

An Overview of E-invoicing in China and the Factors Affecting Individual's Intention to B2C E-invoicing Adoption

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ABSTRACT

Objectives of the Study

This study is aimed to present a clear picture of e-invoicing in China, by introducing the whole related process and work that have been carried out or are going to be done in the recent years. Also, it will explore Chinese individual's attitude towards B2C e-invoicing and the factors that can affect individual's intention to adoption. Based on those studies, useful suggestions for the developing of e-invoicing in China are supposed to be put forward.

Academic background and methodology

The theoretical part of this thesis is based on the theory of reasoned behavior (TRA) introduced by Fishbein (1967), the technology acceptance model (TAM) proposed by Davis (1986), and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003). A framework will be adapted from the previous studies to better illustrate e-invoicing in China, and a new factor—promotional effort, will be included to examine whether it is able to affect user's intention to adoption. The empirical part will adopt an online survey conducted among Chinese citizens, and the responds data will be analyzed to test whether the framework is able to explain individuals' attitudes and intention to adoption, whether the proposed factors are significant, and whether hypothesis about determinants related to attitudes and intention are true or not.

Findings and conclusions

The results attained from the analysis indicate that, PU is the most significant variable that affecting individual's attitude to e-invoicing, while the power of PEU and T are much weaker. Consistent with the hypothesis, attitude is positively related to intention. While the hypothesis regarding to social influence that it will positively affect people's intention turned out to be false in this case. What is remarkable is that promotional effort is found to plays a role in stimulating users' intention, and its effect is stronger for women than for men, and stronger for existed user than for those who never used e-invoicing, which is worthy for further study.

Keywords

E-invoicing, China Golden Tax Project, technology acceptance, attitudes, intention, promotional effort

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1. INTRODUCTION

With more money and time invested in implementing information technology in organizations or companies, IT has become an important criterion in making achievements in market. As Westland and Clark stated in 2000, almost 50 percent new capital has been invested into information technology since 1980s. It was just an estimate 12 years ago, let alone now in the 2010s. Among those information technology adopted in business in recent years, electronic invoicing has attracted much attention. Electronic invoicing not only allows paperless transactions so as to elimination environmental waste, but also saves time, human resource and costs. In addition, it can be used as a platform for exchanging accounting information, which not only improves the quality of service, but also enhances control and speed. (Penttinen, 2010) Manual work can be saved, errors can be eliminated, and efficiency can be improved. The European Association for Corporate Treasurers (EACT) once estimated that a saving of €243 billion could be realized by implementing e-invoicing in enterprises and public sectors. The U.S. Department of the Treasury estimates that by implementing an electronic invoice processing solution across the federal government by the end of 2012, a cost reduction of \$450 million (i.e. 50% of the original costs) in the invoicing issues can be achieved annually.

Invoice, as commonly known, is a document issued by the seller to the buyer. It plays an important role in business transactions as well as in daily life. It can exist between government and business, business and business, and business and consumers. Different parties are involved, so that different strategies should be applied.

Electronic invoicing, generally speaking, is the process of handling and exchanging invoices through the electronic platform that connecting all the involved participants. In this process, invoice can be handled paperlessly and in time. Business e-invoicing is conducted between corporations and the e-invoice is issued by one corporation to another. Consumer e-invoicing usually happens between business and consumer, and consumers receive their invoices in electronic format. Most of the time, the invoice is sent directly to consumer's online banking account, to eliminate the risk of being lost in delivery or being buried under a mountain of other post. (<http://www.hsy.fi>)

1.1. Background Information

EU has already achieved great success in e-invoicing, mainly in B2B business and public

sector. According to Susiluoto et al. (2007), Denmark's public sector has turned to e-invoicing completely since February 2005, and 30% of Finnish state's procurement invoices are handled paperlessly. In regard to consumer invoicing, the most advanced countries at that time were Sweden, Norway and Estonia. In Finland, the Real-Time Economy (RTE) program is being conducted, aiming at creating an environment where business transactions are carried on in real-time, and procedures like storing and forwarding are unnecessary any more (Penttinen, 2008). FullSEPA (Single Euro Payment Area) is the first phase of RTE program, of which electronic invoicing is an important part. Other than consumer e-invoicing, business to business e-invoicing is the focus of this program.

E-invoicing is deemed as one of the most important sources of productivity (EEI 2007) as well as competitiveness. It was reported in 2009 that, e-invoicing saw a growth of 40% in B2B sector and 22% in B2C sector (EBA and Innopay, 2010). Apart from the increasing popularity of e-invoicing, there are distinct initiatives to implement e-invoicing under different economies. Some European countries like Denmark, Finland and Sweden have led the head of e-invoicing adoption, where business e-invoicing is the focus and has been developed a lot. The main objective is to reduce transaction costs and improve process efficiency, especially to optimize the internal financial process. Meanwhile, paperless transactions contribute to environment as well. As less paper is needed, fewer trees will be cut down. While in Latin America and now Asia, the main and primary purpose of adopting electronic invoicing is to eliminate VAT fraud and increase tax revenue. For example, according to Pete Loughlin (2012), Latin American countries are rapidly setting the pace of government mandated e-invoicing, and the rate of increase in adoption is extremely high. (<http://purchasinginsight.com/the-complete-world-map-of-e-invoicing>)

However, unlike what electronic invoicing is viewed in Europe and America, there is much less acceptance of e-invoicing in Asia Pacific. That can be attributed to cultural and social differences. The eastern way of doing business might be a completely difficult world as viewed by western eyes, but the developed and effective business process is always held in esteem. Among these countries, Singapore is a great example of implementing e-invoicing in a pragmatic way. A few prescribed measures, like digital certificates, are mandated to ensure the integrity of electronic invoices (Pete Loughlin, 2012). Another example is Taiwan, who has already made great progress in e-invoicing. According to the report published by their e-invoice project committee, the amount of e-invoices issued increased from 650 000 in 2006

to 42 850 131 in 2008, and the number of participants involved grew from 7 to 11 275 during that period, too. (<http://einvoice.nat.gov.tw>, 2009)

When look at mainland China, e-invoicing was not allowed at first. In the year of 2011, the *Chinese E-invoicing Blue Paper* was released, indicating the former start of electronic invoicing process in China. The blue paper analyzed the challenges Chinese taxation system faced with under the rapidly developing e-commerce market. It introduced issues and experiences related to e-invoicing in developed countries and researched on the problems and the processes of transformation in China. It also demonstrated that e-invoicing is a necessary and urgent issue in China. The paper pointed out that the prerequisite of adopting e-invoicing has already been met in China. And the blue paper offered feasible suggestions on dealing with resistance as well.

In May, 2012, the National Development and Reform Commission made an announcement of launching pilot programs in five cities including Chongqing, Nanjing, Hangzhou, Qingdao, and Shenzhen. However the program wasn't really about e-invoicing but about online invoicing—issuing invoice via online tax system national wide. Paper format of online invoice is still indispensable due to the imbalanced development of information technology and ERP system national wide. According to the data released by State Administration of Taxation (SAT) of China, online invoicing has been explored since 2009, and until now pilot project has been carried out in 47 provincial national tax bureau and local tax bureau. There are more than 2.8 million tax payers involved and almost 1.8 billion invoices issued, covering industry, commerce, construction, real estate, service industry and so on. In Jan, 2013, the SAT of China published an *Online Invoice Regulation*, stating that once the information on online invoices has been verified to be correct, reliable and safe, e-invoicing can be put into a trial. Though in some relatively developed industries and areas of China, B2B e-invoicing is in a trial implementation, it's not well known by the general public.

1.2. Research Problems

As mentioned above, e-invoicing is a quite new concept in China, but considering its inherent advantages, it is expected to play a vital role in Chinese economy in the future. To implement a new system, context conditions and users are among the most important part that should be considered.

Obviously in China, B2B e-invoicing involves mostly the organizational participants, which

requires more standard operation and regulation than B2C e-invoicing does. And it will be discussed in the later chapters. In implementing B2C invoicing, users' attitudes and acceptance make significant difference. As the B2C e-invoicing pilot program is still on its way, and quite limited organizational data are available or somehow ambiguous, the study will put emphasize on B2C invoice receiver side—consumers. To present a clear picture of it, the preliminary work or the whole process targeting at e-invoicing is going to be introduced. Knowing the history is not enough to provide reference for the future. However when it's related to users, their intention and behavior can be fathomed and predicted. Then what are Chinese citizens' attitudes toward e-invoicing (now available in infrastructure utilities and communications industries in some district in China)? And what are the factors that can affect individual's intention to adoption. Being aware of those makes it possible to explore an efficient and effective way of implementing e-invoicing in China.

Above all, the research problems are divided into two parts:

- 1) What are the developing process and current situation of e-invoicing in China?
- 2) What will affect individuals' attitudes toward B2C e-invoicing in China? And how can attitudes, social influences, and promotional effort determine individuals' intention to adoption?

The theoretical part of the thesis is based on the theory of reasoned behavior (TRA) introduced by Fishbein (1967), the technology acceptance model (TAM) proposed by Davis (1986), and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003). A framework will be adapted from the previous studies to better illustrate e-invoicing in China, and a new factor—promotional effort, will be considered to examine whether it is able to affect user's intention to adoption. The empirical part will include an online survey conducted among citizens in China, and the respondents' results will be analyzed. Whether the framework is able to explain individuals' attitudes and intention to adoption, whether the proposed factors are significant, and whether hypothesis about determinants related to attitudes and intention are true or not, will be tested.

1.3. Structure of the thesis

The thesis will stretch approximately as follows: The second chapter will include a literature review of previous research, and depict the useful frameworks demonstrated in earlier studies. Then prior to research, the history of China tax system and developing process, including the

Golden Tax Program, ecommerce and other related situation in China will be introduced to give a better view of the precedent conditions. And in the end of this chapter, the reasoning behind Chinese e-invoicing process will be summarized briefly. In the fourth chapter, the research model applied will be demonstrated, and six hypotheses regarding to individual's intention to adoption will be put forward. Research method is going to be introduced, and simultaneously the questionnaire related information will be presented. In the following chapter, survey results will be revealed and further analyzed. Confirmatory factor analysis and the structural model analysis will be conducted by using SPSS Amos 21. Hypotheses will be tested and results will be discussed. The sixth chapter will discuss about theoretical findings and practical suggestions, according to the result analysis in the previous chapter, aiming at improving the efficiency of implementing e-invoicing in China. Then it comes to the end of the study, chapter seven, which will conclude the whole thesis, and point out the limitations of it as well as the field for further study.

2. LITERATURE REVIEW

Technology acceptance issues contribute a lot in studying the implementation of an information system, and there are a lot of previous researches about it, mainly from the aspects of information systems, psychology, and sociology. Several theoretical models and frameworks have been built to explain the factors leading to user's intention to adoption and behavior of adoption.

2.1. Theory of Reasoned Action

Theory of Reasoned Action (TRA) has been extensively studied since its introduction in 1967 by Fishbein. It was proposed that a person's behavior can be predicted by his or her intention to perform, while intention to behavior is determined by two factors. (Ajzen, and Fishbein, 1980) According to the theory, the first determinant of intention is personal factor, defined as one person's evaluation of certain behavior, i.e. attitude. The second determinant refers to social influence factor, which reflects a person's perception of what others would regard him if he behaves in a certain way or not, called subjective norm. Their relations are illustrated in Figure 1 below.

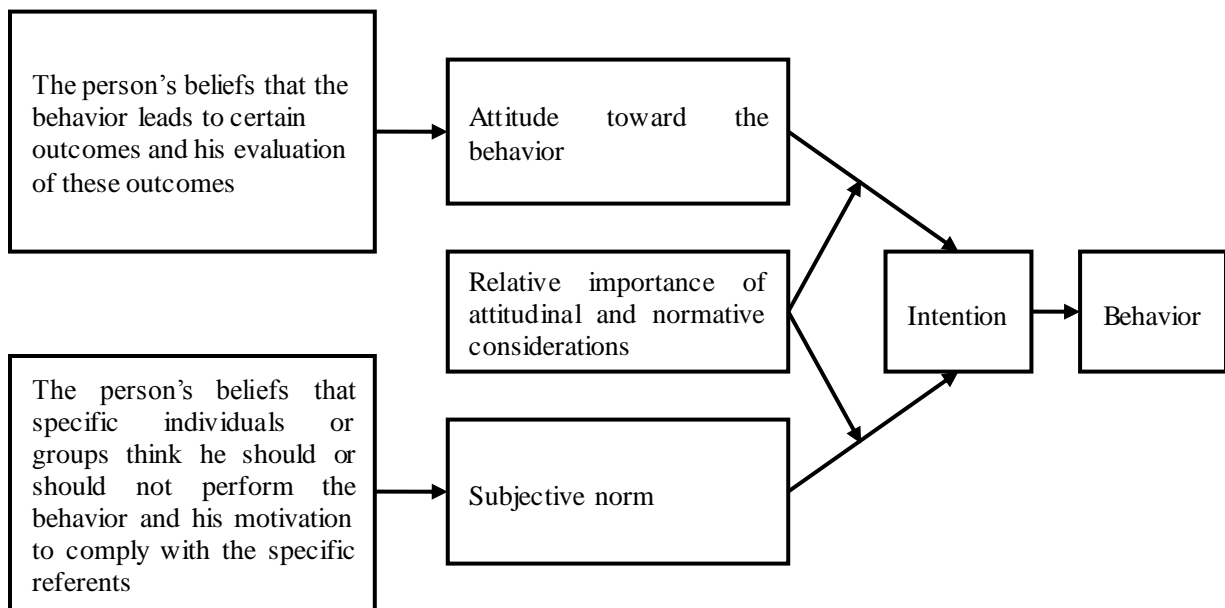


Figure 1 Factors determining a person's behavior (Ajzen, and Fishbein, 1980)

As illustrated by Ajzen and Fishbein, attitudes originate from behavioral beliefs. Those who believe that a certain behavior will pay off with rewards tend to hold a positive attitude towards that behavior. Those who hold a belief that the behavior will bring poor outcomes tend to have a negative attitude. Similarly, subjective norms also come from beliefs, termed as normative beliefs. Those who deem that they should comply with the important social related persons will execute the behavior when they believe the group of persons thinks he should do so. They will not perform the behavior when they believe the group of persons thinks he should not do so.

The two determinants jointly determine an individual's intention to behavior. However, when the two aspects are indicating conflicting opinions, different weights assigned to each aspect will determine the intention. That is to say, assuming two individuals hold identical view in both attitudes and subjective norms; let's say favorable attitudes but unfavorable subjective norms, a larger weight of attitude will lead to an intention to do so, while a larger weight of subjective norm will lead to an intention to avoid doing so.

The theory excludes external variables like demographic variables, status, and intelligence. Though they might be able to influence a person's evaluation of the importance of attitudinal aspect and that of normative aspect, which will consequently affect one's intention of behavior as well as the actual behavior, as Ajzen and Fishbein explained in their book,

external variables should be considered under different behavioral domains which cannot be applied to every case. External variables can only exert effect on behavior by influencing the two determinants of behavior intention as demonstrated by the theory.

The theory of reasoned action has been applied to the study of social related behaviors and is proved to be a useful approach. Hsu and Lin integrated the theory of reasoned action together with the technology acceptance factors to explore users' intentions toward blog usage in 2008, and it could be regarded as an explicit and convincing example.

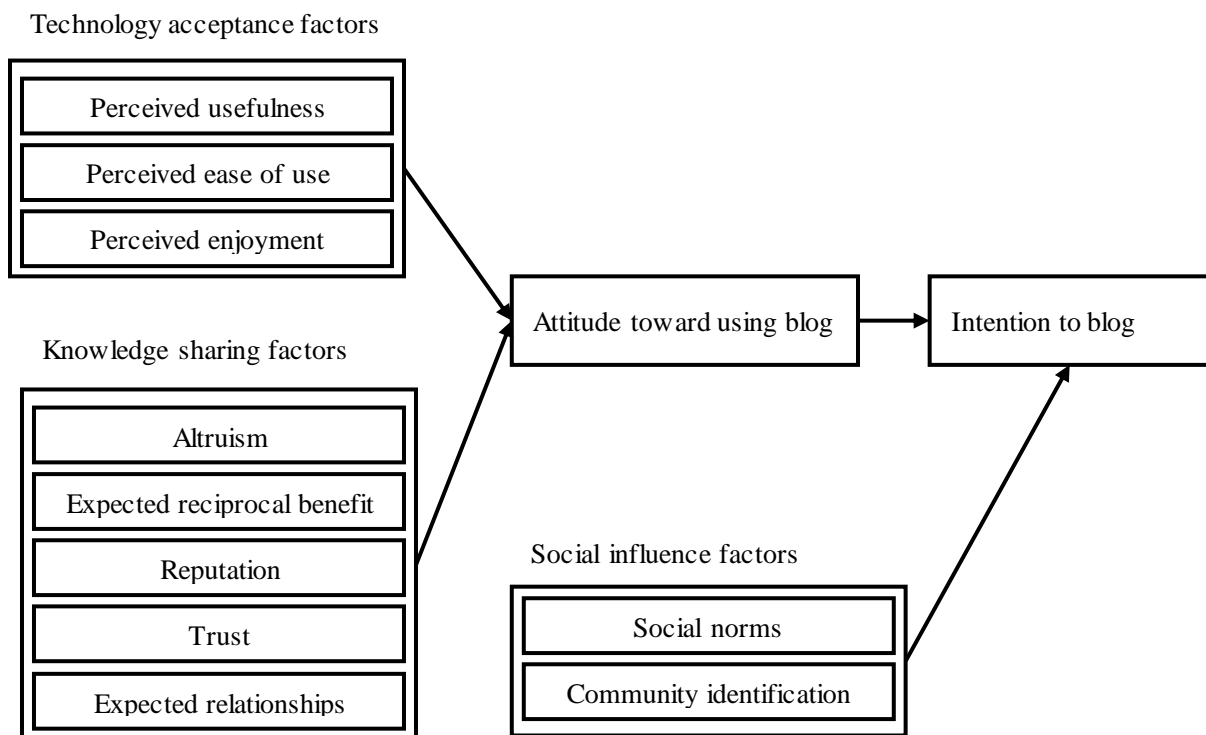


Figure 2 Research Model (Hsu, Lin, 2008)

In the paper “Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation (2008)”, Hsu and Lin developed a model to explore the motivation of people’s blog activities. Based on the theory of reasoned action, this model shows that technology acceptance factors and knowledge sharing factors will positively influence people’s attitude toward using blog, which together with social influence factors will jointly affect their intention to blog (Fishbein and Ajzen, 1975). The model is illustrated more directly in Figure 2.

