Identify and Rank the Factors Affecting of Processes Standardization on Clearance Time (Case Study: Customs in Tehran)

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Abstract: In today's modern world, international customs offices have found their importance in standardization of customs rules and regulations in order to facilitate trading and business. These days, various services such as: electronic government, electronic services, electronic customs, electronic business and trading and so on are available to facilitate different affairs and to improve people's welfare and comfort. Standardization is done through applying automation, re-structuring, analyzing risk factors and avoiding possible damages in everyday activities. Standardization of processes in different places and using it regularly establishes an efficient management which is one of the key factors in effective business and trading. In addition by presenting a new model in accordance with the present condition of the organization, we are going to discover the closest standardization of time clearance processes model and affective factors on them. The proposed study uses factor analysis to extract the most influencing factors and the sample size has been chosen from customs experts in Tehran. The questionnaire was designed in Likert scale and distributed among 311 customs managers and experts in Tehran. Cronbach alpha is calculated as 0.79 for standardization of processes and 0.77 for time clearance which is well above the minimum desirable limit of 0.70. In this study 36 variables recognized which seven factors were extracted. These four factors are related to the standardization of processes: system structure, procedure, process, the rules and three factors of time clearance include: risks, customs procedures, electronic procedures. Critical component of standardization of time clearance processes based on structural equation is the most important factor in risks (by a factor of 99%), electronic procedures (by a factor of 96%) and system structure (by a factor of 94%), respectively the second and third priorities which can be considered the custodians of this section.

Key words: Customs, standardization, time clearance, risks, days

INTRODUCTION

Today standardization is unavoidable and necessary. It plays an important role in all aspects of everyday activities. However, performing and using benefits of standard criteria is not so easy. Delays in customs procedures and physical monitoring and surveillance of customs goods have negative effects on fast business and commercial transactions. Also performing manual (not automated) release of goods through customs, existence of various customs rules and regulations, lack of standard software sub-structures in customs offices are obstacles in releasing goods and performing versatile procedures which show vague and not clear customs processes. Therefore, recognizing negative factors and effective variables in standardization will have positive, meaningful effects on the duration of releasing goods from customs and facilitate this process. Using appropriate strategies for standardization depends on effective factors.

Regarding the rapid growth of high volumes of customs daily transactions in Iran, standardization of all customs processes and performing appropriate methods would improve the speed of financial and commercial transactions which will result in reducing the duration of the release of customs goods tremendously.

Research literature

Theoretical foundations of standardization of time clearance processes: Frank (2012) shows necessity for standardization:

- Standardization provides teaching new staff more easily and faste
- There are tools and devices for teaching new staff. So when there is a change in customs processes, it can show the staff and personnel a specific, unchangeable method to obey

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- Standardization makes appropriate work competency
- It provides a strong basis for development
- It makes a suitable bed for managing staff and labor force to form their own expectations
- It reduces the dependency on experts and specialists

Benefits of standardization: Standardization is done through applying automation, re-structuring, analyzing risk factors and avoiding possible damages in everyday activities.

Standardization of processes in different places and using it regularly establishes an efficient management which is one of the key factors in effective business and trading.

Standardization improves production capacity, increases per capita, reduces duration of time in different customs processes and also omits some unnecessary stages in various activities (Hou *et al.*, 2014). Davenport (2005) shows three different models of standardization.

Application standards: Management of key communication, changes in organizations and stages of changes in organizational levels are considered in this model.

These stages of work and activities can be seen in many offices and organizations in industry, for example, the five key factors: planning, references, possibility of performance, delivery and return can be seen.

Evaluating standards regarding doing job: After being able to recognize and understand necessary processes and perform its own job, every office and organization should measure its own activities and stages and compare the results with the competitors outside the organization.

The need for organizations to establish standard criteria regarding management of procedures: Standardization of procedure management involves: how work processes are done and how these processes are managed and how to measure them to improve continuously and constantly. The third sub-structure of standardization does not need a flow chart and a process legend because today it is really available more than to be expected. Standards of procedure management are according to the results of work done correctly and its performance.

