 and 428.14 billion USD in 2017 and 480.16 billion dollars in 2018. Furthermore, the responsibility of generating more revenue collection has dramatically increased from 270,000.00 billion VND in 2016 , 285,000.00 billion VND in 2017 and 314,900.00 billion VND in 2018. This therefore facilitated the international trade requirements of an effective and efficient customs control and to execute important methods cum strategies to greatly improve the productivity of customs officers and reduce clearance time for imported and exported goods including the application of Vietnam Automated Cargos Clearance System/Vietnam Customs Intelligence Information System (VNACCS/VCIS) in 2014, the risk management in 2005, and compliance management techniques in 2012 as recommendations under the Revised Kyoto Convention adopted by the World Customs

Organization (WCO) in June 1999. However, in order to enhance improvement of productivity, it is necessary to analyze motivational factors affecting of productivity of customs officers and propose possible solutions for General Department of Vietnam Customs in the next time.

With the assumption that work productivity of customs officers is a dependent variable, it can therefore be imputed that it is one of the most important factors impacting overall performance of both business circles and public authorities. No other than Paul Krugman noted in 1994: “productivity isn't everything, but in the long run it is almost everything”. Productivity is about “working smarter”, rather than “working harder”. It reflects our ability to produce more output by better input combination, new ideas, technological innovations, and business models. Improvement in productivity may have significant financial and service impact on partners in society. In research of OECD (2015), Angel Gurría, OECD Secretary General, also emphasized that: ‘More than ever, productivity will be the main driver of future growth and prosperity.’

The Manager is primordially tasked in providing the employees with and creating an environment conducive to the people and provide incentives that will perk up or arouse their interests, productivity and their outputs. There is indeed a wide range of tools that will motivate the employees and staff in both government and private sector. Motivating the employees is one of the principal strategies in public governance and in organizational management in order to improve effectual job administration among the employees for organizational effectiveness. (Cherian, 2013) The main objective of this study is to determine the impact of motivational factors vis-avis the level of productivity among customs’ officers who are working at selected provinces in Vietnam. Most of the studies which the researchers have reviewed and analyzed were mostly belonging to the category of pharmaceutical companies, manufacturing industry and some from the educational sector. This study is an initial exploration delving specifically on the impact of factors of motivation to the job productivity among the customs administration department or division’s officers in conducted in a developing country like Vietnam.

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## 2. Literature Review

Productivity can be operationally and contextually defined in various ways and means. Productivity is generally defined as the actual ratio of the volume measurement of output to a volume measure of input usage. (Shereyer and Pilat, 2001) or in simple terms, it refers to how much of the output is obtained from a given output. (Syverson, 2010) Economists define productivity as the amount of output that is produced from a given amount of labor input or if you take an hour of labor input, productivity is the amount of output that the labor produces. In this research, productivity can be understood and signified as the measurement of how well an individual entity uses its resources to produce outputs from inputs. Thus, this technical equation :

$$\text{Labour Productivity} = \text{Output} / \text{Work hour}$$

Within the perspective of Customs Administration, the productivity of customs officer can be determined by numbers of declarations cleared/ work hour or clearance time/declaration of imported goods or clearance time/declaration of exported goods or number of customs profiles examined /work hour. ( Attar et al., 2017)

The factors influencing productivity of labor in both private and public sector are presented by result of some researches, a plethora of these related studies are as follows:

Abraham Maslow (1943), with ‘A Theory of Human Motivation’ emphasized motivation of worker through five demand levels of human: Physiological, Safety, Love, Belonging, Esteem, and Self-actualization. So that, to motivate human activities and productivity, it is necessary to assure the factors of income of employees; good work environment encouraging employees in involvement in decision-making, respect of others, and chances to advance for employees; positive attitude including morality, creativity, respect by others, and confidence.

Locke. E.A (1968) and Locke. E.A & Latham G. P. (1990) with 'theory of task motivation and incentives' focused on the relationship between conscious goals, intentions, and task performance. His research indicated that behavioral intentions regulate choice behavior. The theory also viewed goals and intentions as mediators of the effects of incentives on task performance. A theoretical analysis supported the same view with respect to three other incentives: participation, competition, and praise and reproof. Behavioral intentions were found to mediate the effects of money and "verbal reinforcement" on choice behavior. It is concluded that any adequate theory of task motivation must take account of the individual's conscious goals and intentions.

The data gathered in the United Kingdom clearly indicated the very role of financial incentives in motivating employees for greater production. In November 2009, the Executive Officers and Employees from various locations in UK asserted that non-financial motivators like praises of line managers, leadership attention/support and the employees' opportunity to take a more challenging task are but significant factors in motivating them and can result in higher level of productivity. (Vrancic, 2015) Comparatively, the study of Hanaysha and Majid (2018) in the higher education institutions in Northern Malaysia clearly indicated that there was a significant motivational factors like organizational commitment of employees to their job productivity. Such results can be of great importance to the policy makers of higher educational institutions for organizational productivity and competitiveness. Another study conducted by Hanaysha and Hussain (2018) revealed very strongly and significantly the positive impact of employees' empowerment at higher public universities in Malaysia. The result also indicated that the employee training and teamwork have impacted positively to the labor productivity of their teaching staffs.