In their model, technology acceptance factors consisting of perceived usefulness, ease of use, and enjoyment are proposed as the factors that reflect the user’s attitude to blog use.

Meanwhile, knowledge sharing factors including altruism, trust, expected reciprocal benefits, reputation, and expected relationship are affecting people's attitude toward using blog. Attitudes will influence on intention to blog. Besides, social influence factors like social norms and community identification is another perspective of blogging, which are assumed to affect a person's intention to blog use. Several hypotheses regarding to technology acceptance factors, knowledge sharing motivation, and social influence factors, were made in the paper. First, it was hypothesized that perceived usefulness, perceived ease of use, and perceived enjoyment will positively affect users' attitude toward participating in a blog, while attitude will positively affect users' intention to do so. Then the authors hypothesized those knowledge sharing factors mentioned above, will affect users' attitude toward participating in a blog. The last hypothesis was that social norm as well as community identification will positively affect users' attentions to participate in blogging. They collect data from online surveys, and several implications are obtained by analyzing 212 usable responses. First, perceived ease of use and enjoyment appeared to be important variables in the context of blogs. Perceived usefulness had no effect on blog usage, which is align with previous studies. Second, only altruism and reputation, among other knowledge sharing motivations, affect the user's attitude. At last, users are willing to blog because of their community identification, not significantly influenced by social norms, which is different from TRA and TPB.

Though e-invoicing is not quite the same when compared to blogging, the technology acceptance psychology is similar and should be considered during the promotion of an innovation, especially the inter-organization systems with users involved. Besides, the research method Hsu and Lin used was clear, coherent, yet explicit, which inspired me to do an online survey about e-invoicing.

2.2. User Acceptance of Information Technology

Users are just like the engine of the implementation of an innovation. Only when they are interested at the technology (i.e. e-invoicing in this thesis), and are encouraged and motivated to take part in, can the innovation be accepted and carried forward. As long as the users accept and approve the system, will they abandon the old way of working, and switch to the new one. It's meaningless for an innovation if it cannot show any appealing features, either saving time, cost and resources, or improving efficiency.

When referring to user acceptance of information technology, we can find a lot of literatures

and models covering the fields like technology acceptance model, information systems acceptance, electronic commerce, user motivation and so on. Figure 3 presents a comprehensive picture of it.

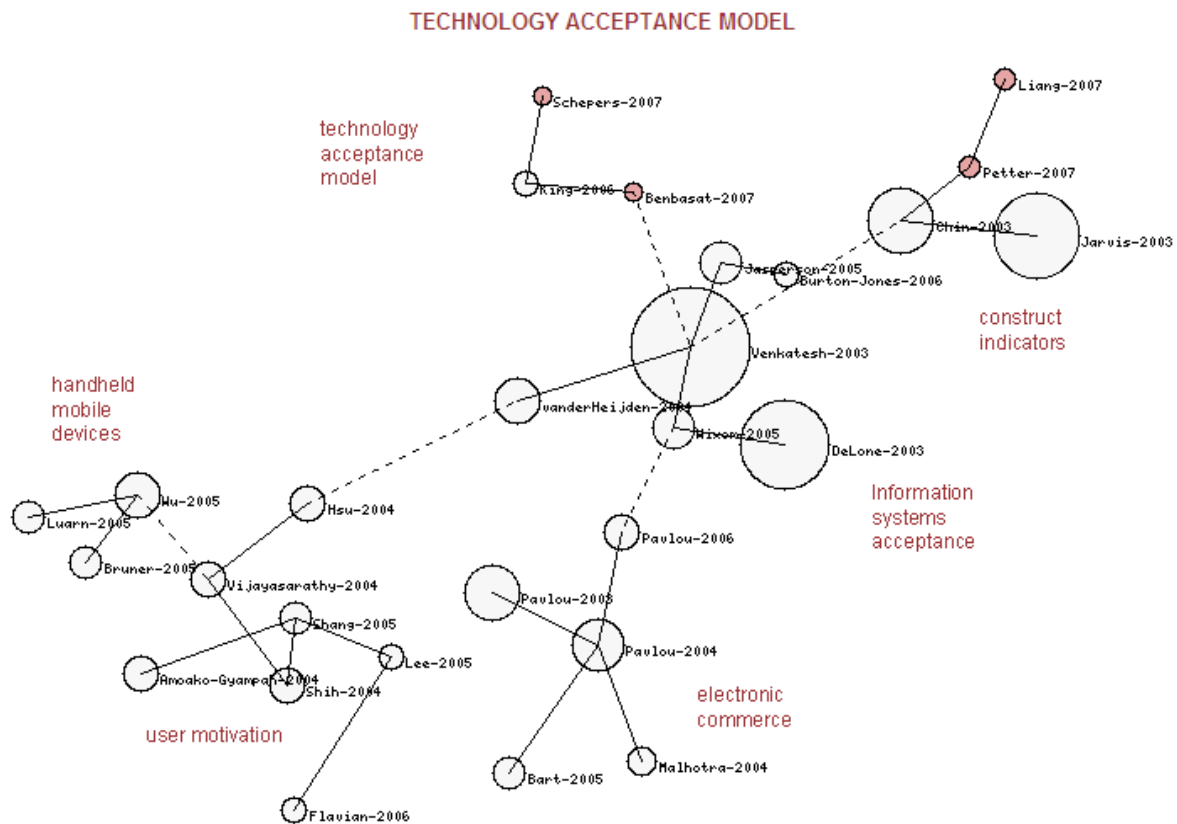


Figure 3 Research front map of Technology Acceptance Model (Top Topics Research Front Map, 2009, available at: <http://archive.sciencewatch.com/dr/tt/2009/09-augtt-ECO>)

2.2.1. Technology Acceptance Model

Technology acceptance model (TAM) was adapted from TRA and was first introduced by Davis in 1986. It aimed to explain the determinants of individual's behavior specifically of accepting a technology, based on the variables and relationships introduced by TRA (Davis, et al., 1989).

There are two principal variables which are viewed as important determinants in TAM—perceived usefulness (PU) and perceived ease of use (PEU). They are vital to understand users' technology acceptance behaviors and they will be introduced more in the later chapter. In TAM, individual's behavior of adopting a given technology is determined by his behavior intention, which is the same as in TRA. But with the two new variables engaged in, there emerged several points of difference. First it was proposed that individuals tend to form the behavior intention when they think the behavior is useful or is able to enhance their performance, and when they hold positive attitudes. In other words, intention to behavior is

regarded as determined together by attitudes and PU. Moreover, TAM presumes that PU has a positive effect on attitudes as well, and this relationship can be applied to that of PEU on attitudes as well. Meanwhile, as users perceived the technology to be easy to use, it is expected to save effort, and to improve their performance. PEU would have a direct effect over PU, moderated by external variables. Lastly, external variables such as training and user support consultants would exert effects on PEU. And the influence of subjective norms is not included. (Davis et al., 1989)

The model is illustrated as below:

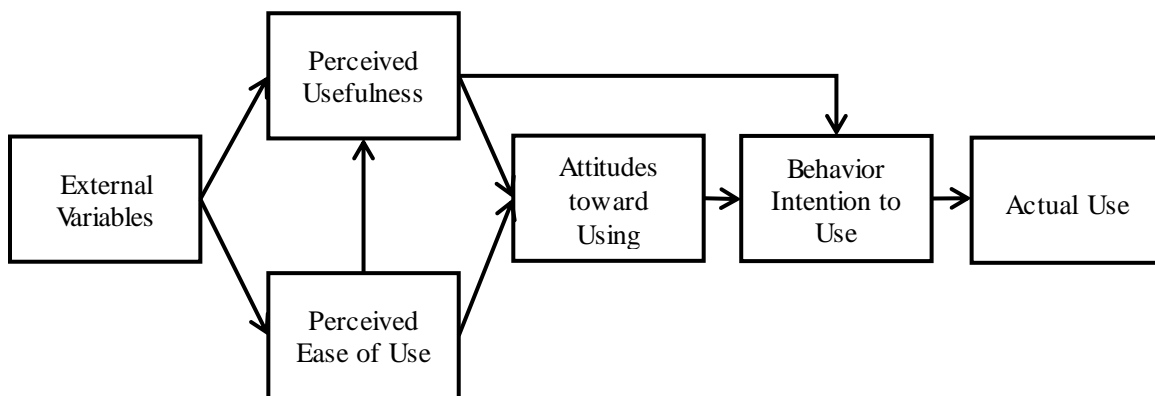
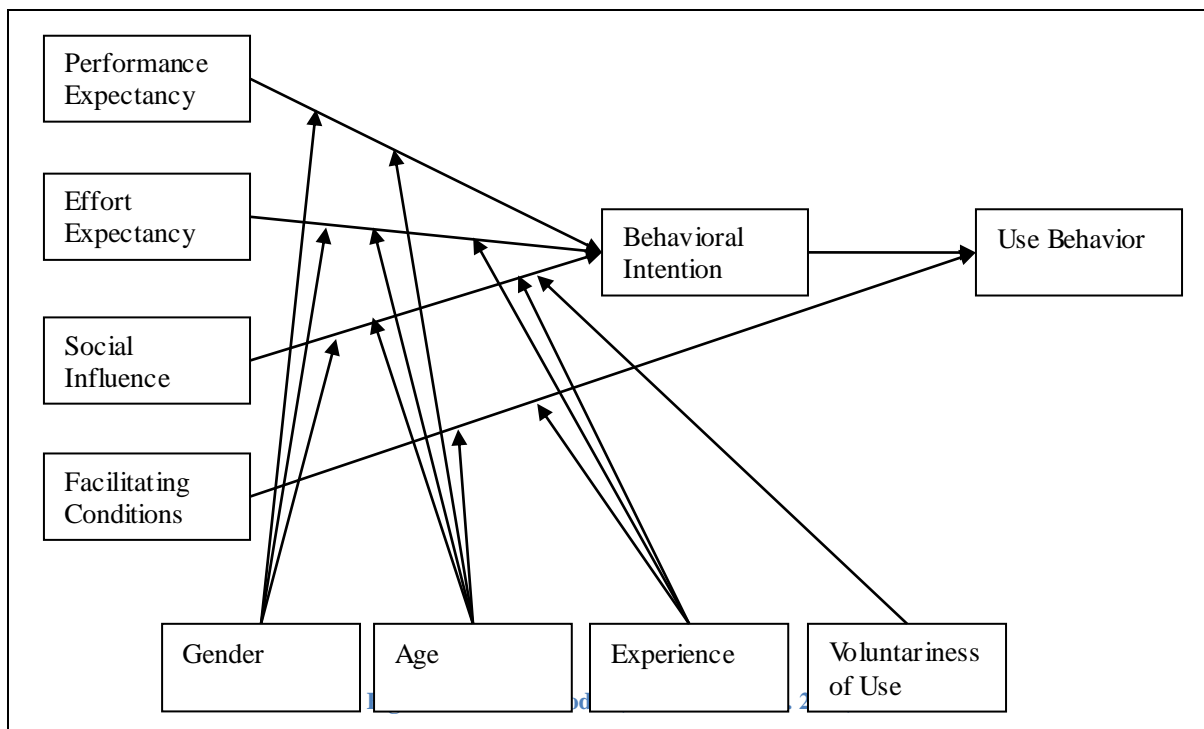


Figure 4 Technology Acceptance Model (Davis et al., 1989)

2.2.2. The Unified Theory of Acceptance and Use of Technology

There have yielded multiple models demonstrating different determinants of technology acceptance (Venkatesh et al., 2003). Those mainly include Theory of Reasoned Action (TRA), Technology Acceptance Model (TAM), Motivation Model (MM), Theory of Planned Behavior (TPB), Combined TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), and Social Cognitive Theory (SCT). Some are competing models that make researchers get to select just one of them though they may also see the shining point of others. Therefore, a unified model—the Unified Theory of Acceptance and Use of Technology (Figure 4) was formulated in 2003 by Venkatesh, Morris and Davis, via comparing and summing up the conceptual and empirical similarities of the previous eight models.

After an empirical comparison of the eight models, seven constructs were found to be influential in user acceptance in at least one of the eight models. As illustrated in the figure below, *performance expectancy*, *effort expectancy*, *social influence* and *facilitating conditions* are selected to be direct determinants of behavioral intention and use behavior.



They defined *performance expectancy* as the individual’s expectation of how the information system will help in working performance, extracting from five different models—TAM/TAM2 and C-TAM-TPB (perceived usefulness), MM (extrinsic motivation), MPCU (job-fit), IDT (relative advantage), and SCT (outcome expectations). *Effort expectancy* is the degree of ease of use of the system, represented as perceived ease of use, and complexity. *Social influence* refers to an individual’s perception of what others will think about him if he conducts a certain behavior, capturing the concept from subjective norm, social factors and image. *Facilitating conditions* are the existing infrastructure which can support the operation of the system as a user believes. At the meantime, they found four key factors that will moderate these determinants—gender, age, experience, and voluntariness of use. Based on this, several hypotheses were raised as follows:

Table 1 Hypotheses of UTAUT model (Venkatesh et al., 2003)

H1	The influence of performance expectancy on behavioral intention will be moderated by gender and age , such that the effect will be stronger for men and particularly for young men.
H2	The influence of effort expectancy on behavioral intention will be moderated by gender , age , and experience , such that the effect will be stronger for women, particularly young women and particularly at early stages of experience.
H3	The influence of social influence on behavioral intention will be moderated by gender , age , voluntariness , and experience , such that the effect will be stronger for women, particularly older women, and particularly in mandatory settings in the early stages of experience.
H4a	Facilitating conditions will not have a significant influence on behavioral intentions.

H4b	The influence of facilitating conditions on usage will be moderated by age and experience , such that the effect will be stronger for older workers, particularly with increasing experience.
H5a	Computer self-efficacy will not have a significant influence on behavioral intention.
H5b	Computer anxiety will not have a significant influence on behavioral intention.
H5c	Attitude toward using technology will not have a significant influence on behavioral intention.
H6	Behavioral intention will have a significant positive influence on usage

An empirical test of the UTAUT model was conducted afterwards, obtaining a result supporting the validity of the model. Those direct determinant were proved to be significant and the four moderators were “*confirmed as integral features of UTAUT*” (Venkatesh et al., 2003). Table 2 below summarizes the finding of this study. Performance expectancy, effort expectancy, and social influence, moderated by gender, age, voluntariness, and experience, appear to be significant factors that will exhibit effect on users’ behavioral intention. Behavioral intention will directly result in usage of a new technology, under the effect of facilitating conditions. This model offered a refined view of the determinants of users’ intention and behavior, and more importantly, it did better than any previous model by explaining for 70 percent of the variance in behavioral intention.

Table 2 Summary of Findings (Venkatesh et al., 2003)

Hypothesis Number	Dependent Variables	Independent Variables	Moderators	Explanation
H1	Behavior intention	Performance expectancy	Gender, Age	Effect stronger for men and younger workers
H2	Behavior intention	Effort expectancy	Gender, Age, Experience	Effect stronger for women, older workers, and those with limited experience
H3	Behavior intention	Social influence	Gender, Age, Voluntariness, Experience	Effect stronger for women, older workers, under conditions of mandatory use, and with limited experience
H4a	Behavior intention	Facilitating conditions	None	Non-significant due to the effect being captured by effort expectancy
H4b	Usage	Facilitating conditions	Age, Experience	Effect stronger for older workers, with increasing experience
H5a	Behavior intention	Computer self-efficacy	None	Non-significant due to the effect being captured by effort expectancy
H5b	Behavior intention	Computer anxiety	None	Non-significant due to the effect being captured by effort expectancy

H5c	Behavior intention	Attitude toward using tech.	None	Non-significant due to the effect being captured by process expectancy and effort expectancy
H6	Usage	Behavior intention	None	Direct effect

3. REASONING BEHIND E-INVOICING IN CHINA

3.1. Background

As the implementation of an inter-organizational system is not just a linear issue, factors more than technical things should be taken into consideration, factors related to people, culture, and economy for instance.

3.1.1. Taxation in China

Taxation Structure of China

Before referring to e-invoicing issues, let's have a look at the Chinese taxation structure first. It in some extent determines the initiatives of implementing e-invoicing in China. The revenue structure of China is somehow complicated therefore I won't explain it in detail here. What's remarkable is that VATs and consumption tax contribute the most to the revenue of the central government in China in 2009 (Xu & Cui, 2011). According to their paper, VATs and consumption tax made up almost 60% of the total revenue in 2009, while the income tax from personal or enterprises account for only 28%. Its contribution is much smaller than VATs', making taxing in China quite different from most OECD countries (Xu & Cui, 2011). And according to the updated data obtained from Ministry of Finance of the People's Republic of China, VATs and consumption tax still account for 43% compared to what income tax does for 22% in 2012.

Specifically, an inevitable instrument of taxation in China has to be specified prior to following paragraph—*Fapiao*. *Fapiao* is a paper document issued by the seller to the buyer before or after transaction. While some literatures translated this Chinese word into "invoice" in English, it's not quite the same as invoice. It's a Chinese-oriented special format which integrates the function of invoice with that of receipt. That is to say, it on one hand plays as a proof of transaction, and on the other hand it carries the essential information for taxation. Especially in B2C transactions, *Fapiao* is the only proof for customers to get any after sale services. There even exist VAT specific *Fapiao* aiming at VAT management. In general,

Fapiao plays as a significant role in taxation administration in China.

To be notified, there are also invoices in China, for example in the banking, communications (telephone, internet and cable TV), and utilities industries. But in most other fields, the primary function of invoices is taken by *Fapiao*. While the differences between invoice and *Fapiao* won't make big difference in the following study, the background information worth being noticed. In order not to make it too complicated, the following chapters will still use the word "invoice".

China started to collect VATs in the last ten years of twentieth century, which was part of its comprehensive economic reform program (Naughton, 2007) initiated under the reforming and opening policy put forward in 1978. Nevertheless, in the initial stage of development, the existed flaws of taxation auditing and inspecting mechanism gave criminals the opportunity to make use of fake *Fapiao*¹, those which are beyond control of authorities. The authorities have taken lots of actions, legislating against those counterfeiters for example. And those who are engaged in huge amount value cases will be condemned to death. Sometimes journalists will make secret inquiries to uncover the criminal behaviors, but it's still like "a drop of bucket" compared the large groups behind it.

Since tax weighs so much in the revenue structure, the losses generated from irregularities substantially hurt the economy of the country. Then increasing VAT compliance between businesses and government is brought to the front. Measures working on this target didn't form a comprehensive system until the emergence of the Golden Tax Project.

