

COUNTRIES OVER- AND UNDERREPRESENTED IN CASE STUDIES

André Jakobsson

*Halmstad University, Kristian IV:s väg 3, 301 18 Halmstad, Sweden
December 20, 2016*

Keywords:

Case study

Underrepresentation

Overrepresentation

Developing countries

Developed countries

Abstract

Case studies have an important role in bringing a better understanding of different complex issues to the society. This research is investigating if there are regions or countries that are over- and underrepresented in general case studies. Through a random selection of 25 different case studies a geographical pattern of produced case studies have been identified. The results indicate that there is a clear underrepresentation of case studies in developing countries and that the majority of this research is contributed from Western Europe, USA and China.

Introduction

A case study can be defined as “an intensive study of a single unit for the purpose of understanding a larger class of (similar) units” (Gerring, 2004). As a commonly used Research method, case studies have the ability to bring us better understanding of different complex issues or support theories that have been developed through previous research (Soy, 1997). However it has been argued that developing countries are under-represented in this type of studies and that the vast majority of published research originates from the United States and Western Europe. For example Sumathipala, Siribaddana and Patel (2004) have concluded that there is an obvious under-representation of developing countries in leading general medical journals.

The purpose with this paper is to investigate if there is a geographically distorted distribution of case studies between the regions of the world. Through discussions about this subject we can create a better understanding of the issue and open up for improvements.

Hypothesis: There are specific regions in the world that are over- and underrepresented in case studies.

Methodology

In order to investigate if there are any regions and countries over- or underrepresented in case studies, this paper has been based on qualitative data collected from secondary sources in form of previous case studies and scientific articles. Through the database named Scopus, 25 different case studies have been randomly selected to be a part of this research. To gain a more accurate view of the current situation, all the chosen case studies that will be presented have been published within the last year. The main focus have been to determine the location where the collected case studies have been conducted to see if there is any evidence that supports the hypothesis given in the introduction of this paper. The data are presented in a table to create a clear overview of the results. However, the relatively low number of analyzed case studies implies a limitation to this paper and should be taken into consideration when analyzing the results.

Empirical evidence

Sumathipala, Siribaddana and Patel (2004) discuss the great issue of underrepresentation in developing countries in research literature, focusing on the inequities in global health research. They mean that more than 90% of the world's research resources is targeting to only 10% of the global health problems. Sumathipala et al. (2014) have been analyzing five different high-impact medical journals to get a better understanding on how medical research is distributed between different regions of the world in a single year. All the world's countries were divided into four regions: United Kingdom, United States of America, Other Euro-American countries with similar cultural and economic features and Rest of the World (RoW) which also includes Eastern Europe due to a lower economic level than the rest of Europe and Japan due to big differences in cultural factors compared with other developed countries. The results showed that the RoW-countries' contribution to the research published in these five leading journals was 6.5%, despite the fact that 90% of the world's population lives in these underrepresented countries.

Langer, Díaz-Olavarrieta, Berdichevsky and Villar (2004) have also been analyzing the large gaps in scientific research between developing- and industrialized countries. They mean that the absolute majority of published research in the fields of medicine and public health has been contributed from the United States and Western Europe. Furthermore they declare that there is a big lack of scientific papers where researchers from developing countries are the only authors.

List of the 25 randomly selected case studies with a summary description of the subject and origin of each study:

Case 1.

McCamley and Gilmore (2016) have made a case study of small and medium sized enterprises operating in the tourism industry, focusing on two different emerging regions in Northern Ireland. The authors explain that the selection of these particular regions is based on specific criteria and the purpose of the paper; each of them were

providing enough room for investigation and also representing a heritage-based tourist region.

Case 2.

Pes, Dessì and Angioni (2016) studies high-dimensional genomic data in their case study that was made in the university of Cagliari, Italy.

Case 3.

Xu, Song, Zhang, Liu, Chen, Shi and Wang (2016) develop a strategy for the evaluation of an analytical approach for selected pesticide residues in complex agricultural product matrices. Leek is being used as an example since the authors explain China as being one of the world's leading produce of leek. This case study is made in Nanjing, China.

