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# Improving tax compliance strategies: Can the theory of planned behaviour predict business compliance?

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## **Abstract**

For many taxpayers the uncertainty inherent in the tax system makes paying taxes akin to a game of chance. Some people gamble on the ambiguity of the law and intentionally under-report their earnings, whilst at the other end of the spectrum, others overcompensate for any possible misdemeanours and pay more than they owe. There is great variety of taxpayer behaviour patterns in between these extremes. Existing theories have failed to clarify the complexities of taxpayer decision making and thus failed to establish a useful platform for agencies to influence and encourage voluntary compliance.

This study investigated the factors influencing business tax payers' decision on whether to report income and deductions correctly in their 2011 income tax return. The proposed model based on Ajzen and Fishbein's reasoned action approach (the Theory of Planned Behaviour -TPB) has genuine applicability in the tax compliance context. The research was conducted in two phases. Firstly, an online pilot survey was used to elicit salient beliefs in order to construct the primary (TPB) questionnaire. The resulting online survey was distributed to taxpayers who were asked to identify whether, in the previous 12 months they had (i) self-initiated contact or received assistance from the Tax Office; (ii) been contacted via an audit or other verification scenario; or (iii) had no personal contact with the Tax Office. The aim was to determine whether the TPB can reliably predict taxpayers' intention to fulfil their tax obligations and if so, whether it can be used to develop intervention strategies to improve voluntary compliance.

The results show that intention to comply is not always a strong predictor of compliance behaviour. The majority of taxpayers who wanted to comply, failed. As complexity and difficulty in performance increases, additional factors are required to predict compliance, such as awareness of the rules. Complexity also reduces the predictability of behaviour. Behaviour prediction can be enhanced by quantifying environmental complexity, providing performance support, and eliminating potential obstacles. Intention can only be leveraged for compliance strategies when the tax system creates the optimal environment for taxpayers to successfully comply.

The paper reports the findings and discusses their theoretical and practical implications. The results have significant implications for both behaviour prediction and tax compliance strategy development. The study has broad generalisability as it provides a new model for government agencies to assist them to understand and engage effectively with the people they serve.

## **1. INTRODUCTION**

The effective management of taxpayer compliance with the tax laws is an essential but complex issue for administrative authorities (Alm, Sanchez, & Dejuan, 1995; Bobek

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& Hatfield, 2003). Tax authorities must apportion their resources to ensure optimal targeting of those taxpayers who deliberately evade whilst providing support for those who attempt to comply. In addition, tax collectors must be vigilant in ensuring fair and equitable treatment for all taxpayers and continually make efforts to improve the process in order to respond to social, economic and demographic changes in the population.

The growing demands on tax administration mean that traditional approaches to compliance management are unsustainable. This issue is particularly problematic in Australia as the population increases and immigrants from countries with different attitudes and traditions make enforcement of tax compliance through conventional methods more difficult.

Research and development in tax compliance has centred on economic theory with few practical models for managing and changing unwanted taxpayer compliance behaviour. The study reported in this paper uses self-reported data from a large scale survey used to investigate whether compliance behaviour can be predicted using a combination of predictive factors from both the domains of economics and social psychology. Once predicted, behaviour can be influenced by addressing the causal salient beliefs. Legal complexity and the effects of system obstructions will also be explored to determine the strength of intention in the success of correct tax reporting. This research will be used to improve our ability to design compliance interventions which support and guide those taxpayers who are willingly compliant. At the same time the new model will be evaluated as a tool for limiting or preventing detrimental non-compliant behaviour.

## 1.1 Australian context and research background

In Australia during the period 1999 to 2009, the individual taxpayer population increased from 10 to 12 million and the number of listed companies nearly doubled<sup>2</sup>. Businesses also increased the expenses claimed on their tax returns from \$1,217 billion in 1999 to \$2,142 billion in 2009 (Commonwealth of Australia, 2002, 2011). The risk and subsequently the consequences of tax evasion through fraudulent claims for Australia have increased dramatically.

Due to the increasing complexity of tax legislation, advanced technology is required to maintain the high volume of returns processed. The Tax Office is forced to rely increasingly on automated systems to safeguard compliance and less on the individual partnerships forged between tax officers and the community. Paradoxically, the adoption of sophisticated information technology to enhance voluntary compliance is a poor cousin to the primary compliance strategy used by the Tax Office: audit. Audit requires an immense workforce to maintain high levels compliance. The Tax Office's operating budget for 2008-09<sup>3</sup> was \$3.2 billion of which approximately one third was spent on auditing tax returns in order to collect \$6.4 billion in revenue (Australian

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<sup>2</sup> In the 1999-2000 financial year there were 1723243 companies, partnerships and funds, in 2008-09 there are 2179935 (Commonwealth of Australia, 2002, 2011).

<sup>3</sup> The most recent published budget available for the Taxation Office is 2008/09.

Taxation Office, 2009). However, it is debatable whether this is an effective use of resources, considering that approximately 97% of the country's revenue (\$264 billion) results from voluntary contributions (Australian Taxation Office, 2009).

The Australian Taxation Office is a world leader in taxation compliance (Inspector-General of Taxation, 2005; Shorten, 2011). The organisation has introduced several innovative solutions to compliance problems, such as E-tax to assist individual taxpayers with tax returns, several targeted task forces such as High Wealth Individuals (Australian Taxation Office, 2008b); The Cash Economy (Australian Taxation Office, 2008a) and Project Wickenby<sup>4</sup>. In addition, ideas adopted from social psychology, such as Braithwaite's (2003) compliance model, are used to aid in compliance management.

However, since tax collection became the Commonwealth's responsibility in 1946 (Boucher, 2010, p. 3), the fundamental methods for managing tax compliance have remained virtually static. Primarily compliance interventions rely on the administrator's ability to verify taxpayer records, detect non-compliance and to instigate actions that deter future evasion. Tax administration has for many years relied on economic theory to attempt to enforce tax compliance behaviour, the basis of this policy is the theory of Expected Utility (EU, Von Neumann & Morgenstein, 1944). EU assumes that humans are rational and act accordingly to prosper. Therefore, deterrence works on the principle that taxpayers fear reprimand, financial penalties or even legal action and criminalisation. Any of these will lead to offenders experiencing a reduction in the quality of life. The premise of EU is that the primary tool for managing tax compliance is through interventions such as audit and penalties. Tax agencies around the world have applied the principles of EU as a foundation on which to build their compliance management models.

However, recent research (Bergman & Nevarez, 2006; Johnson, Masclet, & Montmarquette, 2010; Kirchler, 2007; Mittone, 2006) demonstrates overwhelmingly, that these methods may not only be ineffective but also counterproductive. As the tax authority increases its use of enforcement measures, voluntary compliance often declines and overt dishonesty increases due to a growing environment of mutual distrust (Kirchler, 2007, p. 168; Torgler, 2002). However, few realistic alternatives exist.

Intervention methods directed at improving voluntary compliance through reward and reinforcement of responsible behaviour are tentative and generalised (Alm, Cherry, Jones, & McKee, 2010). Such interventions attempt to educate taxpayers with regard to the tax laws and provide broad regulatory guidance for market segments. However, the information provided by tax agencies presupposes that individuals have the knowledge, experience and confidence to translate the information provided to their own circumstances. The role of the tax agent developed as an additional support for the community to overcome such obstacles. Notwithstanding even tax professionals

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<sup>4</sup> A cross agency task force established in 2006 to prevent the abuse of secrecy havens ([Australian Taxation Office, 2012](#)).

make mistakes for which the individual is liable<sup>5</sup>. For most taxpayers, maintaining their tax affairs is akin to a game of chance: many approach it anxiously hoping their interpretation of the law is correct and assuming that the Tax Office will treat them fairly if genuine mistakes are made. However, when individuals have attempted to comply but are penalised, they feel their trust has been violated which, in turn, changes their subsequent behaviour (Hobson, 2002). The consequences are disengagement and disillusionment resulting in defiance and resentment (Braithwaite, 2009; Hobson, 2002).

A further dilemma for the Tax Office is that, although the majority of taxpayers behave honestly when treated with trust and respect (Hessing, Elffers, & Weigel, 1988), there is a significant minority who abuse the system. Therefore, the tax administration must strike a balance between interventions to encourage voluntary compliance whilst maintaining firm authority over misconduct. The Tax Office has a myriad of strategies at its disposal based on the Compliance Model (Braithwaite, 2003). However, applying broad compliance interventions to large segments of the population is impractical without methods for distinguishing the many different motivations and intentions of the taxpayers involved and then designing the treatments accordingly. Current methods are unable to cope with the immense diversity within the community and the plethora of different management strategies at both the population and individual level to ensure that each taxpayer receives the most appropriate compliance support.

The complexity of the compliance dilemma necessitates the development of a comprehensive model and a methodology for applying that model in order to influence and shape the behaviour of large groups of taxpayers. The lacuna has been noted by researchers, such as Kirchler (2007, p. 2), who admits that “research has yet to be integrated into a comprehensive model of taxpaying behaviour” and calls for a model “integrating the most recent findings in the social sciences”. However, to have any practical value, a new model must not only cope with the wide range of values, beliefs and contexts that influence taxpayer behaviour but also provide direction to guide the establishment of large scale strategies and interactions with the population. Any new model to manage the increasing size and diversity of the population taxpaying behaviour must still be fair and provide personal treatment. Such an approach necessitates the abandonment of the current economic view of compliance behaviour, as the solution requires the understanding of social relationships and how the people involved make sense of both the events and the consequences of their actions.

## 1.2 The Compliance Behaviour Model

The dual purposes of our study is to: i) determine the most appropriate model for use in predicting and shaping tax compliance behaviour; and ii) evaluate the new model’s application in the tax compliance context. Several existing models and economic theories were evaluated prior to the development of the new model and these included: equity theory (Adams, 1965); exchange equity (Moser, Evans, & Kim,

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<sup>5</sup> Note the new safe harbour legislation which has been introduced to ensure tax agents provide duty of care with their handling of client’s tax affairs - subsection 286-75(1A) of Schedule 1 of the Taxation Administration Act 1953 (TAA).

1995); procedural justice (Murphy, 2004); economics of crime (Becker, 1968); prospect (Kahneman & Tversky, 1979) expected utility (Allingham & Sandmo, 1972) and reasoned action (Beck & Ajzen, 1991; Hanno & Violette, 1996; Hessing, et al., 1988). In addition, a number of social psychological theories were examined including: the compliance model (Braithwaite, 2003), self-regulation and control (Carver & Scheier, 1998), social cognitive theory (Bandura, 1989), self-efficacy (Bandura, 1977), self-identity and symbolic interactionism (Rise, Sheeran, & Hukkelberg, 2010; Sparks & Guthrie, 1998; Tice & Wallace, 2005) and mixed embeddedness (Rothengatter, 2008).

Our review reveals that the most appropriate model for developing our understanding and thereby shaping taxpayer behaviour is the Theory of Planned Behaviour (TPB, Ajzen, 1991) one which has been applied broadly to community behaviour change in regards to health (Armitage & Conner, 1999) and traffic control (Elliott, Armitage, & Baughan, 2005; Letirand & Delhomme, 2005), but until recently has had minimal attention from tax researchers. Our research proposes a new model for compliance based on the TPB (Ajzen, 1991), which we believe is capable of not only clarifying the complexity of tax compliance decision making but, importantly, can also be utilised for the development of broad population compliance strategies.

