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The Insurance Behavior Evaluation Process of Workers in the Container Terminal Operation Context: An Example in the Port of Kaohsiung ☆

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Abstract

The aims: This study aims to elucidate workers' compensatory accident insurance purchasing behavior, as well as proposing a model to explain the behavioral intentions of front-line workers to purchase compensatory accident insurance.

The scope: The workers of the container terminal in the Kaohsiung port were used as the sample in this study.

Methodology: A questionnaire survey was administered to collect workers' perceptions of accident insurance. The analysis methods of EFA, CFA and SEM were employed for further analysis.

Conclusions: According to a primary component factor analysis, three dimensions of insurance perception were found: perceived risk; perceived need for accident insurance; and perceived usefulness of accident insurance. The findings indicate that perceived risk, perceived need, and perceived usefulness of accident insurance positively affect the intention to purchase accident insurance. It is also found that perceived need constitutes the major factor affecting the intention of front-line workers to purchase accident insurance. However, perceived need is determined to play both a mediating and modulating role in the insurance behavior evaluation process model.

Keywords: Insurance behavior, Evaluation process, Risk, Uncertainty, Container terminal

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1. Introduction

An exemplary and robust health insurance system exists in Taiwan, which provides both complete health care and medical services for all citizens. In addition, within the system, blue-collar workers receive additional labor insurance. However, the insurance system does not offer full compensation for workers who have accidents in the workplace, as is customarily the case in many developed countries, such as Germany, Austria, and Japan. In Taiwan, there are still some cases in which a worker, as the major financial supporter of the family, experiences an adverse incident or accident that resulted in his or her family experiencing a major hardship. When these cases occur, they frequently involve low-level front-line workers. These situations have identified a major gap in insurance coverage for citizens in Taiwan. To protect against such serious losses, Taiwanese workers can purchase compensatory accident insurance. This is especially critical when the job in question is one that involves a high degree of risk of physical injury.

According to the statistics of the Labor Insurance Bureau of Taiwan (2016), 4.62 per one thousand people in the transportation and communication sector experienced an accidental occupational injury, a rate that is higher than average for all workers in Taiwan. Through conducting interviews with front-line workers in the transportation and communication sector, the authors discovered that most of them did not take any precautions against the occurrence of accidents that would cause them serious injury and require that they leave their jobs for a prolonged period of time. Insurance providers must provide customers with customized services and solutions that are appropriate to their total financial requirements. It is also necessary that insurance providers market effectively to prospective customers. However, many front-line workers do not own compensatory accident insurance protection. Why don't workers purchase compensatory accident insurance, especially when their work is associated with high risk of physical injury? Does the concept of insurance not seem sufficiently important to workers, or have insurance providers simply failed to attract their attention and convey the importance of such insurance?

Most extant research on insurance purchase decisions views purchasing insurance as merely a monetary transaction, and assumes that these decisions depend on well-specified quantitative factors, such as premiums, probability of loss, and size of compensation. However, due to limited data availability, many consumers are initially not cognizant of the exact probability of loss. In fact, very few consumers actually use normative cost-benefit analyses to guide their insurance related decisions. Moreover, these decisions are frequently complicated and seem to result in anomalous behavior (Kunreuther and Pauly, 2005). However, Hsee and Kunreuther (2000) pointed out that a consumer's feeling toward an object is a determinant of decision-making. Therefore, consumers' perspectives on decision-making under uncertainty or decision-making under insufficient information were investigated in the present study.

With an aim to understand the primary factors affecting the behavioral intentions of workers to purchase compensatory accident insurance in the container terminal operation context, a model was also proposed that accounted for the determinants of the intention of front-line workers to purchase this insurance. This model employed with empirical data in the current study. In addition, the determinants of influencing factors were investigated, and their implications for the marketing strategies of insurance companies were discussed.

The organization of the current paper was divided into five sections. After the introduction presented above, the second section reviewed the relevant literature concerning insurance and the theory of reasoned action (TRA) to form the research concept and hypotheses. The methodology is presented in the third section. The fourth section contains the results of the analyses, including respondent profiles, exploratory factor analyses, confirmatory factor analyses, and hypotheses tests. The study findings and discussion are presented in the final section.

