

## Factors Affecting to Adoption of Point of Sales: with Special Reference to the SMEs in North Central Province, Sri Lanka

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**ABSTRACT:** The payment system in Sri Lanka relies mainly on cash, as it is the main payment method for all transactions. The Point of Sale (POS) was intended to encourage the cashless economy compared to the cash-driven economy. But it has numerous challenges to adopt for POS terminals. Since the researcher has studied the determinants and take-up of the POS of SMEs in Sri Lanka. The cross-sectional survey research design was used and the population of the study was the SMEs in the north central province in Sri Lanka and the sample was 387 SMEs. The self-structured questionnaire and the SPSS version 20.0 made it possible to collect and analyze the data. There are five independent variables of this study which are the availability of infrastructure, POS security, and perceived trust of use, customer education, and customer motivation. In this study, the correlation analysis is undertaken to find out the relationship between the adoptions of POS terminals with independent variables. Findings revealed that there was a significant relationship between the identified determinants and the adoption of POS by SMEs in Sri Lanka. The model had higher model fit value as 97.2% for coefficient of determinant. Further, the research findings revealed customer education as the most significant variable and availability of infrastructure as a least significant factor among the five variables. The study concluded that the availability of infrastructure, POS, Security, Perceived Trust of Use, Customer Education, and Perceived Customer Motivation had a significant and positive relationship with the adoption of POS concerning the SMEs in the north-central province. Ultimately, the study recommends that all stakeholders be assured that the issues identified are correctly placed and improved.

**KEYWORDS;** *Availability of Infrastructure, Customer Education, POS Security, Perceived Trust of Use, Perceived Customer Motivation*

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### I. INTRODUCTION

In the cash-based transaction has some advantages in that it is always valuable, provides full and final settlement of a transaction, allows for anonymity once issued, and regarded as a public good by its users (Yaqub et al., 2013). However, a cash-based economy is risky, clumsy, and unhealthy for a nation's economy. Indeed, money that is not controlled by banks cannot be subject to regulatory controls or operating procedures (Adeoti, 2013). Besides, it has been found that the fact that developing countries carry liquidity is the reason they are lagging in development. Moreover, some challenges that result from high cash usage are robberies and cash-related crime, revenue leakage arising from too much cash handling, inefficient treasury management due to the nature of cash processing, among other challenges. Even though cash can be convenient, it makes taxation less transparent, and it's costly to distribute, manage, manipulate, and process. Another challenge is the high cost that commercial banks face in moving liquidity within branches and making deposits at the central bank. The cost of transport and the safety of money and the safety of bank personnel are also of concern. Excessive cash flows also give rise to corrupt practices in the country. Furthermore, the surplus of money in circulation leads to money laundering by citizens who have too much money and do not want to be asked how they got it. And the cost of money in the Sri Lankan system is significant and growing. These costs arise from frequent printing of currency notes, currency sorting, cash movement, keeping a large amount of cash, security cost of checking high incidences of robbery and burglaries, among other costs. Consequently, the method of payment in cash is expensive for the Sri Lankan government.

As a result, there is ought to decrease these costs, the volume of cash in circulation, the risks related to carrying cash, and energize the utilize of non-cash payments strategies counting RTGS (Real Time Gross Settlement), Cheques, SLIP (Sri Lanka Interbank Payment), Payment Cards and Mobile Phone-based payment components (Credit Cards, Debit Cards) and utilize of Installment Card Foundation counting ATMs and POS Terminals, Internet-based Payment Systems, Tele Banking, Postal Instruments (Cash & Postal Orders), Cash Deposit Machines (CDM)/ Cash Recycler Machines (CRM), Common Card and Payment Switches like CAS (Common ATM Switch), CEFTS (Common Electronic Fund Transfer Switch) and SAS (Shared ATM Switch). Be that as it may, in this study, the analyst has examined as it was the POS machines and what are the components that have influenced the less utilization of POS machines by SMEs in Sri Lanka with extraordinary reference to the clients

of Bank of Ceylon in North Central Province. The point of sale terminal represents a stage for advancing electronic payment within the economy.

