

Impact of Supply Chain Leadership and Supply Chain Fellowship on the Productivity and Performance Dynamics in Pharmaceutical Industry of Indonesia

A. Khalik^{1#}, A.A. Musyaffa^{2#}, Hapzi Ali^{3#}

^{#1,2}*Faculty of Tarbiyah and Teacher Training, Universitas Islam Negeri (UIN) Sulthan Thaha Saefuddin, Jambi Indonesia*

³*Management Doctoral Program, Universitas Mercu Buana, Jakarta Indonesia.*

Corresponding author: E-mail: akhalik@uinjambi.ac.id

²*musyaffa@uinjambi.ac.id*

³*hapzi.ali@mercubuana.com*

³*agussikki@yahoo.com*

Abstract- This study is to analyze the effect of supply chain leadership and supply chain fellowship on the productivity and performance of pharmaceutical industry of Indonesian economy. The population in this study are the core employees who are working in the pharmaceutical industry of Indonesia and primarily responsible for managing different supply chain related activities with their management interaction as well. The approach in this study uses a quantitative approach to the survey method and uses path analysis with Statistical Package for Social Science (SPSS) 21.0. The results of the study through quantitative analysis showed that supply chain leadership and supply chain followership had a positive and significant influence on the productivity and performance factors in the pharmaceutical industry of Indonesia. Based on the study findings, it is suggested that business managers, supply chain officials and other decision makers need to consider the impact of two newly dimensions of supply chain on the firm performance and productivity factors as well. However, the relationship of supply chain leadership and followership with the various categories of the suppliers in the pharmaceutical industry is entirely missing. In addition, the sample size of the current study is very limited and can be expanded with more efforts in the future studies. Additionally, this study is only applied to one sector from the whole economy of Indonesia which indicates that future studies need to expand their implication in terms of cross sectional research design. Finally, this study has considered any type of demographic factors which are quite important to examine the respondent profile. It is suggested that upcoming studies need to examine these limitations for the better implications and more originality as well.

Keywords; *Supply chain leadership, supply chain followership, Productivity and Performance.*

1. Background

Management and leadership in any type of business organization continues to play its important role as a core contributor to organizational success and competitive edge in the market over longer period of time [1, 2]. It is believed that as much as 45 percent of business performance credited to role of leadership in any organization. The first concepts of leadership pretended to become leader-centric, highlighting the distinctive traits those type of qualities which may differentiate the leaders out of non-leaders as expressed by [3]. More lately, leadership concepts have obtained a more holistic, relationship-oriented perspective that reflects the view of the leader and the followers as well. Meanwhile, it is also admitted that followers can affect pioneer decision making in any type of work setting or organization [4]. An overview of contemporary leadership literature suggests the fact that lots of conceptual topics are primarily related to the defining traits and attributes of leadership. Additionally, it is expressed that leadership is a process of affecting individuals or classes to accomplish the set of defined objectives [5]. It involves a set of followers [5] together with whom the leader must form co-influencing connections nevertheless the leader is recognizable and easily distinguished from these followers on the grounds of their behaviors they endeavor. Additionally, leaders shape and articulate a vision about their near future, regularly highlighting the requirement for major change to happen when targeting a group of shared targets.

In addition, the title of supply chain leadership or SCL is under reasonable discussion in the present body of literature [6-9]. The concept of SCL as adopted in the present study is associated with the dynamic of one organization to influence productivity and performance subtleties. Additionally, the behavior as associated with the SCL may be reviewed through the stated policies of the

organization, along with the action plans as taken by the management. Finally, the title of SCL has the capability to influence on the productivity and performance dynamics of the business as well.

In addition, the title of supply chain followership can also have its influence on the productivity and performance of any firm along with the SCL. It is believed that leadership cannot exist without the followership in any organization [10]. Meanwhile without the title of followership, leadership is not observed as complete phenomenon. In this regard, it is believed that there is a good connection between the supply chain leadership and supply chain followership which may further lead towards organizational outcomes. Based on the above introduction, this study has considered the following objectives from the context of pharmaceutical industry of Indonesia.