2. Literature Review

2.1. Theories Regarding the Decision Making

Prior researchers (Fishbein and Ajzen, 1975) assumed that individuals are usually rational and make systematic use of information available to them. More specifically, people are generally expected to consider the implications of an action before they decide whether or not to engage in it. Therefore, these researchers developed the theory of reasoned action (TRA), which identifies subjective norms and attitudes as the determinants of behavioral intentions to predict behaviors and outcomes (Ajzen and Fishbein, 1980, p.5). In 1989, Davis (1989), based on the TRA, developed the

technology acceptance model (TAM) and utilized it to explain how information systems (IS) are used (Davis, 1989; Tsai, 2016). The TAM comprises four primary dimensions: perceived ease of use (PEU); perceived usefulness (PU); attitude towards use (ATU); and behavioral intention of use (BIU). Moreover, Ajzen considered the aspects of behavior and attitude as residing on a continuum from one of little control to one of great control, and developed the theory of planned behavior (TPB) (Ajzen, 1991) to predict deliberate behavior, assuming that some behaviors are neither voluntary nor controllable.

These three theories are based on the importance of an individual's beliefs, and conceived as a general structure designed to explain and predict human behaviors (Ajzen and Fishbein, 1980; Ajzen, 1991; Davis, 1989). These theories provide a framework to study attitudes toward behaviors under uncertainty. According to the theories, the most important determinant of a person's behavior is behavior intent. The individual's intention to perform a behavior is a combination of attitudes, including behavioral belief, evaluations of behavioral outcomes, subjective norms, normative beliefs, and motivation to comply (Davis et al., 1989; Davis and Venkatesh, 1996). The TRA and the TAM, although seeming to imply that there are no limitations on a user's actions, could not explain emotional or irrational behavior (Silva, 2007). Previous researchers have been applying these physical cognitive concepts to predict and understand motivational influences on behavior that is not under the individual's volitional control, to identify how and where to target strategies for changing behavior, and to explain virtually any human behavior. The authors consider that these basic theories can provide reliable and accurate estimations in the current study, as long as an adequate subject is chosen for analysis (Mathieson, 1991; Straub et al., 1995).

2.2. Insurance and Insurance Behaviors

Insurance constitutes a means of guaranteeing against loss or harm. People and entities purchase insurance against possible loss or harm occurring in specified contingencies, such as fire, death, disability, accident, marine disaster, earthquake, etc. The cost of a specific insurance plan is assumed to be proportionate to the likelihood and seriousness of the risk involved. Insurance is also considered to be an indicator of quality-of-life in developing countries (Gautam and Kumar, 2012). The demand for insurance is properly considered within the consumer's lifetime allocation process (Bernheim, 1991; Campbell, 1980; Fisher, 1973; Lewis, 1989). However, Conlisk (1996) suggested that appliances and insurance may be large relative to their potential benefits. The container terminal of a seaport is an intersection node of seaborne transportation and hinterland, and it is where containers are loaded, unloaded, and transferred to other destinations. According to the interviews, indicated that the workers frequently encounter dangers deriving from heavy traffic of yard trailers and yard cranes, falling objects, falling from heights, etc. Therefore, working in a container terminal is considered to be a high-risk job.

Kruse and Ozdemir (2004) explored the relationship between an individual's risk perceptions and his or her willingness-to-pay for increased safety regarding a low-probability, high-consequence event. Certain factors, such as consumers' perceived value (Smith, 2006), satisfaction (Kuhlemeyer and Allen, 1999), and purchase decision-making responsibility (Barron and Staten, 1995) have been considered to be the most important in the extant literature examining attitudes and perceptions of life insurance policy-holders. However, these effects cannot be accurately predicted by standard decision theories (Hsee and Kunreuther, 2000).

Accordingly, insurance behavioral intentions are used for measuring workers' behaviors regarding purchasing accident insurance in this study. Based on the models of TRA, TAM and TPB, but ignoring perceived behavioral control, one dimension of the TPB model, the research conceptual model utilized in the present study was established, as shown in Figure 1.