Chen (2011) believe that in today's modern world, international customs offices have found their importance in standardization of customs rules and regulations in order to facilitate trading and business. These days, various services such as: electronic government, electronic services, electronic customs, electronic business and trading and so on are available to facilitate different affairs and to improve people's welfare and comfort.

Boyds (2003), recent developments in business and trading, has made various improvements in customs processes. In today's trading with huge volumes of business and trade, it is vital to reduce and lessen the duration of time of customs procedures, especially on international basis. In fact, customs offices which are located in the last chain of exporting countries and the first chain of importing countries, must do all the controlling and authenticating stages from various references. The more they have access to accurate, exact data easier and on-time, the better they can do their responsibilities and more accurately. Karakul (2008), shows difficulties and limitations in old-fashioned customs offices: here are some of the most important limitations and difficulties: excessive bureaucracy, abundant changes in rules and regulations, personal interpretations of customs rules and regulations among traders, manual controlling and surveillance of goods, lack of automation and data bases, issuing too many instructions and circular letters. Raus *et al.* (2009) shows benefits of using electronic customs:

- Changing the role of customs officials from functional state to monitoring automated surveillance. Hence, unintentional personal mistakes of customs staff are reduced and office works are done more accurately
- Same encounter with different clients and the same interpretation of customs rules and regulations in different conditions will reduce prejudice and injustice so that, exact and accurate rules and regulations will be followed and controlling and monitoring the inlet and outlet ports of countries for import and export will be monitored faster and more easily
- Electronic customs will make sampling of goods better which means faster, more reliable, physical surveillance and less time delays and more saving time for known traders
- All neighboring data bases and information centers would be recognized for both parties and due to fast information transfer, clients do not need to attend customs offices personally and physically. In addition to benefits mentioned for internal customs affairs, due to automated modern systems and using standardized customs offices in the developed countries, we would be able to attend other international societies

- The most vital and important benefits of electronic customs are to reduce time for issuing different legal certificates and warrants for the release of goods, high accuracy in data processing, improvement of procurement processes and saving time and energy

MATERIALS AND METHODS

Data collection and sample: This study attempts to find the standardization's impact ontime clearance processes. The proposed study uses factor analysis to extract most influence factors and sample size has been choosen from customs managers and experts in Tehran. The questionnaire was designed in Likert scale and distribute among 311 peoples. To analyze the data, descriptive statistics were used to sort the data in the second part of the data analysis is performed based on statistical inference. In this study, we apply SPSS and Amos packages for analyzing the data and also factor analysis and structural equation methods.

Assessing reliability: The reliability of the measurements in the survey was tested using Cronbach's α. Hair *et al.* (1998) stated that a value of 0.70 and higher is often "considered the criterion for internally consistent established factors". Cronbach alpha's standardization processes is calculated as 0/79 which is well above the minimum desirable limit of 0/70. The Cronbach's a coefficients in parentheses indicating the internal consistency reliability of the measures (α = 0.799) and Cronbach alpha'stime clearance is calculated as 0/77.

RESULTS AND DISCUSSION

The proposed study designs a questionnaire and distributes it among 311 customs managers and experts in Tehran. Chronbach alpha is well above the minimum desirable limit of 0/70. Table 1 and 2 demonstrates the results.

There are 36 variables and using factor analysis, we exract seven factors where Kaiser-Meyer-Olkin measure of sampling adequacy was 0/69 (Approx. Chi-square = 1.622E3, df = 231, Sig. = 0/000) which also confirms the results of our survey. Table 3 demonstrates the results. We exract factors of time clearancewhere Kaiser-Meyer-

Olkin measure of sampling adequacy was 0/69 (Approx. Chi-square = 638.578, df = 66, Sig. = 0/000) which also confirms the results of our survey. Table 4 demonstrates the results.

In this study, research data using scientific methods are investigated and they are analyzed in two parts. First, descriptive statistics are used to sort the data and then part of the data analysis is performed based on statistical inference. Factor analysis and structural equation analysis of the presumptive test was used and the primary question is to find out about important factors influencing standardization of time clearance processes. To answer the first question the exploratory factor analysis has been used. Table 3-8 present the results of analyzing the data. Figure 1-3 demonstrates eigenvalues for each factor and a special agent with the highest value indicates and we choose seven factors for the proposed study.

