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Abstract:	

A Comparison of Short Form Marlowe-Crowne and 'Best Friends' Social Desirability Bias Measures

Abstract

Purpose - The purpose of this study is to compare two different types of measure of Social Desirability Bias (SDB), a short form of the Marlowe-Crowne measure, a popular direct measure, and an example of a projective technique where half of the respondents record the views of their 'best friends'.

Design/Methodology Approach - Data were collected using an online survey of members of a consumer panel**.** The context chosen to test the SDB measures was that of attitudes towards counterfeit products and xenocentrism in Colombia. Counterfeit proneness, attitude towards counterfeit products and consumer xenocentrism were selected as variables likely to be affected by SDB. Vertical and horizontal collectivism were included as variables likely to influence the first group of variables while not being themselves subject to SDB.

Findings - The projective technique consistently identified higher levels of SDB effects, as hypothesized. Marked differences emerged on the apparent strength of the relationships between the operational constructs depending upon which measure of SDB was used. At times whether any such relationship might exist depended on the SDB measure used. Contrary to some prior work, no systematic gender effects were identified using either approach.

Originality/value - The first study to provide evidence of the comparative effects of different types of measures of SDB in research into ethical issues. One of few to demonstrate how apparent relationships between variables can be created by SDB.

Keywords - Social Desirability Bias, Marlowe–Crowne Social Desirability Measure, Best Friends Measure, Consumer Xenocentrism, Counterfeit Products.

Paper Type Original Article

A Comparison of Short Form Marlowe-Crowne and 'Best Friends' Social Desirability Bias Measures

1. Introduction

Social desirability bias (SDB) refers to a respondent's tendency in a survey to admit to and exaggerate socially desirable traits and behaviours and to understate socially undesirable ones (Krumpal, 2013; Tan *et al*., 2021). Consequently, research findings tend to underreport socially undesirable behaviour and overreport socially desirable behaviour. SDB can vary between individuals (due to, for example, personality differences) and within an individual's responses depending upon how sensitive a particular topic might appear to them. Much prior work has focused on the potential for the misestimation of issues, including drug-taking or alcohol abuse, where respondents may underreport such behaviour not only to appear more positive in the eyes of the recipient of their data but also in their own eyes (Krumpal, 2013). However, when Tan *et al*. (2021) evaluated the role of SDB in ethics research between 2000 and 2019, they found that only a small proportion of studies had considered SDB. While this represents an improvement on what had been found in an earlier review of similar literature between 1961 and 1989 (Randall and Gibson, 1990), much research into ethical issues appears to ignore SDB effects. This is a problem as, for example, in 46 of the 80 articles evaluated by Tan *et al*. (2021), SDB correlated with one or more other variables being considered.

The potential effects of not accounting for SDB in survey research are illustrated by Dalton and Ortegren (2011). They considered whether the gender differences in much prior research on ethical decision-making have emerged because women are more ethical or because female

respondents are more (or less) prone to SDB than are male respondents. Their work showed that when a measure of SDB was included in their own research, the gender effects found in prior work were not often confirmed. Similarly, Larson and Bradshaw's (2017) review of the literature on SDB in studies of cultural competence (defined as the attitudes and skills professionals need to work effectively with diverse populations) identified relationships between the two and between SDB and other variables, including gender. When variables are both subject to SDB, any apparent relationship between them may be influenced by SDB (Larson, 2019), but this is rarely tested. The problem of most general concern to researchers is likely to be when both the independent and dependent variables in a hypothesized relationship are prone to SDB (Kwak *et al*., 2021; Kwan *et al*., 2010).

Concern over the effects of SDB and how to counter them are not confined to research in the field of ethics. The review of Cerri *et al*. (2019) into prior research between 1990 and 2017 on sustainable food consumption showed a growing tendency to consider SDB but one which remains at a low level even in more recently published work. Of the 388 papers they analyzed where self-response questionnaires had been used, only 87 had considered SDB, and only two had controlled for its effects.

2. Direct and Projective Methods of Assessing SDB

There are several approaches to dealing with SDB (Ried *et al*., 2022). Randomized response methodologies (e.g., De Jong *et al.,* 2010) allow the respondent to protect themselves against revealing, for example, criminal behaviour by making such an admission deniable. Devices such

as a polygraph can detect false responses (Poltavski *et al.,* 2018). Potential SDB effects can be reduced by assuring respondents of confidentiality or anonymity, by adopting a research design or questioning type which reduces the tendency for SDB, or by controlling for SDB by including a measure of SDB in the survey and using it in any inferential analysis (Randall and Fernandes, 1991). This paper concerns the last-mentioned approach and the choice of SDB measure.