The TPB has its origins in the earlier theory of Expected Utility but introduces a number of additional explanatory variables which are, according to Ajzen & Fishbein (1980, p. 4) “designed to explain virtually any human behaviour”. If they are correct in their claims that “behaviours are not really difficult to predict”, then the TPB has the potential to aid the Tax Office, in predicting, supporting and thus re-shaping taxpayer behaviour.

TPB proposes a direct relationship between intention and behaviour. This relationship is critical to any significant change in policy. Intention is an essential component of tax compliance as it is only through the willing participation of taxpayers that revenue is collected. Thus predicting taxpayer intention to comply is as important as predicting the actual compliance behaviour. Determining if behaviour is motivated by unwillingness to comply (as opposed to external factors preventing compliance) will shape the treatment to improve performance of the behaviour. The tax authority would design interventions that pre-emptively address the cause of the non-compliance rather than administer solutions *post hoc* which may encourage further non-compliance.

In addition to intention, the TPB addresses the issue of behavioural control with the inclusion of two variables, perceived behavioural control and actual control. Perceived behavioural control is composed of two elements: the individual’s controllability of the behaviour and their self-efficacy in performing the requisite behaviour. This variable encapsulates the factors which determine an individual’s persistence and effort in performing the actions necessary for the behaviour. Actual control is only a recent addition to the model (2010) but is an essential component when investigating behaviours that are complex or require the individual to overcome performance obstacles. Actual control has been defined as “the relevant skills and abilities as well as barriers to, or facilitators of, performance” (Fishbein & Ajzen, 2010, p. 21).

Further to perceived behavioural control, intention has two other antecedents: attitudes and norms. Attitudes have been shown widely in the tax compliance literature as a foremost contributor to tax compliance behaviour, positive attitudes are associated with compliance and negative attitudes with evasion (Chan, et al., 2000; Eriksen & Fallan, 1996; Hofmann, et al., 2008; Kirchler, 1999; Torgler & Valev, 2010; Vogel, 1974). Norms are also shown to exert influence over the tax behaviour through personal, social and societal referents (Kirchler, 2007, pp. 58-72). Norms have also been considered a strong contributor to white collar crime (Kroneberg, Heintze, & Mehlkop, 2010). Kroneberg, Heintze and Mehlkop (2010) investigated the effects of norms on the two contrasting criminal activities: shoplifting (common crime) and tax fraud (white collar crime). Their findings revealed norms determine whether individuals even consider a criminal activity as an option. In circumstances where strong moral norms were in place, individuals were not affected by instrumentality and rational choice factors. However, where norms were absent, individuals were not bound by what most people would regard as acceptable behaviour. Therefore, both attitudes and norms are highly relevant in the context of tax behaviour research.

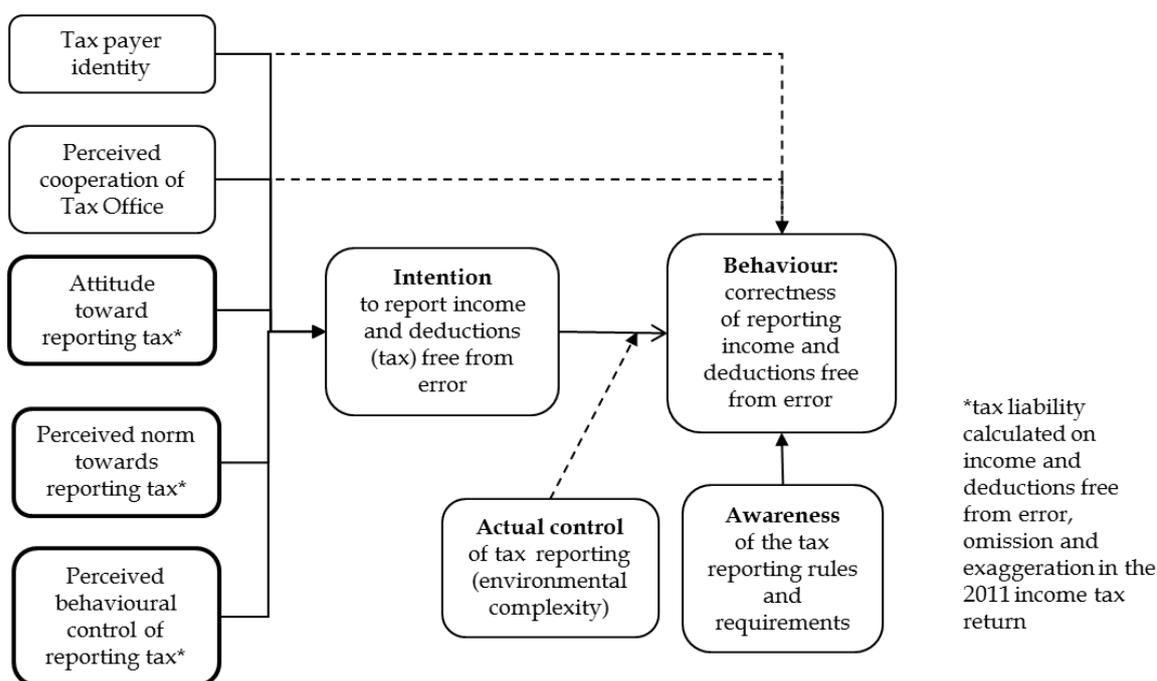
The TPB is a robust model for predicting all types of behaviour. However, weaknesses in the model relate to effective operationalisation of variables and its applicability in certain contexts. Few studies have empirically tested the full TPB model due to the misapplication of key methodological factors, such as the correct specificity of behavioural measures or the temporal instability of intentions. Further difficulty is encountered when the behaviour is complex or when it involves a third party. Therefore, to account for these factors, we considered three additional variables for inclusion in the new model: taxpayer identity, perceptions of cooperation by the Tax Office and awareness of the law.

The decision to include perceptions of cooperation by the Tax Office arises from two anomalies in the application of TPB in the tax context. Firstly, not all taxpayers have complete volitional control of their compliance behaviour. To achieve certain tax obligations the taxpayer may need to overcome various obstacles, such as complicated forms or tools that are difficult to understand. Furthermore taxpayers are often unable to self-assess and thus determine whether or not they have performed adequately or correctly. Therefore, they cannot make the necessary adjustments to their actions in order to achieve the required outcome. A lack of certainty and inadequate feedback systems are major considerations for the actual control of behaviour. The second anomaly is the reliance on a third party, for example the Tax Office, to perform the behaviour. Tax compliance requires cooperation between taxpayers and the tax administrators which is a similar situation to that of the participants in the prisoner's dilemma – an experiment in game theory in which two people might not cooperate even if it is in both their best interests to do so. Ajzen and Fishbein (2005, p. 95) evaluated the TPB when used in the prisoner's dilemma and discovered that perceptions of cooperation had a strong influence on participants' intention to cooperate with other players. In summary, the additional variable of perceptions of cooperation by the Tax Office was included in our compliance model to assess its effect on the taxpayer's intention to comply.

The second new variable, Taxpayer identity is consistent with the concept of self-identity as a factor in symbolic interactionism (Tice & Wallace, 2005, p. 92). The identity is formed and continues to evolve as a response to feedback. In the case of tax compliance, the feedback is provided by the Tax Office or its representatives interacting with the taxpayer. The quality of this interaction may contribute to the changing position the taxpayer may adopt in regards to the tax authority. While similar to the concept of a motivational posture (Braithwaite, 2003), taxpayer identity is not a projection of the taxpayer's position in regards to the authority. Instead it is the relative assessment taxpayers make of themselves as good taxpaying citizens. Research in fields unrelated to tax compliance has shown that the application of the TPB has been greatly enhanced by including self-identity as an independent variable (Hagger & Chatzisarantis, 2006; Sparks & Guthrie, 1998; Sparks & Shepherd, 1992; Terry, Hogg, & White, 1999; Tittle, Welch, & Grasmick, 2008). Self-identity is a strong predictor of behaviour, particularly when the decision making framework involves self-categorisation due to socialisation (Rise, et al., 2010). Rise et al. (2010) mount a strong argument for the inclusion of self-identity in the TPB as the additional variable accounts for 6-9% of variance in the model when other variables are controlled. Due to the moral nature of tax compliance decision making the incorporation of a concept of self to the decision making process has great predictive potential.

The complexity of the tax system itself is shown to have a great effect on the outcome of compliance behaviour. Which is why the third variable awareness has been included in the model. In most cases, the average person does not know whether they have been compliant (Ashby & Webley, 2008) and further to this, complexity reduces the likelihood of compliance due to uncertainty in behavioural outcomes (Alm, et al., 2010; Long & Swingen, 1991; McKerchar, 2002). Other researchers such as Lawsky (2009, p. 1023) and Alm, Jackson and McKee (1992) reveal how areas of the tax law which appear certain, may be overturned or re-interpreted in court as auditors interpretation of the law is inconsistent and indeterminate. The current version of the Tax Act (Income Tax Assessment Act, 1936 ) alone has 468 sections and over 8055 pages. The Master Tax Guide, which provides guidance on the application of the law, for the same year (2007), is 2333 pages. The 1936 Income Tax Assessment Act must be read in context with the 1997 act (Income Tax Assessment Act 1997). The sheer volume of the tax legislation makes apparent the difficulty the average taxpayer has in understanding and applying the law to his or her own circumstances. The lack of certainty around the application of the law not only creates ambiguity but is also misleading. The inclusion of the variable awareness is required to assess the taxpayer's understanding of the law and whether it has been correctly applied. Therefore, it will reveal whether the outcome of the behaviour matches the taxpayer's intention.

As the new model pertains specifically to any behaviour that requires compliance, as opposed to being one deliberately planned or reasoned by an individual, it is termed the Compliance Behaviour Model (CBM). Figure 1 depicts the CBM and shows the relationship between the original variables and the new variables used for the prediction of tax compliance behaviour.



**Figure 1 - The Compliance Behaviour Model applied to correctly reporting income and deductions**

Our hypotheses relating to the CBM are shown in Table 1.

**Table 1 - Research hypotheses**

No	hypothesis
1	The <i>Intention</i> of taxpayers to comply will predict <i>compliance behaviour</i>
2	<i>Attitude</i> towards correctly reporting and maintaining tax records will effect <i>intention to comply</i> with tax obligations
3	<i>Norms</i> in relation to correctly reporting and maintaining tax records will effect <i>intention to comply</i> with tax obligations
4	<i>Perceived control</i> of correctly reporting income tax will effect <i>intention to comply</i> with tax obligations
5	<i>Perception of the Tax Office's willingness to cooperate</i> will effect taxpayer's <i>intention to comply</i> with tax obligations
6	<i>Perception of the Tax Office's willingness to cooperate</i> will effect taxpayer's <i>compliance behaviour</i>
7	<i>Tax payer identity</i> will effect <i>intention to comply</i> with tax obligations
8	<i>Taxpayer identity</i> will effect <i>compliance behaviour</i>

### 1.3 The current research

The research presented in this paper used several approaches to identify and resolve methodological issues which have made previous studies unreliable and inconclusive. Ajzen and Fishbein (2010, pp. 54-55) are highly critical of existing research utilising their theory and suggest inconsistent results are due to failures in one of five areas:

behavioural incompatibility; scale incompatibility and category incompatibility as well as temporal instability and accuracy. Ajzen and Fishbein's (2010) recommended procedures were followed with particular attention to these issues.