Point-of-sale (POS) terminal may be a computerized substitution for cash enlists. The POS framework can incorporate the capacity to record and track client orders, prepare credit, and debit cards, interface to other frameworks in a network and oversee stock. By and large, a POS terminal has at its center an individual computer, which is given application-specific programs and working frameworks for the specific environment in which it'll serve. POS terminals are utilized in most businesses that have a point of sales such as a benefit work area, counting eateries, lodgings, entertainment, and galleries. Additionally, in this period of the Coronavirus Crisis; these POS terminals grant the enormous chance to maintain a strategic distance from the Covid 19 spreading. Without utilizing ATMs and Cash in hand it gives the chance to do their day-to-day exchanges securely way.

Subsequently, it emphatically pronounces the necessity of utilization of POS terminals by the public. When turning to the figure sorted by the Quarter – Installments Bulletins which gives CBSL, it looks there is no noteworthy increase of utilization of POS terminals whereas the expanding of POS terminals issued by the Commercial banks. It clearly appears that the percentage alter within the add up to a volume of exchanges through the POS terminals expanded up to 29% from the 1st quarter of 2017 till the 3rd quarter of 2019 whereas No of POS terminals in use has been increased up to 81%. That is an awfully minor increase compared to the no of POS terminals increment up to now. Hence it declares the less utilization of POS terminals in Sri Lanka. Subsequently, the most objective of this consideration is to experimentally explore the variables that impact the less adoption/usage of POS by trade organizations and clients in North Central Province, Sri Lanka. Moreover, since of the need of the sorts of writing locally, the analyst has chosen to do this consider with respect to the Sri Lankan setting.

Most of the studies have regarded African nations and the western nations. All the studies cannot be generalized to the Sri Lankan context. And there are few studies conducted locally, in any case, those are not explored such factors that the analyst has inspected through this study. Subsequently, by utilizing this study the analyst has bridged the recognized inquire about gap with extraordinary reference to the North- Central territory in Sri Lanka.

**Research Objectives:** The main objective of the study is to identify the factors and the relationship between less adoption and usage of POS terminals in Sri Lanka. Researcher attempted to identify the most significant factor on adoption/ usage of POS terminals in Sri Lanka. For that purpose, the research further developed few specific objectives based on the independent variables.

1. To examine how does the availability of infrastructure rate impact on the adoption/ usage of Point of sales terminals.
2. To determine how would the POS security rate influence to the adoption/ usage of Point of sales terminals.
3. To examine the perceived trust of use influences to the adoption/ usage of Point of sales terminals.
4. To determine how customer education, influence to the adoption/ usage of Point of sales terminals.
5. To examine how customer motivation, influence for the adoption/ usage of Point of sales terminals.

## **II. LITERATURE REVIEW**

**Point of sale terminals :** The term Point of sale (POS) device most commonly refers to the in-store systems where customers pay merchants for goods and services (Ayeeni, 2016) Further, it has been explained by (Adeoti & Oshotimehin, 2011) as the Cumbersomeness and risky nature of reliance on the cash-based economy in any society necessitate the adoption of POS because money outside the banks cannot be subjected to regulatory and operational procedures and the ability of monetary policy to achieve set objectives in the presence of sizeable currency out of Bank is limited. This simply implies that the adoption of POS signifies the acquisition and usage of POS. And Point of sale (POS) terminals is a device used for payments made electronically without the use of cash to transact business in an organization. (Williams Olasojumi, 2017). Moreover, as per the study of (Krawetz, 2007) the Point-of-Sale (POS) system is comprised of components that perform credit card transactions. The following were identified as the main components of POS: Card reader, a device for reading credit cards. This device is either a stand-alone unit, such as The VeriFone Tranz system or integrated into a cash register. It is most recognizable by the Magnetic stripe reader (MSR), numeric keypad, and receipt printer. Transaction unit, this device Sends the credit card information to an authenticating source (e.g. Visa) and receives a transaction confirmation number for VeriFone, the card reader and transaction unit are integrated into an embedded device (although VeriFone does sell individual components as well). The VeriFone units consist of a digital display and a numeric keypad. For other devices, such as IBM Sure POS or Panasonic's POS workstations, Ingenico the card reader and transaction unit may be integrated into a cash register system.

