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Do Businesses Exhibit Payment Preferences as Payors? Evidence from Malaysia*

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Abstract: This paper examines the factors that affect business to business payment preferences. The payment methods have been classified into three categories, namely cash only, paper based and electronic-paper. A multinomial logistic model was used to determine the effect of the factors on the odds and probability of businesses selecting these three payment methods. The factors were broadly divided into two groups: (i) firm's characteristics and (ii) business payment perceptions and priorities. The findings indicate that characteristics of the firm such as location, business sector, scale of operation, age of the firm, the average total value and volume of monthly payments, and priority of payment attributes have significant effects on business payment preferences. The significance of business priorities in determining the range of payment methods used indicate that businesses that prioritise cost prefer to use electronic-paper based payment methods while those which emphasise convenience and security tend to use paper based payment methods.

Keywords: Business payments, payment preferences, payor
JEL classification: L81, M21, G20

1. Introduction

The payment options available for consumer to business (C2B) payments and business to business (B2B) payments have evolved considerably over the years. Before the onset of electronic payments, consumers and businesses alike used cash or paper based non-cash payment methods only. However, all paper based non-cash payment methods are not cost effective choices for consumers at the retail level as these methods incur additional costs given the need for cash balance verification before payment execution. Nevertheless, cheques and telegraphic transfers are used extensively by businesses especially for payments that are relatively high in value.

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Although extensive literature on consumer payment preferences exist, not many documented studies are found from the perspective of business payments. Studies on consumer payment preferences reveal that preferences are significantly affected by socio-demographic factors (Schuh and Stavins 2010; Hayashi and Klee 2003; Stavins 2001) and perceptions towards the attributes of various payment methods (Schuh and Stavins, 2010; Jonker, 2007; Hirschman, 1982). Conversely, studies on business payment preferences have focused only on business' payment acceptance policies (C2B payments) (Ching and Hayashi, 2010; Simon *et al.* 2010). The consumer's socio-demographic characteristics form the central issue in studies on consumer payment preferences, while studies on business payment acceptance preferences emphasise the business environment of the firms, such as production costs, profit opportunities, network competition or market structure, and the business perceptions of reliability, costs and risks of the payment methods (Wright, 2010; Arrango and Taylor, 2008; Bolt and Chakravorti, 2008; Chakravorti and To, 2007; Rochet and Tirole, 2002).

As researchers seek to address the gaps in the literature on the two aspects of the market which characterise the payments industry, existing studies on business payment preferences have largely focused on the role of business as payee, which is limited to C2B types of payments. Nevertheless, it is conceivable that the factors that affect the payment decisions of business, either as a payor or payee, may differ altogether. For example, studies indicate that Australian businesses with walk-in customers prefer to accept cash but when they make payments to other businesses or suppliers, they prefer to pay using direct bank transfers (Department of Communications, Information Technology and the Arts, 2006). In addition, unlike the C2B payments scenario where acceptance of card payments for walk-in retail sales are emphasised (Bolt and Chakravorti , 2008; Loke, 2008; 2007; Hayashi, 2006; Wright, 2004), the range of payment methods in B2B payments which are more ideally suited for large value transactions may be different. In this context, research on business perceptions, receptiveness and preferences as payors, where choices of payment instruments are not limited to payment cards only, has been largely ignored in the literature.

In view of the foregoing, this paper aims to augment existing studies by examining the factors that affect business payment preferences as a payor, based on a set of data from Malaysian retail merchants. Specifically, the primary focus of the study is on the role of the firm's characteristics and its business payment priorities as a payor. Notwithstanding the plausible role of the merchant's socio-demographic characteristics on the business payments decision, these characteristics are excluded in this study as the respondent may not necessarily be the owner of the firm[5] and, as a result, their responses may not reflect the decision maker's personal characteristics. Findings from the study will enable policy makers and payment providers to better understand the business characteristics that define the Malaysian merchant's business payment preferences. In this case, the needs of the

[5] As business owners are seldom stationed at the premise, the respondents in the study may not be the primary decisions maker of the firm. However, the study assumes that the respondents possess good knowledge of the operations of the business. Of the respondents who participated in this study, 41.2% were owners while 45.3% were supervisors or managers of the firm. Business payment preferences in this study refer to those of the respondents.

businesses could be better satisfied to enable optimum usage and sustainability of the various payment methods.