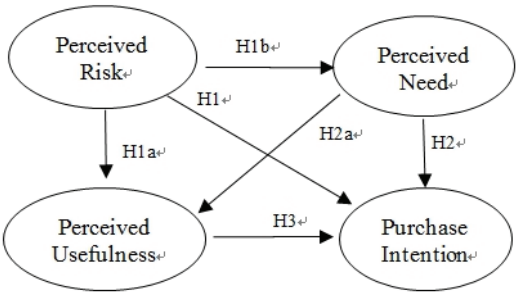

Fig 1 Research conceptual model

Perceived risk of work (PRW)

Safety is the primary concern regarding activity in the workplace. Workers usually consider their exposure to the chance of injury or loss due to either an acknowledged hazard or occurrence of a dangerous accident. They generally seek opportunities to work in a safe environment or to obtain high premiums to offset the

corresponding risks. The studies (Chang and Liao, 2010; Fabrigar et al., 2006) suggested that increases in knowledge are associated with greater influence of attitude on behavior. Kanuk and Schiffman (2000) pointed out that workers' learned predispositions and attitudes possess a motivational quality. Zimmer et al. (2009) indicated the awareness of default risk exerts an influence on consumers' insurance purchase behavior. Specifically, risk perceptions might either propel someone towards or repel him or her away from a particular behavior. Thus, three hypotheses were postulated, as follows:

H1: Perceived risk has a positive effect on a worker's intention to purchase compensatory accident insurance in the container terminal operation context;

H1a: Perceived risk has a positive effect on a worker's perception of the usefulness of accident insurance in the container terminal operation context;

H1b: Perceived risk has a positive effect on a worker's perceived need for accident insurance protection in the container terminal operation context.

Perceived need for accident insurance (PNAI)

'Need' here refers to a situation in which a person must do or possess something. When a worker has a strong feeling that his or her work circumstances present a high level of risk and action must be taken to offset it, he or she would generate a need for insurance. If a person learned that insurers of that event typically pay out in good benefits of what they collect in premiums, then this may be sufficient to convince him or her to purchase corresponding coverage. Kahneman and Tversky (2000) demonstrated that individuals do not appear to be able to accurately distinguish among different values of probability. Individuals generally hold prior beliefs about loss probabilities, make rational decisions based on expected utility maximization, and determine how much effort to put into refining those beliefs and choosing behavior. Therefore, the following hypotheses were postulated:

H2: Perceived need for accident insurance has a positive effect on a worker's intention to purchase accident insurance;

H2a: Perceived need for accident insurance has a positive effect on a worker's perceived usefulness of accident insurance.

Perceived usefulness of accident insurance (PUAI)

The definition of perceived usefulness in the TAM is "the extent to which a person believes that using the system will enhance the job performance" (Venkatesh and Davis, 2000; Igbaria et al., 1997). Some research has also suggested that perceived usefulness is positively associated with performance, usage, or use intention (Olson and Boyer, 2003). Thus, it was posited that:

H3: Perceived usefulness of accident insurance has a positive effect on a worker's intention to purchase accident insurance.

3. Methodologies

3.1. Measures

This study aims to explore the insurance behavior of workers based on the theory of reasoned action (TRA), the technology acceptance model (TAM), and the theory of planned behavior (TPB) (Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975; Ajzen, 1991; Davis, 1989). A questionnaire survey was administered to collect research data. Before conducting the survey, the questionnaire was first developed based on the recommendations of Churchill and Iacobucci (2004). Therefore, an organized review of the survey's contents was performed to ensure completeness. The literature review and interviews with practitioners were employed to assess the content validity of the questionnaire in this study. The attribute development was performed according to the results of interviews with workers in the container terminal operation context and previous studies (Davis, 1989; Tsai, 2016). They were modified according to four primary dimensions: perceived risk of work; perceived need for accident insurance; perceived usefulness of accident insurance; and intention behavior to purchase accident insurance.

A pre-test was then carried out to evaluate whether the questionnaire contents accurately reflected the workers' perceptions in the container terminal operation context. Consequently, the responses received from the pre-test were applied for a minor correction of the formal questionnaire used in the present study. The refined measurement items consisted of three parts: demographic information; measures of the accident insurance TRA model, and the explanation factor of intention behavior to purchase accident insurance. The respondents were asked to rate their perceptions on a five-point Likert scale, from '5 = strongly agree' to '1 = strongly disagree'.

3.2. Sampling

According to the study aims, the samples were focused on workers in the major container terminals in the port of Kaohsiung, including the terminals of APL, Evergreen, Hanjin, OOCL, Wan Hai, and Yang Ming. The questionnaire was directly distributed to the workers and collected by the study contributors at each workplace from July to the end of September, 2012. In total, 350 questionnaires were sent to the mentioned container terminals, and 213 were returned. Questionnaires that were not completed were discarded. Overall, 179 were valid, with a return rate of 51.14%.