The behaviour to be applied to the model must have a target, action context and time and is defined for the purpose of our study as: Reporting income and deductions without errors and omissions in the 2011 income tax return was. All attitude, normative and control factors were measured at the same level of specificity.

The research was conducted in two parts: (i) a pilot study to construct the measures for the variables in the model based on salient beliefs; and (ii) a main study to provide data to test the related hypotheses and evaluate the model. Both studies used online anonymous survey instruments to provide confidence to participants that their responses would be anonymous.

A significant challenge for research into compliance behaviour is developing an appropriate measure for tax compliance behaviour. It is impossible to measure and compare actual tax compliance behaviour against self-reported behaviour due to ethical and privacy constraints. Regardless, studies that have attempted this have shown unpredictable results due to taxpayers' inability to correctly assess the success of their attempts at compliance (Hessing, et al., 1988). Additionally, many researchers are sceptical of self-reported behaviour due to the likelihood for self-presentation, a person's need for social desirability as well as other common methods bias. The subject matter explored by our research is potentially sensitive for many taxpayers and therefore risk of reporting bias is real. A number of measures have been taken to reduce, moderate, or interpret the effect any bias has had on the results.

To overcome the difficulty of measuring actual compliance behaviour, hypothetical scenarios were used as proxy measures. Measuring behaviour at the time of the survey also eliminates the impact of temporal stability on the behaviour measure. Hypothetical scenarios provide participants with detailed real life situations where they are required to respond to how they might behave given a set of circumstances. These scenarios are known as vignettes and they contain brief but precise descriptions of what are considered to be the most important factors in decision making (Alexander & Becker, 1978). Vignettes are used in psychology and also as a valid method for collecting and communicating data in sociological qualitative research (Finch, 1987; Greenhalgh, Chowdhury, & Wood, 2006; King, Murray, Salomon, & Tandon, 2003). Scenarios of varying complexity were developed around situations where reporting income and deductions could be either manipulated or might cause confusion when completing the task. Only situations common to most businesses and that were also regarded as risk areas by the Tax Office (2011) were used.

The primary criticism of hypothetical scenarios relates to the discrepancy of information available to an individual when completing a questionnaire as compared to the actual behaviour in the 'heat of the moment' (Fishbein & Ajzen, 2010, p. 62). To minimise the chance of hypothetical bias, scenarios were created utilising real world decision making and problems. The scenarios included system obstacles and legal complexity that forced taxpayers to make decisions that test the boundaries of

hypothetical thinking. By placing an individual in a realistic setting and providing the safety of anonymous self-reporting it was anticipated that business owners would admit to selecting one of the likely options.

The methods used to evaluate the model and the related hypotheses will now be described in detail, results from the procedures will follow with a discussion of the conclusions and the implications for tax authorities.

## 2. METHOD

### 2.1 Participants and sampling procedure

A total of 6015 business owners or controlling minds<sup>6</sup> of small and medium enterprises were invited by postal mail to participate in the online survey. To construct the final sample a data extraction was conducted on the Tax Office client data store in July 2011. This file contained the postal mail contact details (name of contact, role, postal address) of 5000 business entities in the \$2 - \$250 million Total Business Income (TBI) range from all geographical locations located within Australia with only 1-4 registered directors. Only businesses with active ABNs and TFNs were selected. The extraction was administered using a random selection algorithm. The initial contact list was screened to remove duplicate entries that contained the same contact and business name. A further data cleanse was conducted to remove all businesses that were listed with tax agents as their primary contact. The remaining data contained 6015 contact names for 5000 small and medium enterprises.

### 2.2 Materials and procedure

#### 2.2.1 Pilot study

Members of the Small Business Advisory Group (SBAG)<sup>7</sup> were invited to participate in the pilot survey to identify the salient beliefs of the target population in relation to the behaviour of interest. In addition, the pilot study was used to test the scenarios as a means to measure compliance behaviour. Scenarios were used as a proxy for environmental conditions or complexity and therefore these variables were not specifically measured in this study.

To enhance the reliability of the salient belief measures gathered from the survey, additional data was gathered and compared from interviews with businesses (conducted previously) and a literature review. A final list of salient beliefs and norms compiled from the analysis was used to develop measures of the constructs in the CBM. The measures were incorporated into the main survey instrument. The final survey instrument was tested for usability and readability with five participants of the extracted target population.

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<sup>6</sup> The controlling mind is an individual who has a controlling interest in the business entity and who directs the finances of the business.

<sup>7</sup> A community consultation group created and administered by the Australian Taxation Office.

### 2.2.2 Main study

The online survey was conducted over a six week period between 26 August and 10 October 2011. The survey instrument contained three parts: hypothetical scenarios; measurement of the TPB variables; and control measures. Backward movement through screens was disabled on the online survey instrument to prevent participants from reviewing and modifying answers based on subsequent questions.

Several controls were included in the main study relating to previously determined items which influence compliance, such as age (Wenzel, 2002), level of education (Carroll, 1992) and gender (Cullis, Jones, & Lewis, 2006; Wenzel, 2005). Additional controls for business size, structure and the position of the participant in the organisation hierarchy were included. Finally three controls for the type and amount of previous contact the participants had with the Tax Office were included: no contact, phone contact (more than once in last 12 months) and audit (in the last 12 months).

## 3. MEASURES

The following variables were considered in the study to evaluate the compliance behaviour model: attitude, subjective norms, perceived behavioural control, taxpayer identity, perceived cooperation by the Tax Office, intention, behaviour and awareness.

**Attitude** was measured with 13 items relating to salient beliefs about income tax reporting. There are no existing measures of this variable in the tax context, and so they were created *de novo* from formative research, including interviews conducted with business owners selected randomly from the sample population as well as a detailed literature review. The items based on the salient beliefs were: Being free from worry about business tax position; having a clear conscience; Removing the fear of a tax audit; Accurately understanding my business finances; Contributing to the community welfare; Paying exactly the right amount of tax; Being in control of business finances; Having a financial advantage over my competitors; Utilising loopholes or grey areas of the law; My competitors will have a financial advantage over me; Paying as little tax as possible; Using the tax system to gain a financial advantage; Having a high degree of self-respect. Participants were asked to rate these as bad(1) - good(7) or unimportant(1) - important(7) on a seven point semantic differential scale. The final behavioural attitude measure was constructed using the expectancy value equation which in the summed product of the attitude measure multiplied by the outcome strength (Fishbein & Ajzen, 2010, p. 97). The constructed variable was compared with a direct measure of attitudes to validate the scale. The outcome scale of "bad: good" had a higher correlation with the direct attitude measure ( $r=.624$ ,  $p<0.01$ ) in comparison to that using the important: unimportant scale ( $r=.600$ ,  $p<0.01$ ) and thus was used in this study.

**Subjective norms** were constructed using measures for both injunctive and descriptive norms. Injunctive norms are defined as the perceived pressure from important others to perform an action or behaviour, whereas descriptive norms are perceptions that the people who want the behaviour performed are performing the behaviour themselves (Fishbein & Ajzen, 2010, p. 131). Both must be included the research to provide a comprehensive measure of the subjective norm. Normative referents used in the study

were: spouse; close friends; siblings; parents; tax agent or book keeper; accountant; and competitors.

A direct measure for the injunctive norms was constructed through the addition of two norm items. The measures for injunctive norms were calculated in a similar manner to those for attitudes. Normative belief and motivation to comply were multiplied to create normative injunctive pairs. Each normative pair was correlated with the direct measure for injunctive norms. A similar procedure was followed for the descriptive normative pairs. The two factors were then summed to provide a single measure of a second order norm construct. This combined measure produced a correlation of .326 ( $p < 0.01$ ) with the direct measure.

**Perceived behavioural control** was calculated by summing the scores from each of the four direct PCB items. This final direct measure was correlated against each of the six PCB control/belief pairs: No threat of detection or audit; Fear of being punished for something you feel you have no control over; Ambiguous law or rulings; Perception of unfairness of the law; Traceable transactions; Ongoing change of tax law and tax system. Two of these (ambiguous law or rulings and traceable transactions) were significantly correlated with the direct measure. The products of these two items were summed to give the total salient belief PBC measure, which had a correlation of  $r = .304$  ( $p < 0.01$ ) with the direct measure of PBC.

**Taxpayer identity** was measured in two parts. First, nine characteristics that would describe an ideal taxpayer were assessed on a seven-point Likert scale. These characteristics were: honesty; generosity; consideration; organisation; community mindedness; cleverness; meticulousness and hard-working and respondents were asked to score these according to agreement with the statements: strongly disagree(1) and strongly agree(7). A factor analysis was conducted using a principle-axis extraction with direct oblimin rotation. Three eigenvalues were obtained when using Kaiser's criterion of 1 which explained 76.7% of the variation. The first factor was associated with personal characteristics, such as generosity, consideration, and cleverness. The second factor was related to honesty and honour. The final factor was related to instrumentality, in other words being meticulous and well organised. Participants were asked to rate identification with being an "ideal" taxpayer. This item was multiplied against the ideal taxpayer measure to give an overall score of identification with the taxpayer identity. Three resulting variables were created: Taxpayer ID characteristics, Taxpayer ID honesty and Taxpayer ID instrumentality and all variables were used in the model testing.

**The perception of Tax Office cooperation** was measured using a 16 item scale. The only item scored with a positive associate was the Tax Office was respectful of me as a taxpayer ( $\bar{X} = 4.28$ ). All items were factor analysed using a principle axis extraction with oblimin rotation as the items were not independent. The results showed the items loaded on two primary factors. A reliability analysis of the scale was conducted, showing an alpha value of .940 for the first factor and .914 for the second. The perception of cooperation by the Tax Office belief measures were correlated against a single item direct measure of "in my interactions with the Tax Office in the 2011 financial year I believe they have willingly tried to cooperate with me" (disagree(1):

agree(7) - seven point Likert scale). The analysis produced a significant correlation ( $p < 0.01$ ) of  $r = .584$  and  $r = .773$ . The items from each of the factors were summed and then averaged to create two variables of perception of cooperation by the Tax Office. The first variable relates to customer service, perceptions of trust, acknowledgement and fairness and was called Tax Office - customer service. The second factor related to the ease of use and accessibility of tools and procedural justice, therefore this second factor was called Tax Office - access to services. Both of these variables were used in the model testing.

**Intention** was constructed as a direct measure only and incorporated the elements of willingness, expectation, intention and trying (Fishbein & Ajzen, 2010, p. 43). All items have inter-item correlations over 0.7, ( $p < 0.01$ ) and the combined scale revealed a high level of internal consistency  $\alpha = .934$ .

**Behaviour** was constructed as a dichotomous measure of correctness (right or wrong) of compliance choices. The measure was obtained through the use of scenarios. The participant was required to select the option that most closely represents how they would respond if presented with the situation in real life.