2. Literature Review

Given the scant literature on business payment preferences, insights for this study are drawn from related studies of consumer payment preferences and business payment acceptance preferences. In consumer payment preferences, transaction characteristics, such as the transaction value and physical characteristics of the point of sale, are found to affect the consumer's choices of payment methods (Bolt *et al.* 2010; Bounie and Francois, 2006; Jonker, 2007; Hayashi and Klee, 2003). Specifically, Bolt *et al.* (2010) found that consumers shy away from using debit cards and would prefer to pay in cash instead if surcharges are imposed on debit card payments. On the other hand, Bounie and Francois (2006) noted that the larger the value of transaction, the higher the probability that consumers will pay for the commodity by cheque or card instead of cash. Further, Hayashi and Klee (2003) posited that the physical characteristics of the point of sale can significantly affect payment choice as the absence of cashiers at points of sales is found to decrease the likelihood of using cheques or debit cards but increases the likelihood of credit cards usage.

In the literature on business payment acceptance preferences, Loke (2007) highlighted that a business has to consider the fixed and variable costs of credit cards acceptance which will have an effect on its profits. Wright (2004), Chakravorti and To (2007, and Rochet and Tirole (2002) also postulated that business size must be large enough in order to make it feasible for merchants to accept credit cards for payments. Further, Webster (2008) stated that the overall adoption of electronic payments in the United States amongst small businesses as payees are lagging compared to larger businesses. In this case, 52 per cent of the small businesses do not accept electronic payments for any transaction. Webster (2008) also reported that although there is a significant decline in the use of cheques, about 48% of small businesses still report cheques as their dominant payment method compared to cash. As payors, the payment method used also depends on the transaction value as well as the payment methods accepted by the suppliers. In this context, Webster (2008) noted that 66% of businesses that report a transaction size of over USD500 do not accept electronic payments, although this type of payment method primarily caters for business payments.

Apart from business characteristics, the payor's perceptions on the various payment attributes are also found to play a significant role in the choice of payment instrument. In the case of consumer payment preferences, Dahlberg and Öörni (2006) noted that the two most important characteristics affecting the adoption of a new payment habit were security and trust. Compatibility with purchase and payment habits, wide applicability, ease of use and cost savings were also found to be contributing factors to the adoption of new payment instruments. In addition, Jonker (2007) suggested that the consumer perception on the cost of using a payment instrument has significant implications on consumer payment preferences.

Based on the literature reviewed, it is postulated that the factors determining the choice of payment methods by businesses are factors relating to the firm's characteristics and its business priorities as a payor. The first set of variables include years of establishment of the firm, business sector and scale of operation, the monthly average and number of payments to suppliers and location, while the second set of factors include security, speed, convenience and cost of payment methods.

Table 1. Major business payment systems in Malaysia

System	Description
National Electronic Cheque Information Clearing System (eSPICK)	An image based cheque clearing system where the cheque image and magnetic ink character recognition (MICR) code line date are captured and transmitted electronically to facilitate clearing
Interbank GIRO (IBG)	An interbank funds transfer system that facilitates payments of up to RM500,000 (USD163,934) per transaction.
Financial Process Exchange (FPX)	An Internet based multi-bank payment platform that leverages on the Internet banking services of banking institutions to offer online payment for electronic commerce (e-commerce) transactions.

Source: Bank Negara Malaysia (2011).

3. Payment Markets in Malaysia

According to the Payment Systems Act 2003, the Central Bank of Malaysia (Bank Negara Malaysia) is the sole authority responsible for the payment and settlement systems in the country. Table 1 outlines the major payment systems that are commonly utilised for business payments in Malaysia.

While cash still dominates in retail payments, particularly at the points of sale, non-cash payments made via various payment systems have increased significantly. For example, cheques are still an important business payment method in Malaysia. While the number of cheques issued per capita declined slightly from about 8 in 2007 to 7 in 2011 (Bank Negara Malaysia, 2012), this reduction is due to the increased availability of e-payment methods offering convenience and at lower cost to businesses. In terms of the value of transactions, however, cheques remain dominant in accounting for 52 per cent of the total value share of non-cash payments despite its reduction from 59 per cent in 2010 (Bank Negara Malaysia, 2012).

