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Murtala Muhammad  
Abubakar Ahmed  
Gold Kafilah Lola  
Usman Mikail Usman  
Nader Ale Ebrahim



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## The Rise of “Trade Liberalization”: Bibliometric Analysis of Trade Liberalization Study

\*Murtala Muhammad<sup>a,f</sup>

Abubakar Ahmed<sup>b</sup>

Gold Kafilah Lola<sup>c</sup>

Usman Mikail Usman<sup>d</sup>

Nader Ale Ebrahim<sup>e</sup>

<sup>a</sup>Department of International and Strategic Studies, Faculty of Arts and Social Sciences, University of Malaya, Jalan Lembah Pantai, Kuala Lumpur, Wilayah Persekutuan, 50603, Kuala Lumpur, Malaysia

<sup>b</sup>Department of Architecture, Faculty of Built Environment, University of Malaya, Jalan Lembah Pantai, Kuala Lumpur, Wilayah Persekutuan, 50603, Kuala Lumpur, Malaysia

<sup>c</sup>Department of Economics, Faculty of Economics and Administration, University of Malaya, Jalan Lembah Pantai, Kuala Lumpur, Wilayah Persekutuan, 50603, Kuala Lumpur, Malaysia

<sup>d</sup>Department of Development Studies, Faculty of Economics and Administration, University of Malaya, Jalan Lembah Pantai, Kuala Lumpur, Wilayah Persekutuan, 50603, Kuala Lumpur, Malaysia

<sup>e</sup>Research Support Unit, Center for Research Services, Institute of Research Management and Monitoring University of Malaya, Jalan Lembah Pantai, Kuala Lumpur, Wilayah Persekutuan, 50603, Kuala Lumpur, Malaysia

<sup>f</sup>School of General Studies, Kano University of Science and Technology, Wudil, 713281, Kano, Nigeria

\*Corresponding Author Email: murtala@siswa.um.edu.my

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### Abstract

The purpose of this research is to assess the universal scientific trends and examine the patterns in the intellectual research published on trade liberalization over a period of 35 years (1980-2015). The data were collected from a leading indexing and abstracting database Thomson Reuters Web of Science. The Kruskal-Wallis test, ANOVA and Pearson's correlation were employed in analyzing the retrieved data. Based on the citation trend of first 100 highly cited published articles with the least number of authors are found to have received the highest number of citations. Our result shows that there is actual statistical significance ( $p < 0.001$ ) between the total citations attracted by articles published by 1 author and those published by 3 and 4 authors. The word trade liberalization has become dominant and consistent in the field of the study. These research trend and interest could provide focus to researchers for future research.

**Keywords:** Trade liberalization, research trends, number of authors, citation analysis, Web of Science

### 1. Introduction

Trade liberalism as advocated by Friedrich von Hayek (1933) and Friedman (2009) celebrated work came as a result of the triumph of *laissez-faire* economics. This idea was put forward fervently in the 1980s. The transition to free market economics from Keynesian approach is one of the drivers that brought about the neoliberal experience (Gray, 2015; Palley, 2005). Moreover, other elements that led to this development include the collapse of the Berlin Wall (Engel, 2011) and profound advancement in information and communication technologies (Castells, 2011). Trade liberalization is an economy driven process of unbridled market forces determined by the principles of private property ownership and the 'free' operation of demand and supply. The approach promotes minimal interference. With a combination of wholesale marketisation through liberalisation, deregulation, privatization, and commercialization which bring maximum prosperity, liberty, and peace to the whole of humankind (Fakuyama, 2004). The end of the Cold War in the late 1980s, had dramatically transformed the pattern of international relations. In 1989 the fall of communist governments in Eastern Europe, marked most graphically by the collapse of the Berlin Wall, and the celebration of free-market economic approach, led to a widespread clamour for free enterprise. There was euphoric talk of a 'New World Order', most prominently by United States (Gambari, 1986). Answers to economic transformation have been framed mainly in terms of neo-liberalism and the celebration of trade liberalization.