4. Results

4.1. Respondent Profiles

Profiles of the respondents and their characteristics are presented in Table 1. The results reveal that most of the participants (60.9%) in the survey were working for a collaborative company, 25.1% for a carrier, and 14.0% for a manpower-dispatching company, respectively. The vast majority of workers were male (91.6%). Among the 179 samples, 40.2% were older than 40-year-old, 59.2% had attained an educational level of high school or less, and 59.8% were in the operations department. The primary designation of the respondents was general staff (41.9%) and front-line worker (44.2%), respectively. The results revealed that most of the respondents in the current study were front-line workers and suitable for the study aims.

4.2. Results of Exploratory Factor Analysis

A multi-attributes approach was employed to measure the workers' perceptions of insurance behavior. Factor analysis can be used to reduce a large set of measures into a smaller and manageable set of underlying dimensions (Hair et al., 2006). Factor analysis with VARIMAX rotation was utilized to identify the key dimensions of workers' insurance behavior in the container terminal context in the present study.

The KMO value of 0.916 indicated that the data were suitable for conducting the factor analysis, and the Bartlett Test of Sphericity [χ^2= 3319.09, P < 0.00] suggested that correlations existed among some of the response categories. Eigenvalues greater than one were used to determine the number of factors in each data set (Churchill and Iacobucci, 2004). The results presented in Table 2 reveal that three factors accounted for approximately 85.09% of the total variance. To facilitate interpretation, only factors with a loading of 0.50 or higher were extracted (Hair et al., 2006). Three dimensions were subsequently found to underlie the perceptions of the accident insurance TRA model based on the participants' responses. The first factor of this accident insurance TRA model concerns the perceived usefulness of accident insurance (PUAI), consisting of five items with a Cronbanch's α value of 0.965 and accounting for 30.25 % of the total variance. The second factor relates to "perceived risk of work (PRW)", and includes five item dimensions (α=0.948) and accounts for 28.63% of the total variance. The third factor consists of content relating to the "perceived need of accident insurance (PNAI)", which comprises five items (α= 0.948) and accounts for 26.21% of the total variance. All of the coefficients of Cronbanch's α were at least 0.948 and above the cut-off criterion of 0.7 (Nunnally, 1978).

Table 1 Profile of the respondents

Characteristics of respondents		Frequency	%
Category of company	Carrier	45	25.1
	Collaborative company	109	60.9
	Tally or manpower dispatch	25	14.0
Gender	Male	164	91.6
	Female	15	8.4
Age	21-30	30	16.8
	31 -40	77	43.0
	Older than 40	72	40.2
Education level	High school or less	106	59.2
	College/university	65	36.3
	Master or above	8	4.5
Department	Document and management	37	20.6
	Yard management	35	19.6
	Operations	107	59.8
Position	Manager or supervisor	25	13.9
	General staff	75	41.9
	Front-line worker	79	44.2

4.3. Confirmatory Factor Analysis Results

Confirmatory factor analysis (CFA) involves the specification and estimation of one or more hypothesized models of factor structure, each of which proposes a set of latent variables to account for covariance among a set of observed variables (Lu et al., 2006). CFA was conducted to test the convergent validity of the constructs of the model.

Table 2 Results of factor analysis

	Measures	Component		
		1	2	3
V13	I think that compensatory accident insurance can make up for a lack of labor insurance.	.906	.138	.310
V14	I think that compensatory accident insurance can protect workers' requirements when an accident occurs.	.887	.170	.211
V12	I think that compensatory accident insurance can protect my work risk.	.875	.111	.367
V15	I think that the protection of compensatory accident insurance is reliable.	.859	.254	.178
V11	I think that compensatory accident insurance is useful.	.848	.116	.399
V4	I have a high risk to be crushed by a work apparatus.	.191	.902	.175
V5	I have a high risk to be hit by falling objects.	.135	.897	.230
V2	I have a high risk to fall from a high place.	.071	.893	.239
V1	My work is a high risk job.	.171	.829	.280
V3	I have a high risk to be hit by work objects.	.218	.763	.366
V8	The company group insurance is insufficient to protect my work accident risk.	.236	.258	.855
V10	The company cannot give me enough pension guarantees when an accident occurs.	.319	.312	.792
V7	The universal health insurance is insufficient to protect my work accident risk.	.346	.339	.770
V9	The group insurance provided by my union is insufficient to protect my work accident risk.	.344	.337	.769
V6	The labor insurance is insufficient to protect my work accident risk	.418	.280	.754
Eigenvalues		9.033	2.55	1.18
Percentage		30.25	28.63	26.21
Cumulative %		30.25	58.88	85.09
Cronbach's Alpha		0.965	0.948	0.948

