

PRIOR EXPERIENCE, TRUST, AND IS SUCCESS MODEL: A STUDY ON THE USE OF TAX E-FILING IN INDONESIA*

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ABSTRACT

The purpose of this paper is to explore taxpayer perceptions of online tax filing in Indonesia, using prior experience, trust, and the IS (information system) success model. We examine how IS quality can be influenced by attributes such as prior experience in offline tax filing, trust in the government, trust in the technology, and trust in the e-filing website. Following this, we explore the influence of IS quality on perceived usefulness and user satisfaction. This paper is intended to ascertain whether these last two dimensions (perceived usefulness and user satisfaction) can influence the perceived net benefit of the e-filing website. This research used primary data generated by distributing online questionnaires; 933 of the 1,095 respondents were actively using online tax filing (e-filing). The results found that trust in the government and trust in the technology have a positive influence on the trust in the e-filing website, which subsequently influences all three IS quality dimensions. Information quality, system quality and service quality were found to have consistent and significant influence on the perceived usefulness of and user satisfaction in the e-filing website.

Keywords: E-filing; Online tax return; IS quality; Trust.

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I INTRODUCTION

Tax revenue plays an important role in Indonesia since most government expenditure is financed by tax revenue. Therefore, in order to increase tax revenue, it is important for the Indonesian government, especially the Directorate General of Taxes ('DGT'), to increase taxpayer compliance. One type of tax compliance is the submission of tax returns, and the DGT has tried to simplify the tax return submission process by introducing an online filing (e-filing) system in 2005. Currently, the e-filing system is available only for individual income tax returns. According to the DGT, the advantages of the e-filing system are the reduced environmental footprint, increased precision, and increased safety of taxpayer information. According to data from the DGT, up to the submission deadline for the 2017 individual income tax returns (31 March 2018), there had been around 8.47 million individual income tax returns submitted through the e-filing system (80 per cent of total submissions).

Online tax filing will soon be mandatory in Indonesia. Thus, the DGT must design an impeccable system that accommodates taxpayer needs. This study has found many attributes that are relevant for users of e-filing, and this input will be advantageous for e-filing system enhancement. In Chen et al, prior offline experience was used to moderate the relationship between trust in a government website and trust in the government.¹ The moderation itself demonstrated insignificant influence. They found, however, that prior offline experience significantly enhances the perception of government e-services. Belanger and Carter found that trust in government e-services consists of two aspects: trust in the entity that provides the online service (ie, the government), and trust in the reliability of the enabling technology to deliver the service itself (ie, the internet).² On top of that, the perceived quality of the information can be increased if the government website is more highly trusted by citizens.³ In addition, the perception of the website's system quality can be improved with increased trust.⁴ Furthermore, those variables can in turn influence the user satisfaction in and perceived net benefits of using the website.⁵

The tax system is unique to every country. This study provided context-specific evidence. In Indonesia, where tax compliance is considered low, the use of e-filing is expected to increase taxpayers' willingness to pay and report their taxes. This study examined user

¹ Jengchung Victor Chen et al, 'Factors Affecting Online Tax Filing — An Application of the IS Success Model and Trust Theory' (2015) 43 *Computers in Human Behavior* 251.

² France Belanger and Lemuria Carter, 'Trust and Risk in E-Government Adoption' (2008) 17(2) *Journal of Strategic Information Systems* 165.

³ Chen et al (n 1).

⁴ See Thompson SH Teo, Shirish C Srivastava and Li Jiang, 'Trust and Electronic Government Success: An Empirical Study' (2008) 25(3) *Journal of Management Information Systems* 99; Vachiraporn Khayun, Peter Ractham and Daniel Firpo, 'Assessing E-Excise Success with DeLone and McLean's Model' (2012) 52(3) *Journal of Computer Information Systems* 31.

⁵ See Yi-Shun Wang and Yi-Wen Liao, 'Assessing E-Government Systems Success: A Validation of the DeLone and McLean Model of Information System Success' (2008) 25(4) *Government Information Quarterly* 717; Ardion Beldad, Menno de Jong and Michael Steehouder, 'How Shall I Trust the Faceless and the Intangible? A Literature Review on the Antecedents of Online Trust' (2010) 26(5) *Computers in Human Behavior* 857; Ching-Wen Chen, 'Impact of Quality Antecedents on Taxpayer Satisfaction with Online Tax-Filing Systems: An Empirical Study' (2010) 47(5-6) *Information and Management* 389; Chen et al (n 1).

perception of the benefits of e-filing. In addition, this research also categorised trust into three separate dimensions: trust in government, trust in technology, and trust in the e-filing website. On top of that, this study surveyed a larger and more diverse sample than Chen et al⁶ — a total of 1,097 respondents, 993 of whom were actively using e-filing, and including individuals from several different provinces in Indonesia. Furthermore, this study conducted clustering analyses between respondents from Java and outside Java, and also between millennials and non-millennials, in order to find out any variation on the responses.

This paper examines how IS quality will be influenced by attributes such as prior experience in offline tax filing, trust in government, trust in technology, and trust in the e-filing website. Following this, the influence of IS quality on perceived usefulness and user satisfaction is explored. To end the paper, we answer the question of whether these last two dimensions (perceived usefulness and user satisfaction) affect the perceived net benefit of the e-filing website.

II LITERATURE REVIEW

A Prior experience

The users of e-filing are similar to those who previously used traditional offline government services. According to Mostafa and El-Masry, the interaction of citizens with the government by electronic devices is merely a substitution of their civic involvement through traditional channels.⁷ Citizens may also develop an understanding that the online channel is another part of the organisation, thus it is considered similar to the offline channel.⁸ Lee et al analysed data obtained from a local district government in Seoul, Korea, and revealed that the willingness to adopt government e-services increased when users perceived high-quality service provision in offline service channels. They and others argue that prior interactions with the tax authority through traditional channels shape users' belief, confidence and trust in the organisation, which, in turn, influences their perception of the quality of service provided online.⁹ Chen et al used prior offline experience to moderate the influence of trust in government to trust in a government website.¹⁰ The moderation itself demonstrated insignificant influence. However, prior offline experience significantly enhanced the perception of government e-services. Thus:

⁶ Chen et al (n 1).

⁷ Mohamed M Mostafa and Ahmed A El-Masry, 'Citizens as Consumers: Profiling E-Government Services Users in Egypt via Data Mining Techniques' (2013) 33(4) *International Journal of Information Management* 627.

⁸ Carol Kaufman-Scarborough and Jay D Lindquist, 'E-Shopping in a Multiple Channel Environment' (2002) 19(4) *Journal of Consumer Marketing* 333.