The varieties of e-payment methods have grown significantly over the last decade. Businesses can choose from a range of payment methods such as Interbank GIRO (IBG), Financial Process Exchange (FPX), electronic cheque, debit cards, and mobile banking. The increase in the variety of payment methods allow businesses a wider selection of choices in selecting a payment method that best suits their needs, such as the size of its capital and the market, technological level and labour intensity. Meanwhile, Bank Negara Malaysia has also been actively promoting e-payment as a viable alternative to the paper-based payment methods. Besides providing businesses with a wider payment options, e-payment schemes offer enormous benefits to businesses in terms of increased efficiency, cost reduction and enhanced security. For example, payments made before noon by businesses to their suppliers via the IBG could be cleared on the same day. Moreover, the FPX facilitates online payments for e-commerce transactions, Bankcards and debit cards. Bankcard acceptance, electronic

filing, online payment facilities and other e-payment services offered could subsequently result in a reduction of business operation cost.

4. Model Specification

In making business transaction payments, businesses have the options of paying in cash, cheques, electronic methods or a combination of the three. In this study, the range of payment options available to businesses can be broadly divided into three categories, resulting in three different types of business payment preferences. A cash based business payment is defined as one which uses cash payments only. Meanwhile, a paper based business payment is one which uses cash and cheques, or cheques only when making payments. The third group of business payment preference refers to those that utilise some form of electronic payment methods (e.g. payment cards, direct bank transfers, Internet banking and others) alongside paper based payment methods, such as cash and/or cheques (henceforth referred to as electronic-paper). Given the three groups of business payment preferences, the dependent variable in the current study consists of three unordered response categories. In such cases, the multinomial logistic model is an appropriate statistical model in detailing the business payment preferences. In general, the multinomial logistic model is written as:

$$\text{Prob}(y = j) = \frac{e^{\sum_{k=1}^{K}\beta_{jk}X_k}}{1+\sum_{j=1}^{J}e^{\sum_{k=1}^{K}\beta_{jk}X_k}} \qquad j=1,2 \tag{1}$$

where, Prob (y=j) refers to the probability that the business uses primarily paper (j=1) or a combination of electronic-paper payment methods (j=2). The base category is the preference for cash based payments. The vector of explanatory variables is defined in Table 2 and consists of those that pertain to the firm's characteristics and the priorities of the business as a payor when selecting a payment method.

Given the selection of cash based business payments as the base category, the estimates of the other two groups can be compared. The parameters of β have two subscripts in the model, k for distinguishing the explanatory variables (X), and j for distinguishing the category of the payment method. Equation (1) can also be written as

$$\ln\left[\frac{\Pr ob(y = j)}{\Pr ob(y = 0)}\right] = \sum_{k=1}^{K}\beta_{jk}X_k \quad j=1,2 \tag{2}$$

whereby, e^{β} from (1) provides the relative risk ratio and β from (2) gives the log of odds estimates of category j happening in contrast to the base category, 0. The contrast between category 1 (or 2) and the base category can easily be extended to a contrast between categories 1 and 2 by using equation (2). As mentioned by Greene (2003), although the usual focus is on the coefficient estimates, in actual fact, the coefficients of the multinomial logit model are difficult to interpret and associating β_j with the j^{th} outcome would be misleading. Nevertheless, we focus on the marginal effects of the characteristics on the probabilities by differentiating equation (1) to obtain:

$$\delta_j = \frac{\partial P_j}{\partial x_i} = P_j\left[\beta_j - \sum_{k=1}^{2}P_k\beta_k\right] \qquad j=1,2. \tag{3}$$

From equation (3), it can be seen that every sub-vector of β enters every marginal effect, both through the probabilities and via the weighted average that appears in δ_j. To obtain the marginal effect on the probability of the base category 0, we draw on the fact that the marginal effects on the three probabilities sum to zero.

To minimise the confusion that arises from the coefficient estimates, interpretation of the model should therefore be based on the marginal effects of the explanatory variables on the probabilities. It is also pointed out that for any x_k, $\partial P_j / \partial x_k$ need not have the same sign as β_{jk} (Greene, 2003).

5. Data and Variables

5.1 Data

Data for this paper were obtained from Bank Negara Malaysia based on a study on the *Consumers and Merchants Payment Preferences and Usage in the Klang Valley and Penang* that was commissioned in 2009. Following the classification of the Census of Distributive Trade of 2002 (Department of Statistics, 2003), retail businesses were stratified based on various business scales (ranging from micro businesses to those from the small and medium enterprises), business types (retail trade, food and beverages and motor vehicles sectors) and location (Klang Valley and Penang).