There are two main types of SDB measure. Direct measures of SDB include that of the Marlowe–Crowne Social Desirability Scale (MCSDS) and its derivatives. Shortened versions of the MCSDS were by far the most frequently found in the prior work within ethics reviewed by Tan *et al*. (2021). The approach involves asking respondents direct questions unrelated to the research topic to identify any propensity to diverge from normative responses. For example, a respondent might be asked to agree or disagree with a series of statements such as: 'I'm always willing to admit it when I make a mistake'. Such measures rely upon the assumptions that few are genuinely willing to do so, and that those claiming to do so are more susceptible to SDB. Projective approaches are less commonly used. They involve asking respondents not about their own behaviour but about that of others (Krumpal, 2013). One example is the approach of Yeatman and Trinitapoli (2011) where half of respondents to a survey are asked to respond on their own behalf, while the rest are asked to respond as they believe their best friends would respond. Comparing the two responses provides a measure of the effect of SDB on survey data. Projective techniques (Fisher, 1993; Jones *et al*., 2015; Krumpal, 2013; Yeatman and Trinitapoli, 2011) rely upon the assumption that what respondents say when asked to consider what others/another believe will reflect more closely their own views than when asked directly. The

gap between the views claimed as their own and that of the other provides a measure of the SDB in the former data.

While the existence and effects of SDB have been well documented in several reviews (Durmaz *et al*., 2020; Randall and Gibson, 1990; Tan *et al.,* 2021) as have the contexts where researchers might expect SDB effects (Dursun *et al*., 2019), few have considered any differences in findings associated with the use of different SDB measures within the same context (Kwak *et al*., 2021; Lambert *et al.,* 2016). Kwak *et al*. (2021) compared the two sub-scales of the balanced inventory of desirable responding (BIDR) measure of SDB (Hart *et al*., 2015) labelled self-deceptive enhancement (honest but overly positive responding) and impression management (bias toward pleasing others) when investigating the personal use of the internet by employees during work time. They found the latter measure to be the more useful. Lambert *et al*. (2016) compared the same measure of impression management from Hart *et al*. (2015) but with the MCSDS (Crowne and Marlowe, 1960). They found the latter consistently outperformed the BIDR measure in identifying those respondents who had been asked to fake their responses to a survey. However, all three measures of SDB considered by Kwak *et al*. (2021) and Lambert *et al.* (2016) are of the same (direct) type.

The aims of this paper include identifying whether the two different types of approach (direct and projective) to measuring SDB can provide similar or complementary insights into SDB and its effects. How the estimation of ethically related variables can be influenced by SDB will be illustrated, as will how relationships between variables subject to SDB can be caused by SDB.

The potential for combining SDB measures within the same research remains under-explored and is also evaluated here.

The structure of the paper is as follows. First theory and prior work are used to propose four hypotheses. These are tested on data from an online survey among a representative sample of members of the public in Colombia, chosen as it is a country where counterfeit goods are marketed openly (Zamora *et al*., 2021), the first ethical issue chosen to illustrate SDB effects. Colombia is also a developing country and thus potentially prone to xenocentrism (Rojas-Méndez and Chapa, 2020) the second variable potentially liable to SDB.

3. Hypotheses

3.1 Projective and Direct Approaches

Projective techniques involve asking respondents to project their opinions and beliefs onto other people. The respondent's real feelings are then inferred from what is said about others. Projective techniques can also assist a respondent when discussing sensitive issues. In summary, there can be benefits to the researcher in using a projective technique by uncovering meaning that might otherwise be hidden (Bond *et al*., 2011; Hussey and Duncombe, 1999). Using projective techniques when researching sensitive issues can also reduce SDB by allowing the respondent to answer, but not as themselves (Fisher, 1993). Approaches can include providing respondents with a scenario rather than asking about their own behaviours (Jones *et al*., 2015) or asking respondents to say what their 'best friends' might do or say (Yeatman and Trinitapoli, 2011). In each case, estimates of actual behaviour are higher and can be more

credible than those obtained from direct questioning (Fisher, 1993; Jones *et al*., 2015; Yeatman and Trinitapoli, 2011; Ried *et al*., 2022). Further, direct measures of SDB may themselves be subject to SDB. Comparing what the respondent says about their own behaviour and what they claim their friends do provides a measure of the extent of SDB.

Given prior work, using a projective technique when measuring SDB should provide different and superior results compared to the more traditional, direct method of questioning, hence:

H1 *Estimates of SDB and its effects will be more significant when using a projective compared to a direct measurement approach.*

3.2 Operational Constructs

The main variables used to compare the use of the two types of measure of SDB were consumer attitudes and behaviour towards counterfeit brands and consumer xenocentrism. All would be expected to be subject to SDB. In addition, measures of collectivism were included as likely predictors of attitudes towards the socially sensitive variables. Each are now discussed in turn.

