

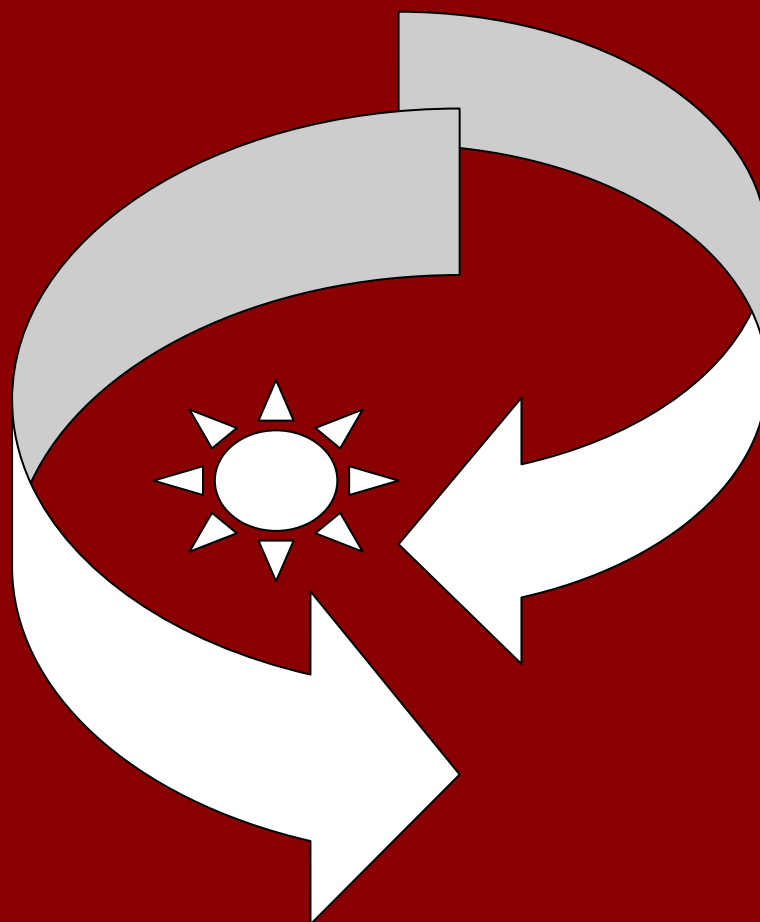
Vol. 8 No. 6 , January – February 2021  
International peer-reviewed journal

ISSN: 2338-4603 (print)  
2355-8520 (online)



# Jurnal Perspektif Pembiayaan dan Pembangunan Daerah

(Journal of Perspectives on Financing and Regional Development)



Master Program in Economics  
Universitas Jambi



## Jurnal

Perspektif Pembiayaan dan  
Pembangunan Daerah

Accreditation Decree (SINTA S2), valid from Vol. 6 No. 2 (September – October 2018) based on the Decree of the Director General of Development and Research Enhancement, Ministry of Research, Technology & Higher Education of the Republic of Indonesia, Number 10/E/KTP/2019

Published by Master Program in Economics, Graduate Program of Jambi University

**Editor Address:** Jurnal Perspektif Pembiayaan dan Pembangunan Daerah. Program Magister Ilmu Ekonomi, Pascasarjana, Universitas Jambi, Kampus Telanaipura Jambi, Indonesia

---

<b>Editor in Chief</b>	: Dr. Junaidi, SE, M.Si	Universitas Jambi, Indonesia
<b>Editorial Board Members</b>	: Prof. Dr. Syamsurijal Tan Prof. Dr. Amri Amir Prof. Dr. Firwan Tan Prof. Dr. Nataliia Shalimova Dr. Manta P. Elena Otilia Dr. Syaparuddin Farhan Ahmed, Ph.D  Dr. Syahmardi Yacob Dr. Tona Aurora Lubis Dr. Rafal Balina Dr. Mahyuddin Dr. Heriberta Assoc. Prof. Nana Rusadze, Ph.D	Universitas Jambi, Indonesia Universitas Jambi, Indonesia Universitas Andalas, Indonesia Central Ukrainian National Technical University, Ukraine Athenaeum University Bucharest, Romania Universitas Jambi, Indonesia Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology, Karachi, Pakistan Universitas Jambi, Indonesia Universitas Jambi, Indonesia Warsaw University of Life Sciences, Poland Hasanudin University, Indonesia Universitas Jambi, Indonesia Akaki Tsereteli State University, Georgia
<b>Peer Reviewers</b>	: Prof. Dr. Haryadi, SE, M.Ms Prof. Dr. Bakhov Ivan Stepanovich Mohd Azlan Shah Zaidi, Ph.D Dr. Joko Tri Haryanto Ishaq HACINI, Ph.D Prof. Dr. Sofyardi, SE, MA Kei Mizuno Budi Kurniawan, SST, SE, M.Si, ME Kamila Radlinska, Ph.D Sambas Ade Kesuma, Ph.D Dr. Zulfanetti, S.E, M.S Yugang He Dr. Khadra DAHOU Muhammad Farooq Jan, Ph.D Dr. Rike Setiawati, S.E, M.M Ikawati Karim, S.TP, M.Si Dr. Agus Solikhin, S.E., MM Dr. Ratih Kusumastuti, S.E., MM Dr. Ibrahim Mohammed Lawal David Harold Chester Adewale Isaac Olutumise, Ph.D Dr. Ni Wayan Rustiarini, S.E., M.Si., Ak Muhammad Iqbal, S.IP., M.IP	Universitas Jambi, Indonesia Interregional Academy of Personnel Management, Ukraine Universiti Kebangsaan Malaysia Ministry of Finance, Indonesia University of Mascara, Algeria Universitas Andalas, Indonesia Kyoto University, Japan Central Bureau of Statistics, Jambi, Indonesia Koszalin University of Technology, Poland University of Sumatera Utara, Indonesia Universitas Jambi, Indonesia Chonbuk National University, Republic of Korea University of Mascara, Algeria IQRA National University, Pakistan Universitas Jambi, Indonesia Universitas Sulawesi Barat, Indonesia Universitas Jambi, Indonesia Universitas Jambi, Indonesia University of Maiduguri, Nigeria Freelance writer/researcher, Israel Adekunle Ajasin University, Nigeria Universitas Mahasaraswati Denpasar, Indonesia Universitas Muhammadiyah Yogyakarta, Indonesia
<b>Administration Officer</b>	: Dwi Hastuti, S.E., M.Sc	
<b>Distribution</b>	: Khairul	

Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is referred to be a forum for the delivery of scientific thought and analysis in the field of economics especially related to financing and regional development for faculty staff, researchers, alumni, students and broad community. Starting from Volume 6 No. 1, this journal is published into six times a year (originally published four times a year). The editor receives articles that have unpublished yet in any media, either inside or outside the country. The online version of this journal is available at <http://online-journal.unja.ac.id/JES>



# Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (Journal of Perspectives of Financing and Regional Development)

## Table of Contents

Table of Contents	i
Editor's Note	ii
Critical success factors of public-private partnership from 2000 to 2019: A literature review <i>Lydia Natalia; Nanny Dewi Tanzil; Prima Yusi Sari</i>	531
Trade openness, institutions and economic growth in Sub-Saharan Africa <i>AKINLO Taiwo; OKUNLOLA Charles Olalekan</i>	541
Financial development and tourism at the traditional village in Gianyar, Bali: Tri Hita Karana Value <i>I Made Suidarma; I Ketut Nurcita; I Dewa Nyoman Marsudiana</i>	561
Digital financial inclusion and fiscal solvency in Uganda's local governments: A review of regulation mediation <i>Paul Onyango-Delewaa; Isaac Nabeta Nkote</i>	569
The role of employee performance mediation on organizational performance <i>Efi Herawati; Syamsurijal Tan; Tona Aurora Lubis; M. Syurya Hidayat</i>	585
Entrepreneurship intentions for students in Jambi Province, Indonesia (Study in response to the implementation of the freedom to learn, independent campus) <i>Amril Amril; Hardiani Hardiani</i>	595
Price variation and transmission in beans consuming market of Southwest, Nigeria <i>Olanrewaju Olaniyi Omosehin; Babatunde Peter Ekundayo; Oluyede Adeleke Aturam; Adewale Isaac Olutumise</i>	609
Trade flow of manufacturing sector and foreign direct investment in ASEAN economic integration: the gravity model of trade <i>Diah Wahyuningsih</i>	619
Long term relationship between exports, gross domestic capital formation, transfer fund allocation, and private investment in Jambi Province <i>Sayid Syekh; Zainuddin Zainuddin</i>	631

### Editor's Note

Since Volume 6, Issues 2 (September – October 2018), the Journal of Perspectives on Financing and Regional Development has been nationally accredited with a SINTA (Science and Technology Index) score of S2, based on the Decree of the Director-General of Development and Research Enhancement, Ministry of Research, Technology & Higher Education of the Republic of Indonesia, Number 10/E/KTP/2019 concerning the Ranking of Scientific Journal.

In Volume 8 Issue 6, 2021 is presented nine articles that come from Universitas Padjadjaran (Indonesia), Department of Economics, Adeyemi College of Education Ondo, (Nigeria), Institute of Peace and Conflict Resolution, CBD, Abuja, (Nigeria), Universitas Pendidikan Nasional (Indonesia), Gulu University (Uganda), Makerere University (Uganda), Universitas Jambi (Indonesia), Federal University of Technology (Nigeria), College of Education, Ikere-Ekiti (Nigeria), Adekunle Ajasin University (Nigeria), Universitas Trunojoyo (Indonesia), Universitas Batanghari (Indonesia).

Hopefully, in the next issue can be presented articles with issues and from more diverse circles.

Happy joy reading

Editorial

## Critical success factors of public-private partnership from 2000 to 2019: A literature review

Lydia Natalia\*; Nanny Dewi Tanzil; Prima Yusi Sari

Department of Accounting, Faculty of Economics and Business, Universitas Padjadjaran, Indonesia

*\*To whom correspondence should be addressed. Email: natalia.lydia25@gmail.com*

DOI: 10.22437/ppd.v8i6.10742	Received: 21.10.2020	Revised: 01.01.2021	Accepted: 10.01.2021	Published: 01.02.2021
---------------------------------	-------------------------	------------------------	-------------------------	--------------------------

### Abstract

Public-Private Partnership (PPP) is one of the schemes that have inspired many countries in infrastructure development. One of the most discussed PPP topics by researchers is the concept of Critical Success Factors (CSF). Therefore, this study examines CSF publications for PPP projects from selected journal sites from 2000-2019. The results showed that research on CSF in PPP began to increase in 2012. The most identified CSFs were appropriate risk allocation and sharing, competitive and transparent procurement processes, favorable and efficient legal frameworks, commitment and responsibility of the public and private sectors, and a robust and reliable private consortium. Furthermore, it was also found that most countries that were the objects of research on PPP CSF were China, followed by Hong Kong and Australia. The results also show that the dominant research focuses on multi-sector types of infrastructure where CSF can be applied to all infrastructure sectors. The findings obtained in this study can provide an overview of CSFs for projects with PPP schemes in the future. Besides, the identified CSFs can be applied to any PPP infrastructure sector. They can assist stakeholders in increasing the likelihood of PPP project success and can be adopted for further research.

---

**Keywords:** *Critical Success Factors, Public-Private Partnership, Infrastructure*

**JEL Classification:** G32, M21, M41

### INTRODUCTION

Governments worldwide are increasingly adopting Public-Private Partnership (PPP) policies to terminate large infrastructure gaps, and there is growing interest in adopting these policies in both developed and developing countries. Many governments around the world are now trying to use private sector expertise and resources. It to reduce infrastructure shortages, especially those related to public services.

PPPs are an increasingly valuable tool for public infrastructure development and the provision of public services. PPP has drawn many researchers' interest since this type of partnership was introduced to the construction sector. By identifying the most critical features of the project, several researchers have sought to enhance PPP projects' functionality to find valuable strategies for better implementation (Ke et al., 2009).

Over the years, research on PPP has been carried out in various aspects following the growing popularity of PPP in the world's eyes. These various aspects include risk management and risk allocation (Li et al., 2001; Grimsey and Lewis, 2002; Hwang et al., 2013), financial feasibility studies (Zhang, 2005), and Value for Money (Cheung et al.,

2009; Siemiatycki and Farooqi, 2012).

From that period, discussion of Critical Success Factors (CSF) has also gained much more focus, following research trends on PPP from 1998 to 2008 conducted by Ke et al. (2009) and research conducted by Tang et al. (2010). CSF is one aspect of PPP that is of particular concern to researchers.

With the growth of research on CSF in PPP projects, it is considered necessary to conduct a literature review to (1) observe the development of CSF research on PPP projects from 2000 to 2019, (2) identify countries that are the subject of CSF research, (3) identify the infrastructure sectors that have been explored in previous CSF studies, and (4) identify the dominant CSF from the results of previous research.

## **METHODS**

A systematic analysis of journal publications is necessary to thoroughly review and analyze the results from previous research on a specific subject or field of study. In this regard, three stages needed consists of (1) selection of target journals, (2) selecting target papers, and (3) examining target papers.

### **Selection of target journals**

The academic journals published articles with CSF research were identified first. The publications used are only publications with the Q1 category whose validity was obtained through the Scimagojr.com website.

The articles used in this study were all national and international scientific articles published on these databases: ScienceDirect, Emerald Insight, AsceLibrary, Sage Journal, Directory of Access Journal, Springer, and Wiley Online Library.

The search keywords included “critical success factors”, “critical factors”, and “success factors”, which are limited to the PPP area by using the keyword “public-private partnership”. Papers with these specific terms in the title, abstract, or keywords were considered to have met the study requirements. Moreover, the search restricted to the subject areas of “social sciences”, “business”, “accounting”, “management”, “engineering”, “environment”, “econometrics, finance and economics”, “energy”, “environmental science” and “decision sciences” with the document type of “article or review”.

Based on the research results, academic journals that publish articles about PPP CSF and within the Q1 category obtained as follows: Engineering, Construction and Architectural Management (ECAM), Journal of Construction Engineering and Management (JCEM), Facilities, Cities, Global Journal of Flexible Systems Management, Habitat International, International Journal of Project Management (IJPM), International Journal of Public Sector Management (IJPSM), Journal of Management in Engineering (JME), Maritime Economics and Logistics, Project Management Journal, Public Administration Review, and Transport Policy. Henceforth these journals were selected as the target academic journals for further analysis.

### **Selecting target papers**

From 7 search engines obtained 2,448 articles, then checked briefly by reading the abstract and its contents to filter out unrelated papers. Based on 13 journals that were selected, 28 articles are about PPP CSF within the Q1 category.

Regardless of the extensive search for publications on the PPP CSF, the number of articles extracted from journals selected may not be complete and does not include all publications in the field of PPP under study. Therefore, it must be emphasized that the analysis is based solely on data obtained using the specific sampling approach adopted in this study. Moreover, this study not intended to examine the entire article on CSF PPP.

However, it is expected to provide an overview of CSF PPP research trends and the most frequently cited success factors for future implementation.

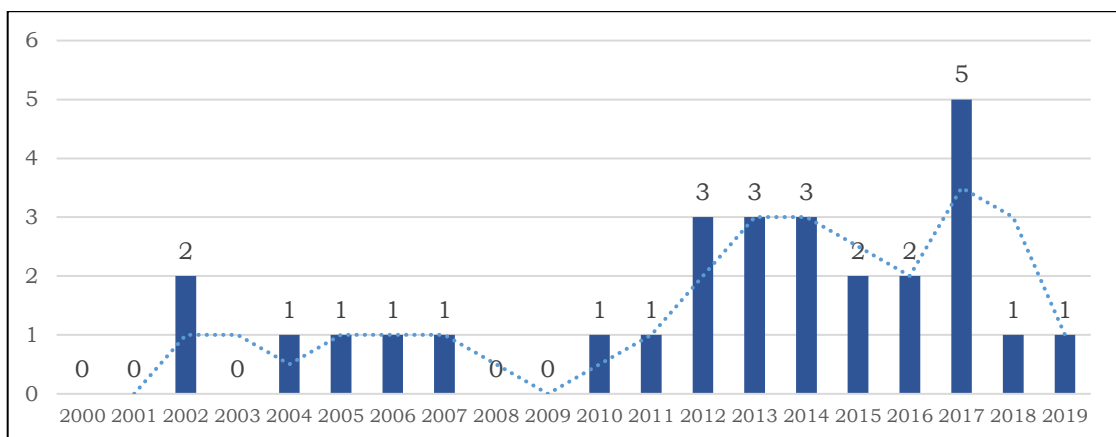
**Examining target papers**

The articles obtained are then analyzed by reading the entire article content includes the research objectives, framework, methods, results, and conclusions. The results presented into four categories: (1) the development trend of PPP CSF research in the 2000-2019 period, (2) the most researched countries as research objects, (3) the infrastructure sector, which was the most researched, and (4) identification of findings most CSF in research during 2000-2019.

**RESULTS AND DISCUSSION**

**Publication statistics for critical success factors on PPP Projects**

Figure 1 presents the number of publications per year from 2000 to 2019. The numbers presented are the results of searching for articles through seven portals that have been selected for use in this study. Figure 1 shows that the total published articles found according to the predetermined criteria are 28 articles from 2000 to 2019.



**Figure 1.** Publication statistics for critical success factors on PPP Projects in 2000-2019

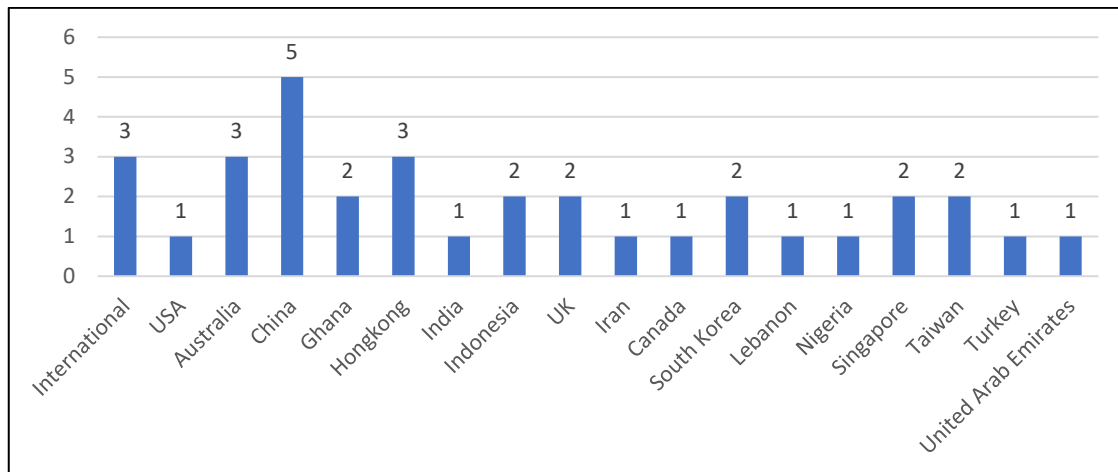
There were 8 CSF articles for PPP from 2000 to 2011. It indicates that even though PPP had developed sufficiently in various countries, only a few researchers made CSF for PPP as their study's focus. However, there was an increase from 2012 to 2019 when 20 articles were obtained. It illustrates that PPP is a reasonably significant means of realizing infrastructure development accompanied by public services. Simultaneously, researchers are increasingly involved in reviewing infrastructure development practices with the PPP scheme and developing various methods to better implement PPP. Findings in previous research indicate that CSF is one of the topics of interest to researchers (Ke et al., 2009).

**CSF research object countries in PPP Projects**

Not all articles use only one country as the object of research. Several studies observed several countries within a study to compare PPP in these countries (Chou & Pramudawardhani, 2015; Zhang et al., 2012; Osei-Kyei & Chan, 2017a; Abdel Aziz, 2007). Several studies also conceptualize CSF research at the international level to apply to any country (Osei-Kyei & Chan, 2017b; Zhang, 2005; Kumaraswamy & Morris, 2002).

Figure 2 shows that the discussion on 35 countries is contained in 28 research articles. By setting aside the international concept, China appears to be the region widely studied as the research objects (5 publications), followed by Hong Kong and Australia with three publications.





**Figure 2.** Countries as CSF research object on PPP Projects

China is the country with the PPP scheme that is the most widely used as the CSF research object. In China, PPP was firstly introduced to the Shajiao B power plant project in mid-1980. Since 1996, several projects began to be promoted with PPP under the Build-Operate-Transfer (BOT) scheme, such as the Laibin B power plant project and the Chengdu No. 6 water project. Since then, the private sector's involvement in infrastructure development in China has steadily increased (Ke et al., 2014). Research on CSF is necessary to understand better the factors that can determine PPP projects' success in China (Chan et al., 2010).

Based on Figure 2, Hong Kong ranks as the most studied country after China. The financial instability in Asia in the late 1990s had a significant impact on the Hong Kong government. With the various protests filed for better public service improvements due to Hong Kong's rapid development, alternative funding for the development is required, i.e., PPP. With the advantage that Hong Kong is the gateway to mainland China, foreign companies can enter the Asian market, where private contributions play a major role (Chan et al., 2007). Like China, PPP has increased in Hong Kong by exploring potential success factors for PPP projects (Cheung et al., 2012).

Australia occupies a position with the same score as Hong Kong (See Figure 2). PPP in Australia has been used to implement projects such as main toll roads, hospitals, prisons, schools, services, and sports facilities. Exploring PPP success factors in Australia includes case studies, such as the Sydney Super Dome and Australia Stadium, which have informed future practice practitioners for Australian PPP (Jefferies, 2006).

### Infrastructure sectors in CSF research

PPPs have been used in various sectors to acquire several types of assets and facilities. Some countries merely focus on the use of PPP in specific sectors. This justification is intended to assist the government's investment priority policies, improve service performance, and prioritize areas where PPP is expected to be more successful (World Bank, 2017).

Table 1 presents the results of the search process for the infrastructure sector used in previous studies. As shown in Table 1, 15 articles applied the multi-sector concept to CSF research. It is assumed that the CSF identification results in the research can be applied to PPP projects in any sector. Five articles examined the success factors in the transportation infrastructure sector (Bae & Joo, 2016; Chou et al., 2012; Babatunde & Perera, 2017; Kulshreshtha et al., 2017; Min & Jun 2014). Meanwhile, the other two articles examined the road infrastructure sector and sports facilities and infrastructure (Ahmadabadi & Heravi, 2019; Wang, 2015; Jefferies et al., 2002; Jefferies, 2006).

**Table 1.** Infrastructure sector in CSF research

Infrastructure Sector	Total article	%
Drinking-Water Infrastructure	1	3.6
Sports Facilities and Infrastructure	2	7.1
Road Infrastructure	2	7.1
Housing Infrastructure	1	3.6
Water Resources and Irrigation Infrastructure	1	3.6
Telecommunication and Informatics Infrastructure	1	3.6
Transportation Infrastructure	5	17.9
Multi-sector	15	53.6
<b>Total</b>	<b>28</b>	<b>100.0</b>

Source: Processed data

**Identification of CSF findings on PPP Projects**

A summary of findings for identifying CSFs for each article is presented in Table 2. From 28 publications, the number of CSFs identified is 20 CSFs. The top five factors are appropriate risk allocation and sharing (identified in 19 articles), followed by a competitive and transparent procurement process, a favorable and efficient legal framework, and public and private sector commitments and responsibilities. Finally, a robust and reliable private consortium factor occupies the fifth position, discovered in 13 published articles.

**Table 2.** CSF findings on PPP Projects from 2000-2019

No.	CSFs	Authors	Total
1	Appropriate risk allocation and sharing	Chou & Pramudawardhani (2015); Hwang et al. (2013); Chou et al. (2012); Wang (2015); Babatunde & Perera (2017); Zhang et al. (2012); Osei-Kyei & Chan (2017); Jefferies (2006); Wang et al. (2018); Jamali (2004); Osei-Kyei & Chan (2017)a; Zhang (2005); Gurgun & Touran (2014); Tang et al. (2013); Kumaraswamy & Morris (2002); Abdel Aziz (2007); Kulshreshtha et al. (2017); Min & Jun (2014); Yang et al. (2013)	19
2	Competitive and transparent procurement process	Chou & Pramudawardhani (2015); Hwang et al. (2013); Abdul-Aziz & Kassim (2011); Chou et al. (2012); Ng et al. (2012); Babatunde & Perera (2017); Wibowo & Alfen (2014); Osei-Kyei & Chan (2017); Jefferies et al. (2002); Jefferies (2006); Jamali (2004); Chan et al. (2010); Abdel Aziz (2007); Almarri & Boussabaine (2017); Kulshreshtha et al. (2017); Min & Jun (2014)	16
3	Favorable and efficient legal framework	Chou & Pramudawardhani (2015); Hwang et al. (2013); Chou et al. (2012); Ng et al. (2012); Ameyaw & Chan (2016); Babatunde & Perera (2017); Wibowo & Alfen (2014); Zhang et al. (2012); Wang et al. (2018); Jamali (2004); Osei-Kyei & Chan (2017)a; Gurgun & Touran (2014); Kumaraswamy & Morris (2002); Abdel Aziz (2007); Kulshreshtha et al. (2017); Yang et al. (2013)	16
4	Commitment and responsibility of the public and private sectors	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Hwang et al. (2013); Abdul-Aziz & Kassim (2011); Chou et al. (2012); Ameyaw & Chan (2016); Babatunde & Perera (2017); Zhang et al. (2012); Osei-Kyei & Chan (2017); Wang et al. (2018); Jamali (2004); Chan et al. (2010); Tang et al. (2013); Almarri & Boussabaine (2017); Kulshreshtha et al. (2017); Min & Jun (2014)	16
5	A robust and reliable private consortium	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Hwang et al. (2013); ); Chou et al. (2012); Ng et al. (2012); Wang (2015); Babatunde & Perera (2017); Zhang et al.	13

No.	CSFs	Authors	Total
		(2012); Osei-Kyei & Chan (2017); Jefferies et al. (2002); Zhang (2005); Kumaraswamy & Morris (2002); Kulshreshtha et al. (2017)	
6	Stable macroeconomic conditions	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Chou et al. (2012); Ng et al. (2012); Zhang et al. (2012); Osei-Kyei & Chan (2017); Zhang (2005); Chan et al. (2010); Gurgun & Touran (2014); Kumaraswamy & Morris (2002); Almarri & Boussabaine (2017); Kulshreshtha et al. (2017)	12
7	Legal, political and social support	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Bae & Joo (2016); Chou et al. (2012); Ng et al. (2012); Ameyaw & Chan (2016); Babatunde & Perera (2017); Osei-Kyei & Chan (2017); Chan et al. (2010); Kumaraswamy & Morris (2002); Almarri & Boussabaine (2017); Kulshreshtha et al. (2017)	12
8	Good governance	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Chou et al. (2012); Ng et al. (2012); Ameyaw & Chan (2016); Wibowo & Alfen (2014); Wang et al. (2018); Chan et al. (2010); Kulshreshtha et al. (2017); Yang et al. (2013)	10
9	Clear and precise project identification and summary	Ahmadabadi & Heravi (2019); Ameyaw & Chan (2016); Babatunde & Perera (2017); Wibowo & Alfen (2014); Osei-Kyei & Chan (2017); Jefferies (2006); Wang et al. (2018); Tang et al. (2013); Kumaraswamy & Morris (2002); Abdel Aziz (2007)	10
10	Availability of financial markets	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Bae & Joo (2016); Chou et al. (2012); Babatunde & Perera (2017); Wibowo & Alfen (2014); Zhang et al. (2012); Kulshreshtha et al. (2017); Yang et al. (2013)	9
11	Government involvement by providing guarantees	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Chou et al. (2012); Babatunde & Perera (2017); Osei-Kyei & Chan (2017); Almarri & Boussabaine (2017); Kulshreshtha et al. (2017); Yang et al. (2013)	8
12	Technical and economic feasibility	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Abdul-Aziz & Kassim (2011); Chou et al. (2012); Wang (2015); Babatunde & Perera (2017); Abdel Aziz (2007);	7
13	Financially attractive projects and profitable investments	Wang (2015); Ameyaw & Chan (2016); Wibowo & Alfen (2014); Wang et al. (2018); Tang et al. (2013); Kumaraswamy & Morris (2002);	6
14	Comprehensive and realistic cost / benefit assessment	Chou & Pramudawardhani (2015); Chou et al. (2012); Babatunde & Perera (2017); Jefferies et al. (2002); Yang et al. (2013)	5
15	Clear goals and objectives	Chou & Pramudawardhani (2015); Chou et al. (2012); Jamali (2004); Tang et al. (2013); Min & Jun (2014)	5
16	Efficient payment mechanism	Ng et al. (2012); Osei-Kyei & Chan (2017); Wang et al. (2018); Osei-Kyei & Chan (2017)a; Kumaraswamy & Morris (2002)	5
17	Appropriate procedures and arrangements for contracts and concession periods	Ahmadabadi & Heravi (2019); Chou & Pramudawardhani (2015); Wibowo & Alfen (2014); Jefferies (2006); Abdel Aziz (2007)	5
18	Safe, sound, and secure economic policy	Chou & Pramudawardhani (2015); Chou et al. (2012); Ng et al. (2012); Wibowo & Alfen (2014);	4
19	Well organized public sector	Chou & Pramudawardhani (2015); Hwang et al.. (2013); Chou et al.. (2012)	3
20	Technology transfer and innovation	Bae & Joo (2016); Babatunde & Perera (2017); Osei-Kyei & Chan (2017)	3

Table 2. indicates that irrespective of the project stage, infrastructure sector, or PPP project model, these factors are significant in supporting a PPP project's success.

