

Editorial

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1 Empirical research and the assessment of data quality

This issue of LOGISTICS RESEARCH marks the start of our fourth year of publication. In 2011, the third year, about 50 full manuscripts were submitted, of which our reviewers selected 17 for publication. This is a good ratio, if the manuscript rejection rate of about 66% is taken as an indicator of the quality of those papers which successfully passed the review process. With our expectation of a continuously growing inflow of submissions, our rejection rate is likely to further rise in coming years.

But then, we think, the observation of a rising number of submissions being turned down suggests a look at another aspect of this development:

- What are the criteria that make reviewers reject certain papers?
- What recommendations should the editors pass on to authors, in order to help them increase their chances of being published?

If we succeed in identifying and communicating more effectively what it is that makes an article's content worthwhile reading—a significant addition to the body of knowledge of our field—then we help our authors and raise the overall quality of our journal as well. But it is obvious that there are no simple answers to these questions. And certainly they will not be found in journal publishers' "instructions to authors."

As the outgoing editor-in-chief of LOGISTICS RESEARCH, after a 3 years term of service, I like to offer

my personal view on *one* of those criteria for consideration. It is about the assessment of data quality in empirical research.

Empirical work constitutes the largest share of all submissions in our field of Logistics and Supply Chain Management (as well as in many other fields of science). Common practice is that judgements about empirical work are heavily influenced by the methods selected for data acquisition and processing, and how they are applied—that is, how sophisticated those methods appear to be, and with what degree of professionalism they are put to use. But we much less consider the quality of data which goes into the process in any systematic way—data quality in the sense of how well it represents the phenomena under study. Too often we forget to critically differentiate research work by the authenticity and trustworthiness of the input of materials into the process of analysis and interpretation.

Let me try to illustrate this by the example of inventory level data, which is a frequent and important item in empirical logistics research projects:

- The data being used may be "primary" and authentic, as it reports directly on observable physical levels of inventory through numbers of handling units, tonnages, SKUs, etc.
- It may be "secondary" if it translates physical volumes into abstract units of money—which is good and convenient if the financial value is the concern. But analysis and interpretations may be misled by differences in price levels, exchange rates, changing SKU-mixes, which intervene between the authentic fact (of a physical inventory level) and the appearance of the data, if concern is e.g., with space and handling needs.
- Still more distance between an original phenomenon and the data that are entering the research process may come in through projections and interpolations based on (more or less systematic) samples.

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- On the wide open scale of data quality levels—ranging from representations of directly observed, “primary” phenomena, to representations which have gone through multiple transformations, interpretations and inferences—there will be data of “tertiary” quality, as it is frequently generated from surveys (“how did your inventories levels change after introduction of the xyz-system?”). Tertiary data longer represent observable facts, but subjective perceptions of the respondents.
- And if surveys are conducted through mailings and internet interrogations—which is convenient, because it allows for large samples and highly sophisticated statistical analysis—respondents remain anonymous. The researcher will not know which assistant to the presumed addressee, at what level of insight and motivation, in what context, will have answered the survey. But “facts” gained like this are often presented and treated as if it they were “primary” and authentic. Data quality, in those cases, approaches trash level.

My (maybe somewhat overstated) argument here is that we should apply at least as much effort and sophistication in making transparent levels of input data quality, as we have been careful and sophisticated in assessing data analysis and processing methods. We should work harder at developing systematic reporting standards of primary, secondary, tertiary and trash input data qualities and rethink our appreciation of empirical research work on both the methodological *and* the input data qualities!

One article in this issue of LOGISTICS RESEARCH offers a laudable example of this idea: Obermeier in “Variable versus fixed weighted aggregate inventory to sales ratios: the effect on long term trends for Germany”

explicitly and thoroughly discusses the effects of alternative data representation methods, referring to an earlier paper (Obermeier/Donhauser “Disaggregate and aggregate inventory to sales ratios over time: the case of German corporations 1993–2005,” *Logistics Research* Vol. 1, Nr. 2 2009:95–112).

There are four more original papers in this issue covering a variety of interesting research topics: Bahinipati in “E-Markets and supply chain collaboration: A literature based review of contributions with specific reference to the semiconductor industries” provides an interesting typology of E-market varieties and their effects. Min and Kim provide a literature-based up-to-date discussion on “Green supply chain research: Where are we going?” which complements and extends earlier contributions to the subject by Bretzke (*LoRe* Vol. 1, Nr. 2, 2009 and Vol. 3, Nr. 4, 2011) and Halldórson/Kotzab/Skoett-Larsen (*LoRe* Vol. 1, Nr. 2, 2009). Two more papers explore conceptual issues which have been at the center of the understanding of our field for quite some time: Carvalho/Azevedo/Machado investigate what the “Influence on performance and competitiveness” is of alternative—that is, “agile and resilient approaches to Supply Chain Management.” Lindskog, finally, questions the often claimed role of systems theory as a foundation of Logistics: “Systems theory—myth or mainstream?”

Enjoy the reading and recommend LOGISTICS RESEARCH to your colleagues and students!



Peter Klaus, Editor-in-Chief
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