CHAPTER 4: Traffic Congestion and its Impact on the Performance of Customs at Ports of Entry

This chapter critically presents data that originated from the findings underpinning this research. The study employed SPSS to analyse traffic congestion and its impact on the performance of Customs at Ports of Exit and Entry. The analysis and presentation were done with the aid of secondary data to authenticate the results found. The chapter begins with analysis of the response rate and then explains reliability techniques adopted by the study. Reliability was carried out using Cronbach Alpha which is a coefficient of reliability that gives an unbiased estimate of data generalizability.

The study employed questionnaires and interview guides for data collection. These instruments were aligned with the research questions. Interviews were used as a backup to ensure that all the required data was gathered from the respondents. The response rates for the research instruments used in this study are presented in Table 4.1 and Figure 4.1.

Out of the 118 questionnaires administered to managers, operational staff in the Customs and Excise division, commercial vehicle operators and customs clearing agents, 96 were filled and returned translating to a response rate of 81.4%. The high response rate of 81.4% facilitated the gathering of sufficient data that could be generalized to determine traffic congestion and its impact on the performance of Customs at Ports of Exit and Entry. This was in line with Orodho (2009) that a response rate in respect to questionnaires which is above 50% contributes towards the gathering of sufficient data that could generalized to represent the opinions of respondents about the study problem in the target population. The response rate for questionnaires is presented in Table 4.1.

Table 4.1: Response rate (Primary data)

		Frequency	Percent
Valid	Responded	96	81.4
	Not Responded	22	18.6
	Total	118	100.0

The reason for a high response rate can be attributed to the fact that the questionnaire was pilot tested before the actual study to improve the questions. In

addition, the questionnaire was easy to understand and free from errors. Moreover, a high response rate can also be attributed to the fact that respondents were given ample time to read, understand and complete the questionnaire.

Due to limited time and resources, it was not possible to interview all the respondents. A total of 23 respondents were targeted for the interviews including ZIMRA employees in the Customs division, commercial vehicle operators and clearing agents. Out of the 23 interviews scheduled, 17 were held giving a response rate of 73.9%. The response rate is presented on Figure 4.1.

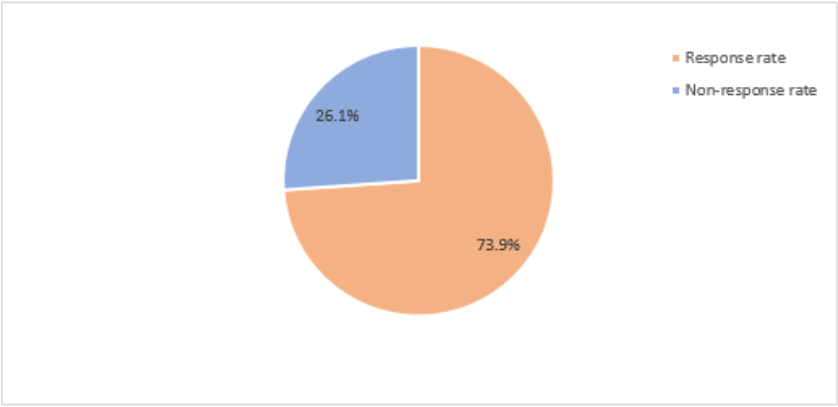

Figure 4.1: Response rate for interviews *(Primary)*

Punch (2008) rated the response rate for interviews and survey in the following order: 50% is adequate, 60% to be good, 70% as very good and a response rate above 80% is considered excellent. Basing on Punch's rating the response rate for this study in respect to interviews is very good.

To test reliability this study used Cronbach's alpha as a diagnostic measure which assesses the consistency of entire scale, since it is the most widely used measure. The lower limit for Cronbach's alpha is 0.70, although it may degrease to 0.60 in exploratory research (Hair *et al.*, 2010). A coefficient alpha of 0.80 or higher indicates that the gathered data are reliable and a relatively high internal consistency and can be generalized to reflect opinions of all respondents in the target population (Zinbarg, 2005). The Cronbach's Alpha test of the questionnaire used in this study resulted in a value of 0.984. Basing on Zinbarg's view, the questionnaires used were reliable. The results of the reliability analysis are summarized in Table 4.2.