**Small and medium scale enterprises Availability of infrastructure:** Infrastructure availability is defined as the availability of a combined set of hardware, software, network facilities, communications, etc. (including all of the information technology peripherals), to develop, test, deliver, monitor, control or support IT services (Salhie, 2011). Has defined IT infrastructure as consists of personnel, network connectivity, well-designed, and compatibility. Accordingly, the adoption of an e-payment platform depends mainly on a modern, seamless, global telecom network connection and the computers and information appliances that connect to it, as well as on a properly deployed infrastructure and human capacity building. The IT personnel possess human and organizational skills, expertise, competencies, knowledge, and commitments, whereas the connectivity dimension refers to the ability of any technology component to attach to any of the other components inside and outside the organizational environment (Kumari, 2013a; Kumari, 2013b). The functionality consists of the ability of the application to perform functions such as add, modify, and remove modules of a software application with little or no widespread effect on the applications collectively.

**Determinants of POS:** Under this section it is describing in details the determinants of POS in selected business organizations in the north-central province, Sri Lanka, which can be defined as the independent variables used to POS in an organization; in this study, the independent sub-variables are the availability of infrastructure, POS security, and Perceived trust of use, customer education and customer motivation.

**Availability of infrastructure:** Infrastructure availability is defined as the availability of a combined set of hardware, software, network facilities, communications, etc. (including all of the information technology peripherals), to develop, test, deliver, monitor, control or support IT services.(Salhie, 2011) Has defined IT infrastructure consists of personnel, network connectivity, well-designed, and compatibility. Accordingly, the adoption of an e-payment platform depends mainly on a modern, seamless, global telecom network connection and the computers and information appliances that connect to it, as well as on a properly deployed infrastructure and human capacity building. The IT personnel possess human and organizational skills, expertise, competencies, knowledge, and commitments, whereas the connectivity dimension refers to the ability of any technology component to attach to any of the other components inside and outside the organizational environment (Kumari 2020; 2021). The functionality consists of the ability of the application to perform functions such as add, modify, and remove modules of a software application with little or no widespread effect on the applications collectively.

**POS Security :** POS Security is defined as a threat which when breached creates an unpleasant situation with the potential to cause harm such as economic hardship to data or network resources or in the form of destruction, disclosure of unauthorized information and modification of data, denial of service, and or fraud, waste, and abuse (Kalakota, 1997). Under this definition, in the context of online banking or electronic payments systems, the threat can be made either through network or data transaction attacks or through unauthorized access to the account using false or defective authentication or use of stolen POS cards. According to (Milind, 1999)security risk is a significant impediment to the adoption of online banking and e-payments systems.

**The perceived trust of use:** Trust has been defined as recognizing and accepting risk in decision making, in recognizing risk one identifies evidence for possible negative outcomes of the situation. One also willfully accepts the recognized risk based on evidence that a positive outcome is possible (Williams Olosojumi, 2017). Trust is an expectation based on inconclusive evidence and is tolerant of uncertainty or risk (Kinship & Hart, 1988) also it is Referring to the belief that the promise of another can be relied upon and that, in unforeseen circumstances, the other will act in a spirit of goodwill and a benign fashion toward the trust. Trust has three characteristics: ability, benevolence, and integrity. (Mayor, Davis, & Schoorman, 1995).

**Perceived customer education:** Customer education on POS is the creation of awareness about the existence of a device, its meaning, what it can do to ensure its patronage or adoption (Williams Olosojumi, 2017). (Rogers, 1995) Has stated that before introducing new technology into the market, there must be a proper awareness creation, where the technology will be detailed, its' benefits to the prospective users and possibly to the society.

**Customer Motivation:** Motivation as defined by (Gredler, 2004)an attribute that propels an individual to perform a task such as the adoption of technology. In a study, two types of motivation have been identified which are, an intrinsic motivation which is the motivation that is animated by personal enjoyment, interest, or pleasure. (Deci, 1999) Observed that the intrinsic motivation energizes and sustains activities through the spontaneous satisfaction inherent in effective volitional action. It is manifest in behaviors such as play, exploration, and challenge seeking that people often do for external rewards. Researchers often contrast intrinsic motivation with extrinsic motivation, extrinsic motivation is motivation governed by reinforcement contingencies. Traditionally, educators consider intrinsic motivation to be more desirable and to result in better learning outcomes than extrinsic motivation (Deci, 1999)If the adoption of POS in an organization attracts user interest, for example, knowing that the use of the

device will not involve the use of cash in this era of robbery pervasion; the organization will be encouraged to adopt the device by users.

