

# A Bibliometric Analysis and Review on Women in Logistics and Transport: Scopus Publication Database

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## Abstract

**Purpose** – Women interest in logistics and transport is increasing, align with a research interest on gender inequality in logistics sector. This area is considered as understudied field by the scholars in the field of logistics and transport. Hence, this paper aims to discuss this issue by looking at the history of women study in logistics and transport, as well as examine the trend of past studies with regards to women in logistics and transport.

**Design/methodology/approach** – In this paper, the researcher conducts a bibliometric study on women in logistics and transport using Scopus Database. Five key terms has been used in searching activity namely “women in logistics”, “women in transport”, “women in aviation”, “women in rail” and “women in maritime”. The searching effort has been performed in December 2019. Specifically, the VOS viewer software and Harzing’s Publish or Perish software were utilised to conduct document analysis.

**Findings** – From the searching findings using scopus database, only 10 papers related to women in logistics and transport appeared. This finding shows serious dearth on the study related to women in logistics and transport. This reflect serious dearth on previous research examining women issue in logistics and transport sector. Specifically, it opens up new research opportunity for future scholars to investigate this issue mainly from aviation, maritime, rail perspective.

**Research limitations/implications** – Some documents published on the web or in paper form maybe missing. For this article, the analysis using bibliometric are largely depend on the choice of keywords and Scopus database only. Another selection finding using different keywords may lead to different results.

**Originality/Value** - This paper provides the basis for future researcher to focus on the issue of women in a context of logistics and transport. The small aggregate analysis from this study result to more divergence study needed in women and logistics discipline.

**Keywords:** *Bibliometric, Women, Women in Logistics, Women in Transport, Women in Aviation , Women in Rail, Women in Maritime*

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## 1. Introduction

Developing women and ensuring gender equality in many sector including logistics and transport are among the

priorities agenda in almost every country, and United Nation. Across the world, there are many associations established to protect women right, enhanced capacity

building and to further develop women empowerment in all industries including transportation and logistics. For instance, women in logistics and transport (WILAT), women in corporate aviation (WCA), women in maritime (myWIMA), Kribati women in maritime association (K-wima), Arab women in maritime association, and many more. Recent study by Rahman (2019) refer women in logistics as a woman that enter to logistics and transport sector as a worker. This include women workers in shipping lines, maritime, aviation, airline, rail, warehouse, cargo, port terminal, air terminal, and other transportation sector. As published in recent report by Statistic a in April 2019, the proportion of women in decision making bodies in the area of consumer goods and trade, telecommunication, finance and insurance, banking, science and technology, health and medical industry, energy and environment, logistics and transport, as well as real estate and infrastructure are at very low percentage. In year 2010, it was reported that women participation in logistics sector is around 9% only.

Having reviewed the literature, there are not many study that exist in the area of women in logistics and transport. After more than half century of research in the field of logistics and transport, the number of research with regards women in logistics is still low. Women study in logistics and transport is still a dearth and becoming key area to be focused by future scholars in future. This is important to support united nation role to produce gender equality in any sector including logistics and transport. However, from academic point of view, there are scarce of literature that focus on women issue in logistics and transport. With that, by using Scopus database, the researcher in this paper, aims to answer the following research questions.

- i. How many articles has been published in Scopus database with regards women in logistics and transport?
- ii. What type of publication that has been published in the area of women in logistics?
- iii. What are the source of publication on women in logistics?
- iv. Who are the key author that investigate women in logistics in past studies?

## 2. Literature Review

Globally, women have been seen as a key focus for many countries and industries to further develop gender equal-