Herzberg. F (1968) with 'Motivation-Hygiene Theory' stated two different faces of motivation. The first factor is 'hygiene' factors (job context emphasizes work environment) and the second is 'satisfiers' or job content, i.e. the intrinsic qualities of the job. Especially, Hygiene factors include company policies, working conditions, salary, status, and security. While satisfiers include achievement, the work itself, responsibility, recognition, advancement, and personal growth.

Okwudili (2015) systematized some researches emphasizing the factors of rewards impacting on motivation, performance and productivity of employees. On the other hand, Lunenburg (2011) operational and contextually defined the goals as part of the intention or wish of employees in the organization to achieve it. This type of strategy is being used at various organizations as a means to drive the people to work hard in doing their assigned tasks and responsibilities which will ultimately bring about a significant level of productivity in order to achieve organizational effectiveness. (Lunenburg, 2011 & Sultan & Noor, 2017)

The adequate and enough benefits certainly motivate staffs and workers by simply helping them develop the right attitude and behavior towards their work which inevitably increases their level of productivity. (Wigfield & Cambria, 2010) According to Gullu (2016), the consequences of training can be seen through an increase of level of performance and motivation of workers and employees in any organization. Motivation of workers and employees in any given entity or organization be it small or huge plays a pivotal role in transforming it. It is therefore very important for both parties (employer and employees) to address and determine the needs and expectations of their workers in order to inspire them to improve and heighten their productivity. (Rodriguez, 2015)

Moreover, the study of Bawa (2017) which was a collection of theses and empirical evidences and showed the direct relationship of motivation and productivity which is of paramount importance to researchers, managers and business educators. The said study revealed that there are different factors to consider when motivating the employees and workers which are in the form of financial and non-financial rewards. Non financial rewards like

recognition and a challenging job has impacted the employees productivity level aside from the financial component of motivation and development of people in the organization.

The work environment is one of the most important factors influencing positively productivity. Koretz (1995) presented three key factors impacting productivity: "inadequate supervision and employee involvement in decision-making, too much work, and insufficient rewards and chances to advance". Beside, Haenisch. J. P., (2012) introduced that Leonard (2000) also implemented surveys indicating that less organizational bureaucracy, a greater sense of purpose, clear goals, and being able to see results were essential to productivity.

Taylor (1998) emphasized two of four key contents in order to increase the workplace productivity in an organization. It is important to train the workers and establish good work environment which is based on close cooperation between the workers and managers and equal division between the work and responsibility.

The Society for Human Resource Management found that poor management was the primary cause of low productivity (St. Charles County Business Record, 2005). Beside, An HR Focus (HR Zeroes in on Productivity, 2005) concludes "streamlining procedures and improving communications" as central to productivity improvement. Moreover, in today's modern and global trend of most business organizations including the public sector organization, the study of Calza et al (2017) found out that technological innovation is indeed a very big factor in improving the level of productivity of employees. Their study purported that recognized international standard certificates if they were being used in the workplace have positive and premium impact in further developing the employees productivity.

William Edwards Deming (1951) with his approach to total quality management showed direct impacts on productivity enhancement as well. Deming's 14 points are key elements to improve productivity, including institute training and retraining, institute leadership, break down barriers between staff areas, and drive out fear (Walton, 1986). On the other hand, the study investigated by Quoc and Xuan (2017) further revealed that labor productivity were enhanced by strategic direction, information transmission, coordination, involvement and cooperation, agreement and concern for employees, learning and reward from the organizational culture viewpoint.

Elfi nazreen bin Ibrahim (2011) analyzed factors that influence job satisfaction of customs officers in Malaysia. He supposed five important variables including: human resource practice-salary, promotion, working environment, job stress, and personnel values. Through indeed linear regression, the research portrayed that there were three most significant relationships towards the job satisfaction, which were personnel values ( $\beta = 0.365$ ,  $p = 0.000$ ), human resource practice-promotion ( $\beta = 0.301$ ,  $p = 0.000$ ) and job stress ( $\beta = 0.120$ ,  $p = 0.038$ ).

Haenisch J. P., (2012) approached factors that affect the productivity of Government workers. Factor analysis was used to derive key productivity factors from survey responses. The results indicate that state government workers appreciate having freedom and autonomy, like their jobs and the sense of achievement, and welcome teamwork, but feel limited by poor supervision and management, poor communications, and insufficient budgets and staffing. To improve productivity, the workers would eliminate bureaucracy, supervise better, and improve communication.