Case 4.

Voltes-Dorta, Rodríguez-Déniz and Suau-Sanchez (2016) are doing a research of an airports ability to relocate departing passengers in cases of unexpected airport closures and which consequences this might lead to for the people and airlines involved. The airport that is being studied in the report is located in Palma de Mallorca, Spain. This airport suits the criteria stated by the authors. As an island airport, passengers do not have alternative kinds of transportation nearby, such as other airports or highways. This means disturbed departing passengers at the Palma de Mallorca airport is even more vulnerable to airport closures, compared to similar events at an airport located on mainland.

Case 5.

Karakatsanis, AlKhader, MacCrory, Alibasic, Omar, Aung and Woon (2016) analyze the data mining approach to monitoring the requirements of the job market. The main purpose is to study the demands of jobs in different industries existing in the same or different places on the planet. Based on this goal the authors collected job postings from several industries in the GCC countries (United Arab Emirates, Saudi Arabia, Oman, Qatar, Bahrain and Kuwait), USA and United Kingdom (England, Scotland, Wales and Ireland).

Case 6.

In a case study made by Bean, Blazquez and Nezamuddin (2016) a cost-benefit analysis approach is used to investigate the cost effectiveness of wind energy policy options. The study is focusing on financial and operational data collected from 318 different wind projects in Spain.

Case 7.

Ji, Zhang and Fang (2016) have made an economic analysis of converting of waste agricultural biomass into liquid fuel. Their case study is targeting on a biofuel plant in China. The background to this research is that although China has lot of energy resources, they will have a massive demand for alternative energy resources in the future due to the country's fast growing energy consumption. Meanwhile, China has one of the world's biggest amounts of agricultural biomass resources.

Case 8.

Gigović, Pamučar, Božanić & Ljubojević (2016) have made a case study which focus on developing a model for the identification of locations for the installation of wind farms. The application of the model is based on a case study in Vojvodina, Serbia, but the authors declare that the model as well could be useful to find great locations for wind farms in other areas with similar geographical conditions.

Case 9.

Walsh, Bashir, Garrett, Thies, Blondel and Johanning (2016) are monitoring the condition of marine renewable energy devices through underwater acoustic emissions. Their study is based on a wave energy converter in Falmouth Bay, United Kingdom.

Case 10.

Pérez-Gállego, Quevedo and José del Coz studies the use of ensembles for problems with characterizable changes in data distribution. The authors are based at the University of Oviedo, Gijón, Spain.

Case 11.

Casas Ledón, Rivas, López, and Vidal (2016) argue that there is a growing demand for sustainable wastewater treatment systems because of population growth and better living standards in many countries around the world. The case study is about a horizontal-flow constructed wetland for municipal wastewater treatment in Chile.

Case 12.

Yuan, Liu and Wei have made a case study in which they investigate the image of China in mass media and how the country's relations with the rest of the world has been presented in the World Wide Web and evolved upon time.

Case 13.

Sommer, Njå and Lussand investigates the role that police officers with command responsibilities have in terms of managing major emergencies. Through collected empirical data from one of the largest police districts in Norway, the authors have examined how police officers learn to manage e.g. terrorist attacks, which was an actual occurrence in Norway during 2011.

Case 14.

According to Karami, Ranjbar, Mohebalhojeh and Moradi a huge dust storm occurred in Tehran in 2014 that unfortunately caused serious damage to both properties and humans. In their case study they have presented a detailed analysis of this weather condition in Tehran, the capital of Iran.

Case 15.

Zheng, Ding, Cawood and Yue's case study is about a skarn system formed during continental collision. They have looked into the Xialiugou W-Mo ore field in northern China.

Case 16.

In a case-control study conducted by Dieris-Hirche, Bottel, Bielefeld, Steinbüchel, Kehyayan, Dieris and Wildt (2016) the extent of Internet addiction is being compared between one group of depressive patients and one group of healthy controls. 50

respondents were collected in Hannover, Germany to submit qualitative data for the research.

