Measurement Invariance Assessment in Cross-National Marketing Research: a Status Quo Analysis of Its Application

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This study analyzes the extent and nature of measurement invariance (MI) assessment techniques in cross-national marketing research (e.g., Steenkamp and Baumgartner 1998). We analyzed all cross-national empirical articles (243) published in 15 well-respected and peer reviewed marketing journals from 2000 to 2005. The results indicate a steady growth of published international marketing research and assessment of MI with 28% of the studies reviewed undertaking the procedure. However, almost 1/3 of these did follow recommended procedures given the type of analysis undertaken. This suggests that the field would benefit from enhanced awareness of MI methodology and of its challenges.

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EXTENDED ABSTRACT
The world has continued to shrink in response to the globalization process. Echoing this trend, an increasing number of studies have examined cross-national marketing topics. Although such research can provide valuable insights for both academics and practitioners, several scholars have emphasized the importance of minimizing the possibility of underlying biases in cross-national research due to collecting data in multiple countries (e.g., Van Herk, Poortinga and Verhallen 2005; Craig and Douglas 2000; Steenkamp and Baumgartner 1998; Mullen 1995).

Several scholars have argued that in order to identify and control for these underlying biases in cross-national data, researchers need to establish cross-national equivalence before hypotheses testing (Hui and Triandis 1985; Sekaran 1983; Singh 1995; Van de Vijver and Leung 1997). Responding to these calls, several statistical diagnostic approaches have been recently proposed to assess measurement invariance (MI) using multiple-group confirmatory factor analysis (CFA) (Steenkamp and Baumgartner 1998; Mullen 1995; Myer et al. 2000; Singh 1995). In particular, Steenkamp and Baumgartner (1998) offer a systematic sequence of tests to assess MI. Their suggested procedure includes an investigation of configural invariance, metric invariance, scalar invariance, factor covariance invariance, factor variance invariance, and error variance invariance. In addition to offering a comprehensive step-wise procedure to assess MI, Steenkamp and Baumgartner (1998) emphasize the need to match the level of invariance with the research purpose. Specifically, they argue that: (1) full or partial configurational invariance is sufficient if the research purpose is to explore the basic structure of the construct cross-nationally; (2) full or partial metric and scalar invariance needs to be established if the researchers intend to compare means from different countries; (3) full or partial metric invariance is needed if the researchers intend to build a nomological network of the constructs without comparing any standardized measurements; and (4) full or partial factor invariance is required in addition to metric invariance if researchers want to compare standardized measurements of association (e.g., correlation coefficient). It appears that, to date, the multi-group CFA is one of the most valuable and valid diagnostic tools for evaluating MI (Myers et al. 2000).

Given such repeated calls and descriptions of ways to conduct invariance tests, questions of how frequently and accurately these tests are being conducted in cross-national marketing research appear important to answer. Addressing these questions, the present study analyzes the use, misuse or non-use of MI of 243 cross-nationally focused papers published in 15 top marketing journals from 2000 to 2005. The results indicated a steady growth of published international marketing research and an increasing trend of assessing MI. While this trend is encouraging, only 28% of the articles reviewed were found to assess MI. Furthermore, of the articles that did assess MI, more than 25% did so insufficiently. The results revealed the slow adoption process of MI technique.

The extent of MI assessment varies depending upon different journals. The Journal of Academy of Marketing Science (JAMS) ranks as first with 100% of cross-national articles from 2000 to 2005 testing for MI. Although there were only 4 international articles from JAMS, it appears that the journal editors may have placed importance on validation of invariance in studies using cross-national data. Among the journals that emphasize international research, the International Journal of Research in Marketing (IJRM) has the highest percentage of papers (57%) that assess MI. The Journal of International Marketing (JIM) is second with 48%. The lowest percentages of MI assessment in cross-national articles tend to be those that publish relatively few international papers, including the Journal of Marketing Research (0%) and the Journal of Consumer Research (11%). However, even among those journals that do publish relatively more international studies, several have low percentages of MI assessment, such as the Journal of International Business Studies (JIBS) with only 20% use of MI assessment.

In the attempt to examine possible reasons underlying the slow adoption process, we identified two possible reasons. First, the multi-group analysis may prove daunting when data from a large number of countries have been collected (Baumgartner 2004). Multi-group CFA has sample size requirements (Bagozzi and Yi 1989; Bollen 1989; Myer et al. 2000). Hence, obtaining sufficient numbers of respondents in each country site may prove problematic, leading to poor model fit. Second, studies using single-item measures cannot be tested for MI using multi-group CFA (Mullen 1995). Supporting our prediction, we found that the likelihood of using CFA approaches varied significantly depending on the number of countries investigated. Among 21 studies that collected data in more than 10 countries, only one assessed MI using CFA. Further, our analysis identified 7 studies that used single-item measures. In these studies, MI could not and was not assessed using multiple-groups CFA.

In sum, our analysis revealed a somewhat surprising reality—the limited use of existing MI assessment techniques (multi-group CFA and others) in cross-national marketing research. Increasing confidence in cross-national marketing research will require much effort on the part of researchers, conference organizers, reviewers and editors. Yet, given the importance of such theory to effective global strategy, the extra effort required to make MI assessment standard practice will surely yield returns that far exceed the initial investment.

References