The overall fitness indices of the default model of the accident insurance TRA model were χ^2=369.85 with 87 degrees of freedom, P=0.000, GFI=0.76, AGFI=0.67, CFI=0.92, TLI=0.90, RMR=0.064, and RMSEA=0.077. Four of these criteria, GFI and AGFI did not attain the recommend value of 0.9, nor the RMR and RMSEA smaller than 0.05 (Lu et al., 2006). Therefore, a modification was performed to achieve better results. Six items were discarded from the proposed model to yield the final model with an acceptable goodness-of-fit. The criteria of GFI (0.94), AGFI (0.89), TLI (0.98), and CFI (0.98) were close to, or exceeded, the recommended 0.9 threshold level. In addition, RMR (0.039) equal to, or less than, 0.05 is considered to be a good fit of the model (Hair et al., 2006; Steiger, 1990); whereas, RMSEA (0.077) larger than 0.05 and less than 0.08 can be considered to be an acceptable fit (Min and Mentzer, 2004).

Convergent validity refers to the degree to which multiple methods of measuring a variable provide the same results. The convergent validity of CFA results should be supported by item reliability (standardized factoring loading and t-value), construct reliability, and average variance extracted (Hair et al., 2006). Larger factor loadings constitute stronger evidence that the measured variables or factors represent the underlying constructs (Bollen, 1989). Average variable extracted (AVE) has been proposed by Fornell and Larker (1981) to measure the shared variance in a latent variable. An extracted variance of greater than 0.50 indicates that both the constructs and the individual variables possess high validity (Bagozzi and Yi, 1988); whereas, AVEs above 0.5 are considered as indications of convergent validity (Anderson and Gerbing, 1988).

Table 3 shows that the critical ratio of each item exceeded the 0.05 level of significance. Thus, all indicators are significantly related to their specified constructs, verifying the posited relationships among the indicators and constructs (latent variables). Item reliability refers to the R^2 in the observed variables that

are accounted for by the latent variables that influence them, and thus R^2 can be used to estimate the reliability of a particular observed variable (item) (Lu et al., 2006). An $R^2 > 0.50$ provides evidence of acceptable reliability (Bollen, 1989). Table 3 reveals that the results were acceptable, as all of the items that exhibited the critical ratios were greater than 1.96, constituting evidence of convergent validity.

Table 3 Results of confirmatory factor analysis

Latent variable /item	β	S.E.	C.R.	R^2
ξ1: Perceived risk				
V2	0.88	-	-	0.77
V4	0.91	0.06	18.22**	0.84
V5	0.96	0.06	19.90**	0.92
ξ2: Perceived need for accident insurance				
V8	0.90	-	-	0.81
V9	0.91	0.05	18.48**	0.83
V10	0.91	0.05	18.62**	0.83
ξ3:Perceived usefulness of accident insurance				
V11	0.97	-	-	0.93
V12	0.97	0.03	35.14**	0.94
V13	0.95	0.03	30.28**	0.90

Note: ** significant at the 0.01 level.

Table 4 Assessment of average variance extracted and constructs reliability

Measures	Construct reliability	AVE[a]	(1)	(2)	(3)
(1) PRW	0.94	0.84	1.00		
(2) PNAI	0.93	0.82	0.59** (0.35)[b]	1.00	
(3) PUAI	0.98	0.93	0.34** (0.12)	0.65** (0.42)	1.00

Note: a= average variance extracted; b= squared correlation;
** Correlation is significant at the 0.01 level.

Discriminant validity is the degree to which measures of different latent variables are unique, which exists when the items share more common variance with their respective construct than the variance that the construct shares with other constructs. Discriminant validity can be tested by comparing the average variance extracted with the squared correlation between constructs. AVEs that are greater than the squared correlation between constructs indicate the existence of discriminant validity. Table 4 shows that all of the correlations of the constructs were significant at the 0.05 level, and all AVEs of each construct were greater than the squared correlation between constructs of the model. The results presented in Table 4 also indicated that the construct reliability, ranging from 0.93 to 0.98, well exceeded the critical value of 0.7, indicating that it is satisfactory. The average variance extracted of all constructs is between 0.82 and 0.93, which is greater than the suggested value of 0.5 (Hair et al., 2006). All of these results demonstrate that the final model is acceptable.