3.2.1 Attitudes Towards Counterfeit Brands

Counterfeit brands are deliberate imitations of products marketed by established companies representing an estimated 3.3% of world trade (OECD, 2019). While it is not illegal in many countries to buy counterfeit goods, it is illegal under international law to sell them, as doing so infringes the originator's rights. However, consumers can believe they are infringing the law by

purchasing such goods (Mitchell *et al*., 2017). Owning a counterfeit, rather than the original brand, may also reflect negatively on the individual (Wee *et al*., 1995). Consequently, whether individuals admit to purchasing or owning counterfeits can be expected to be subject to SDB. In their review of prior work on purchasing counterfeit brands, Eisend *et al*. (2017) found that psychographic variables were more useful than demographics in explaining their purchase.

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3.2.2 Consumer Xenocentrism

Consumer xenocentrism is the consumer's preference for imported products, rejecting goods made domestically, and is based on the perception that foreign products are superior to domestic goods (Rojas-Méndez and Chapa, 2020). Prior research has suggested that many consumers in developing countries prefer foreign products to domestic ones, even when they have inferior functionality (Stier, 2010) because they satisfy their need for status. This bias is attributed to consumer xenocentrism. However, as peers could view xenocentrism as an unpatriotic attitude and behaviour (Mueller *et al*., 2016), acknowledging a preference for foreign-made goods should be subject to SDB.

In summary, attitudes towards both counterfeit brands and xenocentrism can be expected to be subject to SDB (Dursun *et al*., 2019), hence:

H2*: Attitudes towards (a) counterfeit brands and (b) xenocentrism will be influenced by SDB.*

3.2.3 Collectivism

In the analyses that follow attitudes towards counterfeit brands and xenocentrism will be predicted by a third variable, collectivism, chosen because it is not expected to be a variable subject to SDB. Collectivism is also an example of a psychographic variable which can relate to both ethical issues. Collectivism has been defined as the extent to which the ties between individuals are loose or tight (Husted and Allen, 2008). It has two aspects; horizontal collectivism is focused on interpersonal behaviours, while vertical collectivism focuses on the behaviour of the individual with respect to the group (Triandis and Gelfland, 1998). Both emphasize cooperation, vertical collectivism concerns hierarchical relationships such as those within a family group, while horizontal collectivism emphasizes the importance of cooperation among peers (Triandis and Gelfand, 1998). Collectivist cultures can appear more xenocentric (Mueller *et al*. (2016), as in such societies, importance is given to the social or symbolic significance of a product (de Mooij, 2019). The expected relationships between collectivism and both attitudes towards counterfeit brands (as these often represent prestigious foreign brands) and consumer xenocentrism provided an opportunity to test the relevance of both SDB measures.

As there is unlikely to be either shame or social credit from acknowledging values compatible with collectivism, there will be no incentive to provide a self-report that is biased, hence:

H3*: Measures of collectivism will not be subject to SDB.*

3.3 Gender Issues

Prior work has often identified gender as a significant issue relevant to ethics research (Larson and Bradshaw, 2017; Tan *et al*., 2021). Behaviour patterns can be gendered due to the expectations of perceivers, the self-systems of the respondent, and situational cues (Deaux and Major, 1987). An example of the latter would be attitudes toward dieting, where different responses to surveys on the topic can be explained by the greater number of women following a diet (Hebert *et al*.,1997). However, prior work appears to reflect the belief that women report more ethical behaviour (Dalton and Ortegren, 2011). This view has been challenged in the latter's own work, which demonstrates that gender is not as significant a variable as it appears to be if SDB is taken into consideration. However, and as the latter authors acknowledge, their empirical work was conducted with a student sample, which might have introduced its own bias (Ashraf and Merunka, 2017; Hanel and Vione, 2016). Because of the controversy around gender and SDB, it was felt appropriate to focus on this one demographic.

Adopting a similar hypothesis as in Dalton and Ortegren (2011):

H4: *SDB (a) differs between the genders, and (b) is higher among female respondents.*

4.0 Methods

The research was conducted online using the CINT online consumer panel. Participants were recruited from the members of the panel who were aged 18 years or older. A one-sentence summary of the research was provided to potential respondents. In a second stage, and to ensure informed consent, participants were given further details and asked whether they consented to participate. Only those who provided consent could continue to answer the

survey. The final sample was structured by age, gender, educational level, and geographic location by the research company to reflect the adult population of Colombia. This was achieved by monitoring responses and issuing further invitations to any under-represented groups. Each respondent received a modest compensation.