Klang Valley and Penang represent the central and northern regions of Peninsular Malaysia respectively. These two locations are chosen because of their higher availability of supporting infrastructure for electronic payments. A total sample of 422 merchants participated in the study. The respondent (merchant) is required to have good knowledge of the operations of the business. A face-to-face interview was administered by trained enumerators based on a prepared questionnaire. In the first two sections of the questionnaire, information on the characteristics of the respondent and the firm were collected. In the subsequent sections, information on the respondent's payment preferences as a payor and payee, and perception and awareness of the various payment methods were obtained.

5.2 Variables

Explanatory variables in Table 2 are broadly divided into two categories: (i) firm's characteristics and (ii) business' priorities as a payor when selecting a payment instrument. The firm's characteristics consist of variables such as the age of the firm, business sector, size, location, average monthly total value and volume of payment transactions to the suppliers and the usage of the computer for business and communication purposes. The age of the firm is divided into three categories: those established less than 5 years ago, between 6–10 years, and more than 10 years ago (reference category). The rationale for dividing the age of the firms into these three specific categories is that they coincide with the development of payment innovations in the country. In the last five years, there has been a rapid adoption of electronic payments at the retail level, including the emergence of Internet banking, mobile payments and Internet platform payments such as FPX. In contrast, electronic payments where only credit cards and charge cards were accepted at the retail level were first introduced more than ten years ago when Internet banking was not in existence.

Businesses from the retail trade, motor vehicle, and food and beverages (reference category) sectors are included in the study. Businesses in the retail trade include all

Table 2. Definition and descriptive statistics of variables in the statistical model

Variable name†	Description	Cash based (%)	Paper based (%)	Electr.-paper based (%)	Total sample (%)
Years established					
Estb05	Established ≤5 years	0.72	0.51	0.59	0.56
Estb610	Established 6-10 years	0.09	0.26	0.19	0.22
Estb11*	Established >10 years	0.19	0.22	0.23	0.22
Business sector					
Retail	Retail trade firm	0.25	0.45	0.64	0.47
Motor	Motor vehicle firm	0.02	0.13	0.06	0.10
F&B*	Food and beverage firm	0.74	0.41	0.30	0.43
Business scale					
Micro	≤5 employees	0.58	0.49	0.51	0.50
SMM*	>5 employees (small/medium/macro enterprise)	0.42	0.51	0.49	0.50
Location					
KV	Located in Klang Valley (central)	0.82	0.71	0.65	0.71
Penang*	Located in Penang (northern)	0.18	0.29	0.35	0.29
Monthly average payment to suppliers (RM'000)					
Avpay15k*	Firm pays out <RM15	0.67	0.35	0.32	0.39
Avpay1550k	Firm pays out RM15-RM50	0.30	0.45	0.44	0.43
Avpay50k	Firm pays out >RM50	0.04	0.19	0.24	0.18
Monthly number of payments to suppliers					
Supay5*	Firm pays ≤5 payments monthly	0.61	0.31	0.31	0.35
Supay610	Firm pays 6-10 payments monthly	0.19	0.30	0.36	0.30
Supay11	Firm pays >10 payments monthly	0.19	0.39	0.33	0.35
Computer	Computer for business & communications	0.16	0.43	0.74	0.53
Priority when choosing payment instrument					
Security	Security most important criteria	0.30	0.51	0.47	0.47
Speed	Speed most important criteria	0.21	0.10	0.14	0.13
Convenience	Convenience most important criteria	0.37	0.29	0.21	0.28
Cost*	Cost is most important criteria	0.12	0.09	0.21	0.12
Sample size (n)		57	268	97	422

† binary variables where 1=yes, 0=no; * reference category

convenience stores, supermarkets, departmental stores, as well as stores selling personal items and accessories, household related products, hobby and recreational products, information technology products and petrol stations. The motor vehicle sector encompasses businesses that deal with vehicle maintenance and repair, as well as shops selling vehicle parts and accessories. Next, the food and beverages sector covers snack bars, cafes, restaurants, pubs and bars and the fast-food chains.

The size of the business is measured in three ways. First, it is measured in terms of the number of employees hired. A firm with less than 5 workers is classified as a micro scale firm, while a firm employing 5 to 50 workers is considered as a small and medium business entity. This classification follows that of the *Small and Medium Industries Development Corporation (SMIDEC)* in Malaysia. Second, the business size of the firm is also measured in terms of the average monthly total value of payments paid out to the suppliers. In this case, the average monthly total value of payments paid out to suppliers is classified into three categories: those that pay out less than RM15,000 (USD4,983) monthly, between RM15,000 (USD4,983) to RM50,000 (USD16,611) monthly, and above RM50,000 (USD16,611) per month. Last, the business size of the firm is also measured in terms of the average monthly total volume of payments paid out to suppliers: less than 5 payments, between 6–10 payments and more than 10 payments per month.