⁹ Jooho Lee, Hyun Joon Kim and Michael J Ahn, 'The Willingness of E-Government Service Adoption by Business Users: The Role of Offline Service Quality and Trust in Technology' (2011) 28(2) *Government Information Quarterly* 222; Eric W Welch, Charles C Hinnant and M Jae Moon, 'Linking Citizen Satisfaction with E-Government and Trust in Government' (2005) 15(3) *Journal of Public Administration Research and Theory* 371.

¹⁰ Chen et al (n 1).

H₁: Prior experience in offline tax filing services has a positive influence on trust in the e-filing website.

B Trust

Online self-service technologies involve new risks and uncertainty that may hinder their adoption.¹¹ Therefore, previous literature in this field considers trust as one of the most important determinants of successful e-filing implementation. Belanger and Carter found that trust in government e-services consists of two aspects: trust in the entity providing the online service (ie, the government), and trust in the reliability of the enabling technology to deliver the service itself (ie, the internet).¹²

1 Trust in the government

Trust in the government is defined as society's perception of the integrity and capacity of the agency who provide a public service.¹³ People trust the government if they believe that it will act for the best benefit of the citizen. This suggests that trust in the government heavily depends on how the government performs.¹⁴ In the initial stages of government e-service implementation, citizens will likely have some doubts, as they are not accustomed to the possible risks of the new mode of service.¹⁵ Internet users' confidence in the government's ability to protect citizens' personal data will reduce the perceived risks of disclosing such data for government e-services, leading to a switch from offline to online channels.¹⁶ Willingness to share and utilise e-filing would be higher if citizens had higher trust in the government.¹⁷ Customers need to trust the vendor in order to trust the vendor's website. Therefore, the success of a government website is also influenced by citizens' trust in the government.¹⁸ Thus:

H₂: Trust in the government has a positive influence on trust in the e-filing website.

¹¹ Walid Chaouali et al, 'Understanding Citizens' Adoption of E-Filing in Developing Countries: An Empirical Investigation' (2016) 27(2) *The Journal of High Technology Management Research* 161.

¹² Belanger and Carter (n 2).

¹³ Lemuria Carter and France Belanger, 'The Utilization of E-Government Services: Citizen Trust, Innovation and Acceptance Factors' (2005) 15(1) *Information Systems Journal* 2.

¹⁴ Naci Karkin and Marijn Janssen, 'Evaluating Websites from a Public Value Perspective: A Review of Turkish Local Government Websites' (2014) 34(3) *International Journal of Information Management* 351.

¹⁵ Emad Abu-Shanab, 'Antecedents of Trust in E-Government Services: An Empirical Test in Jordan' (2014) 8(4) *Transforming Government: People, Process and Policy* 480.

¹⁶ See Ardion Beldad, Menno de Jong and Michael Steehouder, 'I Trust Not Therefore It Must be Risky: Determinants of the Perceived Risks of Disclosing Personal Data for E-Government Transactions' (2011) 27(6) *Computers in Human Behavior* 2233; Chaouali et al (n 11); Muhammad ZI Lallmahomed, Naguib Lallmahomed and Gias M Lallmahomed, 'Factors Influencing the Adoption of E-Government Services in Mauritius' (2017) 34(4) *Telematics and Informatics* 57.

¹⁷ See Carter and Belanger (n 13); Shin-Yuan Hung, Chia-Ming Chang and Ting-Jing Yu, 'Determinants of User Acceptance of the E-Government Services: The Case of Online Tax Filing and Payment System' (2006) 23(1) *Government Information Quarterly* 97; Chen et al (n 1); Murathan Kurfali et al, 'Adoption of E-Government Services in Turkey' (2017) 66 *Computers in Human Behavior* 168.

¹⁸ Teo, Srivastava and Jiang (n 4).

2 *Trust in the technology*

Trust in the internet as the enabling mechanism of government e-services has been addressed in many studies, because it is one of the primary antecedents of trust in e-filing adoption.¹⁹ Technology acceptance depends on potential user perception of the internet's trustworthiness to provide accurate information and safe transactions. Online sharing of personal data is considered risky by many.²⁰ Sharing personal, confidential information to the government on the internet raises some concerns, due to citizens' fears that the data will be leaked and misused,²¹ retrieved by unauthorised third parties to be rented or sold to other organisations, or used for other purposes without the permission of the person associated with the data.²² The decision to adopt government e-services requires citizens' trust in the technology through which electronic transactions are executed (ie, the internet).²³ According to Teo et al, the citizen will likely be afraid that their ID and password will be leaked, or their credit card number will be hacked, if they are not confident that the technology enabling the e-filing system is secure enough.²⁴ On the other hand, online transactions with government agencies can be conducted successfully if the citizen exerts a high level of trust in e-filing technology. Chen et al showed that trust in the internet encourages citizen to use government e-services.²⁵ Thus:

H₃: Trust in technology has a positive influence on trust in the e-filing website.

3 *Trust in the e-filing website*

According to Mostafa and El-Masry, in order to boost government e-service adoption, the government needs to develop a trustworthy relationship with the citizen.²⁶ Apart from that, the government must also give assurances to the citizen that their data will not be accessed by unauthorised users, and that any information presented on the website is both up-to-date and accurate. Web developers can utilise many tools, such as firewalls and encryption technology, to increase the security of websites. The role of trust itself is particularly relevant in the context of e-filing, since there are no other websites offering the same service²⁷ — if users do not trust the government's e-filing website, submitting a tax return using the traditional offline method will remain their only option. Trust is essential to government e-service acceptance so, similar to that of Chen et al,²⁸ this study tried to assess e-filing effectiveness in the context of trust. After initial use of the e-filing website, citizens were asked to assess the information services provided. Respondents' quality perception will be based on their trust of the government website: a citizen with high trust will think that the website's flaws can be attributed to external reasons, and

¹⁹ See Carter and Belanger (n 13); Chen et al (n 1); Chaouali et al (n 11); Kurfali et al (n 17).

²⁰ Beldad, de Jong and Steehouder, 'I Trust Not Therefore It Must Be Risky' (n 16).

²¹ United States General Accounting Office, 'Electronic Government: Challenges Must Be Addressed with Effective Leadership and Management' (Statement for the Record by David L McClure, Director, Information Technology Management Issues, 11 July 2001) <<https://www.gao.gov/new.items/d01959t.pdf>>.

²² Beldad, de Jong and Steehouder, 'I Trust Not Therefore It Must Be Risky' (n 16).

²³ Carter and Belanger (n 13).

²⁴ Teo, Srivastava and Jiang (n 4).

²⁵ Chen et al (n 1).

²⁶ Mostafa and El-Masry (n 7).

²⁷ Chaouali et al (n 11).