Okwudili (2015) analyzed multifarious factors affecting the productivity of employees in the Government of Parastatals through multiple regression analysis. The research indicated that gender, age, monthly income, days of work in a month, type of non-monetary reward received by their employees with respect to their judgment on the effect of non-monetary reward on their productivity resulted a negative and significant contribution to the productivity of the sampled Government parastatals in Abia State, Nigeria. Also, the Educational qualification of the respondents, position/rank, and number of non-monetary reward received

revealed a positive and significant contribution all at 1-percent level of probability respectively to the productivity of the employees of sampled government parastatals. The study concluded that higher productivity and efficiency of employees in government parastatals is possible with the effective exploitation of human resources through non-monetary rewards and recommends amongst others that Government should motivate their staffs more by involving them in self developmental programs with good remuneration payment, incentive packages etc. that will signify that the organization needs their personal outputs.

Within the context of customs administration, based on the Revised Kyoto Convention in 1999, the World Customs Organization has recommended that member parties need to apply not only the modern customs controls but also information technology in order to reduce clearance time and increase labor productivity. Particularly, standards of 6.3, 6.4, 6.5, 6.6, and 6.10 as per Chapter 6 of the it's General Annex which aimed to encourage the implementation of modern methods such as risk management, compliance management, audit based controls, and electronic customs procedure. Besides, with standards of 6.9, 7.1, 7.2 and 7.3 in the Chapter 7 of this General Annex, WCO emphasized that members parties shall use information technology and electronic commerce to the greatest possible extent to enhance Customs control and archive cost-effective and efficient for the Customs and for the trade. (WCO, 1999)

Wulf.L.D and McLinden. G (2005) also found that the use of information technology (IT) was very important to meet often-conflicting government revenue, trade facilitation, social protection and national security objectives. His research cited that 'the international customs community looks to the applied use of information technology (IT) as a catalyst for improving organizational and operational efficiency and effectiveness. As a result, many modernization programs in the customs sector over the last decade have incorporated significant computerization components. Many national customs administrations today use varying degrees of automation to support core customs functions such as goods declaration processing, revenue assessment, revenue collection, risk management, and management reporting.

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### 3. Research Framework

Based on theoretical research, the regression estimation model and implementation process are proposed as follows:

Dependent variable (Y), which is the work productivity of customs officers, receives binary value, such as Y = 1 if the labor productivity is estimated to increase, Y = 0 if it is without increasing.

Independent variables (Xi) reflect the expected factors that impact labor productivity of customs officers (Y). The Xi variables represent the 23 items proposed in the theoretical model, in which training the knowledge and skills for customs officers (X<sub>1</sub> represents for the five items from Q1 to Q5); Motivation and attitude of customs officers (X<sub>2</sub> represents 6 items from Q6 to Q11); Working conditions (X<sub>3</sub> represents the three items from Q12 to Q14); Work environment (X<sub>4</sub> represents the 6 items from Q15 to Q20); and customs modernization (X<sub>5</sub> represents 3 items from Q21 to Q23). Those items are measured by the Likert scale of 5-points with the meaning of the scale from disagreement (1) to very agreement (5) or poor (1) to good (5).

The Binary Logistics regression model is applied and based on the Maximum Likelihood Estimation method and Backward wald method in order to estimate the coefficients ( $\beta_i$ ) in the linear relation between expected factors X<sub>i</sub> and Ln(Odds) (The probability of productivity of customs officers increasing) according to the model:

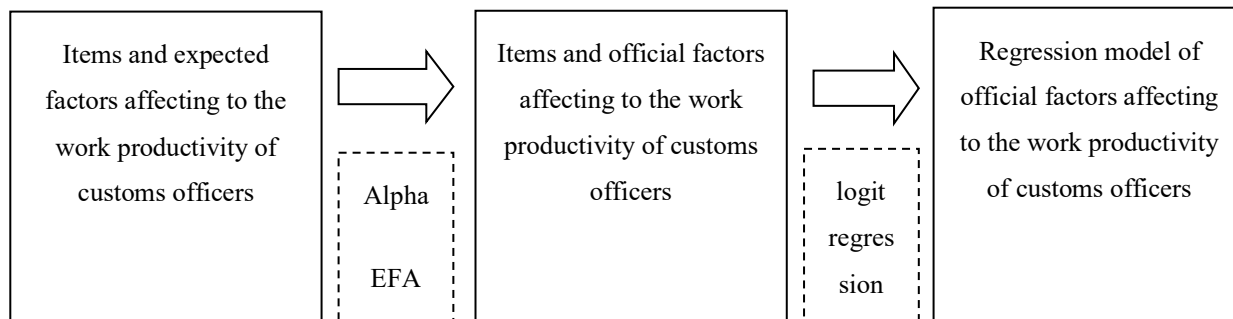
$$\text{Ln(Odds)} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 \text{ Gen} + \beta_7 \text{ Edu} + \beta_8 \text{ WT} + u_i \quad (1)$$

Odds =  $P_0/(1-P_0)$  where  $P_0$  is the probability when Y = 1 and  $1-P_0$  is the probability when Y = 0.