In terms of business' priorities as a payor when selecting payment instrument, respondents are canvassed on the payment attribute that is considered as the most important attribute when selecting a payment instrument. The four payment attributes are security, cost (reference category), speed and convenience.

5.3 Descriptive Statistics

Descriptive statistics of variables in the statistical model are presented in Table 2. Of the 422 total businesses (merchants), 57 (13.5%) made business payments using cash only, while 268 (63.5%) and 97 (23%) used paper based and electronic-paper business payments, respectively. The majority of the firms (56%) were established less than 5 years ago, while those established between 6–10 years and more than 10 years ago are evenly distributed (22%). Among the three business sectors, the retail trade sector (64%) stands out as being most electronic-paper friendly in terms of choice of business payments methods.

Based on the breakdown from the Census of Distributive Trades of 2002 (Department of Statistics, 2003), 71 per cent of the businesses were sampled from the Klang Valley region. It is interesting to note that compared to Penang (the northern region), businesses in the Klang Valley are slightly more conservative in terms of their choice of payment methods. This is evident from the fact that 82 per cent of the businesses that use cash based payments are from Klang Valley while only 18 per cent of such businesses are from Penang. On average, 39 per cent of the businesses reported that their firms pay out less than RM15,000 (USD4,983) a month, while 43per cent and 18 per cent of the businesses pay out between RM15,000 (USD4,900) to RM50,000 (USD16,611) monthly, and above RM50,000 (USD16,611) per month, respectively. Generally, it can be seen that the majority of those using cash based payments pay out less than RM15,000 (USD4,983) a month, while the businesses that pay out more than RM50,000 (USD16,611) a month constitute 19 per cent and 24 per cent of the paper based and electronic-paper based payment methods, respectively. It is noteworthy that businesses that have to incur a higher number of monthly

payments (to more than 11 suppliers a month) are not inclined to be strictly cash based only. Meanwhile, businesses that make payments to less than 5 suppliers a month make up the majority of those choosing to be strictly cash based.

On average, 53 per cent of the businesses surveyed use computers for business and communication purposes and the majority of those which are electronic-paper friendly belong to this group of computer savvy users (74%). The majority of the businesses (47%) prioritise security as the deciding factor when selecting payment methods as a payor, followed by convenience (28%), speed (13%), and cost (12%). Of the businesses that use paper based payment methods, 51 per cent viewed security to be the most important factor. Similarly, 47 per cent of the businesses utilising electronic-paper based payment methods agree that security is the top priority. In contrast, the majority (37%) of the businesses that are strictly cash based, place high importance on convenience when deciding on the method of payment.

6. Empirical Results

6.1 Parameter Estimates

The estimated coefficients and odds ratio for each of the explanatory variable are presented in Table 3. The parameter estimates represent the contrast between the paper based and electronic-paper businesses with the cash based businesses (columns 1 and 2) and the contrast between the electronic-paper businesses and the paper based businesses (column 3). The goodness of fit of the model is indicated by the likelihood ratio LR $_{\chi^2,28}$ = 146.39.

In general, it is found that the firm's characteristics have significant influence on business payment preferences between those that are either paper based or electronic-paper friendly when compared to those that are strictly cash based. On the other hand, business payment priorities as a payor is found to have a significant effect only for the decision between those that are electronic-paper friendly in contrast to paper based businesses.

Specifically, the results show that older firms are more resistant to change. Firms established between 6–10 years ago have higher odds of being either paper (4.47 times) or electronic-paper (3.34 times) based than cash based compared to those established beyond 10 years. This is possibly due to the fact that cash payments were the main form of payments more than 10 years ago and these older firms have retained their payment mode over the years.