### III. METHODOLOGY

This research investigates factors that affect the less customer adoption/ usage of POS terminals in Sri Lanka with special reference to the customers of Bank of Ceylon in North Central Province, Sri Lanka. A total no of 387 customers in North Central province were assessed to determine the extent of their adoption for use of POS terminals. Further, this study employed a descriptive research design. The descriptive research design involves the collection of information from all the sampled individuals through their responses to questions (Mugenda & Mugenda, 2006). A descriptive research design was supportive in collecting data from the employees economically using questionnaires. This design was found appropriate because it described factors that affect the less customer adoption/ usage of POS terminals in Sri Lanka with special reference to the customers of Bank of Ceylon in North Central Province, Sri Lanka. And this study uses a structured and adjusted Likert Scale of 1-5 questionnaires containing 20 questions focused on customers who are customers of Bank of Ceylon in North Central province to investigate the level of extent of adoption/ usage of POS terminals and demographic characteristics. And the questionnaire has been converted as a Google form and those will be overseen through the 'drop and pick later' approach. After all, primary data were collected; the researcher classified it by variables. Excel spreadsheet and SPSS package version 20.0 were used to generate statistical tests. The researcher has analyzed those collected data through Correlation Analysis and Regression Analysis. By using Correlation Analysis, the researcher has analyzed the correlation of whether those variables have strong or weak relationships as well as whether those have positive or negative relationships. And by using the regression analysis, the researcher has identified the coefficients for identified five variables and the constant-coefficient which impact the adoption/ usage of POS terminals in Sri Lanka.

**Conceptual framework:** Based on the previous literature researcher developed a conceptual framework as follows.

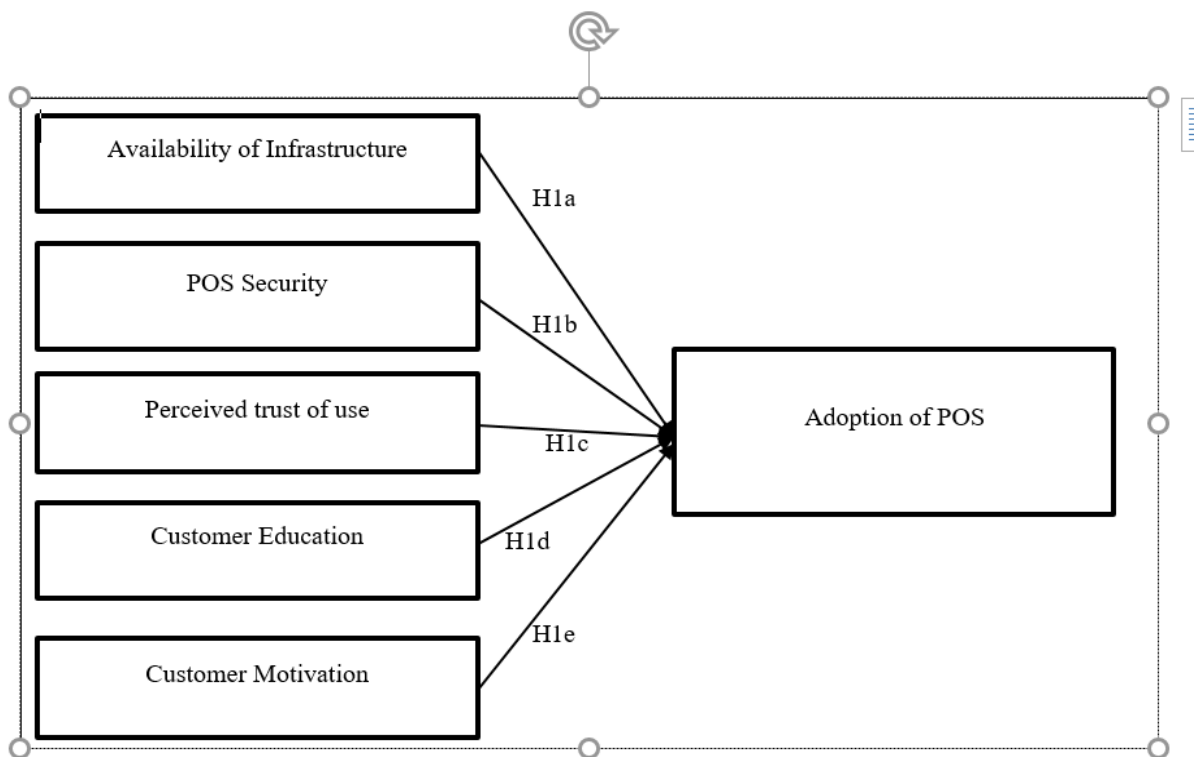


Figure 1: Conceptual Framework

Regarding the conceptual framework, the researcher formulated five sub hypotheses to examine the most significant determinants of the usage of POS in the Sri Lankan context. Therefore, the following hypotheses were formulated and used to test with the relevant data.