Golden Tax Project

Though China didn't allow e-invoicing at first, it launched "*one of the most sophisticated and large-scale e-invoicing programs in the world*" (Loughlin, 2012)—the Golden Tax Project. It aimed at building a national taxation network and using information technology to ensure the VAT compliance between government and businesses. The goal of the Golden Tax Project was to construct a centralized invoice system that enables real-time inspection by tax authorities, to reduce the use of fake *Fapiao*, and to put an end to the supply chain of fake *Fapiao* printing (Cheng, 2006). The Golden Tax System has linked the local tax authorities all over the country and the benefits of using information technology for tax control are being

¹ As the manufacture procedures of *Fapiao* are not sophisticated yet, along with an imperfect control system, fake *Fapiao* circulated in the market and went out of control at one time. A certain number of businesses took advantage of fake *Fapiao* to avoid tax.

realized via this national wide network (TrustWeaver AB, 2009).

Milestones and Status of Golden Taxation Project

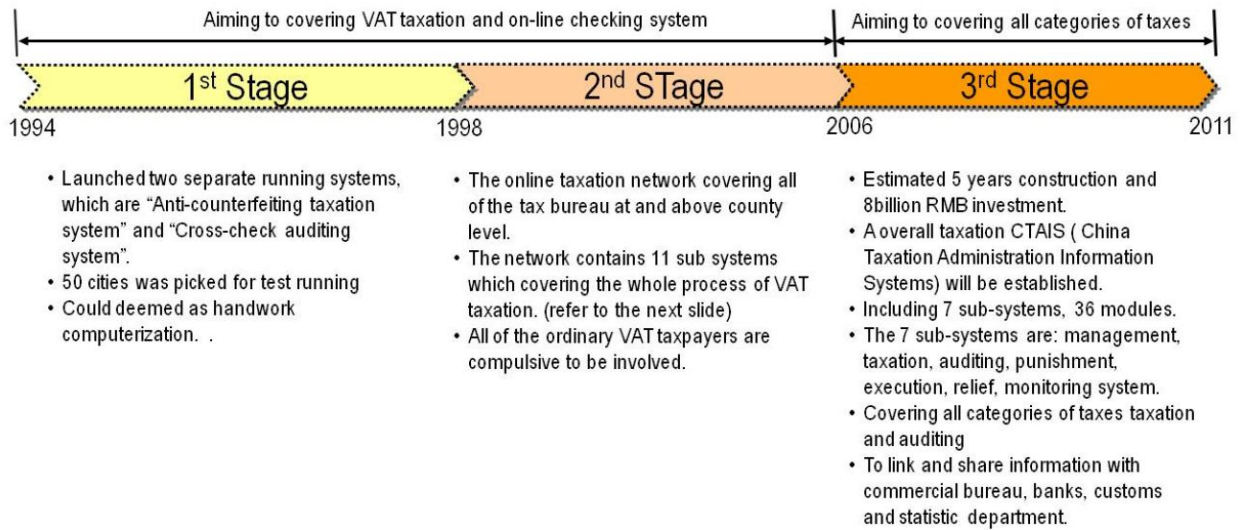


Figure 6 Rollout of the Golden Tax Project (TrustWeaver AB, 2009)

The project was designed with three stages (Figure 6). The first stage was carried out between 1994 and 1998, when two systems—anti-forgery tax control system and cross check system—were launched in 50 major cities in China. However, due to the mutual interdependence of these two systems, duplicate data entry happened frequently, which resulted in lots manual mistakes, as well as incorrect tax information.²

Then in 1998, the proposal of second stage was published. A network was built, connecting the tax authorities at the provincial, municipal and county level (Winn et al. 2010). It bound the two systems launched in the first stage to achieve information sharing and functional complementation. The second stage consisted of four systems, including *Fapiao* printing system, authentication system, cross check system, and auditing system.³ Work done in this stage effectively eliminated VAT fraud, and it got refined later on and was expanded to eleven systems as we can see from Figure 7. The volume of fake VAT invoices has been decreased significantly during this period. As Winn and Zhang researched in 2010, the project yielded impressive results that the VAT tax increased by 18.43% annually on average. While the average annual growth rate for the last three years before the Golden Tax Project implementation was 11.8%.

² An introduction of Golden Tax Project from Yingtan National Tax Bureau

³ The translations of these proper nouns come TrustWeaver, 2009

The third stage was planned to be accomplished in 2011, but the winding-up process wasn't accomplished until last year 2012. In this stage, an overall taxation system—China Taxation Administration Information System (CTAIS), was established to enable the information sharing among commercial bureau, banks, customs and statistic department. The Golden Tax Project has made some achievements indeed, though it's still remained to be seen that whether the revenue increased by this project will outweigh the costs.

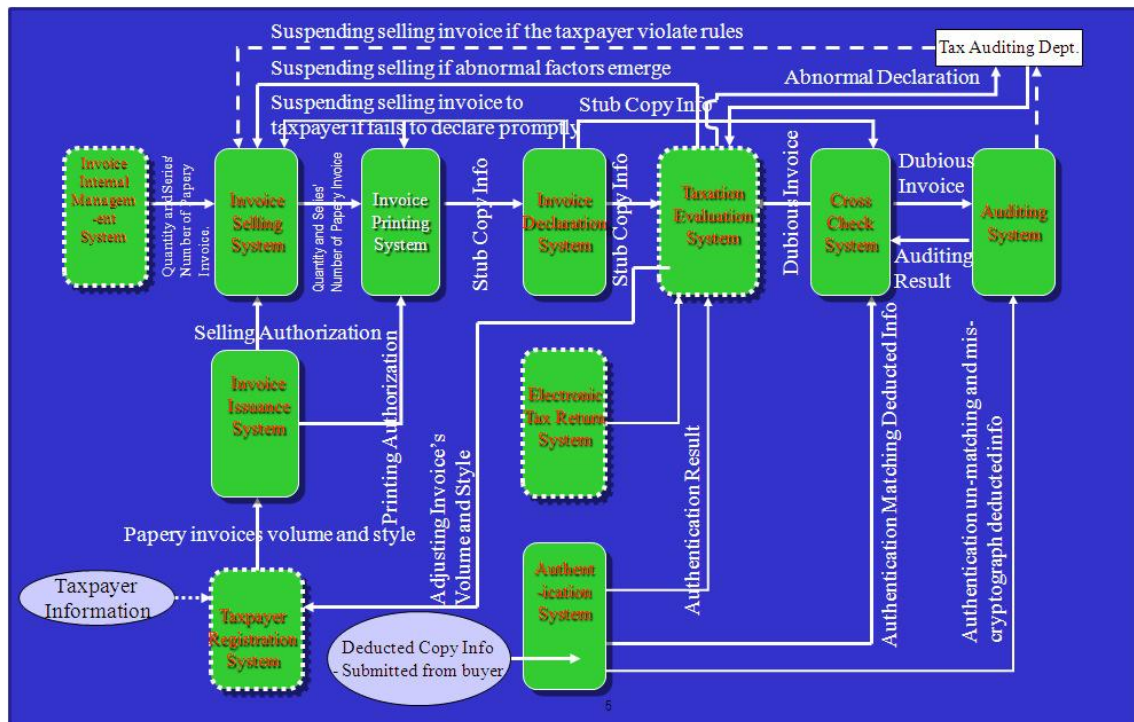


Figure 7 the process diagram of Golden Tax System (TrustWeaver AB, 2009)

The Golden Tax Project has laid a solid foundation for the Chinese taxation reform. In respect to the scale and working methods, the Golden Tax Project is more prescriptive than any inter-organizational system implementation in Europe (Winn et al. 2010), though it was not the original intention to implement e-invoicing at the very first beginning of the project. To a relatively less developed economy, e-invoicing was just like smoke and mirror at that time. It wasn't noticed by the public until the superiorities of ICT became obvious as time passes by. Many countries in EU and US leverage the benefits of technology to multiple their productivity, among which e-invoicing plays an important role. With the comprehensive network built in the Golden Tax Project, the project completely has the potential to expand and take in the interchange of e-invoices. Though in short term the complete transition from paper invoice to electronic invoice seems not possible.

As stated above, the Golden Tax Project is a sophisticated and large-scale program, it requires

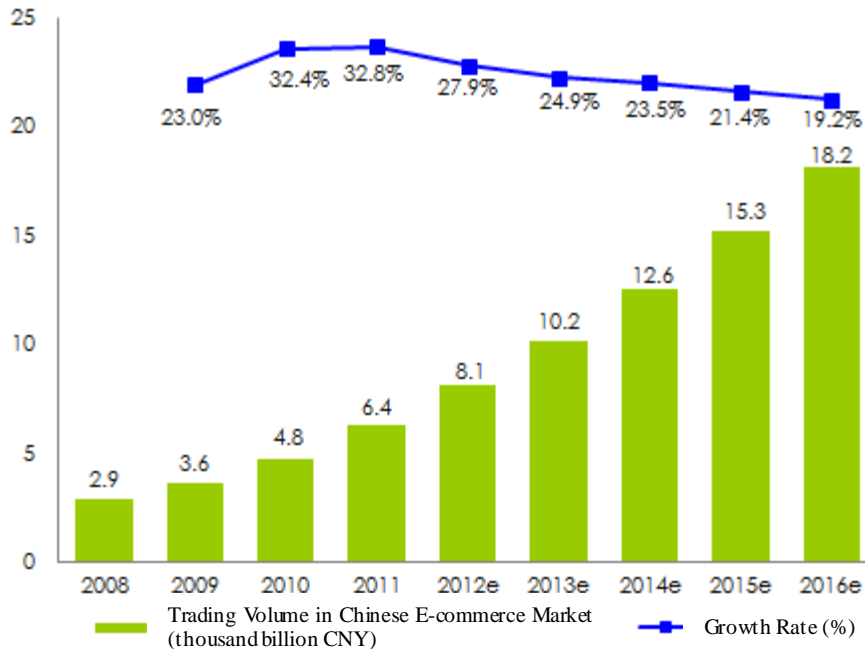
for huge amount of investment of capital as well as human resources in building the network, developing and operating the system. Thus, if the increased tax revenue collected fails to cover the cost, it can be called a bad deal. In this sense, e-invoicing appears to be crucial to not only improving VAT compliance in the near future, but also increasing process efficiency and reducing conventional costs. The contribution to environment will benefit our offspring as well.

3.1.2. E-commerce in China

It is generally known that China is a large country no matter in population or in geographic area with a long history. This makes China kind of a unique country, who owns “*globally competitive domestic ICT enterprises*” (Winn et al. 2010) meanwhile some areas of the country are fallen behind and less developed. Since the *Policy of Reform and Open* in late 1970s, Chinese economy has leapt forward. After more than 30 years development, there has emerged a large group of entrepreneurs who have been leading the trend of electric economy in China. E-commerce has come into Chinese citizens’ daily life since then.

E-commerce in China is growing at a geometric rate, doubling its productivity every year. Thanks to the relatively loose policy adopted by the government, many participants enter the market. According to the research conducted by *iResearch.cn*⁴, the total trading volume of e-commerce in China 2012 was 8 100 billion CNY, increased by 27.9% from the previous year. And it contributed to about 15.6% of the GDP in 2012. Based on the enterprises’ financial reports, experts’ opinions and its own statistic model, *iResearch* worked out two groups of data related to e-commerce market in China. Figure 8 illustrates the scale of trading from 2008 up to now and a prediction of that for the next three years. We can find that the market has grown a lot in the past three years. Though the speed of growing is and will be slowing down as they predicted, the market will keep an uptrend in the near future.

⁴ iResearch is a Chinese economy web portal focus on information economy. It offers research information, data, reports, and expert columns covering many industries.



来源：综合企业财报及专家访谈，根据艾瑞统计模型核算。

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Figure 8 Trading Volume in Chinese E-commerce Market from 2008-2016
<http://ec.iresearch.cn/shopping/20130128/192198.shtml>

And the decomposition of the 8 100 billion CNY transactions is presented in Figure 9. SME B2B accounts for the largest part of 53.3%, followed by large enterprises B2B's segment of 28.3%. Online shopping contributes 16% of the whole market, but with more traditional enterprises takes active part in e-commerce under the continuously improving internet, online shopping will be even more convenient and extensive. That is to say, in general the online shopping market will keep on expanding. Among all the online shopping sites, *Taobao* is the biggest as well as the most favored one, which will be introduced later. Though travelling products take up just 2.1% of the total, its growth rate has been over 30% in recent years. Driven by the segments like flight, hotel, and holiday package, and with Chinese' life concept changing, online travel will gradually become an important part of the market, as predicted by *iResearch*.

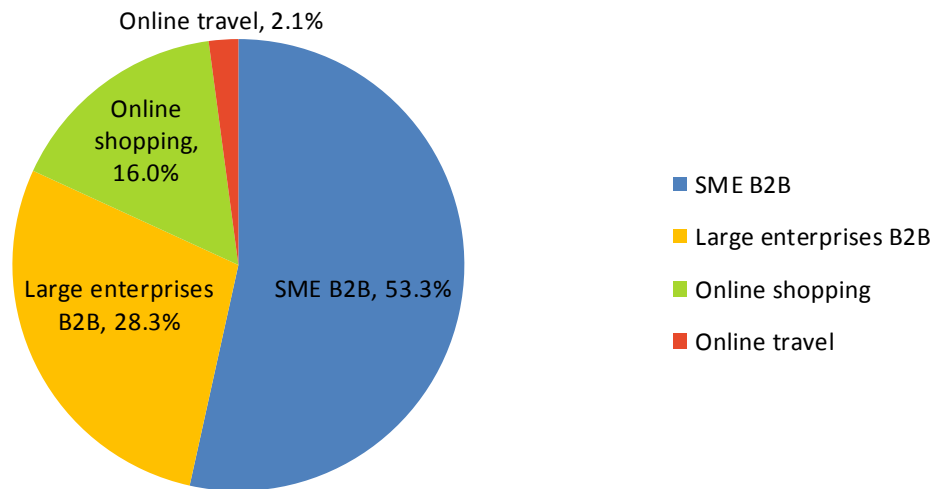


Figure 9 The Segmentation of Chinese E-commerce Market Tradings in 2012
<http://ec.iresearch.cn/shopping/20130128/192198.shtml>

The Largest Online Shopping Site—*Taobao*

Taobao is a shopping site established under *Alibaba Group Holding Ltd* in 2003. It exceeded *eBay China* in 2005, and has left its competitors far behind ever since. *Taobao* became the largest shopping site in Asia in 2006 and continues to expand its business. Until the end of 2010, it has attracted 370 million registered users. In addition to its success itself, *Taobao* has brought a lot of employment opportunities, and it was awarded the “CSR Competitiveness Award”⁵ in 2011.

In *Taobao*, every registered user can have his own online shop for free after getting verified. It blurs the boundary of B2C and C2C business. Professor Ming ZENG, the Chief of Staff of *Alibaba*, said that *Taobao* is never a C2C business precisely. It can be said that most of the sellers in *Taobao* are small businesses, and *Taobao*’s switching from C2C to B2C is actually the upgrade of small businesses to big businesses. *Taobao* is penetrating into Chinese daily life, and you can find almost everything you want there—from food, clothes, and shoes to computers, cellphones, cameras, and even flight tickets and real estate, from domestic products to overseas products, and from physical products to virtual services. According to the data published by *Taobao*, up to 2011 the largest daily visitor amount has exceeded 120 million. And the trading volume hits the peak every year in 11th, Nov and 12th, Dec, when *Taobao*’s featured sales promotion is on. In 11th, Nov last year, the daily turnover reached as

⁵ It’s a competition held by “Business Value” publisher every year, regarding to corporate social responsibility competitiveness

much as 19 billion.

In general, there are several reasons for consumers to engage in online shopping—convenience, lower prices, and varieties of products and so on. As citizens realize that prices in China are going up day by day, even faster than the increase of their salaries, a large part of them, especially the young adults, switch their consumption to internet. Thanks to the cost saved from operating a physical store, online products show great advantages in price and convenience. According to the report released by Data Driven Marketing Asia (DDMA)⁶ in 2012, China has the most online shoppers with a population of 195 million, and has the third largest online market, after EU and the US, and consumers spent about 850 billion CNY online in 2011.

3.1.3. Online Bank and Third-Party Online Payment Platform

To carry out e-invoicing, the use of online banking and online payment platform is a prerequisite condition. Thanks to the booming of B2C e-commerce in China, online banking and online payment have been introduced and accepted widely by the general public in cities, especially among the young generation.

Online Bank

Since the establishment of net bank in Europe and North America over the last decade in last century, its advantages have been noticed by the majority. Many banks provide internet banking services around the world, and there are even some internet only banks, which provide better services and rates. Online banks make online payments possible, and enable paperless transactions in certain extent.

China Merchant Bank was the first one to provide customers with online services in China in 1997. Thereafter, Bank of China, China Construction Bank and all the other banks started to join in. According to *The 30th Statistics Report of China's Internet Development* published by China Internet Information Center⁷ (CNNIC) in the July of 2012, the amount of online banking users had reached 0.191 billion by the end of June, 2012, and 0.187 billion for online

⁶ DDMA is defined by themselves as strategic China market researchers and consultants. They do highly tactical market research based on China and offer business consultancy services in China since 2002. They work with many big brands and provide referential reports.

⁷ CNNIC acts as an important constructor, operator and administrator of infrastructure in Chinese information society. It is responsible for operation, administration and services of fundamental Internet resources, undertaking R&D and security work of fundamental Internet resources, conducting research on Internet development and provides consultancy, and promoting the cooperation and technological exchange of global Internet.

payment users. Mobile payment has also experienced an enormous increase by around 14 million from 30 billion to 44 billion within half a year.

Third-Party Online Payment Platform

Online payment platform acts as a mediator between banks, merchants, and customers. On one hand, it increases trust and credit between each other and facilitates transactions. On the other hand, it integrates different bank's online banking rules into one and leads to standardized operation. As some web shops may be in a coalition with certain banks, customers have to possess several bank cards and install relevant authentication software in order to make the purchase. In such a case, an online payment platform can play a significant role in tearing down the bank card barriers. Besides, online payment platform saves effort for all the participants by offering value-added services like real time query, in time refunding and payment suspending.

