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Missing the Forest for the Trees: A Reply

Hari Bapuji and Andre Laplume
University of Manitoba, Canada

REPLY TO ERRATUM RESPONSE

In his 'Erratum Response to Beamish and Bapuji,' Mark Fox (2010) has made two principal assertions. First, he has argued that we missed more data in our 2008 paper (Beamish & Bapuji, 2008) than we stated in the Erratum. Second, he has asserted that our classification schema separating design flaws and manufacturing flaws is flawed.

In this reply, we clarify that, as described in Bapuji and Laplume (2008), our recent analysis included more data because (i) we missed some recalls in the original analysis and (ii) we used additional search features of the Consumer Product Safety Commission (CPSC) website that did not exist at the time of our original analysis. Furthermore, we assert that our approach to classifying the reasons for recalls as manufacturing and design is valid and our conclusions are robust, although we welcome further attempts at methodological refinement.

DATA DIFFERENCES

Following a massive recall of toys by Mattel on August 14, 2007, and the subsequent uproar against imports from China, we became interested in examining the evidence related to it. Accordingly, we retrieved toy recall notices[1] from the CPSC website under the *product category* of 'toys',[2] which was one of the six broad product categories available on the CPSC website. Unfortunately, due to errors in coding and compilation of a small portion of the data examined, we missed some recalls in our original analysis (Bapuji & Beamish, 2007; Bapuji, Beamish, & Laplume, 2007; Beamish & Bapuji, 2008). Accordingly, we revised our analysis and reported it in the Erratum.

Between August 2007 and when we revisited our data in October 2008, the search facilities on the CPSC website were improved in several ways. Particularly, the search facility for *product type*[3] clearly distinguished toys from other products by

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adding prefixes (i.e., 'toy'). We had no reason to doubt, barring data coding errors, that the list of recalls retrieved earlier would not include all toy recalls. However, by searching for 30 different toy product types, we uncovered additional toy recall notices that were not earlier retrieved by searching the toy category. Accordingly, we extended our recent analysis to include the additional data. These details are described in the Methodology section of Bapuji and Laplume (2008), which Dr. Fox relied on for his analysis. In short, the figures in our recent analysis were higher than what we reported in the Erratum because we could retrieve additional toy recalls, thanks to improvements to the CPSC's website.

Despite having missed a small percentage of the data, the data used in our initial analysis were *representative* of the toy recalls issued in the USA and were of the same order of magnitude as the full population. Consequently, our results and conclusions have remained unchanged. This should not be surprising given that it is rare in social sciences research to have access to data for an entire population. Most analyses deal with samples that are representative of populations. Therefore, it is unreasonable to call into question the credibility of our research on the basis of incomplete data. The notion that data are 'incomplete' when they do not cover an entire population is inconsistent with research traditions in our field. If our field relied exclusively on studies of whole populations rather than representative samples, it would stagnate.

DESIGN VERSUS MANUFACTURING FLAWS AND THEIR ORIGIN

Dr. Fox (2010: 151) is 'sceptical of the ease with which design versus manufacturing flaws can be distinguished from the CPSC toy recall information'. We never argued that it was an easy exercise, and as we explained in our reports, in some cases it was not possible to make such classification with reasonable confidence based on the information in recall notices (Bapuji & Beamish, 2007: 4; Bapuji & Laplume, 2008: 7; Beamish & Bapuji, 2008: 202). However, in most cases it was possible to *infer* if the flaw was likely part of the original product plan (design flaw) or a deviation from the original plan (manufacturing flaw) that affected some batches. We made such inferences by examining *all* of the descriptive information available in the notices, such as number of units involved, problem descriptions, photographs and sketches, date codes affected (where available), dates on which the product was sold, and remedy offered as well as additional information from company websites linked from the CPSC recall notices.