A sample of 1,056 participants was invited to participate in the study and randomly assigned to one of two versions of the same questionnaire. These differed only in the way respondents were asked to complete the main sections. In the second version, they were asked to give the opinions of their 'best friends'. In total 599 participants completed the survey, a response rate of 56.7%. Of these, 68.3% passed the attention-check questions, leaving 409 participants whose data were used in the following analyses. Of these 409, 205 had completed the self-report and 204 the best friends' report versions of the questionnaire. (Both versions contained the direct measure of SDB). Table 1 shows the demographic profile of the final sample. One-way ANOVA was used to confirm that there were no significant differences between the respondent demographics across the two versions of the survey.

- Please Take in Table 1 about here -

4.1 Research Instrument.

The questionnaire was in Spanish with measures translated from English using the back-translation approach. To prevent potentially low-quality data (Chandler *et al*., 2019), attention-check questions were included, for example, "This is a control question, please chose the

option: strongly agree." (Respondents who failed to respond correctly were dropped from the survey).

The questionnaire had six sections, and the order of all measurement items within each section was randomized. The first section contained 13 items measuring attitudes towards counterfeit products from Sharma and Chan (2011): counterfeit proneness (6 items) and attitude toward counterfeiting (7 items). The second contained measures of the two dimensions of consumer xenocentrism from Rojas-Méndez and Chapa (2020): foreign admiration (5 items) and domestic rejection (5 items). In Version 1 of the survey, respondents were asked to reply on their own behalf (self-report). In Version 2, they were asked to give the views of their 'best friends' (the approach of Yeatman and Trinitapoli, 2011). Versions 1 and 2 of the questionnaires were identical thereafter. The following section measured two dimensions of collectivism: horizontal (8 items) and vertical (8 items) from Triandis and Gelfand (1998). The next contained the 13-item direct measure of SDB, the MCSDS from Reynolds (1982). The final section gathered demographic information (gender, age, educational level). Participants rated answers in the first three sections on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree." MCSDS items were measured as true/false. Participants took an average of 12 minutes to complete the questionnaire. Measurement items are included in the Appendix.

5.0 Findings

Each measure was assessed using Cronbach alpha, average variance extracted (AVE) and composite reliability (CR), see Appendix. Alpha values ranged from 0.65 to 0.90, AVE from 0.470 to 0.709 and CR from 0.780 to 0.924. Alpha values above 0.6, AVE values above 0.5 or above 0.4 if CR is high and CR values above 0.6 indicate adequate consistency and reliability (Hair et al., 2007; Fornell and Larcker, 1981). Table 2 reports the mean scores for each of the main variables for both survey types. It is convenient to start by considering Hypotheses 2 and 3 as both concern the variables used to test the other hypotheses. H2 proposes that the first four measures in Table 2 are all subject to SDB. This is supported, as the mean scores for each of the four variables differs significantly from one half of the survey to the other at $p<.001$. The last three variables in Table 2 should not be subject to SDB and as the mean scores do not differ and neither measure of collectivism correlates with the direct measure of SDB, H3 is supported.

-Please take in table 2 about here-

5.1 Comparing SDB Approaches

One approach to assess whether SDB is relevant to a relationship between variables is to include a measure of SDB in a regression predicting one from the other. Attitude towards counterfeit products (e.g., Buying a counterfeit product is morally wrong) correlated strongly with counterfeit proneness (e.g., Many of the branded products that I have are counterfeit products). Attitudes towards something generally predict behaviour towards it. When both measures of SDB were included in a regression to predict counterfeit proneness from the attitude towards counterfeit products (using a dummy variable to represent the best friends' data), both SDB measures were significant at $p<.05$. However, the best friends' approach

proved more significant (t= 12.62 compared with 1.98 for the direct approach) and suggested a higher level of SDB. H1 is therefore supported.

As mentioned earlier, the mean scores for the three variables derived from the group asked about what their best friends would say should be significantly different than those from the self-report group. The differences (Table 2) are often quite marked. The smallest difference was 21.3% between the measures of attitude towards counterfeit products and the largest 59% for the rejection of domestic products. H2a and H2b are both supported when using the best friends approach. Similarly, each of the four measures correlated significantly with the direct measure of SDB at $p<.001$. Both measures identified the presences of SDB. This time there was no support for H1.

A further test of a measure of SDB is whether it moderates a significant relationship between two variables, one or both of which is subject to SDB. The Hayes Process macro, Model 1, with 1000 sample bootstrapping (Hayes, 2018) was used to assess any moderation of the relationship between attitude towards counterfeit products and counterfeit proneness. No significant moderation effect was found using either measure of SDB or when they were introduced together (using Process Model 2). This implies that the relationship between the two variables is not significantly affected by SDB, only the estimation of the variables themselves. However, that was not always the case. The relationship between the two component measures of consumer xenocentrism, foreign product admiration and domestic product rejection, illustrates the point. Foreign product admiration and domestic product