²⁸ Chen et al (n 1).

they will tend to be less demanding of the website's functionality; on the other hand, if a citizen doubts the intention or commitment underlying the e-filing website, any flaws will be perceived as evidence of low quality.²⁹

It is very important to examine how trust may influence the perception of information quality in online exchange, since users cannot physically experience the object of the exchange.³⁰ The perception of information quality is a result of the evaluation of whether the information is accurate, reliable and up-to-date. Since citizens may not always have objective standards, and may have variation in understanding the information presented on the website, the degree of their belief in the e-filing website will influence this evaluation.³¹ Trust shapes expectations, as higher trust leads to more favourable perceptions of information quality.³² The more citizens trust the e-filing website, the better their appreciation of the quality of the information being provided.³³ Thus:

H₄: Trust in the e-filing website has a positive influence on perceptions of information quality.

E-filing is analogous to e-commerce. Higher perception of the system quality of the website will depend on the trust in the company that provides the e-service. Customers need to believe that the company will be accountable to ensuring the technical reliability and ease of use of the website.³⁴ Following this argument, trust enables citizens to believe that the government agency that runs the website will be able to effectively address various technical issues for enhancing the website usability and providing an efficient process. A better impression of system quality of the e-filing website can be gained with higher trust in the website itself.³⁵ Thus:

H₅: Trust in the e-filing website has a positive influence on perceptions of system quality.

In the context of e-filing, service quality perceptions are determined by interactions between citizens and government. Citizens with high trust in e-filing are expected to be more lenient and understanding of system failures. They may attribute any negative experience of e-filing (for example, a lengthy processing time) to reasons other than unreliability of the website.³⁶ Thus:

H₆: Trust in the e-filing website has a positive influence on perception of service quality.

C Information system quality

This study adopts the updated model of information system quality by DeLone and McLean, which is deemed to be an appropriate framework for examining the success of

²⁹ Teo, Srivastava and Jiang (n 4).

³⁰ Chen et al (n 1).

³¹ Teo, Srivastava and Jiang (n 4).

³² Beldad, de Jong and Steehouder, 'How Shall I Trust the Faceless and the Intangible' (n 5).

³³ Chen et al (n 1).

³⁴ Teo, Srivastava and Jiang (n 4).

³⁵ See Teo, Srivastava and Jiang (n 4); Khayun, Ractham and Firpo (n 4).

³⁶ Teo, Srivastava and Jiang (n 4).

information technology.³⁷ It has been argued that higher-quality information, systems and services increase the success of the information technology.³⁸ By using this framework, this study examines the information quality, systems quality and services quality of the e-filing website in Indonesia.

1 *Information quality*

Chang et al describe 'information quality' as the degree to which the information provided meets the needs of customers.³⁹ In this study, information quality represents how the information provided in the e-filing system could help taxpayers in submitting their tax returns to the DGT. Information quality can be measured by its accuracy, relevance, timeliness and completeness, and by its usefulness to users.⁴⁰ Since taxpayers have varying knowledge of how to use the system, their perceptions of the system would become more favourable if the system could provide better information.⁴¹ This is supported by Chen et al, who found that the quality of the information provided by the information technology positively affects its perceived usefulness.⁴² Therefore, in this study, if the e-filing website could provide a higher quality of information, users would have a better perception of its usefulness. Thus:

H₇: The quality of the information provided on the e-filing website has a positive influence on users' perception of its usefulness.

Furthermore, Borek et al stated that information quality would enhance user performance.⁴³ Users would be satisfied in using the system if information was high quality and supported them in operating the system more effectively.⁴⁴ Chen et al also found that better quality information increases user satisfaction in government e-services.⁴⁵ In this study, the information provided on the e-filing website should be up-to-date, accurate, relevant, sufficient and easy to understand. Such information will help taxpayers to use the system more effectively, and thus increase their levels of satisfaction in the system. Therefore, the quality of the information provided by the e-filing website is expected to affect the degree of satisfaction of its users. Thus:

³⁷ William H DeLone and Ephraim R McLean, 'Information System Success: The Quest for the Dependent Variable' (1992) 3(1) *Information Systems Research* 60.

³⁸ See William H DeLone and Ephraim R McLean, 'The DeLone and McLean Model of Information Systems Success: A Ten-Year Update' (2003) 19(4) *Journal of Management Information Systems* 9; Stacie Petter, William DeLone and Ephraim McLean, 'Measuring Information Systems Success: Models, Dimensions, Measures and Interrelationship' (2008) 17(3) *European Journal of Information Systems* 236. See also Syed Kashif Raza Zaidi, 'The Moderating Effect of Culture on E-Filing Taxes: Evidence from India' (2017) 7(1) *Journal of Accounting in Emerging Economies* 134.

³⁹ I-Chiu Chang et al, 'An Empirical Study on the Impact of Quality Antecedents on Tax Payers' Acceptance of Internet Tax-Filing Systems' (2005) 22(3) *Government Information Quarterly* 389.

⁴⁰ DeLone and McLean, 'The DeLone and McLean Model of Information Systems Success' (n 38).

⁴¹ Adel M Aladwani, 'A Cross-Cultural Comparison of Kuwaiti and British Citizens' Views of E-Government Interface Quality' (2013) 30(1) *Government Information Quarterly* 74.

⁴² Chen et al (n 1).

⁴³ Alexander Borek et al, 'A Risk Based Model for Quantifying the Impact of Information Quality' (2014) 65(2) *Computers in Industry* 354.

⁴⁴ See Beldad, de Jong and Steehouder, 'How Shall I Trust the Faceless and the Intangible' (n 5); Chen (n 5).

⁴⁵ Chen et al (n 1).

H₈: The quality of the information provided on the e-filing website has a positive influence on user satisfaction.

2 System quality

In this study, 'system quality' characterises the degree to which the functionalities of the e-filing system can help taxpayers in meeting their needs, easily and with minimal problems.⁴⁶ A high-quality system, in this study, is one that: is easy to access; provides clear guidelines; provides downloadable forms; is easy to use; encounters minimal technical problems (ie, crashing); and simplifies inputting and revising information. If taxpayers experience such a high-quality system that facilitates the e-filing of their tax returns, their perception of the usefulness of the e-filing website will thus increase. Thus:

H₉: The quality of the e-filing website's system has a positive influence on users' perception of its usefulness.

Further, previous studies have suggested that user satisfaction in the system will be significantly impacted if they can easily navigate the website.⁴⁷ If users find minimal problems in using the system, this will positively affect the user experience and thus increase user satisfaction. Therefore, in the context of the e-filing website in Indonesia, the quality of the system is expected to positively affect user satisfaction. Thus:

H₁₀: The quality of the e-filing website's system has a positive influence on user satisfaction.

3 Service quality

In this study, 'service quality' represents how services are delivered by the DGT to support users in operating the e-filing system so that their needs are met.⁴⁸ The use of the e-filing website should be supported by high-quality services provided by the DGT. In Indonesia, the DGT provides several services, such as the electronic filing identification number (EFIN), and the call centre (Kring Pajak), among others. These services should effectively assist Indonesian taxpayers in carrying out their tax return obligations. Chen et al found that service quality has positive impacts on users' perception of the usefulness of the government e-service.⁴⁹ Thus:

H₁₁: The quality of service to support the use of the e-filing website has a positive influence on users' perception of its usefulness.