The theoretical hypothesis proposes that the coefficients of  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8$  receive a value  $> 0$ .

The process of implementing the proposed research process can be described below:

**Figure 1**  
The Research Fulcrum



#### 4. Methods

Customs officers are working in sub-customs offices and customs departments of cities and provinces in North, Central and Southern areas of Vietnam. As of the end of the second quarter 2018, there are about 10,000 customs officers in General Department of Vietnam Customs.

The sample selected 190 customs officers working in 34 Customs Departments of provinces in North, Central and Southern areas of Vietnam. The survey was randomly distributed to customs officers of 34 Customs Departments participating in customs training courses and regular meetings, seminars of customs administration in Ho Chi Minh, Da Nang and Hanoi cities. The questionnaire, which is based on the theoretical framework for workplace productivity of customs officers consists of two main sections: (i) general information of customs officers including 4 questions about working time in customs administration (WT); customs offices; gender of customs officers (Gen); educational level of customs officers (Edu), (ii) Assessing the important level of 23 items from Q1 to Q23 for the work productivity of customs officers (Y). The questionnaire form was delivered directly to customs offices working in units of customs administration when they participated in customs training courses and regular meetings. Using SPSS 20 software to process descriptive statistics, test of Cronbach's Alpha coefficient, exploratory factors analyses (EFA), and Binary Logistic regression with the maximum likelihood estimation method and Backward wald method.

#### 5. Discussions

##### Results of Cronbach's Alpha Reliability Analysis

Carrying out reliability analysis of Cronbach's Alpha with 23 items corresponding with 5 predicted explanatory variables ( $X_i$ ), the correspondent results are  $X_1$  (0.724),  $X_2$  (0.717),  $X_3$  (0.736),  $X_4$  (0.789), and  $X_5$  (0.811). Therefore, all of Cronbach's Alpha coefficients are over 0.6, and their corrected item-total correlation coefficients of 23 items are above 0.3. So that, those 23 items are selected to carry out Exploratory Factor Analysis (EFA).

##### Exploratory Factor Analysis (EFA)

Based on the Reliability Test Cronbach's Alpha, the research analyzes EFA with 23 items from Q1 to Q23. Five initial predicted sets of factors are divided into 5 new groups of factors with 17 selected items (eliminating 6 items). The percent of variance in initial eigenvalues extracted at 65.987 (%) ( $>50\%$ ) show that 5 selected factors

are able to explain 65.987 (%) variation of data. So that, the extracted scales are accepted. The stopping point when extracting the factor with eigenvalue = 1.137 ( $\geq 1$ ), representing for variation part is explained by each satisfied factor. KMO = 0.789 ( $>0.5$ ), and value of Bartlett's test with Sig.=0.000 ( $<0.05$ ) interpret that applying factor analysis is suitable. Cronbach's Alpha coefficients of 5 sets of factors  $FT_i$  identified such as  $FT_1$  (0.773),  $FT_2$  (0.789),  $FT_3$  (0.736),  $FT_4$  (0.811) and  $FT_5$  (0.6), indicate the fitness of scale. The least Factor loadings of other variables is 0.569 ( $>0.5$ ) show that the decided factors have realistic significance.

In order to perform logistic regression between 5 new factors ( $FT_i$ ) and dependent variable Y, the research is calculated values of  $FT_i$  on the basis of items' average value in each factor. The value of response variable Y is converted into binary form on the basis of average value of surveyed variables.

The descriptive statistics of some variables in the model: the dependent variable Y, considered in 190 respondents, has 146 respondents  $Y=1$  (accounted for 76.8%) and 44 respondents  $Y=0$  (accounted for 23.2%). The factors  $FT_i$  have average value and standard deviation, which respectively are  $FT_1$  (3.74 and 0.56),  $FT_2$  (3.04 and 0.84),  $FT_3$  (3.77 and 0.72),  $FT_4$  (4.1 and 0.6),  $FT_5$  (4.3 and 0.58). The dummy variable Edu which is the education level of customs officers has 38 respondents with values  $Edu=1$  ( $Edu=1$  if the level is over master degree, accounted for 20.0%) and 152 respondents with values  $Edu=0$  ( $Edu=0$  if it's below master degree, accounted for 80.0%). The dummy variable Gen which is the gender of customs officers has 76 respondents with values  $Gen=1$  ( $Gen=1$  if the gender of customs officers is males, accounted for 40.0%) and 114 respondents with values  $Gen=0$  ( $Gen=0$  if the gender of customs officers is females, accounted for 80.0%). The dummy variable TW which is the working time of customs officers in the customs administration has 137 respondents with values  $WT=1$  ( $WT=1$  if the working time is below 15 years, accounted for 72.1%) and 53 respondents with values  $WT=0$  ( $WT=0$  if it's over 15 years, accounted for 27.9%)

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## 6. Binary Logistics Regression Model