rejection correlate strongly (r = .86, p< .001), the former apparently predicting the latter in a hierarchical regression with and without the presence of SDB controls. In a regression linking the two, neither SDB measure proved significant. That neither measure proved significant when tested in the traditional way used to assess SDB is surprising as both measures of xenocentrism are subject to SDB (Table 2). However, SDB, as measured using the best friends' approach, significantly moderated the relationship between foreign product admiration and domestic product rejection, when tested using the Hayes Process macro (Model 1) with 1000 sample bootstrapping. (The interaction of the dummy variable for the SDB measure and foreign admiration was significant at p<.001). The moderation effect was high in that the direct effect of foreign product admiration on domestic product rejection was no longer significant when moderation effects were considered, implying the apparent relationship is caused by SDB. In the data derived from a best friends' approach, the correlation is stronger (r = 0.53 and r = 0.68). The relationship is significant for both data sets, adding further support for H1. The analysis is strong evidence that there is an SDB bias in the relationship and, more importantly, one which explains the mathematical relationship. One correlation between the two variables subject to SDB was unaffected by SDB bias, while the other one was. However, only the projective measure of SDB detected this, supporting H1.

Both measures were then used to predict each of the four variables shown to have an SDB bias. An interaction term between the two was also tested. In three of the four cases (Table 3), both measures of SDB were significant in the regression, but in each case, the projective approach again yielded the stronger effect, again supporting H1. In no case was the interaction term

between the two measures significant, suggesting again that the two measures are independent of each other, an observation supported by an absence of any collinearity effects in the analyses. That attitude towards counterfeits is significantly predicted by one measure and not the other is worrying. One explanation is that the projected approach is the more sensitive measure, another that the measures assess different aspects of SDB. The lack of significance in the interaction terms in Table 3 supports the former view, as, while the two measures move in the same direction, they do not appear to be measuring the same thing. If they were, then collinearity effects and significant interaction effects would be expected.

- Please Take in Table 3 here –

When relationships between two variables which might be expected to be linked in predictivity were considered, the moderating effect from SDB became even more worrying as it would impact any inference of causality. Attitudes towards counterfeit goods can be expected to be predicted by foreign admiration, as most would be imitations of international brands. The two measures correlate across the database and within each part of the survey (Self Report r = -.182, p=.009; Projected r = -380, p<.001; Combined r = -.247, p<.001). The relationship is stronger in the data from the projected version of the survey. The type of questionnaire used (i.e., the best friends' approach) moderated the relationship between attitudes towards counterfeit and foreign admiration when tested as before. (The interaction between SDB and foreign admiration when predicting attitude towards counterfeit goods was significant at p<.001). But the direct measure of SDB did not moderate the same relationship in the data from either survey version, adding further support for H1. When using both measures of SDB in

a regression to predict attitudes toward counterfeit products, only the projected measure of SDB was significant (Table 4). The projected measure was also significant when used alone, whereas the direct measure was not. H1 that using a projective technique produces more significant results is again supported.

- Please Take in Table 4 about here -

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5.2 *The context-specific effects of SDB*

Evidence of the context-specific effects of SDB measures came when considering the two measures of collectivism, vertical and horizontal. They correlated significantly ($r = .447$, $p<.001$) but neither correlated with the direct measure of SDB. However, when the relationship between the assessment of socially sensitive issues and collectivism was considered, including SDB measures could have a substantial effect. As an illustration, Table 5 shows the results from a hierarchical regression to show how the relationship between collectivism and foreign brand admiration can be influenced by including measures of SDB.

- Please Take in Table 5 about here –

Controlling for SDB made horizontal collectivism more significant in the prediction of foreign brand admiration. This contrasts with the differences between the scores from the two surveys, where there was no difference in horizontal collectivism according to the projected approach (Table 2). The more important factor appears to be the effect of SDB on the dependent variable. This again differed between the measures with the t value for the best friends approach being higher, supporting H1.

5.2 Gender Issues

H4 implied that SDB is subject to gender differences and that SDB is higher among women. There were no differences between the SDB scores by gender as measured directly ($SDB_{Mean\ Men}$= 9.14 (SD=2.55); $SDB_{Mean\ Women}$ =9.29, (SD=2.46), t= .593, p=.553). Differences by gender between the scores on the four variables expected to be influenced by SDB were then tested using 2-way ANOVA, where gender and questionnaire type were used to predict each variable. Gender was significant in only one instance, when predicting domestic product rejection (see Table 6a) giving limited support to H4a. The differences in the mean scores for men were however significantly higher than those for women (Tables 6a and 6b), indicating a greater bias among men on this issue, and contrary to H4b.

- Please Take in Tables 6a & 6b about here -

As the estimated marginal means show (Table 6b), estimates of domestic product rejection for women were lower in both parts of the survey. When SDB, using the measure of MCSDS, was used as a covariate, it was significant (p<.001), but there were no substantive changes to the pattern in the rest of the data. When tested without assessing for SDB the only variable where there was a gender difference was domestic product rejection.