1. **Appropriate risk allocation and sharing**  
Infrastructure development is a costly and complicated endeavor where project risks may arise if not handled properly. It is not surprising that a significant portion of identification was obtained through risk allocation and risk-sharing factors. Nineteen published articles from 2000 to 2019 considered this in the research.  
Allocation and risk-sharing are one of the core components in the preparation of a PPP project. It is expected that a better CSF may result in better risk management through the process of clearly defining risks and allocating them to parties with more appropriate means of managing these risks, be it private or public (Osei-Kyei and Chan, 2015).
2. **The competitive and transparent procurement process**  
A competitive and transparent procurement process ranks second out of the top five CSF rankings based on 16 articles.  
A transparent and efficient procurement process is essential to reduce transaction costs and shorten negotiation and contract times. A clear description of the project and the required requirements may help achieve this during the tender process. In most cases, bidding alone cannot produce a robust private consortium that benefits the public (Chan, 2010).
3. **Favorable and efficient legal framework**  
A total of 16 articles identified a favorable and efficient legal framework as an efficient factor in facilitating PPP projects' success. Sufficient legal resources must be available at a reasonable cost to maintain the legal structure and necessary documentation. A transparent and stable legal framework may assist in making contracts and agreements bankable. A proper dispute resolution system may help ensure the stability of the PPP contract. Governance rules, regulations, and appropriate reference manuals related to PPP have been well-established in several developed countries (such as the UK, Australia, Canada, and South Africa) to facilitate the potential adoption of the PPP procurement approach (Zhang et al., 2012).
4. **Commitment and responsibility of the public and private sectors**  
Sixteen articles have identified the topic of commitment and responsibility of the public and private sectors. It is important to define and share the responsibilities of each party appropriately. It is important to create a strong relationship so that PPP can work smoothly as well. The attitude of stakeholders in PPP projects may affect the quality of project results. Therefore, the relationship and management among stakeholders must also be considered. For projects to be implemented, the public and private sectors must demonstrate an equal commitment to the PPP project's objectives (Chan, 2010; Almarri, 2017).
5. **A robust and reliable private consortium**  
The final factor is a robust and reliable private consortium, identified in 13 articles from 28 published articles considered in this study.  
Although the government is generally in a better position to create an enabling environment for private sector participation in public infrastructure development, the private sector plays a significant role in successfully implementing several PPP projects. The PPP project's complexity made it difficult for a construction company to complete the project, so many companies gathered to form a consortium. However, the structure and compatibility of these entities may affect the success of the project. A weak and poorly managed consortium created difficulties and ultimately caused PPP projects to fail. In this regard, the consortium must have strong technical, operational, and management skills to implement PPP projects (Osei-Kyei and Chan, 2015; Zhang, 2005).

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

It is noteworthy that while there were historically no publications in 2000, there was an improvement and hit the most publications in 2017 with five publications by 28 papers from 2000 to 2019 included in this analysis. China became the most popular country studied in CSF research in the 2000-2019 period, followed by Hong Kong and Australia. There is little research in developing countries. The PPP concept has not received much development in those countries, or the documents used in this study are insufficient. Research for multi-sector infrastructure is ranked first as a sector considered in previous studies. It is expected so that CSF can be applied to any infrastructure sector in PPP projects to facilitate PPP implementation in the future. The transportation infrastructure sector is the next sector examined in the previous article, followed by the road infrastructure sector and the sports facilities infrastructure sector.

Five CSFs identified in 19 years of research considered appropriate risk allocation and sharing, competitive and transparent procurement process, favorable and efficient legal framework, commitment and responsibility of the public and private sectors, and the last one a robust and reliable private consortium.

The findings obtained in this study can provide an overview of CSFs for projects with PPP schemes in the future. The identified CSFs can also be applied to any PPP infrastructure sector and help stakeholders increase the likelihood of PPP project success and be adopted for further research.

### Recommendations

The CSFs developed in this study can be used for further analysis or compare with other research results, and further research can expand the database used for more significant results.

## REFERENCES

- Abdel Aziz, A. M. (2007). Successful delivery of public-private partnerships for infrastructure development. *Journal of construction engineering and management*, 133(12), 918-931.
- Abdul-Aziz, A. R., & Kassim, P. J. (2011). Objectives, success and failure factors of housing public-private partnerships in Malaysia. *Habitat International*, 35(1), 150-157.
- Ahmadabadi, A. A., & Heravi, G. (2019). The effect of critical success factors on project success in Public-Private Partnership projects: A case study of highway projects in Iran. *Transport Policy*, 73, 152-161.
- Almarri, K., & Boussabaine, H. (2017). The influence of critical success factors on value for money viability analysis in public-private partnership projects. *Project management journal*, 48(4), 93-106.
- Ameyaw, E. E., & Chan, A. P. (2016). Critical success factors for public-private partnership in water supply projects. *Facilities*, 34, 124-160.
- Babatunde, S. O., & Perera, S. (2017). Cross-sectional comparison of public-private partnerships in transport infrastructure development in Nigeria. *Engineering, Construction and Architectural Management*, 24, 875-900.
- Bae, Y., & Joo, Y. M. (2016). Pathways to meet critical success factors for local PPPs: The cases of urban transport infrastructure in Korean cities. *Cities*, 53, 35-42.
- Chan, A. P., Lam, P. T., Chan, D. W., Cheung, E., & Ke, Y. (2010). Critical success factors for PPPs in infrastructure developments: Chinese perspective. *Journal of construction engineering and management*, 136(5), 484-494.

- Chan, A. P., Lam, P. T., Chan, D. W., Cheung, E., Sidwell, T., & Kajewski, S. (2007). *A research framework for investigating public private partnerships (PPP) in Hong Kong*, Proceedings of the 4th International Conference on Construction in the 21st Century. Florida International University & Griffith University, 334-341.
- Chou, J. S., & Pramudawardhani, D. (2015). Cross-country comparisons of key drivers, critical success factors and risk allocation for public-private partnership projects. *International Journal of Project Management*, 33(5), 1136-1150.
- Chou, J. S., Tserng, H. P., Lin, C., & Yeh, C. P. (2012). Critical factors and risk allocation for PPP policy: Comparison between HSR and general infrastructure projects. *Transport Policy*, 22, 36-48.
- Grimsey, D., & Lewis, M. K. (2002). Evaluating the risks of public private partnerships for infrastructure projects. *International journal of project management*, 20(2), 107-118.
- Gurgun, A. P., & Touran, A. (2014). Public-private partnership experience in the international arena: Case of Turkey. *Journal of Management in Engineering*, 30(6), 04014029.
- Hwang, B. G., Zhao, X., & Gay, M. J. S. (2013). Public private partnership projects in Singapore: Factors, critical risks and preferred risk allocation from the perspective of contractors. *International journal of project management*, 31(3), 424-433.
- Jamali, D. (2004). Success and failure mechanisms of public private partnerships (PPPs) in developing countries. *International Journal of Public Sector Management*, 17(5), 414-430
- Jefferies, M. (2006). Critical success factors of public private sector partnerships: : A Case Study of the Sydney SuperDome. *Engineering, Construction and Architectural Management*, 13(5), 451-462
- Jefferies, M., Gameson, R. O. D., & Rowlinson, S. (2002). Critical success factors of the BOOT procurement system: reflections from the Stadium Australia case study. *Engineering Construction and Architectural Management*, 9(4), 352-361.
- Ke, Y., Jefferies, M., Shrestha, A., & Jin, X. H. (2014). Public private partnership in China: where to from here. *Organization, technology & management in construction: an international journal*, 6(3), 0-0
- Ke, Y., Wang, S., Chan, A. P., & Cheung, E. (2009). Research trend of public-private partnership in construction journals. *Journal of construction engineering and management*, 135(10), 1076-1086.
- Kulshreshtha, R., Kumar, A., Tripathi, A., & Likhi, D. K. (2017). Critical success factors in implementation of urban metro system on PPP: A case study of hyderabad metro. *Global Journal of Flexible Systems Management*, 18(4), 303-320.
- Kumaraswamy, M. M., & Morris, D. A. (2002). Build-operate-transfer-type procurement in Asian megaprojects. *Journal of construction Engineering and Management*, 128(2), 93-102.
- Li, B., Akintoye, A., Edwards, P. J., & Hardcastle, C. (2005). Critical success factors for PPP/PFI projects in the UK construction industry. *Construction management and economics*, 23(5), 459-471.
- Liu, T., & Wilkinson, S. (2011). Adopting innovative procurement techniques: obstacles and drivers for adopting public private partnerships in New Zealand. *Construction Innovation*, 11(4), 452-469.
- Min, H., & Jun, C. Y. (2014). Public-private partnerships for the development of port hinterlands and their ramifications for global supply chain management. *Maritime Economics & Logistics*, 16(3), 250-275.
- Ng, S. T., Wong, Y. M., & Wong, J. M. (2012). Factors influencing the success of PPP

- at feasibility stage—A tripartite comparison study in Hong Kong. *Habitat international*, 36(4), 423-432.
- Osei-Kyei, R., & Chan, A. P. (2017). Empirical comparison of critical success factors for public-private partnerships in developing and developed countries. *Engineering, Construction and Architectural Management*, 24(6), 1222-1245.
- Osei-Kyei, R., & Chan, A. P. (2017)a. Perceptions of stakeholders on the critical success factors for operational management of public-private partnership projects. *Facilities*, 35(1/2), 21-38.
- World Bank. (2017). Public-private partnerships: reference guide version 3.0.
- Rockart, J. F. (1980). *The changing role of the information systems executive: a critical success factors perspective*, Working papers 1297-82, Report (Alfred P, Massachusetts Institute of Technology (MIT), Sloan School of Management.
- Tang, L., Shen, Q., Skitmore, M., & Cheng, E. W. (2013). Ranked critical factors in PPP briefings. *Journal of management in engineering*, 29(2), 164-171.
- Wang, L., Zhang, P., Zhang, P., Li, R., Zhang, Y., & Wu, Y. (2018). A systematic approach for public-private partnership projects CSFs evaluation. *Engineering, Construction and Architectural Management*, 25(9), 1127-1145.
- Wang, Y. (2015). Evolution of public-private partnership models in American toll road development: Learning based on public institutions' risk management. *International Journal of Project Management*, 33(3), 684-696.
- Wibowo, A., & Alfen, H. W. (2014). Identifying macro-environmental critical success factors and key areas for improvement to promote public-private partnerships in infrastructure. *Engineering, Construction and Architectural Management*, 21(4), 383-402.
- Yang, Y., Hou, Y., & Wang, Y. (2013). On the development of public-private partnerships in transitional economies: An explanatory framework. *Public administration review*, 73(2), 301-310.
- Zhang, X. (2005). Critical success factors for public-private partnerships in infrastructure development. *Journal of construction engineering and management*, 131(1), 3-14.
- Zhang, X., Cheung, E., Chan, A. P., Lam, P. T., Chan, D. W., & Ke, Y. (2012). A comparative study of critical success factors for public private partnerships (PPP) between Mainland China and the Hong Kong Special Administrative Region. *Facilities*, 30(13/14), 647-666.



© 2021 by the authors. Licensee JPPD, Indonesia. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

## Trade openness, institutions and economic growth in Sub-Saharan Africa

AKINLO Taiwo<sup>1\*</sup>; OKUNLOLA Charles Olalekan<sup>2</sup>

- 1) Department of Economics, Adeyemi College of Education Ondo, Ondo State, Nigeria  
 2) Institute of Peace and Conflict Resolution, CBD, Abuja, Nigeria

*\*To whom correspondence should be addressed. Email: taiwoakinlo@yahoo.com*

DOI: 10.22437/ppd.v8i6.10653	Received: 06.10.2020	Revised: 03.01.2021	Accepted: 13.01.2021	Published: 01.02.2021
---------------------------------	-------------------------	------------------------	-------------------------	--------------------------

### Abstract

This research investigates the interactive effect of trade openness and the institutional quality on economic growth in sub-Sahara Africa. The sample consists of 38 sub-Saharan African countries and covers the period 1986-2015. Pooled OLS, fixed effect, and Dynamic GMM were used as estimation techniques. The empirical section used a nonlinear growth regression specification that interacts trade openness with law and order, bureaucratic quality, corruption, government stability, and democratic accountability. The study found that corruption, government stability, law and order, and bureaucratic quality as institutional quality variables harm economic growth. The interaction of trade openness and institutional quality variables positively impacted economic growth. It is an indication that trade openness better impacted economic growth in the presence of high-quality institutional variables.

**Keywords:** *Corruption, Economic growth, Government stability, Trade, Institutions*

**JEL Classification:** F14, F15, F43

### INTRODUCTION

Countries of the world have made various painstaking efforts to boost their economy to improve their citizen's wellbeing. Growing works in the literature have investigated the various factors affecting economic growth, principally in developing nations (Upreti, 2015 and Anyanwu, 2014). Studies have found trade openness to be one of the factors that are effective in stimulating long-run growth (Tahir & Azid, 2015; Alesina, Spolaore & Wacziarg, 2000; Ades & Glaeser, 1999; Dollar, 1992; Keho, 2017; Sachs & Warner, 1995; Frankel & Romer, 1999). However, some studies are also critical of the positive effect of trade openness on economic growth (e.g., Sarkar, 2005; Rodriguez & Rodrik, 2000; Edwards, 1993; Rigobon & Rodrik, 2004 and Easterly, 2008). These studies argued that developing countries had become a dumping ground for goods from developed countries due to trade openness.

The negative association between trade openness and economic growth has been attributed to the low institutional quality level. Studies like Acemoglu, Johnson, & Robinson (2003) and Dollar & Kraay (2003) emphasized that institutions' quality is key to the success of any economic reforms in developing countries. A study conducted in North African countries by Addison & Baliameune-Lutz (2006) shows that institutions'



quality affects trade reform's influence on growth. Studies like Hall & Jones (1999) and Acemoglu, Johnson, & Robinson (2001) indicated that good institutional quality ensures that property rights are crucial for long-run growth. Most of the studies that investigated the importance of institutions stated that sound institutional quality facilitates trade, reduces transaction costs, and promotes confidence.

Several research works have examined the association between trade openness and economic growth (e.g., Musila & Yihevis, 2015; Brueckner & Lederman, 2015; Zahonogo, 2016; Mangir, Kabaklarli, & Ayhan, 2017), and mixed results have emerged. Likewise, several studies have examined the association between institutions and economic growth (e.g., Kilishi, Mobolaji, Yaru, & Yakubu, 2013; Ebaidalla, 2014; Akinlo, 2016; Epaphra & Kombe, 2018). However, only a few works have examined institutions' influence on the relationship between trade openness and economic growth in sub-Saharan Africa. Matthew & Adegboye (2014) are a few studies that examined the relationship between trade openness, institutions, and economic growth in sub-Saharan Africa by focusing on the individual effect of trade openness and institutions on economic growth without investigating their interaction effects.

The lack of enough evidence on the complementary role of trade openness and institutional quality on economic growth in sub-Saharan African (henceforth SSA) motivates this study. This study is particularly interested in investigating the effect of trade openness on economic growth that depends on institutional quality. This study's findings are expected to help policymakers make reliable and effective economic decisions in the sub-Saharan region.

## LITERATURE REVIEW

Increasing literature has investigated the relationships between economic growth and openness to trade. From the theoretical perspective, Richardo's theory postulates that trade liberalization increases economic growth through a comparative advantage and efficiency gains. While in contrast, like the Prebisch-Singer hypothesis, Nurkes (1962) claim that openness leads to losses in less developed countries in the long-run. The author attributes this to decreasing terms of trade, as the bulk of what these countries export are primary products that are income inelastic. Krueger (1978) and Bhagwati (1978) claim that liberalization of trade strengthens concentration in sectors with economies of scale and improves efficiency and productivity in the future.

Furthermore, the fresh endogenous growth models illustrate a positive association between trade openness and economic growth as the outcome of the international diffusion of advanced technologies (Romer, 1994; Coe & Helpman, 1995; Grossman & Helpman, 1991a). Many countries with a high level of trade liberalization possess a better capacity to employ technologies produced in advanced economies. Moreover, this capacity engenders them to grow more speedily than countries with a lower level of liberalization.

Developing countries possess much to benefit from foreign trade like technologically developed countries. Edwards (1998) argues that poorer countries have imitation cost of innovation smaller than imitation cost in developed economies. However, the poor and less developed economies grow quicker than the developed ones, and the tendency toward convergence is high.

The trade structure in terms of goods regarding its growth effect also matters (Hausmann, Hwang & Rodrik 2007; Kali, Méndez, & Reyes, 2007). The gain of a country from foreign trade likewise relies on the simplicity with which foreign

technologies are learned and deployed in the local economy (Grossman & Helpman, 1991b).

Some works from the body of knowledge have supported the argument that trade liberalization has a positive impact on economic growth (Sachs & Warner, 1995; Frankel & Romer, 1999; Dollar & Kraay, 2003a; Alcalá & Ciccone, 2004; Tahir & Azid, 2015; Keho, 2017; and Asamoah et al. 2019). However, studies like Vamvakidis (2002), Ulaşan (2015), and Manwa et al. (2019) could not establish any argument in favor of the trade-led growth hypothesis. While Rigobon & Rodrik (2005), on the other hand, established that there exists a harmful impact of international trade on income levels. Furthermore, Fenira (2015) found that the association between trade openness and economic growth is not strong. He also established that countries with smaller GDP benefit better from international trade than countries with higher GDP (Rassekh, 2007).

Also, many studies have looked at the interactions between institutional quality and per capita income, including Acemoglu, et al. (2001 and 2002), Hall & Jones (1999), Kaufmann et al. (1999), Acemoglu & Johnson (2005), Dowson (1998) and Easterly & Levine (2002). A growing literature has proven the role of institutions on economic growth in the long run. The regulatory burden, taxes, corruption level, infrastructure services, regulation in the labor market, and finance are the links through which property rights protection would affect costs. Institutional quality influence risks via policy predictability, property rights, and contract enforcement. It also eliminates competition obstacles by regulating start-up and bankruptcy, competition law, and entrance into financial and infrastructure markets (Ahmed, 2012).

Acemoglu et al. (2002) claim that institutions' roles in development are in two ways; firstly, by influencing motivations of the main agents in an economy, and secondly by influencing investments and the production organization. Acemoglu & Johnson (2005) also found that property rights impact positively on long-run growth. Furthermore, that economies with substantially high GDP per capita are the ones that possess more fortification against expropriation by influential leaders. Furthermore, Dowson (1998) claims that countries with better institutional settings tend to have higher total factor productivity and investment.

Many studies have made efforts to look at trade and institutions' impact on growth per capita in nations' cross-section. There exists a considerable unanimity in the body of knowledge pointing at the fact that weak economic institutions cause; lower growth rates in the economy, reduced output levels, and reduced performance of trade (Acemoglu et al. 2001, 2002; de Groot, Linders, Rietveld & Subramanian 2004; Méon & Sekkat 2008; Oliva & Rivera-Batiz 2002; Persson 2002; Bonnal & Yaya 2015). Dollar & Kraay (2003a) investigated the partial impacts of trade with institutions on the economic growth rate, and they established that economies with good institutions do more trade and grow quicker.

In a simulation work conducted by Navas (2013), the author analyzes the effect that openness has on economic growth via an institutional change in pre-industrial societies. The author suggested that many economies experience higher growth and earlier institutional change if they are open to trade. De Groot et al. (2004) claim that the institutional framework is a vital factor in illustrating the size of transaction costs. Formal rules that govern interactions in the economy are vital in determining the vagueness and opportunism in market exchange. Also, the low standard of governance raises the cost of transaction expended in the exchange. Furthermore, they argued that institutions' consequence of private trade and investment is crucial in foreign exchange and domestic transactions.

Investigating the partial impact of openness of trade and institutional quality on the economic growth rate, in the long run, Ahmed (2012) found a robust role of both trade openness and institutional quality in causing economic growth. The author claimed that the partial effects of trade openness on output per-capita growth are higher for developing countries. However, neither trade openness nor institution has significant effects for developed countries. These findings by Ahmed and the absence of unanimity in the body of knowledge spur the authors to investigate the situation in SSA as regards the trade-institution-growth debate.

## METHODS

This study's central empirical objective is to examine whether trade openness's growth effect depends on institutional qualities. Based on this, we work with panel data, focusing on sub-Saharan African countries. Therefore, we started using linear growth regression specification and expanded the model to include the interaction terms between trade liberalization and the institutional quality measures.

### Regression specification

This study's sample is made of an unbalanced panel dataset, which comprises 38 sub-Saharan African countries. The panel data covers a period of 1986-2015. Appendix A supplies a comprehensive list of nations in the sample.

Our basic linear regression equation is specified as:

$$\ln y_{i,t} = \beta_0 \ln y_{i,t-1} + \beta_1 \ln hum_{i,t} + \beta_2 \ln phy_{i,t} + \beta_3 \ln open_{i,t} + \beta_4 \ln gove_{i,t} + \varepsilon_{i,t} \quad (1)$$

The subscripts *i* represents the country, *t* represents the period, *y* signifies GDP per capita, *hum* represents human capital, *phy* denotes physical capital, *open* represents trade openness, *gove* represents government expenditure, and  $\varepsilon_{i,t}$  is the error term.

The next step is to incorporate the interaction terms between trade openness and institutions into Eq. (1). It is necessary as it will allow us to investigate if the impact of trade liberalization on the economic growth rate is conditional on institutional quality. Both the signs and the interactive terms' significance will provide information on whether the institutional quality influences trade openness on economic growth. Because of this, we modify equation 1 as follows;

$$\ln y_{i,t} = \beta_0 \ln y_{i,t-1} + \beta_1 \ln hum_{i,t} + \beta_2 \ln phy_{i,t} + \beta_3 \ln open_{i,t} + \beta_4 \ln gove_{i,t} + \beta_3 \ln open_{i,t} * ins_{i,t} + \varepsilon_{i,t} \quad (2)$$

where *ins* represents all the institutional variables. The institutional variables include bureaucracy quality (*bur*), government stability (*govs*), law and order (*rul*), and corruption (*cor*). The other variables remain as defined earlier. We interact trade openness with each institutional variable to see the influence of the interactions of openness to trade with every institutional measure on economic growth.

Estimating Eq. (2) by ordinary least squares (OLS) will produce biased results. However, to solve this problem, we adopt alternative models that deal with pooled regression, which nest data by incorporating fixed effects (FE). The fixed-effects model has few assumptions about the behavior of residuals, and the equation to be estimated is given as:

$$\ln y_{i,t} = \beta_0 + \beta_1 \ln hum_{i,t} + \beta_2 \ln phy_{i,t} + \beta_3 \ln open_{i,t} + \beta_4 \ln gove_{i,t} + \beta_3 \ln open_{i,t} * ins_{i,t} + u_{i,t} \quad (3)$$

Therefore, Eq. (3) will be estimated using ordinary least squares (OLS) and fixed effects.

### **Measurement of variables and data source**

In this study, panel data containing 38 countries that span from 1986-2015 is used for the analysis. The accessibility of data determines the choice of countries and the period of this study.

As common in the body of knowledge, per capita, real GDP growth stands as the dependent variable (i.e., the log difference of GDP per capita). Openness to trade is measured in this study as the sum of trade volume. That is the sum of total exportation and total importation expressed in the percentage of real GDP.

We anticipate that the relationship between openness to trade and economic growth is negative. It is due to the composition of trade in the region. The region specializes in the export of primary products against industrial products from developed countries, making trade disfavor the region. Human capital plays a major role in technology adoption as permitted by trade openness.

The labor force total measures human capital. We expect a positive relationship between human capital and economic growth. Physical capital shows the degree of investment in an economy and also an indicator of infrastructural availability. In this study, physical capital is measured by gross fixed capital formation. According to traditional growth theories, we expect a positive relationship between physical and economic growth.

Government expenditure is measured by government expenditure as % GDP. The impact of government expenditure can be negative or positive. The impact of government expenditure depends on whether government expenditure is tending towards productive or non-productive sectors. This study's institutional quality variables are government stability, law and order, bureaucracy quality, and corruption control.

All the data aside from institutional quality data are obtained from the World Bank, while institutional quality measures were obtained from the International Country Risk Guide (ICRG). It is published by Political Risk Services (PRS), of about 145 countries between 1984 and 2014.

We used four PRS indicators to measure general institutional quality. They are, (i) corruption- which represents the probability that officials will ask for unlawful remuneration or take advantage of his/her position or power for their personal benefits. (ii) law and order - which shows the extent to which the people are willing to be subjected under an authority that makes and implements laws and to adjudicate disputes. (iii) bureaucratic quality - which implies freedom from political pressure, strength, and expertise to govern without radical changes in government policy or disruptions in government services, along with the presence of a known system for recruitment and training of bureaucrats. (iv) Government stability - measure the government's capability to implement its intended policy and remain in power without interference. The four variables are usually scaled from 0 to 10, where higher values implied improved institutional quality and vice versa. We use institutional data from ICRG because it has a broader institutional quality measure (Maruta, 2019; Knack and Keefer, 1995).

The summary of the variables employed in this paper and where they were sourced from are supplied in Appendix B. At the same time, the descriptive statistics of the data are presented in Appendix C.

### **Estimation method**

The two growth regression equations (i.e., Equations 1 and 2) presents two major challenges for estimation. The first challenge is concern about the presence of unobserved period and country-specific effects. Usually, the time effects are accounted for by the inclusion of period-specific dummy variables. The conventional methods of dealing with

country-specific effects (that is, within-group or difference estimators) are inappropriate given the regression's dynamic nature. The second challenge is the endogeneity problem. It is the situation where some of the explanatory variables are jointly endogenous with economic growth. As a result of this, the biases that occur through simultaneous or reverse causation must be controlled. The econometric methodology used to control for country-specific effects and joint endogeneity in this study is discussed in the next three paragraphs.

The generalized method of moments (GMM) estimators, which were introduced by Holtz-Eakin et al. (1988), Arellano & Bond (1991), and Arellano & Bover (1995), is used in this study. This generalized method of moments (GMM) estimators is particularly developed for dynamic models of panel data. The generalized method of moments (GMM) estimators is based on the following; first, using instruments to control for unobserved effect or differencing regressions. Second, on using lagged-dependent variables as instruments and preceding observations of explanatory variables. After time-specific effects are accounted for, Eq (1) and Eq (2) can be re-writing as follows:

$$y_{i,t} = \alpha y_{i,t-1} + \beta' X_{i,t} + \eta_i + \varepsilon_{i,t} \quad (4)$$

The first difference of Eq (4) is taken to eliminate the country-specific effect.

$$y_{i,t} - \alpha y_{i,t-1} = \alpha(y_{i,t-1} - y_{i,t-2}) + \beta'(X_{i,t} - X_{i,t-1}) + (\varepsilon_{i,t} - \varepsilon_{i,t-1}) \quad (5)$$

By the act of difference, all the variables that are constant over time are eliminated. However, their interaction with the trade openness is not eliminated (given that this does vary over time). As a result, there is the need to use instruments to deal with the possible endogeneity of the independent variables and the problem that, by construction, new error term,  $\varepsilon_{i,t} - \varepsilon_{i,t-1}$ , is correlated with the lagged lagged-dependent variable,  $y_{i,t-1} - y_{i,t-2}$ . The instruments take advantage of the panel nature of the dataset in that they consist of previous observations of the explanatory and lagged-dependent variables. Conceptually, this assumes that any shocks to economic growth (that is, the regression error term) is unpredictable given past values of the explanatory variables. However, the method does allow for current and future values of the explanatory variables to be affected by growth shocks. It is the type of endogeneity problem that the method is developed to handle the basic assumptions that the error term,  $\varepsilon_{i,t}$ , is not serially correlated. Also, that the independent variables are weakly exogenous (that is, the explanatory variables are assumed to be uncorrelated with future realizations of the error term), our application of the GMM dynamic panel estimator uses the following moment conditions:

$$E[y_{i,t-2} \cdot (\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0 \quad (6)$$

$$E[X_{i,t-2} \cdot (\varepsilon_{i,t} - \varepsilon_{i,t-1})] = 0 \quad (7)$$

for  $t = 3, \dots, T$ . Note that we use only a limited set of moment conditions. In theory, the potential set of instruments spans all sufficiently lagged observations (and, thus, grows with the number of periods,  $T$ ). However, in case the sample size is limited in the cross-sectional dimension, overfitting bias can only be avoided through the use of a restricted set of moment conditions (see Arellano & Bond 1998; the comprehensive note and discussion on overfitting bias in the context of panel-data GMM estimation can be found in Roodman, 2007). It is the case of this study, and as a result, the first appropriate lag of each time-varying independent variable is used only as an instrument. Specifically, regarding the difference regression corresponding to the periods  $t$  and, we use the following instruments: for the variables measured as period averages – trade openness,

human capital, physical capital, government expenditure, and institutional quality variables – the instrument corresponds to the average of the period;  $t_{-2}$ ; for the variables measured as initial values – per capita GDP – the instrument corresponds to the observation at the start of the period  $t_{-1}$ . Likewise, the multiplicative interaction terms are not used as instruments as an additional measure in preventing overfitting.

The GMM estimator based on the conditions in Eqs. (6) and (7) is known as the difference estimator. Notwithstanding its advantages concerning simpler panel-data estimators, the difference estimator has important statistical shortcomings. According to Blundell & Bond (1998) and Alonso-Borrego & Arellano (1999) when there is persistence in the explanatory over time, in the regression equation in differences, the lagged levels of these variables are a weak instrument. A weak instrument influences the asymptotic and small-sample performance in the difference estimator toward inefficient and biased coefficient estimates. However, the potential biases and imprecision associated with the difference estimator can be reduced using an estimator that combines the regression equation in differences and the regression equation in levels into one system (developed in Arellano & Bover, 1995, and Blundell & Bond, 1998). The instruments stated above are for the equation in differences. For the equation in levels (Eq. 4), the instruments are given by the explanatory variables' lagged differences. These are appropriate instruments under the assumption that the correlation between the explanatory variables and the country-specific effect is the same for all periods. That is,

$$E[y_{i,t+p} \cdot \eta_i] = E[y_{i,t+q} \cdot \eta_i] \text{ and } E[X_{i,t+p} \cdot \eta_i] = E[X_{i,t+q} \cdot \eta_i] \text{ for all } p \text{ and } q \quad (8)$$

Using this stationarity property and the assumption of exogeneity of future growth shocks, the moment conditions for the second part of the system (the regression in levels) are given by:

$$E[(y_{i,t-1} - y_{i,t-2}) \cdot (\eta_i + \varepsilon_{i,t})] = 0 \quad (9)$$

$$E[(X_{i,t-1} - X_{i,t-2}) \cdot (\eta_i + \varepsilon_{i,t})] = 0 \quad (10)$$

Like in the difference equation, the instruments are based only on the time-varying explanatory variables. In the level equation, in the regression specification, all the variables that are constant over time are present and at the same time included in the estimation process. However, as earlier mentioned, the identification of their corresponding coefficients is not possible. It is as a result of lack of availability of interments for time-invariant variables based on either their own lagged changes (since they are constant) or the lagged changes of the time-varying variables (because if these changes are uncorrelated with the unobserved country-specific effect, they are also likely to be uncorrelated with the observed constant variables). Therefore, we use the moment conditions presented in Eqs. (6), (7), (9), and (10) and employ a GMM procedure in generating consistent and efficient estimates of the parameters of interest and their asymptotic variance-covariance (Arellano & Bond, 1991; Arellano & Bover, 1995). The following formulas give these:

$$\hat{\theta} = (\bar{X} Z \hat{\Omega}^{-1} Z' \bar{X})^{-1} \bar{X}' Z \hat{\Omega}^{-1} Z' \bar{y} \quad (11)$$

$$AVAR(\hat{\theta}) = (\bar{X} Z \hat{\Omega}^{-1} Z' \bar{X})^{-1} \quad (12)$$

where  $\theta$  represents the vector of parameters of interest ( $\alpha, \beta$ ); signifying dependent variable stacked first in differences and then in levels;  $\bar{X}$  is the explanatory-variable matrix including the lagged dependent variable ( $y_{i,t-1}, X$ ) stacked first in differences and

then in levels;  $Z$  implies the matrix of instruments that is derived from the moment conditions, and  $\Omega$  represents a consistent estimate of the variance-covariance matrix of the moment conditions.