Table 4.2: Reliability Statistics

Cronbach's Alpha	N of Items
.984	20

The respondents were asked to indicate their gender status and their responses are presented on Table 4.3.

Table 4.3: Gender (Primary data)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	female	30	31.3	31.3	31.3
	male	66	68.7	68.7	100.0
	Total	96	100.0	100.0	

The descriptive statistics of the study brings to the fore the fact that 68.7% were male while 31.3% were female. This implies that male respondents participated more in the study. However this appears not to be the representative of the gender structure of the Zimbabwean population where the female to male ratio stands at 52% and 48% respectively (ZimStats, 2012). However this does not translate into more women in leadership positions. This result is in agreement with results found in a study by Zimbabwe Gender Commission titled measuring differences on Board of Directors in 2015 which established that out of 406 directors in the private sector, 10% were women and out of 64 companies on the Zimbabwe Stock Exchange female constituted only 4.68%.

In addition, the above findings can be attributed to the fact that the logistics and transport sector has traditionally been associated with physical work and consequently considered a masculine sector. This involves the performance of relatively difficult, hard manual physical labour and being away from home base for road motor crew as they will be crossing the border. Moreover, woman involved in the population usually will be carrying out clerical work with a few holding managerial positions. A study by the United States Labour Force in 2015 revealed that there is still a huge gap between the number of women and men working in the logistics and transportation sector as women constitutes 22.6% while men constitute 77.4%.

It was important to establish the highest academic qualifications held by the study respondents to ascertain if they were equipped with relevant knowledge on traffic

congestion and its impact on performance of Customs at Ports of Entry. **Table 4.4** shows the highest academic qualifications of respondents.

Table 4.4: Highest Academic Qualification (*Primary data)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Ordinary Level	17	17.7	17.7	17.7
	Advanced Level	13	13.5	13.5	31.3
	Degree	35	36.5	36.5	67.7
	Masters	24	25.0	25.0	92.7
	Doctorate	7	7.3	7.3	100.0
	Total	96	100.0	100.0	

As presented in Table 4.4 above a majority 36.5% had Degree, 25% had Masters Degrees, 17.7% had Ordinary level qualification level, 13.5% had Advanced level qualifications and a minority of 7% had Doctorate degrees as their highest academic qualification. These means that most of the respondents understood the nature of the study problem. This concurs with Joppe (2000) that during research process, respondents with technical knowledge on the study problem assist in gathering reliable and accurate data on the problem under investigation. This demonstrated that most of the respondents were knowledgeable to understand the study problem and thus provided the study with reliable information on traffic congestion and its impact on performance of Customs at Ports of Entry.

The respondents were asked to indicate their highest professional qualifications, and their responses are presented on Table 4.5.

Table 4.5: Highest Professional Qualification *(Primary data)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Certificate	36	37.5	37.5	37.5
	Diploma	30	31.3	31.3	68.8
	HND	19	19.8	19.8	88.5
	Post Graduate Diploma	7	7.3	7.3	95.8
	Other	4	4.2	4.2	100.0
	Total	96	100.0	100.0	

It was apparent from the study findings that 37.5% of the respondents had certificates, 31.3% had diplomas, 19.8% had HNDs, 7.3% had post graduate diplomas and 4.2% had other professional qualifications. This result shows that all of the respondents are well educated and capable of understanding the purpose of the study and hence able to understand and interpret the research questions. The deduction of the above statistics in respect to certificates can be attributed to the requirements of the Road traffic Act (Chapter 13:11) which requires every driver to possess a drivers licence or certificate of competence.

The study comprised ZIMRA employees in the Customs and Excise division, employees from commercial vehicle operators and customs clearing agents at Beitbridge Border Post. The respondents were asked to indicate their work positions, and their responses are presented on Table 4.6.