4.4. Model Examination and Hypotheses Test by Structural Equation Modeling

4.4.1. Model Examination

In order to obtain a more pragmatic picture of the underlying relationships that exist among the variables, an investigation of a more collective model is needed. Therefore, this study specified five competing models (M1 ~ M5), as shown in Figure 3. The expected research model (M6) exhibits a better fit to the data and accounts for a greater share of the variance in the container terminal workers' insurance behavioral model. The null hypothesis of a significant difference in fit is rejected when comparing the fit of the two nested models. According to Steiger et al. (1985), when two models are nested, the difference between their Chi-square (χ^2) test statistics is asymptotically independent of the test statistics themselves. Moreover, the degrees of freedom for the difference are equal to the difference in degrees of freedom for the two original test statistics (Lindsay and Liu, 2009).

The comparison of the models is determined by calculating the difference in χ^2 values (Anderson and Gerbing, 1988; Steiger et al., 1985). Testing was accomplished through SEM via the use of AMOS21. The results of the model comparisons are reported in Table 5. The χ^2 value for the research model was 54, with 38 degrees of freedom (see Table 5). The χ^2 values for the competing models range from 328 (M1) to 130 (M5). While comparing these six competing models, the research model (M6) exhibits a better fit to the data and accounts for a greater share of the variance R-square

value of 0.605 (Purchase Intention). The results support that the research model with most fitness, which can represent the workers' insurance behavioral model.

4.4.2 Hypotheses Test

MacCallum and Austin (2000) suggested that researchers can employ SEM to specify certain variables as measured indicators of an unobserved latent factor, to estimate the relationship between these factors and other measured variables, and to determine the goodness-of-fit of the specified model with the observed data. Thus, after confirming the fitness of the proposed model, the hypothesized relationships were examined by SEM analysis. The results provide evidence of a good model fit (χ^2/df=1.43; GFI= 0.95, AGFI= 0.91, CFI= 0.99, TLI= 0.99, RMR= 0.025, RMSEA= 0.049). With the exception of Hypothesis 1a, the positive effect of perceived risk on purchase intention was not supported by the results, as shown in Figure 3 and Table 6.