## RESULT AND DISCUSSION

### Trade in Sub-Saharan Africa

The volume of trade of SSA with the rest of the world has increased over the years. The bulk of the trading activities that SSA countries organize are with other regions of the world. According to Manners & Behar (2007), in 2006, the low-income SSA countries export about 80% of their total export to nations outside the sub-Saharan region (85.2bn US dollars). During the same period, their total export to the middle-income countries in SSA is about 4.5 billion US dollars and 9.4 billion US dollars to other low-income in SSA. Likewise, the majority of the exports of the middle-income countries of SSA are to countries outside Africa. Manners & Behar (2007) stated that exports' growth rate in the 1980s and 1990s was very slow. However, since 2002 the percentage increase in total exports in the SSA region is greater than world exports in current US dollars.

From 2008 to 2009, the SSA region accounts for about 3 percent of the world's exports and imports against 6% in Latin America and a massive 27-30% in developing Asia (Chea, 2012). The author claimed that to gain more from the world's trade, the SSA region must increase its productivity and trade.

Appendix D presents the average growth export of SSA in comparison with and other regions. Between 2010 and 2015, the average growth of export in SSA was about -4.0% below the world average of 1.5%, and those of developing countries in Asia (3.7%) and developing/developed America (0.3/2.8% respectively). There seems to be modest growth in the average nominal export across the regional communities between 2010 and 2015. Between 1992 and 2015, the average nominal export growth of SSA was about 6 percent, slightly below the average at the global level of 6.8 percent and those of Asia's developing nations (9.8 percent) and developing America (8.3 percent respectively) but higher than that of developed America (5.3 percent).

The percentage share of SSA in the entire world's export remained low during the study period compared with what obtains in developing Asia (see table 1). Among the major RECs in Africa, ECOWAS recorded the lowest percentage share of World total export with about 2.1, 1.5, and 1.7 percent in 1986, 2000, and 2015. In the regional contexts, the share of the World's export of the RECs increased much slower than Asia's developing countries (13.9 percent in 1986; 21 percent in 2000; 36.6 percent in 2015).

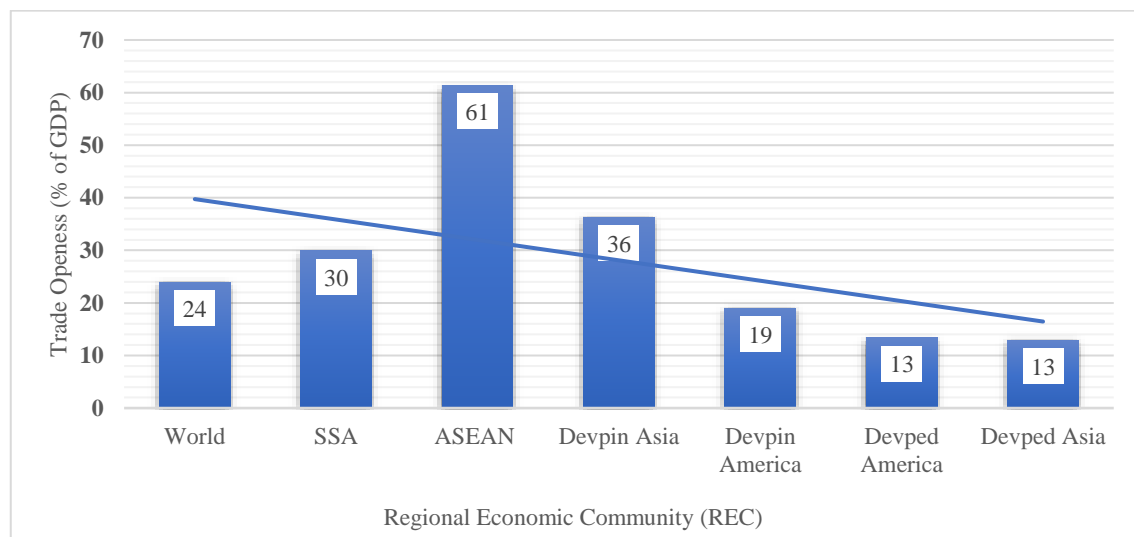
Import growth has also experienced a similar trend (Appendix E). The world's import portion of all RECs in SSA grew much slower than those in developing Asia (14% in 1986; 20.9% in 2000; 32.4% in 2015). The average annual growth rate of imports between 2010 and 2015 in SSA (3.5%) exceeds that of Asia's and America's developing countries (3.0% and 2.6%, respectively), resulting in growth accessibility of SSA countries to international trade flows.

Nevertheless, the nominal trade does not indicate the real adjustment in the size of exports or imports. The real export indices do not show any better performance of SSA export over developing Asia or developing America. Between 2002 and 2008, SSA's average real trade growth is 3.3%, behind both developing Asia's 12 percent and America's 4.3 percent over and above that of the world's economy as a whole of 6.9 percent. For instance, ECOWAS's real export performance of 0.5 percent was not as impressive as an inducement for viable development in SSA (UNCTAD, 2012). In general, according to Grosse-Wiesmann (2007), there is a rise in the proportion of

developing countries in international trade. Though, full potential is not yet depleted. SSA region remains below average as far as international trade is concerned.

The SSA region's trade structure is comparable with SSA's deal with other parts of the world, predominantly on a few primary commodities. The low intra-regional trade was linked to SSA's resource curse; so many countries export relatively the same commodities. SSA countries failed to develop significant merchandise exports because it is easy to export commodities within the continents. However, it is believed that SSA countries could trade with each other more, but intra-SSA trade is hindered by self-inflicted reasons (Economist, 2012). Intra-SSA liberalization since implementing the Lagos Plan of Action in the 1980s seems to have not provided improved intra-SSA trade. The unimpressive intra-SSA and RECs trade were linked to some factors, particularly, aside from the typical economic limitations resulting from small market size and low incomes, are SSA's faulty trade policy such as tariff removal unproductive non-tariff barriers among others (UNTAD, 2012).

A look at trade openness in SSA for the study period shows that openness has not been poorly done in the region. Though the volume of imports seems higher than export, SSA continues to export majorly primary products to the outside world.



Source: UNCTAD Globestat database and computed by authors.

**Figure 1.** Average trade openness in Sub-Saharan Africa (1986-2015)

Figure 1 shows the average of exports and imports as a fraction of GDP between 1986 and 2015. The indicators are computed for trade in goods, trade in services, and total trade in goods and services. The average of imports and exports, which shows roughly the size of international trade, is the number of imports and exports divided by two. SSA recorded a slightly high value (30%) though below ASEAN (61%) and developing Asia (36%) and above the world average of 24 percent, indicating a relatively high trade openness in SSA over the between 1986 and 2015.

### Empirical results

The empirical analysis of this study starts with the examination of the stationarity of the variables. The result of the unit root test is presented in Table 1. Table 1 shows that all the variables aside from physical capital are not stationary at level. However, all the variables are stationary at first difference. It implies that physical capital is I(0) variable while all other variables are I(1).



**Table 1.** Unit root test result

Variable	Levine <i>et al</i>		Im <i>et al</i>		Panel PP- Fisher		OI
	level	1st diff	level	1st diff	level	1st diff	
GDP	-2.6114**	-6.6619***	-0.039	-9.9119***	84.9152	897.724***	I(1)
PHY	-4.142***	-12.288***	-3.289**	-17.613***	131.675***	1889.42***	I(0)
HUM	-11.707***	-3.581***	-6.709***	-2.005**	68.977	143.043***	I(1)
GOVE	-2.4075**	-11.229***	-1.198	-15.016***	102.336**	1189.08***	I(1)
OPEN	-0.898	-9.230***	-1.554*	-15.147***	272.737***	2396.63***	I(1)
BUR	-0.480	-13.165***	1.489	7.78113***	46.7206	234.563***	I(1)
GOVS	-0.343	-16.920***	2.286	-14.898***	35.4259	354.833***	I(1)
RUL	-1.7038**	-17.739***	0.159	-14.913***	98.162**	453.839***	I(1)
COR	-0.832	-17.566***	1.576	-15.656***	38.621	369.906***	I(1)
INS	-2.282**	-18.274***	1.432	-16.328***	297.837***	488.477***	I(1)

Note: All the variables are in log form. \*\*\*, \*\* and \* denote the significance of the individual coefficients at 1%, 5, and 10% levels, respectively

The interaction effect of trade openness and institutions on economic growth is presented in Tables 2 and 3. In model 1 of Table 3, institutional variables are not included in the estimations. The model presents the result of the direct impact of trade openness on economic growth. In models 2, 3, 4, and 5, bureaucracy, corruption, government stability, law, and order are used as institutional variables. However, in Table 3, we follow Law & Azman-Saini (2012) and Baltagi, Demitriade, & Law (2007) by summing all the institutional variables and used different estimation techniques.

Table 2 shows that the lagged dependent variable's coefficients are negative in all the models and statistically significant in models 1, 4, and 5. It is consistent with Chang, Kaltan, & Loayza (2009). This negative coefficient of the initial GDP per capita implies that the conditional convergence hypothesis is valid for the studied sample. It means that if other factors that determine growth is held constant, the countries that have low GDP per capita will grow faster. Economic growth is positively impacted by physical capital. The coefficient of physical capital is significant at 1% in all the models. This finding implies there is a need for more investment in sub-Saharan Africa. It will entail an increased investment in social and economic infrastructure. The government of sub-Saharan African countries must reduce consumption expenditure and channel more funds to infrastructure development. Infrastructure development in terms of good roads, stable electricity, and improved health facilities will accelerate the region's economic growth. Government expenditure is negative in models 1 and 2 while positive in models 3, 4, and 5. However, the coefficient of government expenditure is significant at 5% in model 1 only. The negative coefficient of government expenditure might occur due to the pattern of spending of the government. For example, if the government is spending more on recurrent expenditure at the expense of capital expenditure, government expenditure might harm economic growth.

Human capital is negatively signed in model 1. However, it significantly positive in models 3, 4, and 5. Trade openness is positive in model 1 and significant at 5%. In other models, it is a significant negative. However, since model 1 is the benchmark model and equation (1) specifications allow only linear effect, we conclude that human capital has an inverse relationship with economic growth while trade openness positively impacted economic growth. The positive relationship between trade openness and economic growth found in this study is consistent with Ahmed (2012). The trade openness coefficient implies that a 1-point percentage increase in trade openness will lead to a 1.72 percentage point increase in economic growth in sub-Saharan Africa.

On the institutional variables used in the study, in model 2, bureaucracy quality hurts economic growth. The coefficient of bureaucracy quality is significant, at 5%. The coefficient of corruption is negative and statistically significant, at 10% in model 3. It is consistent with Hadhek & Mrad (2015), who found an inverse relationship between

corruption and economic growth. A high rate of corruption reduces the level of investment in the economy and hinders economic growth. In model 4, government stability has an inverse relationship with economic growth. Lack of government stability will reduce the investment level as economic agents need some guarantee of economic stability and certainty before investing. Law and order equally negative and significant at 1% in model 5. The negative impact of law and order on economic growth indicates the absence of law and order in the economy. Law and order enable orderly manner transactions to take place. It helps economic agents know that every decision they make and the contracts they undertake are properly protected by law and enforced. Savers, investors, consumers, entrepreneurs, workers, and risk-takers of all kinds need a framework of rules if rational, optimizing decisions are to be made. Currently, the legal system constitutes one of the issues in sub-Saharan Africa. Lack of practicality and clarity in the legal system make business transaction difficult. Also, a lack of respect for law and order results in violations and corruption, which hinders the inflow of foreign direct investment and economic growth.

**Table 2.** The complementary effect of openness and institutions on economic growth (dependent variable: GDP per capita)

	<b>Model 1</b> Benchmark: No Interactions	<b>Model 2</b> Bureaucracy Quality	<b>Model 3</b> Corruption	<b>Model 4</b> Government Stability	<b>Model 5</b> Law & Order
<i>GDP</i> <sub>-1</sub>	-0.0106*** (-4.2177)	-0.0029 (-1.2124)	-0.0027 (-1.2389)	-0.0038* (-1.7798)	-0.0046** (-2.1806)
PHY	0.0433*** (8.5049)	0.0236*** (4.7462)	0.0228*** (5.0096)	0.0249*** (5.4524)	0.0220*** (4.8202)
GOVE	-0.0164** (-2.6761)	-0.0013 (-0.2133)	0.0043 (0.6935)	0.0042 (0.7001)	0.0014 (0.2275)
HUM	-0.0044*** (-4.6207)	0.0016 (1.2992)	0.0032** (2.099)	0.0042** (2.6334)	0.0067*** (4.0141)
OPEN	0.0172** (3.0274)	-0.0140** (-2.3149)	-0.0227** (-2.8771)	-0.0411*** (-4.6969)	-0.0367*** (-4.5914)
<b>Institutions</b>					
BUR	-	-0.1372** (-2.2189)	-	-	-
COR	-	-	-0.0376* (-1.7598)	-	-
GOVS	-	-	-	-0.0488** (-26133)	-
Law & Order	-	-	-	-	-0.1354*** (-3.6432)
<b>Interactions</b>					
OPEN*BUR	-	0.0754** (2.1920)	-	-	-
OPEN*COR	-	-	0.0205* (1.6966)	-	-
OPEN*GOVS	-	-	-	0.0433*** (4.0053)	-
OPEN*RUL	-	-	-	-	0.0894*** (4.2403)
J-statistics	15.865	9.88	6.650	0.26	0.53
Instrument rank	6	8	8	8	8
Sargan test	7.0403	0.1605	0.1078	0.6547	0.4795

Notes: All the variables are in logs. The t-values for the system GMM estimates are in brackets. \*\*\*, \*\* and \* denote the individual coefficients' significance at 1%, 5 and 10% levels, respectively. The Sargan test is for the over-identifying restrictions. The instrument used is lagged of all independent variables.

The coefficients of trade openness interaction with all institutional quality measures enhance economic growth on the interaction terms. It shows that the interaction of trade openness with all the institutional quality variables used in this study positively affects economic growth. It indicates that institutional quality variables enhance the effect of trade openness on economic growth. More openness results in a larger increase in economic growth when the bureaucracy quality is stronger, corruption is lower, government stability is consistent, and law and order is reliable. This result is not surprising as sound institutional quality can boost trade openness by reducing transaction costs and improving economic agents' confidence. Institutional quality facilitates trade by reducing risk and uncertainty related to international transactions, which in turn boosts economic growth.

To provide a robustness check for the results presented in Table 2, we sum all the institutional variables into a single variable. Besides, pooled OLS, fixed effect, difference, and system GMM are used as estimation techniques. In Table 3, system GMM is taking as the lead estimation.

**Table 3.** The complementary effect of openness and institutions on economic growth (dependent variable: GDP per capita)

	Pooled OLS	Fixed Effect	Difference GMM	System GMM
C	5.2249*** (5.5297)	1.8821** (2.5634)	-	-
GDP <sub>-1</sub>	-	-	0.5281*** (30.3708)	-0.0037* (-1.7647)
PHY	0.1707** (2.7189)	0.0602*** (4.0998)	0.1325*** (18.8768)	0.0238*** (5.1704)
GOVE	0.5152*** (6.1362)	0.0879** (3.7976)	-0.0811*** (-7.0872)	0.0018 (0.3096)
HUM	-0.0727** (-5.1457)	0.2089* (1.9386)	0.1828*** (5.1065)	0.0050** (3.0350)
OPEN	-1.7090*** (-3.0658)	-0.3508 (-0.3507)	-0.3820 (-13.6104)	-0.0495*** (-5.1306)
<b>Institutions</b>				
INS	-3.0313*** (-4.0345)	-0.3099** (-2.0247)	-0.0349*** (-10.3269)	-0.0401** (-3.0556)
<b>Interactions</b>				
OPEN*INS	1.9036*** (4.3299)	0.2417** (2.5445)	0.0212*** (10.7884)	0.0389*** (4.6296)
Adjusted R <sup>2</sup>	0.26	0.97		
J-statistics	-	-	28.83	0.064
Instrument rank	-	-	37	8
F-Statistics	44.53	529.14	-	-
Sargan test				0.8064

Notes: All the variables are in logs. The t-values for the system GMM estimates are in brackets. \*\*\*, \*\* and \* denote the individual coefficients' significance at 1%, 5, and 10% levels, respectively. The Sargan test is for the over-identifying restrictions. The instrument used is lagged of all independent variables.

From Table 3, the result of the lagged dependent variable in difference GMM is contrary to system GMM. In dynamic GMM, the coefficient of the lagged dependent variable is positive and significant at 1%. However, in system GMM, the coefficient of the lagged dependent variable is significantly negative. This contrary result might be due

to the estimations instrument used indifference and system GMM. Roodman (2007) stated that the instrument used in the difference GMM is weak when the panel data set is short, and the outcome variable shows persistence. Therefore, system GMM tends to perform better in a short sample like in this study.

Physical capital is positively impacted economic growth in all the estimations. Government expenditure is positive in pooled OLS, fixed effect, and system GMM while it negative indifference GMM. In terms of significance, the government expenditure coefficient is significant in all the models apart from system GMM. Human capital is negative pooled OLS, but dynamic and system GMM is significantly positive in fixed effect. The coefficient of trade openness is negative in all the estimations. However, it only significant in pooled OLS and system GMM. In all the estimates, the coefficient of institutions is significantly negative.

On the coefficients of interactive terms, the results show that the interaction of trade openness and institutions (OPEN\*INS) is positive in all the estimations. It is significant at 1% in pooled OLS, dynamic, and system GMM, while it is significant at 5% in fixed effect. It implies that there is an existence of complementarity between trade openness and institutions in sub-Saharan Africa. It is consistent with the result in Table 2. According to Canh, Schinckus & Thanh (2019), a sound institutional quality couple with trade openness enables foreign investors to easily transfer technology into host economies, thereby boosting their economies. It is obvious that sub-Saharan African countries are deficient in technology advancement and, as a result, need technology transfer to have access to modern technology.

## CONCLUSIONS AND RECOMMENDATIONS

This study found that trade openness enhances economic growth during the study period. This finding implies that trade openness is very significant to expanding the economies in sub-Saharan Africa economies. Therefore, it requires introducing trade reforms that will allow the region to maximize its benefits from trade openness. The reforms that will promote the exports and prevent the region from becoming a dumping ground are necessary. It will boost productivity and as well as increase revenue generation in the region.

The study revealed that institutional quality failed to contribute to economic growth in sub-Saharan Africa. It implies that the current level of institutional quality is too low to contribute to economic growth positively. Based on the evidence from the literature that institutional quality is crucial to economic growth, the policymakers in sub-Saharan Africa must pay attention to institutional quality development. It might require the introduction of stable and systematic reforms that can improve the quality of institutional quality. Low institutional quality will slow down economic growth as it cannot encourage free and transparent markets, political stability, effective government, and legal systems necessary for rapid economic growth.

On the interaction between trade openness and institutional quality measures, the study found that institutional quality enhances the impact of openness on economic growth in sub-Saharan Africa. This finding implies that the policymakers must pay attention to institutional quality and trade openness in the region. It means that the policymakers must introduce policies that will simultaneously target institutional quality development and enhance trade openness since the growth impact of trade openness depends on sound institutional quality. Sound institutional quality will promote a conducive environment and ensure low transaction costs, increasing the output of goods and services. It can also boost investors' confidence and other mechanisms that allow a

trade to have an optimum economic growth effect. The business's environment is transparent, and a civil right is protected, political stability is guaranteed is necessary for the increased inflow of goods and services traded in the region. An increasing inflow of trade will lead to higher production capable of engendering economies of scale.

## REFERENCES

- Acemoglu, D., Johnson, S. & Robinson, J.A. (2001). The Colonial Origins of Comparative Development: An Empirical Investigation. *The American Economic Review*, 91(5), 1369-1401.
- Acemoglu, D., Johnson, S. & Robinson, J.A. (2002). Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution'. *Quarterly Journal of Economics*, 117(4), 1231-1294.
- Acemoglu, D., & Johnson, S. (2005). Unbundling Institutions. *Journal of Political Economy*, 113(5), 949-995.
- Ades, A., & Glaeser, E. (1999). Evidence on growth, increasing returns, and the extent of the market. *Quarterly Journal of Economics*, 114(3), 1025–1046.
- Addison, T. & Balamoune-Lutz, M. (2006). Economic Reform When Institutional Quality is Weak: The Case of the Maghreb, *Journal of Policy Modeling*, 28(9), 1029-1043.
- Ahmed Md M (2012). *Openness, Institutions, and Economic Growth: Empirical Evidence from Panel Estimation*. [Master's thesis]. NCSU Libraries, Raleigh.
- Akinlo, T. (2016). Institution and Economic Growth in Sub-Saharan Africa (1986–2013). *Emerging Economy Studies*, 2(2), 1–11.
- Alcála, F. & Ciccone, A. (2004). Trade and Productivity. *Quarterly Journal of Economics*, 119(2), 613-646.
- Alesina, A., Spolaore E, & Wacziarg R (2000). Economic Integration and Political Disintegration, *American Economic Review*, 90(5), 1276-1296.
- Alexiou C, Tsaliki, P. & Osman, H. R. (2014). Institutional quality and economic growth: empirical evidence from the sudanese economy. *Economic Annals*, 59(203), 119-137.
- Alonso-Borrego, C., & Arellano, M. (1999). Symmetrically normalized instrumental-variable estimation using panel data. *Journal of Business and Economic Statistics*, 17(1), 36–49.
- Anyanwu, J. C. (2014). Factors Affecting Economic Growth in Africa: Are There any Lessons from China? *African Development Review*, 26(3), 468–493.
- Arellano, M. & Bond, S. (1991). Some tests of specification for panel data: Montecarlo evidence and an application to employment equations. *Review of Economic Studies*, 58(2), 277–297.
- Arellano, M. & Bover, O. (1995). Another look at the instrumental-variable estimation of error-components models. *Journal of Econometrics*, 68(1), 29–52.
- Arellano, M. & Bond, S. (1998). *Dynamic Panel Data Estimation Using DPD98 for Gauss: a Guide for Users*. Mimeo. CEMFI. Available at: <ftp://ftp.cemfi.es/pdf/papers/ma/dpd98.pdf>.
- Asamoah, L. A., Mensah, E. K. & Bondzie, E. A. (2019).. Trade openness, FDI and economic growth in sub-Saharan Africa: do institutions matter?, *Transnational Corporations Review*, 11(1), 65-79, DOI: 10.1080/19186444.2019.1578156.
- Asghar, N., Qureshi, S. & Nadeem, M. (2015). Institutional Quality and Economic Growth: Panel ARDL Analysis for Selected Developing Economies of Asia. *A Research Journal of South Asian Studies*, 30(2), 381 - 403.
- Baltagi, B., Demitriades, P. & Law, S.H. (2007). Financial Development, Openness and Institutions: Evidence from Panel Data. *Paper presented at the Conference on New*

- Perspectives on Financial Globalization Research Department Hosted by the International Monetary Fund and Cornell University Washington, DC—April 26–27, 2007
- Bhagwati, J.N. (1978). *Foreign trade regimes and economic development: Anatomy and consequences of exchange control regime*. Cambridge, MA: Ballinger.
- Blundell, R. & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115–143.
- Bonnal, M. & Yaya, M.E. (2015). Political Institutions, Trade Openness, and Economic Growth: New Evidence. *Emerging Markets Finance and Trade*, 51(6), 1276–1291.
- Brueckner, M. & Lederman, D. (2015). Trade Openness and Economic Growth: Panel Data Evidence from Sub-Saharan Africa. *Economica*, 82(s1), 1302–1323.
- Canh, N. P., Schinckus, C. & Thanh, S. D. (2019).. Do economic openness and institutional quality influence patents? Evidence from GMM systems estimates. *International Economics*, 157, 134-169.
- Chang, R., Kaltani, L. & Loayza, N.V. (2009). Openness can be good for growth: The role of policy complementarities. *Journal of Development Economics*, 90(1), 33–49
- Chea, A.C. (2012). Sub-Saharan Africa and Global Trade: What Sub-Saharan Africa needs to do to maximize the Benefits from Global Trade Integration, Increase Economic Growth and Reduce Poverty? *International Journal of Academic Research in Business and Social Sciences*, 2, 359-84.
- Coe, D.T. & Helpman, E. (1995). International R&D spillovers. *European Economic Review*, 39(5), 859–887. [https://doi.org/10.1016/0014-2921\(94\).00100-E](https://doi.org/10.1016/0014-2921(94).00100-E).
- de Groot, H.L.F., Linders, G.J., Rietveld, P. & Subramanian, U. (2004). The Institutional Determinants of Bilateral Trade Patterns. *Kyklos*, 57(1), 103–123.
- Dollar, D. (1992). Outward-Oriented Developing Economies Really Do Grow More Rapidly: Evidence from 95 LDCs, 1976-1985. *Economic Development and Cultural Change*, 40(3) 523-44.
- Dollar, D. & Kraay, A. (2003a). Institutions, trade, and growth. *Journal of Monetary Economics*, 50(1) 133–162.
- Dollar, D. & Kraay, A. (2003b). Institutions, Trade, and Growth: Revisiting the evidence, Policy Research Working Paper Series 3004, The World Bank, Washington.
- Dowson, J.W. (1998). Institutions, Investment and Growth: New Cross-Country and Panel Data Evidence. *Economic Inquiry*, 36(4), 603-619.
- Ebaidalla, E.M. (2014). Institutions and economic growth in Sub-Saharan Africa: a panel data analysis, *African Journal of Economic and Sustainable Development*, 3, 346-362.
- Edwards, S. (1993). Openness, Trade Liberalization, and Growth in Developing Countries, *Journal of Economic Literature*, 31(3), 1358-1393.
- Ezra, K. (1992). Royal Art of Benin: *The Pearl collection*. In *Heilbrunn Timeline of Art History*. New York: The Metropolitan Museum of Art. Available at [http://www.metmuseum.org/toah/hd/aftr/hd\\_aftr.htm](http://www.metmuseum.org/toah/hd/aftr/hd_aftr.htm). (Accessed on 4/01/2018)..
- Fenira, M. (2015). Trade openness and growth in developing countries: An analysis of the relationship after comparing trade indicators. *Asian Economic and Financial Review*, 5(3), 468–482.
- Frankel, J.A. & Romer, D. (1999). Does trade cause growth? *The American Economic Review*, 89(3) 379–399.
- Grosse-Wiesmann, G. (2007). *Mobilizing aid for trade: A global review*. Speech to General Council WTO. November 21-22, Germany.
- Grossman, G.M. & Helpman, E. (1991a). *Innovation and economic growth in the global economy*. Cambridge, MA: MIT Press.

- Grossman, G.M. & Helpman, E. (1991b). Trade, knowledge spillovers, and growth. *European Economic Review*, 35(2-3), 517–526.
- Hadhek, Z. & Mrad, F. (2015). Trade Openness, Institutions and Economic Growth. *European Journal of Economics, Finance and Administrative Sciences*, 75, 96-104.
- Hall, R.E. & Jones, C. (1999). Why do some countries produce so much more output per worker than others? *Quarterly Journal of Economics*, 114(1), 83–116.
- Hartzerberg, T. (2011). *Africa needs a deeper integration agenda*. WTO Research and Analysis, (July 6). 1-3.
- Hausmann, R., Hwang, J. & Rodrik, D. (2007). What you export matters. *Journal of Economic Growth*, 12(1), 1–25.
- Holtz-Eakin, D., Newey, W. & Rosen, H.S. (1988). Estimating vector autoregressions with panel data. *Econometrica*, 56(6), 1371–1395.
- Jawaid, S.T. (2014). Trade Openness and Economic Growth: A Lesson from Pakistan. *Foreign Trade Review*, 49(2), 193–212.
- Keho, Y. (2017). The impact of trade openness on economic growth: The case of Cote d'Ivoire. *Cogent Economics and Finance*, 5(1), 1-14
- Kilishi, A. A., Mobolaji, H.I., Yaru, M.A. & Yakubu, A.T. (2013). Institutions and Economic Performance in Sub-Saharan Africa: A Dynamic Panel Data Analysis. *Journal of African Development*, 15(2), 91-120.
- Knack, S., & Keefer, P. (1995).. Institutions and economic performance: Cross-country tests using alternative institutional measures. *Economics & Politics*, 7(3), 207–227.
- Krueger, A. O. (1978). *Foreign trade regimes and economic development: Liberalization attempts and consequences*. Cambridge, MA: NBER
- Law, S. H. & Azman-Saini, W.N.W. (2012). Institutional quality, governance and financial development. *Economics of Governance*, 13, 217–236.
- Manwa, F., Wijeweera, A. & Kortt, M. A. (2019). Trade and growth in SACU countries: A panel data analysis. *Economic Analysis and Policy*, 63, 107–118
- Manamba, E. & Kombe, A.H. (2017). Institutions and economic growth in Africa: Evidence from panel estimation. *BEH- Business and Economic Horizons*, 13(5), 570-590
- Mangir, F., Kabaklarli, E. & Ayhan, F. (2017). An Analysis for The Relationship between Trade Openness and Economic Growth: Evidence for Ten African Countries. *Journal of Management and Economic Research*. 15(s1), 58-71
- Manners, P. & Behar, A. (2007). *Trade in Sub-Saharan Africa and Opportunities for Low Income Countries In Reshaping Economic Geography*, WDR Background paper, World Bank Group.
- Maruta, A. A. (2019).. Trade aid, institutional quality, and trade. *Journal of Economics and Business*, 103, 25-37.
- Matthew, A.O. & Adegboye, B.F. (2014). Trade Openness, Institutions and Economic Growth in sub-Saharan Africa (SSA).. *Developing Countries Studies*. 4(8), 18-30
- Méon, P.G. & Sekkat, K. (2008). Institutional Quality and Trade: Which Institutions? Which Trade? *Economic Inquiry*, 46(2), 227–240.
- Musila, J.W. & Yiheyis, Z. (2015). The impact of trade openness on growth: The case of Kenya. *Journal of Policy Modeling*, 37(2), 342–354.
- Oliva, M. A. & Rivera-Batiz, L.A. (2002). Political Institutions, Capital Flows, and Developing Country Growth: An Empirical Investigation. *Review of Development Economics*, 6(2), 248–262.
- Persson, T. (2002). Do Political Institutions Shape Economic Policy? *Econometrica*, 70(3), 883–905.
- Rassekh, F. (2007). Is international trade more beneficial to lower income economies? An empirical inquiry. *Review of Development Economics*, 11(1), 159–169.