Table 4.6: The work positions of respondents *(Primary data)*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Managers	14	14.6	14.6	14.6
	Supervisors	29	30.2	30.2	44.8
	Officers	27	28.1	28.1	72.9
	Clerks	16	16.7	16.7	89.6
	Drivers	10	10.4	10.4	100.0
	Total	96	100.0	100.0	

The study was made up of employees from different levels of management. The study findings above shows that 14.6% were managers, 30.2% were supervisors, 28.1% were officers, 16.7% were clerks while 10.4% were drivers. These findings show that the study was only made up of respondents who were directly involved in the formulation of policies, measuring performance, clearance and movement of commercial vehicles thus improving the reliability and validity of study findings.

To examine the causes of traffic congestion at Beitbridge Border Post, respondents were asked to indicate the causes of traffic congestion on a Likert scale of 1-5 where 1=strongly disagree, 2= disagree, 3= not sure, 4= agree and 5= strongly agree. The responses given by the respondents enabled the researcher to calculate the mean and standard deviation to measure the variation in the opinion of respondents on the causes of traffic congestion. Their responses are presented in Table 4.7:

Table 4.7: Causes of Traffic Congestion at Beitbridge border post *(Primary data)*

	Mean score	Mean response	Std. Deviation
Customs Inefficiencies	4.32	Agree	1.30
Inadequate & poorly managed infrastructure	3.72	Agree	.926
Lack of integrating activities	3.80	Agree	1.18
High traffic volume	4.02	Agree	.88
Delays in vehicle inspection	4.22	Agree	.98
Inadequate staffing levels	4.00	Agree	.76

Table 4.7 shows the study findings in respect to the causes of traffic congestion at Beitbridge Border Post during the period 2013 to 2016. The study findings indicate that customs inefficiency was a cause of traffic congestion with a mean score and standard deviation of (M=4.32, SD=1.30). These results suggest that outdated and cumbersome systems, along with overly bureaucratic border clearance processes imposed by customs and other agencies, significantly delayed the clearance of imports, exports, and transit goods, leading to increased traffic congestion. These findings were corroborated by findings from interviews. Other previous studies agree with this finding for example Bugbilla and Asamoah (2016) found that traffic congestion at Ports of Entry is largely attributed to physical examination, tariff classification, goods valuation and delay in receiving permits and exemptions from institutions. A Report by B&FT (2015) shows that excessive physical examination of goods at the Tema harbour, by 23 agencies was a major cause of congestion in clearing goods. In addition, a study by Feidieker (2011) revealed that while COMESA has harmonized transit documentation it is still missing within the SADC region for example, when a consignment from Durban to Malawi the same information is declared seven times at different borders posts resulting in large queues at border terminals.

The study findings also shows that inadequate and poorly managed infrastructure had a mean of 17.72 and a low standard deviation of 0.926 indicating a small variation in opinion of respondents. This result shows that there was a small variation in the opinions of the respondents. Infrastructure at Ports of Entry includes road and truck parking bays, commercial offices, office space, inspection bays, bridge development, truck and baggage scanners, information and communication technology, surveillance technology. This implies that Beitbridge Border Post was characterised by various infrastructure constraints during the period understudy. This finding is supported by Downie (2008) who pointed out that traffic congestion occurs when the volume of vehicular traffic is greater than the available road infrastructure and capacity. The findings for this study also

correlate with findings by an Interim Report of the Canadian Senate Committee on National Security and Defence (2005) announces that infrastructure deficiencies caused traffic congestion at the Windsor-Detroit crossing and costs the Ontario economy $7 million in lost production. Waterman *et al.* (2009) found that traffic congestion at Ports of Entry is exacerbated by inefficient rail services and lack of inspection equipment like scanners.