The mean scores of the direct measure of SDB did not differ significantly by gender between the two halves of the survey $Mean_{MEN}$= 9.14, s.d. = 2.55; $Mean_{WOMEN}$= 9.29, s.d. = 2.47, p= .55. The two measures of SDB would appear to be assessing different aspects of SDB, one suggesting that SDB is gendered and the other not. The finding illustrates that while there can

be gender-related effects related to SDB, whether they are judged to exist will depend not only upon the issues being addressed but, more worryingly, on how SDB is measured. There is though no evidence here of a systematic difference between the genders when considering SDB effects. This supports the thinking of Dalton and Ortegren (2011), who questioned the impression given in prior work that SDB was generally influenced or even explained by gender. While neither H4a nor H4b are fully supported, it should be emphasized that gender can be useful in understanding some SDB-related issues.

6.0 Discussion

This study adds to the extensive prior work which has identified a statistically significant role for SDB in estimating the effect of variables measured in a survey where respondents might be reluctant to give accurate responses because of the sensitive nature of the topic (Larson and Bradshaw, 2017; Randall and Gibson, 1990; Tan *et al*., 2021). It provides a further illustration that estimates of SDB bias can influence the prediction of dependent variables, re-empathizing the conclusions from prior work that research into ethically related variables should contain measures of SDB to control for its effects (Krumpal, 2013; Tan *et al*., 2021). Alternatively, researchers should explain why such measures are not relevant to their work. The potential for SDB bias to create apparent relationships between variables subject to such bias, which can clearly lead to incorrect conclusions being drawn, is also illustrated in this paper.

The paper adds to the far less extensive research which compares different measures of SDB (Kwak *et al*., 2021; Lambert *et al*., 2016). Lambert *et al*. (2016) found differences in the ability of

two direct measures to identify 'fakers,' those who make intentional misrepresentations in self-reports. Kwak *et al*. (2021) tested the extent of SDB in the estimation of causal relationships when it contaminates independent and/or dependent variables. As in the current work, they found differences between different methods of estimating SDB bias that depended upon the estimation approach used. This study adds to such insights by illustrating how different types of measures of SDB do not necessarily lead to the same conclusions on SDB effects. For example, in some analyses reported here, using one measure would have led to the conclusion that there is no SDB effect, while using the other would show the opposite. In additional analyses where both measures demonstrated the same result in terms of whether SDB existed, they differed in their estimation of its contribution. Further, when predicting proneness towards counterfeit products, both SDB measures were significant at $p<.001$, but there was no collinearity effect. In other words, the two measures appeared to be assessing different aspects of SDB. SDB effects are generally assessed by including a measure of SDB in any regression. Using this approach here and the less widely adopted approach of testing for moderation yielded different results and insights, but ones which often favoured the use of the projective approach. There were no circumstances where the direct measure proved the more useful.

There are different views on the relative merits of the original Marlowe-Crown (MCSDS) measure and its short-form derivatives. Loo and Loewen (2004) argue that short-form versions can have better reliability, while Tan *et al*. (2021) point the other way and criticize their use on very similar grounds. Tan *et al*. (2021) also note that while the original scale reflects two different factors (self-deception and impression management), the short forms appear to

contain just one. They suggest that researchers consider measures other than the short form MCSDS. The short-form scale used here relies on dichotomous responses (true or false) to 13 statements. There are various ways to assess the internal consistency of such binary response scales (Anselmi *et al*., 2019). Following Loo and Loewen (2004) Cronbach's alpha was chosen here. The alpha for the Reynolds (1982) short-form MCSDS was 0.67 (for both survey types), which is not very high for an established measure. A factor analysis suggested as many as three subfactors, which is quite worrying.

The projective approach tested does not involve a scale and consequently avoids any such validity issues. The projective approach of asking respondents either to answer as themselves or to answer on behalf of friends (Yeatman and Trinitapoli, 2011) yielded higher standardized beta values than those from the direct measure (Reynolds,1982), implying it is the more potent measure. The data can then be used to support prior work which has raised concern over the use of short-form MCDS measures, the most common type used in previous research on ethics (Tan *et al*., 2021). It is also easier to communicate the size and relative strength of any SDB effect using the projective approach as measures are compared, whereas using a direct measure relies on the size of any effect when the SDB measure is used for example, as a covariate.

There is a case for including more than one measure of SDB in the same survey. As prior work has suggested, SDB is multi-dimensional, and more complex measures may have greater utility (Tan *et al*., 2021). Where researchers wish merely to explore whether SDB effects might exist,

then a simple measure may suffice. But where relationships are being assessed and claimed between two ethical or socially sensitive variables, there is a strong case for using as powerful a measure of SDB as practicable or a combination. If a single measure is the preferred option, this work suggests using the projective approach.