Case 17.

Wang, Zheng and Yu (2016) have been studying the improved degree of urban road traffic network. They created a new kind of measurement to characterize an urban road network and applied it to the city of Xiamen in southeastern China.

Case 18.

Venegas-González, Brancalion, Albiero Junior, Chagas, Ancholetto Junior, Chaix and Filho states that the landscape fragmentation in tropical forests and the continual degradation of disturbed forests leads to an increased frequency of light and dry hot winds, which results in a disturbance on natural regeneration. In a case study these authors have been sampling and analyzing sixteen trees of two different species in Piracicaba, located in the state of São Paulo, Brazil.

Case 19.

Warshawsky (2016) have been looking into a huge human-environmental issue – food waste. In the case study the author tries to answer the question how and with what motivation the corporate sector are developing different kinds of food waste programs as part of a broader sustainability program. The US company that have been the object for Warshawsky's research is Kroger Company, the largest supermarket chain in the United States, and the 23rd highest grossing company on the planet.

Case 20.

Duangdai and Likasiri (2016) have been investigating the use of four different models for predicting rainfall amounts and also compared these models by collecting rainfall data for 1973-2008. Northern Thailand is the region that has been analyzed because of its important role in feeding the main river systems in the country.

Case 21.

In a case study Gokasar and Gunay (2016) have been trying to analyze how transit areas of influence affect the mode choice for travelling airports. To answer this question they chose Atatürk International Airport in Istanbul, Turkey, to be a part in their investigation.

Case 22.

Du, Okazaki and Ochiai have been investigating the risk of fire accidents in wooden buildings in Chinese Dong villages. The authors states that these villages represent the cultural landscape of Chinese ethnic minority villages and have a high vulnerability to fire accidents since they are usually located in mountainous areas. They have been looking into Dali Village in Guizhou, China.

Case 23.

De Leo, Catucci, Di Mauro, Agostiano, Giotta, Trotta and Milano (2016) have been studying the effect of ultrasound on the function and structure of a membrane protein. The authors originate from different universities in Italy.

Case 24.

Pagiani, Johnson and Vittuari (2016) have produced a comparative case study in which they have been measuring the energy inputs in conventional and organic rice production systems. A total of 12 rice farms in Piemonte, Italy and Missouri, United States were selected for the research.

Case 25.

Iliou, Anagnostopoulos, Stephanakis and Anastassopoulos (2016) have been proposing a novel data preprocessing method in order to boost the neural network performance. The data used in the paper were collected from Alexandroupolis' University hospital in Greece.

Analysis

The table below represents the results of the investigation. 20 of the total 25 cases were studying a subject focusing on a specific location or gathered data from the same location. In 3 of the cases the location for the research was not mentioned but the authors originated from the same university. Karakatsanis et al. (2016) were collecting information from different places in the world including the GCC countries, UK and USA. Pagiani et al. (2016) had also produced a comparative study, which included data from Italy and USA.

Location	Number of cases
China	6
United Kingdom	3
Italy	3
Spain	3
United States	3
GCC countries ¹	1
Serbia	1
Chile	1
Norway	1
Iran	1
Germany	1
Brazil	1
Thailand	1
Turkey	1
Greece	1

Among the case studies that were collected for this paper, China was the superior contributor of scientific research followed by UK, USA, Italy and Spain. Europe alone stand for 56% and it is particularly Western Europe that has been producing these case studies.