Quantum of studies has been performed on trade liberalization by scholars globally. The research output in the area of trade liberalization varies consisting of several competing approaches. Our study analyzes the research output on the study area by collating publications (886) in this research area included in Web of Science using several search word combinations. For citation analysis, we chose 100 highest cited articles which represent approximately 67% (5996) of the entire citation (9012). Our research is a quantitative bibliometric analysis (Ahmed, Adam, Ghafar, Muhammad, & Ale Ebrahim, 2016; Björneborn & Ingwersen, 2001; Broadus, 1987; Wormell, 2000) which measured reported scientific output to acknowledge publication trends on the topic trade liberalization. The study set a new direction on trade liberalization bibliometric research on the locations and number of highly cited authors. In addition, cited reference count for all cited articles are studied. The study also utilizes quantitative analysis using IBM SPSS 21 software for windows to construe the statistical patterns of publications. Thus, this research uniquely analyzes the papers that discussed universal international political economy concept and process – trade liberalization. In what follows, we first describe the methodology and present the results and discuss their meaning for future research that would make or mar economic growth.

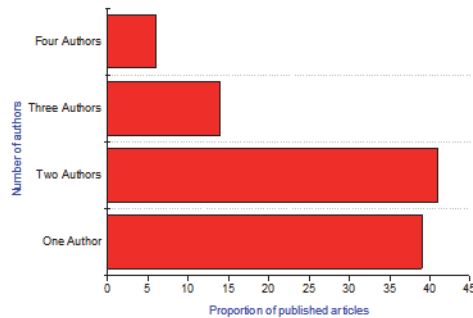
## 2. Methodology

The outstanding Thomson Reuters Web of Science (WoS) Institute for Scientific Information (ISI) indexing and abstracting database core collection was accessed as the information source for the research. The WoS extensively contain most dependable and credible sources of data (Ahmed et al., 2016). The articles extracted are on the high pedestal of quality and acceptance (Gu, 2004). The search was restricted to a period of 35 years from 1980 through 2015. We used Trade liberalization as title to retrieve relevant articles from the database. Furthermore, the information obtained was based on the following search topics 'Adjustment' 'Agreements' 'Canada' 'Competition' 'Costs' 'Countries' 'Demand' 'Developing countries' 'Dynamics' 'Economic growth' 'Economy' 'Efficiency' 'Employment' 'Export' 'Firms' 'Gains' 'Globalization' 'Growth' 'Impact' 'Industry' 'Inequality' 'Integration' 'International trade' 'Investment' 'Labor' 'Market' 'Mexico' 'Model' 'Monopolistic' 'Panel data' 'Performance' 'Plants' 'Policy' 'Pollution' 'Prices' 'Productivity' 'Quality' 'Reforms' 'Returns' 'Scale' 'Tariffs' 'Taxes' 'Unemployment' 'United States' 'Wage' 'China' 'Import' 'Free trade' 'Comparative advantage' 'Productivity growth' 'Trade policy' 'Low cost' 'Open economy' 'Access' 'Welfare'. The search was confined to international relations, economics and planning development Web of Science categories not restricting any document type. IBM SPSS version 21 software for windows was used to analyze all data. Kruskal-Wallis test was used to analyze the total citation and number of authors contributing to articles data. Non-parametric pair comparison test was further used to precisely determine the significant variables. While Pearson's correlation was used to analyze for prospective relationship between total citation received by articles and the cited reference count (CRC) of the article.  $P < 0.05$  at 95% confidence interval was statistically significant. Consequently, the bibliometric analysis determines viability and impact of reported studies on trade liberalization. The dominant trends on citation research stream are also reported. Data obtain from bibliometric research could be used to assess the performance of the academic field of study. Therefore, after carrying out extensive search in WoS core collection database 886 academic articles were collected.

## 3. Result and Discussion

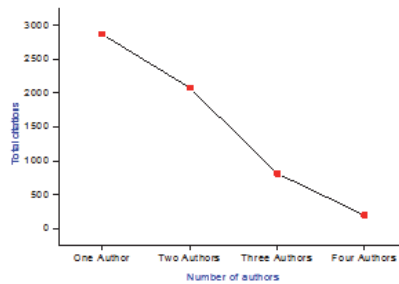
### 3.1 Analysis based on the number of authors with the highest cited articles

The current study chose to analyze data of first 100 highest cited articles because it represents approximately 67% (5996) of the total citation (9012). Further categorization of this highly cited papers based on how many authors contributed to each article. Based on this, Fig. 1 shows the proportion of first 100 highly cited articles published by 1, 2, 3 or 4 authors. Our result revealed that articles published by 2 authors are found to have attracted most citations among 100 highest cited articles with 41% followed by 1 author articles with 39%. 4 author articles are found to have attracted the least with 6% in this category while 3 author articles take just 14%.