**Research Hypotheses:** There is a relationship between the identified factors including Availability of Infrastructure, POS Security, Trust of Use, Customer Education and Customer Motivation, and the Adoption/ Usage of POS terminals by SMEs in Sri Lanka. In addition to the main objective, there were five sub-objectives were formulated and based on those objectives sob-hypotheses also formulated to test the most significant factor on the usage of POS in the Sri Lankan context.

**Sub-Hypothesis**

**(H1a):** There is a significant impact of the availability of infrastructure on the adoption/ usage of POS terminals.

**(H1b):** There is a significant impact of POS security on the adoption/ usage of POS terminals.

**(H1c):** There is a significant impact of the perceived trust of use on the adoption/ usage of POS terminals.

**(H1d):** There is a significant impact of customer education on the adoption/ usage of POS terminals.

**(H1e):** There is a significant impact of the perceived customer motivation on the adoption/ usage of POS terminals.

**IV. RESULTS**

There are five independent variables of this study which are the availability of infrastructure, POS security, and perceived trust of use, customer education, and customer motivation. The relationship was described by the parameters of the correlation coefficients between the dependent and the independent variables. The coefficient shows whether the relationship is strong, weak positive, or negative. Higher coefficients present a strong relationship and vice versa. The sign of the coefficient indicates the direction of the relationship between dependent and independent variables. In this study, the correlation analysis is undertaken to find out the relationship between the adoption of POS terminals and availability of infrastructure, POS security, and perceived trust of use, customer education, and customer motivation. The dependent variable namely adoption of POS terminals is positively related to the perceived trust of use (PTOU), availability of infrastructure (AOI), POS security (PS), customer motivation (CM), and customer education (CEDU). According to the analysis, almost all five variables are strongly positively related (Co+ 0.858, 0.969, 0.933, 0.945, and 0.972) however the rate of responsiveness has the strongest positive relationship with the adoption of POS terminals by SMEs. The strongly positive relationship among the five independent variables and the customer is consistent with the idea that when the perceived trust of use (PTOU), availability of infrastructure (AOI), POS security (PS), customer motivation (CM), and customer education (CEDU) change by one unit at the 95% of significance level it will lead to increase the customer satisfaction by 0.858, 0.969, 0.933, 0.945 and 0.972 respectively as shown below.

**Table 1: Correlations**

	ADOP	PTOU	AOI	PS	CM	CEDU	
Pearson Correlation	ADOP	1.000	.858	.969	.933	.945	.972
	PTOU	.858	1.000	.885	.872	.869	.847
	AOI	.969	.885	1.000	.914	.959	.975
	PS	.933	.872	.914	1.000	.955	.907
	CM	.945	.869	.959	.955	1.000	.961
	CEDU	.972	.847	.975	.907	.961	1.000

**Table 2: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.986 <sup>a</sup>	.972	.970	.314	.972	578.523	5	84	.000

a. Predictors: (Constant), PTOU, AOI, PS, CM, CEDU

Table 3: Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.002	.081		.019	.032	.162	.159
1 PTOU	.063	.057	.047	1.102	.027	.176	.050
AOI	.433	.101	.417	4.299	.000	.233	.633
PS	.506	.071	.469	7.119	.000	.365	.648
CM	.487	.101	.472	4.812	.000	.688	.286
CEDU	.680	.100	.634	6.823	.000	.482	.879