Among the 8 regressed variables, there are 5 groups of factors  $FT_i$  and 3 dummy variables (Edu, Gen and WT) with dependent variable (Y). According to the output of regression, the article carries out many tests relating to the model, such as:

### The first, Wald Test about statistical significance of correlation coefficients

Wald test considers statistical significance of factors' coefficients with regard to dependent variable (Y) in model. By accessing table 1, Sig. of factors  $WT(1)$ ,  $FT_1$ ,  $FT_4$ ,  $FT_5$ , and Constant, in turn, have the value at 0.039, 0.001, 0.007, 0.045 and  $0.000 < 0.05$ , so that the relationship between explanatory variables and explained variable has strong statistical significance over 95% and same direction with Ln(Odds), being appropriate with theoretical model. The factors  $FT_3$  has respectively Sig. at 0.059 being acceptable relation between this factor and Ln(Odds), and having general statistical significance over 94%.

Variables  $FT_2$ , Edu and Gen have Sig. value over 0.1. Therefore, Ln(Odds) and these variables' relation has no general statistical significance above 90%.



**Table 1**  
Binary Logistic regression result

Variables in the Equation							
Variables	B	S.E.	Wald	Df	Sig.	Exp(B)	
Step 4 <sup>a</sup>	WT(1)	1.074	.520	4.267	1	.039	2.926
	FT <sub>1</sub>	.799	.246	10.551	1	.001	2.223
	FT <sub>3</sub>	.543	.288	3.561	1	.059	1.721
	FT <sub>4</sub>	1.079	.399	7.326	1	.007	2.942
	FT <sub>5</sub>	.683	.341	4.020	1	.045	1.979
	Constant	-10.695	2.290	21.816	1	.000	.000
a. Variable(s) entered on step 1 to step 4: Gen, edu, WT(1), FT <sub>1</sub> , FT <sub>2</sub> , FT <sub>3</sub> , FT <sub>4</sub> , FT <sub>5</sub>							

**The second, testing power of explanation of the model**

In Table 2, the outcome of the fourth model receives the value of -2 Log likelihood =159.462<sup>a</sup> is quite small and Nagelkerke R Square=0.326, representing the fairly appropriateness of overall model. It means 32.6% of variation of dependent variable (Y) is explained by 5 significant independent variables in the model, 57.4% remain is determined by other factors outside the model.

**Table 2**  
Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	155.301 <sup>a</sup>	.233	.352
2	155.458 <sup>a</sup>	.232	.351
3	157.379 <sup>a</sup>	.224	.339
4	159.462 <sup>a</sup>	.216	.326
a. Estimation terminated at iteration number 6 because parameter estimates changed by less than ,001.			

**The third, testing Goodness-of-Fit by Omnibus Test, and Hosmer and Lemeshow Test**

Omnibus test is used for hypotheses:

$$H_0 : \beta_1 = \beta_2 = \dots = \beta_8 = 0$$

$$H_1 : \beta_1 = \beta_2 = \dots = \beta_8 \neq 0$$

It is clear in the Table 3 of Omnibus Tests with Sig. =0.000 (<0.05), the research rejects hypothesis H0. Hence, the overall model indicates the correlation relationship between independent variables and dependent variable has statistical significance with confidence interval over 99%.

**Table 3**  
Omnibus Tests of Model Coefficients

		Chi-square	Df	Sig.
Step 4 <sup>a</sup>	Step	-2.083	1	.149
	Block	46.185	5	.000
	Model	46.185	5	.000
a. A negative Chi-squares value indicates that the Chi-squares value has decreased from the previous step.				

Hosmer and Lemeshow test is used for hypotheses

$$H_0: \text{It is no difference between real value and predicted value}$$

$$H_1: \text{It is difference between real value and predicted value}$$

From the result of Table 4 about Hosmer and Lemeshow test with Chi-square = 14.204 and Sig. = 0.077(>0.05) the test does not have statistical significance, and cannot reject H<sub>0</sub> hypothesis or it is no difference between real value and predicted value (ensure that the model is suitable)

**Table 4:** Hosmer and Lemeshow Test

Step	Chi-square	Df	Sig.
1	9.799	8	.279
2	9.246	8	.322
3	6.390	8	.604
4	14.204	8	.077

**The fourth, assessing level of forecast of model**

In Table 5, in 146 customs officers, whose answers are supposed to be workplace productivity increasing, the model is able to forecast exactly 139 officers, at the rate of 95.2%. Among 44 officers, whose answers are supposed to be productivity without increasing, the model predicts precisely 16 officers, accounting for 36.4%. All in all, the rate of accurate predictions of overall Binary Logistic model is 81.6%.

**Table 5**  
Level of Forecast Model

Observed		Predicted			
		Y		Percentage Correct	
		0.00	1.00		
Step 4	Y	0.00	16	28	36.4
		1.00	7	139	95.2
Overall Percentage					<b>81.6</b>

a. The cut value is 0.500

**The fifth, Binary Logistic Regression equation**

It is established in Table 1, Binary Logistics regression result ( coefficients in Column B of the said table.