The study findings also shows that lack of integrating activities of border management agencies was a cause of traffic congestion at Beitbridge Border Post as it had a mean of 18.30 and standard deviation of 1.180 indicating a small variation in opinion of respondents. This can be attributed to the level of bureaucracy and uncoordinated data and document requests by different agencies which translates into congestion and delays. From the interviews conducted, a majority of 72% of the interviewees explained that other border management agencies such as the police and other government agencies were the major source of delays. This finding agrees with findings from many previous studies. The Doing Business (2012) report most of the traffic congestion and delays in the import export process are due to the time take it in the document's preparation. A study by the World Trade Organisation (1998) shows that in some nations particularly in Africa, non-harmonization of systems and too many documentations all increase the paperwork so involved to 4 times. This results in unnecessarily prolonged release waiting times accounting for 20% of total transport time and 25% of transport costs. A recent study by African Development Bank (2012) reported that the customs environment in the Southern and Eastern African sub-region is characterized by a lack of coordination among the multiple government agencies on both sides of borders. This raises the common challenge of the duplication of procedures at each border, which results in traffic congestion and fraud.

To identify the challenges faced by Customs in traffic clearance at Beitbridge Border Post, respondents were asked to indicate the challenges on a Likert scale of 1-5 where 1=strongly disagree, 2= disagree, 3= not sure, 4= agree and 5= strongly agree. The responses given by the respondents enabled the researcher to calculate the mean and standard deviation to measure the variation in the opinion of respondents. Their responses are presented in Table 4.8.

Table 4.8: Challenges faced by Customs in traffic clearance at Beitbridge border Post *(Primary data)*

Challenge	Mean score	Mean response	Std. Deviation
Corruption	4.31	Agree	1.22
Insufficient state of supporting infrastructure	4.03	Agree	0.97
Illicit Trade and Customs Violations	4.47	Agree	1.08
Contribution of various agencies to customs delays	4.02	Agree	0.85
Systems incompatibility	4.59	Agree	0.94

The study findings in respect to the challenges faced by Customs at Beitbridge Border Post reflect that corruption had a mean score and standard deviation of (M=4.31, SD=1.22). This implies that customs officials and other border management agencies are using their discretionary powers and opportunities to extract bribes. These results were backed by the findings from the interviews where 100% of the interviewees pointed out that wrong declaration of goods brings risks so much that customs officers might reveal cheating during the inspection of cargo. Corruption in border control and customs authorities most often manifests itself either as a collusive form of corruption to avoid taxes and tariffs or as coercion to speed up routine procedures (the public official requests the bribe) (Wickberg, 2013). This finding on corruption has been supported by many scholars such as Buyonge and Kireeva (2008) who reported that sometimes it is easier and cheaper for businessmen to bribe a customs officer than to discharge all duties or to avoid paying customs duties by wrongly declaring goods at customs. In addition, this finding also correlates with the findings by Mpumela (2012) who found that corruption at ZIMRA is rampant at border posts even though ZIMRA have zero tolerance for corruption.

The study findings also lay bare the thinking that insufficient state of supporting infrastructure was a challenge faced by Customs during the period understudy as it had a mean score and standard deviation of (M=4.03, SD=0.97). This implies that Infrastructure such as road and truck parking bays, commercial offices, inspection bays, office space, housing, bridge development, information and communication technology, surveillance technology, and truck and baggage scanners were inadequate at Beitbridge Border Post. These findings were reinforced by findings from the interviews conducted by the researcher where 96% of the interviewees elaborated that insufficient state of infrastructure hinders efficient cargo evacuation and slows down the clearance process. These findings are consistent with other empirical studies such as a study by Mashiri & Chakwizira (2016) who confirm that insufficient state of supporting infrastructure is an impediment at land Ports of Entry in South Africa. Nyema (2014) argues that infrastructure is the necessary condition for efficient cargo handling operations

and adequate infrastructure is needed to avoid congestion, foster trade development and securing connectivity for economies heavily dependent on international trade.

The study findings bring to light that illicit trade and customs violations had a mean score and standard deviation of (M=4.47, SD=1.08). This implies that there was duty evasion at Beitbridge Border Post in the form of outright avoidance of official customs controls, under-declaration of goods, undervaluation of goods, misclassification of goods, falsification of documents, collusion with tax authorities and smuggling. This finding agrees with the African Forum and Network on Debt and Development (AFRODAD) (2014) which approximates that between 2009 and 2012 cash-strapped Zimbabwe lost USD2.79 billion through illicit financial flows, which represents nearly half of the country's national budget of USD4 billion. Araia (2009) found that customs officials are reportedly paid regular 'stipends', bribed on an ad hoc basis, and encouraged using improper influence, to make smuggling possible in various ways and to protect the smugglers from arrest and prosecution.