The most famous online payment platform in China is *Alipay* (<http://www.alipay.com>), launched in 2004 by *Alibaba Group*, the owner of *Taobao*. As an affiliate corporation of *Taobao*, the development of *Alipay* was substantially stimulated by the flourishing of *Taobao*. Its growth is not confined to only *Taobao* marketplace but collaborate with more than 460,000 other e-commerce merchants. *Alipay* has more than 800 million registered accounts. In 12th, December, 2012, it set a record for the highest daily number of transactions, processing 105.8 million payments during the 24-hour period, with transactions value of around 20 billion CNY. Apart from paying for online shopping, users can pay the bills for utilities and communications directly via *Alipay*. And what's more, *Alipay* even acted as a channel for charity after the earthquake happened in Sichuan in April, 2013.

The Usage of Online Bank and Online Payment Platform

IResearch conducts *Users Behavior Study of Personal Online Banking* every year, to collect demographic data of users, and investigate their behavior. According to the report published last year in 2012, the main usage scenario can be observed from Figure 10. What noteworthy is that 60.5% and 60.3% of the 3365 respondents used online bank to pay invoices of utilities and telecommunications. Meanwhile, there are 39.5% and 39.7% of all the respondents pay them respectively via online payment platform.

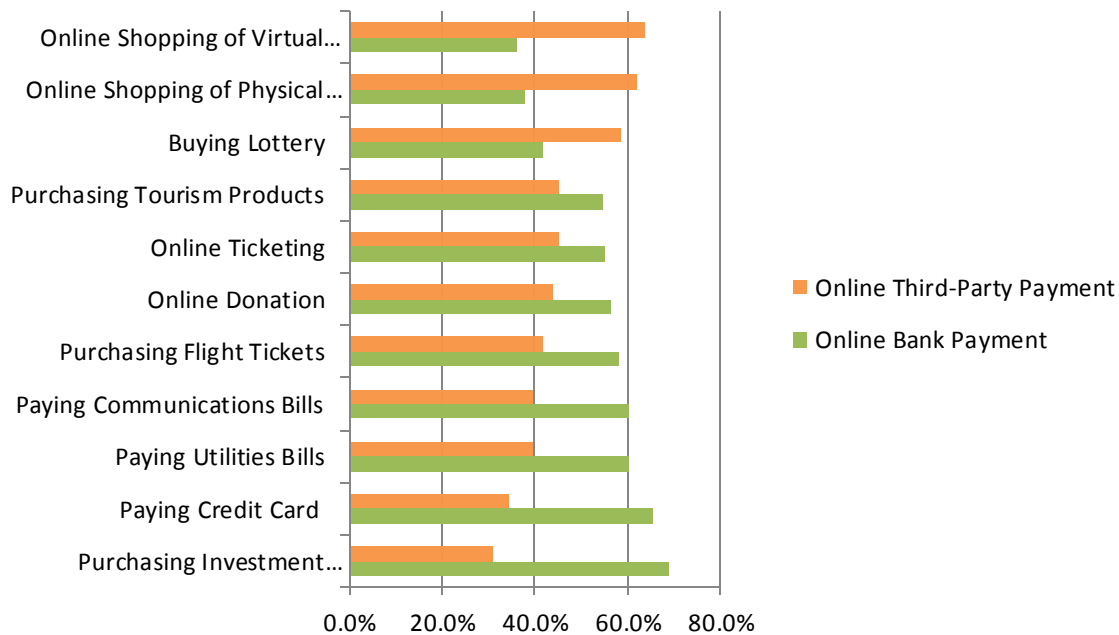


Figure 10 Personal Online Bank Users' Usage Scenario (Users Behavior Study of Personal Online Banking, 2011-2012)

Taking a look at e-commerce in China, it can be concluded that the emergence of online banking has stimulated the boom of e-commerce in China, while the rapid growth of e-commerce has attracted more online banking users in return.

3.1.4. E-invoicing in China

In China, transactions are mostly based on paper invoices still, but the prevalence of e-invoicing in Europe has obviously attracted the authority's attention. It's not difficult to find out that e-invoicing does show great advantages over paper invoicing.

As mentioned earlier, apparently there exist several flaws in the management of paper invoices. Moreover, granted that the use of paper invoices is regulated well, the mandated paper format hinders corporation from transforming into a modern organization equipped with advanced IT and operated in a more efficient way. Despite that many business processes in China can be accomplished through internet and information are shared between business activity participators, paper invoice is still a prerequisite which must be issued and sent by post. Thus the reconciliation of these invoices to accounting information is also inevitable, which takes time and energy. Even under the best circumstance where only few mistakes are made, manual work reduces efficiency.

Fortunately, invoices for telecommunications, internet and utilities like water, electricity, and gas, are being transformed to online processing respectively in recent years, which turns out

to be a quite efficient change. The IT group of *China National Democratic Construction Association*⁸ once put forward a document called “*Suggestions about Widely Implementing of Electronic Invoices to Reduce Carbon Emissions*”. It estimated that each urban family or organization receives 5.5 invoices every month on average, including invoices for utilities, communication, mortgage, insurance and others. Based on an estimation of the number of urban households in China, it was calculated that there will be 21.1 billion bills that have to be delivered and settled for one year. As they are in paper format, not only do they impose a huge cost in printing, but also should the receivers take effort to store the invoices. Meanwhile they have to spend minutes to hours queuing in the relevant organizations to pay the invoices. More importantly, it incurred a huge amount of expenses. Assuming that the cost of issuing every one paper bill from the utilities companies and delivering it to the household is 1 CNY, then 21.1 billion bills adds up to 21.1 billion CNY. Also, it is estimated that around 772 000 ton papers should be used to print those invoices, which means that 15.4 million ten-year-old trees are cut down every year. Nevertheless, if electronic invoices are able to substitute for paper invoices, the carbon footprint of those invoices can be reduced by 63%.

Though e-invoicing hasn't been formally and widely implemented in China, there comes great practice in some certain area. Next I'd like to introduce some about the program promoted in utilities industry of B2C transactions in Shanghai.

Shanghai E-Invoicing Project

Shanghai, one of the most developed cities in China, has included e-invoicing promoting into its *Three-Year Plan of Building a Smart City*. In May, 2003, *Shanghai Fufeitong Company* (<https://www.shfft.com>) was established jointly by the municipal government, utilities expenditure presentation units and banks infrastructure organizations. It was aimed to build a standardized EBPP (E-Bills Payment and Processing) platform by not only electronizing traditional paper invoices, but also exchanging and processing e-invoices via internet. Its underlying tenet is to provide safe and convenient invoicing services to Shanghai citizens. Similar to *Alipay* mentioned earlier, which function in both invoices payment and third-party payment, *Fufeitong* is a solution to both aspects but with a limited portion in third-party payment. It's more specialized in paying invoices though. Users can apply for an account via

⁸ China National Democratic Construction Association was established in 16th, Dec, 1945. It's mainly consists of economics professions and plays a role in Chinese political process.

its website, and then they can recharge their accounts or bind their bank cards with their accounts. Via this website they are able to pay the invoices of water, electricity, gas, cable television, and communication fees.

While *Fufeitong* enables online payment of invoices, users will still receive paper invoices every month. Users make payments online according to the information based on the paper. Considering that it can be accomplished in a more effective paperless way, *Shanghai Fufeitong Company* launched an e-invoices managing platform called *Ezhangdan* (<https://www.ezhangdan.com>) with an impressive slogan—“Save one piece of paper today and leave some green to your offspring”. As long as users send requests for e-invoicing and register their user profile (user ID, barcode etc.), they will not receive paper invoices any more. The format of e-invoice can vary, including but not limited to e-mail invoice, web query invoice, SMS invoice and so on. Users can inquire their registered invoices for the past two years at any time. Better yet, it’s possible for them to reserve automatic payment (which cannot be achieved by online bank yet) once new invoices arrive, and they can also integrate several invoices into one to complete all the payments at one click. To attract more users, there are promotions and lucky draws frequently. Until early this year it has attracted more than 1.2 million users and has issued 1.9 million e-bills, which has saved more than 10 million pieces of paper bills.

Unfortunately such an e-invoicing project of B2C transactions is implemented only in Shanghai at the moment. Citizens in other areas still receive invoices in paper format. Some pay the invoices through internet (e.g. *Alipay*), while some go to the relevant organization branches. As online payment is accepted by more and more people and is kept expanding national wide, the implementation of e-invoicing for infrastructure industries can be expected. Though there are still a lot to do, to supervise, and to guide before comprehensively promoting of e-invoicing, *ezhangdan* in Shanghai is a good start of B2C e-invoicing. As for the other cities, it’s just a matter of time. The users’ attitudes and intentions to adoption will be studied in the following chapters.

3.2. The Process of E-invoicing

Due to its prominent advantages, e-invoicing is being accepted widely by citizens in Europe. E-invoicing has not only effectively improved the efficiency of B2B transactions, but also worked on reducing greenhouse gas emission at the same time.

However as mentioned before, “e-invoicing” is a relatively new word to Chinese, and not surprisingly, the way of electronizing invoice in China is distinct from other countries. For B2B e-invoicing, as the extent of ICT applied into each corporate is widely divergent, and the average level of business technology is relatively low, it has to take more time to get a move on wide-ranged implementation. While things are easier for B2C e-invoicing, they are operated in a relatively standard way national wide, the utility industries and infrastructure, for example. What the most necessary are citizen’s awareness of e-invoicing and a good solution—*ezhangdan* or any other platform. If we figure all the preliminary work and processes into one picture, China’s road to e-invoicing can be summed up and illustrated as below.

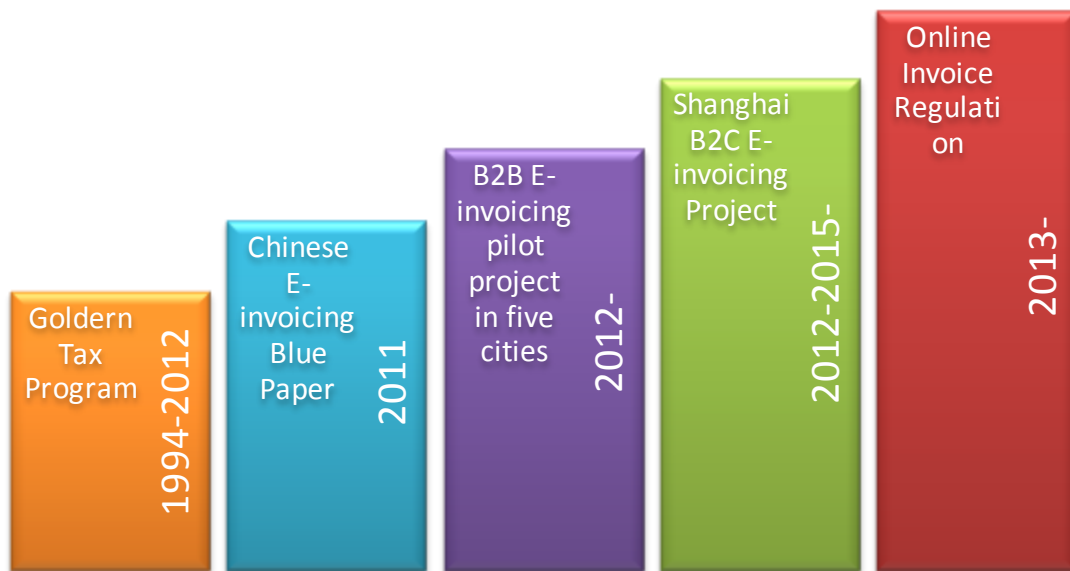


Figure 11 The Developing Process of E-invoicing in China

Golden Tax Program carried out between 1994 and 2012 has built a national taxation network. The network is equipped with information technology in order to constructing a centralized real-time invoice system. For such a country with a vast geographic area and an enormous population, the establishment of a standardized and consolidated tax system is of great significance. Generally speaking, the Golden Tax Project has laid a foundation for the comprehensive implementation of e-invoicing in the future.

Chinese E-invoicing Blue Paper was released by China Federation of Logistics and Purchasing in June 2011. As the first document of e-invoicing in China, it summarized the invoicing situation and pointed out that it’s time for introducing e-invoicing in China.

In May, 2012, the National Development and Reform Commission announced that the pilot

project of e-invoicing would be implemented in five cities—Chongqing, Nanjing, Hangzhou, Shenzhen, and Qingdao. Those cities were chosen based on the provincial e-invoice scheme proposed by themselves.

In Jan, 2013, *Online Invoice Regulation* was released by National Taxation Bureau, aiming to widely promoting online invoice. When certain condition is meets, e-invoicing can be carried out. This regulation has come into force in 1st, April, 2013, functioning in paving way for e-invoicing.

Shanghai's e-invoicing project *ezhangdan* was launched in March, 2012. Although more than 1.2 million users have adopted e-invoicing, it's not such a considerable amount when compared to the resident population of more than 23 million. As the project has been carried out for 1 year already, there is a need to think about users' attitudes toward e-invoicing, how to raise their awareness, and how to engage more users in. Ultimately, the success of any innovation or system depends on its ability of attracting users.

3.3. Reasoning Behind E-invoicing in China

What have been introduced above are the elaborated background and context of e-invoicing in China, and we can summarize the reasoning behind it from the following two aspects—the necessity of and the feasibility analysis of e-invoicing in China.

3.3.1. Why Is E-invoicing Necessary

For China, e-invoicing is just around the corner, but why is e-invoicing necessary? There are four primary factors that matter.

The current invoices management system doesn't reach an optimization of resource allocation

With the continuously advancing of technology, there exist abundant resources which can make work easier and can improve efficiency. The extensive use of internet and ICT enables efficient data exchange among market participants. Nevertheless, the dated taxation IT system used now restrains the optimal allocation of resources.

On one hand, the design of this system was exposed with some congenitally deficient. (Wu and Song, 2011) For example, there are duplicative modules in both VAT administration system and China Taxation Administration System with distinct handling processes, which

make automatic processing unavailable, and it turns out to be an inefficient way of resources planning. On the other hand, the VAT administration system was built as a “tax administration system based on invoices”. But due to the insufficiency in integrating anti-counterfeit measures together with tax-control measures, the implementation of VAT administration is beset with difficulties.

Vendors have to claim paper invoices from tax administration authorities, which is a time and effort consuming task. Living in such an information age, why not move from labor-intensive pattern to technology-intensive pattern as we can? Though the population is large in China, and labor intensive industries might be important to maintain a fair employment rate, there is no necessity to expand employment by sacrificing efficiency. What’s more, I have to say, when persons and manual work are involved in, especially under the relationship-oriented eastern culture, it’s quite difficult to prevent those ill-natured behavior like bribery. Fully or reasonable use of information technology will help establish credibility, fairness and transparency of the system.

The current invoices management system is not able to fulfill the operational requirement

For some industries with strict requirements for efficiency, lead time of delivering an invoice might become the bottleneck of the entire operational process. Due to the lack of standardized system and effective measures on cracking down counterfeit, tax administration is faced with lots of problems, like tax evasion and fraud. There is news periodically that some celebrities are besieged by tax evasion scandals. Such cases can bring side effects to the society and undermine people’s confidence in the national tax system. They not only prevent the market from growing in a healthy way, but also hurt the benefits of all the citizens. Seeing the whole forest, there is no more effective way of tax administration other than e-invoicing.

The current invoices management system cannot adapt to the rapidly growing e-commerce market

As mentioned ahead, e-commerce market is booming in China. Meanwhile, competition in e-commerce market has become fiercer than ever, irregularities are coming into existence as well. Taxation on B2C e-commerce (*Taobao*) is an inevitable approach to get it under control, and there’s no better option than e-invoicing. Under the global e-commerce uptrend, the implementation of e-invoicing is being promoted from business to the whole society.

However, the traditional invoices management system was put into practice before e-commerce boomed in China. While e-commerce enables cross-border, paperless and real-time transactions which motivate the emergence of e-invoice, the paper-based invoicing system is inherently insufficient for this market.

Moreover, the traditional system is not able to work well for tax administration. Firstly, electronic money is the basic and commonly used form of payment for transactions in e-commerce, but paper invoice cannot reflect transaction information as efficient as e-invoice does. Secondly, as e-commerce always happens via internet between parties from different areas or countries, paper invoice cannot be delivered in a convenient and timely way as transactions were made. To be noticed, though it's possible to track the consumption records via online bank, there is no sophisticated way of working, neither a platform linking these two systems together.

The efficiency of present invoices management system is low

As a dated system, it has low efficiency in the evolving society, mainly from the following three aspects.

To begin with, the costs of managing invoices are high. Though paper invoices are deemed intuitively more real and secure, direct cost of printing and storing is rather huge, let alone the amount of trees cut down and carbon dioxide emitted. In addition, as flaws exist in such a system, it's not uncommon that some tax payers be opportunistic and makes use of invoices out of control. What's more, due to that VAT invoice is the legal certificate for tax deduction, the authorities have to invest a lot in exploiting anti-counterfeit technology, as well as in investigating those criminal activities related to tax. Last but not the least, tax examination becomes an important mission. Searching among a pile of paper invoices retards query speed; and the demanding workload leads to low efficiency. These will all impact directly or indirectly on the quality of examination.

Generally speaking, the traditional Chinese invoices management system is lag way behind the requirements of modern tax administration, no matter in operational process, adaptability, or operation model.

3.3.2. Why Is E-invoicing Feasible?

No matter for B2B or B2C, there is a necessity in implementing e-invoicing as said above.

The authorities have tried hard to eliminate the obstacles and get everything prepared for e-invoicing. A lot of work have been done though difficulties exist still, making e-invoicing a feasible issue.

The building of e-invoicing infrastructure can be based on the present network and information systems.

The tax system has been under information construction for almost twenty years, and it has been built into a stable and reliable four-tier—national, provincial, municipal, and county—system. A network security and protection system has been established and gradually improved, and a supporting and operating system for national IT construction has been backed up. As described in the early paragraphs, the Golden Tax Project has built a national taxation network which links the local tax authorities all over the country. It aimed to realize a multi-dimensional control over taxation, and that's also what can be expected from e-invoicing.

As a whole, the preliminary infrastructure for paperless processing is ready. Relying on the current technology and resources, what need to be done is adjusting the software structure of IT system, and reconfiguring the process flow and function, and then hopefully e-invoicing can be expanded to the whole country.

The external technical specifications are ready.

Firstly, network spreads to most of the country. When taking a look at national wide, the IT infrastructure construction has reached a considerable level, and internet use is widely spread in China now, though continuously expanding is still needed. Backbone network, MAN (Metropolitan Area Network), BBN (Broadband Network), and infrastructures have been set rapidly, and internet communication technology is continuously evolving. They together bring large amount of users. The number of *netizen* (net citizen) was 0.45 billion in 2010, covering 33.4% of the whole population, and which should be much bigger now. Among them 0.28 billion are cell phone netizen as well. It can be observed from the daily life that the use of email and multimedia message are widely accepted, and several telecommunication enterprises and banks have started to take part in e-bills. So that e-invoicing can be implemented and is able to reach enough number of users.