Service quality is also considered to be a determinant of user satisfaction, as websites should be able to provide enhanced and simplified services to help users to solve their

⁴⁶ See Chang et al (n 39); DeLone and McLean, 'The DeLone and McLean Model of Information Systems Success' (n 38).

⁴⁷ See Teo, Srivastava and Jiang (n 4); Stacie Petter and Ephraim R McLean, 'A Meta-Analytic Assessment of the DeLone and McLean IS Success Model: An Examination of IS Success at the Individual Level' (2009) 46(3) *Information and Management* 159; Hollis Landrum, Victor R Prybutok and Xiaoni Zhang, 'The Moderating Effects of Occupation on the Perception of Information Services Quality and Success' (2010) 58(1) *Computers and Industrial Engineering* 133.

⁴⁸ DeLone and McLean, 'The DeLone and McLean Model of Information Systems Success' (n 38).

⁴⁹ Chen et al (n 1).

problems.⁵⁰ Further, Floropoulos et al stated that better quality service improves customers' perception of the usefulness of the system, and their satisfaction in it.⁵¹ Therefore, in this study, if the Indonesian tax office could provide high-quality services to taxpayers, to support their use of the e-filing website, it is expected to positively affect its perceived usefulness and taxpayer satisfaction. Thus:

H₁₂: The quality of the services to support the use of the e-filing website has a positive influence on user satisfaction.

D Perceived usefulness

A system is recognised to be beneficial if it offers net benefits to its users. Chang et al stated that net benefits can include: error reduction; time savings, including a quicker refund processing time; and lower costs of communication.⁵² In this study, user perception of the usefulness of the e-filing website is measured in its ease of use, its reduction of error, and its benefits for users. Chen et al found that the perceived usefulness of government e-services positively affects user satisfaction.⁵³ Therefore, in the context of the e-filing website in Indonesia, user perception of the usefulness of the e-filing website is expected to have positive impacts on user satisfaction. Thus:

H₁₃: Perceived usefulness of the e-filing website has a positive influence on user satisfaction.

Floropoulos et al suggested that if users find a system useful, it improves their satisfaction in the system.⁵⁴ Furthermore, Chen et al found that a better perception of the usefulness of government e-services increases the perceived net benefits of using the system (such as time and cost savings).⁵⁵ Therefore, the better the perception of usefulness, the better the user satisfaction and the higher the users' perceived net benefits in using the system. In line with the previous studies, the user perception of the usefulness of the e-filing website in Indonesia is expected to positively impact their perceived net benefits. Thus:

H₁₄: Perceived usefulness has a positive influence on users' perception of the net benefits.

E User satisfaction

Chang et al, and Wang and Liao, have argued that the success of government e-services relies on user satisfaction with the system.⁵⁶ In this study, user satisfaction is measured by how effectively the e-filing website helps taxpayers to carry out their tax obligation to the government, and whether the current system meets their expectations of an e-filing website. If users have a positive experience using the system, their satisfaction levels will

⁵⁰ Jordan Floropoulos et al, 'Measuring the Success of the Greek Taxation Information System' (2010) 30(1) *International Journal of Information Management* 47.

⁵¹ *Ibid.*

⁵² Chang et al (n 39).

⁵³ Chen et al (n 1).

⁵⁴ Floropoulos et al (n 50).

⁵⁵ Chen et al (n 1).

⁵⁶ Chang et al (n 39); Wang and Liao (n 5).

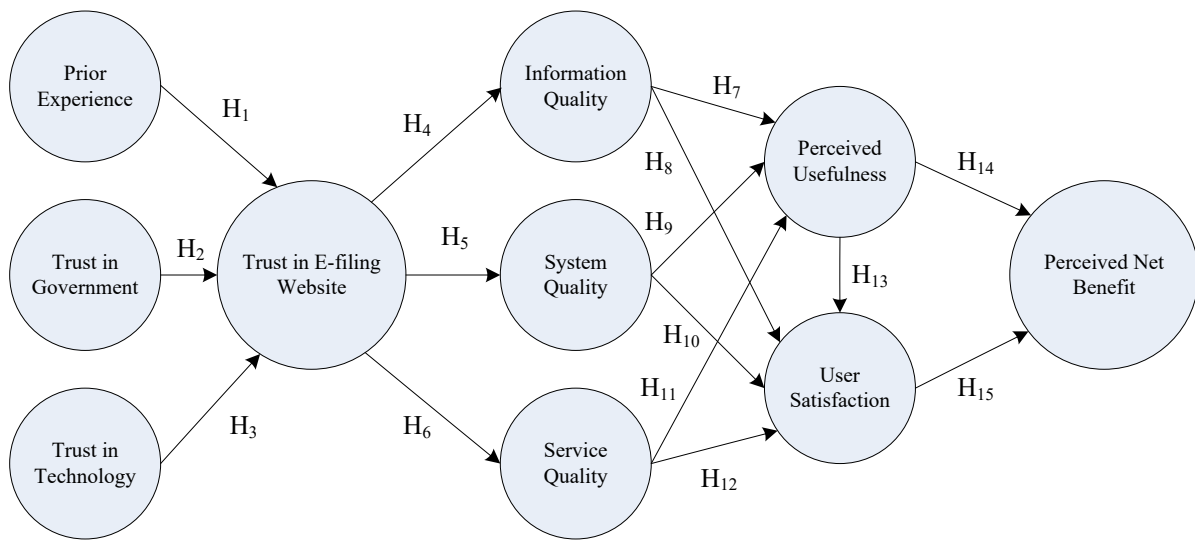
be higher.⁵⁷ This is supported by Chen et al, who found that user satisfaction with government e-services positively affects users' perception of the net benefits of the system,⁵⁸ while the perceived net benefits will, in turn, affect subsequent usage.⁵⁹ Thus:

H₁₅: User satisfaction has a positive influence on their perception of the net benefits of the system.

F Perceived net benefits

The perceived net benefits are the taxpayer's assessment of the net advantage they can get by using e-filing instead of a traditional, offline tax refund submission. The benefits can be in terms of ease of communication, cost and time savings, and better system performance.⁶⁰ Gilbert et al found that perceived benefit is an important dimension, triggering willingness to adopt government e-services.⁶¹ Since the emphasis of this study is on the measurement of government e-service success from the perspective of taxpayers, the net benefits in this study refer to the taxpayers' perception of the net benefits of the system. Hence, the perceived net benefits can be considered an important measure of government e-service success. Figure 1 illustrates the research model for this study.

Figure 1: Research model



⁵⁷ Wang and Liao (n 5).

⁵⁸ Chen et al (n 1).