The type of business sector has significant influence on business payment preferences. There exists higher tendencies for businesses in the retail and motor vehicle sectors to be non-cash based compared to businesses in the food and beverages sector. This is evidenced by the results that retail (3.56 times) and motor vehicle (20.91 times) businesses have higher odds of using paper based payment methods than strictly cash compared to those in the food and beverages sector. Meanwhile, retail (7.75 times) and motor vehicle (18.78 times) businesses have higher odds of utilising electronic-paper based payment methods than strictly cash compared to businesses in the food and beverages sector. Further, retail sector businesses have 2.17 times higher odds of being electronic-paper friendly than being paper based compared to those in the food and beverage sector. However, there is no significant difference in the odds of using electronic-paper payments rather than paper based payments between businesses in the motor vehicle sector and those in the food and beverages sector. It is also interesting to note that between the retail and motor vehicle sectors, the odds of

Table 3. Coefficients and odds ratio of the multinomial logit model

	Paper vs cash based (1)		Electronic-paper vs cash based (2)		Electronic-paper vs paper based (3)	
Explanatory variables	Coefficient	Odds ratio	Coefficient	Odds ratio	Coefficient	Odds ratio
Estb05	0.097	1.102	0.164	1.178	0.067	1.069
	(0.447)		(0.515)		(0.328)	
Estb610	1.562**	4.770	1.206*	3.340	–0.356	0.700
	(0.654)		(0.727)		(0.388)	
Retail	1.271***	3.563	2.047***	7.745	0.779**	2.174
	(0.410)		(0.472)		(0.301)	
Motor	3.040***	20.906	2.933**	18.781	–0.107	0.898
	(1.095)		(1.182)		(0.521)	
Micro	–0.771*	0.462	–0.928**	0.395	–0.157	0.855
	(0.398)		(0.460)		(0.289)	
KV	–0.808*	0.446	–1.246**	0.288	–0.438	0.646
	(0.463)		(0.511)		(0.282)	
Avpay1550k	0.516	1.675	0.430	1.537	–0.086	0.918
	(0.389)		(0.459)		(0.312)	
Avpay50k	1.612*	5.012	1.531*	4.622	–0.081	0.922
	(0.825)		(0.880)		(0.392)	
Supay610	1.364***	3.912	1.552***	4.720	0.188	1.206
	(0.447)		(0.509)		(0.318)	
Supay11	0.857*	2.355	0.533	1.705	–0.323	0.724
	(0.441)		(0.513)		(0.328)	
Computer	1.715***	5.557	2.622***	13.766	0.907***	2.477
	(0.424)		(0.479)		(0.291)	
Security	0.620	1.859	–0.201	0.818	–0.821**	0.440
	(0.597)		(0.640)		(0.370)	
Speed	–0.295	0.745	–0.739	0.477	–0.445	0.641
	(0.678)		(0.747)		(0.482)	
Convenience	0.396	1.487	–0.890	0.411	–1.286***	0.276
	(0.606)		(0.677)		(0.425)	
Constant	–0.189		–0.907		–0.718	
	(0.797)		(0.883)		(0.551)	
$LR_{\chi^2,28}$			146.390			

Asterisks indicate levels of significance: *** = 1%, ** = 5%, * = 10%. Standard error in parenthesis

businesses in the motor vehicle sector to utilise non-cash based payment methods instead of strictly cash are consistently higher compared to the retail sector. This outcome could be a consequence of the magnitude of payments made, as evidence from the survey suggests that the average monthly payments to suppliers by businesses in the retail sector are relatively higher than those in the food and beverages sector while no such differences are noted for motor vehicle businesses.

The business scale is found to have a significant effect when businesses consider between being paper based or electronic-paper friendly in contrast to being cash based. A micro-scale business has lower odds to be non-cash based compared to one that is operating a large scale business. This is due to the outcomes that businesses in micro-scale have lower odds of being paper based (0.46 times) and being electronic-paper friendly (0.40 times) than relying strictly on cash compared to businesses operating in a large business environment. It is observed that micro-scale businesses have to pay out on average a lower value of payments than those in the macro-scale. As a result, there is less need for non-cash payment methods.

The odds for businesses operating in the Klang Valley rather than in Penang, to be paper based and electronic-paper friendly compared to being cash based decreases by 0.45 times and 0.29 respectively. However, no significant differences are found between electronic-paper based businesses compared to paper based businesses in terms of the effect of location on businesses' payment preferences.

The significance of average monthly value of payments to suppliers is found only between a business that pays out RM50,000 (USD16,611) and more monthly compared to a business that pays out less than RM15,000 (USD4,983) monthly. Further, this is only found to affect payment preferences between being paper based and electronic-paper friendly in contrast to being cash based. The odds of being paper based and electronic-paper friendly increases by 5.01 times and 4.62 times respectively for a business that pays out an average monthly bill of RM50,000 (USD16,611) and more compared to a business that pays out less than RM15,000 (US$D,983) a month to suppliers. One possible rationalisation for this outcome is that businesses that have to disburse higher value payments may need to depend on the use of credit or overdraft facilities and this cannot be solely carried out using cash payments.