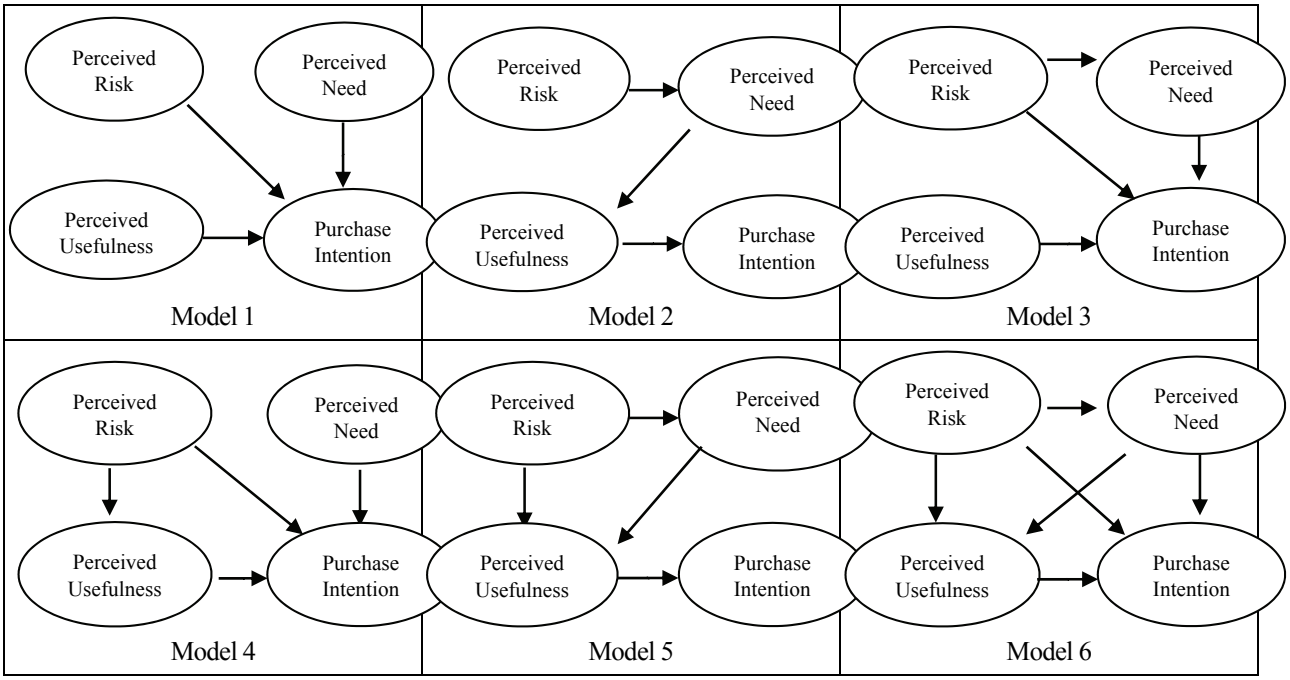

Fig 2 Competing models of workers' insurance behavior evaluation process

Table 5 Fit indices for competing models

Models	R^2	Fit indices				Comparative indices			
	(PI)	χ^2	NFI	CFI	GFI	RMR	$\chi^2 diff$	ΔGFI	ΔRMR
M1 vs. M6	0.568	328(42)	0.863	0.878	0.767	0.440	274	0.223	0.415
M2 vs. M6	0.578	131(42)	0.945	0.962	0.883	0.281	77	0.107	0.256
M3 vs. M6	0.499	142(40)	0.941	0.956	0.892	0.281	88	0.098	0.256
M4 vs. M6	0.504	186(40)	0.922	0.938	0.876	0.346	132	0.114	0.321
M5 vs. M6	0.578	130(41)	0.946	0.962	0.885	0.278	76	0.105	0.253
M6	0.605	54(38)	0.977	0.962	0.990	0.025			

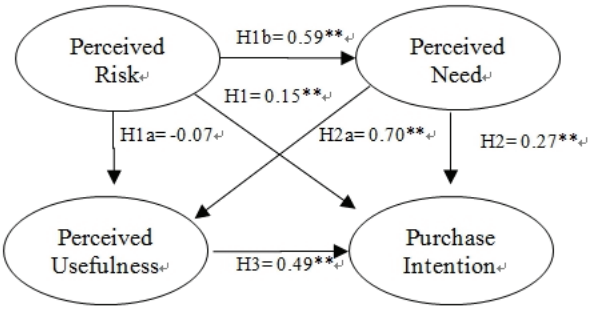

Fig 3 Structural equation model of the accident insurance behavior evaluation process

Hypothesis 1, which postulated that the perceived risk has a positive effect on purchase intention, is supported (β=0.15; p=0.01). Thus, a higher level of workers' perception of risk in the workplace may be conducive to reaching a higher level of purchase intention. Hypothesis 1b, that the perceived risk has a positive effect on the perceived need for accident insurance, is confirmed (β=0.59; p<0.01). Hypothesis 2, which posited that perceived need will positively affect the intention to purchase accident insurance, is also confirmed (β=0.27; p< 0.01). The results also indicated that Hypothesis 2a is supported, since perceived need is found to have a positive influence on perceived usefulness of accident insurance (β=0.70; p< 0.01). Hypothesis 3, which postulated that perceived usefulness of accident insurance will have a positive influence on the intention to purchase accident insurance, is also supported (β= 0.49; p< 0.01).

To provide more evidence to support the proposed accident insurance TRA model, both the direct and indirect effects of TRA dimensions on workers' intention to purchase accident insurance were examined. Table 6 shows that perceived need for accident insurance had the strongest total effect on intention to purchase accident insurance, followed by perceived usefulness of accident insurance, and then perceived risk. The standardized coefficients of total effect for each are 0.61, 0.49, and 0.48, respectively. Table 6 also reveals that the total effect of perceived need on perceived usefulness of accident insurance (β= 0.70) is stronger than on intention to purchase accident insurance (β= 0.61). Although the direct effect of perceived risk on perceived usefulness of accident insurance is not significant at the 0.05 level, perceived risk has an indirect positive effect on the intention to purchase accident insurance via perceived need (β=0.48).