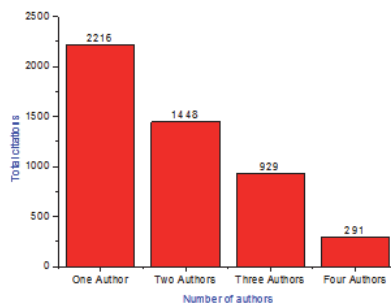


**Figure 1:** Proportion of highest 100 cited articles and the number of authors that contributed to the articles

Meanwhile, Fig. 2 and 3 shows the citation trend of the first 100 highest cited articles based on the number of authors contributing to the article. We found out that there was a downward trend in total citations moving from 1 author to 4 authors. One author has the highest citation while 4 authors have the lowest.



**Figure 2:** Total citations of highest 100 cited articles and the number of authors that contributed to the articles



**Figure 3:** Total citation of first 20 highly cited articles in each author number grouping

In order to statistically test in case there is actual a significant difference between total citations and number of authors contributing to an article, from highest cited to lowest cited, first 20 articles with 1, 2, 3 and 4 authors were chosen and mean of the sum of total citations in each group were tested statistically. Our result shows that there were actual statistical significance ( $P < 0.001$ ) between the total citations attracted by articles published by just 1 author as compared to those published by 3 and 4 authors (see Table 1). Likewise, significant difference ( $P < 0.05$ ) also exist between the total citations attracted by 2 and 3 authors, 2 and 4, and 3 and 4, authors respectively. On the other hand, no significant difference exist ( $P > 0.05$ ) between the total citations of articles published by 1 and 2 authors.

**Table 1:** Total citation metrics of first 20 highest cited papers according to their number of authors grouping

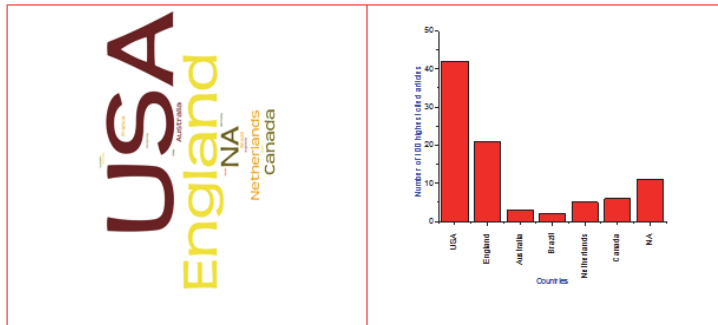
Number of Authors	Mean (S.E) n=20	Mean Rank	Chi-Square (df)	P-Value
<b>One Author</b>	110.80 (18.55)a	60.65	47.43	<0.0001**
<b>Two Authors</b>	72.40 (9.34)a	51.73		
<b>Three Authors</b>	46.45 (8.19)b	36.13		
<b>Four Authors</b>	14.55 (2.90)c	13.50		

\*\*=P<0.0001

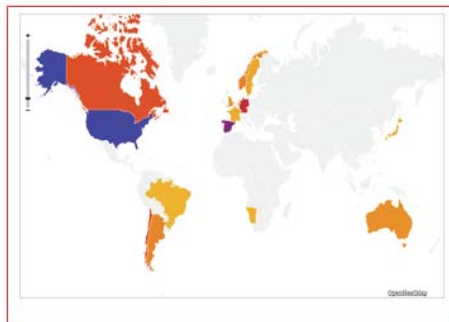
Values represent mean (standard error). Kruskal-Wallis test was used to analyse all data. P<0.05 was chosen to be significant statistically at 95% confidence interval. Different superscript letter denotes statistical significance (P<0.001) from each other while same superscript shows not significant (P>0.05) from each other.

### 3.2 Analysis based on publications country, keywords and language

Fig. 4 shows the country distribution of articles with highest citations. U.S.A, England and Netherland published most of the articles with top citations. To present a broad representation of trade liberalization research at the global sphere, Fig. 5 shows the total citations of different countries that scholarly papers from these countries have attracted. The developed world in North America, Europe and Australia dominate the map with generous number of publications. As recorded in Fig. 6, the most prominent keywords of articles with highest citations were trade liberalization, trade, growth, policy and model. Further, Fig. 7 showed the prominent keywords for the top 100 highest cited journals. On the same note, Fig. 8 revealed that all the articles published in this field were published solely in English.