Secondly, reliable security assurance can be leant on. There are mainly three categories of

network security technologies, including encryption technology, which aims to protecting the confidentiality of data, authentication technology and security authentication protocol which play a role in verifying the identity of dispatcher and integrity of information. These technologies are well mastered at the moment, and CA (Certificate Authority) organizations have been built all over the country. They can contribute to the network security of implementing e-invoicing.

Legislative provisions have been set

In 1st, April, 2005, *PRC Law of Electronic Signature* was brought into force, which endowed legal basis for e-invoices. They have the same effect and bear the same responsibility as paper invoices do. *Chinese E-invoicing Blue Paper* mentioned before kicked off the process of e-invoicing in 2011. And the *Online Invoice Regulation* released in the beginning of this year in 2013 is laying foundation for the entire process.

As a whole, China has experienced a long procedure in developing a reliable invoicing system. During this period, e-commerce has boomed which attracted quite many users of online banking and online payment. With the expanding of network into national wide, IT is penetrating into citizen's daily life. Under such a circumstance, e-invoicing appears to be a perfect solution for the Chinese economy. And the steadily development of technology and economy make the implementation of e-invoicing available.

However, as we know users are one of the key roles in an IOS. What users' perceptions are and how they behavior mean a lot in promoting e-invoicing, especially B2C e-invoicing. Therefore, this thesis is aimed to study the factors affecting user's attitude towards e-invoicing and intention to adoption. The research model and method will be presented in the following chapter.

4. RESEARCH MODEL AND METHODOLOGY

Based on the previous literature of technology acceptance and users' intention of behavior, I adapted the model of research as illustrated below:

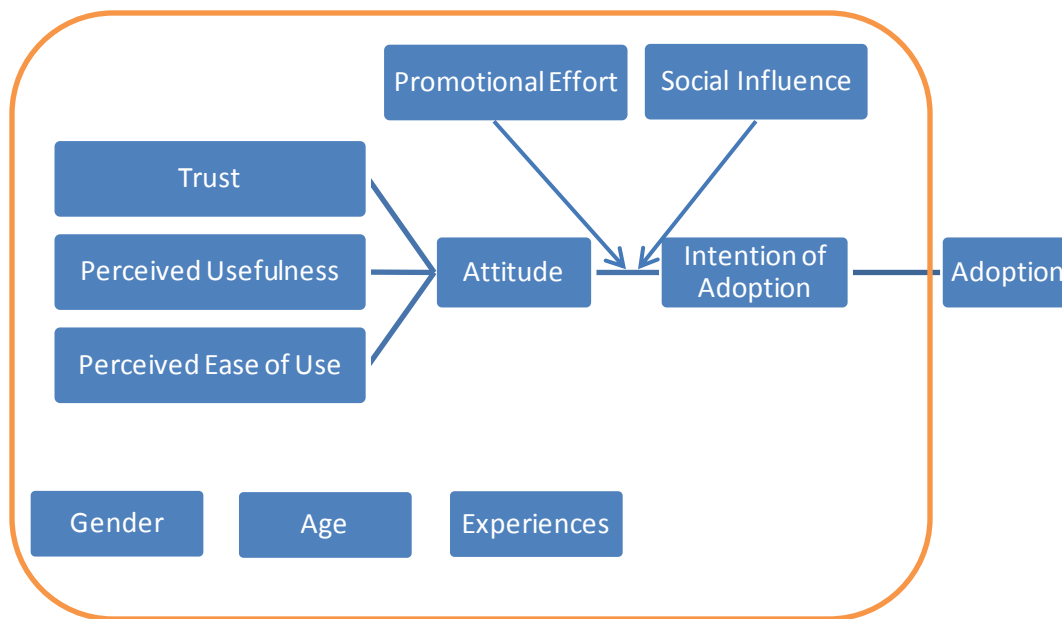


Figure 12 Research Model

4.1. Hypotheses

According to the four constructs—performance expectancy, effort expectancy, social influence and facilitating conditions—proved to be significant in the previous studies, I select seven variables and three moderators to build the framework.

4.1.1. Perceived Usefulness (PU)

Perceived usefulness here refers to the degree to which an individual believes that adopting e-invoicing can bring convenience to his or her life (Venkatesh et al., 2003), and it is one aspect of performance expectancy. Though it might be widely accepted in the society that e-invoicing has great advantages over the traditional way of invoicing, users' perception towards it is the most important when trying to get them participate in. For informed users, perceived usefulness can come from their limited past interactions with the system. For newbie users, perceived usefulness generate from news media, or other people's judgments. Users who believe e-invoicing brings them with convenience, saves their time, or enhances their living condition, tend to have a higher perceived usefulness over e-invoicing program. Then they are more likely to think highly of the system. Thus, I assume that perceived usefulness has a positive effect on users' attitudes towards e-invoicing.

H1: Perceived usefulness will positively affect users' attitude to e-invoicing.

4.1.2. Perceived Ease of Use

Perceived ease of use or effort expectancy represents the effort spent on using either e-invoicing or online banking as users expect. It seems less likely that users will accept and shift to an innovation if they feel overwhelmed by the so called new technology. Issues regarding to user experience should be included in when designing a new system. And trainings should be given after launching a new system. For e-invoicing, if users' effort expectation cannot be met, it can hardly attract more users. Whether the information communicated by e-invoice is explicit and understandable, whether e-invoicing system is easy to operate, whether online bank is accessible, and even whether it's easy to get access to internet can all be considered as measures of perceived ease of use. If users are aware that the effort needed for changing is no greater than the effort needed to cling to traditional way of invoicing, or they can obtain a higher efficiency for living in a less laborious way, they tend to hold an optimistic view of e-invoicing.

H2: Perceived ease of use will positively affect users' attitude to e-invoicing.

4.1.3. Trust

“Trust has long been regarded as a catalyst for buyer-seller transactions that can provide consumers with high expectations of satisfying exchange relationships.” (Paul A. Pavlou, 2003)

Indeed, trust is always an essential factor in dealing with human relationships. Trust refers to an individual's confidence in the other party who will take the responsibility and behave properly, to meet his expectation (Gefen, D, 2000). It's even true in the field of business, where uncertainties and risks exist. Trust between counterparties plays an important role in a successful transaction. When involved in e-invoicing system or online payment platform, individuals may be faced with even more risks than before. Systems might collapse accidently, or your personal information might be hacked. Users have to be confident enough that the benefits new technology brings will outweigh the risks of losses. Especially for e-invoicing and online payment system, in which monetary issues are involved, it will take time for users to participate in until they assure themselves that for example, their payment won't be falsely transacted, and their account information won't be given away. When users have trust in a new IT system, they will remain a relatively open attitude to adopting it, which can affect their behavior of adoption.

H3: Users' trust will positively affect their attitude to e-invoicing.

4.1.4. Attitude

An individual's attitude towards a certain object can root from his beliefs, evaluation and perceptions about that object. As Ajzen and Fishbein stated in their book in 1980, those beliefs or perceptions can be formed through observing directly, through accepting external information, or "*self-generated through inference processes*" (p.63, Fishbein and Ajzen, 1980). The several beliefs one person possesses and his past interaction with the certain object determine what attitude he holds towards it. That is to say if he holds more positive beliefs than negative ones, or he value more on positive beliefs than on negative ones, he tends to have a favorable attitude. Otherwise negative beliefs will be more salient, and he will have an unfavorable attitude. However, we also know that some beliefs may change over time, or even turn to the opposite side, Ajzen and Fishbein (1980) assumed that a person's attitude is determined by only few salient beliefs. When measured in an appropriate way, attitude shows great relevance to the to an individual's intention to behavior (Fishbein and Ajzen, 1972).

What has to be pointed out is that the attitude measured here is a person's attitude towards the behavior, rather than his attitude towards the certain object related to the behavior. Whether a person supports or doesn't support performing a behavior will affect his intention to behavior. It's obvious that, under the same conditions, a person is more likely to get the intention to perform the behavior if he shows a more favorable attitude towards it, while a person is more reluctant to perform the behavior if he shows a more unfavorable attitude towards it. That is to say attitudes have a positive effect over individual's intention to behavior, which was prove by later on studies (Rogers, 1995, Agarwal and Prasad, 1998, Vanucci and Kerstetter, 2001) as well.

Every e-invoicing user or potential user all has distinct perceptions of it, and their attitudes can be influenced by their perceptions of usefulness, enjoyment, convenience, and so on. It's easier for users who hold a positive attitude toward e-invoicing to accept the innovation as they are more willing to do so than those who think negatively of it. As long as they accept the idea, they are more likely to have an intention to adoption. So I assume that individual's attitude will positively affect his intention to adoption.

H4: Attitude is positively related to users' intention to adopting e-invoicing.

4.1.5. Social Influence

Social influence is defined as what an individual regards others' perceptions of him about whether he performs a behavior or not. The individual takes into account the opinions of specific persons or groups have on his behaving or not behaving in a certain way assumed by himself, and form the intention to behavior.

As people all live in a community or society, they care about their image on other people's minds, especially in a collectivistic culture in China. Thus their intention to adoption will be influenced by what they think others view them as a result of their adoption of e-invoicing. For example, if the individual's job is connected to environment protection, they probably have to establish a "green" image by transforming to a paperless working process to remain consistency. For celebrities as well, a green image can earn them a good social norm and reputation, which contribute to their career development. Another case is that in such an information era, people will actively follow the trend if e-invoicing is regarded as a modern and fashion life style. Besides, friends' suggestions sometimes function better than other information when promoting an innovation. It's not uncommon as we can feel it ourselves as well that, friends' recommendation of a certain product weighs more than any advertisement most of the time, so called the word of mouth. This can be significant that if the majority in a social circle are actively using e-invoicing, it's quite easy for the rest to accept the new idea. Thus, I assume that social influence has a positive effect on users' attitudes toward e-invoicing.

H5: Social influence will positively turn user's attitude into intention to adopting e-invoicing.

4.1.6. Promotional Effort (PE)

"Promotion, often called marketing communications, is all those means by which marketers communicate to their target market." (Govoni, et al., 1986, p.12)

Promotional effort is a quite common concept in marketing and has been studied extensively in previous literature. It mainly researches on customers' reaction to promotions and whether promotion affect customers' behavior. (Geng, 2013) Managing promotional effort involves the planning of both the introduction of a product and the revision of market strategy, which are always carried out by functional organizations or product focus teams, sometimes assisted by external services. (Govoni, et al., 1986) Generally speaking, promotions are conducted

either to accelerate the development of a new product or to enhance and expand existed product. In Ailloni-Charas and Dan's (1984) book, they classified promotional effort into two categories by type of incentive—merchandise or service incentives, and money incentives. Merchandise or service promotions refer to those nonmonetary promotions, like buy one get one free, usually make differences in quantity and services. Money promotions are pure monetary and related to the trade-off between price and consumer's perception of a product. Discounted price and coupons are frequently used.

When implementing e-invoicing, some promotional efforts are applied as well. Cases are that, users are able to get a discount transacting via e-invoicing and online payment platform, or they will receive vouchers or gifts for adopting e-invoicing. For example, the *ezhangdan* platform provides beginners with cell phone bill coupons or film tickets. Another kind of promotion is that users get the chance to draw lotto after using e-invoicing in a certain period. *Ezhangdan*, for instance, conducts a lottery draw among users once a week or once a month. The prize in April was an iPod touch. Similarly those strategies are applied in online banking as well. Users are able to either earn more points by making online payments, or get delicate gifts when their credit cards are used with consumptions accumulated to certain amount.

Considering the variable of attitude in the preceding part, though a positive attitude may positively affect user's intention to adoption, it doesn't necessarily lead to it. There should be some triggers or determinants that appealing to users. In the rest of the thesis we are going to examine that whether promotional effort works effectively as a trigger.

There was no literature studied explicitly about whether promotional effort would positively affect users' intention to adoption, however, positive attitudes to e-invoicing are just not enough for broadly implementation. As promotional effort is proved to be influential in the field of marketing, it would be interesting to see whether promotional effort will significantly turn users' optimistic attitudes into intention of behavior, and motivate users' intention to adopting e-invoicing. Here I assume that promotional effort will significantly turn user's attitude into intention to adopting e-invoicing.

H6: Promotional effort will positively turn user's attitude into intention to adopting e-invoicing.

4.1.7. Intention to Adoption

Ajzen and Fishbein(1980) assumed that *“most behaviors of social relevance are under volitional control and are thus predictable from intention(p. 41).”* Intention can predict behavior accurately when measured in an appropriate way. On one hand, it is important that the intention investigated is correspondent to behavior so that it is able to predict behavior accurately. On the other hand, similarly to beliefs and attitudes, intentions can vary over time, therefore the stability of intention should be considered generally.

Consistent with all the previous literatures, intention to adoption will significantly and positively affect user’s behavior of adoption. (Venkatesh et al., 2003) Users with the intention to adoption have a fair chance to actually switch to e-invoicing. Unfortunately, due to the limited time frame, I don’t have enough time to do a subsequent survey to investigate user’s behavior of adoption. As a result, there is no way to measure how the intention to adoption actually affects behavior of adoption, and whether users with intention adopt e-invoicing in the following months.

4.2. METHODOLOGY

This thesis specifies individuals’ attitudes towards e-invoicing and their intentions to adoption in China. In addition to the taxation authorities in China and the enforcement of provisions, individuals play as one of the most important roles in e-invoicing implementation, who are able to accelerate adoption rate significantly. Therefore, knowing the mind of individuals means a lot. To get a more detailed view of individual’s perception, a questionnaire based on previous studies is conducted. And it is designed to investigate individuals’ attitudes from different aspects. A framework is formed as was showed in Figure 12, based on which an online survey was established and published in a Chinese online survey website. The collected data is analyzed by using the SPSS AMOS 20. The statistics and analysis results will be presented later.

4.2.1. Questionnaire

An online questionnaire survey is used as the primary method of data collection. There are five independent variables—trust (TR), perceived usefulness (PU), perceived ease of use (PEU), social influence (SI) and promotional effort (PE), and two dependent variables—attitude (ATT), and intention to adoption (INT), and each variable has four measures adapted from previous studies. Respondents are asked to indicate their agreement of a certain

statement in a seven point scale (1 strongly disagree, 7 strongly agree). There are also several background questions. The questionnaire can be accessed via an online survey website (<http://www.sojump.com/jq/2258069.aspx>) in China, the English version is shown in Table 14 in the Appendix.

Considering that most of the respondents might be users of online banking and payment platform rather than e-invoicing, the two constructs trust and perceived ease of use concerns using both online payment and e-invoicing. That's also because they don't have a clear map on mind of whether they trust e-invoicing or not, and whether they know well how to use e-invoicing or not due to the lack of user experiences. Another reason is that online banks and online payment platform is the first thing users have to access before they start using e-invoicing. They have to trust and feel comfortable with using them; otherwise it will be quite unlikely of them to move to the next stage of e-invoicing adoption. Their satisfaction with their experience of using online bank and online payment is the corner stone of their interaction with e-invoicing.

4.2.2. Participants

According to *iResearch*'s report about online banking users, 60.5% of the users are those aged between 18 and 35. Therefore, I planned three approaches to get participants. The majority would be university students. I would ask my parents who work in universities to diffuse the survey among the students. The second part would come from my friends and their colleagues of their working place. And the rest may come from other social networks in China.

After 10 days data collection, I got 170 respondents for the questionnaire in total. By doing data screening, I removed nine replies in total. Among them, two are trial answers by me, and the rest seven are unengaged responses, which have a variance lower than 0.3, which means the respondents respond with exact or almost the same value for every single question and are clearly unengaged. Basically a few other answers might have low variances as well, but some variances were found through visual inspection, indicating that the respondents are a little bit more engaged and can be accepted. And considering it's better to remove as little data as possible, I keep them and the final size of the sample is 161, and there is no missing data. It's not a huge sample, but still acceptable. The profile of respondents is presented in the Table 3 which can be referred to in the Appendix.

According to the demographic data, 72.05% of the respondents are females, with the rest 27.95% males, and 60.25% of them are students. Among the 161 respondents, 154 persons have ever used online payment of online banking, and 107 persons have the experience of using e-invoicing in the broad meaning.

4.2.3. Statistical Method

The measurement model is developed in accordance with the Structural Equation Modeling (SEM), by which not only the causal effects are revealed but also the latent variables are modeled. SPSS Statistics 21 and AMOS 21 are used for Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) of the data and the model.

5. RESULTS AND ANALYSIS

After eliminating those insignificant responses, the rest of the data are ready for analysis. I first do the exploratory factor analysis by using SPSS Statistics.

5.1. Exploratory Factor Analysis

In the factor analysis, the KMO (Kaiser-Meyer-Olkin) Measure of Sampling Adequacy index achieves 0.903, which indicates that the adequacy of sample is quite good. The factor PEU1 is dropped due to its insignificant extractions (0.210) under maximum likelihood method. However the pattern matrix got from the factor analysis is somehow unsatisfactory. While no more factors can be eliminated as the iteration and minimum can't be achieved, a clean pattern matrix is still not obtainable (See Table 15 in Appendix I). Covariance and correlation exist between quite many factors, which may affect the result. I will bear this on mind and see what influence it will have later.

After removing one item PEU1, the Cronbach's Alpha of the rest items in general is 0.941 (Table 3), which means that the internal consistency reliability is quite good. The Cronbach's Alpha for each constructs are all around 0.8 and are acceptable.