Scenario 1 incorporated a real world difficulty encountered by many businesses when keeping good records: collecting and recording receipts of fuel spent and distances travelled by multiple employees. The scenario also introduced a contingent obstacle for compliance: which was that the employees had not kept accurate records. Participants had to decide whether or not to claim kilometres travelled based on estimates, without any evidence to support the claims. In this example a total of 400km could be claimed without receipts. The scenario had additional parameters: not all staff had travelled 400km, but all travelled over 100km and less than 800km. Participants had to decide whether to over compensate and declare nothing, or to be non-compliant by declaring an offset without evidence.

The second part to the hypothetical situation outlined in Scenario 1 was bypassed for participants who had decided to claim nothing: their responses were automatically coded 2 (correct). The remaining participants were provided with Scenario 2 which required them to respond to a question on how they would declare the kilometres if they encountered a system limitation, that is the interface of the tool prevented the correct declaration. The system in the hypothetical scenario only allowed a maximum of 400 to be entered for each employee. Participants had to choose between two options: (i) accepting the limitation and declaring 400km per employee spreading all of the kilometres across all of the employees so that it would total the amount travelled, or (ii) claiming the maximum amount for each employee regardless of kilometres travelled.

The third scenario contained no external obstacles to compliance, complexity was minimised and there were no system restrictions to influence the compliance behaviour of the participant. Participants had to make a simple decision of whether or not they would choose to enter into an exchange of goods for services arrangement without declaring this to the Tax Office if cash-flow became a problem.

**Awareness** - Participants were scored for awareness (i.e. knowledge of the rules) on each scenario and how the knowledge was utilised in the hypothetical situation. Scenario 1 and 2 incorporated four (true/false) awareness items: It is legal to declare nothing in your tax return in regards to kilometres; If you are going to declare kilometres as a tax deduction you are limited to a maximum of 800Km per person, per week; It doesn't matter if the kilometres are shared between employees, as long as they add up to the total of actual kilometres travelled; It is ok to claim 400km kilometres for each staff member without receipts; It is ok to claim 400km for each staff member even if they didn't travel those kilometres. Scenario 3 had a singular (true/false) measure namely: legally it is OK to exchanges business services without declaring them for tax purpose

#### 4. RESULTS

After three weeks, 196 responses had been received. A second letter was sent to the same sample group (excluding the 196 responders) again asking for participation. A further 124 responses were received. 70% of the respondents were 45 years old or over, 63% were male, 64% had a minimum of an undergraduate degree and 68% were Australian born. Respondents were either sole owners or in partnership (78%) and distributed across the TBI range with 73.8% in the \$2-\$50 million segment.

Of the 320 cases in the data file 86 had missing data. As mandatory field coding was used in the survey construction, the cases with missing data were due to participants leaving the online survey and not returning to complete it. These cases were eliminated from the final analysis. No further instances of missing data were identified.

A 13 point Marlowe-Crowne scale was used to identify any social desirability bias present in the responses provided by participants. Responses were relatively normally distributed (M=8, SD=2.58, skewness= -.393 kurtosis = -.258). Responses were highly clustered around the mean, with modes of 7 and 9. These results indicate that the effect of social desirability in the response set was minimal.

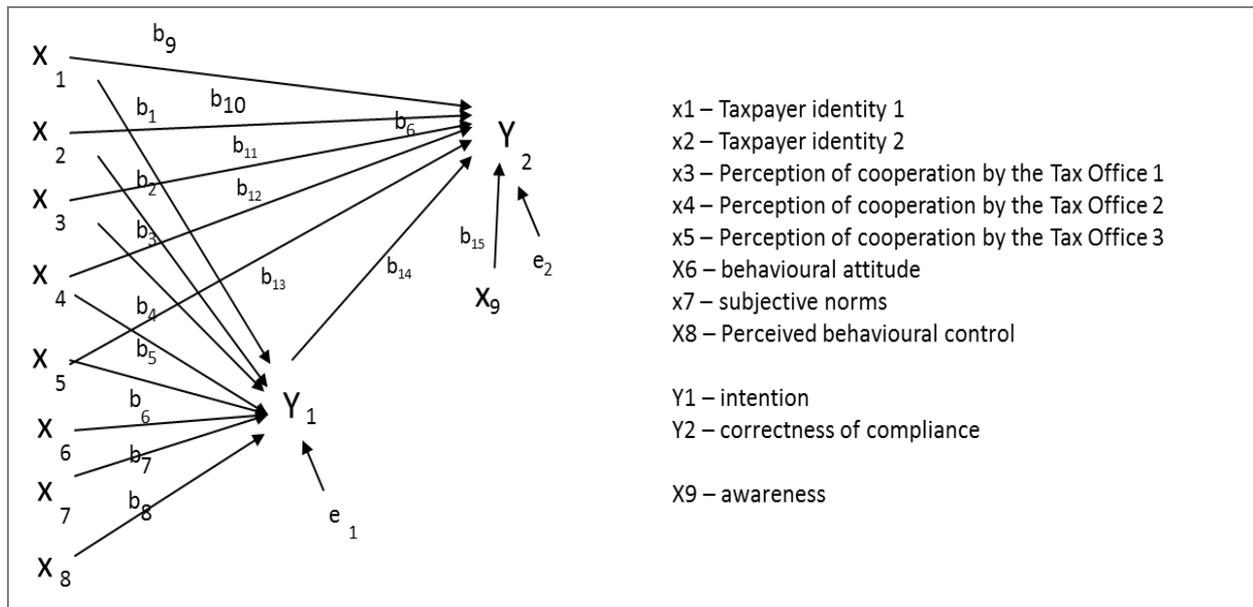
##### 4.1 Model testing

The complete Compliance Behaviour Model to be estimated is shown as a path diagram in Figure 2. The CBM specifies two endogenous variables intention (Y1) and behaviour (Y2) and nine exogenous variables: Taxpayer identity 1 (x1); Taxpayer identity 2 (x2); perception of cooperation by the Tax Office 1 (x3); perception of cooperation by the Tax Office 1 (x4); perception of cooperation by the Tax Office 1 (x5); behavioural attitude (x6); norms (x7); perceived behavioural control (x8); and awareness (x9). Theoretically the model assumes a full mediation of x6, x7, x8, and Y2 by the variable Y1. Statistical Package for the Social Sciences (SPSS) was used for all statistical analysis reported.

Two structural equations are required to estimate the model:

$$\text{Equation 1: } Y_1 = a_1 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + e_1$$

$$\text{Equation 2: } Y_2 = a_2 + b_9x_1 + b_{10}x_2 + b_{11}x_3 + b_{12}x_4 + b_{13}x_5 + b_{14}Y_1 + b_{15}x_9 + e_2$$



**Figure 2 - The path estimation of the Compliance Behaviour Model**

The following section outlines the estimation of this model from left to right in two parts: the prediction of intention based on attitude, norms, PBC, Tax Office willingness and taxpayer identity; and the prediction of behaviour (correctness) based on intention and awareness.

#### 4.2 Part 1 of CB model – prediction of intention

This section will be used to estimate the first part of the model where Y<sub>1</sub> is predicted intention:

$$Y_1 = a_1 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + e_1$$

##### 4.2.1 Linear Regression – Intention

A simultaneous multiple regression was performed on the variables as identified in the proposed theoretical model. Table 2 displays the correlations between variables and Table 3 the unstandardized regression coefficients (*B*) and intercept, the standardized regression coefficients (*β*) and the goodness-of-fit *R*<sup>2</sup>. The *R* for the regression was significantly different from zero, *F* (8, 224) = 21.512, *p* < .001, with *R*<sup>2</sup> at .434 *p* < .001. Attitudes, Norms, and taxpayer identity were all significant.

**Table 2 - Correlations between the dependent variable intention and the predictor variables in the CBM**

	DV	1	2	3	4	5	6	7
Attitude - salient beliefs	.555							
Norm – salient beliefs	.315	.277						
PBC – salient beliefs	.005	.069	.048					
Tax Office 1 – customer service	.221	.187	.143	-.010				
Tax Office 2 – access to services	.152	.134	.200	-.023	.680			
Taxpayer ID 1 – characteristics	.327	.362	.205	.082	.121	.134		
Taxpayer ID 2 – honesty	.457	.304	.254	.056	.213	.213	.727	
Taxpayer ID 3 – instrumentality	.348	.308	.223	.042	.206	.190	.794	.833

**Table 3 - Standard multiple regression of attitude, norms, PBC, Taxpayer identity and Perceptions of willingness of Tax office on intention to comply**

	$\bar{X}$	SD	B	$\beta$	t	95% CI		sig
						Lower	upper	
Intention	6.52	.71						
Attitude - salient beliefs	308.72	65.67	.005	.446	7.983	.004	.006	.000
Norm – salient beliefs	121.07	60.82	.001	.123	2.284	.000	.003	.023
PBC – salient beliefs	140.83	44.74	-.001	-.046	-.901	-.002	.001	.368
Tax Office – 1 customer service	3.61	1.17	.062	.104	1.491	-.020	-.144	.137
Tax office - 2 access to services	3.97	1.16	-.039	-.064	-.921	-.122	.044	.358
Taxpayer ID 1 - characteristics	26.51	9.44	-.006	-.081	-.930	-.019	.007	.353
Taxpayer ID 2 - honesty	33.48	10.27	.032	.466	4.980	.019	.045	.000
Taxpayer ID 3 - instrumentality	30.59	10.75	-.010	-.149	-1.415	-.023	.004	.159
Constant			4.279		18.727	3.829	4.729	.000

$R^2 = .434$  (p<0.01)

N=232

To determine the effect of the control variables on the CBM, a second sequential multiple regression was performed between *intention* to comply with tax reporting for the 2011 income tax return, the TPB variables (attitude, norms, perceived behavioural control) and the control variables. Items were loaded into the regression in the following order: controls; TPB variables; taxpayer identity; perceptions of ATO willingness; and past behaviour.

Table 4 displays the results of the unstandardized regression coefficients (B) and intercept,  $R^2$  and adjusted  $R^2$  and the change in  $R^2$ .

**Table 4 - Sequential regression on hypothesised predictors of compliance intention**

	Step 1	Step 2	Step 3	Step 4
Constant	5.701**	3.836**	3.181**	4.647**
Age	.029	.014	.031	.016
Gender	.072	-.024	.002	-.041
Education	.093	.104*	.087*	.081*
Australian born	.263*	.236*	.198*	.175*
Business turnover	-.001	.083	.064	.028
Location	.009	.002	.007	-.015
Number of directors	.003	-.008	-.004	-.015
Your position	-.004	-.049	-.054	-.045
Attitude - salient beliefs		.006**	.005**	.004**
Norm – salient beliefs		.002*	.001*	.001
PBC – salient beliefs		.000	.000	.001
Tax office 1 – customer service			.058	.051
Tax office 2 – access to services			-.020	.000
Taxpayer ID 1 - characteristics			-.046	-.011
Taxpayer ID 2 – honesty			.190**	.115*
Taxpayer ID 3 – instrumentality			-.042	-.041
Number of times in previous years return declared incorrectly				-.130**
Behaviour last year				-.274**
R	.205	.625	.673	.771
$R^2$	.042	.390	.453	.594
Adjusted $R^2$	.008	.360	.412	.560
$R^2$ Change	.042	.348**	.062**	.142**

\* $p < .05$

\*\* $P < .001$

The  $R^2$  change was significant after steps two (TPB variables), three (taxpayer identity and perceptions of Tax Office cooperation) and four (past behaviour). The variable of perceptions of Tax Office cooperation was not a significant contributor to intention. The final model with all independent variables in the model was significant at  $R^2 = .594$  ( $p < 0.01$ ). Indicating that approximately two thirds (60%) of taxpayer's intentions to comply is predicted by the variables in the model.