Based on the background and problems, the objectives of this study are:

- 1) To examine the effect of supply chain leadership on productivity.
- 2) To examine the effect of supply chain followership on the productivity.
- 3) To examine the effect of supply chain leadership on the firm performance.
- 4) To examine the effect of supply chain followership on the firm performance.

2. Literature Review

Leadership and Supply Chain Leadership

Leadership is the ability to influence groups towards achieving goals. Abu-Tineh, et al. [11] say leadership is the creation of ways for people to contribute to making something extraordinary happen. Boone and Kurtz argued that leadership is the act of motivating others or causing others to do certain tasks with the aim of achieving specific goals. Whereas Tzu and Cleary, opinion leadership is a matter of intelligence, trustworthiness, gentleness, courage and firmness (Elmi et al., 2016). According to Warsono [12] it is stated that leadership styles are various behavioral patterns favored by leaders in the process of directing and influencing workers. It was further explained that what was done by superiors affected the influence on subordinates, which could arouse the enthusiasm and excitement of work and vice versa. There are five types of leadership styles, namely: (a) Participatory style, (b) Caregiver style, (c) Authoritarian style, (d) Bureaucratic style and (e) Task-oriented style.

Based on the Duignan scheme in Somad and Priansa [13] state that the basic leadership of principals is constructed on five important dimensions to have. The five dimensions of leadership are ability, personal ability, relational ability, intellectual ability, and organizational ability.

In the recent time, some studies have also examined the role of supply chain leadership in different organizational context. For example, Defee, et al. [14] have analyzed the performance implication for the transformational supply chain leadership and supply chain followership. For this purpose, they have examined strategy-structure-performance theory and related framework. Overall different constructs are defined, and data was collected from an interactive simulation with its further analysis through structural equation modelling. It is believed that SCL and SCF are those which are inter-related and can help to perform three different supply chain structures. Mokhtar, et al. [15] have investigated the title of supply chain performance, and supply chain leadership and governance mechanism. Through structural equation modelling, it is found that leadership style like transformational leadership and transactional leadership are significantly and positively contributors towards the reverse supply chain performance, where this relationship is positively mediated by the trust and power factors as well.

Productivity

Every organization in the form of a company or others will always strive so that members or workers involved in the activities of the organization can provide achievements in the form of high work productivity to realize the goals set. Meanwhile, according to Woekirno productivity is the awareness to produce something more than what has been or is currently in business. Basically, adding activities to produce more than what has been achieved [16].

According to Sinungan [17] work productivity is a comparison between output results and input or output: input. Input is often limited by labor input, while output is measured in physical unity of form and value. Productivity is the value of output in a particular input relationship, productivity is usually expressed as a balance of the average work output in relation to the average hours of labor given in a particular process. So the results of work achieved (work productivity) is a target in getting through the quality of work of employees performing their duties in accordance with the specified time accuracy. While productivity according to Hasibuan [18] is a comparison between outputs and inputs.

Performance

The title of performance is used for both the employees and the organizational perspective as well. As stated by Mangkunegara and Prabu [19] that the term performance comes from the title of actual performance, namely the quality and quantity of work achieved by an employee in carrying out his job or an assigned task during a work setting. This understanding gives an understanding that performance is an act or behavior of a person in carrying

out their duties, which can be observed and assessed by others.

According to Hasibuan (2014) explains that performance is the result of work achieved by someone in carrying out the tasks assigned to him based on skill, experience, sincerity and time (Brata, Husani, Hapzi, 2017). Meanwhile, according to [20] performance is something like which can be achieved by individuals or group of people within the organization which are assigned by employer.

3. Conceptual Framework

As per the review of the existing literature, this study has developed a conceptual framework which indicates the relationship between exogenous and endogenous variables of the study. For this purpose, two exogenous variables like supply chain leadership, and supply chain followership are added in the model. Whereas the factors like productivity and performance are entitled as main dependent variables of the study. Figure 1 below provides the outlook for the conceptual framework of the study.