¹ Includes United Arab Emirates, Saudi Arabia, Oman, Qatar, Bahrain and Kuwait

References

- McCamley, C. & Gilmore, A. (2016). Aggravated fragmentation: A case study of SME behaviour in two emerging heritage tourism regions. *Tourism management*, 60, 81-91. Doi:10.1016/j.tourman.2016.11.016
- Pes, B., Dessì, N., & Angioni, M. (2016). Exploiting the ensemble paradigm for stable feature selection: A case study on high-dimensional genomic data. *Information fusion*, 35, 132-147. Doi:10.1016/j.inffus.2016.10.001
- Xu, Y., Song, N., Zhang, Q., Liu, J., Chen, G., Shi L., & Wang, J. (2016). A strategy for the evaluation of an analytical approach for selected pesticide residues in complex agricultural product matrices-A case study. *Food Chemistry*, 221, 205-213. Doi: 10.1016/j.foodchem.2016.10.009
- Voltes-Dorta, A., Rodríguez-Déniz, H., & Suau-Sanchez, P. (2016). Passenger recovery after an airport closure at tourist destinations: A case study of Palma de Mallorca airport. *Tourism Management*, 59, 449-466. Doi:10.1016/j.tourman.2016.09.001
- Karakatsanis, I., AlKhader, W., MacCroy, F., Alibasic, A., Omar, M-A., Aung, Z., & Woon, W-L. (2016). Data mining approach to monitoring the requirements of the job market: A case studie. *Information Systems*, 65, 1-6. Doi: 10.1016/j.is.2016.10.009
- Bean, P., Blazquez, J., & Nezamuddin, N. (2016). Assessing the cost of renewable energy policy options – A Spanish wind case study. *Renewable energy*, 103, 180-186. Doi: 10.1016/j.renene.2016.11.001
- Ji, L-Q., Zhang, C., & Fang, J-Q. (2016). Economic analysis of converting of waste agricultural biomass into liquid fuel: A case study on a biofuel plant in China, *Renewable and Sustainable Energy Reviews*, 70, 224-229. Doi:10.1016/j.rser.2016.11.189
- Gigović, L., Pamučar, D., Božanić D., & Ljubojević, S. (2016). Application of the GIS-DANP-MABAC multi-criteria model for selecting the location of wind farms: A case study of Vojvodina, Serbia. *Renewable energy*, 103, 501-521. Doi:10.1016/j.renene.2016.11.057
- Walsh, J., Bashir, I., Garrett, J-K., Thies, R., Blondel, P., & Johanning, L. (2016). Monitoring the condition of Marine Renewable Energy Devices through underwater Acoustic Emissions: Case study of a Wave Energy Converter in Falmouth Bay, UK. *Renewable Energy*, 102, 205-213. Doi:10.1016/j.renene.2016.10.049
- Pérez-Gállego, P., Quevedo, J-R., & José del Coz, J. (2016). Using ensembles for problems with characterizable changes in data distribution: A case study on quantification. *Information Fusion*, 34, 87-100. Doi:10.1016/j.inffus.2016.07.001
- Casas Ledón, Y., Rivas, A., López, D., & Vidal (2016). Life-cycle greenhouse gas emissions assessment and extended exergy accounting of a horizontal-flow