⁵⁹ DeLone and McLean, 'The DeLone and McLean Model of Information Systems Success' (n 38).

⁶⁰ See Wang and Liao (n 5); Chen et al (n 1).

⁶¹ David Gilbert, Pierre Balestrini and Darren Littleboy, 'Barriers and Benefits in the Adoption of E-Government' (2004) 17(4) *International Journal of Public Sector Management* 286.

III RESEARCH METHODOLOGY

A Data collection and sample

In order to gain users' perceptions of the e-filing system in Indonesia, this study used a survey questionnaire, which was developed based on previous research.⁶² The survey questions were adjusted to fit the context of the e-filing system in Indonesia. It included questions on prior experience of offline tax returns, trust in the government, trust in the technology, trust in the e-filing website, perceived quality of the information provided by the e-filing website, perceived quality of system, perceived quality of the service, perceived usefulness, user satisfaction and perceived net benefits. The survey used a four-point Likert scale, from strongly disagree (1) to strongly agree (4). Table 1 shows the survey questions asked to measure the construct.

Table 1: Survey questions

Construct	Question items
Prior experience of offline tax returns ⁶³	<p>PE1: I feel that offline tax filing doesn't take a long time.</p> <p>PE2: I feel that offline tax filing is easy to do.</p> <p>PE3: Tax officials can handle the problem well when I have problems related to offline tax filing.</p> <p>PE4: Tax officials can provide an easy-to-understand explanation when I have questions related to offline tax filing.</p> <p>PE5: Tax officials are friendly in communicating with me when I report taxes offline.</p>
Trust in the government ⁶⁴	<p>TG1: I believe that the DGT acts in the best interests of citizens.</p> <p>TG2: I believe that the DGT is honest in carrying out its obligations.</p> <p>TG3: I believe that the DGT is competent in carrying out its obligations.</p> <p>TG4: I believe that the DGT can manage the e-filing system appropriately.</p> <p>TG5: I believe that the DGT can maintain taxpayer information in the e-filing system.</p>

⁶² See Wang and Liao (n 5); Amitabh Ojha, GP Sahu and MP Gupta, 'Antecedents of Paperless Income Tax Filing by Young Professionals in India: An Exploratory Study' (2009) 3(1) *Transforming Government: People, Process and Policy* 65; Ludwig Christian Schaupp, Lemuria Carter and Megan E McBride, 'E-File Adoption: A Study of U.S. Taxpayers' Intentions' (2010) 26(4) *Computers in Human Behavior* 636; Ramlah Hussein et al, 'E-Government Application: An Integrated Model on G2C Adoption of Online Tax' (2011) 5(3) *Transforming Government: People, Process and Policy* 225; Chen et al (n 1).

⁶³ Chen et al (n 1).

⁶⁴ See Schaupp, Carter and McBride (n 62); Chen et al (n 1).

Construct	Question items
Trust in the technology ⁶⁵	<p>TT1: I am sure that the internet has adequate protection that makes me feel comfortable when reporting taxes using the e-filing system.</p> <p>TT2: I am sure that laws pertaining to technology protect me from problems on the internet when reporting taxes using the e-filing system.</p> <p>TT3: I am sure that encryption and other technological advancements on the internet make me feel safe when reporting taxes using the e-filing system.</p> <p>TT4: In general, the internet is now a safe environment for reporting taxes using the e-filing system.</p>
Trust in the e-filing website ⁶⁶	<p>TW1: I believe that the e-filing system protects tax information from changes, destruction or theft by unauthorised parties.</p> <p>TW2: I believe that the e-filing system has adequate safety standards to protect taxpayers.</p> <p>TW3: In general, e-filing systems can be trusted to report taxes.</p>
Information quality ⁶⁷	<p>IQ1: Information presented in the e-filing system is up-to-date.</p> <p>IQ2: Information presented in the e-filing system is accurate.</p> <p>IQ3: Information presented in the e-filing system is relevant for tax-reporting purposes.</p> <p>IQ4: Information presented in the e-filing system is adequate for tax-reporting purposes.</p> <p>IQ5: Information presented in the e-filing system is easy to understand.</p>
System quality ⁶⁸	<p>SysQ1: The e-filing system can be accessed easily at any time.</p> <p>SysQ2: The e-filing system provides downloadable forms for tax-reporting purposes.</p> <p>SysQ3: The e-filing system provides guidance that helps taxpayers in tax reporting.</p> <p>SysQ4: The e-filing system is easy to use.</p> <p>SysQ5: The e-filing system does not crash when it is used.</p> <p>SysQ6: I can easily enter and revise my data when using the e-filing system.</p>
Service quality ⁶⁹	<p>SrvQ1: Services provided by tax officials related to the use of the e-filing system are reliable.</p>

⁶⁵ Chen et al (n 1).

⁶⁶ Ojha, Sahu and Gupta (n 62).

⁶⁷ Chen et al (n 1).

⁶⁸ See Schaupp, Carter and McBride (n 62); Hussein et al (n 62); Chen et al (n 1).

⁶⁹ See Ojha, Sahu and Gupta (n 62); Chen et al (n 1).

Construct	Question items
	SrvQ2: Services provided by tax officials related to the use of the e-filing system meet my needs. SrvQ3: The Kring Pajak service can handle problems well regarding tax reporting using the e-filing system.
Perceived usefulness ⁷⁰	PU1: The use of the e-filing system facilitates my tax reporting. PU2: The use of the e-filing system reduces errors in my tax reporting. PU3: Overall, the e-filing system is useful for me.
User satisfaction ⁷¹	US1: I feel that the e-filing system is effective in helping me to fulfil tax obligations to the government. US2: Overall, I am satisfied with the current e-filing system. US3: Overall, the current e-filing system has met my expectations.
Perceived net benefits ⁷²	PNB1: When compared to offline tax filing, the e-filing system reduces the time needed for the tax-reporting process (time savings). PNB2: When compared to offline tax filing, the e-filing system reduces the costs required for the tax-reporting process (cost savings). PNB3: Overall, when compared to the offline tax filing, the e-filing system is more useful.

The survey questionnaires were distributed online to prospective respondents or users of the e-filing website in Indonesia. In order to ensure that the respondents were users of the e-filing website, the first question pertained to whether they had used the e-filing website to submit their tax returns. The numbers of respondents in the sample are shown in Table 2.

Table 2: Research sample

Description	Number of respondents
Total respondents	1,097
Not e-filing users	(97)
Number of e-filing users	1,000
Invalid responses	(7)
Total valid responses	993

⁷⁰ Ojha, Sahu and Gupta (n 62); Chen et al (n 1).

⁷¹ See Wang and Liao (n 5); Chen et al (n 1).

⁷² Chen et al (n 1).