Interpretation of the results of the factor analysis: The following table has been prepared based on the standard model (Table 9-12). Regarding the results, we can offer 7

Table 3: KMO and Bartlett's test of standardization processes

Variables	t-values
Kaiser-Meyer-Olkin measure of sampling adequacy	0.693
Bartlett's test of sphericity	
Approx. Chi-square	1.622E3
df	231
Sig.	0/000

Table 4: KMO and Bartlett's test of time clearance

Variables	t-values
Kaiser-Meyer-Olkin measure of sampling adequacy	0.693
Bartlett's test of sphericity	
Approx. Chi-square	638.578
df	66
Sig.	0/000

Table 5: Descriptive statistics of standardization processes

	Descriptive statistics		
Variables	Mean	SD	Analysis N
VAR00001	4.2251	0.638150	311
VAR00002	4.4630	0.609930	311
VAR00004	3.1897	0.774190	311
VAR00005	3.4277	0.827200	311
VAR00006	3.3408	0.926090	311
VAR00007	3.5338	0.829680	311
VAR00008	3.6752	0.779160	311
VAR00009	4.0804	0.725100	311
VAR00010	3.6463	0.955620	311
VAR00011	3.7106	0.681450	311
VAR00013	3.5531	0.083255	311
VAR00015	3.3633	0.778630	311
VAR00016	3.6656	0.955830	311
VAR00017	3.9196	0.711630	311
VAR00018	3.8135	0.725530	311
VAR00021	3.7267	0.834280	311
VAR00022	3.4502	0.903360	311

Table 1: Reliability statistics of standardization processes

Cronbach's alpha	Cronbach's Alpha based on standardized items	No. of items
0.798	0.799	22

Table 2: Reliability statistics of time clearance

Cronbach's alpha	Cronbach's alpha based on standardized items	No. of items
0.774	0.772	14

Table 6: Descriptive statistics of time clearance

Variables	Descriptive statistics		
	Mean	SD	Analysis N
VAR00001	4.0161	0.84035	311
VAR00002	3.8682	0.90446	311
VAR00003	4.2862	0.64641	311
VAR00005	3.8842	0.86478	311
VAR00006	3.3376	0.87906	311
VAR00008	3.6013	0.93076	311
VAR00009	3.6045	1.00057	311
VAR00010	3.7363	0.90229	311
VAR00011	3.9839	0.81700	311
VAR00012	3.6302	0.87708	311
VAR00013	3.6399	0.81452	311
VAR00014	3.8232	0.91805	311

Table 7: Total variance explained of standardization processes

Components	Total	Variance (%)	Cumulative (%)
1	2.091	12.299	12.299
2	1.795	10.558	22.856
3	1.670	9.822	32.678
4	1.525	8.968	41.646
5	1.506	8.857	50.503
6	1.467	8.632	59.135
7	1.445	8.501	67.636

Table 8: Total variance explained of time clearance

Components	Total	Variance (%)	Cumulative (%)
1	1.754	14.620	14.620
2	1.700	14.165	28.785
3	1.674	13.946	42.732
4	1.354	11.284	54.016
5	1.292	10.765	64.781

Table 9: Interpretation of the results of the factor analysis of standardization processes

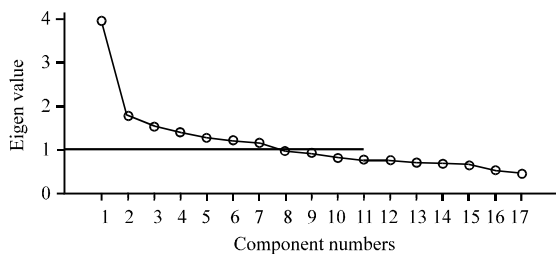| Variables	Factors
Audit	System structure
The implementation of standards	
The components of a system	
Politics	Procedures
Instructions	
Updated standards	
Process changes	Processes
Process monitoring	
Reference system	
Process control	The rules
Broad framework	
Official rules	

Fig. 1: Screen plot of standardization processes

hypotheses that identified by exploratory factor analysis and by the confirmatory factor analysis they reject and accept of and ranking of each of the components of performance of customs.