- constructed wetland for municipal wastewater treatment: A case study in Chile. *Ecological Indicators*, 74, 130-139. Doi:10.1016/j.ecolind.2016.11.014
- Yuan, Y., Liu, Y., & Wei, G. (2016). Exploring inter-country connection in mass media: A case study of China. *Computers, Environment and Urban Systems*, 62, 86-96. Doi:10.1016/j.compenvurbsys.2016.10.012
- Sommer, M., Njå, O., & Lussnad, K. Police officers' learning in relation to emergency management: A case study. *International Journal of Disaster Risk Reduction*, 21, 70-84. Doi:10.1016/j.ijdr.2016.11.003
- Karami, S., Ranjbar, A., Mohebalhojeh, A-R & Moradi, M. (2016). A rare case of haboob in Tehran: Observational and numerical study, *Atmosphere Research*, 185, 169-185. Doi:10.1080/07294360.2013.790528
- Zheng, Y., Ding, Z., Cawood, P-A & Yue, S. (2016). Geology, geochronology and isotopic geochemistry of the Xiaoliugou W–Mo ore field in the Qilian Orogen, NW China: Case study of a skarn system formed during continental collision. *Ore Geology Reviews*, 81(2), 575-586. Doi:10.1016/j.oregeorev.2016.01.013
- Dieris-Hirche, J., Bottel, L., Bielefeld, M., Steinbüchel, T., Kehyayan, A., Dieris, B & Wildt, B-T. (2016). Media use and Internet addiction in adult depression: A case-control study. *Computers in Human Behavior*, 68, 96-103. Doi:10.1016/j.chb.2016.11.016
- Wang, S, Zheng, L., & Yu, D. (2016). The improved degree of urban road traffic network: A case study of Xiamen, China. *Physica A: Statistical Mechanics and its Applications*, 469, 256-264. Doi:10.1016/j.physa.2016.11.090
- Venegas-González, A., Brancalion, P-H-S., Albiero Junior, A., Chagas, M-P., Ancholetto Junior, C-R., Chaix, G., & Filho, M-T. What tree rings can tell us about the competition between trees and lianas? A case study based on growth, anatomy, density, and carbon accumulation. *Dendrochronologia*, 42, 1-11. Doi:10.1016/j.dendro.2016.11.001
- Warshawsky, D-N. (2016). Food waste, sustainability, and the corporate sector: case study of a US food company. *Geographical Journal*, 182(4), 384-394. Doi:10.1111/geoj.12156
- Duangdai, E., & Likasiri, C. Rainfall model investigation and scenario analyses of the effect of government reforestation policy on seasonal rainfalls: A case study from Northern Thailand. *Atmospheric Research*, 185, 1-12. Doi:10.1016/j.atmosres.2016.10.019
- Gokasar, I., & Gunay, G. (2016). Mode choice behavior modeling of ground access to airports: A case study in Istanbul, Turkey. *Journal of Air Transport Management*, 59, 1-7. Doi:10.1016/j.jairtraman.2016.11.003

Du., F, Okazaki., K & Ochiai, C. Disaster coping capacity of a fire-prone historical dong village in China: A case study in Dali Village, Guizhou. *International Journal of Disaster Risk Reduction*, 21, 85-98. Doi:10.1016/j.ijdrr.2016.10.016

Sumanthipala, A., Siribaddana., S & Patel, V. (2004). Under-representation of developing countries in the research literature: Ethical issues arising from a survey of five leading medical journals. *BMC Medical Ethics*, 5, 5. Doi:10.1186/1472-6939-5-5

Langer, A., Díaz-Olavarrieta, C., Berdichevsky, K., & Villar, J. (2004). Why is research from developing countries underrepresented in international health literature, and what can be done about it? *World Health Organization*, 82(10), 802-803.
<https://ezproxy.bib.hh.se/docview/229635691?accountid=11261>

De Leo, V., Catucci, L., Di Mauro, A-E., Agostiano, A., Giotta, L., Trotta, M., & Milano, F. (2016). Effect on ultrasound on the function and structure of a membrane protein: The case study of photosynthetic Reaction Center from Rhodo sphaeroides. *Ultrasonic Sonochemistry*, 35, 103-111. Doi:10.1016/j.ultsonch.2016.09.007

Pagiani, M., Johnson, T-G., & Vittuari, M. (2016). Energy input in conventional and organic puddy rice production in Missouri and Italy: A comparative case study. *Journal of Environmental Management*, 188, 173-182.
Doi:10.1016/j.jenvman.2016.12.010

liou, T., Anagnostopoulos, C-N., Stephanakis, I-M., & Anastassopoulos, G. (2016). A novel data preprocessing method for boosting neural network performance: A case study in osteoporosis prediction. *Information Sciences*, 380, 92-100.
Doi:10.1016/j.ins.2015.10.026

Gerring, J. (2004). What is a case study and what is it good for?. *The American Political Science Review*, 98(2), 341-354. Doi:10.1017/S0003055404001182

Soy, S-K. (1997). The case study as a research method. *Unpublished paper*. Retrieved from <https://www.ischool.utexas.edu/~ssoy/usesusers/l391d1b.htm>