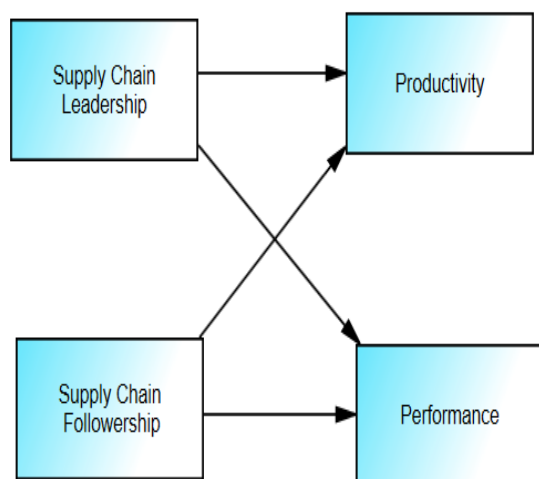


Figure 1. Conceptual Framework

Based on the research objectives and theoretical review the research hypotheses are:

H0: There is no significant impact of supply chain leadership on the productivity factor.

H1: There is a significant impact of supply chain leadership on the productivity factor.

H0: There is no significant impact of supply chain followership on the productivity factor.

H2: There is a significant impact of supply chain followership on the productivity factor.

H0: There is no significant impact of supply chain leadership on the performance factor

H3: There is a significant impact of supply chain leadership on the performance factor

H0: There is a significant impact of supply chain followership on the performance factor

H4: There is a significant impact of supply chain followership on the performance factor

4. Methods

The population of this study are the various employees who are working in different pharmaceutical companies in the region of Indonesia. Current study has used probability random sampling technique to collect the data from various respondents who belong pharmaceutical industry of Indonesia. Initially a structural questionnaire was developed with the help of various items which are extracted from existing literature for all the study variables. Initially, total 250 copies were distributed among the respondents to provide their valuable response against each of the statement. However, finally we received total 173 copies of the questionnaire where rest of the questionnaire were not returned by the respondents. So a final sample of 173 copies were found to be good enough to apply the various statistical techniques for the present study analysis. In addition, this research uses path analysis which is a multivariate data analysis method with the aim of knowing the direct and indirect effects of several causal variables (exogenous) on endogenous variables (effects) with a pattern that is recursive and all variables can be observed directly. Recursive means that the relationship between variables is one way, there is no reciprocal relationship. If stated A causes B, then B cannot cause A, [21].

5. Result and Discussion

Description of Research Variables

For the descriptive results, our study main considered mean score, standard error in the mean, standard deviation of the mean and both minimum and maximum scores. One of the key benefits of providing descriptive results is that it can show the trends in the data set for the further analysis. Findings for the descriptive scores are provided in the Table 1 below.

Table 1. Description of Research Variables

Name of the Variables	Total Items	Mean score	Standard error	Standard Deviation	Minimum	Maximum
Supply chain leadership	6	3.950	0.23	0.928709	3	5
supply chain followership	5	4.012	0.22	0.894427	4	5
productivity	4	3.42	0.23	0.9309	2	5

ty		9		49		
performan ce	5	4.12 0	0.20	0.8062 26	3	5

Based on the respondent's answer can be given a description or description related to the variable that is the focus of the discussion. Where the picture can be described as follows.

1) From the results of the descriptive analysis conducted, the average score of supply chain leadership variable was 3.95, in the range of 3 and 5. This would explain that as per the response from the targeted respondents, there is higher role of supply chain leadership in the pharmaceutical industry of Indonesia, where 1 indicates strongly disagree about the role of supply chain leadership and 5 indicates strongly agree about the higher role of supply chain leadership in the pharmaceutical industry.

2) From the results of the descriptive analysis carried out, the average score of supply chain followership variables is 3.491, which is in the range of 4 and 5 in terms of minimum and maximum responses. This explains that the supply chain followership has got some reasonable attention from the respondent in a sense that it is meeting the point of strongly agree on the Likert scale.

3) From the results of the descriptive analysis conducted, the average score of productivity variable is 3.429, in the range of 3.40 - 4.19 with a high category.