It was apparent from the study findings that the contribution of various customs agencies to customs delays was a challenge faced by ZIMRA at Beitbridge Border Post as it had a mean score and standard deviation of (M=4.02, SD=0.85). This can be attributed to the fact that the border agencies (police officers, immigration, state security agents, vehicle Inspection departments, and health and customs officers) have different missions at ports and borders and each agent endeavours to satisfy its requirements. The array and variety of sometimes uncoordinated data and document requests by different agencies doubles the bureaucracy at border posts, which translates into congestion and delays. This finding agrees with the findings by Barka (2012) who reported that the customs environment in the Southern and Eastern African sub-region is characterised by a lack of coordination among the multiple government agencies on both sides of borders which, in turn, increases the potential for fraud, the need for risk management and delays customs clearance processes. Savage *et al.* (2013) found that the burdensome paperwork was the reason for holdups in customs.

The study findings shows that systems incompatibility had a mean score and standard deviation of (M=4.59, SD=0.94). This shows that system incompatibility was a challenge faced by ZIMRA at Beitbridge Border Post from 2013 to 2016. This implies that there was lack of harmonization between the software used by different agencies such as the South African Revenue Services meaning customs clearance was duplicated in some instances. This finding agrees with findings by

Mutombodzi (2007) who found that customs automated systems in most African regions are not interfaced and therefore this poses a serious challenge in ensuring that goods have left the country and are accounted for in the next transit country and those acquittals are genuine and authentic.

The study also examined the performance measures of Customs at Ports of Exit and Entry. A Likert scale of 1-5 where 1=strongly disagree, 2= disagree, 3= not sure, 4= agree and 5= strongly agree was used to measure the responses. Table 4.9 shows the responses.

Table 4.9: Performance of Customs at Ports of Exit and Entry *(Primary data)*

	Mean score	Mean response	Std. Deviation
The average time taken to clear goods has increased.	4.01	Agree	1.04
The total revenue collected from duties, taxes, and fees at the ports of entry has increased.	4.19	Agree	0.88
The number of fraudulent activities or smuggling cases detected has decreased.	4.23	Agree	0.76
The level of customer satisfaction levels regarding customs services has decreased	3.89	Agree	1.14
The number of transactions handled per staff member has decreased	3.92	Agree	0.95
The rate of errors in customs documentation and processing has decreased	4.06	Agree	1.01
There is high compliance with standard operating procedures and regulations.	4.00	Agree	0.91

The study findings above show that the number of fraudulent activities and smuggling cases has increased represented by a mean score and standard deviation of (M=4.23, SD=0.76). This implies that there has been a significant rise in illicit activities at the border, potentially due to lapses in security measures and oversight. In addition, it can also mean that sometimes customs officials would delay the initiation or conclusion of customs procedures until a bribe is offered to them. This result is supported by Hors, (2001) who reported that customs officials would create or threaten to create unwarranted complications in the clearance process. This often takes the form of officials conducting examinations in extreme detail, or requesting documents that are difficult to adduce, or sending the cargo for further controls such as quarantine or any other unnecessary actions that may complicate the clearance process. In addition, a study by Ndenga & Ayuma (2013) confirms that delays in traffic clearance is one of the root causes of corruption at Ports of Entry.

The study findings above show the average time taken to clear goods has increased at Beitbridge Border Post as it had a mean score and a standard deviation of (M=4.01, SD=1.04) indicating that customs clearance processes have become more time-consuming, likely due to inefficiencies such as outdated procedures, inadequate infrastructure, or increased scrutiny and inspections. The increase in clearance time may also reflect a higher volume of goods being processed or more stringent enforcement of regulations, leading to delays. This finding correlates the findings by Arvis *et al.* (2007) who reported that in most African countries excessive physical inspections are a major source of delays there, and the time between accepted customs declaration and customs clearance is four days, while in OECD countries it is one day.