While the ethical issues considered here are not as strongly associated with SDB as, for example, drug taking or violent crime, the data show the value of considering measures of SDB in ethics and similar research. A strong correlation was found between the two measures of xenocentrism. However, SDB totally moderated the relationship, suggesting it was a consequence of SDB effects on both measures. If the bias is high/low for one variable and is similar for the other, it can create an apparent correlation. SDB moderation also explained the apparent relationship between attitudes towards counterfeit products and the admiration of foreign-made goods. Finally, the relationship between horizontal collectivism and foreign brand admiration was enhanced when the stronger (indirect) measure of SDB was used as a control. This is compatible with some prior work (Cleveland and Balakrishnan 2019; Mueller *et al*. 2016). However, using the direct measure of SDB suggests the relationship is at least partially due to SDB.

While the finding here is that gender can be a relevant issue in ethics research, it should not be believed that there are systematic differences for all ethically related measures. H4 was not supported. As Deaux and Major (1987) infer, there are contexts where gender issues can be expected and others where they cannot. One further explanation for the differences between

the current work and that of Dalton and Ortegren (2011) is that the sample here was of the public, whereas their work used a student sample.

7.0 Conclusions and Wider Implications

The current work demonstrates the potential importance of considering SDB effects but illustrates how the main approach adopted in prior work (Tan *et al*. 2021), a short-form measure of the original MCSDS, may underestimate their size. Given the wider concerns about the validity of such measures, researchers should consider others, including the projective approach tested here. Researchers might also be attracted by the simplicity of adopting a projective approach. For some applications, such as estimating the size of an issue, they may even consider just using the 'friends' data.

There is evidence here that measuring SDB directly and by projection might assess different aspects of SDB. Further investigation is required to understand what these might be.

It is difficult to understand why research into ethical issues continues to ignore SDB effects, given the size of the effects noted here associated with variables which are not as strongly associated with ethical issues as are others. Researchers might expect journal editors and reviewers to become more sensitive to the matter. Certainly, relationships claimed between two ethically sensitive variables must be checked for SDB effects. SDB effects were identified here using the traditional approach of including the SDB measure as a control variable, but

moderation effects were also identified. Including a test of moderation may help any claim that research data are not subject to SDB.

The main limitation of the work reported here reflects the lack of work generally on the validity and reliability of projective techniques (Boddy, 2005). Many cite the, somewhat dated, work of Haire (1950) to justify the use of projective techniques. Consequently, projective techniques have received criticism which may be unwarranted. That said, 'direct' measures of SDB are not direct measures of the bias in any research responses but are more measures of the propensity of the respondent to give socially desirable responses. But such criticisms should not excuse avoiding the use of SDB measures.

Finally, the work reported here was conducted in one (developing) country and at one point in time. It uses a particular set of variables and just two measures of SDB to make its case. Work in other contexts may produce different outcomes.

Appendix

Scales

Counterfeit Proneness - Cronbach Alpha (α) = 0.900; Average Variance Extracted (AVE) = .709, Composite Reliability (CR) = .924
Buying counterfeit products makes me feel good
I feel excited when buying counterfeit products
When I buy counterfeit products, I feel that I am getting a good deal
I enjoy buying counterfeit products, regardless of the amount I save
Many of the branded products that I have are counterfeit products

The Best Friends version Respondents were asked to think, when answering, 'of a group of your best Colombian friends'. The wording of each question was changed as appropriate. For example, instead of Buying counterfeit products makes me feel good, respondents were told Buying counterfeit products makes my friends feel good.

Attitude Toward Counterfeit Products - α = 0.778; AVE = .655, CR = .883
It is quite risky to buy counterfeit products
Counterfeit products are not worth buying
Buying counterfeit products is unethical.
Buying a counterfeit product is morally wrong

Consumer Xenocentrism Foreign Admiration - α = 0.893; AVE = .707, CR = .923
I recommend foreign products to my friends and families.
I tend to prefer foreign products compared to national ones
I admire foreign products.
I like buying products of foreign origin
I value foreign products a lot.

Consumer Xenocentrism Domestic Rejection - α = .870; AVE = .663, CR = .907
I tend to reject national products
I think foreign products are superior to national products
Generally, I don't value products made in my country
Sometimes I undervalue products made in my country.
Sometimes I feel embarrassed about products made in Colombia when I compare them with similar products made in foreign countries.