B Research methodology

Data analysis was conducted using covariance-based structural equation modelling ('CB-SEM') for factor analysis and hypothesis testing. The survey questionnaire was tested for its validity and reliability. For the validity test, the standardised factor loading for each indicator had to be larger than 0.5. If the standardised factor loading was less than 0.5, the indicators were deleted (see Table 4). Meanwhile, each construct had good reliability if the average variance constructed was more than 0.5 and the construct reliability was more than 0.7. In order to test the hypotheses, the t-values and path coefficients were used to determine whether the hypotheses were supported (see Table 5). The hypothesis testing was conducted across the whole sample, and also on subsets of the sample divided into Java and non-Java residents, and millennials vs non-millennials, in order to find any variation on the responses.

IV RESEARCH FINDINGS AND DISCUSSIONS

The largest group of our respondents were 26–35 years old, with 51.2 per cent male. This justified the assumption that the majority of e-filing users are young professionals, the millennials, who are more keen to use technology to fulfil their tasks, and more familiar with online services.⁷³ This age distribution is also consistent with the statistic released by the Indonesia Internet Service Provider Association in 2017, stating that almost 50 per cent of internet users in Indonesia were in the 19–34 age group.⁷⁴

We also managed to get responses from all across Indonesia, although the majority resided in the capital city of DKI Jakarta, and other areas in close proximity, such as West Java (Jawa Barat) and Banten. Overall, the percentage of respondents from Java surpassed respondents from any other island. It demonstrates that Java is the most developed area in Indonesia, and thus has the best internet connection and penetration. A complete characteristic of the respondents can be found in Table 3.

Table 3: Characteristics of respondents

Demographics	Category	Sample	
		N	%
Gender	Male	508	51.2
	Female	485	48.8
Age	<26 years	93	9.4
	26–35 years	500	50.3
	36–45 years	236	23.8
	46–55 years	128	12.9
	>55 years	36	3.6
Education	Elementary school	1	0.1
	Junior high school	0	0.0

⁷³ Sulaiman Ainin, Shamsul Bahri and Asri Ahmad, 'Evaluating Portal Performance: A Study of the National Higher Education Fund Corporation (PTPTN) Portal' (2012) 29(3) *Telematics and Informatics* 314.

⁷⁴ Asosiasi Penyelenggara Jasa Internet Indonesia, *Infografis Penetrasi & Perilaku Pengguna Internet Indonesia: Survey 2017* (2017) <<https://www.apjii.or.id/content/read/39/410/Hasil-Survei-Penetrasi-dan-Perilaku-Pengguna-Internet-Indonesia-2018>>.

	Senior high school	16	1.6
	Diploma I	7	0.7
	Diploma II	0	0.0
	Diploma III	44	4.4
	Bachelor degree (Diploma IV)	541	54.5
	Master degree	352	35.5
	Doctoral degree	32	3.2
Domicile	Aceh	6	0.6
	Sumatera Utara	6	0.6
	Sumatera Barat	11	1.1
	Riau	8	0.8
	Jambi	2	0.2
	Sumatera Selatan	18	1.8
	Bengkulu	0	0.0
	Lampung	11	1.1
	Kepulauan Bangka Belitung	6	0.6
	Kepulauan Riau	1	0.1
	DKI Jakarta	369	37.2
	Jawa Barat	236	23.8
	Jawa Tengah	42	4.2
	Daerah Istimewa Yogyakarta	22	2.2
	Jawa Timur	38	3.8
	Banten	109	11.0
	Bali	13	1.3
	Nusa Tenggara Barat	6	0.6
	Nusa Tenggara Timur	2	0.2
	Kalimantan Barat	1	0.1
	Kalimantan Tengah	3	0.3
	Kalimantan Selatan	6	0.6
	Kalimantan Timur	12	1.2
	Kalimantan Utara	2	0.2
	Sulawesi Utara	4	0.4
	Sulawesi Tengah	2	0.2
	Sulawesi Selatan	25	2.5
	Sulawesi Tenggara	3	0.3
	Gorontalo	3	0.3
	Sulawesi Barat	1	0.1
	Maluku	4	0.4
	Maluku Utara	1	0.1
	Papua	3	0.3
Papua Barat	1	0.1	
Offshore	16	1.6	
Type of tax return (SPT)	SPT 1770 SS	179	18.0
	SPT 1770 S	736	74.1
	SPT 1770	78	7.9

Table 4: Descriptive analysis, validity and reliability results

Construct*	Items	Mean	Standard deviation	Standardised factor loading	Average variance constructed	Construct reliability
PE	PE1	1.94	1.11	Deleted	0.74	0.89
	PE2	2.01	0.96	Deleted		
	PE3	2.77	0.95	0.88		
	PE4	2.85	0.91	0.94		
	PE5	2.95	0.86	0.75		
TG	TG1	3.44	0.71	0.77	0.65	0.90
	TG2	3.14	0.83	0.81		
	TG3	3.28	0.77	0.86		
	TG4	3.35	0.72	0.82		
	TG5	3.38	0.73	0.78		
TT	TT1	3.16	0.78	0.83	0.75	0.92
	TT2	3.22	0.76	0.88		
	TT3	3.30	0.73	0.91		
	TT4	3.23	0.76	0.84		
TW	TW1	3.25	0.73	0.89	0.80	0.92
	TW2	3.29	0.72	0.93		
	TW3	3.44	0.65	0.86		
IQ	IQ1	3.47	0.65	0.82	0.69	0.92
	IQ2	3.44	0.64	0.83		
	IQ3	3.51	0.61	0.90		
	IQ4	3.49	0.62	0.87		
	IQ5	3.34	0.75	0.72		
SysQ	SysQ1	3.20	0.87	0.73	0.54	0.87
	SysQ2	3.37	0.78	0.65		
	SysQ3	3.41	0.74	0.77		
	SysQ4	3.38	0.76	0.79		
	SysQ5	2.65	0.97	0.67		
	SysQ6	3.18	0.84	0.77		
SrvQ	SrvQ1	3.23	0.78	0.90	0.68	0.86
	SrvQ2	3.28	0.75	0.93		
	SrvQ3	2.89	0.86	0.60		
PU	PU1	3.67	0.57	0.86	0.69	0.87
	PU2	3.43	0.71	0.72		
	PU3	3.65	0.57	0.91		
US	US1	3.65	0.56	0.78	0.76	0.90
	US2	3.41	0.71	0.92		
	US3	3.30	0.75	0.90		
PNB	PNB1	3.77	0.52	0.88	0.76	0.90

Construct*	Items	Mean	Standard deviation	Standardised factor loading	Average variance constructed	Construct reliability
	PNB2	3.75	0.53	0.85		
	PNB3	3.74	0.52	0.88		

* Note: PE = prior experience; TG = trust in the government; TT = trust in the technology; TW = trust in the e-filing website; IQ = information quality; SysQ = system quality; SrvQ = service quality; PU = perceived usefulness; US = user satisfaction; PNB = perceived net benefits.