- Redding, S. & Venables, A. J. (2003). *Geography and Export Performance: External market access and internal supply capacity*, CEPR Discussion Paper Series, No. 3807, February.
- Rigobon, R. & Rodrik, N. (2004). *The Determinants of Institutions, Openness, and Income*, MIT, mimeo.
- Rigobon, R. & Rodrik, D. (2005). Rule of law, democracy, openness, and income: Estimating the Interrelationships. *The Economics of Transition*, 13(3), 533–564.
- Rodriguez, F. & Rodrik, D. (2000). Trade Policy and Economic Growth: A Skeptics Guide to the Cross-National Evidence. *NBER Working Paper No. 7081*.
- Roodman, D. (2007). *A Short Note on the Theme of Too Many Instruments*. Mimeo. Available at: <http://ssrn.com/abstract=1101731>.
- Romer, P.M. (1994). New goods, old theory, and the welfare costs of trade restrictions. *Journal of Development Economics*, 43(1), 5–38. [https://doi.org/10.1016/0304-3878\(94\).90021-3](https://doi.org/10.1016/0304-3878(94).90021-3).
- Sachs, J.D. & Warner, A. (1995). *Economic Reform and the Process of Global Integration*, in William C. Brainard & George L. Perry, (eds.), *Brookings Papers on Economic Activity* 1, 1-118.
- Sarkar, P. (2005). *Is there any impact of trade liberalisation on growth? Experiences of India and Korea*. MPRA Paper No. 5177
- Tahir, M. & Azid, T. (2015). The relationship between international trade openness and economic growth in the developing economies: some new dimensions, *Journal of Chinese Economic and Foreign Trade Studies*, 8(2), 1-19.
- UNCTAD (2012). *Trade liberalization, investment and economic integration in African regional economic communities towards the African common market*. New York: UNCTAD Publication
- Ulaşan, B. (2015). Trade openness and economic growth: Panel evidence. *Applied Economics Letters*, 22,2 163–167. <https://doi.org/10.1080/13504851.2014.931914>.
- Upreti, P. (2015). Factors Affecting Economic Growth in Developing Countries. *Major Themes in Economics*, (Spring), 17(1), 37-54.
- Usenobong, F. A. & Johnson, A.A. (2016). Relationship between Trade Openness, Institutions and Economic Growth in Sub-Saharan Africa: A Further Look at the Evidence. *British Journal of Economics, Management & Trade*, 15(1), 1-20.
- Valeriani, E. & Peluso, S. (2011). The Impact of Institutional Quality on Economic Growth and Development: An Empirical Study. *Journal of Knowledge Management, Economics and Information Technology*, 1(6), 1-25.
- Vamvakidis, A. (2002).. How robust is the growth-openness connection: Historical evidence. *Journal of Economic Growth*, 7(1), 57–80. <https://doi.org/10.1023/A:1013418610712>
- Zahonogo, P. (2016).. Trade and Economic Growth in Developing Countries: Evidence from Sub-Saharan Africa. *Journal of African Trade*, 3(1-2), 41-56.





## APPENDIX

### Appendix A. List of the selected SSA countries

• Angola	• Congo, Dem. Rep	• Guinea-Bissau	• Niger	• Swaziland
• Benin	• Congo, Rep	• Kenya	• Nigeria	• Tanzania
• Botswana	• Cote d'Ivoire	• Madagascar	• Rwanda	• Togo
• Burkina Faso	• Equatorial Guinea	• Malawi	• Senegal	• Uganda
• Burundi	• Gabon	• Mali	• Seychelles	• Zambia
• Cameroon	• Gambia	• Mauritius	• Sierra Leone	• Zimbabwe
• Central African. Rep	• Ghana	• Mozambique	• South Africa	
• Chad	• Guinea	• Namibia	• Sudan	

### Appendix B. Measurement of variable and source

Variables	Measurement	Source
Real GDP per capita	proxies by log difference of GDP per capital.	WDI, 2017
Physical Capital (PHY)	This is proxied by gross fixed capital formation	WDI, 2017
Human Capital (HUM)	This is measured by the total labor force	WDI, 2017
Government Spending (G)	This is measured by the General government final consumption expenditure (% of GDP)	WDI, 2017
Trade openness	This is the sum of export and import (% of GDP)	WDI, 2017
Corruption	It is more concerned with actual or potential corruption in the form of excessive patronage, nepotism, job reservations, favor-for-favors, secret party funding, and suspiciously close ties between politics and business.	ICRG
Government Stability	Government stability measures both the governments' ability to carry out its declared program(s) and its ability to stay in office. The risk rating assigned is the sum of three subcomponents: Government Unity, Legislative Strength, and Popular Support	ICRG
Law and Order	To assess the “Law” element, refers to the strength and impartiality of the legal system while the “Order” element is an assessment of popular observance of the law.	ICRG

### Appendix C. Descriptive statistics

Variable	Mean	Stdev	Minimum	Maximum
GDP per capita	3.0262	0.4369	2.2090	4.0764
Physical Capital	1.2572	0.2117	0.1833	1.7432
Government expenditure	1.1419	0.1744	0.3111	1.8057
Human capital	6.6170	0.5347	5.5407	7.7593
Trade Openness	1.7898	0.1746	1.0594	2.2191
Bureaucracy quality	0.1722	0.1911	-0.7781	0.6020
Corruption	0.7680	0.2319	0.0347	1.0413
Law and order	0.4396	0.1629	-0.3010	0.7781
Government Stability	0.8780	0.1291	0.3010	1.0446

**Appendix D.** Total exports of Africa, selected RECs and other groupings (US\$ Million at current prices), 1986-2015

Groupings	1986	1990	1995	2000	2005	2010	2015	Average Growth Rate (%)	
								2010-2015	1992-2015
World	2140963.0	3495675.4	5176236.3	6452317.9	10502488.5	15302138.0	16487879.5	1.5	6.8
SSA	45829.8	68394.7	76666.4	94589.9	199171.1	355074.7	286814.8	-4.0	6.2
Developing Asia	298371.9	589790.1	1085924.6	1538457.5	2903638.6	5016322.2	6028297.1	3.7	9.8
Developing America	94642.3	145622.3	230745.4	367998.3	586481.4	891598.2	922489.5	0.3	8.1
Developed America	317828.6	521758.5	777382.9	1058864.5	1262015.4	1666376.7	1912953.8	2.8	5.3
Developed Asia	217911.3	299660.0	462162.1	510700.2	637711.3	828186.9	688488.0	-4.2	3.3
ASEAN	67623.9	144147.8	321409.3	430202.5	656573.7	1050050.0	1160541.7	1.8	9.0
COMESA	19167.7	25782.2	24080.6	30108.0	66154.2	118526.0	70572.6	-7.7	5.5
ECCAS	6547.2	11981.9	11425.3	17194.8	49645.4	92008.7	63680.5	-6.1	7.2
ECOWAS	12145.7	21408.7	22213.5	30344.7	67098.0	114800.3	87812.5	-4.9	6.2
SADC	27413.8	38737.6	44142.4	50710.2	98021.7	180966.0	157558.8	-2.8	6.0
CEN-SAD	2528.8	2030.7	3586.4	4690.7	10260.5	21069.6	15280.3	-6.2	6.2
IGAD	29665.8	47363.9	50592.8	66134.5	145431.4	247029.8	169766.2	-5.5	10.1
UMA	20588.9	34344.2	32078.0	48393.2	99668.9	141995.9	82664.3	-8.3	4.2
EAC	2339.2	1699.0	3177.9	2973.4	6094.4	11236.7	13908.7	3.3	9.1
The percentage share of World Total (%)									
SSA (%)	2.1	2.0	1.5	1.5	1.9	2.3	1.7		
Developing Asia (%)	13.9	16.9	21.0	23.8	27.6	32.8	36.6		
Developing America (%)	4.4	4.2	4.5	5.7	5.6	5.8	5.6		
ASEAN (%)	3.2	4.1	6.2	6.7	6.3	6.9	7.0		
ECOWAS (%)	0.6	0.6	0.4	0.5	0.6	0.8	0.5		
SADC (%)	1.3	1.1	0.9	0.8	0.9	1.2	1.0		
IGAD (%)	1.4	1.4	1.0	1.0	1.4	1.6	1.0		
UMA (%)	1.0	1.0	0.6	0.8	0.9	0.9	0.5		

Source: UNCTAD Globstat database.

**Appendix E.** Total imports of Africa, selected RECs and other groupings (US\$ Million at current prices), 1986-2015

Groupings	1986	1990	1995	2000	2005	2010	2015	Average Growth Rate (%)	
								2010-2015	1992-2015
World	2212414.7	3609254.6	5234374.7	6654568.6	10777641.6	15420513.1	16656897.3	1.4	6.6
SSA	42259.0	57688.0	78756.1	82332.5	173708.9	310371.6	367410.9	3.5	8.1
Developing Asia	309748.1	575212.7	1126456.6	1392999.3	2619779.9	4631138.5	5391270.0	3.0	9.1
Developing America	86681.1	124885.8	248194.7	388885.8	537829.2	895898.4	1029048.9	2.6	8.0
Developed America	468638.4	641357.3	939951.0	1505232.0	2056779.3	2373753.2	2753315.7	2.6	6.3
Developed Asia	138358.7	252161.7	365463.6	417196.0	563007.9	755268.2	712971.8	-1.4	4.7
ASEAN	64918.2	162345.8	355311.1	380640.5	602730.5	953112.5	1091578.6	2.6	8.2
COMESA	25295.2	28068.9	33240.6	35511.1	65047.3	134915.2	160036.3	4.5	8.4
ECCAS	6534.1	7295.0	6250.7	7897.8	19737.4	43234.7	51684.3	4.4	9.3
ECOWAS	11124.4	14373.3	19457.9	20625.6	43584.3	83585.7	97717.0	3.6	7.3
SADC	22249.8	34524.8	47560.2	48520.5	99703.0	165210.9	192377.6	2.9	7.9
CEN-SAD	37348.8	45107.6	60432.8	65446.7	122338.9	240029.3	265135.7	2.8	7.8
IGAD	4445.7	4520.7	7309.0	8475.5	20145.2	37277.7	50319.7	6.6	11.4
UMA	20587.1	27760.8	33849.2	33457.7	61831.1	117679.5	124971.2	2.7	7.6
EAC	3407.8	4391.8	6193.3	6526.1	11887.0	26571.3	35510.6	5.7	9.7
<b>Percentage Share of Worlds Total</b>									
SSA (%)	1.9	1.6	1.5	1.2	1.6	2.0	2.2		
Developing Asia (%)	14.0	15.9	21.5	20.9	24.3	30.0	32.4		
Developing America (%)	3.9	3.5	4.7	5.8	5.0	5.8	6.2		
ASEAN (%)	2.9	4.5	6.8	5.7	5.6	6.2	6.6		
ECOWAS (%)	0.5	0.4	0.4	0.3	0.4	0.5	0.6		
SADC (%)	1.0	1.0	0.9	0.7	0.9	1.1	1.2		
IGAD (%)	0.2	0.1	0.1	0.1	0.2	0.2	0.3		
UMA (%)	0.9	0.8	0.6	0.5	0.6	0.8	0.8		

Source: UNCTAD Globstat database.

## Financial development and tourism at the traditional village in Gianyar, Bali: *Tri Hita Karana* Value

I Made Suidarma\*; I Ketut Nurchita; I Dewa Nyoman Marsudiana

Universitas Pendidikan Nasional, Bali, Indonesia

*\*To whom correspondence should be addressed. Email: suidarma@undiknas.ac.id*

DOI: 10.22437/ppd.v8i6.10891	Received: 03.11.2020	Revised: 08.01.2021	Accepted: 10.01.2021	Published: 01.02.2021
---------------------------------	-------------------------	------------------------	-------------------------	--------------------------

### Abstract.

*Tri Hita Karana* (THK) is the foundation and guide of the general Hinduism society in living their life. This study aims to identify THK integration on the synergy Village Credit Institution (LPD) and traditional village and observe the LPD contribution in the financial and tourism development at the traditional village in Gianyar, Bali. An ethnography approach was used to identify the problem. The result found that THK has a substantial role in the existence of LPD, which contributes to the traditional village development, especially in Gianyar. The existence of LPD also contributes significantly to the village's financial development, and the existence of LPD could have a significant impact on society's knowledge and access to financial and services and promoting the regional tourism potential. This effort is also a form of strengthening and maintaining the sustainable existence of traditional village tourism and improving LPD performance in terms of financing and financial management of traditional villages

**Keywords:** *Ethnography, Social capital, Tourism, Tri Hita Karana*

**JEL Classification:** O18, O35, Z13

### INTRODUCTION

Local Government Regulation of Bali Province, Number 3 of 2007 concerning the Village Credit Institution (LPD), stated that village credit's significance is to empower and create welfare for the traditional society. It especially for the *pakraman* (traditional village), which could benefit social, economic, and culture. The increase in LPD assets (which 20.5%) shows a high level of public trust in LDP (Cendekiawan, 2015).

The existence of *pakraman* as one of the driving factors of the tourism sector is quite important to notice. The existence of *pakraman* as one of the cultural assets and the effort to maintain Bali's local wisdom also drives the tourism sector and other sectors such as Micro Small and Medium Enterprises (MSMEs), service, and transportation.

Several previous studies have been conducted to highlight the role of LPD in the tourism sector, especially *pakraman*. One of those studies is Arka (2016). His study result showed that there must be several improvements in performance, management, and responsibility on the *pakraman* village assets. Besides, there was a study to observe the LPD performance by implementing the *Tri Hita Karana* (THK) concept conducted by Mulyawan et al. (2017). The result showed that the THK concept strongly influenced

the LPD performance through the Good Corporate Governance approach. The society and traditional organization in Bali always put forward the THK concept in every activity. The THK concept integrates cultural and religious values, which are strongly attached to Balinese society.

This study will review the THK concept's existence related to its contribution to LPD in the tourism sector, especially the *pakraman* in Gianyar. The study related to this problem is still relatively rare that it urges the writer to conduct a study on it.

## **METHODS**

This study used a qualitative method through ethnography. This method will search for further information related to the role of Bali society's tradition and culture. Particularly its application on the LPD performance in contributing to help the tourism development at the *pakraman*

This study obtained information from several related sources, among others, from the LPD in the Gianyar Regency. Information was explored regarding the THK concept's role in creating the sustainability and existence of LPD. The research sample was selected based on the potential and good performance of the LPD. Information can be obtained on how LPD management is integrated with THK values to maintain its existence and benefit the surrounding community.

This study will identify the role of three main elements of the THK concept, which covers *Prahyangan*, *Pawongan*, and *Plemahan* in the LPD performance on the service and access of the *pakraman*. Ethnography is an approach method used to describe the unique cultural society (Fetterman, 1998; Sangasubana, 2011). According to Angrosino (2007) and Hogan et al. (2009), ethnography researchers will observe the predictable human behavior pattern through research object experience by participating in the research object life to seek further cultural sides application daily.

## **RESULTS AND DISCUSSION**

### ***Tri Hita Karana* (THK) and Village Credit Institution (LPD)**

The traditional village is the customary law society unit which has a region, position, original structure, traditional rights, independent wealth, tradition, society life etiquette across generations bounded to the holy place (*kahyangan tiga* or *kahyangan desa*), duty and authority, as well as the right to rule and regulate it's household (Local Government Regulation of Bali Province Number 4 of 2019 Article 1 concerning the traditional village of Bali)

The traditional village implementation also functions to strengthen the THK concept as the Hinduism society's concept and guide. The traditional village arrangement has several functions as: a) *Parahyangan*, *Pawongan*, and *Palemahan* of the traditional village; b) customary law system and implementation; c) *Sabha* and *Kerta* organization of the traditional village; d) Development organization of custom, religious, tradition, art and culture, as well as the local wisdom of the traditional village society; e) *Pasraman* as the Hinduism-based educational institution for developing personal characters, moral integrity, and the social quality of Bali; f) Traditional village security organization; g) traditional village economy organization.

The THK concept becomes a guideline in managing traditional villages integrated with the Balinese people's local wisdom. Those provided the existence in maintaining the traditional village existence and the whole traditional organization in Bali such as *Subak*, LPD, etc. The religious elements supported by strong social capital will strongly

drive the society from their deepest heart to maintain and apply the preserved value and norm.

In the Local Government Regulation of Bali Province, Number 4 of 2019, the Balinese traditional village's main elements (Parahyangan, Pawongan, *Palemahan*) were THK philosophy representatives. The THK philosophy concept covers: a) *Bhakti karma* (karmic devotion) to the *Hyang Widhi Wasa* (The One God); b) Togetherness, care, and *punia* (loyalty) between *Krama* (community members) and peers; and c) Congeniality, harmony, and *asih krama* (mercy) to nature and the environment.

LPD becomes the alternative to guarantee the traditional welfare society, which was the karma of the *pakraman*. LPD has been authorized, and the existence has been regulated based on the Local Government Regulation of Bali Province.

Those amendments were conducted since the previous regulation is no longer suitable to society's real condition that it needs to be updated and amended. LPD is the traditional village's financial institution, which took a position in the traditional village's *wewidangan* (authority). In the LPD organizational system, a *Prajuru* is the operations officer of the LPD. *Panureksa* is the traditional village's internal oversight unit, which functions to oversee the LPD management. Besides, in its working system, LPD also has an operational plan and the revenue and expenditures budget plan LPD, which has its mechanism and has been regulated in the LPD regulation.

The net profit of LPD will be shared at the end of the determined financial year. It covers capital reserve for 60%, village society development and empowerment fund for 20%, production service for 10%, empowerment fund for 5%, and social fund for 5%.

LPD in Bali has a very contributive potential for the traditional village existence development. Its dominant role in managing finance by referring to Bali's social and cultural order could synergize well in responding to the traditional village needs. LPD in Bali has a significant development, which could be seen in 2017 in the middle of economic growth deceleration of Bali by showing asset total, which increased by 22% in 2017.

Bali's LP empowerment institute (LP-LPD) has booked the LPD assets that have reached Rp19,2 trillion in April 2018 (Bisnis Bali, 2018). This increase showed a very well growth than the previous quarter at the end of 2017 with Rp18,47 trillion assets. It showed that the performance of LPD in Bali also provides acceleration and financial assistance such as the formal financial institution like the other banking sectors.

I Nyoman Arnaya SE (the head of LP-LPD Bali) mentioned that LPD in Bali contributes significantly to the society's needs, especially the karma of traditional village. The form of 20% profit was provided to develop the traditional village or the 5% profit, which was allotted for social activity. Besides, the existence of LPD could also employ up to 7,977 people. This condition showed that the existence of LPD did fulfill the village's social-economic needs and employed the workforce. It added a positive value to the employment condition in Bali Province and its surroundings.

The good performance of LPD was inseparable from the role of related stakeholders such as the LPD committee, village society (traditional village *krama*) as the customer. The strong trust dedicated to LPD is given by the traditional village karma that many people decided to save their money and take a loan from LPD. The trust element built between the traditional society and LPD gave a positive synergy for the existence of LPD until now. Besides, professional management such as the audit conducted in the asset management and other activities of LPD becomes one of the factors that increase public's trust.

The LPD asset growth was also supported by the high lending increase, which reached 18.2% or Rp13.14 trillion, which increased from Rp11.12 trillion in the previous period. It impacted the customer increase for 429,693 and a significant increase in the third parties fund. The savings and deposits increased consecutively by 34.7% and 37.6% (Bisnis Bali, 2018). Several banking instruments of LPD adequately showed the LPD performance, which contributed to Bali's economic flow, especially at the village society. LPD asset ownership was dominated by the asset ownership above Rp5 billion for 49,47% of the total number of PD or around 514 units. While the asset ownership below Rp1 billion was 27,56% or around 350 units of LPD and asset in between Rp 1 billion up to Rp 5 billion was 31,97% or 406 units of LPD. It showed that the current condition of LPD has great potential in contributing to Bali's economic development and dynamics.

Still, the LPD with great assets has not yet been distributed evenly in each region in Bali. The LPD with great asset distribution was still around Badung, Denpasar, and Gianyar regions with higher and busier activities than the other regions. Based on the report of LP-LPD, total asset ownership of LPD in Badung in 2017 reached Rp5.9 trillion, Gianyar reached Rp3.6 trillion, and Denpasar was Rp1.9 trillion.

Besides Badung and Denpasar, Gianyar also had a good performance than the other regions. The stakeholder also supported the positive performance either from LPD or society. To maintain performance stability, LPD in Gianyar always conducts an annual routine evaluation to find out the LPD development and growth in a more detailed way. The detailed audit is also carried out to determine the small or big problem gaps to be responded to and handled immediately. This evaluation is also carried out by making a transparent report of the LPD performance to society. It will increase the public's trust, which has become the main contributor to Bali's LPD success in general, especially in Gianyar.

The performance of LPD in Gianyar was also shown by the increased total LPD asset by 30,02% from 2010 to 2011 with the previous total asset Rp940,8 million into Rp1,2 billion. The increase was also supported by the increased term deposits from 2010 to 2011 for 31,14% and increased credits for 22,02%. It influenced the LPD profit increase by 19,27%. Then, 20% of the profit will be allotted to traditional village development. However, the performance increase had one flaw that could decrease the customer's number previously 88.204 in 2010 to 86.411 in 2011.

## **Integration of THK concept on LPD**

### ***The element of parahyangan***

The element of *parahyangan* is an essential element in the THK concept, which explains the harmony between humans and the creator. In this case, the relationship between krama and the One God.

Bali's public organization or institution is always symbolized by a temple that is identical to a worship place. Temple is considered a place with a high cultural value. The temple has a high spiritual value as the worship place and creates harmony between humans and God.

The temple can also be used as the LPD committee supervisor, such as *panureksa* (LPD Internal Auditor) or *prajuru* (LPD Operational Committee). When their behavior starts to be off track of the social, cultural, and spiritual order, the temple could remind them that each of their behavior is watched by God and must be more devoted to God.

The Balinese society's pursuance to God in the THK philosophy is stated in the

element of Parahyangan, where the harmony between God and human being always become their main spiritual need. It is also based on trustworthiness, which becomes the main foundation in an ideal relationship with God or peers humans to create sustainability and harmony.

The *krama* of the traditional village adopts a similar concept. LPD always involves God in conducting their activities. It was showed by conducting the ceremony to reciting prayers lead by the LPD committee to start their activity by expecting safety, protection, and smoothness in managing the LPD.

In operating LPD, the *parahyangan* element did not only conduct worship or pray to ask for protection, safety, and smoothness to God but also to donate the LPD profit to help the traditional ceremony funding.

The *parahyangan* element, which is integrated into the LPD activities such as prayers and ceremonies conducted in managing LPD, becomes one of the key success and existence of LPD in Bali. It is based on the intrinsic value such as the high and deep-rooted spirituality that they will always be obedient and devoted to God. It will remove the negative action such as corruption in managing LPD. Besides, this will grow the trust between LPD and traditional village *krama* to manage the society's fund or the village *krama*; either the *krama* will be the customer or debtor of the LPD.

### ***The element of pawongan***

*Pawongan* reflects the horizontal relationship of human beings and their peers either in the organization's internal or external. This relationship exists as the result of cooperation, a condition where they need each other, mutual assistance resulting from uncertainty or extinction that the relationship is created (Windia and Dewi, 2011).

Human characteristics tend to maintain and build a relationship within a community. The *Pawongan* element aspect is one of the human efforts to maintain a relationship within the community in an activity they carry out together. It is similar to the Hinduism lesson that humans shall achieve the *jagathita*, which means a condition where there built a good relationship of good actions, material, joy, and balance or in Hinduism terms, they are called *dharma*, *artha*, *kama*, and *moksha*.

In managing LPD, the traditional village also involves the society element or village *krama*, either the LPD committee or the traditional village committee. The society's involvement is not limited to the role merely as customer and committee of the LPD. However, they can be the operational subject and object in the LPD management. In this case, Society is the village *krama* and participates in supervising the LPD management internally or externally from various angles. The supervision could be carried out by being a customer or the general village *krama*.

One of the forms of *pawongan* relationships among humans is mutual and independent assistance. Such as in building a holy place like the temple and any religious activities, they try to conduct it independently. Besides, the form of *pawongan* element in LPD and the traditional village was shown by the synergy between village *krama* and LPD.

Besides, the establishment of LPD in the *pakraman* reflects the *pawongan* element in the traditional village society. The existence of LPD is a form of the social relations of the society that interacts with each other to create an organization that provides financial services to the village society.

The dynamics and shift of the life pattern and economy impact the socio-economic condition. To respond to such conditions requires an accessible financial service that provides effective and efficient service based on Bali society's socio-



cultural life.

Interaction between LPD and *pakraman* also represents the social interaction in the *pawongan* element. The interaction harmony happens between the LPD committee and village *krama* in providing funding service for the society.

Most of society also finishes any social or economic problems through discussion and mutual assistance. The interaction intensity of the traditional village society is still preserved and strongly related to the social order deeply rooted within them. The LPD participation is reflected through the support of LPD on activities conducted by the village *krama*, although LPD does not fully take a role in it. Besides the interaction between LPD and village *krama*, social relationship happens between an LPD and the other LPD, regional government, or academician in the Bali region.

Meanwhile, the human resource competency in several LPD has not yet been adequate to accommodate the LPD needs that it impacted the LPD operational gridlock. Besides, the society's mindset influenced them to utilize the LPD access and service for consumptive activity instead of the productive one. Sometimes it becomes one of the problems in LPD, resulting in bad credit and other problems. To respond to the situation, the government initiates to conduct socialization concerning the LPD management in a good, effective, and efficient way without removing the socio-cultural elements in society.

The involvement of academician, practitioner, or culture enthusiast in several activities also involves LPD as the form of the established social interaction and the reflection of *pawongan* element in the THK concept. It is also based on the deep-rooted social capital within Bali society that discussion and mutual assistance will be the absolute way to solve problems in society.

The social capital concept is called linking, establishing relationships or social interactions between the internal and external parties, the LPD and government, practitioner, academician, or culture enthusiast. This interaction contributes to every problem of the LPD, either on the cultural, social, or economic side.

In its practice, LPD also provides funding for human resource development through credit for educational purposes. The poor *krama* who needs to pay the tuition fee could take the credit service. Usually, the *krama* used by the *krama* who's the family work overseas got the collateral to pay the credit. The installment could be paid when they got back from overseas or when they sent the money.

This kind of practice has been practiced many times, and there was a minimum bad credit because they implement a strong THK concept. Between LPD and the village, *krama* could build a high trust based on the spiritual element and believed that karma exists. When a customer becomes irresponsible, they believe that bad things happen to the customer. This belief has been deep-rooted within their mind that it influences them always to perform good deeds.

### ***The element of palemahan***

Bali's society believes that if humans could live in harmony with nature, then nature will protect them in return and provide the best potential. LPD is also concerned with the surrounding environment to maintain the village's natural environment sustainability. The form of action carried out by LPD to fulfill the *Palemahan* element is establishing a Waste Management Unit (UPS) and waste bank.

The UPS is aimed to collect either organic or inorganic trash. The waste bank is aimed to collect and manage the trash collected by UPS. Waste is managed based on its type. Inorganic waste (especially plastic waste) is recycled into art crafts. Organic waste

is used as fertilizer or other environmentally friendly planting materials.

LPD takes the environment management funding role and contributes to the village's spatial arrangement to maintain natural sustainability. The society also conducts some weekly routines such as mutual assistance to clean the traditional village environment to maintain the environment cleanliness. In this case, LPD contributes to the society's activity by providing help or funds as a form of care to the environment.

LPD also contributes to the reforestation in the villages by planting trees that can be the green zone. Besides creating a beautiful and comfortable atmosphere, reforestation can also maintain natural environment sustainability.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

*Tri Hita Karana's* philosophy as the foundation and reference for the Hinduism society in general in carrying out the activities has a strong role in the existence of LPD, which contributes to the traditional village development, especially in Gianyar Regency. It was reflected through several social activities supported by LPD, either from the funding, fostering, and empowerment of all aspects of the THK elements, namely *parahyangan, pawongan, and palemahan*.

The existence of LPD could contribute significantly to financial development in the rural area. It was supported by the social capital and trustworthiness established between the traditional village *krama* and the whole LPD committees that create sustainability that maintains the LPD development existence in Gianyar, Bali.

Besides pushing financial development, LPD also contributes to the tourism sector development and other supporting sectors. It was reflected through the funding or providing capital for the tourism business owner. LPD also fosters the village's tourism potential innovations and promotes their region's tourism potential.

### **Recommendations**

In the current age of technology, LPD needs to integrate technology to develop financial management by upholding the tradition, culture, and THK philosophy. It is used to improve the LPD efficiency and effectiveness in carrying out the service and ease of access to society.

Besides, LPD needs to coordinate more intensively to share the knowledge to find out and observe further village potential and share the suggestion in managing the human resource that all LPD could operate well. In this case, LPD shall coordinate with the academicians, culture observers, or practitioners to help determine the village and LPD management's further potential.

## **ACKNOWLEDGMENT**

Thank you we say to Universitas Pendidikan Nasional, Denpasar, Bali Indonesia.