In accordance to the quantitative analysis, it was used Regression Analysis. Regression Analysis is used to measure the relationship between dependent and independent variables. Regression analysis involves identifying the relationship between a dependent variable and one or more independent variables. A model of the relationship is hypothesized and estimates of the parameter values are used to develop an estimated regression equation. Various tests are then employed to determine if the model is satisfactory. If the model is deemed satisfactory, the estimated regression equation can be used to predict the value of the dependent variable given values for the independent variables. The researcher has run a regression model to find out the relationship between the determinants and adoption of point of sales of selected SMEs in Sri Lanka. Thus the researcher has conducted multiple regression analyses. The researcher applied the SPSS statistical analysis to code, enter, and compute the measurements of the multiple linear regressions for the study. The above table summarizes the key findings of the determinants and adoption of point of sales of selected SMEs in Sri Lanka. According to table 2, the coefficient of correlation ( $R^2$ ) is 0.972; it implies that there is a strong positive relationship between the adoption of the POS terminals (Dependent) and the perceived trust of use (PTOU), availability of infrastructure (AOI), POS security (PS), customer motivation (CM) and customer education (CEDU) (Independent variables).  $R$  square is the coefficient of determination that illustrates the ability of an independent variable to explain the deviation of the dependent variable. In this relationship, it is 0.972 which is 97.2%. While the adjusted R square value compares the explanatory power of regression models that contain a different number of predictors. It is more appropriate than R square to describe the coefficient of determination. Here nearly 97 % of adoption of POS terminals towards the identified determinants such as the perceived trust of use (PTOU), availability of infrastructure (AOI), POS security (PS), customer motivation (CM) and customer education (CEDU) are being explained by the variables selected to this study. However, there are 3% of determinants that affect the adoption of POS terminals by SMEs in Sri Lanka. By employing coefficient, it can be explained that how much deviation occurs independent variable when shifting one unit of the independent variable. As per the above data, the coefficient between the Adoption of POS terminals by SMEs and the perceived trust of use (PTOU) is 0.63 at (0.027) significance level. It implies when one unit of change in trust of use (PTOU) will affect to Adoption of POS terminals by 0.63. While one unit of change in availability of infrastructure (AOI), POS security (PS), customer motivation (CM), and customer education (CEDU) also positively affecting to Adoption of POS terminals by SMEs by the 0.433, 0.506, 0.487, and 0.680 respectively at the significance level of 0.000.

As per the results, the estimated regression model can be developed as follows,

$$Y = C + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \epsilon$$

$$ADOP = 0.002 + 0.063PTOU + 0.433AOI + 0.506PS + 0.487CM + 0.680CEDU + \epsilon$$

By considering the coefficient of correlation and regression analysis of the model it is evident that there is a positive relationship between the Adoption of POS terminals and the perceived trust of use (PTOU), availability of infrastructure (AOI), POS security (PS), customer motivation (CM) and customer education (CEDU).

## **V. DISCUSSION**

According to the research objectives, it is needed to examine the most significant dimensions of the less usage of POS in Sri Lanka. As per the findings discussed in the above paragraph, the entire respective path coefficient is estimated as statistically significant. Therefore, the results demonstrate that all the five hypotheses were accepted and all the objectives were achieved. Therefore, the overall findings imply that all the dimensions are a statistically significant and positive impact on the less usage of POS in Sri Lanka. Therefore, the results confirmed that objectives were supported through literature as well as through empirical evidence in the present research context. According to the previous literature, less usage of POS terminals is measured by using different dimensions and the majority of countries are taking five main dimensions as the present research employed. But all the previous literature revealed that those dimensions were tested in the different country context. But in this study dimensions were taken under consideration of the Sri Lankan context with SME point of view and used primary data. Therefore, considering all the dimensions together to determine the less usage of POS terminals achieved new findings. Moreover, there is no research study that can be seen based on identifying the dimensions in SME perspective and especially in Sri Lankan context. Therefore, it can be concluded that the present research can fill the literature gap emphasized by the researcher based on the relationship between identified determinants and the less usage of POS terminals.

## **VI. CONCLUSION**

Based on the research findings, it was revealed that “Customer Education” has the highest significant contribution to determine the less adoption of POS terminals in the SMEs perspective of Sri Lanka. And the “Perceived Trust on Use” was identified as the least significant determinant of less usage of POS terminals. Therefore, it is a good pointer for the POS promoters and for all the interested parties to pay their attention to “Customer Education” as the highest significant factor for further improvements. Especially, the attention of policymakers should be focused on SME’s “Perceived Trust on Use” as the least significant factor of less usage of POS terminals to encourage as the less performed determinant for enhancing the adoption of POS terminals in Sri Lanka. Further, this study makes a special contribution to existing literature and for the policymakers as it provides a clearer understanding of significant determinants on the adoption of POS terminals to enhance the overall way of payments. One of the main limitations of the study is that the research has only focused on the SMEs perspective, not the uses of the cards and the conditions of the service providers (banks). It is recommended for future researchers to focus on such areas as well.

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