Table 3 Reliability Statistics

Latent variables	Number of items	Cronbach's Alpha
Trust	4	0.822
Perceived usefulness	4	0.846
Perceived ease of use	3	0.730
Attitude	4	0.844

Social influence	4	0.825
Promotional effort	4	0.857
Intention to adoption	4	0.852

5.2. Confirmatory Factor Analysis

Importing the refined survey data, I plot the observed variables and latent variables according to the model in Amos Graphic as below:

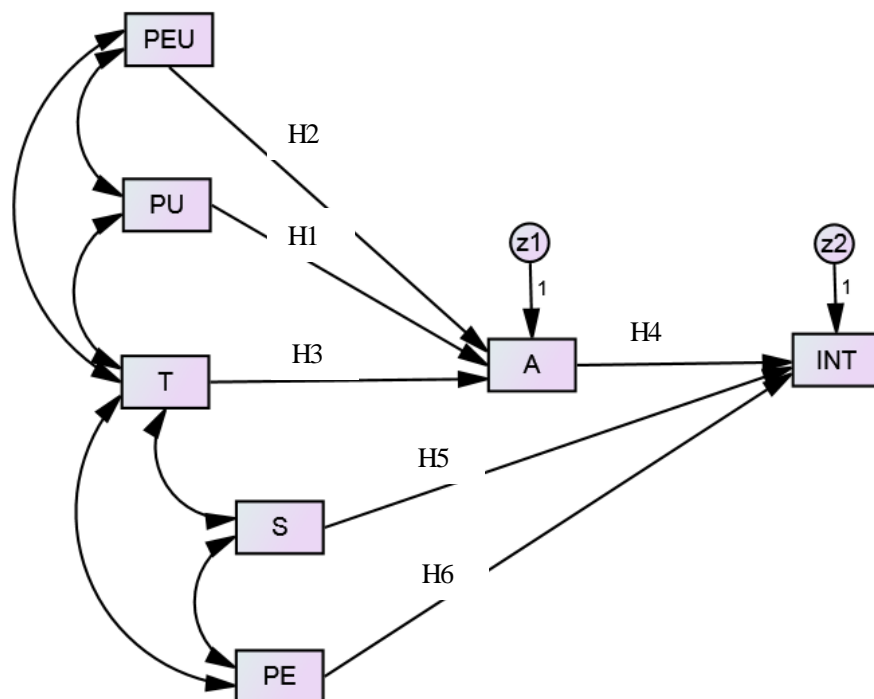


Figure 13 Initial Structural Model for E-invoicing Adoption

The model is estimated under maximum likelihood method, and the following model fit indices are got (Table 4). They seem not so satisfactory, as they barely reach the recommended value as we can see. Modifications are to be made based on the modification indices given by AMOS.

Table 4 Overall Fit and Explanatory Power of the Model (The initial SEM model)

	Recommended value	Model Value
Fit index		
CMIN/df	≤ 3	2.688
CFI	$\geq .90$	.806
GFI	$\geq .90$	.730

RMSEA	$\leq .08$	.103
Explanatory Power		
R^2_{ATT}		.730
R^2_{INT}		.674

Based on the modification indices, I modified the model by covering errors. Covariance is added between e2 and e4, e9 and e10, e10 and e11, e13 and e14, and e25 and e27. On the other hand, by observing the residual covariance matrices, which indicates the differences between sample covariance and implied covariance, the item S1 is dropped due to its high residual covariance value with many other items. The full picture and the output diagram of the modified structural model can be referred to Table 16 and Table 17 in Appendix III. The overall fit of the model has been improved in some extent after modification.

Table 5 Overall Fit and Explanatory Power of the Model (The modified SEM model)

	Recommended value	Model Value
Fit index		
CMIN/df	≤ 3	2.013
CFI	$\geq .90$	.890
GFI	$\geq .90$	.802
RMSEA	$\leq .08$	.080
Explanatory Power		
R^2_{ATT}		.747
R^2_{INT}		.708

The model fit indices are tolerable now but however, the covariance between each item has substantially affected the estimation of the model. Considering that a better model fit and a more accurate estimation are desirable, and in order to reduce the covariance and correlation among each item, I change the analyze method slightly. A stepwise procedure is adopted as John Thøgersen and Yanfeng Zhou (2012) did in their paper. That is to say, the rest of the thesis will analyze factors that affect individual's attitude toward and intention to adoption e-invoicing respectively.

5.3. Results

I split the initial model in Figure 13 into two parts—attitude, and intention, and run those models with Amos 21 again, reaching different yet more significant outputs. Hypotheses made earlier are tested upon the results of these models.

5.3.1. Predictors of User's Attitude towards E-invoicing

User's attitude will be positively affected by individual's perception of usefulness and ease of use, and trust, as hypothesized in the previous chapter. After putting the data into Amos, loads for each item and constructs are illustrated as the following figure. The model has been modified according to the modification indices and covariance is added between several residuals.

The overall fit indices of this model are shown in the table below. There are various rules to set the cutoff points of model fit indices, and here I use the one Yousafzai, Foxall, and Pallister once used in their paper of exploring internet banking behavior (2010). The Chi-square of this model is 221.147, and the degree of freedom is 80. The comparative fit index (CFI) and the goodness of fit index (GFI) are 0.901 and 0.859 respectively, which are acceptable. The root mean square error of approximation (RMSEA) is 0.105, greater than 0.08. According to Browne and Cudeck (1993), a RMSEA of 0.08 or less would indicate "a reasonable error of approximation" of the model, while a model with a RMSEA larger than 0.1 is not so desirable. An important factor of this can be that the use of online banking and online payment are mixed together with e-invoicing in the questionnaire, as there is no former e-invoicing platform in China at the moment. The convergence of the respondents sample might also contribute.

A has a R^2 of 0.742, indicating that the predictors of attitude explain 74.2 percent of the variances in Chinese individual's attitude towards e-invoicing.

Table 6 Overall Fit and Explanatory Power of the Model (The modified SEM model of attitude)

	Recommended value	Model Value
Fit index		
CMIN/df	≤ 3	2.764
CFI	$\geq .90$	.901
GFI	$\geq .90$	.859
RMSEA	$\leq .08$	.105
Explanatory Power		
R^2_{ATT}		.742

Though the model fit is not ideal, we can take a look at the results of estimates to see whether there are some problems with certain items. As we can see from the following table, most loadings of each item for each construct are over 0.6 except those for T1 and A1. R^2 for T1, T2, and A1 are below 0.4, which means that they didn't function well in explaining the variances of their

constructs. When take a look at the related questions in the survey, T1 and T2 are referring to online banking and payment, `not explicitly relate to e-invoicing, which may have caused confusion to respondents.

Table 7 Confirmatory factor analysis results of the predictors of attitude (A)

Construct	Standardized Regression weight	R ²	CR	α
PU				0.846
PU1	0.650***	0.423	8.445	
PU2	0.820***	0.672	9.655	
PU3	0.779***	0.607	10.303	
PU4	0.849	0.721		
PEU				0.730
PEU2	0.774***	0.600	8.484	
PEU3	0.900***	0.810	8.889	
PEU4	0.678	0.460		
T				0.822
T1	0.570***	0.325	6.854	
T2	0.606***	0.368	7.216	
T3	0.677***	0.458	8.169	
T4	0.852	0.726		
A				0.844
A1	0.506	0.256		
A2	0.644***	0.415	10.241	
A3	0.873***	0.762	6.612	
A4	0.882***	0.778	6.633	

***p< .001

A more direct illustration of the results can be observed in Figure 14 and Table 8 below. The standardized regression weight for perceived usefulness (PU) to A is 0.44, which means attitude (A) goes up by 0.44 standard deviations when perceived usefulness (PU) goes up by 1 standard deviation. At the same time perceived usefulness (PU) shows some indirect effect on attitude (A) through trust (T). Therefore, we can accept Hypothesis 1 that perceived usefulness of e-invoicing will positively affect individual's attitude to e-invoicing.

The loading for PEU to A is rather small at 0.09, and the p value is 0.247. The regression weight for PEU in the prediction of A is not significantly different from zero at the 0.05 level. That is to say, among the sample respondents, perceived ease of use almost has no effect on

individual's attitude towards e-invoicing. In such a case, Hypothesis 2 that perceived ease of use will positively affect individual's attitude to e-invoicing is rejected. However, one other thing to note is that PEU is found to affect users' attitudes indirectly via PU and T.

Trust has a standardized regression weight of 0.48 to attitude, suggesting that A goes up by 0.48 standard deviations when T goes up by 1 standard deviation. And it is consistent with Hypothesis 3 that user's trust will positively affect his attitude to e-invoicing.

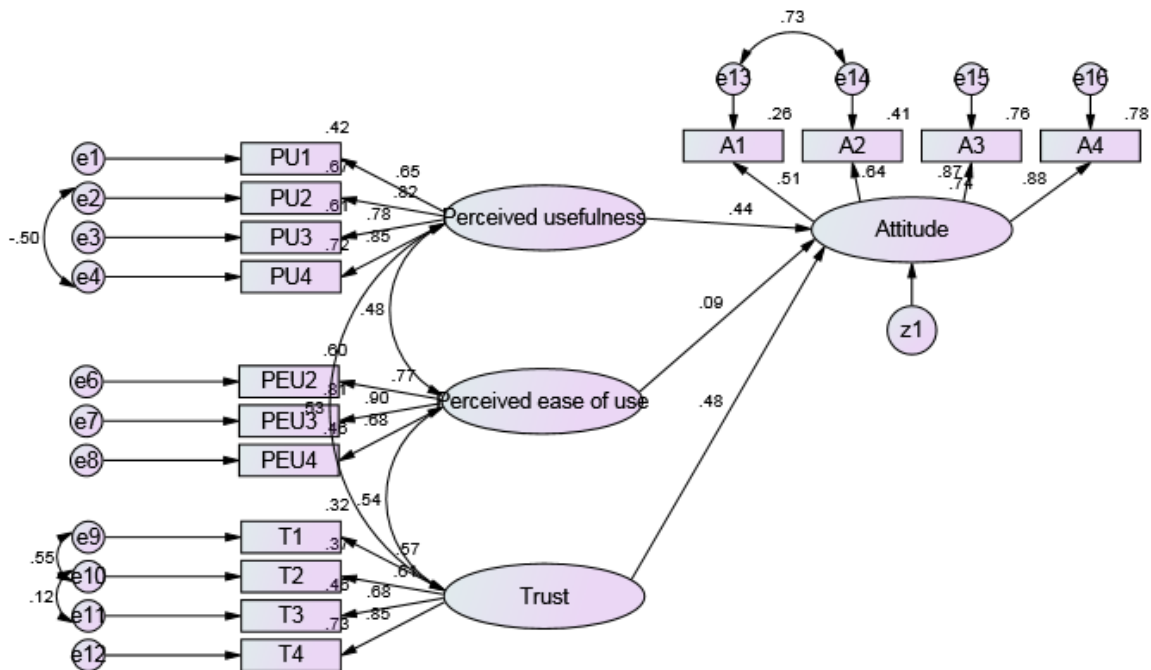


Figure 14 Amos output for attitude SEM

Table 8 Significance and effect of each construct

Hypothesized Relationships	Standardized Loadings
PU→ATT	0.44***
PEU→ATT	0.09 (p= .247)
T→ATT	0.48***

***p < .001

In general, due to the limitation of the questions during the design of questionnaire, the data doesn't fit the model well. But PU and T still show certain effect in positively affecting individual's attitude towards e-invoicing. For the hypothesis regarding to attitude, H1 and H3 are accepted, while H2 is rejected.

5.3.2. From Attitude to Intention

Then let's take a look at the part of intention model. User's attitude will positively affect his or her intention to adopting e-invoicing. Besides, social influence and promotional effort are supposed to accelerate the transition from positive attitude to intention to adoption. Here those hypotheses are going to be examined.

Table 9 Overall Fit and Explanatory Power of the Model (The modified SEM model of intention)

	Recommended value	Model Value
Fit index		
CMIN/df	≤ 3	1.565
CFI	$\geq .90$	.969
GFI	$\geq .90$	.909
RMSEA	$\leq .08$	.059
Explanatory Power		
R^2_{INT}		.746

According to the fit indices above, the overall fit of this model seems to be good after modifications based on modification indices. The Chi-square is 128.309, with degree of freedom 82, generating a minimum discrepancy of 1.565. The model has a comparative fit index (CFI) of 0.969 and a goodness of fit index (GFI) of 0.909, which indicates fairly good fit of the data. The root mean square error of approximation (RMSEA) is 0.059, refers to a reasonable error of approximation of the model (Browne and Cudeck, 1993). R^2_{INT} equals to 0.746. The constructs of intention account for 74.6 percent of the variances in individual's intention to adopting e-invoicing, and only 25 percent of variances are left unexplained. Obviously the model fit of the intention part is better than that of the attitude part.

The confirmatory factor analysis of this model is presented in Table 10. The standardized regression weights of all the constructs are larger than 0.6 ($p=0.001$) except A1. R^2_{A1} and R^2_{A2} are less than 0.4 while others are significantly large in average, exhibiting a relatively good representation of the construct. Moreover, the Cronbach's alpha values for all constructs have exceeded 0.7. And to be noticed, the alpha value of social influence (S) has improved from 0.825 to 0.835 after eliminating the item S1, which means it's the right decision to remove S1 from the constructs.

Table 10 Confirmatory factor analysis results of the predictors of intention (I)

Construct	Standardized Regression weight	R ²	CR	α
A				0.844
A1	0.462	0.214		
A2	0.600***	0.360	9.396	
A3	0.860***	0.740	5.964	
A4	0.913***	0.833	6.041	
S				0.835
S2	0.869***	0.755	9.769	
S3	0.803***	0.644	9.316	
S4	0.720	0.519		
PE				0.857
PE1	0.690***	0.475	8.235	
PE2	0.847***	0.718	10.018	
PE3	0.888***	0.788	10.358	
PE4	0.715	0.511		
I				0.852
I1	0.785	0.616		
I2	0.831***	0.691	11.219	
I3	0.707***	0.500	8.387	
I4	0.846***	0.716	11.451	

***p<.001

The following table and graph gives a better illustration of these causal relationships. Attitude has a strong positive effect over intention, as has been demonstrated a lot in the earlier literatures. The standardized loading of A to I is 0.59, significantly different from zero at the 0.001 level. This is consistent with Hypothesis 4 that individual's attitude towards e-invoicing will positively affect his or her intention to adoption.

The role of social influence on intention to adoption is much weaker, with a standardized loading of 0.15, and it's not significantly different from zero at the 0.05 level. Consequently, Hypothesis 5 is not true in this case, which means social influence doesn't have significant positive effect on user's intention to adoption.

Table 11 Significance and effect of each construct

Hypothesized Relationships	Standardized Loadings
A→INT	0.591***
S→INT	0.150 (p= .087)
PE→INT	0.246***

Nevertheless, compared to social influence, promotional effort seems to be a stronger predictor of intention. The standardized regression weight of promotional effort (PE) to intention (INT) is 0.25 (p=0.001), indicating that INT will increase by 0.25 standard deviations with the increase of PE by 1 standard deviation. Though the effect on intention is not as significant as that of attitude, it shows that promotional effort does act in transiting user’s positive attitude into behavior intention. And the effect of promotional effort will be discussed further in the next paragraph.

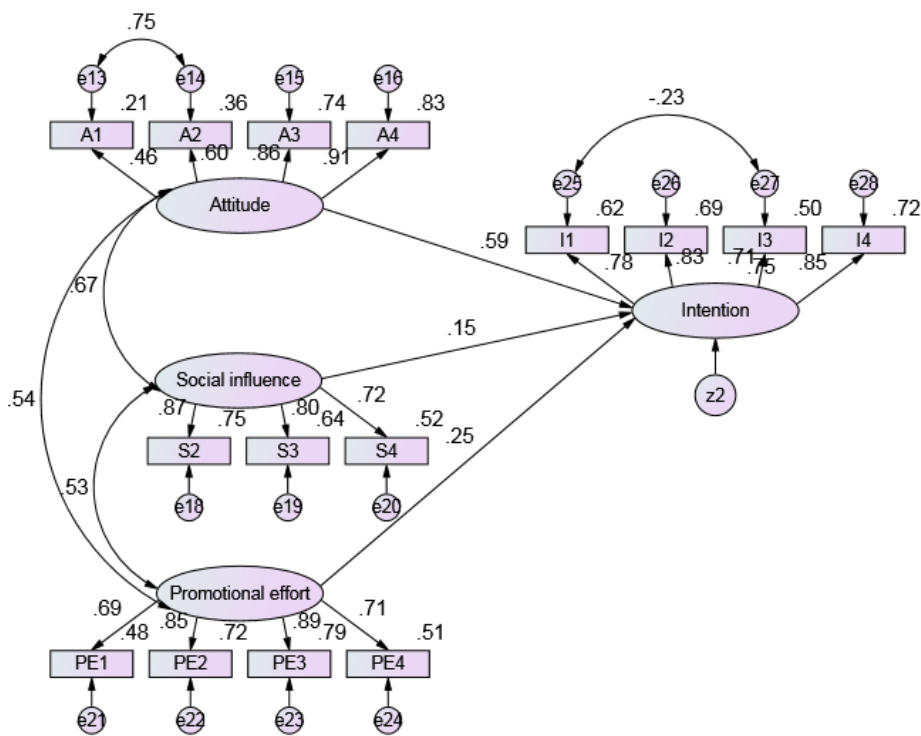


Figure 15 Amos output for intention SEM

5.3.3. The Role of Promotional Effort

As expected, promotional effort works in affecting individual’s intention to e-invoicing adoption. It is positively related to intention, and the items considered in this construct are listed as below:

Table 12 Observed items of promotional effort

Items	Questions	Average Score	Standardized Regression Weights
PE1	I intent to use online payment if it can earn me more points for my bank card	5.32	0.690
PE2	I intent to use e-invoicing if it can offer me some discounts	6	0.847
PE3	I intent to use e-invoicing if it can offer me some coupons	5.86	0.888
PE4	I intent to use e-invoicing if I can get a chance to draw lotto	5.56	0.715

Among the four items, including bank card points (PE1), discounts (PE2), coupons (PE3), and lotto (PE4), discounts and coupons turn out to be the strongest influencing items.

Discounts i.e. PE2, with a R^2 of 0.847, earns the highest average score of 6 out of 7 in the survey, indicating that the majority of the respondents value discounts the most regarding to promotional efforts. 46.58% of the respondents select 7 as their answers, which means that they are completely agree with the statement—“I intent to use e-invoicing if it can offer me some discounts”.

PE3 has the best representation of the construct with a R^2 of 0.888, and the average score of this question is 5.86. Seventy-two respondents (44.72% of the whole group) completely agree with the statement that they intend to adopt e-invoicing if some coupons can be expected (selecting 7 as the answer), and thirty-four respondents select 6. On average, the offer of coupons is regarded as a market attractiveness factor as well by the respondents in this survey.

Compared to those two variables, the probability to get lotto (PE4) is less appealing. An average score of 5.56 is obtained, indicating that the respondents less agree with the statement “I intent to use e-invoicing if I can get a chance to draw lotto”. Actually lucky draw is the most often used way of promoting in the present market, and it is also adopted by Shanghai’s e-invoicing platform as introduced earlier.

PE1—“I intent to use online payment if it can earn me more points for my bank card”—is the least representative and the least significant variable. According to the statistics, almost 50% of the respondents are in a general neutral position (answers in 3, 4, or 5). Earning points for bank cards is not as appreciated as the other three are by respondents in my sample.