**Figure 4:** Country-based distribution of 100 highest cited articles



**Figure 5:** Heat-map showing the country-based distribution of 100 highest cited articles



Figure 6: Word Cloud showing the prominent keywords for all publications



Figure 7: Word cloud showing the prominent keywords for top 100 highest cited journals



Figure 8: Word cloud showing language of top 100 highest cited journals articles

### 3.3 Analysis showing relationship between publications total citation and citation reference count

In addition, this study further assessed the relationship between total citations and cited reference count for all cited articles. We found out that a significant ( $P < 0.001$ ) positive correlation (Fig. 7) exist between total citations and cited reference count with correlation coefficient of 0.227 (Table 2). This means that when total citations increases cited reference count will also increase and vice-versa but the strength of the relationship was just approximately 22%.

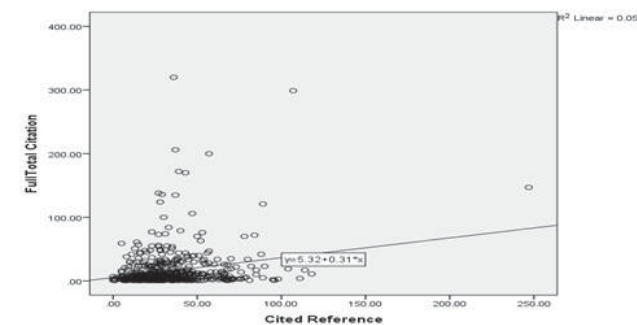


Figure 9: Scatter plot showing the correlation between total citations and cited reference count for all cited articles.  $R^2 = 0.052$

**Table 2:** Showing correlation between total citations and cited reference count for all cited articles

Variables	Mean (S.E)	Correlation Coefficient	P-Value (2-tail)
Total Citation	32.524 (0.908)	0.227	0.0001**
Page Count	15.458 (1.249)		

\*\*=P<0.0001

Values represent Mean (Standard Error). All data were analysed using Pearsons correlation. P<0.01 was taken to be statistically significant.

Note: there was a significant positive correlation (22%) between total citation and article cited reference count for all cited articles.

#### 4. Discussion

The statistical result revealed unique discoveries that the distribution of articles among countries related to the topic of discussion at the global level which are mostly based in the developed economies. This development is not strange as the bulk of the article submission is from countries that are known proponents of the concept and process of trade liberalization. It is equally significant to take note of keywords dominating the field of research for future studies especially in the topmost journals. This analysis essentially add flavor to the literature, as it provides an assessment of the relationship between total citations and cited reference count for all cited articles. The results also show that there is a significant (P<0.001) positive correlation which exist between total citations and cited reference count with correlation coefficient of 0.227. Trade liberalization has come to stay for a very long time. It affects developing and developed economies in diverse and varied ways. Literature on the trade liberalization contains a variety of compelling and competing postulations need to be studied for economic growth and development. The world is facing economic crisis like never inviting intellectuals to dedicate their time in research to proffer solutions to the lingering quagmire. The world is today intertwined and interconnected with platforms for trade for the benefit of the less developed nations.

#### 5. Conclusion

In this study, analysis based on number of authors that contributed to highest cited articles was provided. Analysis on publications country, keywords and language was also extensively covered. Research showing relationship between publications total citation and citation reference count was also carried out. In all research appraise the global trends and patterns in the scholarly research published on trade liberalization from 1980 to 2015. Undoubtedly, our results indicate that least number of authors gain more citations than an array of authors. In the same instance, least number of authors got the highest citations in the topmost 100 cited articles. Moreover, the total citations drawn by articles published by 1 author as compared to those published by 3 and 4 authors were significantly different (P<0.001). The world will be a better place when trade is improved among communities at the global scene. The challenge is for scholars to conduct further research on trade liberalization to build coherent economies which will be competitive in the world market. The world need special economic package for least developed countries for them to be fully integrated. Under these circumstances, our study shows that scholarly publications authored by individual researcher are more utilized in the field, judging from their citation rate. Likewise, researchers should try to use as much as possible cited references in their publications because it influences the viability rate of such publication by other researchers in trade liberalization field.

#### 6. Acknowledgements

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