Table 1: Some selected women in logistics and transport association

Women Association in Logistics and Transport	Years of establishment	Main goal
Women in Aviation International (WAI)	1994	To encourage young women to join aviation as their main career
Women in Logistics (previously known as Women in Transportation)	1980s	To provide resources for women that works in logistics and transport for mentoring activity and career development

ity between men and women in working perspectives. As highlighted in one of the objective of United Nation (UN) Women, established in 2010, women participation in all sector including logistics and transport are welcome to participate in training for women career advancement. Another organization under UN known as UN-INSTRAW (United National International Research and Training Institute for the Advancement of Women), highlight the importance of innovative approach to brush skills or women talent and capacity. As highlighted in the earlier work from Ibarra et al (2010) and Crompton and Lyonette (2007), women are seem more hardworking compared to men, and the training has become a central point for women capacity building. In fact, as stated by Peus et al (2015), despite the number of women in logistics are low compared to other industry, however, the involvement of women are consider important issue to focus. This is due to the current development of women that take up some managerial position in the industry. However, even though they are holding managerial position, the challenges are more stronger and need to compete with men especially with regards to promotion issue (Mavin et al. 2014). This white area of research in a field of women in logistics and transport need high attention by the scholars. More research need to be performed in order to establish and identify women capacity in this field. As highlighted by recent study, there are five main area for women improvement that need to focus such as access to capital, access to market, capacity building, women leadership & agency; and innovation & technology (Rahman, 2019).

On the other hand, apart from scholars or academicians roles to research in this area, there is no doubt that women association also plays a significant role to establish women talent. It is acknowledged globally that this industry is dominated by men, and resulting to the stress to the women especially regarding difficulty to climb to the higher position in the organization (Lynagh et al,1996; Richardson, 19991). Therefore, both women scholars and association need to work together to establish further this field.

The following subsection provide brief description on women association in logistics and transport, women in aviation, women in maritime and women in rail.

### Women in Logistics and Transport

Women in Logistics and Transport (WILAT)	2013	To support and encourage women career in logistics and transport
Women in Maritime – Women’s international Shipping and Trading Association (WISTA)	1974	Established to enhance contribution of women in maritime industry

Source: The Author

### Women in Aviation

Women involvement in aviation starts since a century ago. Among the earlier popular women in aviation are E. Lilian Todd and Eileen Collins. Both are involved in aviation since many decades ago. For instance, Lilian Todd is recognized as the first women pilot in 1934 for US commercial pilot. While Eileen Collins is the first appointed female commander for space shuttle. As reported in Women in Aviation International website, the number of women involvement in logistics and transport sector has increased since two decades ago. As at present, we can see a good number of women involvement in aviation sector in nearly every occupation today such as in relation to cargo services, airline catering, airline services, airport, manufacturing and even in MRO (maintenance, repair and overhaul). With regards to women in aviation sector, there is an association known as WAI (women in aviation international) has been established in 1994 with currently have more than 12000 global members.

### Women in Maritime

For many years ago, similar to aviation and other logistics division, maritime has been seen as a field that is dominated by men. The women career development in maritime is under developed (Wu et al 2017). They determine the relationships among the degree of organisational socialisation, women’s workplace culture, and the career development of women in the maritime workplace. According to Berti (2018), there are very small number of women participation in maritime sector and there is a shortage of 147, 500 officers in maritime industry. Recent figures from the International Transport Workers’ Federation (IOTF) shows there is only 2% involvement of women in maritime sector and others are dominated by men. Again, as highlighted by Kitada (2019), there are not many studies that investigate issue on women in maritime. Therefore, more future research focusing on maritime is critically needed.

### Women in Rail

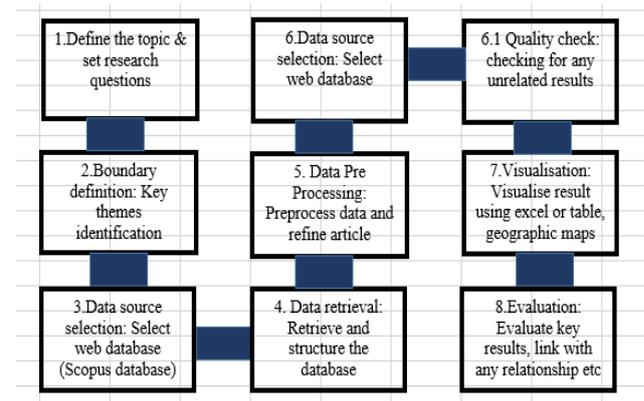
Compared to women in aviation and maritime, to the best of researcher knowledge, there is no study that has been developed with regards to women involvement or women leaders in rail sector. Among the study that has been published with regards to rail are the experience of women in travel experience by rail (Gopal and Shin, 2019). Earlier than that, there is also a study from Troped et al (2005) that examine the difference on women’s and men’s pattern on rail trail use. This shows significant

dearth of women study that focus on the development of women career and leadership women in the area of rail.