5.3.4. Control for Gender and Experience

Apart from the variables affecting individual's attitude and intention, will demographic factors and former experiences make any difference? Here two moderates—gender and experiences of e-invoicing—are verified. Upon the analysis, I divide the respondents into different groups according to the respondents' gender (Question 29 in the questionnaire) and experiences of using e-invoicing (Question 31), to investigate the group differences existed in attitude and intention part respectively. There are 45 males and 116 females in my respondent sample, and 107 persons out of the 161 respondents have ever used e-invoicing while 54 of them haven't. The comparisons between each group can be found in the Appendix. And James Gaskin's Excel stats tool package has offered great help for the test (<http://statwiki.kolobkreations.com/wiki/>).

Gender to Attitude

In the part of attitude model, the power of PU and T is much stronger for females than, around twice or more of that for males. The influences of PU and T are even not significantly different from zero at the 0.1 level for males. PEU on the other hand, though not significant either for males or females, its effect on attitude of males is just about one third of that of females. It can be said that, in some respects, males feel more comfortable when facing technical challenges. And this is consistent with real cases we observe in the society, at least in the Chinese society.

Experiences to Attitude

While if we take a look at Table 17, it can be deemed that experiences of using e-invoicing don't produce substantial differences. Unfortunately the differences made on PEU's effect cannot be clearly defined here, as the survey questions designed for this construct are less applied to e-invoicing. But the power of trust is affected in some extent. For those without experiences or those who can be called potential users, trust (T) plays a more important role in forming a positive attitude than it does for experienced users ($p=0.05$). This can be understood as that individual's attitude is mainly originated from his or her subjective judgment, and it won't be easily reversed in a short time by experiences unless the experience is totally disappointing. For e-invoicing, there hardly are extreme negative opinions as said earlier. Besides, as an innovation introduced in recent years, the majority users only have limited experiences, among which unsatisfied experiences can be even fewer. As there are

diverse platforms instead of a single standard one, positive users can turn to another if they find that their experiences with certain platform to be unpleasant.

Gender to Intention

Next let's turn our attention to the part of intention. It seems that the other two variables—attitude and promotional effort—are non-significant for males except the social influence variable ($p=0.1$). Males care more about their social norms and status, and what others think about them in a society can motivate them to conduct a certain behavior. Of course another explanation of this can be the small amount of male respondents. Just 45 respondents are not representative enough for the whole group. For females, social influence is much less powerful, specifically less than 10% of that for males, and its effect is not significantly different from zero. What remarkable is, however, promotional effort will significantly affect females' intention to e-invoicing adoption under the 0.01 level. This seems to be convincing because it's the fact in China that women tend to be more sensitive to promotions than men do.

Experiences to Intention

If experiences don't work effectively on individual's attitude towards e-invoicing, will experiences carry much weight of intention? According to Table 19, whether individuals have experiences in using e-invoicing or not don't significantly impact on the power of attitude and social influences. Nevertheless, past experiences do make some difference on the power of promotional effort. It was observed that the effect of promotional effort seems to be significant only for those who have ever used e-invoicing. That is to say, discounts or coupons or other promotion approaches won't stimulate individuals' intention to adoption much if they have never participated in e-invoicing. It can be understood as that the target group should be focused on the existed users when promoting the promotional information of e-invoicing.

6. FINDINGS AND SUGGESTIONS

6.1. Discussion

To sum up, the six hypotheses made in the beginning of the thesis have been examined and the summary of results can be referred to in Table 14.

Based on the 161 effective answers received, the hypotheses are tested. The outputs of the model in Amos 21 are consistent with H1, H3, H4, and H6. In other words, perceived usefulness and users' trust will positively affect their attitudes toward e-invoicing, and attitude is positively related to users' intention to adopting e-invoicing, under the function of promotional effort meanwhile. H2 and H5 are refused for the sample data, denoting that perceived ease of use only have limited influence on user's attitude to e-invoicing, and factors concerning social influence will not exert significant effect on turning positive attitude to e-invoicing adopting intention.

Though the role of PEU (H2) has been demonstrated a lot to be significant, it's not in this case. One reason can be that those items (PEU2, PEU3, and PEU3) didn't explain the PEU of e-invoicing effectively. As mentioned above, the questions are more related to online banking and online payment as the standard e-invoicing platform is not that widely available. Another possible explanation is that PEU can affect people's attitude indirectly via PU (Davis, 1989). According to the figure, a correlation of 0.48 between PEU and PU, and 0.54 between PEU and T can be observed. Things would probably change when a standard e-invoicing platform is built, and when users' direct perception of the ease of using e-invoicing can be detected. And it calls for further study.

For social influence's (H5) failure to work in this case, one possible explanation can be that there is no critical social judgment about the behavior of e-invoicing. In other words, neither will there be strong resistance against e-invoicing from the society, nor will there be strictly mandatory adoption. Especially for B2C e-invoicing, which is a quiet private thing, citizens have the right to decide their own way of working and those things are always done without other's participation or notice. Therefore, social influence won't bring much pressure over their intention.

However, the results are based on the certain questionnaire concerning to B2C e-invoicing in China and the certain group of respondents reached at the moment, and it doesn't necessarily mean that these two variables will not function in the model with different data input.

Table 13 Summary of Results

Hypotheses	Captions	Results
H1	Perceived usefulness will positively affect users' attitude to e-invoicing	True
H2	Perceived ease of use will positively affect users' attitude to e-	False

	invoicing	
H3	Users' trust will positively affect their attitude to e-invoicing	True
H4	Attitude is positively related to users' intention to adopting e-invoicing	True
H5	Social influence will positively turn user's attitude into intention to adopting e-invoicing	False
H6	Promotional effort will positively turn user's attitude into intention to adopting e-invoicing	True

To be noticed, promotional efforts especially discounts and coupons offered along with e-invoicing do exhibit their ability in triggering user's intention to adoption, and this effect is more significant for women than for men, as analyzed by group difference comparison. Though only limited influences are discovered, it is worthy to notice that what is able to trigger individual's intention to adoption as well as his behavior of adoption, and then develop strategy accordingly.

When grouping the respondents by gender and experience, differences are found. Regarding to the influence of gender, men don't pay much attention to the issues related to the ease of use, while they tend to care more about the social influences. Women are observed to be more sensitive to especially promotional effort (PE), which can stimulate their intention to adoption. Compared to men, women's positive attitudes are more likely to give rise to their adoption intention. Regarding to the influence of experiences, it is found that whether people have ever used e-invoicing or not makes no big differences for the effect of perceived usefulness (PU), attitude (ATT), and social influence (S). However, trust (T) has a stronger effect over attitude (A) for those who have never been engaged in e-invoicing. Its influences on the power of perceived ease of use (PEU) cannot be defined because the items of this construct are less related to e-invoicing due to the flaws of questionnaire design. The most significant effect past experiences have is on PE. As shown by the group difference comparison, existed users are more sensitive to promotional efforts than those who never engaged in e-invoicing do. The distinctions between males and females, between experienced user and experiences are extracted from the respondent sample in this thesis, and further study with larger-sized sample can be expected to achieve more convincing results.

6.2. Theoretical Findings

As mentioned in the earlier part, the implementation of an inter-organizational system is not just a linear issue, which is related not only to technology, but also to factors like culture,

economy, society, persons and so on. Countries in EU are more developed on average than China, in the aspects of economy, IT, as well as people's awareness of environment protection. Thus EU started its transformation to e-invoicing much earlier than China did.

Firstly, as a relatively developed economic entity, there are more standardized processes in EU. That makes it more feasible to conduct e-invoicing between corporate. While in China, standardized processing is almost non-applicable, making e-invoicing even more complicated. Secondly, the development of information technology is quite imbalanced in China. There are many quite efficient technology-based companies, but there are also some traditional and less technology oriented companies. E-invoicing is not perceived in the same way in their eyes. Thirdly, as the utility industries are "monopolized" by the government in China, it's more direct to make changes in these fields, i.e. the initiating of B2C e-invoicing in some cities. At last, people's awareness of environment is much weaker in China than that in EU, therefore we should allow enough time for its progressing. When consumers put substantial value on going "green", corporate will be more motivated in changing their way of working.

The implementation of e-invoicing is also a consideration of in-time international transactions. In such a global village, it makes sense to get knowledge of the developing situation in partner countries or potential partners. China and EU, both an important partner of each other, are getting much closer to each other in recent years. For Chinese corporate who want to make differences worldwide, they can't ignore the ICT part when demonstrating their competitiveness abroad. For EU corporate targeting at Chinese market, it's inevitable for them to learn more things about local market and to leverage their developed skills like IT skills. International business is always a hot topic and as demonstrated above issues related to e-invoicing deserve further study.

In addition, there are also some new explanation regarding to the factors affecting user's intention and behavior based on the framework. As Davis said, perceived ease of use works on user's attitude through indirect effect on perceived usefulness (1989). Though these two aspects are telling different things, it's not difficult to understand that perceived ease of use (PEU) seems to be more attractive when it's useful (PU) at the same time. The reasoning behind it is that when the system show advantage only in its ease of use but not in usefulness, it seems less appealing to users. But however, when the IOS is perceived as usefulness yet easy to use, it is able to win more attention as well as positive attitudes from users.

Besides, Ajzen and Fishbein once mentioned in their book in 1980, that the factor of social

influence sometimes doesn't work effectively. For those behavior with neutral social influence (there is neither absolute support nor discrimination), or those behavior normally accomplished in personal and are quite private, the effect of social influence on intention to adoption is less significant. Just as B2C e-invoicing studied here, it's more a private thing that people always do in their daily lives. It can be explained in a way that people get the chance to be themselves and do what they want to without considering others' opinions when the behavior is accomplished in private and nobody pays attention to their behavior. Therefore people have less pressure in adopting e-invoicing. And if they care others' view, they can just pretend to be an e-invoicing user while no one would probably ever find out the truth.

6.3. Practical Suggestions

Based on the results of the survey and analysis ahead, several suggestions can be put forward concerning the implementation of B2C e-invoicing in China.

Establishing a positive image of e-invoicing

A positive attitude is significantly connected with individual's intention to adoption. Positive attitudes not only just originated from people's internal perception of usefulness or ease of use, but also come from external factors. Therefore it's necessary to establish a positive image of e-invoicing. Though citizens may hardly think negatively against e-invoicing, they don't consequently hold positive attitudes toward it. It is essential to let them see the shining points, and make sure that people are aware of the goodness in e-invoicing at least.

As we can see from the attitude part, perceived usefulness together with trust has a substantial direct effect on individual's attitude towards e-invoicing. Though perceived ease of use is found to positively affect individual's attitude indirectly, it's much weaker and less pronounced.

Most of the time users use it because they regard it as a useful instrument. In that case, it makes sense to let individuals know the advantages e-invoicing has as well as its advantage over the traditional one. Their perceptions of usefulness or ease of use come from their user experiences, but they can also be affected by how the idea is conveyed to them. Therefore, a good image will not only help to promote the advantages of e-invoicing, but also enhance user's trust in it.

In general, one suggestion can be that try to get user's first move and more importantly improving their satisfaction of the first move. If they feel it is trust worthy, there will be a

large possibility to make their second attempt, third, and more. But the truth is that due to the absence of comprehensive and wide ranged e-invoicing platform, very limited number of persons have a systematic knowledge of e-invoicing. Thus how to promote plays an important role at the same time. For example they can arrange some info sessions or visits to provide citizens with more knowledge of how e-invoicing works and how it makes their lives easier.

Enhance technology and continuously improve user experience

Firstly, the lack of a national e-invoicing platform hinders the promoting of e-invoicing as mentioned above. So establishing a comprehensive and well operated e-invoicing platform is a requisite issue to deal with. Apart from improving people's perception of e-invoicing, user experience is also what should be counted on. As said before, people tend to think it positively if they regard e-invoicing as a useful tool. What's more, the number of users will gradually increase only if their interactions with the platform are satisfying. You can barely expect a user who is failed by the system by unsuccessful transactions to come back again, especially when some unsuccessful transactions might bring troubles to his or her daily life. Therefore, the platform should be retained in a good situation and be easy to handle. Obviously, the ease of use of the platform and the perfection of e-invoicing services are basically supported by enhanced technology.

In the short term, it has to be ensured that users' information including personal information and financial account information are confidential and safe. And transactions are ensured to be made successfully, which means that users' payments are handled adequately and timely. Even if there might be cases that transactions cannot be made due to some technical reasons, responding solutions should be provided in time. In the long run, a standard and safe system of e-invoicing is to be expected, to prepare for the development of B2B e-invoicing in the near future. When the e-invoicing system and financial systems are connected, the efficiency of internal and external financial process can be improved significantly. And the behavior of market participates can be regulated in a more effective way then. Specifically this is also what can be expected from the future development of B2B e-invoicing in China.

Spend some effort on offering promotions and communicate them effectively

According to our analysis, promotional effort will positively affect people's intention to adoption, especially the existed women users. Then why not take use of promotions and get more users engaged in e-invoicing? The logic is easy to fathom. For business, the adoption of

e-invoicing saves a lot of costs in printing, sending, as well as human resources. Those engaged enterprises can just take out a part of the costs saved either to offer some discounts or to provide coupons and gifts for users, thus stimulating users' behavior intention. It looks like that enterprises incur larger cost in this sense, but the fact is that more attention will be paid on e-invoicing and more users can be retained. Consequently the costs related to the traditional way of invoicing can be offset by the benefits received from newly involved users, and it's quite probable the benefits outweigh the costs.

In fact this is what *E-zhangdan* is doing at the moment. They provide new users of e-invoicing with coupons, give out film tickets, and conduct lucky draw every certain period. For online payment, certain banks provide discounts if users make the payment with debit cards of these banks.

More importantly, effective communication plays a vital role in getting the most of promotion. It doesn't make any sense if there is even no one aware of those promotions. It is not difficult to understand that users take part in not only for the purpose of convenience but also for the purpose of cost saving. However it can barely attract more users if e-invoicing's role in cost saving is poorly published and received. Therefore promotion itself is not enough, unless it is widely known by the target group.

In general, promotional effort is something that can be counted on in promoting e-invoicing, and should be communicated effectively.

Work on legislation issues regarding to e-invoicing and make plans for development

To ensure the orderly operated e-invoicing process, behaviors must be instructed from the perspective of legislation. As said in chapters before, the *Chinese E-invoicing Blue Paper* is the first official document about e-invoicing, while there are more works that can be done. Legislations about internet security, for example, have been mentioned a lot. In such an information era, the existence of internet brings people conveniences along with risks. Even tiny flaws might be taken use of by criminals. Legislation is vital for regulating the market and eliminating irregularities, thus get rid of users' worries about the innovation on the other hand.

In addition, different plans for B2B and B2C e-invoicing are supposed to be applied accordingly. Strategies focused on consumers and those on business have to be tailored, as they are involved with distinctive parties. Short term or long term plans should be included and checked periodically, to make sure that everything is going in the right direction.

Allow the use of paper invoice and electronic invoice at the same time

It is known that the transition from paper invoicing to electronic invoicing is a long term task and cannot be accomplished in a short period. So what we need is patience. The introducing and developing of e-invoicing doesn't mean that we have to abandon paper invoice immediately. Especially for such a large area of China, where huge disparities exist in different places and industries, and standards are widely spread and distinctive. The whole process cannot be operated in the same way as turning on a switch. On one hand, for less developed area, paper invoice might be used for a long time before technology progresses to a certain level when e-invoicing is able to take its place. On the other hand, people need time to get used to adopting e-invoicing. So, allowing the use of paper invoice and electronic invoice can provide a good solution in the initial phase. Time is needed to make invoicing gradually grow into the electronic era.

7. CONCLUSIONS AND LIMITATIONS

The thesis introduced the developing process of e-invoicing in China, including a general review of the Chinese tax system, the e-commerce market, and the B2C e-invoicing program in Shanghai. Based on those facts, the reasoning behind e-invoicing in China is summarized, that it makes sense and is necessary to promote e-invoicing in China.

Specifically, an online survey concerning to B2C e-invoicing has been conducted to explore the variables affecting consumers' attitude to e-invoicing and intention to adoption. 170 respondents have answered the survey among which 161 were screened as effective responses. A framework referring to people's attitude and intention was built based on the theory of reasoned action (TRA) and the technology acceptance model (TAM), and six hypotheses were put forward. It was hypothesized that trust, perceived usefulness, and perceived ease of use will positively affect individual's attitude towards e-invoicing, which together with the factors of social influence and promotional effort will be positively related to individual's intention to adoption. Survey results were analyzed with SPSS Amos 21, and the hypotheses were tested.

The results attained from the analysis indicate that, perceived usefulness (PU) is the most significant variable that affecting individual's attitude to e-invoicing, while the power of perceived ease of use (PEU) and trust (T) are much weaker. Consistent with the hypothesis, attitude is positively related to intention. While the hypothesis regarding to social influence

that it will positively affect people's intention turned out to be false in this case, and it didn't function as much as expected. Lastly, what remarkable was that promotional effort is found to play a role in stimulating users' intention. Its effect is stronger for women than for men, and stronger for existed user than for those who never used e-invoicing.

Theoretical findings regarding to the role of perceived ease of use (PEU) and social influence (S) in affecting user's attitude were speculated and the developing situation of e-invoicing in China and EU were compared. Suggestions were proposed accordingly aimed at contributing to the development of e-invoicing in China. It was suggested that establishing a positive image of e-invoicing can help improve people's perception of usefulness, ease of use, as well as trust in e-invoicing, which can lead to a positive attitude towards it. Secondly, it is even more important to enhance the technology and continuously improve the user experience, so that positive attitudes can be remained and people have the intention to continuous use. Thirdly, spend some effort on offering promotions, and how to communicate those promotions effectively should also be considered. Besides, perfecting legislation issues regarding to e-invoicing and making plans are essential for supervising the development in the long term. Last but not the least, allowing the use of paper invoice and electronic invoice at the same time can help people adapt to the new situation and remove barriers and silos gradually.

During the design of questionnaire, some questions were less related to e-invoicing due to the limited available resources of this innovation. For example, the questions for the construct perceived ease of use (PEU) were mostly talking about online banking and online payment, which are important elements in order to accomplish e-invoicing. While however, it seems like this has caused some ambiguity to respondents such that the effect of perceived ease of use cannot be clearly defined. The same thing could be applied to the questions concerning trust (T). Besides, as explained earlier, around half of the respondents were reached via universities. As a result, the sample is convergent in some extent to student aged between 18 and 24, a group that is young and doesn't have many experiences, so it is possible that their perceptions will be changed as time goes by.