Figure 2: Structural model (ns = non-significant)

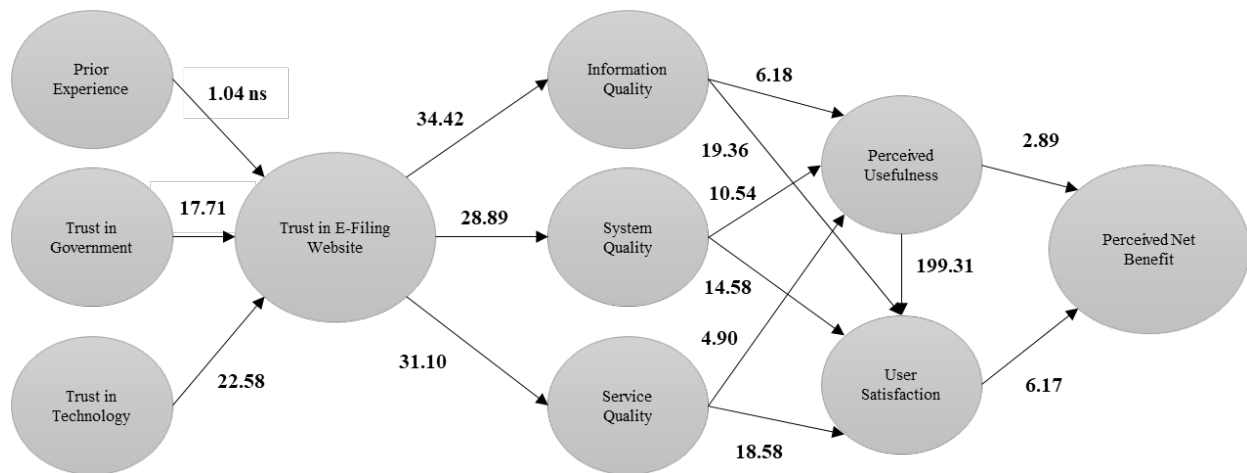


Figure 2 and Table 5 show our research findings. They suggest that trust in the government and the technology can shape trust in the e-filing website. Taxpayers will value the e-filing website if the government has a good image that engenders taxpayer trust and makes them believe that it will offer them the best service and provide a safe online environment. Trust in the technology also influences the willingness of taxpayers to switch from offline to online tax filing.⁷⁵ The internet must be reliable and secure,⁷⁶ since taxpayers will disclose their confidential information during the tax filing process.⁷⁷ A high level of trust in technology will facilitate taxpayers' belief that online transactions and interactions with government agencies can be conducted successfully.⁷⁸ This finding reflects that Indonesian citizens' trust in the government and the technology play an important role in their intention to use e-filing.

In addition, this study shows that trust in the e-filing website is significantly associated with user perceptions of all the system attributes: information quality, system quality and service quality. This result is consistent with Chen et al, whereby trust in the e-filing website significantly affects user perceptions of information quality.⁷⁹ It is explained by

⁷⁵ Kurfali et al (n 17).

⁷⁶ Anastasia Voutinioti, 'Determinants of User Adoption of E-Government Services in Greece and the Role of Citizen Service Centres' (2013) 8 *Procedia Technology* 238.

⁷⁷ Beldad, de Jong and Steehouder, 'I Trust Not Therefore It Must Be Risky' (n 16).

⁷⁸ Teo, Srivastava and Jiang (n 4).

⁷⁹ Chen et al (n 1).

Teo et al, who state that a citizen using an e-filing website for information searches or online services that involve transactions with government agencies, hence fulfilling the citizen's information and transaction needs, are the two basic functions of a government website.⁸⁰ Trust in the e-filing website poses the least influence on system quality, which indicates that a secure website alone is not enough to create the perception of an easily functioning application for the user. To be effective, the system must also be easy to use and come against minimal problems during the tax e-filing process.

All of the quality elements significantly affect perceived usefulness, with system quality having the highest influence. It indicates that every feature embedded in the system will give additional value for the user in facilitating their tax filing, with accessibility and easiness of the system having the biggest influence. User satisfaction is also likely to be determined by the information contained in the system to help the user in their tax refund submission. Many Indonesian citizens are not familiar with e-filing, especially new taxpayers. Hence, users will likely demand more comprehensive information in order to successfully fulfil their tax obligations. Apart from it, to be effective, the system must also be backed by human support to help in the tax filing process. The user may be satisfied if the transaction is completed successfully.⁸¹

Table 5: CB-SEM results

Hypothesis	Relationships of variables (IV → DV)	Path coefficients	t-statistic	Results
H1	PE → TW	0.019	1.04	Not supported
H2	TG → TW	0.47	17.71	Supported
H3	TT → TW	0.61	22.58	Supported
H4	TW → IQ	0.72	34.42	Supported
H5	TW → SysQ	0.74	28.89	Supported
H6	TW → SrvQ	0.78	31.10	Supported
H7	IQ → PU	0.17	6.18	Supported
H8	IQ → US	0.18	19.36	Supported
H9	SysQ → PU	0.45	10.54	Supported
H10	SysQ → US	0.091	14.58	Supported
H11	SrvQ → PU	0.22	4.90	Supported
H12	SrvQ → US	0.13	18.58	Supported
H13	PU → US	0.71	199.31	Supported
H14	PU → PNB	0.25	2.89	Supported
H15	US → PNB	0.53	6.17	Supported

* Note: PE = prior experience; TG = trust in government; TT = trust in technology; TW = trust in e-filing website; IQ = information quality; SysQ = system quality; SrvQ = service quality; PU = perceived usefulness; US = user satisfaction; PNB = perceived net benefits.

The most notable relationship in this research was the influence of perceived usefulness to user satisfaction. It demonstrated that the system is deemed able to meet user expectations if it can speed up and ease the tax filing process. Hence, user satisfaction can

⁸⁰ Teo, Srivastava and Jiang (n 4).

⁸¹ Ibid.

be improved if users acknowledge the advantages of the system in terms of cost and time savings.

Following the previous research in this field, we considered prior experience as one of many variables that explain trust in the e-filing website. The citizen will have a positive attitude toward e-filing if they perceive this service as an extension of the traditional one. It implies that a positive experience using traditional tax filing will build a belief that the online service will bring a similar experience. This is consistent with the research by Chen et al, whereby prior offline experience has a significant relationship with trust in the government website.⁸² However, our finding shows the contrary. It indicates that prior experience in offline government services has nothing to do with citizens' belief in the online service. Our respondents acknowledged offline tax filing as time-consuming, difficult, and lacking in support from tax officials. Nevertheless, taxpayers seem to ignore this bad experience when they decide to use the online system, believing that e-filing will give them a better experience.⁸³

In addition to the overall data analysis, we also divided the data into four clusters according to region (Java and non-Java residents) and age (millennials and non-millennials). The purpose of conducting subset analysis was to find out whether different clusters may have different behaviours toward e-filing.