Horizontal Collectivism - α = 0.764; AVE = .530, CR =849.
The well-being of my co-workers is important to me
If a co-worker gets a prize, I would feel proud
If a relative were in financial difficulty, I would help within my means
It is important to maintain harmony within my group
I feel good when I cooperate with others

Vertical Collectivism - α = 0.653; AVE = .470, CR = .780
I would sacrifice an activity that I enjoy very much if my family did not approve of it
I would do what would please my family, even if I detested that activity
Before taking a major trip, I consult with most members of my family and many friends
I usually sacrifice my self-interest for the benefit of my group

Social Desirability Bias - α = .667
Sometimes it is difficult to continue my work if I am not encouraged to do so
Sometimes I feel a grudge when I don't get my way
On some occasions, I have given up doing something because I thought my ability was not enough
There have been times when I have wanted to rebel against people in authority, even when I knew they were right.
No matter who I'm talking to, I'm always good at listening
There have been times when I have taken advantage of someone
When I make a mistake, I am always ready to admit it
Sometimes I try to get revenge instead of forgiving and forgetting.
I am always courteous, even to people who are unpleasant
It has never bothered me that people express their ideas, even if they are very different from mine.
There have been times when I have been very jealous of the good fortune of others
Sometimes people who ask me for favours annoy me
I have never intentionally said something that hurt someone else's feelings

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Table 1: Demographic profile of the samples

Demographics	Version 1 (direct)		Version 2 (indirect)		Combined Sample	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Gender						
Male	94	45.9	99	48.5	193	47.2
Female	111	54.1	105	51.5	216	52.8
Age (average)	35.54 years		35.39 years		35.47 years	
Marital status						
Single	85	41.5	80	39.2	165	40.3
Married	106	51.7	116	56.9	222	54.3
Other	14	6.8	8	3.9	22	5.4
Education						
High school or less	49	24.0	55	27.0	104	25.4
University degree	119	58.0	122	59.8	241	58.9
Postgraduate	37	18.0	27	13.2	64	15.7
Total	205	100.0	204	100.0	409	100.0

Table 2: Comparison of Mean scores between survey types

Scale	Mean Self (SD)	Mean Friends (SD)	t	p
Counterfeit Proneness	2.95(1.23)	4.22(1.36)	-9.90	<.001
Attitude Toward Counterfeit Products	4.89(1.33)	4.03(1.46)	6.28	<.001
Foreign Admiration	3.94(1.24)	5.01(1.22)	-8.74	<.001
Domestic Rejection	2.46(1.04)	3.91(1.38)	-12.05	<.001
Horizontal Collectivism	5.14(0.68)	5.11(0.59)	.458	0.65
Vertical Collectivism	4.66(0.97)	4.71(0.78)	-.535	0.59
Direct measure of SDB	9.33(2.49)	9.11(2.51)	.885	0.38

Table 3: Significance Levels for SDB measures by Dependent Variable

	Counterfeit Goods		Xenocentrism	
Measure of SDB	Counterfeit Proneness	Attitude towards Counterfeits	Domestic Rejection	Foreign Admiration
Direct	.002	.105	.043	.042
Best Friends	<.001	.027	<.001	<.001
Interaction	.456	.626	.815	.594
Interaction alone	<.001	.088	<.001	<.001

Table 4: Hierarchical regression to test the relevance of both measures of SDB when predicting Attitude towards Counterfeit Products from Foreign Product Admiration

Model		Std. Beta	t	Sig.
1	(Constant)		15.123	0.000
	Foreign Admiration	-0.247	-5.133	0.000
2	(Constant)		7.515	0.000
	Foreign Admiration	-.311	-5.93	0.000
	SDB direct	0.038	.799	0.425
	SDB best friends	0.179	3.459	0.001

Table 5: The effect of SDB on the Prediction of Foreign Brand Admiration from Collectivism.

		Std. Beta	t	Sig,
1	(Constant)		4.693	0.000
	Horizontal Collectivism	0.114	2.094	0.037
	Vertical Collectivism	0.093	1.697	0.090
2	(Constant)		2.918	0.004
	Horizontal Collectivism	0.152	3.076	0.002
	Vertical Collectivism	0.070	1.430	0.153
	SDB Direct	-0.175	-3.961	0.000
	SDB Best Friends	0.391	8.886	0.000

Table 6a: 2-Way ANOVA to predict Domestic Product Rejection (Adjusted R^2=.29)

Source	df	Mean Square	F	Sig.
Corrected Model	3	80.156	55.689	0.000
Intercept	1	4172.5	2898.9	0.000
Gender	1	19.390	13.471	0.000
Questionnaire Type	1	208.7	145.03	0.000
Gender * Questionnaire Type	1	4.571	3.176	0.075

Table 6b: Estimated Marginal Means for Domestic Product Rejection

Gender	Survey Version	Mean
Men	Self-Report	2.81
	Projected	4.03
Women	Self-Report	2.16
	Projected	3.80