Therefore, Logistic regression model has regression coefficient as:

$$\ln(\text{Odds}) = -10.695 + 0.799FT_1 + 0.543FT_3 + 1.079FT_4 + 0.685FT_5 + 1.074WT$$

Then,

$$P = \frac{e^{\beta Tz}}{1 + e^{\beta Tz}} = \frac{e^{-10.695 + 0.799FT_1 + 0.543FT_3 + 1.079FT_4 + 0.685FT_5 + 1.074WT}}{1 + e^{-10.695 + 0.799FT_1 + 0.543FT_3 + 1.079FT_4 + 0.685FT_5 + 1.074WT}} \quad (4)$$

**The sixth, determining the role of factors that impact on productivity of customs officers**

The probability of productivity of customs officers is estimated by the formula (4) when the factor FT<sub>i</sub> varies 1 unit and the initial probability of P<sub>0</sub> identified by 10%, or 20%, or 30%, respectively.

$$P_1 = \frac{P_0 \times e^{\beta_1}}{1 - P_0(1 - e^{\beta_1})} \quad (5)$$

**Table 6**  
Level of factors' that impacts on productivity of customs officers

Factors	Coefficient	The probability of productivity of customs officers is estimated by the formula (when the factor FT <sub>i</sub> varies 1 unit and the initial probability of P <sub>0</sub> )						Rank of impacts
		10%	Increase (Decrease)	20%	Increase (Decrease)	30%	Increase (Decrease)	
initial probability P <sub>0</sub>								
FT <sub>1</sub>	0.799	19.8%	<b>9.8%</b>	35.7%	<b>15.7%</b>	48.8%	<b>18.8%</b>	3
FT <sub>3</sub>	0.543	16.1%	<b>6.1%</b>	30.1%	<b>10.1%</b>	42.5%	<b>12.5%</b>	5
FT <sub>4</sub>	1.079	24.6%	<b>14.6%</b>	42.4%	<b>22.4%</b>	55.8%	<b>25.8%</b>	1
FT <sub>5</sub>	0.683	18.0%	<b>8.0%</b>	33.1%	<b>13.1%</b>	45.9%	<b>15.9%</b>	4
WT(1)	1.074	24.5%	<b>14.5%</b>	42.3%	<b>22.3%</b>	55.6%	<b>25.6%</b>	2

Source: Calculated by research author

So that, the importance of independent variables in this model is indicated that:

Firstly, FT<sub>4</sub> (customs modernization) consists of 3 items: Q21 (customs modernization increasing requirements for professional work of customs officers), Q22 (customs modernization increasing requirements for knowledge and skills of customs officers about information technology, VNACCS/VCIS system: Viet Nam Automated Cargo Clearance System/Vietnam Customs Intelligence Information System), Q23 (customs modernization increasing requirements for gathering, analyzing and treating information). This factor has the strongest influence to Ln(odds) through the coefficient  $\beta_4 = 1.079$

Secondly, WT(1) (working time of customs officers) influences strongly to Ln(odds) through the coefficient  $\beta_8 = 1.074$ .

Thirdly, FT<sub>1</sub> (training the knowledge and skills of customs operations for customs officers) consists of 4 items: Q1 (participating in courses about risk management, compliance management, technician operations, and skills in customs context), Q2 (participating in courses about accounting books and financial statements related to imported and exported enterprises), Q3 (participating in courses about skills of communication and teamwork), and Q4 (trained knowledge about customs reform and modernization strategy, VNACCS/VCIS system and application of data software). The FT<sub>1</sub> strongly influences to Ln(odds) through the coefficient  $\beta_1 = 0.799$ .

Fourthly, FT<sub>5</sub> (Motivation and attitude of customs officers) consists of 2 items: Q6 (Awareness of customs officers about customs integrity, customs legislations and tradition of national customs administration) and Q7 (Positive attitude in work and life). This factor influences to Ln(odds) through the coefficient  $\beta_5 = 0.683$ .

Fifthly, FT<sub>3</sub> (working conditions) consists of 3 items: Q12 (well equipping printers, photocopiers, scanners, and others instruments for work), Q13 (fast and stable internet system of customs offices), Q14 (available and accessible resources of information and data for customs control). This FT<sub>3</sub> influences to Ln(odds) through the coefficient  $\beta_3 = 0.543$ .

## 7. Recommendations

### Prediction of binary logistic regression model

It is possible to determine prediction of probability of productivity for Vietnam's customs officers as given values of impacting factors by calculating FT<sub>i</sub>, which are the average of corresponding variables and replacing on Binary Logistic Regression Formula (3) and (4).

By replacing FT<sub>i</sub>, which are given in the Table 7 on equation (3) and (4), the author has calculated probability of productivity for customs officers A and received the result P=0.896443 or predicted probability of productivity for customs officers A is 89.64%.