## **REFERENCES**

- Angrosino, M. (2007). *Doing ethnographic and observational research*. Thousand Oaks, CA: Sage.
- Arka, I.W. (2016). Eksistensi Lembaga Perkreditan Desa dalam Pembangunan Desa Pekraman sebagai Desa Wisata di Bali. *GaneÇ Swara*, 10(2), 78-84
- Bendesa, I K.G. M.A.D.E., Meydianawathi. L.D, Nata, I. K.S., Arka, S., & Saisentisna,

- M.D. (2013). *Peran Lembaga Perkreditan Desa Di Bali : Pendekatan Index of Financial Inclusion*. Jurusan Ekonomi Pembangunan Fakultas Ekonomi Universitas Udayana
- Cendekiawan. (2015). *Aset lembaga perkreditan desa di Bali melonjak*. Available at: <https://kabar24.bisnis.com/read/20150121/78/393664/aset-lembaga-perkreditan-desa-di-bali-melonjak-205>
- Fetterman, D.M. (1998). *Ethnography: Step by step (2nd ed.)*. Thousand Oaks, CA: Sage
- Katircioglu, S., Katircioglu, S. & Altinay, M. (2017). Interactions between tourism and financial sector development: evidence from Turkey. *The Service Industries Journal*, 38(9-10), 519-524
- Kurniasari, T.W. (2007). Lembaga Perkreditan Desa (LPD) Dalam Perspektif Hukum : Sebuah Lembaga Keuangan Adat Hindu Penggerak Usaha Sektor Informal di Bali. *Jurnal Masyarakat dan Budaya*, 9(1), 53-78
- Mulyawan, I.P.A., Wirama, D.G., & Badera, I.D.N. (2017). Budaya Tri Hita Karana Sebagai Pemoderasi Pengaruh Prinsip Good Corporate Governance Pada Kinerja Lembaga Perkreditan Desa di Kota Denpasar. *E-Jurnal Ekonomi dan Bisnis Universitas Udayana*, 6(8), 3193-3222
- Ohlan, R. (2017). The relationship between tourism , financial development and economic growth in India', *Future Business Journal*. 3(1), 9–22. doi: 10.1016/j.fbj.2017.01.003.
- Peraturan Daerah Provinsi Bali Nomor 3 Tahun 2007 tentang Lembaga Perkreditan Desa (LPD).
- Peraturan Daerah Provinsi Bali Nomor 3 Tahun 2017 Tentang Lembaga Perkreditan Desa
- Peraturan Daerah Provinsi Bali Nomor 4 Tahun 2019 Tentang Desa Adat Di Bali
- Saidharta. A.A.N.G. (2017) Lembaga perkreditan desa sebagai penopang ke-ajegan budaya ekonomi masyarakat Bali. *Jurnal Kajian Bali*, 7(2), 1-18
- Sangasubana, N. 2011. How to Conduct Ethnographic Research. *The Qualitative Report*, 16(2), 567–573. <https://doi.org/10.1017/CBO9781107415324.004>
- Suhel, S. & Bashir, A. (2018) The role of tourism toward economic growth in the local economy. *Economic Journal of Emerging Markets*, 10(1), 32–39. doi: 10.20885/ejem.vol10.iss1.art4.
- Torres-delgado, A. & Palomeque, F. L. (2012). The growth and spread of the concept of sustainable tourism: The contribution of institutional initiatives to tourism policy. *Tourism Management Perspectives*. 4, 1–10. doi: 10.1016/j.tmp.2012.05.001.
- Windia, W. & Dewi. R.K. (2011). *Analisis Bisnis Berlandaskan Tri Hita Karana*. Bali: Udayana University Press.



© 2021 by the authors. Licensee JPPD, Indonesia. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

## Digital financial inclusion and fiscal solvency in Uganda's local governments: A review of regulation mediation

Paul Onyango-Delewaa<sup>1\*</sup>; Isaac Nabeta Nkote<sup>2</sup>

<sup>1)</sup> Department of Accounting and Finance, Faculty of Business and Development Studies, Gulu University, Gulu, Uganda

<sup>2)</sup> Faculty of Commerce, Makerere University Business School, Makerere University, Kampala, Uganda

*\*To whom correspondence should be addressed. Email: ponydel2005@gmail.com*

DOI: 10.22437/ppd.v8i6.8861	Received: 12.03.2020	Revised: 17.03.2020	Accepted: 03.08.2020	Published: 01.02.2021
--------------------------------	-------------------------	------------------------	-------------------------	--------------------------

### Abstract

Fiscal solvency has become a popular phenomenon in numerous decentralizing countries in recent years. The ability to mobilize adequate revenue to fund expenditure in a given budget period, and provide public goods and services, makes fiscal solvency very pertinent, especially in local government. However, policy, practice, and research, claim that most local entities, both in the developed and developing world, rarely achieve required fiscal solvency standards. While no clear explanation of the problem abounds, digital financial inclusion dominates the ongoing debate. Besides, regulation is also considered a very crucial factor for fiscal solvency. This study examines the probable mediation effect regulation has on the digital financial inclusion-fiscal solvency relationship in local governments in Uganda, East Africa. Based on a cross-sectional research design, data were collected from 21 districts, nine municipalities, and many sub-counties in the country's post-conflict northern regions. The data were then subjected to structural equation modeling analysis. Its findings reveal that digital financial inclusion explains changes in fiscal solvency in surveyed local governments. Moreover, regulation has an indirect influence on the digital financial inclusion-fiscal solvency formation. Findings implications to practice and theory are discussed, and future research direction is provided.

**Keywords:** Digital financial, Fiscal solvency, Local government

**JEL Classification:** H72, G38, O16, O33

### INTRODUCTION

It is quite recent that government entities' fiscal solvency started to receive attention from policy, practice, and research. Previously restricted to fiscal federalism specialist domains, lack of fiscal solvency has over time undermined resource management in public units unnoticed (Sepulveda & Martinez-Vazquez, 2011; Thornton, 2007). The malaise, exacerbated by corruption and other malpractices, dominates local government financial and budgetary structures, especially in newly decentralizing countries of the developing world (Arzaghi & Henderson, 2005; Lessman, 2012). Sub-Saharan African

region local entities, Uganda inclusive, have been particularly vulnerable, given their relatively weak managerial capabilities and non-punitive budgetary regulations (Gauthier, 2001; Talvi & Végh, 2005).

Gauthier (2001) and Lessman (2012) associate the fiscal health of government (especially local governments) with fiscal solvency. Public fiscal health is a three-dimensional phenomenon: fiscal position, fiscal condition, and economic condition. An entity's fiscal position relates to the state of its assets and liabilities. These require continuous cash flows or the ability for conversion to cash in the short-term (liquidity) (Lessman, 2012).

Government fiscal condition is about its aptitude to meet financial obligations to, say, suppliers, creditors, and lenders as they fall due. Often referred to as fiscal solvency, state when the entity can service its financial obligations to concerned constituents now and in the future (Gauthier, 2001; Thornton, 2007). Previous studies (e.g., Alesina, Baqir & Easterly, 1999) have long captured economic conditions to embrace the entire government fiscal health as a whole. Specifically, it is the entity's potential to meet financial obligations and service delivery commitments within the set budgetary framework (Alesina, Baqir & Easterly, 1999; Arzaghi & Henderson, 2005).

Fiscal solvency, especially in fiscal federalism structures, can be clearly understood from four contexts; cash, budgetary, long-run, and service-level solvency (Gauthier, 2001; Reinikka & Svensson, 2006). Cash-related solvency is the entity's ability to generate adequate cash amounts over, say, 30-60 days to service its recurrent bills. Budgetary solvency can mobilize enough revenue over the normal budgetary timespan to finance expenditure and yet without entering into debt. Long-run solvency is a situation when a public entity is sustainably able to meet all its administrative and other costs over a long time (Gauthier, 2001).

Service-level solvency relates to that component of financial health when the government can render services at the local communities' level and quality satisfactorily. The services may include education, health, road networks, water, and sanitation (Gauthier, 2001; Talvi & Végh, 2005).

Conventional empirical evidence (e.g., Alesina, Baqir & Easterly, 1999; Reinikka & Svensson, 2006; Thornton, 2007) provides that majority localities often violate budgetary and service delivery mandates relative to cash and long-run solvency dimensions. Several scholars (Morawczynski, 2009; Salvador, Sherry & Urrutia, 2005; Yakub, Bello & Adenuga, 2013) assert that dynamics largely cause violation of budgetary and service delivery obligations in local agencies in digital financial inclusion.

Electronic or e-financial mechanisms commonly exclude local communities incapacitating them from paying local taxes required for budgetary purposes. Resultant constrained budgets create service delivery setbacks (Salvador, Sherry & Urrutia, 2005; Yakub, Bello & Adenuga, 2013).

Besides, locality budgetary and service delivery challenges are also closely associated with fiscal solvency regulation (de Mello, 2000; Prud'homme, 1995). Fiscal federalism in general and fiscal solvency is surrounded by a series of laws and statutes meant to enhance efficiency and transparency. Prud'homme (1995) argues that, given that such regulation is created at the center, it rarely captures local entities' operational realities. It exposes most agencies to budgetary and service delivery risks (Otenyo & Lind, 2004; Prud'homme, 1995).

This research is a close analysis of the digital financial inclusion-fiscal solvency relationship in African-based local governments. Specifically, regulation, a factor to which previous studies have paid very little attention, is investigated as a possible

mediator in the relationship. In Uganda, local government fiscal solvency concerns, an East African country applauded for its proficient fiscal federalism mechanism, are used as a proxy. The focus is on local entities' operations located in the country's post-conflict northern regions of West Nile, Northern (Acholi and Lango areas), and Karamoja.

## LITERATURE REVIEW AND HYPOTHESES

### Fiscal solvency

In local government, fiscal solvency is a fiscal condition that unveils an entity's ability to meet its financial obligations to suppliers, creditors, and lenders as they fall due (Gauthier, 2001; Thornton, 2007). Local entities are particularly obliged to meet their service mandate to the communities now and in the future.

Incidentally, effectively meeting that mandate on a sustainable basis is a function of multiple factors. Common factors are largely environmental, organizational, and financial (Alesina, Baqir & Easterly, 1999; Thornton, 2007).

According to Gauthier (2001) and Talvi & Végh (2005), the entity environment encompasses community needs and resource structure, political culture, and inter-governmental constraints. The entity must appreciate its community population age, income-generating capacity, and employment potential from the community needs and resource structure context. Such factors are critical for planning and budgeting necessary in fulfilling service delivery obligations (Alesina, Baqir & Easterly, 1999; Talvi & Végh, 2005).

The locality also needs to understand the partisan political formation under which it is operating. Politics significantly influence resource allocation and government program management (Arzaghi & Henderson, 2005; Gauthier, 2001). Moreover, various local governments fail to realize expected fiscal solvency criteria due to constraints rooted in inter-governmental fiscal relations. These encompass the management of intergovernmental transfers (grants) and budgetary regulations (Alesina, Baqir & Easterly, 1999; Reinikka & Svensson, 2006).

At the organizational level, the administrative machinery employed and staff technical capacity to make effective fiscal decisions seriously impact entity fiscal solvency. Sepulveda & Martinez-Vazquez (2011) noted that rampant corruption and bureaucratic practices surrounding several local governments, especially in Africa, are associated with organizational impediments. In most jurisdictions of Africa, several local entity administrators and departmental heads lack the technical competence required to constitute and interpret a balanced budget (Lessman, 2012; Sepulveda & Martinez-Vazquez, 2011).

Financial factors that influence local authorities relate to revenue mobilization (growth and source diversity), expenditure (setting priorities, meeting mandates, and expenditure performance), and program management (maintenance and capital outlay efficiency). These factors drive fiscal solvency (Alesina, Baqir & Easterly, 1999; Talvi & Végh, 2005).

Fiscal efficiency theory (King, 1984; Musgrave & Musgrave, 1980; Oates, 1972) is the dominant theoretical underpinning that attempts to explain local entity fiscal condition. The theory holds that local taxes embrace several operational features capable of financially supporting decentralized public expenditure systems if managed well. For instance, local tax bases should be neither very mobile nor unevenly distributed amongst the various local jurisdictions (Musgrave & Musgrave, 1980; Oates, 1972).

In dynamic environments, say those occasioned by rapid technological mobility, taxpayers may relocate the income activities or tax sources from high to low areas. Such

society re-location will affect total revenue collected and limit entity capacity to adjust tax rates accordingly. Prompt tax adjustments made to suit budget solvency at a particular period is critical for ultimate entity budget performance (King, 1984; Musgrave & Musgrave, 1980). The entity's environmental-organizational-financial factors triangulation outlined above seriously affects its budgetary and service-level solvency.

In Uganda, most local governments, especially those emerging from civil conflict, frequently fall victim to the fiscal solvency trap. Quite often, less local revenue is collected than what is budgeted for smaller amounts released by the central government in grants. Coupled with constrained donor aid support, it is common that their budgets rarely perform (Reinikka & Svensson, 2006).

Budgets in local governments in the West Nile, Northern, and Karamoja regions are very prone to fiscal solvency setbacks. As communities struggle to cope-up economically with those of other regions in the country, budgetary legislation requires that they must also operate functioning budgets (Reinikka & Svensson, 2006). Ultimately, non-performing budgets in the regions have inevitably affected the quality of service delivery. Thus, the regions' level of education, health services, road networks, and water and sanitation remains largely below average (Talvi & Végh, 2005).

### **Digital financial inclusion**

Large sections of local community populations save, send money, and even access loans through financial systems that are neither supervised nor regulated. This practice, typical of the developing world and currently widespread in Sub-Saharan Africa, constitutes the so-called shadow or informal cash-based economy (Morawczynski, 2009; Schneider & Enste, 2000).

Digital financial inclusion research (Gilbert, 2005; Madon, 2005; Salvador, Sherry & Urrutia, 2005) reveals that such communities comprise the biggest percentage, at least 70%, of the entire population of respective countries. Their inclusion in the formal digital financial sector would lead to national economic growth and significantly reduce poverty (Madon, 2005; Salvador et al., 2005).

Commonly defined as digital access to and applying financial services by underserved or entirely excluded populations (Morawczynski, 2009; Phillips & Ilcan, 2007; Yakub, Bello & Adenuga, 2013), digital financial inclusion mechanisms only require suitable adjustments to benefit the affected groups.

Phillips & Ilcan (2007) suggest that tailoring the mechanisms to customer needs, responsible delivery, affordability, and cost-effectiveness to service providers would significantly enhance that objective's attainment.

The actor-network theory (Green, Hull, McMeekin & Walsh, 1999; Hanseth, Monteiro & Hatling, 1996) suggests a combination of agency and structure for effective digital financial inclusion. Besides, this leading theoretical direction asserts that neither the agency nor the structure should operate independently of the other. In practice, society consists of human and non-human players who foster digital financial activity (Hanseth, Monteiro & Hatling, 1996). Conventional agency-structure configurations in Africa are driven by a transaction platform, retail agents, and some devices (Madon, 2005; Morawczynski, 2009; Schneider & Enste, 2000).

### **Transaction platform**

The platform makes it possible for customers to use the device to transact; that is, make and receive payments, transfer, and store money electronically with financial or non-financial but authorized institutions (Morawczynski, 2009; Olayinka, 2015; Yakub,

Bello & Adenuga, 2013). Moreover, it can accommodate small and unpredictable cash flows affordable by most poverty-stricken and village-resident populations.

Data platforms create through continuous customer interaction enable financial institutions to develop pro-poor easy-to-repay products. Furthermore, most transactional platforms engaged are acclaimed for promoting easy accessibility to other financial products such as loans, insurance, interest-based savings, and investments (Morawczynski, 2009; Olayinka, 2015).

In general terms, transactional platforms have generated unprecedented financial service demand that has impacted most local populations' income capacities. Notable examples in Africa include Tigo Family Care insurance (Ghana), Commercial Bank of Africa-oriented M-Shwari consumer loans and M-Pesa (Kenya), Nigeria's FirstMonie, and MTN and Airtel (Uganda).

Recently, Uganda-based MTN and Airtel e-financial institutions launched almost similar products to benefit the largely rural-based poor. The post-conflict communities are an active consumer group of the services offered (Morawczynski, 2009; Olayinka, 2015). The services have not only improved their livelihoods, but the interaction has boosted local business activity. Depending on local entity capacity to mobilize local taxes, enhanced business leverage significantly influences societal contribution to budgeting and service delivery (Olayinka, 2015; Salvador et al., 2005). The attribute transactional platform thus substantiates the proposal of the following hypothesis:

**H1:** *Digital transaction platform relates positively to fiscal solvency.*

### **Retail agents**

Retail agents are registered and regulated individuals or institutions that operate digital devices to help customers convert cash to electronically-stored value or the other way around. Yakub et al. (2013) identify the agents with facilities linked to communication infrastructure capable of transmitting and receiving customer monetary transaction details. Consistent with the actor-network theory (Green, Hull, McMeekin & Walsh, 1999; Hanseth, Monteiro & Hatling, 1996), agents are the actors whose intervention in the platform-device-customer connections renders the entire digital financial inclusion machine very effective.

As a contribution to local entity fiscal solvency, retail agents expose local community digital financial facility users (taxpayers and service recipients) to business efficiency that ultimately strengthens their earning power (Phillips & Ilcan, 2007). However, where regulation is weak, retail agents may cause serious risks to both service providers and customers. According to Madon (2005), service providers are vulnerable to agent-oriented operational and even cyber-related risks such as fraud, poor cash management, inefficient data management, and frequent errors. These setbacks hamper customer participation and frustrate their business activity (Madon, 2005; Schneider & Enste, 2000).

Besides, given their limited financial management aptitude, most agents can notably comply with anti-money laundering regulations and customer due diligence requirements. Empirical evidence (Morawczynski, 2009; Salvador, Sherry & Urrutia, 2005) further indicates that some agents over-charge customers or involve abusive language, which eventually leads to violation of personal data confidentiality.

In sum, both the positive and negative contributions retail agents make to the digital financial inclusion-customer (community) equation have a surmountable bearing on the local government's fiscal solvency drive. Post-conflict northern Uganda local communities and their local governments are in no way immune to the MTN-Airtel retail agents' machinations. Like their counterparts in other parts of Africa, they need the



services to be part of the global digital financial society and are forced to bear with its dynamics (Olayinka, 2015; Yakub, Bello & Adenuga, 2013). The retail agents construct leads to the following prediction:

**H2:** *Retail agents' activities relate positively to fiscal solvency.*

### **Devices**

In Sub-Saharan Africa, the mobile phone dominates the digital financial device structure (Morawczynski, 2009; Salvador et al., 2005). All homes have mobile phones, held for both communication and money transfer purposes. In most jurisdictions, all mobile phone devices are registered. Registration of phone owners is undertaken to facilitate personal holder security, curb phone theft, and, most importantly, check cyber-related financial transfer crimes (Morawczynski, 2009; Olayinka, 2015).

Some scholars (Madon, 2005; Phillips & Ilcan, 2007; Schneider & Enste, 2000) observe that phone owners and their devices' registration is a deliberate government strategic move. Essentially, registration reveals people's incomes, spending habits, partisan political position, and their stand on the quality of public goods and services offered. To achieve this multi-dimensional strategic goal, the state often secretly institutes a digital communication monitoring system (phone tapping) (Phillips & Ilcan, 2007; Schneider & Enste, 2000).

Local government officials in Uganda and the communities they serve, post-conflict northern regions inclusive, predominantly employ the mobile phone as the digital financial inclusion device. Thus, the device is considered instrumental in enhancing fiscal solvency in such entities (Morawczynski, 2009). In that consideration, we put forward the hypothesis:

**H3:** *Device application relates positively with fiscal solvency.*

### **Regulation**

Fiscal federalism entails the center transferring some of its fiscal administrative and management powers to sub-national entities (de Mello, 2000; Prud'homme, 1995). Ideally, the entities are given the constitution or some specific law mandate to raise local revenue (taxes) and carry out spending activities but strictly within a clearly-set regulatory framework.

Raising revenue and spending is a function of two critical engagements, budgeting, and service delivery (Prud'homme, 1995; Reinnikka & Svensson, 2004). Since fiscal federalism, the bedrock of locality budgeting, is undertaken within some pre-conceived legal criteria, and it is therefore of little doubt that fiscal solvency is under regulatory oversight. Otenyo & Lind (2004) noted that regulation enhances budgetary discipline and promotes quality service delivery, especially in Africa's resource-constrained local entities. Budgetary discipline enables the entity to remain budget solvent for a long time (de Mello, 2000; Otenyo & Lind, 2004).

The sudden emergence of digital financial inclusion culture in most developing countries and particularly in Sub-Saharan Africa has caught most fiscal, regulatory mechanisms unawares (Madon, 2005; Olayinka, 2015; Yakub, Bello & Adenuga, 2013). Few national constitutions and their offshoot sub-national entity laws capture the volatile operational elements of e-financial systems. Thus there is a high incidence of transaction platform-retail agent-device service violations with impunity, especially from the local government fiscal solvency context (Morawczynski, 2009; Olayinka, 2015).

In Uganda, the national constitution (1995), the Budget Act (2001), and the Local Government Act (1997 amended) constitute the regulatory framework governing fiscal activities in its local governments (Otenyo & Lind 2004; Reinnikka & Svensson 2004).

However, this legal structure is yet to fully-appreciate the digital financial inclusion-fiscal solvency linkages in local entities. Most of the governing guidelines are embedded in the financial services statutes, quite different from, say, those in the Local Government Act (1997 amended) (Reinikka & Svensson 2004). From the preceding analysis, it also proposed that:

**H4:** *Regulation mediates the relationship between digital financial inclusion and fiscal solvency.*

## METHODS

### Sample

Data were collected from randomly and purposively-selected (Baruch & Holton 2008; Creswell 2003) 21 districts, nine municipalities, and some sub-counties in post-conflict northern and Karamoja regions Uganda. Local entities in the selected regions are susceptible to budget solvency challenges but are big consumers of the prestigious digital financial services (Morawczynski, 2009; Otenyo & Lind, 2004; Reinikka & Svensson, 2006). A total of 250 structured questionnaires were distributed to various administrators and department heads, while civic leaders were interviewed.

The questionnaire contained statement items regarding the study variables and their constructs built on a 5-point Likert scale. The scale was anchored on a “Strongly Disagree-Strongly Agree” configuration (Baruch & Holton, 2008; Cohen, Cohen, West & Aiken, 2003). The response rate from the unit of analysis, a district, the context was 100% given that at least a questionnaire was received from each locality. Overall, 240 questionnaires were received back, denoting a 96% unit of inquiry response rate. However, only 223 of them were taken on for hypothesis testing due to missing data and response inconsistency setbacks (Cohen et al., 2003; Creswell, 2003).

### Measures

**Fiscal solvency:** The constructs operationalized fiscal solvency: budgetary activity and service-level operations (Arzaghi & Henderson, 2005; Thornton, 2007). The budgetary activity was measured by scales adapted and modified from Thornton (2007) ( $\alpha = 0.844$ ). Sample statements: “This entity always balances its budgets.”; “Local revenue is often collected as budgeted for.” The service-level operations construct was assessed by modified versions of scales employed by Arzaghi & Henderson (2005) ( $\alpha = 0.903$ ). Sample statement: “The type of public goods and services offered by the entity is of quite good quality.”

**Digital financial inclusion:** The transactional platform, retail agents, and devices are notable ingredients of digital financial inclusion (Morawczynski, 2009; Yakub, Bello & Adenuga, 2013). Transactional platform concerns were examined using tailored scales in Morawczynski (2009) ( $\alpha = 0.826$ ). Sample statements: “The platform is responsible for frequent network disruptions.”; “It cannot be easily modified to suit local service consumption circumstances.” The retail agents' role was assessed based on guidelines in Yakub, Bello & Adenuga (2013) ( $\alpha = 0.877$ ). Sample statements: “The agents are simply money-minded and are not bothered about customers.”; “Most of the agents are government spies and often violate customer confidentiality.” Finally, to verify the device construct's operations, scales in Madon (2005) ( $\alpha = 0.894$ ) were espoused. Sample statement: “Most mobile phones are too complicated to use.”; “The phones cannot be easily repaired.”

**Regulation:** The study adopted the regulation as a probable mediating factor in the digital financial inclusion-fiscal solvency relationship. The variable was measured using modified scales in de Mello (2000) and Otenyo & Lind (2004) ( $\alpha = 0.914$ ). Related

sample statements: “The existing budgetary laws and regulation have been suitably tailored to address local government realities.”; “The laws are easy to enforce.”; “Entity administrators easily understand them.”

### **Control variables**

Participants’ gender, education, position, and tenure are biographical components commonly considered very impactful to the local government’s fiscal solvency management (Lessman, 2012; Talvi & Végh, 2005). Thus, to suppress their potential influence on the study findings, we included them in the study model as control variables.

Gender was assessed dichotomously (0 = Female, N = 93; 1 = Male, N = 130). Educational status was coded as (1 = Secondary Level, N = 26; 2 = Diploma, N = 61; 3 = First Degree, N = 97; 4 = Other Qualifications, N = 39). Job position was coded by (1 = RDC, N = 25; 2 = CAO, N = 34; 3 = LC5 Chairpersons, N = 26; 4 = Heads of Department, N = 79; 5 = Councilors, N = 59). Tenure within the entity and serving under the current supervisor was captured to cover the range (up to 2 – 11 plus) years.

Besides, we also identified and controlled one latent factor to expedite the statistical analysis required for Harman’s One Factor validity testing. Simulation research (e.g., Cheung & Lau 2008; Preacher & Kelley 2011) recommends control for latent factors to mitigate their potential negative effects on hypothesis testing and its outcome.

### **Data analysis**

Data analysis was carried out in four phases; first, participant biographical data were subjected to descriptive statistical analysis (Cohen et al., 2003; Creswell, 2003) to establish their status. Second, the study variables and constructs were also subjected to descriptive statistical analysis to generate their means and standard deviations. This phase also encompassed running variables and constructed inter-correlational tests and Cronbach alpha coefficients to establish instrument reliability (Baruch & Holton 2008; Cohen et al. 2003).

Third, data were treated to multiple regression analysis to confirm their ( $R^2$ ) strength and their multicollinearity status (Baruch & Holton 2008; Cohen et al. 2003; Creswell 2003). Fourth, structural equation modeling (SEM) was tested on the data. The purpose of this test is to establish direct and indirect (mediation) effects of the various hypotheses (Barrett, 2007; Bollen, 1990; Cheung & Lau, 2008; Preacher & Kelley, 2011) proposed in the study.

## **RESULTS AND DISCUSSIONS**

### **Descriptive statistical analysis**

The results reveal that 54% of the 223 participants are male and in the (31-39) year age bracket. Most of them (52%) are married, educated to the level of Bachelor’s degree (22%), and have served in their respective positions for at most five years.

These results are in line with previous research (Otenyo & Lind, 2004; Reinikka & Svensson, 2006), which indicates that fiscal and particularly budgetary activities in Uganda’s local governments are managed by fairly young and quite inexperienced male personnel. Besides, it is a workforce whose managerial and technical capacity is yet to develop (Otenyo & Lind, 2004).

The descriptions of the research variables are given in Table 1. The results presented in Table 1, indicate quite sizeable mean and standard deviation values. The variable and construct reliability coefficients are also fairly high ( $\alpha \geq .70$ ).

**Table 1.** Variable means, standard deviations, reliability coefficients, and correlations

Variable Item	M	SD	1	2	3	4	5	6	7	8
1.Transaction Platform	3.15	1.519	.825							
2.Retail Agents	2.97	1.557	-.364**	.813						
3.Device	2.92	1.524	.185	-.390**	.786					
4.Digital Financial Inclusion	2.85	1.558	.244	.304	-.489**	.811				
5.Budgetary Activity	3.19	1.528	.319*	.123*	.270	-.315**	.798			
6.Service-Level Operations	2.98	1.517	.252**	-.248**	.136*	.284	-.332**	.805		
7.Fiscal Solvency	3.04	1.586	-.259**	.260**	-.112*	.194**	.267	-.483**	.884	
8.Regulation	3.03	1.499	.304	-.259	.106	-.167*	.106	.228	-.296**	.856

Notes: M=Mean; SD=Standard Deviation; Reliabilities in parenthesis; \*\*Correlation is significant at the 0.01 level (2-tailed); \*Correlation is significant at the 0.05 level (2-tailed); N=223.

Most inter-variable/construct correlation values are quite moderate and acceptable empirically (Cohen et al. 2003; Creswell 2003). For instance, fiscal solvency exhibits a positive and significant relationship with digital financial inclusion ( $r = .194, p < .01$ ). It means that when digital financial inclusion improves by 19%, the standard of fiscal solvency also improves to a similar magnitude. On the contrary, regulation and digital financial inclusion relate negatively but significantly ( $r = -.167, p < .05$ ). As digital financial inclusion gains ground to the extent of 17%, there could be lapses in the regulation of the same level.

Moreover, regulation and fiscal solvency have a negative and significant relationship to the extent of ( $r = -.296, p < .01$ ). As laws and regulations become stringent to a magnitude of 30%, fiscal solvency standards also deteriorate by the same percentage. Finally, budgetary activity is associated with retail agent operations to a positive and significant level of ( $r = .123, p < .05$ ) interpreted along similar lines.

**Multiple regression and structural equation modeling**

Both regression and SEM analytical output are given in Table 2.

**Table 2.** Multiple regression and Structural Equation Modeling

HYP	Model	Unstandardized Coefficients		Standardized Coefficients	t-value	Sig.	Collinearity Statistics		
		$\beta$	SE	$\beta$			TV	VIF	
RGN	Constant	3.775	1.408		2.680	**			
	Transactional Platform	-.611	.195	-.556	-3.133	*	.413	2.423	
	Retail Agents	.508	.180	.508	2.825	*	.401	2.484	
	Device	.581	.183	.398	.728	**	.713	1.403	
	R <sup>2</sup>			.961					
	Adjusted R <sup>2</sup>			.922					
SEM	<b>Direct Effects</b>								
H1	Transactional Platform --> Fiscal Solvency			-.195	-2.835	**			
H2	Retail Agents ----> Fiscal Solvency			.372	2.114	**			
H3	Device ----> Fiscal Solvency			.249	2.762	*			
	<b>Indirect (Mediation) Effect</b>								
H4	Digital Financial Inclusion ----> Fiscal Solvency			.266	2.407	*			
	Regulation ----> Fiscal Solvency			.158	4.656	**			
	Bootstrap: 95% Bias-Corrected CIs: [.016; .093]								

Notes: HYP=Hypothesis; RGN=Multiple Regression; SEM=Structural Equation Modeling; H=Hypothesis; CI=Confidence Interval; TV=Tolerance Value; VIF= Variance Inflation Factor; \* $p < 0.05$ ; \*\* $p < 0.01$ ;

Regression Equation: Fiscal Solvency = [3.775-.556Transactional Platform+.508Retail Agents+.398Device+e].