Several hypotheses relating to the antecedents of *intention* are addressed by these results.

**Hypothesis 2:** Taxpayers' attitude towards correct reporting will affect intention to comply with tax obligations. The null hypothesis can be **rejected** as the salient beliefs are significant at the 95% confidence interval  $t = 7.88$  (.003, .005).

**Hypothesis 3:** Taxpayers' norms in relation to correct reporting will affect intention to comply with tax obligations. The null hypothesis can be **rejected** as the direct measure of the effect of norms is significant at the 95% confidence interval  $t=5.027$  (.120, .274).

**Hypothesis 4:** Taxpayers' perceived control of correct reporting will affect intention to comply with tax obligations. The null hypothesis must be **retained** as the direct measure of PBC is not significant at the 95% confidence interval  $t=1.092$  (-.001, .002).

**Hypothesis 5:** Taxpayer's perception of the Tax Office's willingness to cooperate will affect intention to comply with tax obligations. The null hypothesis must be **retained** as neither factor is significant at the 95% confidence interval  $t=-.200$  (-.103, .084) and  $t=1.245$  (-.035, .154).

**Hypothesis 7:** Taxpayers' awareness of the rules and how they apply will affect compliance behaviour. The null hypothesis can be **rejected** as one of the two factors are significant at the 95% confidence interval: factor 2 instrumental identification  $t=-2.643$  (-.037, -.005).

#### 4.3 Part 2 of CB model – prediction of behavior

This section describes the estimation of the second part of the proposed model equation where  $Y_2$  is the predicted probability of correct behaviour (compliance):

$$Y_2 = a_2 + b_9x_1 + b_{10}x_2 + b_{11}x_3 + b_{12}x_4 + b_{13}x_5 + b_{14}Y_1 + b_{15}X_9 + e_2$$

Environmental complexity is captured through the use of different scenario situations (Scenarios 1-3). Consequently, the measured intention variable will be regressed separately on the correctness measure in each scenario. The effect of knowledge or awareness will also be assessed separately to determine its role in the performance of behaviour.

Logistic regression was used for each of the analysis of the second part of the model as the dependent variables are dichotomous and assumptions of normality are violated. However, logistic regression is sensitive to issues of multicollinearity, ratio of cases to predictor variables, and also expected power may be influenced by size of frequencies (Tabachnick & Fidell, 2007). Logistic regression also assumes linearity of the predictor variables with the dependent variable (Tabachnick & Fidell, 2007). Therefore, each of these aspects was considered for each regression.

##### 4.3.1 Scenario 1

A simultaneous logistic regression was performed on the correctness variable for Scenario 1, loading only intention. According to the Wald criterion (Tabachnick & Fidell, 2007), intention is significant and predictive of correctness:  $\chi^2(1, N=233) = 11.21, p < 0.05, R^2 = .066$ . Consequently 69.5% of the model is classified correctly with intention.

A sequential logistic regression was performed on the correctness variable for Scenario 1, loading both the predictors of intention and awareness. The model was significant  $\chi^2$  (2, N=233) = 9.871,  $p < 0.05$ . The Perception of cooperation by the Tax Office variables were then entered and the model was significant  $\chi^2$  (4, N=233) = 10.236,  $p < 0.05$ . Finally, the Tax payer identity variables were entered and the model was not significant  $\chi^2$  (7, N=233) = 12.16,  $p = 0.095$ . The model goodness-of-fit Nagelkerke  $R^2 = .074$ . The proportion of cases correctly classified was 73.4%.

Table 5 shows the regression coefficients, Wald statistics, and odds ratios and their 95% confidence intervals for each of the predictors. According to the Wald criterion intention is significant and predictive of correctness: ( $\chi^2$  (1, N=233) = 5.801,  $p < 0.05$ ). Awareness is also significant ( $\chi^2$  (1, N=233) = 4.098,  $p < 0.05$ ). The Perceptions of cooperation by the Tax Office and Taxpayer identity variables were not significant.

**Table 5 - Logistic regression of correctness (scenario 1) of behaviour as a function of intention, awareness, perceptions of cooperation by the Tax Office and taxpayer identity**

Variables in the Equation	B	S.E.	Wald	df	Sig.	Odds ratios	95% C.I. for odds ratios	
							Lower	Upper
Intention - direct	.756	.314	5.801	1	.016	2.129	1.151	3.938
Awareness	-.774	.382	4.098	1	.043	.461	.218	.976
Tax Office 1 – customer service	.135	.184	.542	1	.462	1.145	.798	1.642
Tax Office 2 – access to services	-.070	.181	.150	1	.699	.932	.654	1.329
Taxpayer identity 1 - characteristics	.009	.027	.118	1	.731	1.009	.957	1.065
Taxpayer identity 2 – honesty	-.005	.028	.030	1	.863	.995	.943	1.051
Taxpayer identity 3 - instrumentality	-.023	.029	.639	1	.424	.977	.922	1.035
Constant	-5.422	1.961	7.642	1	.006	.004		

#### 4.3.2 Scenario 2

A sequential logistic regression was performed on the correctness variable for Scenario 2, loading the predictors of intention and awareness followed in steps with the predictors Perception of cooperation by the Tax Office and finally Taxpayer Identity. The initial model with the predictors of awareness and intention for Scenario 2 was tested and found to be significant  $\chi^2$  (2, N=233) = 13.23,  $p < 0.05$ . Nagelkerke  $R^2 = .08$ . Classification showed 74.2% of cases were correctly classified from the model. The final model, with all predictor variables included, was significant  $\chi^2$  (7, N=233) = 15.97,  $p < 0.05$  with 73.8% of cases classified correctly.

Table 6 shows the regression coefficients, Wald statistics, odds ratios and the 95% confidence intervals for odds ratios for each of the predictors. Both Intention  $\chi^2$  (1, N=233) = 4.782,  $p < 0.05$  and awareness  $\chi^2$  (1, N=233) 5.215,  $p < 0.05$  were significant. The model had a goodness-of-fit  $R^2 = .096$ .

**Table 6. Logistic regression of correctness (Scenario 2) of behaviour as a function of intention and awareness.**

Variables in the Equation	B	S.E.	Wald	df	Sig.	Odds ratios	95% C.I. for odds ratios	
							Lower	Upper
Intention - direct	.515	.236	4.782	1	.029	1.674	1.055	2.657
Awareness	-.902	.395	5.215	1	.022	.406	.187	.880
Tax Office 1 – customer service	.154	.179	.736	1	.391	1.166	.821	1.656
Tax Office 2 – access to services	-.150	.180	.692	1	.405	.861	.605	1.225
Taxpayer identity 1 - characteristics	-.019	.028	.481	1	.488	.981	.929	1.036
Taxpayer identity 2 - honesty	-.015	.028	.281	1	.596	.985	.932	1.041
Taxpayer identity 3 - instrumentality	.037	.030	1.559	1	.212	1.038	.979	1.101
Constant	-1.725	1.404	1.509	1	.219	.178		

#### 4.3.3 Scenario 3

A sequential logistic regression was performed on the correctness variable for Scenario 3, loading the two predictors of intention and awareness followed in steps with the predictors Perception of cooperation by the Tax Office and finally Taxpayer Identity. The initial model with the predictors of awareness and intention for Scenario 3 were tested and found to be significant  $\chi^2$  (2, N=233) = 29.036,  $p < 0.01$  with a goodness-of-fit Nagelkerke  $R^2 = .164$ . 74.2 % of cases were correctly classified from the model. The final model with all predictor variables included was significant  $\chi^2$  (7, N=233) = 40.63,  $p < 0.01$  with 75.1% of cases classified correctly.

Table 7 shows the regression coefficients, Wald statistics, odds ratios and the 95% confidence intervals for each of the predictors. According to the Wald criterion, both Intention  $\chi^2$  (1, N=233) = 4.127,  $p < 0.05$  and awareness  $\chi^2$  (1, N=233) 16.285,  $p < 0.01$  were significant. Additionally, the Perception of cooperation by the Tax Office variable 1 (customer service)  $\chi^2$  (1, N=233) = 5.057,  $p < 0.05$  was also significant. None of the taxpayer identity variables were significant.

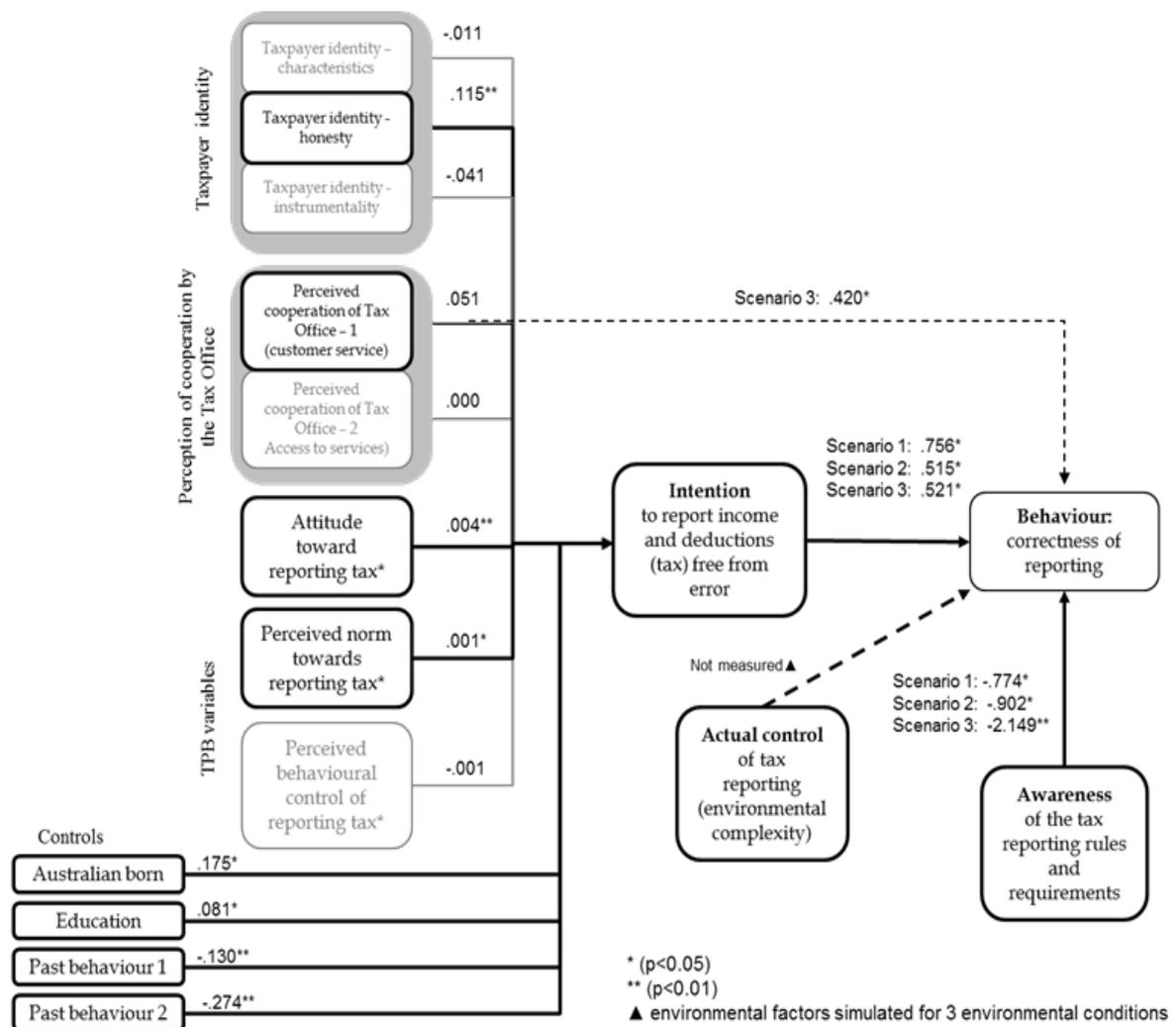
**Table 7 - Logistic regression of correctness (Scenario 3) of behaviour.**