4) From the results of the descriptive analysis carried out, the average score of performance variables is 3.691, which is in the range of 2 and 5 with good category. This explains that the respondents are pharmaceutical industry has a good performance dynamic.

Path Analysis

In order to answer the research objectives, this study has applied the path analysis which is found to be very good technique in order to examine the relationship between the exogenous and endogenous variables of the study. Meanwhile, path analysis is a very good technique while going for the testing of research hypotheses in any study. To answer the objectives in this study, the main structure in the research model was broken up into three sub-structures. Where to answer hypotheses 1 and 2 with the first sub-structure, to answer hypotheses 3 and 4 using the second sub-structure, to answer hypothesis 5 using the third sub-structure. The following is the SPSS output of the three structures summarized in the following table.

Table 2. SPSS Output Three Sub-Structures.

Model	Unstandardized Coefficients		Beta	t-value	Sig.
	B	St. Error			
X1 – Y1: supply chain leadership →Productivity	0.380	0.073	0.470	5.208**	0.000
X2 – Y1: supply chain followership→ productivity	0.579	0.097	0.539	5.974**	0.000
X1 – Y2: supply chain leadership →Performance	0.285	0.066	0.401	4.329**	0.000
X2 – Y2: supply chain followership →Performance	0.565	0.087	0.598	6.462**	0.000

Source: SPSS Output 21.0 for windows.

The output results above are entered into the structural equation image as follows:

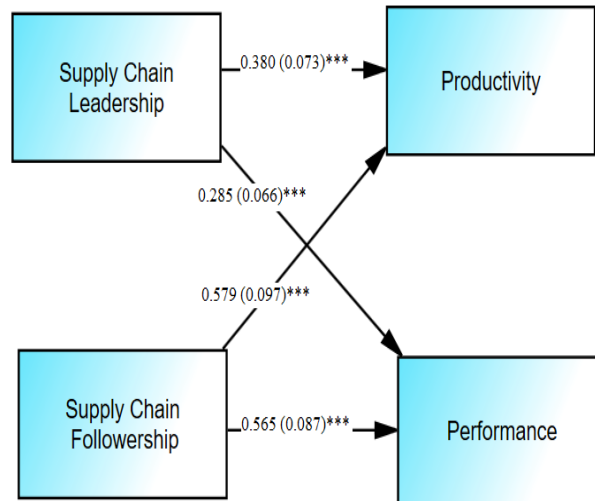


Figure 2. Path Analysis Results

6. Hypothesis Test Results and Discussion

1. Effect of supply chain Leadership style on Productivity.

From the results of the analysis conducted as shown in Table 2, the calculated t value of supply chain leadership towards productivity is 5.208, due to the value of t count > t Table (5.208 > 2,028), with a significance level of 0,000, due to the significance level over <0, 05 (0,000 <0.05), it can be concluded that supply chain leadership has a significant effect on productivity.

2. The Effect of supply chain followership on Productivity.

From the results of the analysis carried out as shown in Table 2, the calculated value of t leadership style variables towards productivity is 5.974, because the value of $t > t$ Table (5.974 > 2.028), with a significance level of 0.000, due to a significance level of over $< 0, 05$ (0,000 < 0.05), it can be concluded that the leadership style has a significant effect on productivity.

3. Effect of Supply chain leadership on performance.

From the results of the analysis conducted as shown in Table 2, the calculated t value of supply chain leadership on the performance of pharmaceutical companies is 4.329, due to the value of $t \text{ count} > t$ Table (4.329 > 2.028), with a significance level of 0.000. Due to a significance level of over < 0.05 (0,000 < 0.05), it can be concluded that motivation has a significant effect on the performance.

4. Effect of Supply chain followership on performance.

From the SPSS output in Table 2, the calculated t value of supply chain followership on the performance of pharma companies is 6.462, because the value of $t \text{ count} > t$ Table (6.462 > 2.028), with a significance level of 0.000, due to a significance level of over < 0.05 (0,000 < 0.05), it can be concluded that the leadership style has a significant effect on the performance of the teaching staff.