Variable direct effects were verified at two levels; multiple regression analysis levels and SEM level. From the multiple regression contexts, results (Table 2), indicate a negative but significant transactional platform-fiscal solvency relationship ( $\beta = -.556$ ;  $t$ -value=-3.133). These results suggest that the study data do not support Hypothesis 1 in which a positive relationship had been predicted. In Hypothesis 2, it had been proposed

that retail agents' activities relate positively to fiscal solvency. Data support that hypothesis ( $\beta=.508$ ;  $t\text{-value}=2.825$ ). Hypothesis 3 which stated that device and fiscal solvency hold a positive relationship, also secured data support as per the regression output ( $\beta=.398$ ;  $t\text{-value}=.728$ ).

The regression results were founded on a regression model whose adjusted  $R^2$  value is quite robust (Adj.  $R^2 = .922$ ). Moreover, variable multicollinearity indicators meet the empirical standards; tolerance values ( $TV \leq 1.00$ ) and variance inflation factors ( $VIF \leq 10.00$ ). The results indicate that the study variables hold no collinearity identities (Cohen et al. 2003; Creswell 2003).

Firstly, structural equation modeling enabled the assessment of the common methods variance threat to the data set. Initially, data were subjected to exploratory factor analysis (EFA) for screening and then to confirmatory factor analysis (CFA) for manipulation. Barrett (2000) & Bollen (1990) recommend creating two models; a multi-factor measurement model and Harman's one-factor model, whose goodness-of-fit indices can be compared to establish the presence of the common methods variance threat ably.

The goodness-of fit indices for a six-factor (transactional platform, retail agents activities, device, budgetary activity, service-level operations, and regulation) model; namely, ( $\chi^2 = 7.521$ ;  $df = 9$ ;  $\chi^2/df = 0.836$ ;  $IFI = 0.970$ ;  $TLI = 0.985$ ;  $CFI = 0.977$ ;  $RMSEA = 0.023$ ; L.471, H.622) compared much better than those of the Harman's latent-based single model ( $\chi^2 = 12.803$ ;  $df = 14$ ;  $\chi^2/df = 0.915$ ;  $IFI = 0.808$ ;  $TLI = 0.905$ ;  $CFI = 0.844$ ;  $RMSEA = 0.219$ ; L.098, H.123).

The previous results of the two sets of goodness-of-fit indices signify the absence of common methods variance threat to the data (Barrett, 2000; Bollen, 1990; Preacher & Kelley, 2011). This finding is also a strong indication that there was both construct and discriminant validity of the instrument that was employed in the data collection process (Barrett, 2000; Preacher & Kelley, 2011).

Structural equation modeling results further confirm inter-variable direct effects initially generated in the multiple regression model. Accordingly, transactional platform-fiscal solvency ( $\beta=-.195$ ,  $t\text{-value}=2.835$ ,  $p < .01$ ); retail agents-fiscal solvency ( $\beta=.372$ ,  $t\text{-value}=2.114$ ,  $p < .01$ ); device-fiscal solvency ( $\beta=.249$ ,  $t\text{-value}=2.762$ ,  $p < .05$ ). Data supported both Hypotheses 2 and 3 but did not support Hypothesis 1.

It had been predicted in Hypothesis 4 that: regulation mediates the relationship between digital financial inclusion and fiscal solvency. Consistent with previous empirical literature (Kenny, 2008; Shrout & Bolger, 2002), mediation results (Table 2) [ $\beta=.266$ ,  $p < 0.05$ ;  $\beta=.158$ ,  $p < 0.01$ ], indicate that Hypothesis 4 secured supported from the data.

Two thousand five hundred mini-samples were created and subjected to structural equation modeling-based bootstrapping mediation testing. Bootstrapping generates two confidence intervals (lower and upper) that facilitate the determination of mediation presence. Mediation is considered existent and significant if no zero value lies in the confidence interval range (Preacher & Kelley, 2011). The 10% effect size and 95% bias-corrected zero-less confidence interval (CI): [.016; .093], confirms that Hypothesis 4 still secures support from the data (Cheung & Lau, 2008; Preacher & Kelley, 2011).

## Discussion

Attaining fiscal solvency is admittedly a big challenge to most local governments globally (Lessman, 2012; Talvi & Végh, 2005). The complication is rooted in the entity's capacity to sustainably operate functioning budgets and providing quality and satisfactory public goods and services to local communities. Budgeted revenue amounts must be

collected and spent effectively. Public goods and services offered must be of the type that suitably fit community social and economic well-being (Arzaghi & Henderson, 2005).

Over the years, the complexity surrounding fiscal solvency has rendered policy, practice, and research inconclusive on its origin and the way forward. Previous studies claim that the digital financial inclusion-regulation blend is the most important solution to understand the extent to which digital financial inclusion-regulation traits contribute to violations of fiscal solvency behavior (Morawczynski, 2009; Otenyo & Lind, 2004; Yakub, Bello & Adenuga, 2013).

In this study, transactional platform, retail agents, and devices; attributes of digital financial inclusion (Olayinka, 2015; Salvador, Sherry & Urrutia, 2005), are examined as predictors of fiscal solvency. First, we hypothesized a transactional platform to predict fiscal solvency. The results did not support that hypothesis (Hypothesis 1).

Secondly, it was projected that retail agents' activities predict fiscal solvency. The results supported the hypothesis (Hypothesis 2). Moreover, thirdly, we proposed that the trait device predicts fiscal solvency. This proposition was supported by the results (Hypothesis 3). Fourthly, we hypothesized regulation mediates the digital financial inclusion-fiscal solvency relationship. Results also supported that hypothesis (Hypothesis 4). The hypotheses and their findings are discussed in the following sections.

#### ***Transactional platform and fiscal solvency***

In line with Hypothesis 1, this research shows that changes in the transactional platform attribute of digital financial inclusion cannot change the local government's fiscal solvency. Importantly, we controlled for participant biographical characteristics such as gender, age, educational level, and tenure to influence fiscal solvency (Lessman, 2012; Talvi & Végh, 2005). However, the transactional platform-fiscal solvency effect remains the same. Thus, we propose that a transactional platform may not, after all, be an antecedent of locality fiscal solvency.

Much as the platform enhances the e-financial transfers and leads to ultimate improvements in societal incomes, most of the population is not connected to that facility (Morawczynski, 2009; Phillips & Ilcan, 2007). Therefore, this implies that e-platform may directly influence entity revenue generation through tax increments but little impact on service-level benefits.

For instance, in several communities of Uganda's post-conflict regions, schools are distantly located, health units lack relevant drugs, roads are impassable, and tap water is simply not available (Reinikka & Svensson, 2006). The over two-decade existence of digital financial systems in the regions has failed to help local authorities bring about any meaningful improvement in service delivery. Unfortunately, the local authorities neither have the technical capacity nor the mandate to initiate any platform structure changes. Local entities are mere recipients (Reinikka & Svensson, 2006; Talvi & Végh, 2005). Besides, the few studies conducted on digital financial inclusion-fiscal solvency formation in other African-based local governments (Olayinka, 2015; Yakub, Bello & Adenuga, 2013) associate most platforms with very unpredictable and potentially unreliable connections, which often disorganize customer financial plans.

In sum, the transactional platform-fiscal solvency configuration suggested at the introduction of Hypothesis 1 is contradicted by the findings based on the previous platform-fiscal solvency limitations. The challenge may constitute not only a promising direction for future research but also interventions. The transactional platform is purportedly that high-tech structure meant to provide a robust foundation for all connections. Salvador et al. (2005) suggest that local authorities should intervene by liaising with e-service providers to tailor their mechanical structures to local

environments for the platform to benefit African-based jurisdictions. It will somehow solve system connection failures (Madon, 2005; Salvador, Sherry & Urrutia, 2005).

#### ***Retail agents and fiscal solvency***

As expected, affirmative retail agent activities may generate similarly constructive developments in the local entity fiscal solvency drive. The finding which supports Hypothesis 2 is in line with previous empirical evidence (Gilbert, 2005; Phillips & Ilcan, 2007). The agents link the transactional platform to the customer and vice versa, making the digital financial inclusion dream almost attain reality.

In some jurisdictions, say, Tigo Family Care insurance (Ghana), M-Pesa (Kenya), and The FirstMonie (Nigeria), retail agents work hand-in-hand with the digital service providers to sensitize customers on how to utilize the facilities. It makes customers appreciate and embrace the services (Morawczynski, 2009; Olayinka, 2015).

From the fiscal solvency perspective, the role of e-financial services retail agents significantly boosts local revenue collections. It is so as most authorities subject both the enhanced customer businesses and the agents to various forms of local charges, fees, and taxes (Phillips & Ilcan, 2007; Schneider & Enste, 2000).

However, it must be stressed that it would be unfair to be adamant on the full certainty surrounding the retail agents' function in the digital financial inclusion-fiscal solvency equation. Several studies (e.g., Gilbert, 2005; Madon, 2005; Salvador, Sherry & Urrutia, 2005) attribute most failures in the relationship to questionable professional and technical competencies and personal conduct of the numberless retail agents.

For instance, Salvador et al. (2005) noted that most agents find themselves in the digital service business as a mere form of temporary employment and a way of making money for survival. They lack proper training and hold no intentions of specializing in that field. It partially explains why the agents are often less-mindful of customer care and customer service, especially when dealing with the largely illiterate communities (Madon, 2005; Salvador, Sherry & Urrutia, 2005).

Thus, our Hypothesis 2 and its findings propose that the role played by retail agents in the digital financial inclusion-fiscal solvency relationship is not the only antecedent but, to a very large extent, it is also consequential. Besides, the actor-network theory asserts that if no proper and prompt action is taken to mitigate its negative influence, agents' actions may not only delay but can completely frustrate the realization of the e-financial inclusion dream (Green, Hull, McMeekin & Walsh, 1999; Hanseth, Monteiro & Hatling, 1996). It will have very serious repercussions on fiscal solvency in local jurisdictional entities.

Phillips & Ilcan (2007) and Yakub, Bello & Adenuga (2013) suggest that national and local authorities should strengthen related regulations and emphasize customer sensitization. All retail agents must be trained on how to manage financial resources and relate to community-based populations. Moreover, the local authorities must appreciate the retail contribution agents make to their budgetary structures and revenue coffers in particular. Thus, through the agents, authorities can seek technical advice from digital financial service providers on how digital financing can support service delivery (Madon, 2005; Olayinka, 2015; Yakub, Bello & Adenuga, 2013).

#### ***Device and fiscal solvency***

The current study predicted that digital financial inclusion's device component plays a positive role in local entity fiscal solvency endeavors (Hypothesis 3). In line with empirical and theoretical propositions (Gilbert, 2005; Green, Hull, McMeekin & Walsh, 1999; Hanseth, Monteiro & Hatling, 1996; Salvador et al., 2005), the hypothesis secures substantial support from the study that actually this is the case.

In local community settings, northern Uganda's post-war societies inclusive, efficient, and easy-to-operate digital devices play a pivotal role in stimulating digital financial inclusion connectivity. It has been especially empowered by the presence of numerous network masts erected by service providers almost everywhere in the localities (Morawczynski, 2009; Olayinka, 2015).

Another quite interesting pattern in the digital device results replicates findings in the works of (Madon, 2005; Phillips & Ilcan, 2007; Schneider & Enste, 2000). Mandatory registration of user-devices attracts mixed reactions from mobile financial service consumers. In northern Uganda, device registration is often interpreted as a strategic move by authorities to infringe customer secrecy rights. It exposes customer incomes, spending habits, and partisan political stand. Moreover, it could be a deliberate move to victimize them regarding the quality of public goods and services offered (Olayinka, 2015; Phillips & Ilcan, 2007).

However, where such fears are moderate, connectivity benefits override costs, especially concerning fiscal solvency. Thus, Schneider & Enste (2000) recommend that responsible communication commissions, institute regulations that emphasize importing durable and user-friendly devices that enhance digital financial inclusion efficiency. Local entity revenue and budgetary incentives stand to benefit in the long-run (Madon, 2005; Schneider & Enste, 2000).

#### ***Digital financial inclusion-regulation-fiscal solvency***

Regulation seems to dominate the digital financial inclusion-local entity fiscal solvency debate, especially in Sub-Saharan Africa (Morawczynski, 2009; Olayinka, 2015; Yakub, Bello & Adenuga, 2013). In this research, it was proposed, Hypothesis 4, and later found supported by data that regulation is a possible mediator in the digital financial inclusion-fiscal solvency make-up. That is to say, existing fiscal laws and statutes coupled with those governing digital financial activities, have a serious bearing on fiscal solvency's financial inclusion drive and achievement.

Morawczynski (2009) argues that the mechanical e-financial inclusion vision nurtured by most jurisdictions in Africa are not only difficult to attain but also extensively hampered by unrealistic regulation governing most local entity beneficiaries. Notably, only a handful of national constitutions and their outgrowth sub-national entity laws capture digital financial inclusion's volatile operational requirements. It often culminates in high transaction platform-retail agent-device abuses with impunity, especially from the local government fiscal solvency context (Morawczynski, 2009; Olayinka, 2015).

### **CONCLUSION AND RECOMMENDATIONS**

The current research advances empirical, theoretical, and practical understanding of how digital financial inclusion and regulation influence fiscal solvency in local government in three ways. Previous studies focused mainly on attaining locality fiscal solvency through conventional local revenue collections, grants, and donor support (Arzaghi & Henderson, 2005; Sepulveda & Martinez-Vazquez, 2011). Today, grants and donor aid may not necessarily be a direct function of financial digitalization from the local society setting.

Incomes of local communities are currently severely subjected to the dynamics of electronic money transfers and communication. Ultimately, both local incomes and related business activities have grown (Olayinka, 2015; Yakub, Bello & Adenuga, 2013). This study provides the implication, for future empirical deliberations, that admittedly the conventional local revenue set-up has consequently expanded and thus requires relevant adjustments in the budgetary systems.



Furthermore, this perspective advances the actor-network theoretical advocacy (Hanseth, Monteiro & Hatling, 1996) for local authorities to embrace digital financial inclusion in their agenda to realize the fiscal solvency goal. However, this call has received little policy, practice, and empirical attention in the developing countries, possibly due to its focus on fiscal efficiency in advanced economies (Phillips & Ilcan, 2007).

The findings of this investigation suggest that there is a need for an all-embracing theory that captures the financial digitalization-fiscal efficiency-local community linkages with a particular focus on the developing world.

The research was conducted to assess how digital financial inclusion attributes; transactional platform, retail agents, and devices initiate change in locality fiscal solvency. Suitable scales (Baruch & Holton, 2008; Cohen et al., 2003) were developed and validated to quantify participant perceptions of various domains systematically. Therefore, the study lays a strong footing for new theoretical and quantitative methodological advancements for future digital financial inclusion-fiscal solvency investigations. This contribution is significant given that the previous, largely qualitative studies (Morawczynski, 2009; Yakub, Bello & Adenuga, 2013), overlooked refined measurements that could tap deep into the fiscal solvency formation.

Third, this study is also relevant for practice in local government. Its findings suggest embracing digital financial inclusion in local revenue mobilization and management revamps budgeting and service delivery. Authorities need to formulate budgets considerate of e-financial inclusion and create mechanisms that promote linkages with electronic financial services providers (Green, Hull, McMeekin & Walsh, 1999; Hanseth, Monteiro & Hatling, 1996). Local establishments should also advocate for enforceable regulation that is particularly tailored to their local fiscal solvency realities and flexible enough to accommodate the digital financial inclusion dynamics.

Despite the above noted contributions of the study to the knowledge body, several potential limitations need to be appreciated. First, the research focused on the transactional platform, retail agents, and devices as potential predictors of fiscal solvency in local government. Although the three dimensions are the most renowned influential attributes of digital financial inclusion, rapid developments in the electronic financial field (Hanseth, Monteiro & Hatling, 1996; Phillips & Ilcan, 2007) suggest that others are not particularly mainstream.

Failure to exploit such dimensions may have been a setback to fully exploring fiscal solvency in local entities. For instance, future studies need to investigate community reactions to the widespread construction of communication masts, especially in residential neighborhoods. The waves such masts transmit may have serious repercussions on the people's health in the long-run (Phillips & Ilcan, 2007).

Second, the study largely employed self-report data to validate its scales. A cross-sectional design was used while construct and discriminant validity were the main focus. That set-up was adopted with a view of generating a theoretically well-defined and accurate instrument capable of collecting reliable data. However, given that self-report data are not very comprehensive (Baruch & Holton, 2008; Creswell, 2003), more value is feasible in future research that exploits other research designs. For instance, longitudinal design, self-other ratings, objective, and other behavioral outcome approaches are good candidates (Cohen et al., 2003).

Finally, this was a simulation investigation, and its models may likely have been over-simplified (Barrett, 2007; Cheung & Lau, 2008). Interpreting over-simplified models is often associated with oversight to critical inter-variable relationships. Future

studies can avoid over-simplification by adopting models with suitable variables for better theoretical composition and enhanced methodological posture (Bollen, 1990; Cheung & Lau, 2008).

## REFERENCES

- Alesina, A., Baqir, R. & Easterly, W. (1999). Public Goods and Ethnic Divisions. *Quarterly Journal of Economics*, 114(4), 1243–84.
- Arzaghi, M. & Henderson, J. (2005). Why countries are fiscally decentralizing. *Journal of Public Economics*, 89, 1157–1189.
- Barrett, P. (2007). Structural Equation modeling: Adjudging model fit. *Personality and Individual Differences*, 42(5), 815-824.
- Baruch, Y. & Holton, B.C. (2008). Survey response rate levels and trends in organizational Research. *Human Relations*, 61(8), 1139-1160.
- Bollen, K. A. (1990). Overall fit in covariance structure models: Two types of sample size Effects. *Psychological Bulletin*, 107(2), 256-259.
- Cheung, G.W. & Lau, R.S. (2008). Testing mediation and suppression effects of latent variables: Bootstrapping with structural equation models. *Organizational Research Methods*, 11, 296-325.
- Cohen, J., Cohen, P., West, S.G. & Aiken, L.S. (2003). *Applied Multiple Regression/Correlation Analysis for Behavioral Sciences*. Mahwah, NJ: Lawrence Erlbaum Associates Publishers.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods Approaches* (2nd ed.). Thousand Oaks, CA: Sage.
- de Mello, L.R. Jr. (2000). Fiscal Decentralization and Intergovernmental Fiscal Relations: A Cross-Country Analysis. *World Development*, 28(2), 365–380.
- Gauthier, B. (2001). Productivity and Exports, in Reinikka, R. & Collier, P. (eds.), *Uganda's Recovery: The Role of Farms, Firms, and Government*. World Bank Regional and Sectoral Studies, Washington, D.C. World Bank.
- Gilbert, E. (2005). Common cents: Situating money in time and place. *Economy and Society*, 34(3), 357–388.
- Green, K., Hull, R., McMeekin, A. & Walsh, V. (1999). The construction of the techno-economic: networks vs paradigms. *Research Policy*, 28, 777–792.
- Hanseth, O., Monteiro, E. & Hatling, M. (1996). Developing information infrastructure: The tension between standardization and flexibility. *Science, Technology and Human Values*, 21(4), 407-426.
- Kenny, D. (2008). Reflections on mediation. *Organizational Research Methods*, 11(2), 353-358.
- King, D. N. (1984). *Fiscal Tiers: The Economics of Multi-Level Government*, London: Allen & Unwin.
- Lessman, C. (2012). Regional inequality and decentralization: An empirical analysis. *Environment and Planning A*, 44(6), 1363–1388.
- Madon, S. (2005). Evaluating the developmental impact of e-governance initiatives: An exploratory framework. *Electronic Journal of Information Systems in Developing Countries*, 20(5), 1-13.
- Morawczynski, O. (2009). Exploring the usage and impact of transformational mobile financial services: The case of M-PESA in Kenya. *Journal of Eastern African Studies*, 3(3), 509-516.
- Musgrave, R.A. & Musgrave, P. B. (1980). *Public Finance in Theory and Practice*, New York: McGraw-Hill.

- Oates, W. E. (1972). *Fiscal Federalism*, New York: Harcourt Brace Jovanovich.
- Olayinka, D-W. (2015). The path to digital financial inclusion in Nigeria: Experiences from FirstMonie. *Journal of Payments Strategy and Systems*, 9(4), 256-273.
- Otenyo, E.E. & Lind, N.S. (2004). Faces and phases of transparency reform in local government. *International Journal of Public Administration*, 27(5), 287-307.
- Phillips, L. & Ilcan, S. (2007). Responsible expertise: Governing the uncertain subjects of Biotechnology. *Critique of Anthropology*, 27(1), 103–126.
- Preacher, K.J. & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods*, 16, 93-115.
- Prud'homme, R. (1995). The Dangers of Decentralization. *World Bank Research Observer*, 10(2), 201-220.
- Reinikka, R. & Svensson, J. (2004). Local capture: Evidence from a central government transfers program in Uganda. *Quarterly Journal of Economics*, 119, 679-706.
- . (2006). Using micro-surveys to measure and explain corruption. *World Development*, 34(2), 359-370.
- Salvador, T., Sherry, J.W. & Urrutia, A. E. (2005). Less cyber, more café; enhancing existing small businesses across the digital divide with ICTs. *Information Technology for Development*, 11(1), 77-95.
- Schneider, F. & Enste, D. (2000). Shadow economies: Size, causes and consequences. *Journal of Economic Literature*, 38, 77-114.
- Sepulveda, C. & Martinez-Vazquez, J. 2011. The consequences of fiscal decentralization on poverty and income inequality. *Environment and Planning*, 29, 321–343.
- Shrout, P. E. & Bolger, N. (2002). Mediation in experimental and non-experimental studies: New procedures and recommendations. *Psychological Methods*, 7(4), 422-445.
- Talvi, E. & Végh, C. (2005). Tax Base Variability and Pro-cyclical Fiscal Policy in Developing Countries. *Journal of Development Economics*, 78(1), 156-190.
- Thornton, J. (2007). Fiscal Decentralization and Growth Reconsidered. *Journal of Urban Economics*, 61, 64-70.
- Yakub, J.O., Bello, H.T. & Adenuga, I.A. (2013). Mobile money services in Nigeria: An inquiry of existing models. *International Journal of Economics and Management Sciences*, 7, 94-105.



© 2021 by the authors. Licensee JPPD, Indonesia. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

## The role of employee performance mediation on organizational performance

Efi Herawati; Syamsurijal Tan; Tona Aurora Lubis\*; M. Syurya Hidayat

Doctoral Program in Economics, Postgraduate, Universitas Jambi, Indonesia

*\*To whom correspondence should be addressed. Email: tonalubis@gmail.com*

DOI: 10.22437/ppd.v8i6.11018	Received: 13.11.2020	Revised: 09.01.2021	Accepted: 10.01.2021	Published: 01.02.2021
---------------------------------	-------------------------	------------------------	-------------------------	--------------------------

### Abstract.

This study aimed to analyze the effect of employee training and development, motivation, work environment, employee competence on employee performance, and organizational performance. This study also aims to analyze employee performance as a mediating variable on organizational performance. The method of this research used SEM-PLS analysis. This research used all civil servants employees in The Regional Technical Implementing Unit for Goods Quality and Certification Testing Center (UPTD BPSMB) of the Jambi Province, Indonesia. This research concluded that Organizational performance is influenced by motivation, employee competence, work environment, and employee performance. Training and development, motivation, and work environment affect employee performance. Training and development, employee competence, work environment affect organizational performance mediated by employee performance. However, the influence of motivation on organizational performance cannot be mediated by employee performance.

**Keywords:** *Employee, Organizational, Performance*

**JEL Classification:** M12, M53, M54

### INTRODUCTION

Employee performance and organizational performance are very closely related. The achievement of organizational goals cannot be separated from the resources owned by the organization. It runs by employees who play an active role as actors in achieving their goals (Pasolong, 2019).

The Regional Technical Implementing Unit for Goods Quality and Certification Testing Center (UPTD BPSMB) of the Jambi Province, Indonesia, is the executor of the Industry and Trade Office's operational, technical duties. As the only quality testing and certification agency in Jambi province, UPTD BPSMB has the task of carrying out testing, calibration, and quality certification of goods and providing technical guidance to producers, exporters, and the business world as the general public.

The results from The Public Satisfaction Index Survey of the UPTD BPSMB in 2018 result about 76.02%, it is included in the IKM conversion interval range with good service quality (score B). It indicates that UPTD BPSMB's performance hasn't optimal yet. Judging from the science of Human Resource Management, many factors affect organizational performance.

One of the successes of organizational performance can be seen from employee training provided by the organization. Kinisa (2019) found that the T & D (Training & development) program increased employee performance and overall organizational performance in Tanzania's banking industry. Meanwhile, Samwel (2018) found that employee training significantly affects drilling companies' performance in the Geita, Shinyanga, and Mara regions in Tanzania. However, the study also found a lack of effective training and development policies in drilling companies. Meanwhile, Mangkunegara & Agustine (2016) conducted a study at Hospital X in Indonesia, showing that training, motivation, and work environment simultaneously have a significant positive effect on doctor performance.

Motivation is the thrust of an employee to work. Motivation can affect many things in an organization. Geelmaale's research (2019) shows that if employees are positively motivated and rewarded, it will increase their worthiness and productivity to improve organizational performance. Meanwhile, Mangkunegara & Agustine's (2016) research where motivation is reflected by two indicators, namely intrinsic and extrinsic motivation, shows that training, motivation, and work environment simultaneously have a significant positive effect on the performance of doctors in X hospital in Indonesia. While Nizam & Shah's research in Pakistan (2015) concluded by testing job performance and recognizing employee performance, and motivating them by giving appropriate rewards, employees will be satisfied. Thus, their output level increases and improves organizational performance.

Employee competencies are skills and knowledge supported by work attitudes and their application in high-performance tasks and jobs that refer to the specified job requirements. Therefore, competent employees are an essential factor if a company survives in a rapidly changing environment. Research conducted by Osei & Ackah (2015) shows that competent employees will significantly contribute to the entire organization's performance. Meanwhile, the research findings carried out by Hanafi & Ibrahim (2018) revealed that employee competence has a direct impact on service performance and customer experience and that it is significant, and that customer experience has a direct impact on service performance.

The work environment has both positive and negative effects on the psychological and well-being of employees. Research conducted in Kenya by Gitonga & Gachunga (2015) shows that the work environment significantly and positively affects government ministries' organizational performance. The psychosocial environment, as the most significant factor, has a significant positive relationship. Meanwhile, Kegel (2017) shows evidence that the design of a physical work environment can positively or negatively affect organizational success. The physical work environment affects organizational performance in performance, collaboration, innovation, effective human resource management, and profitability. The physical work environment also affects employee performance, such as engagement, performance, welfare, and satisfaction.

Employee performance is a measure of an employee's performance. Irfan et al. (2019) argue that staff performance is closely related to organizational goals or individual staff performance. Samwel's (2018) research reveals that private organizations practice performance management and have an effective performance management system to evaluate their employees' performance. Meanwhile, Kumar's research (2014) states that performance appraisal positively impacts employee abilities and organizational performance.

Based on empirical studies, there is an effect of training and development,

motivation, work competence, work environment, and employee performance on organizational performance. Therefore, there are research gaps related to employee performance that can be examined at UPTD BPSMB.

Training and development is an essential aspect of human resource development. Training and development will provide opportunities for employees to perform better and opportunities for careers in organizations. Owotunse's research (2018) shows that training and development have a significant relationship with employee performance and productivity. While Younas et al.'s (2018) research on the banking sector in Pakistan revealed that development leads to better employee performance, training and development improves employee performance.

Motivation determines the direction for employees to excel in the organization. Research by Olafsen et al. (2015) stated that intrinsic work motivation in salary provision does not affect employee performance, but salary payment's fairness impacts employee performance. Research by Kuvaas et al. (2017) shows that employees work better if they are intrinsically motivated. Besides, Shahzadi et al. (2014) showed that intrinsic motivation for teachers in Pakistan has a significant impact on their performance. Research by Mohamud et al. (2017) shows that financial rewards and job enrichment have a significant and positive effect on employee performance and employee motivation that affect Hormuud Company's performance in Mogadishu, Somalia. Meanwhile, Ali et al. (2016) stated that motivation plays a vital role in employee performance and job satisfaction in the IT Park sector in Peshawar, Pakistan.

Employee competency improvement can be made through increasing employee knowledge, improving employee skills, and improving employee attitudes. On the other hand, employees' motivation will arise from the employees' external motivation and internal motivation. Research by Kurniawan et al. (2018) shows that competence and motivation positively affect employee performance. At the same time, Martini et al. (2018) found that employee competence and organizational commitment dimensions showed a significant positive effect on employee performance.

The existence of a work environment that is conducive and comfortable will create enthusiasm from employees in working performance in each job. Research by Putri et al. (2019) shows that the work environment affects employee performance. A good work environment, adequate facilities, a conducive workplace, and a good relationship with colleagues and superiors will provide comfort to employees. When employees feel comfortable and support by their social environment, employees will be encouraged to work well. Meanwhile, Research Khoso et al. (2016) revealed that the factors of leadership support, job assistance, and physical work environment are positively correlated with employees' performance in five private hospitals in Hyderabad, India.

Thus, there is an effect of training and development, motivation, work competence, and work environment on employee performance from several studies. Therefore, there is a research gap about employee performance that can be examined at UPTD BPSMB.

Previous empirical research states that employee training and development can improve employee performance and productivity (Owotunse, 2018 and Younas et al., 2018). It will also improve organizational performance (Kinisa, 2019; Samwel, 2018; Mangkunegara & Agustine, 2016).

Motivation affects employee performance (Mohamud et al., 2017; and Ali et al., 2016). Meanwhile, Geelmaale (2019), Mangkunegara & Agustine (2016), and Nizam &

Shah (2015) found that motivation affects organizational performance.

Employee competence can improve employee performance (Kurniawan et al. 2018 and Martini et al., 2018). It will also improve organizational performance (Osei & Ackah, 2015 and Hanafi & Ibrahim, 2018). The work environment can improve employee performance (Putri et al., 2019 and Khoso et al., 2016); besides, it will also improve organizational performance (Kegel, 2017 and Gitonga & Gachunga, 2015).

According to previous studies' results, it can be formulated to influence training and development, motivation, work competence, and work environment on employee performance on organizational performance through employee performance. Therefore, a research gap related to employee performance as a mediator of organizational performance can be examined at UPTD BPSMB.