Table 10: Interpretation of the results of the factor analysis of time clearance

Variables	Factors
The accident	Risks
risk management	
Warehouse operations	
Route selection	Customs procedures
Discharge permits	
Loading and unloading	
Electronic data interchange	Electronic procedures
e-Commerce services	
Trade window	

Table 11: The summary of factor associated with the main hypothesis

The main hypothesis	Important coefficient based on structural equation (%)	Estimate	p-values	Results
System structure	94	0.257	p<0/001	Confirmed
Procedures	56	0.288	p<0/001	Confirmed
Processes	87	1.000	p<0/001	Confirmed
The rules	62	0.180	p<0/001	Confirmed
Risks	99	1.000	p<0/001	Confirmed
Customs procedures	74	0.198	p<0/001	Confirmed
Electronic procedures	96	0.759	p<0/001	Confirmed

Table 12: The summary of factor associated with sub-hypothesis

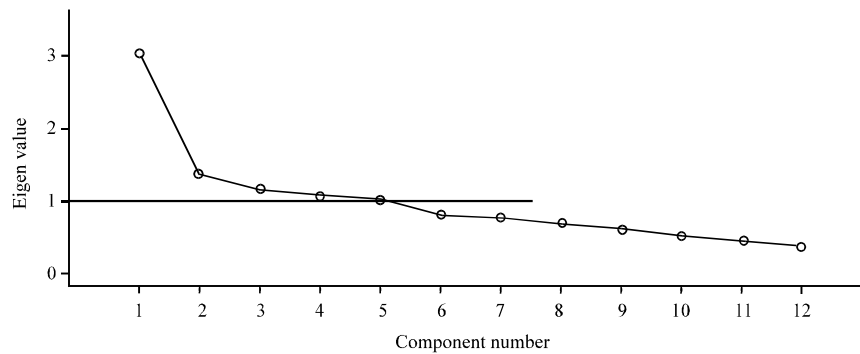| Sub-hypothesis	Important coefficient based on structural equation (%)	Estimate	p-values	Results
Instructions	0.52	0.866	p<0/001	Confirmed
Updated standards	0.60	1.068	p<0/001	Confirmed
Politics	0.67	1	p<0/001	Confirmed
Broad framework	0.51	1.197	p<0/001	Confirmed
Official rules	0.21	0.673	p<0/001	Confirmed
Process monitoring	100.00	1	p<0/001	Confirmed
Reference system	0.60	0.372	p<0/001	Confirmed
Process changes	0.46	0.329	p<0/001	Confirmed
Control processes	0.49	1	p<0/001	Confirmed
Loading and unloading	0.53	3.871	p<0/001	Confirmed
Discharge permits	0.52	4.024	p<0/001	Confirmed
Route selection	0.12	1	p<0/001	Confirmed
e-Commerce services	0.38	0.873	p<0/001	Confirmed
Trade window	0.58	1.344	p<0/001	Confirmed
Electronic data interchange	0.41	1	p<0/001	Confirmed
The accident	0.47	1	p<0/001	Confirmed
Risk management	0.66	1.354	p<0/001	Confirmed
Operation storage	0.42	0.864	p<0/001	Confirmed
Audit	0.45	1	p<0/001	Confirmed
The components of a system	0.78	2.35	p<0/001	Confirmed
The implementation of standards	0.61	2.024	p<0/001	Confirmed
Loading and unloading	0.52	0.866	p<0/001	Confirmed
Discharge permits	0.60	1.068	p<0/001	Confirmed
Route selection	0.67	1	p<0/001	Confirmed
e-Commerce services	0.51	1.197	p<0/001	Confirmed
Trade window	0.21	0.673	p<0/001	Confirmed
Electronic data interchange	100.00	1	p<0/001	Confirmed
The accident	0.60	0.372	p<0/001	Confirmed
Risk management	0.46	0.329	p<0/001	Confirmed
Operation storage	0.49	1	p<0/001	Confirmed
Audit	0.53	3.871	p<0/001	Confirmed
The components of a system	0.52	4.024	p<0/001	Confirmed
The implementation of standards	0.12	1	p<0/001	Confirmed