In the absence of prior well-established measures, we initiated a first attempt in this direction and believe we have opened up the field for more research, including measurement refinement. The approach that we adopted relied on large-scale, longitudinal data to examine patterns over 20 years. Although it has all the limitations that are endemic to using archival data and inferring that which is unobservable from data, our approach is valid, peer-reviewed, and follows a long

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tradition of usage in academic research. Dr. Fox does not offer an alternative approach to classifying recalls as design or manufacturing flaws. In-depth case studies of recalls would potentially be informed by direct 'knowledge of the design process itself' (Fox, 2010: 151). Yet, even here, there are limitations such as difficulty in gaining access to sensitive information, small sample sizes, and reporting biases. It may, however, be noted that a study conducted in such a manner by the UK Government arrived at similar conclusions to our own (Sambrook Research International, 2000). Furthermore, our conclusions were validated by the admission from Mattel, who is the toy industry leader and whose original assertions about Chinese manufacturers' role played a large part in the uproar against China. Additionally, our findings were echoed by many industry insiders and subject matter experts (please see Hassenfeld, 2007; Kavilanz, 2007; Shin & Merle, 2007).

Dr. Fox also suggests that our analysis did not include where the products were designed, and thus, we should be wary of assigning blame. In support of this, he quotes from our paper (Beamish & Bapuji, 2008: 202, italics added): 'The responsibility for design problems *usually* lies with toy companies in the West that provide the designs. By contrast, the responsibility for manufacturing problems lies *mostly* with overseas toy manufacturers.' We did not intend to assign the blame, but only to raise a debate about the relative role of Chinese and Western companies in toy recalls. The key words to be noted in the quotation are 'usually' and 'mostly' as we emphasized here. As explained in Bapuji and Laplume (2008: 11), the toy value chain is not as neatly separated, but our classification is representative of the real-world phenomenon and is useful to answer the research questions for which it was used.

Despite the arguable limitations with the measure, we believe that classifying the recalls as emanating from design and manufacturing flaws is highly useful to understand the reasons for recalls and, thus, prevent their recurrence. Our continued research on this topic shows that recalls due to design flaws are higher than manufacturing flaws not only in the toy industry, but also in other consumer product industries. Furthermore, our research shows that the type of flaw (design versus manufacturing) is a significant predictor of how swiftly companies identify and issue recalls as well as the remedy offered to consumers and the reverse logistics associated with recalls (Bapuji, Dawar, Laplume, & Walker, 2008; Hora & Bapuji, 2009; Laplume & Bapuji, 2008).

CONCLUSION

Our research was conducted in the context of a widespread perception that toy recalls had increased solely due to poor manufacturing in China. However, there was no systematic evidence to support these contentions, just a series of sensational anecdotes. Meanwhile, the rhetoric swirling in the media argued for increased port surveillance, tighter regulation in China, and, most alarmingly, import restrictions.

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This perception missed the complexity of global supply chains and underplayed the role of Western companies in ensuring product safety.

By providing evidence in a *timely* and *systematic* fashion, we tried to inform the larger debate on consumer product safety. As Peng and Chen (2010) stated: 'While there is no shortage of press reports, academic studies on the Chinese toy recall mess are rare. A practitioner-oriented report by two scholars (Bapuji & Beamish, 2007) and two teaching cases by the same authors (Bapuji & Beamish, 2008a,b) are the *entire* universe of academic work that we have uncovered in our research'. As research streams develop, they usually become more rigorous. The quest for rigor is a continuous process as new ideas, data sources, measures and methods emerge from initial exploratory research. Our research has limitations, but we are glad to have played a small part in the debate on this important and relevant topic by adding some granularity, however coarse grained it may be.

When we were alerted to issues related to data, it prompted us to revisit our data and ensure its accuracy and completeness. However, continuing to focus only on the issue of inadvertent human errors and advancing highly debatable limitations misses the larger point of our research, much like missing the forest for the trees. We missed some trees and might have categorized some trees as shrubs or vice versa, but that should not be the basis to ignore the forest or to stop exploring it. Despite the initial coding errors and the inclusion of additional data, the overall patterns we reported remained unchanged, indicating the robustness of our approach and conclusions. We are glad our research initiated debate in various forums and hope others will continue the work on product recalls, understanding their broad patterns and more nuanced aspects, to help improve consumer product safety.

NOTES

[1] The data were collected and coded with the help of three research assistants employed by Dr. Bapuji. The analyses for all of the earlier papers were performed by the authors of this reply.
[2] See the following website: http://www.cpsc.gov/cpscpub/prerel/category/toy.html
[3] See http://www.cpsc.gov/cgi-bin/prod.aspx

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