### 3. Bibliometric Method

A bibliometric analysis can be refer to the mathematical approach that shows some features of publication information about the books, article journal, and any other media of communication. It is a well-recognised method used by the scholars to shed light on the overview of the information about paper being published by certain database. Among the earlier researcher that mention about this bibliometric method analysis is Pritchard (1969). He defines bibliometric as “application of mathematics and statistical methods to books and other media of communication” (Pritchard, 1969, p.348-349). By using this method, the researcher should have an bigger view on the area or evolution of study such as the area of investigation, the name of the writers with frequent publication, the list of journal that published this work, the citation of each articles been cited, as well as the ranking or the impact factor (Baker, 1990; Smith, 1981; Ahmi and Mohamad, 2019).

Below Figure 1 shows flow of bibliometric analysis performed in this study. Essentially, this study follows eight steps for bibliometric study as recommended by Zare et al (2017).



Source: Adopted and revised from Zare et al (2017)

Figure 1: Eight steps of bibliometric study

### 4. Key Findings

#### Document and source type for women study in logistics and transport

From the analysis using bibliographic method on Scopus Database, there are only ten papers appeared specifically

investigating issue on women in logistics and transport. The analysis result from the bibliometric encompass few types of findings such as document type, source of documents, keyword analysis, country analysis, authorship etc.

As shown in Table 2, 50% of document are coming from article journal and the rest are from conference paper, book chapter and report from short survey. This small number of papers appeared in the bibliometric analysis shed light on the importance of future scholars to focus in this area in the future. While Table 3 below highlights on the source type of all documents on women in logistics and transport.

Table 2: Type of document

Document Type	Frequency	% (N=10)
Article Journal	5	50
Conference Paper	3	30
Book chapter	1	10
Short Survey	1	10
<b>Total</b>	<b>10</b>	<b>100.00</b>

Source: The author

Table 3: Source Type

Source Type	Frequency	% (N=10)
Annual Meeting Council Of Logistics Management	3	30
Transportation Journal	2	20
Aviation Week And Space Technology	1	10
Documenting First Wave Feminisms Volume I Transnational Collaborations And Crosscurrents	1	10
Maritime Policy And Management	1	10
Research In Transportation Business And Management	1	10
Women in Management Review	1	10
<b>Total</b>	<b>10</b>	<b>100.00</b>

Source: The author

Table 4 below shows the details of the 10 article published so far on women in logistics and transport. Most of the empirical paper published from year 1992 to 2019 are using survey method for data collection and analysis method.

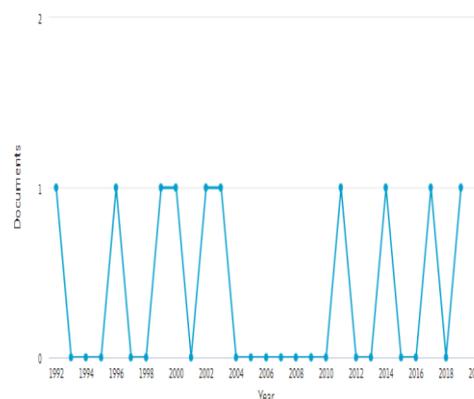
Table 4: Year of Publications - Evolution of Published Studies on women in logistics and transport

YEA R	Frequen- cy	Type of paper			Me- thod used
		Empiri-	Non Em-	Em-	
1992	1	✓			Survey
1996	1	✓			Survey
1999	1			✓	-
2000	1			✓	-
2002	1			✓	-
2003	1			✓	-
2011	1			✓	-
2014	1			✓	-
2017	1	✓			Survey
2019	1	✓			Survey

	cal	pirical	
1992	1	□	Survey
1996	1	✓	Survey
1999	1		✓ -
2000	1		✓ -
2002	1		✓ -
2003	1		✓ -
2011	1		✓ -
2014	1		✓ -
2017	1	✓	Survey
2019	1	✓	Survey

Source: The author

While Figure 2 and 3 below illustrate the image of document published by year, and documents published by the authors. Among others, Cooper has seen the most frequent author that is interested to publish on women in logistics and transport. In addition, Figure 4 shows the frequency of the documents published on women in logistics and transport by country.