**Table 7**  
Prediction for probability of increase for productivity of customs officers

Variables	Correlation Coefficients	Value of independent variables corresponding to customs officer	
		customs officer A	customs officer B
Constant	-10.695		
FT1	0.799	3	2.25
FT 3	0.543	3.67	3.67
FT 4	1.079	4	4
FT 5	0.683	4.5	4.5
WT(1)	1.074	1	1
eβ		8.656496	4.75435
<b>Probability of productivity of customs officers (P)</b>		0.896443	0.826218

### Some solutions derived from the results of the model

Based on the results of the regression models and the statistical values (mean, standard deviation) of the 17 items (Q<sub>i</sub>) which are statistically significant, some solutions are proposed to improve effectively productivity of Vietnam’s customs officers, in which:

Firstly, based on the result of factor FT<sub>4</sub> in the model, the customs administration should enhance the effectiveness and efficiency of customs modernization in next time. Particularly, it is necessary to complete components of automated clearance system (VNACCS/VCIS) such as softwares of risk management, compliance management, and infrastructure system of VNACCS/VCIS. Besides, He also needs to clearly determine and communicate requirements of customs modernization to customs officers, including requirements for improvement of professional work, knowledge and skills of customs operation, and gathering, analyzing, and treating information data related to VNACCS/VCIS.

Secondly, with statistic significance of WT(1) (working time of customs officers less than 15 years) which affects strongly productivity of customs officers, the managers should focus those officers on encouraging through financial incentives, more promotion opportunities, and training new information technologies and modern customs techniques. Next, it is necessary to analyze and evaluate the causes related to poor productivity of others group of customs officers.

Thirdly, based on statistic significance of FT<sub>1</sub> (training the knowledge and skills of customs operations for customs officers), the national customs administration needs to establish and complete training programs related to risk management, compliance management, technician operations, as well as courses about accounting books and financial statements for imported and exported enterprises, skills of communication and teamwork, customs reform and modernization strategy, and VNACCS/VCIS system and application of data software. Next, it is significant to cooperate with universities, institutions of higher education, and consulting and accounting companies to implement effectively and efficiently those training programs for groups of officers.

Fourthly, the customs administration also focus on motivation and attitude of customs officers (FT<sub>5</sub>) through programs of efficient communication about customs integrity and through research and acknowledge of customs history and legislation. In addition, the customs administration should reform strongly the regime of salary,

rewards, and promotion opportunities based on implementing methods of key performance indicators (KPIs) in human resources management.

Finally, the working conditions (FT<sub>3</sub>) need to be improved in the direction of additional equipment for equipping printers, photocopiers, scanners, and others instruments in customs offices; updating the infrastructure of internet system in customs offices and customs departments; developing available and accessible resources of information and data based on enforcing corporation between internal components of customs administration and between the customs administration and others state authorities, the World Customs Organization, and overseas customs administrations.

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## 8. Conclusion

The research has achieved the target objective which seeks to find five motivational factors affecting positively the work productivity of customs officers. Based on articles and research papers, this research has proposed a theoretical model of 5 factors with 17 items impacting on the work productivity of custom's officers. It used a multi-variable regression of Binary logistic model on 190 survey samples and identified five major factors which have statistically significant effects in the same direction on work productivity, including: (i) customs modernization; (ii) working time of customs officers; (iii) training the knowledge and skills of customs operations for customs officers; (iv) motivation and attitude of customs officers; (v) working conditions. In addition, the study proposes five solutions derived from the results of the model. However, the regression model should continue to be studied in order to explain and detect new influencing factors.

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## Bibliographic references

Attar,A.,et .al. (2017), A Study of Various Factors Affecting Labour Productivity and Methods to Improve It IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE) ISSN: 2278-1684, PP: 11-14.

<https://www.coursehero.com/file/20999913/Journal-A-Study-of-Various-Factors-Affecting-Labour-Productivity-and-Methods-to-Improve-It/>

American Chamber of Commerce in Vietnam (9/2019).Vietnam's labour productivity needs to catch up with ASEAN

<https://www.amchamvietnam.com/vietnams-labour-productivity-needs-to-catch-up-with-asean/>

Bawa, M.A.(2017) Employee Motivation and Productivity: A Review of Literature and Implications for Management Practice. International Journal of Commerce and Management ijecm.co.uk › wp-content › uploads › 2017/12

Calza, E. et. al. (2017) Drivers productivity in Vietnam's SME's. United Nations University.Wider Working Paper 2017/68. <https://www.wider.unu.edu/sites/default/files/wp2017-68.pdf>

Cherian,J. & Jacob,J.(2013). Impact of Self –Efficacy on motivation and performance of employees.