While higher monthly payment value increases the tendencies of using non-cash payment methods, similar observations are also found in terms of the volume of payments. A business that has a higher volume of payments has higher odds of being either paper based or electronic-paper friendly as compared to being strictly cash based. However, no significant differences are noted for being electronic-paper friendly compared to being paper based. In essence, the significance of both the value and volume of payments on the probability of cash usage emphasise the notion that cash is not a cost effective payment method for both high value and volume of payments.

Use of computers for business and communication purposes is found to have statistically significant and positive influence on businesses to move away from strict cash based business payments compared to those who do not use computer at all. This finding corroborates those of consumer's payment preferences, whereby Hayashi and Klee (2003) found that consumers who use computers are more likely to use electronic payment methods. Further, a firm that uses computers would be more comfortable with technology and, hence, would have a more positive perception on newer payment methods.

Business priorities of payment method attributes as a payor is found to have significant influence only for the case between being electronic-paper friendly in contrast to being paper based. For a business that prioritises security, the odds of the business being electronic-paper friendly rather than being paper based is 0.44 times higher than a business that prioritises cost. In terms of percentage, the odds of a business using an electronic-paper method of payment decreases by 56 per cent. This also implies that for a business that prioritises cost, the odds of it being electronic-paper friendly is 2.27 times higher than a business that prioritises security. Comparing the choice of payment methods based on priorities of cost and convenience, it is found that for a business that prioritises convenience, the odds of choosing electronic-paper methods of payment rather than paper based payment methods is only 0.28 times higher than a business that places priority on cost. Overall, the findings show that business payment preferences are significantly dictated by the firm's characteristics such as the business sector, business scale, age of the firm and the size of monthly payment commitments (volume and value). The significance of business' priorities as payor which is only observed between electronic-paper friendly and paper based businesses suggest that paper based payment methods are preferred when businesses are concerned with security and convenience. On the other hand, when the priority of the businesses is on cost, merchants prefer to use electronic-paper payment methods compared to paper based payment methods.

6.2 Marginal Effects on Probability

The study further examined the marginal effects of each explanatory variable on the probability that a business payment is cash based, paper based or electronic-paper friendly. From the mean values in Table 2, the typical profile of a business selected here refers to a micro scale retail trade business which was established less than 5 years ago located in the Klang Valley region, with an average value of monthly payments between RM15,000 to RM50,000 (USD4,900 to USD16,340) to suppliers and pays out to less than 5 suppliers a month. Further, the typical business uses the computer for business and communication purposes and considers security of a payment method as the most important attribute when selecting a payment method for making business payments. The probability of the typical business to be strictly cash based, paper based and electronic-paper friendly are thus 5.04 per cent, 58.4 per cent and 36.56 per cent respectively.[6] The marginal effects of the explanatory variables on the probability of using strictly cash, paper based and electronic-paper payment methods are detailed in Table 4.

The type of business sector has a significant effect on the probability that the business payment preference is cash based or electronic-paper friendly. Compared to a business in the food and beverage sector, a business in the retail sector is 14.2 per cent less likely to use strictly cash, whilst it is 18.5 per cent more likely to use electronic-paper based payment

[6] The probability of a typical business payment being paper based and electronic-paper friendly is derived from Equation (2). The probability for the reference category (cash based) business payment is calculated based on the following formula $\text{Prob}(y=3) = \frac{1}{1+\sum_{j=1}^{J} e^{\sum_{k=1}^{K}\beta_{jk}X_k}}$, where j=1, 2.

Table 4. Marginal effects of explanatory variables on the probability of using cash only, paper based, or electronic-paper based payment methods