We only used Java and non-Java clustering in the regional analysis, since the respondents from Java outnumbered those from any other area. There was a fear of having unreliable results if we further divided the data coming from outside Java, due to the insignificant quantity of the responses. Therefore, we combined the responses from areas outside Java into one group. Java is known as the centre of government and business in Indonesia. It is common knowledge that Java is Indonesia's most developed island, hence we expected that the internet connection would be more stable and have higher penetration than any other region.

Our findings on the hypothesis testing on Java were consistent with the overall data, while non-Java residents considered that information quality and system quality negatively affected user satisfaction. This implies that users from outside the Java area perceive that the information provided by the current e-filing system does not satisfy their needs. Therefore, a negative relationship between user satisfaction and information quality was found in this subset. The results from users outside the Java area also suggest that system quality has nothing to do with user satisfaction. Difficulty in accessing the internet for residents outside Java will lead to frequent problems in e-filing, and hence reduced functionality of the system. We also note that the current e-filing system does not have a 'save' feature. Therefore, if an error happens during the tax filing process, the user must begin the process again. A complete result on the Java and non-Java residents analysis can be found in Exhibit 1.

In addition, we also conducted a separate analysis based on age to identify any generational differences. Millennials are the respondents who were born after the year

⁸² Chen et al (n 1).

⁸³ Lee, Kim and Ahn (n 9).

1980.⁸⁴ A previous study on tax compliance has suggested that there are differences of perceptions towards tax fairness among different generations.⁸⁵ Therefore, we expected a difference in behaviour between the millennials and non-millennials, especially since millennials have long been considered technologically savvy. Thus, millennials were expected to value e-filing more than non-millennials.

Our analysis found that millennials did not define their perceived net benefit from their satisfaction in using e-filing, while there is a positive correlation between user satisfaction and perceived net benefit for non-millennials. This result means that the use of the e-filing website satisfies millennials in fulfilling their tax obligation to the government. However, it does not necessarily reflect that they obtain benefits from using it, such as cost and time savings. This is probably due to the fact that millennials use technology more often, so the benefit of utilising the technology does not mean much for them.

Furthermore, our results for non-millennials suggest that system quality does not significantly affect their satisfaction. Non-millennials are considered less technologically savvy than millennials, and therefore this result probably suggests that non-millennials tend to have fewer concerns about the quality of the system in determining their degree of satisfaction. The complete result of the millennial and non-millennial analysis is shown in Exhibit 2.

V CONCLUSION, LIMITATIONS AND IMPLICATIONS

A Conclusion

We found that trust in the government and the technology are able to shape trust in the e-filing website. This finding reflects that Indonesian citizens' trust in the government and trust in the technology play an important role in their intention to use e-filing. In addition, this study showed that trust in the e-filing website is significantly associated with user perceptions of the system attributes (ie, information quality, system quality and service quality). This result is consistent with Chen et al, whereby trust in the e-filing website significantly affects user perceptions of information quality.⁸⁶ All of the quality elements significantly affect perceived usefulness, with system quality having the highest influence. Finally, our findings demonstrated that users of e-filing in Indonesia perceive the online tax system as saving them both cost and time, and facilitating their tax obligations to the government.

B Limitations

The sample of this research was more concentrated on Java, compared to the other islands in Indonesia. Thus, the recommendation of future research is to add more samples from outside Java in order to analyse taxpayer behaviour based on cultural differences.

⁸⁴ Susan Journey, Tim Rupert and Marty Wartick, 'Generational Differences in Perceptions of Tax Fairness and Attitudes towards Compliance' (2017) 24 *Advances in Taxation* 163.

⁸⁵ *Ibid.*

⁸⁶ Lee, Kim and Ahn (n 9).

C Implications

From the results of this research, the DGT in Indonesia should emphasise improving the system and service quality of the e-filing website, as well as evaluating the quality of the information contained in the website, so as to increase taxpayer satisfaction in using the system. In addition, the government should improve the system quality (infrastructure) for the non-Java area, to increase tax compliance from taxpayers outside Java.

Exhibit 1: CB-SEM results — Java vs non-Java residents

Hypothesis	Relationships of variables (IV → DV)	Path coefficients (all data)	Path coefficients (Java)	Path coefficients (non-Java)
H1	PE → TW	0.019 (NS)	0.018 (NS)	0.0027 (NS)
H2	TG → TW	0.47	0.43	0.049
H3	TT → TW	0.61	0.65	0.025
H4	TW → IQ	0.72	0.71	11.20
H5	TW → SysQ	0.74	0.73	10.67
H6	TW → SrvQ	0.78	0.77	10.61
H7	IQ → PU	0.17	0.20	0.20
H8	IQ → US	0.18	0.25	-0.072
H9	SysQ → PU	0.45	0.42	0.46
H10	SysQ → US	0.091	0.17	-0.074 (NS)
H11	SrvQ → PU	0.22	0.22	0.26
H12	SrvQ → US	0.13	0.042	0.24
H13	PU → US	0.71	0.67	0.87
H14	PU → PNB	0.25	0.39	0.34
H15 (NS)	US → PNB	0.53	0.38	0.49

* Note: PE = prior experience; TG = trust in government; TT = trust in technology; TW = trust in e-filing website; IQ = information quality; SysQ = system quality; SrvQ = service quality; PU = perceived usefulness; US = user satisfaction; PNB = perceived net benefits.

Exhibit 2: CB-SEM results — millennials vs non-millennials

Hypothesis	Relationships of variables (IV → DV)	Path coefficients (all data)	Path coefficients (millennial)	Path coefficients (non-millennial)
H1	PE → TW	0.019 (NS)	0.032 (NS)	0.00058 (NS)
H2	TG → TW	0.47	0.39	0.71
H3	TT → TW	0.61	0.64	0.32
H4	TW → IQ	0.72	0.72	0.83
H5	TW → SysQ	0.74	0.63	0.81
H6	TW → SrvQ	0.78	0.76	0.81
H7	IQ → PU	0.17	0.25	0.10
H8	IQ → US	0.18	0.059	0.17
H9	SysQ → PU	0.45	0.39	0.31
H10	SysQ → US	0.091	0.044	0.0010 (NS)
H11	SrvQ → PU	0.22	0.21	0.46
H12	SrvQ → US	0.13	0.14	0.20
H13	PU → US	0.71	0.79	0.71
H14	PU → PNB	0.25	0.67	0.38
H15	US → PNB	0.53	0.11 (NS)	0.44

* Note: PE = prior experience; TG = trust in government; TT = trust in technology; TW = trust in e-filing website; IQ = information quality; SysQ = system quality; SrvQ = service quality; PU = perceived usefulness; US = user satisfaction; PNB = perceived net benefits.

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