Elfi Nazreen Bin Ibrahim (2011), the factors that influence job satisfaction among customs personnel: a study in royal malaysian customs selangor. Master of Human Resource Management Universiti Utara Malaysia. [http://etd.uum.edu.my/2857/2/1.Elfi\\_Nazreen\\_Ibrahim.pdf](http://etd.uum.edu.my/2857/2/1.Elfi_Nazreen_Ibrahim.pdf)

Güllü, T. (2016). Impact of training and development programs on motivation of employees in banking sector. International Journal of Economics, Commerce and Management, 4(6), 90–99.

Hanaysha, J.R. & Hussain, S. (2018) An Examination of Factors Affecting the Employees' Motivation in Higher Education Sector. *Asia Pacific Journal*. Sage Publication. pp. 22-31

<chrome-extension://ohfgljdgelakfkefopgkclcohadegdpjf/https://journals.sagepub.com/doi/>

Haynasha, J. & Majid, B. (2018). Employee Motivation and its Role in Improving the Productivity and Organizational Commitment at Higher Education Institutions. *Journal of Entrepreneurship and Business*. 6(1). pp. 17-28.

<chrome-extension://ohfgljdgelakfkefopgkclcohadegdpjf/https://www.researchgate.net/pro>

Haenisch J. P., (2012), Factors Affecting the Productivity of Government Workers, *Sage Journal*.  
<http://journals.sagepub.com/doi/abs/10.1177/2158244012441603>

Herzberg, F, Mausner, B, Snyderman, B.B (1959), *The motivation to work*, New York : John Wiley & Sons, ©1959.

Herzberg, F (1968), One more time: how do you motivate employees? *Harvard Business Review*, vol 46 no 1, Jan/Feb 1968, pp53-62

[https://kyleshulfermba530.weebly.com/uploads/2/3/4/5/23454770/one\\_more\\_time\\_-\\_how\\_do\\_you\\_motivate\\_employees.pdf](https://kyleshulfermba530.weebly.com/uploads/2/3/4/5/23454770/one_more_time_-_how_do_you_motivate_employees.pdf)

Koretz, G. (1995, July 10). Sweet carrots, big gains. *Business Week*, p. 24. Retrieved from the Lexis-Nexis Academic Universe database.

Locke E A. (1968), Toward a theory of task motivation and incentives. *Organ. Behav. Hum. Perform.* 3:157-89, 1968.

Locke, E.A & Latham G. P. (1990), *New developments in goal setting and task performance* (pp. 3-15). New York, NY, US: Routledge/Taylor & Francis Group.

Maslow A. H. (1943), *A theory of human motivation*, *psychological review*, vol50, no4.

OECD (2015), *The future of productivity* <https://www.oecd.org/eco/OECD-2015-The-future-of-productivity-book.pdf>

Okwudili, Beede Emerole (2015), Effect of Non-Monetary Rewards on Productivity of Employees Among Selected Government Parastatals In ABIA State, Nigeria, *OSR Journal of Business and Management*.  
<http://www.iosrjournals.org/iosr-jbm/papers/Vol17-issue2/Version-4/B017240611.pdf>

Rodriguez, A. (2015). Motivation in action: How motivation can make employees more productive. Retrieved from <https://www.imindq.com/blog/motivation-in-action-how-motivation-can-make-employees-more-productive-part-2>

Schreyer, P. and Pilat, D. (2001), *measuring productivity*, *OECD Economic Studies* No. 33, 2001/II.

Staven Tomlinson, *Definition of Productivity and Factors Affecting It*

<http://www.cengage.com/economics/tomlinson/transcripts/8561.pdf>

Syverson, C (2010), What Determines Productivity? *Journal of Economic Literature* 2011, 49:2, 326–365  
<http://www.aeaweb.org/articles.php?doi=10.1257/jel.49.2.326>

- Vrancic,I (2015) And People? Why are managers cars the most important assets? Retrieved date 04/22/2020  
<https://www.amazon.com/People-Managers-Important-Asset-Organization-ebook/dp/B00VRPLRJU>
- WB (2019), ASEAN Policy Makers Commit to Accelerating Human Capital Development.  
<https://www.worldbank.org/en/news/press-release/2019/09/09/asean-policy-makers-commit-to-accelerating-human-capital-development>
- WCO (1999), International convention on the simplification and harmonization of customs procedures, Revised Kyoto Convention.
- Wigfield, A. & Cambria,J.(2010) Achievement Motivation. The Corsini Encyclopedia of Psychology,1-2.
- Wulf.L.D and McLinden. G (2005), The role of information technology in customs modernization, customs modernization handbook, World Bank.
- Xuan,D and Quoc,T.(2017) Impact of Organizational Culture on Labor Productivity.Paper presented to the 11th SEATUC Symposium. Vietnam.  
[file:///C:/Users/KIM%20ANH/Downloads/OS1007\\_PhamQuocTrung\\_Impact\\_OC\\_LP\\_IT\\_cameraready%20\(1\).pdf](file:///C:/Users/KIM%20ANH/Downloads/OS1007_PhamQuocTrung_Impact_OC_LP_IT_cameraready%20(1).pdf)