Based on the above discussion, following hypotheses are finally accepted under present research

H1: There is a significant impact of supply chain leadership on the productivity factor.

H2: There is a significant impact of supply chain followership on the productivity factor.

H3: There is a significant impact of supply chain leadership on the performance factor.

H4: There is a significant impact of supply chain followership on the performance factor.

Results Coefficient of Determination (R²)

The coefficient of determination is between zero and one. If $R = 0$ means between the independent variable (Independent variable) with the dependent variable (dependent variable) there is no relationship, whereas if $R = 1$ means between the independent variable (Independent variable) with the dependent variable (Dependent variable) has a strong relationship. Then the results obtained from this study are in accordance with Table 3.

Table 3. Test R and R Square

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,919 ^a	,844	,830	,13306

By considering variations in the R Square Value of 0.844, it means that the percentage contribution of the influence of motivation, leadership style and productivity of the performance of pharmaceutical companies is 84.4%, while the remaining 15.6% is influenced by other variables not revealed in this study.

From the hypothesis testing, it is known that supply chain leadership has a positive and significant effect on productivity. These study findings are providing a good evidence for the consideration of supply chain leadership as a core exogenous factor to determine the level of productivity in the pharma industry of Indonesia. Additionally, the influence of supply chain followership on the level of productivity is also found to be significant at 5 percent which indicates that higher level of supply chain followership means higher organizational productivity.

Meanwhile, the impact of supply chain leadership on the performance factor of pharmaceutical companies is also found to be positively significant. This would employ that higher supply chain leadership practices are quite inevitable for the organizational outcome which is indeed a good sign. Furthermore, the influence of supply chain followership is also found to be positively significant on the performance of pharma firms in Indonesia.

7. Conclusion And Sugestion

Conclusion

Based on the results and discussion, the conclusions of this study are:

1. There is an effect of supply chain leadership on the productivity of pharma firms as working in the region of Indonesia. This indicates that if a if the pharma firms have higher level of supply chain leadership perspective, then this will be followed by an increase in productivity factor as well.

2. There is an influence of supply chain followership on the productivity in pharmaceutical industry. This indicates that if the the pharma companies have a supply chain followership style than the productivity of the relative firms will also increase. Conversely, if the these pharmaceutical industry is not able to work through supply chain followership, than their productivity will decrease.

3. There is an effect of supply chain leadership on the performance. This indicates that if the pharmaceutical companies have a higher supply chain leadership, then this will also be followed by further improving the teacher's performance.

4. There is an influence of supply chain followership on the performance of pharmaceutical companies as working in Indonesia. This indicates that if the such followership is able to manage and control the various functions of the pharma industry, then the

followers will be able to develop and improve the performance of their companies as well.

Although present study is observed with various contributions in the existing literature. Yet there are some limitations as well. For example, a newly introduced factors of supply chain under the title of leadership and followership were examined for examining the productivity and performance dynamics only. However, the relationship of supply chain leadership and followership with the various categories of the suppliers in the pharmaceutical industry is entirely missing. This would be considered as a very first limitation under present study. Secondly, the sample size of the current study is very limited and can be expanded with more efforts in the future studies. Thirdly, this study is only applied to one sector from the whole economy of Indonesia which indicates that future studies need to expand their implication in terms of cross-sectional research design. Fourthly, this study is entirely missing with the implication of two-step approach which specifies the assessment of measurement model through which reliability and validity of the constructs are tested. Additionally, the assessment of measurement model may lead to the assessment of structural model which is also not applied under present study analysis. Future studies are highly suggested to work for this limitation as well. Finally, this study has considered any type of demographic factors which are quite important to examine the respondent profile. It is suggested that upcoming studies need to examine these limitations for the better implications and more originality as well.