Variables in the Equation	B	S.E.	Wald	df	Sig.	Odds ratios	95% C.I. for odds ratios	
							Lower	Upper
Intention - direct	.521	.257	4.127	1	.042	1.685	1.019	2.786
Awareness	-2.149	.533	16.285	1	.000	.117	.041	.331
Tax Office 1 – customer service	.420	.187	5.057	1	.025	1.522	1.055	2.195
Tax Office 2 – access to services	-.140	.182	.589	1	.443	.869	.608	1.243
Taxpayer identity 1 - characteristics	.048	.028	2.877	1	.090	1.049	.993	1.110
Taxpayer identity 2 - honesty	-.029	.029	.953	1	.329	.972	.917	1.029
Taxpayer identity 3 - instrumentality	.011	.030	.132	1	.716	1.011	.953	1.072
Constant	-3.966	1.572	6.365	1	.012	.019		

Intention and awareness were significant in all three scenarios. The null **hypothesis No 1** which posits that intention has no differential effect on compliance behaviour can be **rejected**.

Perception of the Tax Office's willingness to cooperate was significant in Scenario 3 where there were no obstacles to behaviour; therefore the null **hypothesis 6** can be **rejected**.

The variable Taxpayer identity was not significant in any of the three scenarios therefore the null **hypothesis 8** that Taxpayer identity will have no effect on the compliance behaviour must be **retained**.



**Figure 3 - The Compliance Behaviour Model showing the tested and significant paths**

#### 4.4 Discriminant analysis

Initially, discriminant analyses were conducted to differentiate the variables which could correctly predict correct or incorrect behaviour in the three scenarios. All predictor variables were loaded to distinguish correctness.

In Scenario 1 the results showed intention and business turnover had the highest loadings. The structure matrix showed intention (.714), and business turnover (.692), had loadings in excess of .400. Table 8 shows the results of the direct discriminant analysis for Scenario 1. Those surveyed who were most likely to choose the correct behaviour option in Scenario 1, had higher intention scores (mean=6.7 SD=.48) a lower awareness scores (mean=.18 SD=.38) and higher business turnover (mean=2.3 SD=.86). This scenario had the greatest complexity and therefore the results show business owners or decision makers of businesses over \$10 million (TBI) may be

more inclined to select the correct option even if they are less aware of the legality of their choices and also a higher intention to make the right decision.

**Table 8 - Discriminant analysis for scenario 1, Dependent variable correctness**

Scenario 1	Mean	SD	Wilk's lambda	F	Df1	Df2	Sig
Intention direct			.978	5.076	1	231	.025
Business turnover			.979	4.912	1	231	.028
Awareness			.985	3.418	1	231	.066
<b>Model</b>			.934	<b>Chi square</b> 14.194	3		.002
No of functions = 1	eigenvalue .071		74.5% of original grouped cases correctly classified				

The discriminant analysis for Scenario 2 (Table 9) revealed that nine items provided significant discrimination. The second scenario had minor system obstacles, forcing participants to choose between over-compliance and non-compliance. Results show participants who chose the correct option (in this case over-compliance) had a higher intention ( $\bar{X}$ =6.6 SD=.66), higher scores on the attitude salient beliefs ( $\bar{X}$ =317.65 SD=64.47), higher scores on the normative beliefs ( $\bar{X}$ =162.35 SD=59.98), were from businesses with turnover over \$10M, and 2 or more directors, and were more aware (mean=.311 SD=.46).

**Table 9 - Discriminant analysis for scenario 2, Dependent variable correctness (behaviour)**

Scenario 2	Wilks' lambda	F	Df1	Df2	Sig	
Intention direct	.966	8.130	1	231	.005	
Attitude – salient beliefs	.950	12.190	1	231	.001	
Norms – salient beliefs	.980	4.816	1	231	.029	
Business turnover	.967	7.937	1	231	.005	
No of directors	.972	6.685	1	231	.010	
Your position (in the business)	.982	4.135	1	231	.043	
Awareness	.977	5.540	1	231	.019	
Past behaviour 1	.932	16.851	1	231	.000	
Past behaviour 2	.977	5.374	1	231	.021	
<b>Model</b>	.804	<b>Chi square</b> 48.239	20		.000	
No of functions = 1	eigenvalue .244	78.1% of original grouped cases correctly classified				

The greatest predictors identified by the discriminant analysis for Scenario 3 (Table 10) were: norms; attitudes towards the behaviour; taxpayer identity; intention; and perception of the willing cooperation of the Tax Office. Several controls were also identified including: Number of directors, position in the business, and past behaviour.

**Table 10 - Discriminant analysis for Scenario 3**

	Wilks' Lambda	F	df1	df2	Sig.
Intention – direct	.950	12.119	1	231	.001
Attitudes – salient	.949	12.382	1	231	.001
Norms – salient	.949	12.386	1	231	.001
Tax office 1 – customer service	.954	11.108	1	231	.001
Tax office 2 – access to services	.981	4.555	1	231	.034
Tax identity 3 – instrumentality	.969	7.415	1	231	.007
Tax identity 2 - honesty	.972	6.757	1	231	.010
Tax identity 1 – characteristics	.965	8.467	1	231	.004
Number of directors	.982	4.167	1	231	.042
Position	.982	4.344	1	231	.038
Awareness	.913	22.110	1	231	.000
Past behaviour 1	.919	20.274	1	231	.000
<b>Model</b>	<b>.727</b>	<b>Chi square</b> 70.464	20	.000	.000

No of functions = 1 eigenvalue .376 76.8% of original grouped cases correctly classified

## 5. DISCUSSION

Ajzen and Fishbein claim by using the Theory of Planned Behaviour any behaviour can be predicted by intention (Ajzen & Fishbein, 1980, p. 4). They qualify this statement by excluding behaviours outside the control of individuals. Tax systems in countries such as Australia, rely on the willing participation of taxpayers for high levels of compliance. This presupposes that taxpayers who are motivated will also have control over their ability to comply. Significant strategy development is founded on the premise that encouraging taxpayers to comply will increase levels of voluntary compliance. However, our research demonstrates two clear discrepancies in these presumptions: i) taxpayers do not have sufficient control over their behaviour to ensure successful completion of all tax tasks; and ii) high levels of intention to comply does not equate to compliance.

The Compliance Behaviour Model (incorporating attitudes, norms, perceived behavioural control, taxpayer identity and perceptions of cooperation) does predict the correctness of a taxpayer's compliance behaviour. However, the mediating variable intention to comply is not always a strong predictor of behaviour. Actual control moderates the intention-behaviour relationship. As intention is crucial in any system reliant on self-assessment its absence results in non-compliance. However, even when strong intention is present compliance does not necessarily follow. Complexity and obstacles to performance prevent even the most willing from complying.

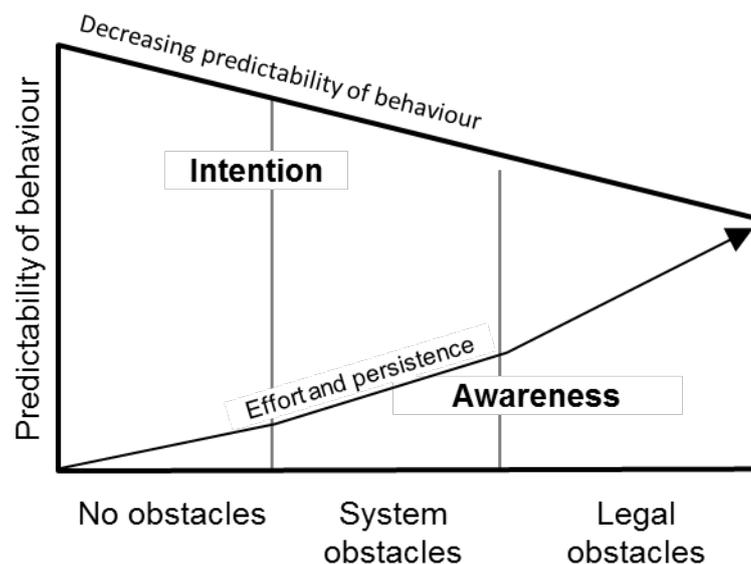
In the three scenarios provided to participants, the only one that held no potential obstacles to the performance of the behaviour was Scenario 3: intention as well as awareness or knowledge of the law was predictive of the compliance behaviour. However, for both Scenario 1, which contained minor legal complexity, and Scenario 2, which included system obstructions, the model was predictive but with low goodness-of-fit ( $R^2 < 0.1$ ). Some other factors were strongly predictive of behaviour when obstructions were absent, including perception of how cooperative the Tax Office had been in the previous 12 months.

The results show that intention on its own is not enough to overcome non-compliance at all levels of complexity. Most participants have a high degree of intention (mean=6.5 on a seven point scale,  $SD=.706$ ) although as complexity increased, intention decreased as a predictor of correctness. This pattern was shown for those participants who had low intention scores but who were accidentally compliant. The lack of predictability or 'randomness of correct compliance' increased as the system became more complex. Awareness (i.e. knowledge of the rules and how they apply) had a greater influence on the outcome when both the process and the system were understood. However awareness is only one aspect of the actual control of a taxpayer's behaviour. Knowledge of the law serves to counteract the obstacle of legal complexity. Further research is required to understand how the other elements of actual control influence an individual's ability to achieve his or her behavioural outcome. Issues such as system certainty, orientation in the process and feedback on task completion must be investigated and quantified to fully comprehend their individual and combined effects on compliance behaviour. The usability of the system, understanding of the law and straight-forward processes will further contribute to taxpayer control of behaviour. A recently published article (Ajzen, 2011) corroborates this part of our findings, stating that lack of actual control does reduce the predictive validity of intentions.