## METHODS

This research is quantitative research with an explanatory type. This study used a survey method for all civil servants in UPTD BPSMB Jambi Province, with as many as 19 people. Data collection used a questionnaire with a 5-point Likert scale instrument (Strongly disagree to agree strongly). Furthermore, the operational definition of this research is in Table 1.

**Table 1.** Operational research variables

Variable	Definition	Indicator
Employee training and development (ETD)	Employee training refers to programs that provide information, new skills, or professional development opportunities for employees (Ojalere & Adegnuba, 2013).	1.Instructor 2.Participant 3.Material 4.Method 5.Objective 6.Target
Motivation (M)	Is an energetic force that forces or encourages the maintenance of certain behaviors (Ezeali and Eziagu, 2009)	1.Intrinsic Motivation 2.Extrinsic motivation
Employee competencies (EC)	Competence shows the adequacy of knowledge and skills that enable a person to act in various situations. (Hanafi & Ibrahim 2018)	1.Knowledge 2.Skills 3.Attitude
Work environment (WE)	a place where certain work has to be done. It includes other factors such as quality, quantity, process, procedure, and benefits (Chaudhry et al. 2017)	1.Physical working conditions 2.Psychosocial working conditions
Employee performance (EP)	Job performance of an employee at work. It is considered a critical component in organizational success (Shaikh et al. 2017)	1.Work quantity 2.Quality Work 3.Punctuality 4.Presence 5. Ability cooperation
Organizational Performance (OP)	The organizational performance consists of the actual output or organizational results measured against the intended output (Richard et al., 2009). Performance must be achieved through items such as evaluation, testing, efficiency, effectiveness, and quality (Bartoli & Blatrix, 2015)	1.Internal Effectiveness 2.External Effectiveness 3.Internal Fairness

This research uses inferential statistical analysis in the form of a causality analysis of SEM (Structural Equation Modeling) based on component or variance (Partial Least Square or PLS). The initial research model is given in Figure 1.

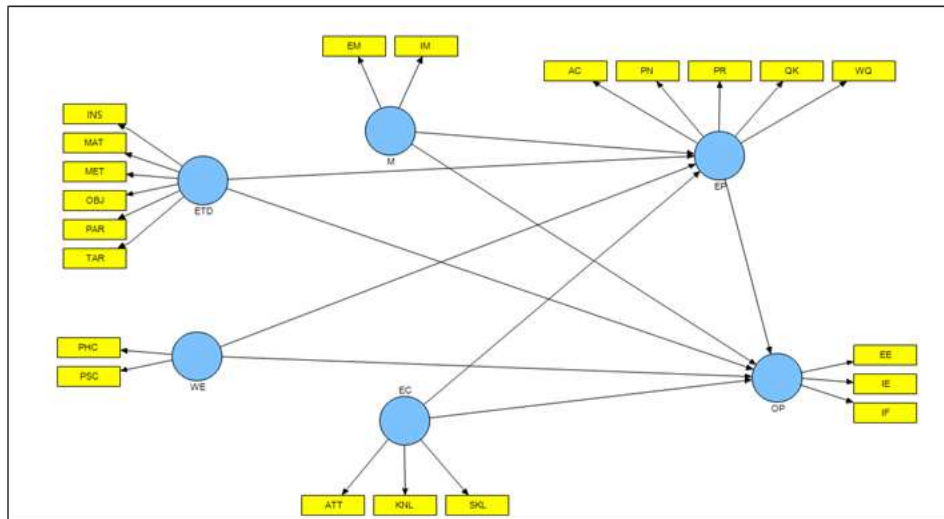


Figure 1. Initial research model

**RESULTS AND DISCUSSION**

Based on Table 2, the knowledge indicator, from the employee competencies variable, is in the medium category. Meanwhile, all other indicators of all existing variables are in the high category. It shows that the respondents provide a good picture of this study's indicators at the UPTD BPSMB

**Table 2.** The average score of the variables and research indicators

Variable and Indicator	Average score	Category
<b>Employee training and development (ETD)</b>		
• Instructor (INS)	3,526	High
• Participant (PAR)	3,526	High
• Material (MAT)	3,526	High
• Method (MET)	3,316	High
• Objective (OBJ)	3,579	High
• Target (TAR)	3,316	High
<b>Motivation / motivation (M)</b>		
• Intrinsic Motivation (IM)	3,052	High
• Extrinsic motivation (EM)	3,368	High
<b>Employee competencies (EC)</b>		
• Knowledge (KNL)	3,000	Medium
• Skills (SKL)	3,421	High
• Attitude (ATT)	3,473	High
<b>Work environment/ work environment (WE)</b>		
• physical working conditions (PWC)	3,316	High
• psychosocial working conditions (PSC)	3,358	High
<b>Employee performance (EP)</b>		
• Work quantity (WQ)	3,684	High
• Quality Work (QK)	3,210	High
• Punctuality (PN)	3,368	High
• Presence (PR)	3,473	High
• Ability cooperation (AC)	3,316	High
<b>Organizational Performance (OP)</b>		
• Internal Effectiveness (IE)	3,526	High
• External Effectiveness (EE)	3,473	High
• Internal Fairness (IF)	3,316	High



Furthermore, Figure 2. is the calculation result of the initial research model. According to Ghozali (2008), the measurement model's convergent validity with reflective indicators can be seen from the correlation between item scores/indicators and their construct scores. This correlation is known as the loading factor (outer loading). Indicators are considered reliable if they have a positive correlation value above 0.70. However, at the scale development research stage, loading 0.5 to 0.6 is still acceptable.

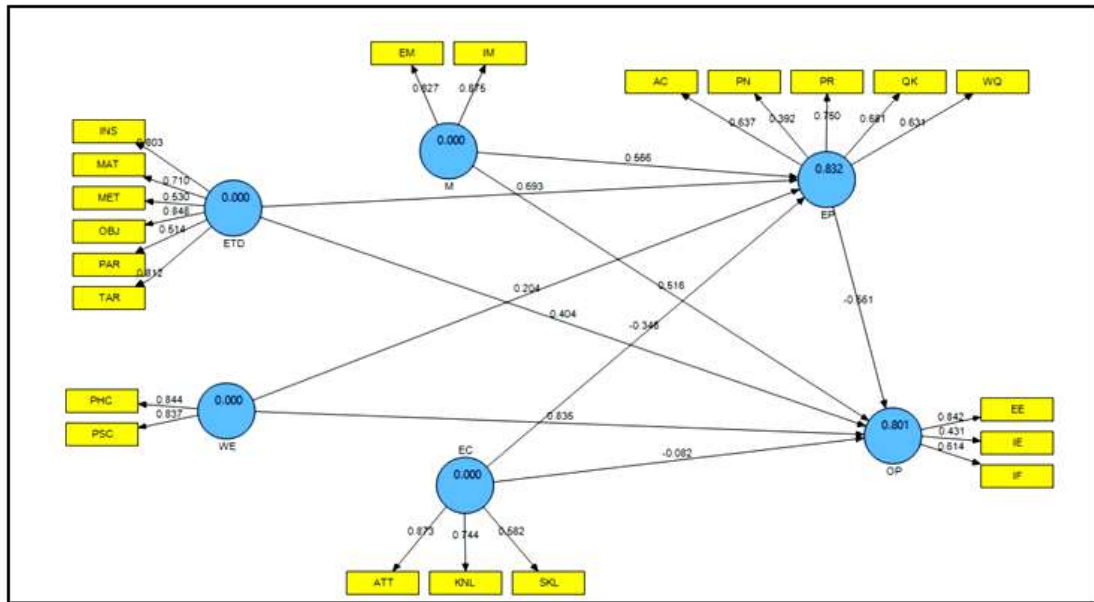


Figure 2. Calculation results of the initial research model

With this guideline (Ghozali, 2008), a research model that has dropped inappropriate indicators is then built. Figure 3. are the results of the calculation of the final research model.

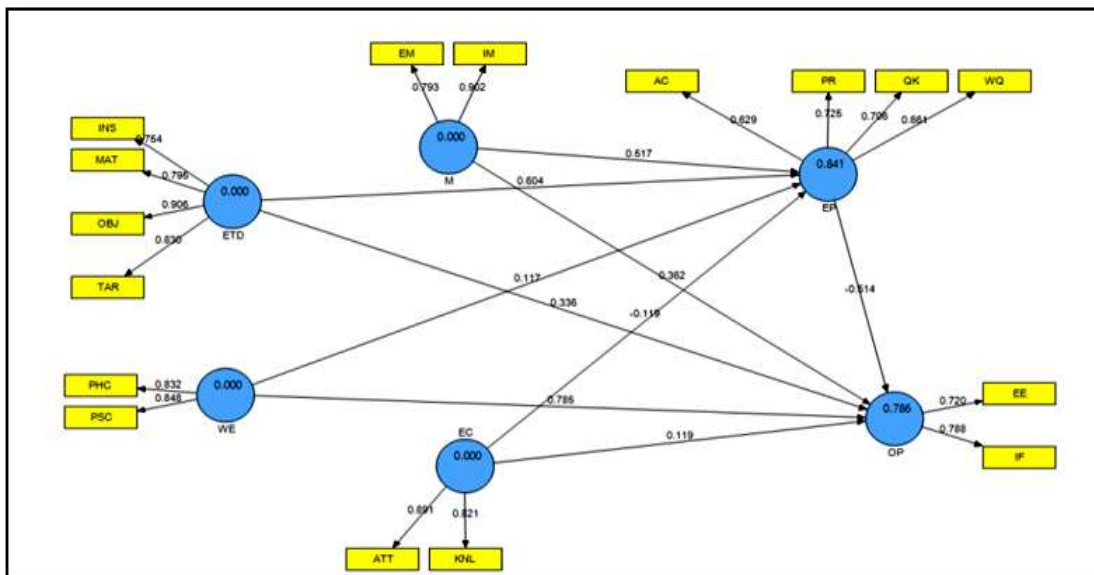


Figure 3. Second model calculation results

Based on the loading factor value (Figure 3), Average Variance Extracted, and Composite Reliability (Table 3), each variable's indicators are reliable and valid, reflecting their respective variables.

**Table 3.** Average Variance Extracted and Composite Reliability

Variable	Average Variance Extracted	Composite Reliability	Information
EC	0.733715	0.846188	Valid
ETD	0.677499	0.893213	Valid
M	0.721107	0.837398	Valid
WE	0.706072	0.827703	Valid
EP	0.463778	0.775232	Valid
OP	0.569798	0.725555	Valid

I tested the structural model's goodness of fit against the inner model using predictive-relevance (Q2) values. The predictive-relevance result shows that the diversity of data that can be explained by the model is 88.79%. This result indicates that the research model has predictive-relevance and can be used for hypothesis testing.

**Table 4.** The R square model

Variable	R Square
EP	0.840992
OP	0.785658

Table 5 illustrates the ability to reflect the effect between variables. Employee training and development (ETD) does not have a significant effect on organizational performance. It is due to the absence of comprehensive training and development planning at UPTD BPSMB. The results do not support the results of research conducted by Kinisa (2019), Samwel (2018), and Mangkunegara & Agustine (2016).

**Table 5.** Total Effects (Mean, STDEV, T-Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (  O / STERR  )
EC -> EP	-0.119188	-0.110939	0.031497	0.031497	3.784156
EC -> OP	0.180394	0.175703	0.048941	0.048941	3.685965
EP -> OP	-0.514350	-0.515090	0.042177	0.042177	12.195040
ETD -> EP	0.603603	0.598824	0.024737	0.024737	24.400823
ETD -> OP	0.025464	0.033265	0.049742	0.049742	0.511925
M -> EP	0.517345	0.518771	0.025468	0.025468	20.313527
M -> OP	0.096054	0.086548	0.043974	0.043974	2.184355
WE -> EP	0.117216	0.115355	0.018377	0.018377	6.378228
WE -> OP	0.724793	0.721176	0.024380	0.024380	29.728480

Motivation (M) has a significant influence on organizational performance. Thus motivation can improve organizational performance both from external effectiveness as well as internal justice. This study support the results of research conducted by Geelmaale (2019), Mangkunegara & Agustine (2016), and Nizam & Shah (2015).

Employee competence (EC) has a significant influence on organizational performance. This result support Osei & Ackah's (2015) and Hanafi & Ibrahim's (2018) research. The work environment (WE) has a significant influence on organizational performance. It supports research by Gitonga & Gachunga (2015) and Kegel (2017).

Employee performance (EP) has a significant influence on organizational performance. This result supports the research by Samwel (2018) and Kumar (2014). Employee Training and development has a significant influence on organizational performance, support the research by Owotunse (2018) and Younas et al. (2018).

Motivation (M) has a significant effect on employee performance. The results of this study support the results of research conducted by Olafsen et al. (2015), Mohamud et al. (2017), Kuvaas et al. (2017), Shahzadi et al. (2014), and Ali et al. (2016)

Employee competence (EC) has a significant influence on employee performance

(EP). The results support Kurniawan et al. (2018) and Martini et al. (2018). The working environment (WE) has a significant effect on employee performance (EP). These results support the research by Putri et al. (2019) and Khoso et al. (2016).

Furthermore, to test the mediating effect on employee performance, the Sobel T-test was conducted. The recapitulation of the mediation test is given in Table 6.

**Table 7.** Recapitulation of the mediation test

	t-stat	p-value	Criteria
ETD-> OP	9,077	0.000	Accepted
M-> OP	0.503	0.615	Rejected
EC-> OP	3,612	0.000	Accepted
WE-> OP	18,099	0.000	Accepted

Employee performance (EP) can mediate the effect of employee training and development (ETD) on organizational performance (OP). The results of this study reinforce and support previous empirical research, which states that employee performance mediates the relationship between training and employee development and organizational performance. (Owotunse, 2018; Younas et al., 2018; Kinisa, 2019; Samwel, 2018; Mangkunegara & Agustine, 2016).

Employee performance (EP) is not able to mediate the influence of motivation (M) on organizational performance (OP). It happens because UPTD BPSMB employees' motivation is still low to improve individual employee performance so that ultimately it also does not affect organizational performance. It indicates that motivation in the form of internal motivation and external motivation cannot be mediated by employee performance in work quality, work quantity, attendance, and the ability to work together on organizational performance in external effectiveness and internal justice.

This result is related to the research findings stating that there is no effect of training and development on organizational performance, motivated by the mutation policy for trained staff. UPTD BPSMB is forced to return to training and development for other staff. This condition impacts the loss of employee motivation so that, in the end, it does not affect organizational performance.

These results are different from previous research that states that employee performance mediates the relationship between motivation and organizational performance. (Ali et al, 2016; Mohamud et al. 2017; Geelmaale, 2019; Mangkunegara & Agustine, 2016; Nizam & Shah, 2015).

Employee performance (EP) can mediate the influence of employee competence (EC) on organizational performance (OP). This result strengthens and supports previous empirical research that states that employee performance mediates the relationship between employee competence and organizational performance. (Kurniawan et al., 2018; Martini et al., 2018; Osei & Ackah, 2015; Hanafi & Ibrahim, 2018).

Furthermore, employee performance (EP) can mediate the influence of the work environment (WE) on organizational performance (OP). This study's results strengthen and support previous empirical research that states that employee performance mediates the relationship between work environment and organizational performance. (Putri et al., 2019; Khoso et al., 2016; Kegel, 2017; Gitonga & Gachunga, 2015).

## CONCLUSION AND RECOMMENDATION

### Conclusion

Organizational performance is influenced by motivation, employee competence, work environment, and employee performance. Training and development, motivation, and work environment affect employee performance. Training and development, employee competence, work environment affect organizational performance mediated by employee performance. However, the influence of motivation on organizational

performance cannot be mediated by employee performance.

### **Recommendation**

Training and development programs can synchronize the needs for meeting organizational development and employee competency development to increase employees' capacity by organizational needs. Furthermore, UPTD BPSMB can become the organization that employees expect to improve competence and achievement.

Future researchers hope to discuss the training system and employee development to support the theory of organizational development and organizational competitiveness.

### **References:**

- Ali, A., Bin, L., Piang, H.J, Ali, Z. (2016). The Impact of Motivation on the Employee Performance and Job Satisfaction in IT Park (Software House) Sector of Peshawar, Pakistan. *International Journal of Academic Research in Business and Social Sciences*, 6(9), 297-310
- Chaudry, N.I., Jariko, M.A., Mushtaque, T., Mahesar, H.A., & Ghani, Z. (2017). Impact of Working Environment and Training & Development on Organization Performance Through Mediating Role of Employee Engagement and Job Satisfaction. *European Journal of Training and Development Studies*, 4(2), 33-48
- Shaikh, M.R., Tunio, R.A. & Shah, I.A. (2017). Factors Affecting to Employee 's performance. A Study of Islamic Banks. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 7(1), 312-321
- Ezeali & Esiagu. (2009). *Public Personnel Management: Human Capital Management strategy in 21st Century*. Onitsha. Chambers Book Ltd
- Geelmaale, A.M.A. (2019). Impact Of Employee Motivation On Organizational Performance. *International Journal of Advance Researchs*, 7(10), 166-172
- Ghozali, I. (2008). *Aplikasi Analisis Multivariate dengan Program SPSS*. Semarang: Baand Penerbit Universitas Diponegoro
- Gitonga, L. & Gachunga, H. (2015). Influence Of Work Environment On Organizational Performance in Government Ministries in Kenya. *The Strategic Journal of Business and Change Management*, 2(83), 1043-1071
- Hanafi, H. M., & Ibrahim, S. B. 2018. Impact of employee skills on service performance. *International Journal of Science and Research*, 7(12), 587–600.
- Irfan, M., Perizade, B. & Widiyanti, M. (2019). The Effect of Leadership and Organizational Culture on Employees Performance at PT. Pertamina EP Limau Field. *International Journal of Scientific & Research Publications*, 9(8), 994-1001
- Kegel, P. (2017). The Impact Of The Physical Work Environment On Organizational Outcomes: A Structured Review Of The Literature. *Journal of Facility Management Education and Research*, 1(1), 19-29.
- Khoso, A.A., Kazi, A.S., Ahmedani, M.M., Ahmed, M. & Khoso, I.A. (2016). The impact of workplace environment that affect employee's performance in private hospitals of Hyderabad, Pakistan. *International Journal of Multidisciplinary Research and Development*, 3(7), 28-33
- Kinisa, G.R.O. (2019). Impact of Employees' Training and Development on Organizational Performance: A Case of the National Bank of Commerce (NBC) Mwanza City. *International Journal of Scientific and Research Publications*, 9(8), 386-413
- Kurniawan, D.A., Guswandi & Sodikin, A. (2018). The Effect Of Competence And Motivation on Employee Performance Through Employees Capabilities on Pt. Binasinan Amity. *International Journal of Research Science & Management*, 5(5), 48-60
- Kumar. R. (2014). Effect of performance appraisal on employee capability and

- organizational performance: A study of employees working in different companies in Solan district of Himachal Pradesh. Available at SSRN: <https://ssrn.com/abstract=2468089>.
- Kuvaas, B., Buch, R. Weibel, A., Dysik, A. & Nerstad, C.G.L (2017). Do Intrinsic and Extrinsic Motivation relate differently to Employee Outcomes? *Journal of Economic Psychology*, 61, 244-258. DOI: [10.1016/j.joep.2017.05.004](https://doi.org/10.1016/j.joep.2017.05.004)
- Mangkunegara, A.P & Agustine, R. (2016). Effect of Training, Motivation and Work Environment on Physicians' Performance. *Academic Journal of Interdisciplinary Studies*, 5(1), 173-188. DOI:10.5901/ajis.2016.v5n1p173
- Martini, I.A.O., Rahyudda, I.K. Sintaasih, D.K. & Saroyeni, P. (2018). The Influence of Competency on Employee Performance through Organizational Commitment Dimension. *IOSR Journal of Business and Management*, 20(2), 29-37
- Mohamud, S. A, Ibrahim, A. A. & Hussein J. M. (2017). The Effect Of Motivation On Employee Performance: Case Study In Hormuud Company In Mogadishu Somalia. *International Journal of Development Research*, 7(11), 17001-17008.
- Nizam, K. & Shah, F.M. (2015). Impact of Employee Motivation on Organizational Performance in Oil and Gas Sector of Pakistan. *IJMSR*, 3(12), 7-15
- Olafsen, A.H., Halvari, H., Forest, J. & Deci, E.L. (2015), Show them the money? The role of pay, managerial need support, and justice in a self-determination theory model of intrinsic work motivation. *Scandinavian Journal of Psychology*, 56(4), 447–457 DOI: [10.1111/sjop.12211](https://doi.org/10.1111/sjop.12211)
- Olalere, T.O. & Adenugba, A.A. (2013). Human Capital Development in First Bank of Nigeria PLC. *Mediterranean Journal of Social Sciences*, 4(2), 783-801
- Osei, A.J. & Ackah, O. (2015). Employee's Competency And Organizational Performance In The Pharmaceutical Industry, An Empirical Study Of Pharmaceutical Firms In Ghana. *International Journal of Economics, Commerce and Management*, 3(3), 1-9
- Owotunse, E. Y. (2018). Impact of Training and Development on Employee Performance and Productivity among Members of Staff: Case Study of Kogi State Polytechnic, Ministry of Youths and Sports Kogi State, Lokoja-Nigeria, *Academy Of Social Science Journal*, 3(11), 1242-1248
- Pasolong, H. (2019). *Teori Administrasi Publik*. Bandung: ALFABETA.
- Putri, E.M., Maharani, V., Supriyanto, A.S. & Mukaffi, Z. (2019). The Effect Of Work Environment On Employee Performance Through Work Discipline , *International Journal of Research – GRANTHAALAYAH*, 7(4), 132-140
- Richard, P.J., Devinney, T.M., Yip, G.S. & Johnson, G. (2009). Measuring Organizational Performance: Towards Methodological Best Practice. *Journal of Management*, 35(3), 718-804.
- Samwel, J. O. (2018). Impact of Employee Training on Organizational Performance – Case Study of Drilling Companies in Geita, Shinyanga and Mara Regions in Tanzania. *International Journal of Human Resource Studies*, 8(3), 36-41
- Shahzadi, I., Javed, A. Pirzada, S.S., Nasreen, S. & Khanam, F. (2014). Impact of Employee Motivation on Employee Performance. *European Journal of Business and Management*, 6(23), 159-166
- Younas, W., Farooq. M., Khalil-Ur-Rehman, F. & Zreen, A. (2018). The Impact of Training and Development on Employee Performance. *IOSR-JBM*, 20(7), 20-23



## Entrepreneurship intentions for students in Jambi Province, Indonesia (Study in response to the implementation of the freedom to learn, independent campus)

Amril Amril\*; Hardiani Hardiani

Department of Economics, Faculty of Economics and Business, Universitas Jambi, Indonesia

*\*To whom correspondence should be addressed. Email: amril@unja.ac.id*

DOI: 10.22437/ppd.v8i6.11239	Received: 02.12.2020	Revised: 18.01.2021	Accepted: 20.01.2021	Published: 01.02.2021
---------------------------------	-------------------------	------------------------	-------------------------	--------------------------

### Abstract

This study aims to: 1) analyze the characteristics of student entrepreneurial intentions in Jambi Province; 2) Analyze the factors that influence student entrepreneurial intentions in Jambi Province. The main data used are primary data collected from student respondents in Jambi Province. Apart from that, secondary data were also collected related to entrepreneurial aspects from related agencies. Descriptive statistical tools and single or cross-frequency tables were used to analyze respondents' characteristics and entrepreneurial intentions. To analyze the factors that influence student entrepreneurial intentions using the Structural Equation Modeling (SEM) model. The results of the study found that students' interest in entrepreneurship in Jambi Province was relatively high. It shows that there is a high potential for students to become young entrepreneurs in the future. Individual characteristics, attitudinal factors significantly influence this entrepreneurial interest, and contextual factors from students Skills should follow this high interest in entrepreneurship in entrepreneurship. Therefore, in collaboration with central and local governments, universities are advised to develop and improve students' entrepreneurship training.

**Keywords:** *Entrepreneurship, Millennial, Student*

**JEL Classification:** D91, J24, J62, M21

### INTRODUCTION

Entrepreneurship is one of the job options that is a driver of development. It is due to the nature of the entrepreneurial field with the freedom and ability to work independently to create new jobs and increase employment. The number of entrepreneurs in a country can indicate the progress of the country. Referring to the 2018 Entrepreneurship Global Index (EGI), the average entrepreneurship index in developed countries is currently 14 percent. On the other hand, the entrepreneurship index in Indonesia has only reached 3.1 percent. This figure is below the entrepreneurial index of other ASEAN countries, namely Thailand, Singapore, Malaysia, and the Philippines (Ács et al., 2018).

To increase the number of entrepreneurs in Indonesia, the Government has enacted Law Number 40 of 2009 concerning Youth. Based on Article 27 of the Law, it is stated that the development of youth entrepreneurship aims to develop potential skills and business independence. Even so, efforts to create jobs through entrepreneurship activities still experience considerable obstacles, especially in fostering entrepreneurial intention or interest. Particularly for university graduates, there is still a high tendency for them to seek work either as civil servants, state-owned enterprises, or working in large companies rather than entrepreneurship. On the other hand, the limited employment opportunities impact the high unemployment rate of university graduates. In August 2019, the open unemployment rate of higher education graduates in Indonesia reached 5.74 percent, relatively higher than the open unemployment as a whole, which was 5.28 percent (BPS, 2020a)

This fact shows that the growth of entrepreneurship in a country cannot be separated from higher education institutions' role to educate and provide entrepreneurial skills to students and motivate students to choose entrepreneurship as their career after graduating. Jambi Province is one of Indonesia's regions with the same problem related to the relatively high unemployment rate for college graduates. In 2019, the unemployment rate for university graduates in this area reached 5.38 percent, while the overall unemployment rate was only 4.19 percent (BPS, 2020b). The increase in college graduate unemployment has great potential in considering the number of universities and students in Jambi Province. In 2018 (Ristekdikti, 2019), the number of tertiary institutions (universities, colleges, academies, polytechnics) in Jambi Province was 63 units with 90,516 registered students.

Based on this phenomenon, it is necessary to study student entrepreneurial intentions and their Jambi Province factors. This study's results are expected to be a model for increasing entrepreneurship and reducing college graduates' unemployment rate. Besides, this study's results are also expected to provide the necessary information in implementing the freedom to learn, the independent campus that has been proclaimed, especially at universities in Jambi Province and generally in Indonesia.

Based on the above, this study aims to analyze: 1) the characteristics of student entrepreneurial intentions in Jambi Province; 2) factors affecting student entrepreneurial intentions in Jambi Province

## **LITERATURE REVIEW**

Entrepreneurial intention refers to an individual's desire to create and run a business (Lestari, 2012). Entrepreneurial intention is the initial stage of a long-term process of establishing a business (Lee & Wong, 2004). Dell (2008) defines entrepreneurial intentions as an individual's desire to display entrepreneurial behavior to work alone or set up their own business. Fini et al. (2009) suggest that entrepreneurial intention is related to the strength of a person's motives in entrepreneurship, which at a later stage, will affect entrepreneurial behavior. In line with this, Ismail (2009) suggests that individuals may have the potential to become entrepreneurs but cannot take steps into the world of entrepreneurship unless they intend entrepreneurship.

At this time, the main theory used in analyzing entrepreneurial intentions is Theory Planned of Behavior (TPB), which explains that intention is an individual's readiness to display behavior. Fisben & Ajzen in Yuliana (2004). Theory planned

behavior can be used to analyze entrepreneurial intentions and their impact on behavior that has been done by an entrepreneur. Van Gelderen et al. (2008) stated that it is necessary to have a TPB where the intention is considered a result of attitudes, behavioral controls, and subjective norms.

Referring to the TPB, there are various dimensions in the entrepreneurial intention put forward by the experts. According to Carvalho and Gonzales (2006), there are five entrepreneurial intention dimensions: personality, business knowledge, entrepreneurial motivation, self-confidence, and the educational environment. Liñán & Chen (2009) share aspects of entrepreneurial intentions on 1) personal attitude, namely a factor in an individual in the form of a positive or negative response to something given; 2) subjective norm, namely the individual's perception of other people's thoughts that will support or not support him in doing something; 3) Perceived behavioral control, namely individual perceptions of the ease or difficulty of carrying out a behavior. Furthermore, Keong (2008) argues that to find out a person's entrepreneurial intention in starting a business can be observed through seven aspects, namely: 1) Entrepreneurial attitude; 2) supports and obstacles; 3) self-confidence; 4) need for achievement; 5) entrepreneurial intentions; 6) instrument readiness; 7) subjective norms.

On the other hand, Priyanto (2008) states that internal and external factors influence a person's entrepreneurial spirit. Internal factors include personality traits, attitudes, willingness, and individual abilities. External factors include elements of the surrounding environment, such as the family environment, business world, physical, socio-economic, and others.

Furthermore, in measuring entrepreneurial intention, there are also various measurement alternatives. Ramayah & Haurin (2005) stated that there are five indicators, namely: 1) choosing to work for their own business; 2) choosing a career as an entrepreneur; 3) planning to start a business; 4) increase self-esteem as an entrepreneur; 5) and get a better income. (Gerry et al., 2008) further summarizes these indicators in three indicators, namely: 1) choosing a career as an entrepreneur after graduating; 2) Prefer to work on their own business rather than being an employee, and 3) Estimating that they can become entrepreneurs in the next 1-3 years.

Various studies related to entrepreneurial intentions found that various factors influence it. Among them is (i) the need for achievement (Nishanta, 2008), (ii) initiative and creativity (Gerry et al., 2008), (iii) tendency to take risks (Gerry et al., 2008), (iv) self-confidence (Nishantha, 2015), (v) innovative behavior (Robinson et al., 1991), (vi) espoused values and personal goals (Gorman et al., 1997) and (vii) leadership (Gerry et al., 2008).

Several other studies emphasize the effect of attitudes on entrepreneurial intentions. Referring to the attitude element contained in the Theory of Planned Behavior model, (Akyol & Gurbuz, 2008); (Tjahjono & Ardi, 2008) found elements of this attitude, including 1) having authority and autonomy; 2) want a job that is challenging and of high economic value; 3) enjoy creative and creative work; 4) and confident about his ability to be entrepreneurial.

Alfiyan, Qomaruddin & Alamsyah's research (2019) on students of the ASMI Business and Multimodal Institute (IBM ASMI) and (Aryaningtyas & Palupiningtyas, 2017) on STIEPARI Semarang students found entrepreneurship education and academic support had a positive and significant effect on student entrepreneurial



intentions. Several studies have also proven that academic support, social support, and environmental support influence students' intention to start a new business (Rasheed, 2001; Suharti & Sirine, 2012).