Table 6 Direct and indirect effects of accident insurance TRA dimensions on the intention to purchase accident insurance (IPAI)

	Hypotheses	Direct effect	Indirect effect	Total effect
H1	PRW-> IPAI	0.15**	0.33	0.48
H1a	PRW-> PUAI	-0.07	0.41	0.34
H1b	PRW-> PNAI	0.59**		0.59
H2	PNAI-> IPAI	0.27**	0.34	0.61
H2a	PNAI-> PUAI	0.70**		0.70
H3	PUAI-> IPAI	0.49**		0.49

Note: ** significant at the 0.01 level.

Consequently, this study demonstrates that perceived risk has a positive effect on perceived need for accident insurance, and both a direct and indirect effect on intention to purchase accident insurance. Moreover, perceived need for accident insurance has both a direct effect and an indirect effect via perceived usefulness of accident insurance on intention to purchase accident insurance. Perceived usefulness of accident insurance has a positive significant effect on intention to purchase accident insurance. However, this study does not find that perceived risk has a direct effect on perceived usefulness of accident insurance.

5. Discussions and Suggestions

Insurance has been widely recognized to constitute an important protection for people against losses in their daily lives. Although insurance companies attempt to maximize their marketing efficiency, they are not always successful. This is evidenced by the many people who do not purchase accident insurance, even though they work at high-risk jobs. The current study aims to propose a model to test the relationships among the dimensions of accident insurance TRA and the behavioral intention to purchase accident insurance of front-line workers. Theoretically, this study has highlighted the critical dimensions of the accident insurance evaluation model: perceived risk; perceived need; and perceived usefulness of accident insurance. Moreover, the research illustrates what an insurance evaluation process, which explained by how the accident insurance evaluation model's dimensions influence workers' behavioral intention to purchase compensatory accident insurance. In particular, this study provides evidence that perceived need plays a

mediating role between perceived risk and perceived usefulness, and a modulating role between perceived risk and behavioral intention to purchase compensatory accident insurance. In addition, perceived need has been demonstrated to constitute the strongest dimension of the accident insurance evaluation model, which affects the intention to purchase accident insurance. The results simultaneously revealed that the perceived need for accident insurance exhibits a strong direct effect on the usefulness of it. These results are in line with previous studies (Fishbein and Ajzen, 1975; Hsee and Kunreuther, 2000; Davis and Venkatesh, 1996), in which the individual's intention to perform a behavior comprises a combination of attitude, including behavioral beliefs, evaluations of behavioral outcomes, and motivation to comply. These study findings imply that insurance consumers would not purchase accident insurance, as they neither consider it necessary nor useful. To the best of the authors' knowledge, this is the first study to provide empirical evidence for the accident insurance evaluation model in explaining behavioral intentions to purchase compensatory accident insurance.

A number of theoretical and managerial contributions have emerged from this study. First, this study theoretically expands the TRA to the insurance behavior domain and establishes an insurance evaluation model which can help to elucidate people's insurance behavior. Secondly, a significant contribution is the empirical testing of theoretical assumptions in the extant literature pertaining to the influence of the accident insurance evaluation model on the intention to purchase compensatory accident insurance. The findings also underscore the important role that perceived need plays in the insurance evaluation model, which mediates the perceived risk and perceived usefulness of insurance, and modulates the perceived risk effect on purchase insurance intention. Moreover, the results reveal that the perceived usefulness of accident insurance modulates the effect of perceived need on the behavioral intention to purchase accident insurance. These results suggest that, regardless of the risk faced by workers and the actual utility of the insurance in question, workers may not intend to purchase it if they do not feel that it is necessary. Thirdly, the study identifies that the processes of workers purchasing accident insurance is based on their perception of perceived risk. Specifically, they weigh the need for accident insurance against the probability of future loss, and then make a decision that they feel is optimal. The behavioral intention of purchasing accident insurance consequently is rooted inside of the workers' minds. Accordingly, these findings suggest that insurance companies should engage in facilitating accident insurance awareness among target consumers, rather than creating high premium products only.

The results of this study support the proposed model which represents the affecting factors to purchase accident insurance of the workers in the container terminal operation context. However, further testing of the model using different samples in varied fields is required for increased generalizability. In addition, Kogan and Wallach (1964) pointed out that individuals facing similar risky situations could exhibit different behaviors. Therefore, researchers could build on this model to identify and examine other factors that may influence the behavioral intentions of purchasing accident insurance, such as education level, income, and work environment. The integration of these variables into the model will help researchers and insurance practitioners to more fully understand the factors that influence the development of insurance marketing.

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