The results reported here are consistent with those of McKerchar (2002) who demonstrated that increased complexity, increases compliance costs as well as non-compliant behaviour. However, the results of our research go much further and enhance our understanding of the effects of environmental factors on compliance behaviour. System obstructions cause many taxpayers to over-comply. When taxpayers do not understand the parameters of the task that they are performing, they elect to pay more than what is required, rather than risk being non-compliant. Overpayment disadvantages such taxpayers and is considered a form of non-compliance because they are not paying the correct amount of tax for their circumstances.

The effect of system complexity is also evident when measuring the independent variable perceived behavioural control. The direct measure of perceived behavioural control was significant but the salient beliefs used in the final model estimation were not significant. These results may arise from the difficulty some participants had in conceptualising the factors that reduce or contribute to their control of tax reporting. Thus, the salient beliefs identified through the pilot study with regards to PBC are not the ones that actually effect control.

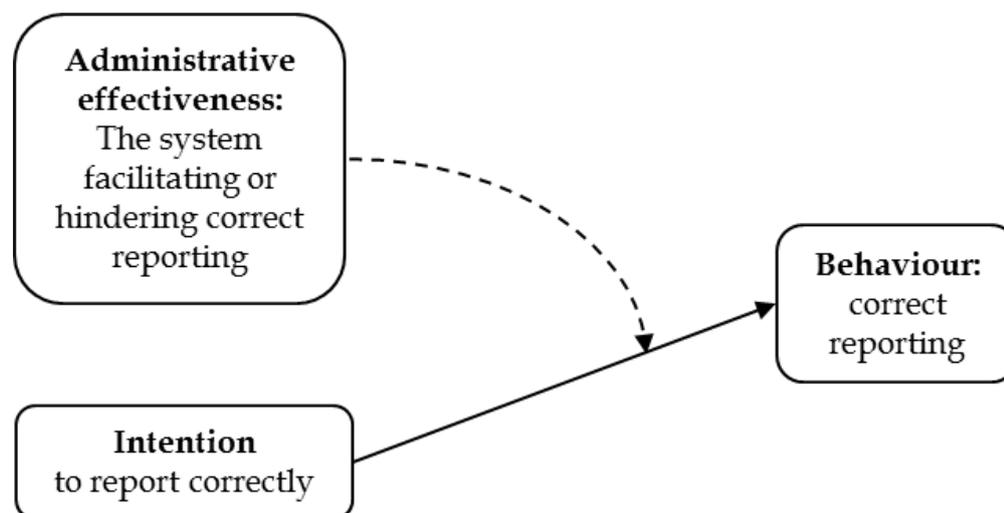
Figure 4 illustrates that the difficulty of predicting compliance increases when a taxpayer does not have complete volitional control of his or her behaviour. At the lower left of the diagram, where there are no obstacles to performance, intention and awareness are predictive of the correctness of the compliance behaviour. Additional factors such as taxpayer identity and perceptions of cooperation also contribute to the final behaviour. When there are system obstructions, the accuracy of predicting behaviour from intention is reduced, but predictive accuracy is aided by increased awareness of the law. The taxpayer must apply effort and persistence to overcome the environmental factors which limit the performance of the behaviour. Legal complexities and jargon create further difficulty and, where this is present, awareness is a better predictor of compliance than intention. This finding is related to the resources available for the taxpayer to overcome the obstacles to compliance. The predictive validity of intention and awareness is also significantly related to the amount of disturbance created by obstacles to performance.



**Figure 4 - Proportion of intention and awareness required to predict behaviour when behaviour is affected by environmental complexity**

## 6. IMPLICATIONS FOR TAX AUTHORITIES AND FUTURE RESEARCH

Implementing changes due to findings in this research and the consequent Compliance Behaviour Model will be challenging for government and tax administrators. Essentially there are two factors that can be manipulated to increase voluntary compliance: intention to comply and effectiveness of the tax administration. Intention to comply only influences actual compliance behaviour where there is a clear distinction between correct and incorrect compliance options. Furthermore, intention has a far less an impact on behaviour where the system<sup>8</sup> obstructs taxpayer's control of behaviour. This paper has focussed on only two aspects of control: environmental complexity and awareness of the tax rules. However successful taxpayer compliance is reliant on the individual's ability to perform the requisite behaviour. Taxpayer "ability" is determined by a number of factors: tax system support and guidance, error prevention, legal knowledge, usability and accessibility of tools, clear terminology, adequate resourcing and sufficient capacity. Obstacles to these factors affect ability to comply. Thus, actual control in this context is the administrative effectiveness of the tax system. Figure 5 depicts the relationship between compliance behaviour and the two primary predictors: intention and administrative effectiveness.

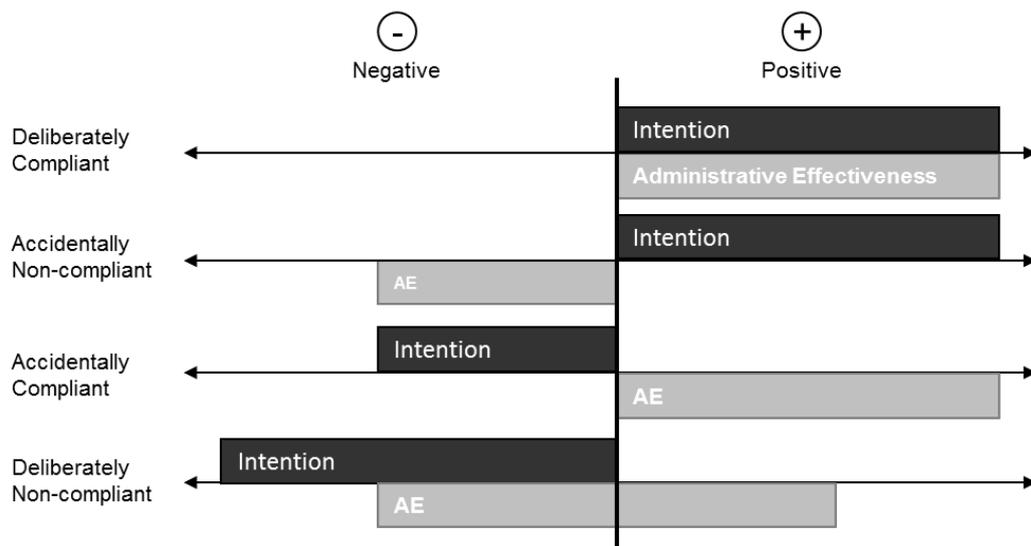


**Figure 5 - The two primary predictors of compliance behaviour, intention and administrative effectiveness**

One or both of the two primary factors (intention and administrative effectiveness) must be leveraged to improve voluntary compliance. Figure 6 depicts the four types of compliance behaviour (deliberately compliant, accidentally non-compliant, accidentally compliant and deliberately non-compliant) and the contribution that intention and/or administrative effectiveness provides to the performance of the behaviour. Deliberately compliant taxpayers have both the ability to overcome any obstacles as well as a strong positive intention to comply. This propensity should be recognised, facilitated and supported by the tax system. Taxpayers who are accidentally non-compliant may have a high intention, but not have the ability to

<sup>8</sup> The tax 'system' is defined here as any law, person, system, process, product or tool that a taxpayer must interact with to meet their obligations.

comply. This accidental non-compliance (and the negative outcomes) could be prevented by a responsive and supportive system. Taxpayers who are accidentally compliant are those who intend to evade but the system prevents mistakes either forcing compliance or increasing the difficulty in non-compliance. These taxpayers need to be exposed to interventions that affect both intention as well as ability to comply. Finally, taxpayers who are deliberately non-compliant are those who may well have the ability to comply but have an intention to evade. Interventions must be targeted at changing their intention and well as preventing non-compliance.



**Figure 6 - four types of compliance behaviours showing how differing levels of intention as well as administrative effectiveness contribute to the outcome of compliance behaviour**

Where obstacles to performance reduce the impact of intentions on behaviour, interventions targeted at increasing taxpayer’s willing participation are likely to be inefficient and worthless. Under such circumstances, the intention of the taxpayers is less important than the role of the tax administration in improving compliance. Education and marketing campaigns are of limited value if the system is too difficult or the law is so complex that only the most highly qualified and motivated can understand and apply the interpretation to their circumstances. Therefore, where the situation has either a level of legal complexity, or has potential system obstacles, only those who have the means and resources to understand the rules and apply them are the ones who also have the ability to comply.

The administrative effectiveness necessitates both a perception of control as well as actual control to perform the desired behaviour. Where there is a perception of control but no actual control, individuals may persist with attempts to perform the behaviour yet are unlikely to be successful. Where an individual can control the behaviour but is unaware that they have the control, they may not even attempt to perform the behaviour. Therefore, a successful performance outcome requires the ability to perform the behaviour: both a perception as well as a level of actual control. Enabling and supporting these abilities will aid in achieving compliance.

The concern about increasing the taxpayers' actual control (or in this case administrative effectiveness) is that it may enhance or even encourage their ability to be non-compliant. Our results show that this is not the case. Facilitating actual control of the desired behaviour enhances correct performance but also minimises mistakes or unforced errors.

It may be argued that system complexity and obstructions to performance aid administrators in reducing tax evasion, but our research suggests otherwise. We have shown that the confusion created by complexity, not only reduces control of behaviour but also the ability of the Tax Office to predict and thus support those who are attempting to comply. In other words, complexity obscures the effective detection of those who intentionally evade. When obstructions are minimised, administrators have a clear view of the beliefs or intentions that guide and influence taxpayer decision making and, therefore, would be able to affect and change behaviour in a productive manner. This is superior to saturating the entire population with information in the (misplaced) belief that some important messages will filter through to those who need them the most, individual issues can be targeted and addressed in a systematic fashion. Additionally, risk assessment and audit can then also be utilised more effectively.

Further research needs to be conducted to understand what is considered manageable complexity for the majority of taxpayers. The hypothetical Scenario 1 incorporated minimal complexity; the problem required no direct calculations and required only a single decision about which actions to take given certain clearly defined legal parameters. An initial assumption was made that most people who manage their own business would be able to answer basic tax questions. However, 73% of participants failed to correctly interpret the legal guidelines around Scenario 1. Those who had higher scores of awareness were more likely to choose the correct compliance options. However, high levels of compliance were only correlated with high levels of awareness where there were no system obstacles.

It is to be expected that normative referents were influential in the model. Taxpayers rely heavily on book keepers, accountants and tax agents to make the correct decisions on their behalf. This reliance is predictive of compliance behaviour. Taxpayers delegate their responsibility for understanding and applying the law to those they consider better equipped to make such decisions. The increasing reliance on tax practitioners conditions taxpayers to have less awareness of legal choices, and so when faced with even simple problem solving, they are unable to comprehend and resolve basic tax issues.

The delegation of obligations to tax practitioners has a second implication for tax authorities. As system and legal complexity increases, taxpayers become less responsible and unable to interpret and apply the law to their own circumstances. Contrary to its intention, the Tax Agent Services Act 2009<sup>9</sup> with the provision of safe harbour for errant taxpayers, will most likely compound this effect. Safe Harbour

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<sup>9</sup> Information available on safe harbour provisions at <http://www.ato.gov.au/taxprofessionals/content.aspx?doc=/content/00230818.htm&pc=001/005/041/015/001&mnu=43387&mfp=001/005&st=&cy=1&alias=newregime>

introduces additional duty of care protection for taxpayers. If taxpayers are able to show they have employed a tax agent to act on their behalf and non-compliance is discovered, the responsibility for the non-compliance is diminished or even eliminated. This policy will encourage and reinforce taxpayer's reliance on tax practitioners. As a consequence awareness will decrease and may actually reduce levels of voluntary compliance.