Explanatory variables	Cash only	Paper based methods	Electronic-paper based methods
Estb05	–0.006	–0.011	0.017
	(0.097)	(0.072)	(0.074)
Estb610	–0.038	0.103	–0.065
	(0.023)	(0.082)	(0.083)
Retail	–0.142*	–0.043	0.185***
	(0.073)	(0.082)	(0.061)
Motor	–0.048*	0.054	–0.007
	(0.028)	(0.121)	(0.120)
Micro	0.028	0.020	–0.047
	(0.020)	(0.068)	(0.069)
KV	0.031	0.086	–0.117*
	(0.022)	(0.068)	(0.069)
Avpay1550k	–0.029	0.037	–0.008
	(0.025)	(0.069)	(0.072)
Avpay50k	–0.040	0.043	–0.003
	(0.025)	(0.091)	(0.091)
Supay610	–0.038	–0.021	0.059
	(0.024)	(0.074)	(0.075)
Supay11	–0.026	0.087	–0.061
	(0.021)	(0.071)	(0.073)
Computer	–0.227***	0.007	0.220***
	(0.097)	(0.099)	(0.062)
Security	–0.012	0.197**	–0.185**
	(0.034)	(0.083)	(0.090)
Speed	0.026	0.075	–0.101
	(0.048)	(0.100)	(0.094)
Convenience	–0.003	0.228***	–0.225***
	(0.027)	(0.070)	(0.068)

Asterisks indicate levels of significance: *** = 1%, ** = 5%, * = 10%. Standard error in parenthesis

methods. At the same time, businesses in the motor vehicle sector have a 4.8 per cent lower probability of being cash based compared to their peers in the food and beverages sector.

A business that operates in the Klang Valley has a 11.7 per cent lower probability of being electronic-paper friendly compared to one that operates in Penang. Compared to a business that does not use computer at all for business and communication purposes, computer users are 22.0 per cent more likely to be electronic-paper friendly but are 22.7 per cent less likely to use strictly cash only for their business operations.

Last, the business' payment priority when making business payments is found to have a significant effect on the probability of being paper based and electronic-paper friendly. A business that prioritises the security of a payment method compared to its cost has a 19.7 per cent higher probability of being paper based but is 18.5 per cent less likely to be electronic-paper friendly. On the other hand, a business that prioritises the convenience of

a payment method compared to its cost has a 22.8 per cent higher probability of being paper based but has a 22.5 per cent lower probability of being electronic-paper friendly. In other words, a business that prioritises security and convenience over cost is more likely to be paper based than to be electronic-paper friendly.

7. Conclusion

The study on B2B payment preferences has remained largely unexplored while existing studies on business' payment preferences have been limited to business acceptance of credit cards which focuses on payments received from customers (C2B). This paper sets out to examine the factors that are likely to affect the B2B payment preferences as a payor. The factors were divided into two broad categories, namely the firm's characteristics and the business priorities as a payor when selecting payment methods. The findings indicate that business payments are affected significantly by the firm's characteristics and business priorities in terms of security, speed, cost and convenience when selecting payment methods.

Among the firm's characteristics, it is worth highlighting the significance of the business sector in determining the type of payment methods preferred by merchants. In fact, the type of business sector indirectly affects the value and volume of transactions that takes place. The food and beverage sector is a relatively low valued business industry compared to the retail trade and motor vehicle sector.[7] The finding shows that the food and beverage sector and businesses that have lower value of monthly payments depend heavily on cash, while non-cash payment methods are more prevalent in the retail trade and motor vehicle sectors as well as businesses with higher values and volume of payments. In other words, cash is still the most preferred payment method by the food and beverage sector and also businesses that have a low value and volume of payments.

The relationship between business' priorities when selecting payment methods and the probability of using paper and electronic-paper based payment methods reveal that paper based methods such as cheques are preferred when businesses consider security and convenience as relatively more important than cost. When cost is the priority, businesses prefer electronic-paper payment methods compared to paper based methods. In terms of policy implications, it is suggested that efforts to accelerate the migration to electronic-paper payments should therefore be concentrated in convincing businesses of the security and convenience of using electronic-paper payment methods over cheques.

This study represents one of the first attempts at identifying and estimating quantitatively the effect of factors that influence B2B payment preferences in Malaysia. Unlike consumer payment decisions, where the focus is on consumer's background and personal preferences, this study highlights the roles played by the business environment and institutional factors that can significantly dictate business payment preferences. In other words, to meet business

[7] A cross-tabulation was carried out between each sector's payment preferences as payors for B2B payments and payment acceptance behaviour as payees for C2B payments. The Chi-square statistics obtained from the cross-tabulation showed that business payment preferences as payors and payees are not independent of each other for all three business sectors. A business that prefers paper-based payments as a payee will also prefer the same method of payment as a payor. As indicated by the correlation coefficient, the relationship between payor and payee preferences is moderate. Cross-tabulation results can be obtained from the authors upon request.

payment needs, payment providers should take careful consideration of the varying characteristics of the business environment when formulating their strategies to develop and penetrate the B2B payment markets.

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