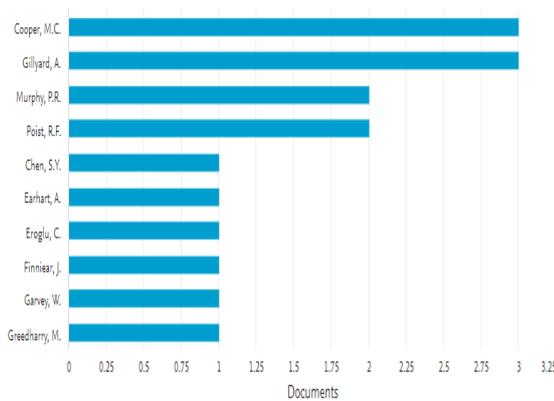


Source: The author

Figure 2: Documents on women in logistics and transport published by year.

Documents by author

Compare the document counts for up to 15 authors.



Source: The author

Figure 3: Documents by author

Documents by country or territory

Compare the document counts for up to 15 countries/territories.

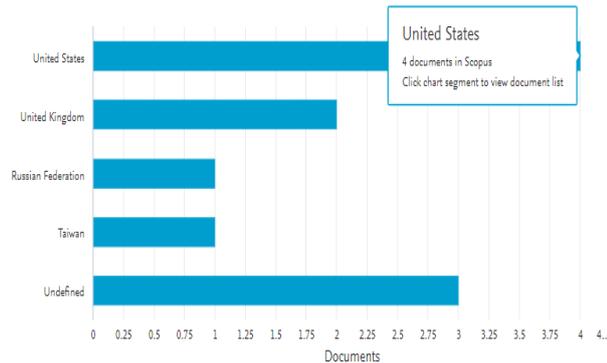
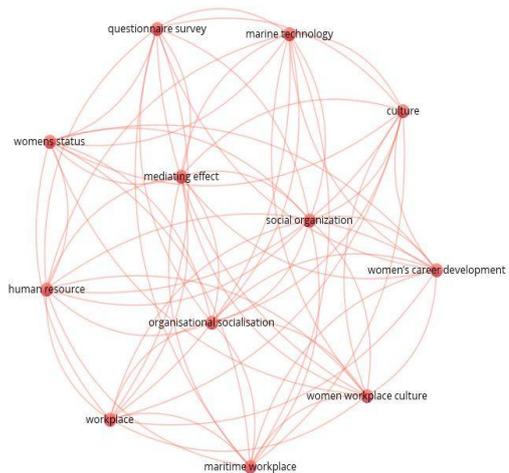


Figure 4: Documents on women in logistics and transport by country

Figure 5 shows the keywords used in the literature review by the all authors for each papers. Essentially, the author's keywords by the authors produced by the software (VOS viewer) have different features such as in term of colour, circle size, font size, and thickness of connecting lines. As shown in below figure 5, the diagrams show that each keywords used by the authors are not closely related, which means different issue being examined in the study.



Source: The author

Figure 5: Visualisation map of the keywords

## 5. Conclusion

Since 1992, women study in logistics and transport has been developed with a very gradual progress in this area. The area is interesting to be explored and should be receiving high considerable attention by the scholars worldwide. Among the area for a future focus are specific study on women in aviation, women in rail, women in maritime, women in logistics industry, women in transportation. All these areas are still underdeveloped. As highlighted by United Nation and Asia Pacific Economic Cooperation (APEC) countries, one of the focus direction are on women capacity building in logistics and transport, as this industry are mostly dominated by men. To have no disparity between men and women in this industry, more studies are needed to identify key gaps for women development in this area. In fact, from the research also, findings would suggest some recommendation for developing and enhance women capacity with great knowledge and training, strong emotions, leadership characteristics, skills development and more competent in the future.

Despite valuable understanding from this study, however readers should be aware about some limitation from this study. One of the main limitation in this study, the visualisation study in this paper are mainly come from Scopus database only. Future research could have enhanced this examination with further analysis using other database.

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