Nonetheless, as complexity increases only those who are able to employ specialist tax advisers are able to be compliant. Business turnover is a predictor of compliance behaviour, and therefore it is those with higher income and access to resources who are more capable of compliance. The taxpayer is thus left in the predicament where in order to be compliant in a system of increasing complexity, he or she must pay tax specialists to interpret and manage tax affairs. However, reliance on others is related to low levels of awareness of the law, and also low correctness. To meet their obligations, taxpayers become vulnerable due to their inability to make good compliance decisions on their own.

The tax system becomes increasingly imbalanced with such complications. All taxpayers should have equal opportunities for compliance, but due to the increasing complexity only those who have the means and resources for compliance are able to comply. The issue is recursive, requiring intervention by the government and tax authorities to disable the downward spiral.

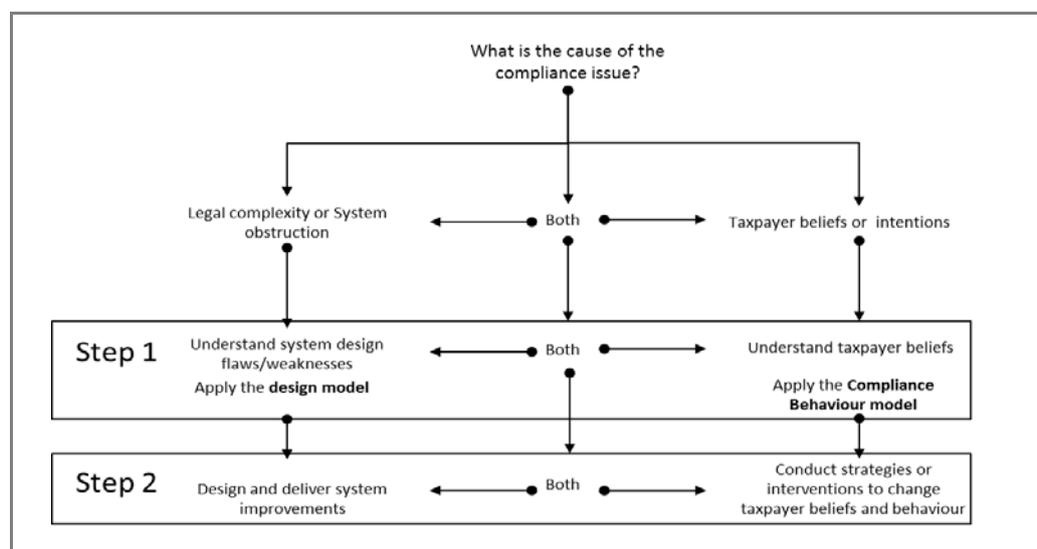
Sweeping reform of legislation and wide scale simplification of the tax system is unlikely. Several attempts at radical change have been considered or attempted including the Ralph Review, the introduction of the New Business Tax System (Simplified Tax System) Act 2001 (Tretola, 2007) and the 2010 Henry Review of Taxation – where to date (February 2012) only four recommendations out of the 138 have been implemented (Commonwealth of Australia, 2010). A serious attempt to reduce complexity and implement a root and branch reform would be heroic for most governments because it may prove political suicide. Therefore, changes in the administration of the existing tax system are the only realistic approaches to improved revenue collection and compliance. The tax authority has the responsibility to intervene and prevent increasing complexity for taxpayers to meet their obligations, through introducing simplicity into the design of tax administration. Removing the barriers for taxpayers who choose to be compliant will reward those who willingly participate in the system and correspondingly expose those who deliberately evade.

Our research shows that compliance behaviour increased if taxpayers believed that the Tax Office was being cooperative. Wahl et al. (2010) define trust as “a general opinion of individuals and social groups that the tax authorities are benevolent and work beneficially for the common good”. The way taxpayers develop trust is through perceptions of cooperation and reciprocity. Business taxpayers observed cooperation through either high levels of customer service (consideration, patience, support, openness, the assumption of innocence, respect, fair and flexible, consistency and reliability and acceptance of responsibility for mistakes) or sound access to necessary services (simple, reliable and accessible processes and tools, understanding the community's needs and what they have been told, using clear plain language, reducing the effort or resources required for compliance, or reliable good advice from the Tax

Office). Early interventions that address these areas can be used to influence beliefs about the support from the Tax Office, responsibility and trust in the system: this in turn will also affect willingness to comply.

### 7. APPLYING THE MODEL

The new Compliance Behaviour Model can be utilised to develop a methodology to apply compliance interventions and strategies for treating population level compliance issues. A greater understanding of the compliance issue can be obtained by first investigating the type and level of difficulties apparent in the performance of the compliance behaviour. Where components of the tax system are difficult to understand or legally complex, improved administrative design<sup>10</sup> can be utilised to facilitate taxpayer compliance. Where there are few environmental factors influencing the performance of behaviour, interventions that address the salient beliefs and intentions of the compliance behaviour as identified in the CBM can be targeted. Holistic compliance strategies may require both approaches. The logic behind this proposal is depicted in a decision tree model (Figure 7).



**Figure 7 - Decision tree for utilising the Compliance Behaviour Model**

Further research is required to fully elaborate, prototype, and test the CBM and eventually integrate it into the operation of an agency such as the Tax Office. Such research must also seek to further understand the factors that contribute to taxpayer control and how these can be incorporated into improved administrative design solutions.

<sup>10</sup> Design is defined here as relating to the deliberate planning analysis and implementation of solutions to problems which relate to any part of the tax system, i.e. policy, law or administration.

We recommend an uncomplicated approach to improving voluntary compliance: remedy obstructions to compliance; and influence taxpayer beliefs and intentions to comply. Obstructions may include: uncertain tax positions, confusing or ambiguous tools and systems, lack of feedback on completion of tax filing and lengthy and circuitous tax administrative processes. Taxpayers must also believe that their contributions are used wisely and that they are receiving worthwhile services for their payments. Interventions that focus on these elements will be more successful in building trust with the community and enabling larger segments of the population to be responsible for their own tax obligations.

A similar conclusion has been drawn by Holmes (2011) who has made the case for the IRS handling of Large Businesses<sup>11</sup> with increasing automation of systems to short circuit non-compliance – or what she has called “forced cooperation”. The approach to compliance is based on a trial of the Compliance Assurance Program (CAP), which is similar to Australia’s Forward Compliance Agreement approach with Large Business. This is a system that targets uncertainty, enabling taxpayers to sign-off on the business compliance without further costly audits. It is also a cooperative approach that builds trust between the taxpayer and the tax authority.

## 8. FURTHER RESEARCH

Whilst presenting the need for the development of a new paradigm for taxpayer compliance behaviour, our investigations identify a number of additional research objectives. Our examination of taxpayer self-identity confirms that a complex relationship exists between tax officers and taxpayers. This relationship, and the impact that it has on compliance behaviour, warrants further investigation. Private sector organisations have recognised the impact that employee attitudes have on organisation profitability and customer satisfaction (Homburg, Wieseke, & Hoyer, 2009; Yee, Yeung, & Cheng, 2008). Similarly, the attitudes of public service employees will impact levels of compliance.

This paper recommends the integration and operationalisation of the CBM to develop compliance interventions. Further research must be conducted as to how best to apply the techniques and carry out pilot studies to assess the effectiveness of interventions to change and enhance compliance behaviour.

Further research is also necessary to define and understand what is considered to be ‘too complex’ for a taxpayer. Evaluation of different levels of taxation and administrative system complexity can be used to develop interventions that can assist taxpayers in meeting their obligations.

Although some research has been conducted into the role of tax agents in compliance, further investigations are needed to evaluate the impact of increasing taxpayer reliance on accounting and taxation advice and any negative impacts that the delegation of responsibility has for tax compliance. We have established a connection between the strongest normative influences of tax behaviour, i.e. tax agents and an increasing

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<sup>11</sup> Businesses over \$250 TBI

inability for taxpayers to make correct compliance decisions. Understanding this relationship and how to empower taxpayers, whilst still providing support, will aid in increasing voluntary compliance.

## 9. CONCLUSION

There are no simple solutions to facilitating and removing obstructions to compliance. Design improvements come at a high cost and involve people, time and resources and are considered risky to large organisations, such as the Tax Office. The recommendations contained in this paper are made in a climate of reduced budgets and the need for greater efficiencies. Agencies such as the Tax Office are not immune to budget reductions and will be required to shed staff whilst increasing revenue collection. Therefore, the recommended design changes are timely but will need vision and courage to implement.

The Tax Office must remain cognisant of the cost to taxpayers when required to contribute voluntarily and comply with their obligations, as this price is often high and may not provide the outcome sought by the government. It is in the authority's best interests to heed the obligation that it has to maintain legitimacy in the system, through judicious procedures, fairness and mutual trust. The Tax Office must continue to ensure taxpayers are given a fair chance to comply, to equalise the legal complexity, remove obstacles to compliance and to make all able and willing Australians responsible for what is ultimately their tax system.

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## APPENDIX A

The first hypothetical scenario used in the pilot questionnaire.

### Table 11 - Hypothetical scenario used in the main study questionnaire

Last year your business was audited and you now have a debt with the Tax Office of \$10000 due to interest made on shares that the business owned but had not been included by the accountant and the bookkeeper. This hurt both you and the business as you had to pay the debt just before Christmas. This meant you were unable to pay yourself a hard earned bonus you had made during the year.

It is nearly time to lodge your BAS for this quarter and you are calculating your expenses and tax payable. This year you may be eligible for a tax deduction on the fuel and mileage for your employees. However, the 10 staff this rule applies to have not kept the required records. You know they have travelled at least 100km each, but no more than 800km per employee, per week. You also know that you aren't required to keep records for anything less than 500km per week.

Q3.3 Do you:

Declare nothing – it's too hard with no records and it is too much to worry about if you need to justify it. (2)

Declare 500km per employee – this is worth about \$305 each as a deduction. You feel that you can justify this if you need to. It's a realistic amount in your mind. (1)

Declare 700km per employee (roughly \$700 in deductions) Claim a little more than you could justify – but not enough that it should stand out and bring attention to you. (1)

Other – please describe (4) \_\_\_\_\_

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Part B

Please state what you think are the LEGAL requirements in regards to the following:

It is legal to declare nothing in your tax return in regards to kilometres

True (1)

False (3)

If you are going to declare kilometres as a tax deduction you are limited to a maximum of 800Km per person, per week

True (3)

False (1)

It doesn't matter if the kilometres are shared between employees, as long as they add up to the total of actual kilometres travelled.

True (3)

False (1)

It is ok to claim 400km kilometres for each staff member without receipts

True (1)

False (3)

It is ok to claim 400km for each staff member even if they didn't travel those kilometres

True (3)

False (1)