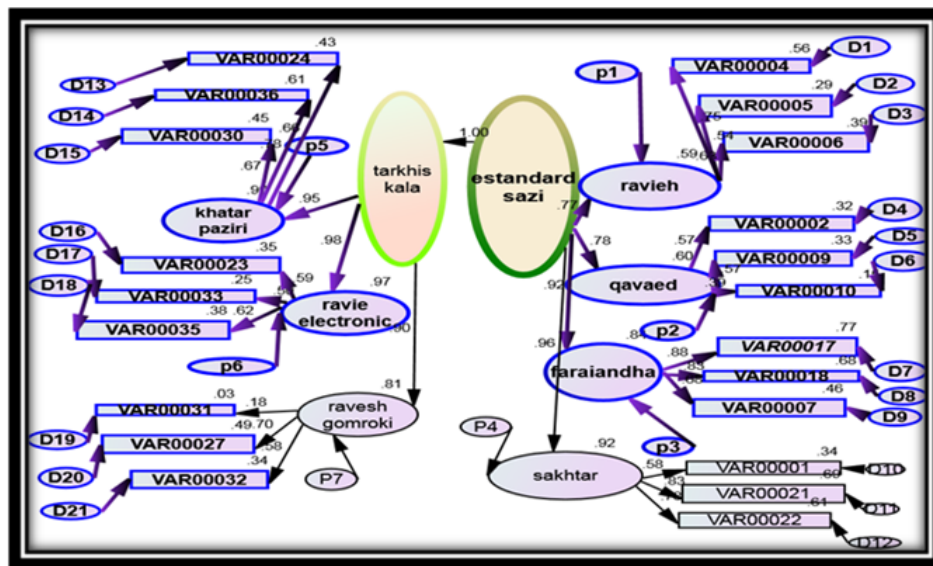Fig. 2: Screen plot of time clearance

Fig. 3: Important coefficient based on structural equation

CONCLUSION

Recent developments in business and trading, has made various improvements in customs processes. In today's trading with huge volumes of business and trade, it is vital to reduce and lessen the duration of time of customs procedures, especially on international basis. In fact, customs offices which are located in the last chain of exporting countries and the first chain of importing countries, must do all the controlling and authenticating stages from various references. The more they have access to accurate, exact data easier and on-time, the better they can do their responsibilities and more accurately. This study has presented an investigation to detect important factors influencing standardization of time clearance processes. The proposed study of this paper has extracted seven important factors including system structure, procedures, processes, the rules,

risks, customs procedures, electronic procedures. Critical component of standardization of time clearance processes based onstructural equation is the most important factor in risks (by a factor of 99%), electronic procedures (by a factor of 96%) and system structure (by a factor of 94%) respectively the second and third priorities which can be considered the custodians of this section.

REFERENCES

Boyds, L.E.H., 2003. The impact off customs on business to customer e-commerce in food products. Supply Chain Manage. Int. J., 3: 195-200.

Chen, S.Y., 2011. Exploring digital capital of automated cargo clearance business websites. Expert Syst. Appl., 38: 3590-3599.

Davenport, T.H., 2005. The coming commoditization of processes. Harv. Bus. Rev., 83: 100-108.

Frank, W.B., 2012. Chapter 13-process standards and audits. Eng. Doc. Control Handb., 24: 307-324.

Hou, L., Y. Lao, Y. Wang, Z. Zhang and Y. Zhang *et al.*, 2014. Time varying effects of influential factors on incident clearance time using a non-proportional hazard-based model. Transp. Res., 63: 12-24.

Karakul, M., 2008. Joint pricing and procurement of fashion products in the existence of clearance markets. Int. J. Prod. Econ., 114: 487-506.

Raus, M., B. Flugge and R. Boutellier, 2009. Electronic customs innovation: An improvement of governmental infrastructures. Government Inf. Q., 26: 246-256.