References

- [1] D. A. Waldman, G. G. Ramirez, R. J. House, and P. Puranam, "Does leadership matter? CEO leadership attributes and profitability under conditions of perceived environmental uncertainty," *Academy of management journal*, vol. 44, pp. 134-143, 2001.
- [2] E. Daniëls, A. Hondeghem, and F. Dochy, "A review on leadership and leadership development in educational settings," *Educational research review*, vol. 27, pp. 110-125, 2019.
- [3] A. Hunt, M. M. Wanderley, and M. Paradis, "2002: The Importance of Parameter Mapping in Electronic Instrument Design," in *A NIME Reader*, ed: Springer, 2017, pp. 29-44.
- [4] A. Caza, B. Z. Posner, and Ethics, "The influence of nationality on followers' satisfaction with their leaders," *Journal of Leadership, Accountability*, vol. 14, 2017.
- [5] C. L. Hoyt and J. Blascovich, "Transformational and transactional leadership in virtual and physical environments," *Small group research*, vol. 34, pp. 678-715, 2003.
- [6] A. R. M. Mokhtar, A. Genovese, A. Brint, and N. J. Kumar, "Improving reverse supply chain performance: The role of supply chain leadership and governance mechanisms," *Journal of Cleaner Production*, vol. 216, pp. 42-55, 2019.
- [7] A. R. M. Mokhtar, A. Genovese, A. Brint, and N. Kumar, "Supply chain leadership: A systematic literature review and a research agenda," *International Journal of Production Economics*, vol. 216, pp. 255-273, 2019.
- [8] F. Jia, Y. Gong, and S. Brown, "Multi-tier sustainable supply chain management: The role of supply chain leadership," *International Journal of Production Economics*, vol. 217, pp. 44-63, 2019.
- [9] T. Sriyakul, A. Singas, J. Sutduncan, and K. Jermittiparsert, "Effect of cultural traits, leadership styles and commitment to change on supply chain operational excellence," *Journal of Computational Theoretical Nanoscience*, vol. 16, pp. 2967-2974, 2019.
- [10] C. C. Defee, T. P. T. Stank, and T. Esper, "Performance implications of transformational supply chain leadership and followership," *International Journal of Physical Distribution Logistics Management*, 2010.
- [11] A. M. Abu-Tineh, S. A. Khasawneh, and A. A. Al-Omari, "Kouzes and Posner's transformational leadership model in practice," *Leadership Organization Development Journal*, 2008.
- [12] E. J. T. I. J. o. P. A. Warsono, "Pengaruh efisiensi pelayanan publik dan disiplin kerja terhadap efektivitas kerja pegawai kelurahan sunter jaya di jakarta utara," vol. 2, pp. 69-86, 2016.
- [13] R. Somad and D. J. Priansa, "Communications Management develops Customer-Oriented Businesses," *Bandung: Alfabeta*, 2014.
- [14] C. C. Defee, T. P. T. Stank, T. J. I. J. o. P. D. Esper, and L. Management, "Performance implications of transformational supply chain leadership and followership," 2010.
- [15] A. R. M. Mokhtar, A. Genovese, A. Brint, and N. Kumar, "Improving reverse supply chain performance: The role of supply chain leadership and governance mechanisms," *Journal of Cleaner Production*, vol. 216, pp. 42-55, 2019.
- [16] K. J. J. T. S. U. Komalia, "Analisis Pemakaian Air Bersih (PDAM) untuk Kota Pematang Siantar," vol. 2, 2013.
- [17] M. M. J. S. Sinungan, "Gambaran penerimaan orang tua yang memiliki anak ADHD (Attention Deficit Hyperactivity Disorder)," 2017.

-
- [18] M. I. J. L. J. I.-i. P. d. S. Hasibuan, "Model Pembelajaran CTL (contextual teaching and learning)," vol. 2, 2014.
- [19] A. P. Mangkunegara and A. J. B. P. R. R. Prabu, "Manajemen sumber daya manusia," 2009.
- [20] D. Suryasukei, "Pengaruh motivasi kerja dan lingkungan kerja terhadap kinerja karyawan bagian produksi pada pt. agata abadi BERSAMA tangerang," Upn" Veteran" Yogyakarta, 2012.
- [21] H. Ali and N. J. D. Y. Limakrisna, "Research Methodology," 2013.