The study sought to establish the impact of traffic congestion and the performance of Customs at Ports of Exit and Entry. The scores of the variables to be regressed were computed through factor analysis and then saved as dummy variables. The researcher then conducted a regression analysis to explain this relationship using SPSS version 21. The results obtained are presented and discussed below;

Table 5: Model Summary

Model	R	R^2	Adjusted R2	Std. error of the Estimate
1	.910	.824	.717	.231

The study sought to establish the impact of traffic congestion on the performance of Customs at Ports of Exit and Entry. The research findings indicate that there is a strong relationship (R^2= 0.824) between traffic congestion and the performance of Customs. The result of the study also indicates that the value of adjusted R^2 is 0.717. This implies that 71.7% of the variance in Customs performance can be accounted for by traffic congestion. The remaining 28.3% can be explained by other variables which were not included in the model and the chance of variations.

Table 6: Analysis of Variance (ANOVA) *(Research Data)*

Model		Sum of Squares	df	Mean Square	F	Sig.
	Regression	113.682	5	22.736	49.09	.001[b]
1	Residual	52.393	113	0.463		
	Total	**166.075**	**118**			

a. **Dependent Variable:** Performance

b. **Predictors: (Constant),** customs inefficiencies, inadequate and poorly managed infrastructure, high volume of traffic, delays in vehicle

inspection, inadequate staffing levels, poor communication between agencies

From the ANOVA statistics, the study established that the regression model had a significant level of 0.1%, indicating that the data was ideal for concluding the population parameters as the significance value (p-value) was less than 5%. The calculated value of the dependent variable was greater than the critical value (49.09>4.87); this indicates that all the causes of traffic congestion identified have a statistically significant impact on the performance of Customs at border posts. The significance value was less than 0.05 indicating that the model was significant and a good fit for the data collected.

Table 4.15: Coefficients of Determination (*Research Data)*

Model	Unstandardized		Standardized	T	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
(Constant)	1.560	.637		2.338	1.560
Customs inefficiencies	.461	.111	.320	4.154	.000
Inadequate and poorly managed infrastructure	.470	.114	.331	4.206	.001
High volumes of traffic	.408	.109	.310	4.038	.011
Delays in vehicle inspection	.440	.112	.313	4.260	.003
Inadequate staffing levels	.411	.104	.320	4.312	.000
Poor communication between agencies	.426	.115	.318	4.122	.001

a. Dependent Variable: Performance

From Table 4.13 above it is evident that at 95% confidence level, all the predictors have a positive relationship with the performance and are statically significant. Positive effect was reported for all the independent variables with Customs inefficiencies (t= 4.154, p= 0.000), Inadequate and poorly managed infrastructure (t= 4.206, p= 0.001), High volume of traffic (t= 4.038, p = 0.011), Delays in vehicle inspection (t = 4.260, p= 0.001), Inadequate staffing levels (t=4.312, p=0.000) and Poor communication between agencies (t=4.122, p=0.001) produced statistically significant values for this study of (high t-values, $p \leq 0.05$). The constant value (1.560) shows that if the traffic congestion identified were all rated zero, the performance of customs at ports of entry would be reduced by 1.560. In this study, the stochastic error term was assumed to be zero since the study captured the causes of traffic congestion.

The study further revealed that: a unit decrease in customs inefficiencies would lead to a performance improvement of 0.461; a unit decrease in inadequate and poorly managed infrastructure would lead to a performance increase of 0.470; a unit increase in the management of high volumes of traffic would lead to a performance increase of 0.408; a unit increase in high traffic volumes would result in a performance change of 0.440; a unit increase in staffing levels by 0.411 would contribute to improved performance, and a decrease in poor communication between agencies would lead to a performance increase of 0.426.

Data collected for this study was adequate to meet the research objectives and will immensely contribute to the drawing of meaningful conclusions. The data collected was analyzed using SPSS. All research questions were analysed and interpreted depending on the information gathered. The respondents and interviewees provided valuable data on traffic congestion and its impact on the performance of Customs at Ports of Entry. The researcher made conclusions of the entire study and gave recommendations basing on data gathered in Chapter Four and these are presented in the next Chapter.