In a nutshell, the thesis studied the variables that affecting people's attitude and intention to adopting e-invoicing. A framework was built based on the theory and model from earlier literature. Promotional effort (PE) is found to be a significant factor, which calls for further study with more feasible and larger sample in the future, and its power in turning user's

intention into behavior can also be an interesting topic to study on.

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APPENDICES

I Questionnaire

Online questionnaire is available at: <http://www.sojump.com/jq/2258069.aspx>

The English version of the questionnaire is as below:

No.	Questions	Captions	Average Score
Trust (T)			
1	T1	I think online bank is reliable to use	5.17
2	T2	I think online payment through the certain payment platform is secured	5.03
3	T3	I think the official website for e-invoicing would be reliable if there is any	5.36
4	T4	In general, the e-invoicing or online payment system is trustworthy	5.22
Consumer Acceptance of Electronic Commerce: Integrating Trust and Risk with the Technology Acceptance Model			
Perceived Usefulness (PU)			
5	PU1	The use of e-invoicing will save me a lot of time	6.11
6	PU2	Receiving e-invoices via internet is more efficient than receiving paper invoices by post	6.26
7	PU3	Using e-invoicing will save me a lot of efforts in storing and query	6.01
8	PU4	In general, I think e-invoicing is useful	5.71
Venkatesh, V.; Morris, M.G.; Davis, G.B.; and Davis, F.D. User Acceptance of information technology: Toward a unified view. MIS Quarterly, 27, 3 (2003), 425-478			
Perceived Ease of Use (PEU)			
9	PEU1	It's easy for me to get access to internet	5.85
10	PEU2	Using online banking is easy for me	5.57
11	PEU3	My interaction with the online payment platform is clear and understandable	5.48
12	PEU4	The information generated by online transaction is explicit and easy to understand	5.24

Venkatesh, V.; Morris, M.G.; Davis, G.B.; and Davis, F.D. User Acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27, 3 (2003), 425-478

Attitude (A)

13	A1	I feel good in using online banking	5.42
14	A2	I feel good in making online payment	5.35
15	A3	Adopting e-invoicing is a good idea	5.74
16	A4	I hold a positive attitude towards using e-invoicing	5.74

Chin-Lung Hsu & Judy Chuan-Chuan Lin (2008) "Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation", *Information & Management*, Vol. 45, pp.65-74

Social Influence (S)

17	S1	I intend to adopt e-invoicing as it will contribute to environment protection	6.33
18	S2	I intent to adopt e-invoicing if people who are important to me suggest me to do so	5.61
19	S3	I intent to adopt e-invoicing if people who influence my behavior suggest me to do so	5.56
20	S4	I intent to adopt e-invoicing if it is regarded as a modern and favorable life style by others	5.33

Venkatesh, V.; Morris, M.G.; Davis, G.B.; and Davis, F.D. User Acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27, 3 (2003), 425-478

Promotional Effort (PE)

21	PE1	I intent to use online payment if it can earn me more points for my bank card	5.36
22	PE2	I intent to use e-invoicing if it can offer me some discounts	6.05
23	PE3	I intent to use e-invoicing if it can offer me some coupons	5.91
24	PE4	I intent to use e-invoicing if I can get a chance to draw a lotto	5.60

Norman Govoni, Robert Eng, Morton Galper. (1986) *Promotional management*,

Intention to Adoption (I)

25	I1	It's worth participating in e-invoicing	5.55
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26	I2	I intend to use e-invoicing continuously rather than abandon it	5.81
27	I3	I intend to use e-invoicing in the next six month	5.27
28	I4	Given the chance, I predict that I will use e-invoicing in the future	5.95
Chin-Lung Hsu & Judy Chuan-Chuan Lin (2008) "Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation", Information & Management, Vol. 45, pp.65-74			

No.	Questions
29	What is your gender?
30	What is your age?
31	Have you ever paid your bills via online payment platform?
32	Have you ever used e-invoicing?
33	What is your current occupation?
34	What is your educational background?
35	What is your monthly income before tax?
36	Which area of China are you from?

Table 14 Profile of Questionnaire Respondents

Category	N	%
Gender		
Male	45	27.95%
Female	116	72.05%
Age		
18-24	107	66.46%
25-29	47	29.19%
30-35	4	2.48%
36-39	1	0.62%
>40	2	1.24%
Education background		
Below secondary school	0	0.00%
Secondary school	1	0.62%
Bachelor	128	79.50%
Master	31	19.25%
PhD and above	1	0.62%
Occupation		
Student	97	60.25%
Financial staff	16	9.94%
Education	15	9.32%
Civil servant	2	1.24%
IT staff	9	5.59%
Manufacture	10	6.21%
Wholesale	2	1.24%
Self-employed	1	0.62%
Others	9	5.95%
Income before tax (CNY)		
<2000	101	62.73%
2000-3999	20	12.42%
4000-5999	19	11.80%
6000-7999	8	4.97%
8000-9999	5	3.11%

≥10000	8	4.97%
Living area in China		
Northeastern	4	2.48%
Northwestern	3	1.86%
Northern	17	10.56%
Eastern	14	8.70%
Middle	50	31.06%
Southern	58	36.02%
Southwestern	15	9.32%
Experiences of online payment or online banking		
Yes	154	95.65%
No	7	4.35%
Experiences of e-invoicing		
Yes	107	66.46%
No	54	33.54%

II Pattern Matrix

Table 15 Pattern matrix for exploratory factor analysis

Pattern Matrix							
	Factor						
	1	2	3	4	5	6	7
PU3	1.001						
PU2	.889						
PU1	.752						
PU4	.582		.317				
S1	.531			.326			
PE3		.990					
PE2		.867					
PE4		.712					
PE1		.514					
I3			.990				
I4			.825				
I2			.698				
A4			.545				
I1		.317	.524				
A3	.311		.344				
S3				.929			
S2				.810			
S4				.776			
A1					.962		
A2					.877		
PEU4					.516		
T2						1.065	
T1						.717	
T3						.324	
PEU3							.940
PEU2							.574
Extraction Method: Maximum Likelihood.							
Rotation Method: Promax with Kaiser Normalization.							
a. Rotation converged in 7 iterations.							

III Amos Graphics

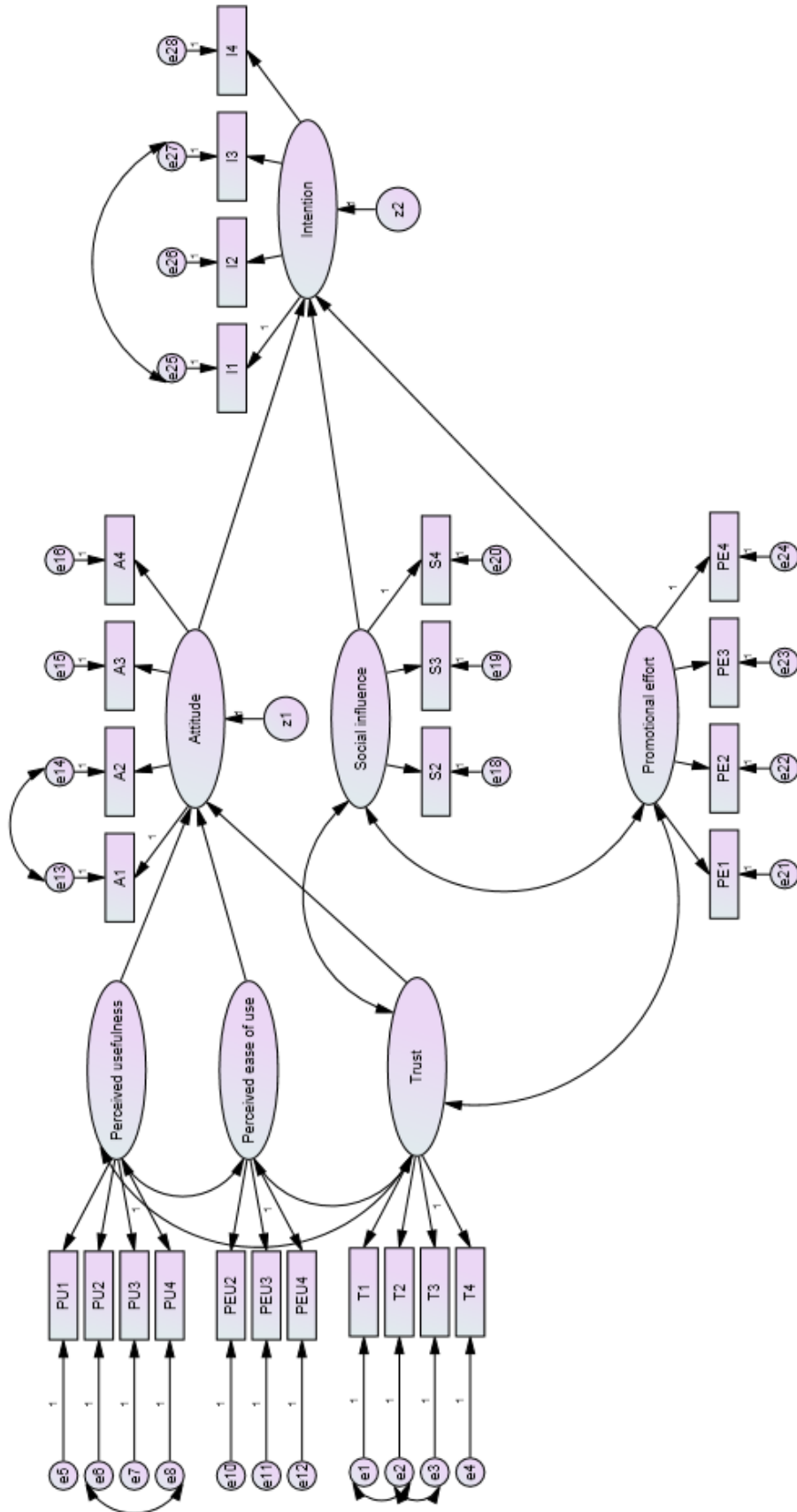


Figure 16 SEM

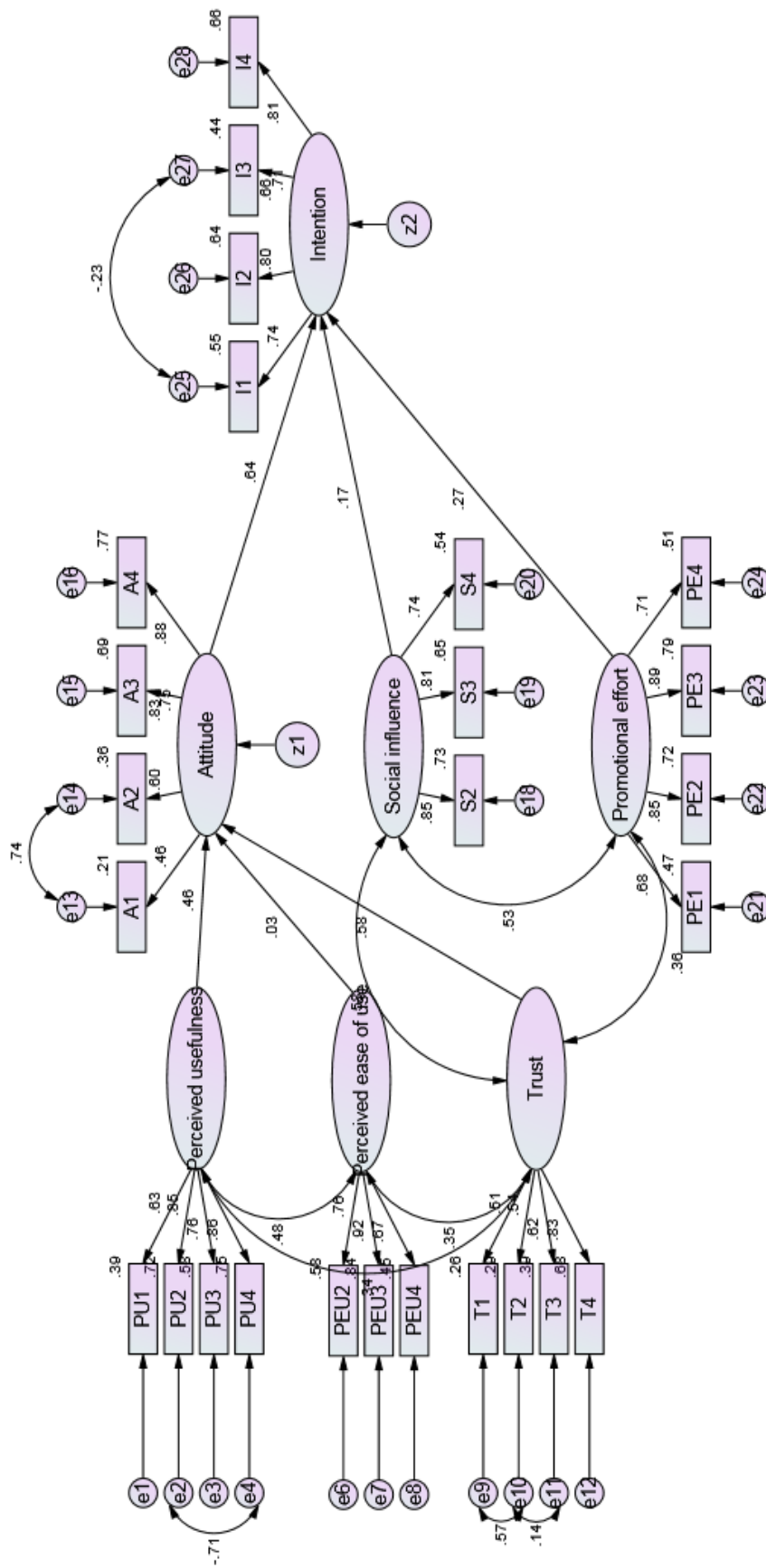


Figure 17 Amos output

IV Group Difference Analysis

Table 16 Group difference of gender for attitude

			Female		Male		
			Estimates	P	Estimates	P	z-score
A	<---	PU	0.261	0.000	0.141	0.194	-0.952
A	<---	T	0.326	0.000	0.142	0.119	-1.369
A	<---	PEU	0.080	0.263	0.028	0.703	-0.499
T3	<---	T	0.864	0.000	0.886	0.000	0.096
T2	<---	T	0.626	0.000	1.212	0.000	2.257**
T1	<---	T	0.639	0.000	0.855	0.000	0.854
PU3	<---	PU	0.907	0.000	0.742	0.000	-0.908
PU2	<---	PU	0.838	0.000	1.331	0.000	1.838*
PU1	<---	PU	0.766	0.000	0.683	0.000	-0.396
PEU3	<---	PEU	1.259	0.000	0.875	0.000	-1.588
PEU2	<---	PEU	1.303	0.000	0.494	0.010	-3.222***
A2	<---	A	1.317	0.000	1.336	0.000	0.049
A3	<---	A	1.771	0.000	1.968	0.013	0.234
A4	<---	A	1.687	0.000	2.881	0.011	1.021

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Table 17 Group difference of experience for attitude

			ExpYes		ExpNo		z-score
			Estimates	P	Estimates	P	
A	<---	PU	0.265	0.000	0.184	0.050	-0.696
A	<---	T	0.197	0.004	0.392	0.008	1.187
A	<---	PEU	0.064	0.231	0.017	0.833	-0.480
T3	<---	T	0.759	0.000	1.011	0.000	1.036
T2	<---	T	0.637	0.000	0.850	0.000	0.942
T1	<---	T	0.558	0.000	0.909	0.000	1.601
PU3	<---	PU	0.888	0.000	0.892	0.000	0.020
PU2	<---	PU	0.839	0.000	1.153	0.000	1.493
PU1	<---	PU	0.748	0.000	0.799	0.000	0.266
PEU3	<---	PEU	1.060	0.000	1.486	0.000	1.176
PEU2	<---	PEU	1.220	0.000	1.158	0.000	-0.195
A2	<---	A	1.289	0.000	1.488	0.000	0.591
A3	<---	A	1.924	0.000	1.906	0.000	-0.026
A4	<---	A	1.986	0.000	1.871	0.000	-0.172

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Table 18 Group difference of gender for intention

			Female		Male		z-score
			Estimates	P	Estimates	P	
INT	<---	A	1.316	0.000	0.919	0.129	-0.585
INT	<---	S	0.063	0.425	0.654	0.080	1.551
INT	<---	PE	0.207	0.004	0.098	0.644	-0.488
A2	<---	A	1.363	0.000	1.325	0.000	-0.105
A3	<---	A	1.977	0.000	1.864	0.008	-0.141
A4	<---	A	1.999	0.000	2.607	0.007	0.589
S3	<---	S	1.045	0.000	0.900	0.001	-0.483
S2	<---	S	0.946	0.000	1.234	0.000	0.839
PE3	<---	PE	0.977	0.000	1.297	0.000	1.202
PE2	<---	PE	0.817	0.000	1.175	0.000	1.445
PE1	<---	PE	0.764	0.000	1.248	0.000	1.679*
I2	<---	INT	0.907	0.000	1.060	0.000	0.775
I3	<---	INT	1.034	0.000	1.152	0.000	0.396
I4	<---	INT	0.960	0.000	1.029	0.000	0.345

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10

Table 19 Group difference of experience for intention

			ExpYes		ExpNo		z-score
			Estimates	P	Estimates	P	
INT	<---	A	1.275	0.000	1.173	0.024	-0.165
INT	<---	S	0.129	0.164	0.144	0.340	0.087
INT	<---	PE	0.319	0.000	0.002	0.992	-1.65*
A2	<---	A	1.321	0.000	1.487	0.000	0.475
A3	<---	A	2.109	0.000	1.889	0.000	-0.305
A4	<---	A	2.191	0.000	1.982	0.000	-0.277
S3	<---	S	0.973	0.000	1.063	0.000	0.377
S2	<---	S	0.965	0.000	1.009	0.000	0.199
PE3	<---	PE	1.116	0.000	1.091	0.000	-0.105
PE2	<---	PE	1.024	0.000	0.873	0.000	-0.718
PE1	<---	PE	0.959	0.000	0.910	0.000	-0.198
I2	<---	INT	0.990	0.000	0.851	0.000	-0.647
I3	<---	INT	1.115	0.000	0.833	0.003	-0.910
I4	<---	INT	1.026	0.000	1.038	0.000	0.059

Notes: *** p-value < 0.01; ** p-value < 0.05; * p-value < 0.10