Research (Suharti & Sirine, 2012) on Satya Wacana Christian University students found factors that influence student entrepreneurial intentions, including socio-demographic factors, including gender, the field of study studied, parent's work, and entrepreneurial experience; Attitude factors include: autonomy and authority, economic opportunities and challenges, security and workload, avoidance of responsibility, self-realization and participation, social environment, and self-confidence; Contextual factors include: entrepreneurship education, academic support, social support, and environmental support.

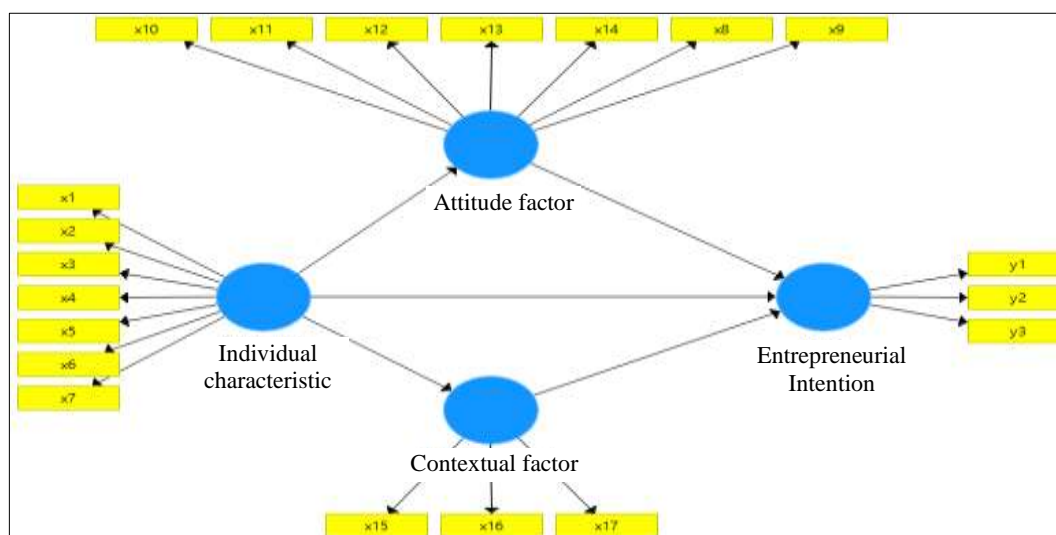
## METHODS

The main data used is in the form of primary data collected from student respondents in Jambi Province. The target population in this study were all students in Jambi Province. Sampling uses the (stratified two-stage sampling), namely:

**The first stage**, selecting the sample college to be the research location. We were conducted by purposive sampling to represent the types of tertiary institutions (universities, colleges, academies), university status (private and public), and regional distribution. Based on this, the research locations were determined to be Universitas Jambi, UIN Sultan Thaha Syaifuddin, Universitas Muaro Bungo, STIE Sakti Alam Kerinci and AMIK Depati Parbo.

**The second stage**, selecting a sample of 1 percent of the target population at the research location. Sampling was done by random sampling.

The instrument for collecting data on the sample used a questionnaire. Data were analyzed using descriptive statistics. Furthermore, to analyze the factors that influence student entrepreneurial intentions using the Structural Equation Modeling (SEM) model with a model framework:



**Figure 1.** Model framework

Measurement and assessment of variables and indicators in the study are given as follows:

### **Individual characteristics**

Individual characteristics are the socio-demographic characteristics of the individual comprising

X1 = age in years

X2 = gender in the dummy variable, 1 = male, 0 = female

X3 = field of study in its dummy variable, namely 1 = exact, 0 = social-humanities

X4 = father's education, 1 = elementary school / not graduated, 2 = junior high school, 3 = high school, 4 = University

### **Attitude factor**

Attitude factors are measured using the TPB (theory planned behavior) index (Gurbuz & Aykol, 2008) through seven indicators, namely:

1. ***Autonomy and authority (X5)*** is measured by six statements, namely: a) power to make decisions; b) authority; c) ability to choose one's job; d) Want to be your boss; e) Want an independent job; f) Want a job that has the freedom
2. ***Economic challenges and opportunities (X6)*** are measured by seven statements: a) Want a challenging job; b) Want an interesting job; c) Want a motivational job; d) Want compensation based on merit; e) Want a large income; f) Choosing a job with better economic opportunities; g) Choosing a job that can make self-realization
3. ***Security and workload (X7)*** is measured by five statements: a) Want a stable job; b) Want a safe job; c) Want a job with fixed working hours; d) Want a job without overtime; e) Want a job that does not cause stress
4. ***Avoiding responsibility (X8)*** is measured by three statements, namely: a) Want a job with low responsibility; b) Want a job that is not complex; c) Want a job without commitment
5. ***Participation and self-realization (X9)*** is measured by four statements, namely: a) Want to create something; b) Want a creative job; c) Like work that is structured and orderly; d) Like work with comprehensive involvement in the entire process of activities
6. ***Career and Social Environment (X10)*** is measured by four statements, namely: a) Likes involvement in various social and religious activities; b) Involvement as a member/functionary of the organization; c) Confident of achieving progress in career; d) Are sure that you will get a promotion in your career
7. ***Confidence (X11)*** is measured by three statements, namely: a) Believe in success if you are entrepreneurial; b) Have the ability to be successful as an entrepreneur; c) Having skills as an entrepreneur

### **Contextual factors**

Contextual factors are measured through three indicators, namely:

1. ***Academic support (X12)*** is measured by a scale from Autio et al., 2001 in Gurbuz & Aykol (2008), which consists of 4 statements, namely: a) some people are successful entrepreneurs on campus; b) Freedom to express their ideas on campus; c) Many have good ideas to start entrepreneurship on campus; d) Availability of infrastructure support for the practice of establishing new businesses on campus.
2. ***Social support (X13)*** is measured by 3 statement items from the Gurbuz & Aykol scale (2008), namely: a) family support; b) peer support; c) support of key people.
3. ***Environmental support (X14)***. The indicator uses a scale from Verheul et al. (2005) in Gurbuz & Aykol (2008), which consists of 4 statements, namely: a)

financial support; b) administrative procedure support; c) information support; d) support for economic conditions/climate.

**Entrepreneurial intention**

The entrepreneurial intention variable (entrepreneurial intention), measured by three indicators with one question each adopted from Gerry et al. (2008), namely:

1. Intention to choose a career as an entrepreneur after graduation (Y1)
2. Prefers to be an entrepreneur than an employee (Y2)
3. Estimates of starting your own business in the next 1 - 3 years (Y3)

**RESULTS AND DISCUSSIONS**

**Respondent characteristics**

Characteristics of student respondents were analyzed based on college, semester, the field of study, and gender. Based on higher education, student respondents came from according to the total population, the most dominant was Jambi University students (65.91 percent), and the least was AMIK Depati Parbo students (3.29 percent).

**Table 1.** Distribution of student respondents by universities in Jambi Province, 2020

Universities	Total	%
Universitas Jambi	321	65.91
UIN Sultan Thaha Syaifuddin	72	14.78
Universitas Muaro Bungo	45	9.24
STIE Sakti Alam Kerinci	33	6.78
AMIK Depati Parbo	16	3.29
Total	487	100.00

Based on the semester of study, most of them are semester 4 (44.76 percent) followed by semester 6 (34.50 percent). The least distribution is for semester two students.

**Table 2.** Distribution of student respondents by semester in Jambi Province, 2020

Semester	Total	%
Semester 2	27	5.54
Semester 4	218	44.76
Semester 6	168	34.50
Semester 8 >	74	15.20
Total	487	100.00

In terms of study fields, 60.99 percent are social and humanities students, and 39.01 percent are in the exact sciences (Table 3). The social and humanities fields include Accounting, Management, Development Economics, Islamic Accounting, Islamic Economics, Law, Indonesian Language, and Literature Education, Taxation, and the exact fields including Agribusiness, Agro-technology.

**Table 3.** Distribution of student respondents by field of study in Jambi Province, 2020

Field of Study	Total	%
Social Humanities	297	60.99
Exact	190	39.01
Total	487	100.00

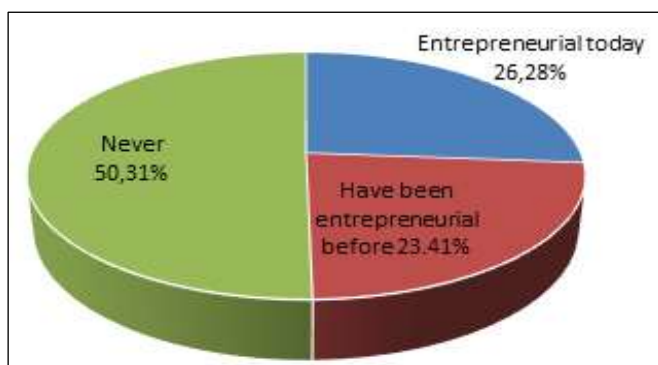
Furthermore, in terms of gender, it is relatively balanced with a slightly higher proportion of female students. Based on Table 4, the proportion of female students is 58.32 percent, and male students are 41.68 percent.

**Table 4.** Distribution of student respondents by gender in Jambi Province, 2020

Gender	Total	%
Man	203	41.68
Woman	284	58.32
Total	487	100.00

**Entrepreneurial experience**

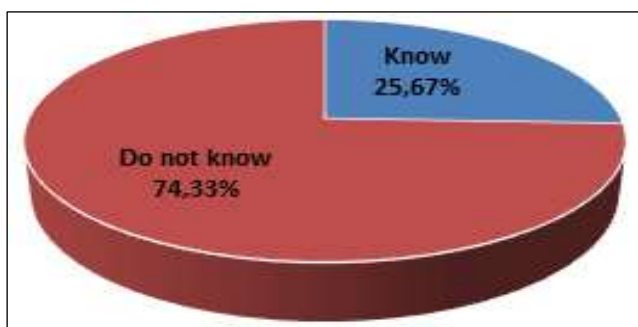
Student entrepreneurial experience in Jambi Province is relatively good. It is a great potential that can be exploited to develop creative businesses and young entrepreneurs in Jambi Province. At this time, there are almost half of students who have entrepreneurial experience, either currently entrepreneurial (26.28 percent) or who have previously (23.41 percent) and are currently temporarily stopping (for various reasons such as lack of capital, focus for lectures, and others).



**Figure 2.** Jambi Province student entrepreneurial experience, 2020

**Knowledge of the concept of *Merdeka Belajar Kampus Merdeka***

This study also evaluates the students' knowledge regarding the concept of the freedom to learn, independent campus (*Merdeka Belajar Kampus Merdeka (MBKM)*). The concept of MBKM is closely related to entrepreneurship because one of the main objectives of the MBKM learning design is to increase students' interest in entrepreneurship. It can be argued that students' knowledge of the concept of MBKM is still relatively low (only 25.67 percent). Of the total who knew this, 93 percent stated that the MBKM concept was a concept that could improve student entrepreneurship.



**Figure 3.** Student knowledge about the concept of MBKM in Jambi Province, 2020

## Attitude factors, contextual factors, and student entrepreneurial intention

### *Student attitudes for entrepreneurship*

In general, it can be stated that the attitude of students to entrepreneurship is relatively good. It can be seen from almost all indicators that have values above 3.00 (Table 5). The indicator with the highest average score is the indicator of participation and self-realization, while the indicator with the lowest average score is the indicator of responsibility.

Furthermore, from the sub-indicator side, the highest score is for the sub-indicator wanting a motivating job (on the challenge and economic opportunity indicator). In contrast, the lowest score on the sub-indicator wants a job that does not require commitment (on the responsibility indicator).

**Table 5.** Student attitudes for entrepreneurship in Jambi Province, 2020

No	Questions	Average
<b>Autonomy and Authority</b>		<b>3.87</b>
1	I have the power to make decisions	3.72
2	I have power/authority	3.15
3	I can choose my job	4.04
4	I want to be my boss	4.23
5	I want an independent job	4.16
6	I want a job that has the freedom	3.93
<b>Economic challenges and opportunities</b>		<b>4.01</b>
7	I want a challenging job	3.63
8	I want an interesting job	4.28
9	I want a job that motivates	4.53
10	I expect a large income	2.95
11	I chose a job that had better economic opportunities	4.34
12	I choose a job that can realize my abilities	4.35
<b>Security and workload</b>		<b>3.93</b>
13	I want a stable job	4.04
14	I want a safe job	4.21
15	I choose a job with fixed working hours	4.05
16	I want a job that doesn't work overtime	3.44
17	I want a job that doesn't cause stress	3.93
<b>Responsibility</b>		<b>2.97</b>
18	I want a job with less responsibility	3.13
19	I want a job that is not complex	2.90
20	I want a job that doesn't require commitment	2.89
<b>Participation and self-realization</b>		<b>4.20</b>
21	I want to create something	4.22
22	I wanted a job that used my creative power	4.29
23	I like work that is structured and organized	4.28
24	I like to work with involvement in the whole process of activities	4.00
<b>Career and social environment</b>		<b>4.18</b>
25	I like to be involved in social and religious activities	4.15
26	I became a member/functionary of the organization	3.85
27	I have the confidence to make progress in my future career	4.45
28	I have faith in getting promoted in my future career	4.25
<b>Confidence</b>		<b>4.00</b>
29	I believe that I will be successful if I become an entrepreneur (start my own business)	4.06
30	I have the skills (capabilities) required to be successful as an entrepreneur	3.93
31	I have the skills to be successful as an entrepreneur	4.00

***Student contextual factors for entrepreneurship***

In general, it can be stated that student contextual factors for entrepreneurship are relatively good. It can be seen from the value of all indicators that are above 3.00 (Table 6).

The indicator with the highest average score is the indicator of social support, while the indicator with the lowest average score is the indicator of environmental support. Furthermore, the highest score is for the sub-indicator on my campus, and people are actively encouraged to come up with their ideas (on the academic support indicator). In contrast, the lowest score on the sub-indicator of current economic conditions or climate is not favorable for people who want to be entrepreneurial (on the environmental support indicator).

**Table 6.** Student contextual factors for entrepreneurship in Jambi Province, 2020

No.	Questions	Average
<b>Academics Support</b>		3.80
1	I know several people at my school/college who are successful entrepreneurs (starting their own business)	3.79
2	At my campus, people are actively encouraged to come up with their ideas	3.96
3	At my school/college, I meet many people who have good ideas for starting new businesses (entrepreneurship)	3.96
4	At my school/campus, there is good infrastructure support for the practice of starting a new business on the spot	3.50
<b>Social Support</b>		3.87
5	If I decided to become an entrepreneur after graduating from college, my immediate family would consider my decision to be right	3.83
6	If I decide to become an entrepreneur after graduating from college, my closest friends will think my decision is right	3.90
7	If I decide to become an entrepreneur after graduating from college, the people who are important to me will consider my decision to be right	3.87
<b>Environment Support</b>		3.56
8	It was difficult for me to start my own business because of a lack of financial support	3.87
9	It was difficult for me to start my own business due to complicated administrative procedures	3.51
10	It is difficult for me to get enough information about how to start a business	3.57
11	The current economic condition/climate is not favorable for people who want to be entrepreneurs	3.31

***Student entrepreneurial interest***

Based on Table 7, it can be seen that the three indicators have the same relative value, namely between 3.94 - 4.05. Based on the average value of 4.00 (on a scale of 1 - 5), it can be seen that students' interest in entrepreneurship is relatively high. It shows that there is a high potential for students to become young entrepreneurs in the future.

The high interest in student entrepreneurship is also seen in several previous studies such as Rahmadi & Heryanti (2016), Indriyani & Subowo (2019), and Fandini

et al. (2019). This study's results are different from Febrianto's (2013) research on the research of many students who hesitate to become entrepreneurs.

**Table 7. Score of Student Entrepreneurship Interest in Jambi Province in 2020**

No	Question	Average
1	I intend to choose a career as an entrepreneur after graduating	4.02
2	I prefer being an entrepreneur than an employee	3.94
3	I will start my own business in the next 1-3 years	4.05
Average		4.00

**Student entrepreneurial intention model**

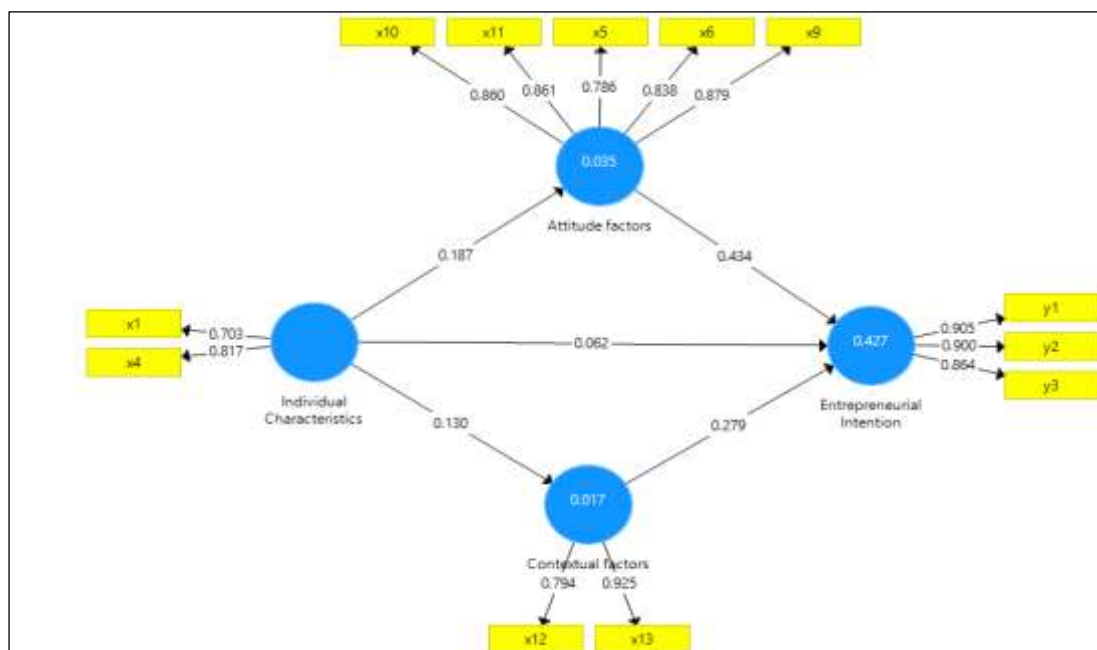
Before conducting further analysis, first, an evaluation of the initial model is related to the indicators' validity and reliability in the latent variables (constructs). The validity test used the convergent test and discriminant validity of the indicators. The reliability test uses two criteria, namely composite reliability and Cronbachs alpha.

A convergent validity test is done based on the correlation between the item score and the construct score. The indicator is said to be convergent valid if the correlation (loading value) is  $\geq 0.50$ . Furthermore, the indicator's discriminant validity was assessed by paying attention to the average variance extracted (AVE) value of each construct. The indicator is said to be valid in a discriminant manner if the AVE value is  $> 0.5$ .

The construct reliability test was measured by two criteria, namely composite reliability and Cronbachs alpha. Both Alpha Cronbach and Composite Reliability must be above 0.7. For Alpha Cronbach, up to 0.6 is still allowed.

Based on the initial model test (validity and reliability), there are two indicators of individual characteristics (X2 and X3), two attitude indicators (X4 and X8), and one contextual indicator (X14), which are invalid and reliable.

The five indicators were excluded from the model. In other words, all indicators in the model are valid and reliable. The modified model is given in Figure 4:



**Figure 4. Modified model**

The influence between variables is shown through the coefficient and significance of the t-test. It is significant if the p-value is smaller than  $\alpha = 1\%$ ,  $5\%$  or  $10\%$ .

**Table 8.** Hypothesis testing for modification models

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Attitude factors -> Entrepreneurial Intention	0.434	0.433	0.048	9.093	0.000
Contextual factors -> Entrepreneurial Intention	0.279	0.28	0.049	5.698	0.000
Individual Characteristics -> Attitude factors	0.187	0.189	0.043	4.392	0.000
Individual Characteristics -> Contextual factors	0.13	0.134	0.045	2.893	0.004
Individual Characteristics -> Entrepreneurial Intention	0.062	0.061	0.035	1.761	0.079

Based on Table 8, it can be seen that individual characteristics, attitude, and contextual factors have a significant effect on students' entrepreneurial intentions. Attitude and contextual factors also have a significant effect as intervening variables between individual characteristics and entrepreneurial intentions. This fact explains that the level of student interest in entrepreneurship is determined by how students respond to career and career opportunities and contextual factors in academic support, social support, and environmental support.

Individual characteristics affect entrepreneurial intentions. It is in line with the research of Azhar et al. (2010) and Lestari & Wijaya (2012) state that socio-demographic factors influence entrepreneurial interest. However, the research findings differ from those of Papzan et al. (2012), and Suharti & Sirine (2011) explain that there is no socio-demographic relationship with an entrepreneurial interest

Attitude factors influence entrepreneurial intentions. It is in line with the research of Andika et al. (2012), Rahayu et al. (2011), Lieli and Hani (2011). Contextual factors influence entrepreneurial intentions. The results of this study support the research of Abebe (2012), Suharti and Sirine (2011), Gerry (2008), Turker & Selcuk, 2008.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusions

Student interest in entrepreneurship in Jambi Province is relatively high. It shows that there is a high potential for students to become young entrepreneurs in the future. This entrepreneurial interest is significantly influenced by individual characteristics, attitudinal factors, and contextual factors from students.

### Recommendation

Skills should follow this high interest in entrepreneurship in entrepreneurship. Therefore, in collaboration with central and local governments, universities are advised to develop and improve students' entrepreneurship training.



## ACKNOWLEDGMENTS

This study's financial support was provided by a grant from the Faculty of Economics and Business, Universitas Jambi, in 2020.

## REFERENCES

- Abebe, M.A. (2012) Social and Institutional Predictors of Entrepreneurial Career Intention: Evidence From Hispanic Adults in the U.S. *Journal of Enterprising Culture*, 20(1), 1 - 23
- Ács, Z., Szerb, L., & Lloyd, A. (2018). The Global Entrepreneurship Index 2018. In *The Global Entrepreneurship Index 2018*.
- AKYOL, S., & GURBUZ, G. (2008). Entrepreneurial Intentions of Young Educated Public in Turkey. *Journal of Global Strategic Management*, 2(2), 47–47. <https://doi.org/10.20460/jgsm.2008218486>
- Aryaningtyas, A.T., & Palupiningtyas, D. (2017). Pengaruh Pendidikan Kewirausahaan Dan Dukungan Akademik Terhadap Niat Kewirausahaan Mahasiswa (Studi Pada Mahasiswa STIEPARI Semarang). *Jurnal Ilmiah Manajemen & Bisnis*, 18(2), 140. <https://doi.org/10.30596/jimb.v18i2.1398>
- Azhar, A., Javaid, A., Rehman, M. & Hyder, A. (2010). Entrepreneurial Intentions Among Business Student in Pakistan. *Journal of Business system, Governance, and Ethics*, 5(2), 13-21.
- BPS. (2020a). *Jumlah Kendaraan Bermotor Menurut Kabupaten/Kota dan Jenis Kendaraan di Provinsi Jambi (unit), 2019*. Jambi: BPS.
- BPS. (2020b). *Provinsi Jambi dalam Angka 2020*. Jambi: BPS.
- Dell, M. . (2008). *An investigation of undergraduate student self-employment intention and the impact of entrepreneurship education and previous entrepreneurial experience*. [Doctoral Dissertation]. School of Business University Australia.
- Fandini, V., Rochdiani, D., & Setia, B. 2019. Faktor-Faktor Yang Berhubungan Dengan Minat Berwirausaha Mahasiswa Program Studi Agribisnis Fakultas Pertanian Universitas Galuh. *Jurnal Ilmiah Mahasiswa AGROINFO GALUH*. 6(2), 338-349
- Febrianto, F. (2013). Analisis Minat Berwirausaha Mahasiswa STIE Lampung Timur, *Jurnal manajemen dan Bisnis*, 3(2), 150-159
- Fini, R., Grimaldi, R., Marzocchi, G.L., & Sobrero, M. (2009). The Foundation of Entrepreneurial Intention. *Summer Conference 2009 on Copenhagen Business School*, 1–36.
- Gerry, C., Marques, C. S., & Nogueira, F. (2008). Tracking student entrepreneurial potential: Personal attributes and the propensity for business start-ups after graduation in a Portuguese university. *Problems and Perspectives in Management*, 6(4), 46–54.
- Gorman, G., Hanlon, D., & King, W. (1997). Some research perspectives on entrepreneurship education, enterprise education and education for small business management: A ten-year literature review. *International Small Business Journal*, 15(3), 56–77). <https://doi.org/10.1177/0266242697153004>
- Indriyani, I & Subowo, (2019). Pengaruh Pengetahuan Kewirausahaan dan Lingkungan Keluarga Terhadap Minat Berwirausaha Melalui Self-Efficacy. *Economic Education Analysis Journal*, 8(2), 470-484
- Keong, L. C. (2008). Entrepreneurial intention: an empirical study among Open

- University Malaysia students. [Master's thesis]. Open University Malaysia
- Lee, S. H., & Wong, P. K. (2004). An exploratory study of technopreneurial intentions: A career anchor perspective. *Journal of Business Venturing*, 19(1), 7–28. [https://doi.org/10.1016/S0883-9026\(02\)00112-X](https://doi.org/10.1016/S0883-9026(02)00112-X)
- Lestari, R.B. & Wijaya, T. (2012). Pengaruh Pendidikan Kewirausahaan Terhadap Minat Berwirausaha. *Forum Bisnis dan Kewirausahaan, Jurnal Ilmiah STIE MDP*, 1(2), 112-119
- Liñán, F., & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship: Theory and Practice*, 33(3), 593–617. <https://doi.org/10.1111/j.1540-6520.2009.00318.x>
- Nishantha, B. (2015). Influence of Personality Traits and Socio-demographic Background of Undergraduate Students on Motivation for Entrepreneurial Career: The Case of Sri Lanka Influence of Personality Traits and Socio-demographic Background of Undergraduate Students on Motiv. *Ryukoku Journal of Economic Studies*, 49(2), 71–82.
- Papzan, A., Arkavazi, K., & Kazemi, M.S. (2012). Assessment of Entrepreneurship Intention Among Agricultural Students of Razi University. *International Journal of Research in Commerce, Economics & Management*, 2(6), 5-8.
- Priyanto. (2008). *Di dalam Jiwa ada Jiwa: The Backbone and the Social Construction of Entrepreneurships*. Pidato Pengukuhan Guru Besar Universitas Kristen Satya Wacana. Universitas Kristen Satya Wacana.
- Rahmadi, A.N. & Heryanti, B. 2016. Analisis Faktor-Faktor Yang Mempengaruhi Minat Berwirausaha Pada Mahasiswa Program Studi Manajemen Fakultas Ekonomi Universitas Kadiri. *Jurnal Ekonomi Universitas Kadiri*, 1 (2), 153 – 169
- Ramayah, T., & Haurm, Z. (2005). Entrepreneurial intention among the student of Universiti Sains Malaysia. *International Journal of Management and Entrepreneurship*, 1(1), 8–20.
- Rasheed, H. S. (2001). *Developing Entrepreneurial Potential in Youth: The Effects of Entrepreneurial Education and Venture Creation*. United States Association for Small Business and Entrepreneurship Conference. Available at: <http://www.usasbe.org/knowledge/proceedings/proceedingsDocs/USASBE2001proceedings-063.PDF>
- Ristekdikti. (2019). *Statistik Pendidikan Tinggi Indonesia 2018*. Jakarta: Kementrian Riset, Teknologi dan Pendidikan Tinggi.
- Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991). An Attitude Approach to the Prediction of Entrepreneurship. *Entrepreneurship Theory and Practice*, 15(4), 13–32. <https://doi.org/10.1177/104225879101500405>
- Suharti, L., & Sirine, H. (2012). Faktor-Faktor yang Berpengaruh Terhadap Niat Kewirausahaan (Entrepreneurial Intention). *Jurnal Manajemen Dan Kewirausahaan*, 13(2), 124-134. <https://doi.org/10.9744/jmk.13.2.124-134>
- Tjahjono, H. K., & Ardi, H. (2008). Kajian Niat Mahasiswa Manajemen Universitas Muhammadiyah Yogyakarta Untuk Menjadi Wirausaha. *Utilitas Jurnal Manajemen Dan Bisnis*, 16(1), 1–23.
- Turker, D. & Selcuk, S.S., (2008). Which factors effect entrepreneurial intention of university degrees? *Journal of European Industrial Training*, 33(2), 142-159

- Van Gelderen, M., Brand, M., Van Praag, M., Bodewes, W., Poutsma, E., & Van Gils, A. (2008). Explaining entrepreneurial intentions by means of the theory of planned behaviour. *Career Development International*, 13(6), 538–559. <https://doi.org/10.1108/13620430810901688>
- Yuliana. (2004). Pengaruh Sikap Terhadap Pindah Kerja, Norma Subjektif, Perceived Behavioral Control Terhadap Intensi Pindah Kerja Pada Pekerja Teknologi Informasi. *Phronesis: Jurnal Ilmiah Psikologi Terapan*, 6(11), 1–18.



© 2021 by the authors. Licensee JPPD, Indonesia. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

## Price variation and transmission in beans consuming market of Southwest, Nigeria

Olanrewaju Olaniyi Omosehini<sup>1\*</sup>; Babatunde Peter Ekundayo<sup>2</sup>; Oluyede Adeleke Aturamu<sup>3</sup>; Adewale Isaac Olutumise<sup>4</sup>

<sup>1,2)</sup> Federal University of Technology, Akure, Nigeria

<sup>3)</sup> College of Education, Ikere-Ekiti, Nigeria

<sup>4)</sup> Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria

*\*To whom correspondence should be addressed. Email: omosehinolaniyi@gmail.com*

DOI: 10.22437/ppd.v8i6.11018	Received: 01.11.2020	Revised: 23.01.2021	Accepted: 24.01.2021	Published: 01.02.2021
---------------------------------	-------------------------	------------------------	-------------------------	--------------------------

### Abstract

Nigeria's bean market is still characterized by inefficient and weak integration due to inadequate price information and market infrastructure. Therefore, the study investigates the price variation and transmission of beans markets in Nigeria's Southwest region. The study employed an average monthly price of white and brown beans in rural and urban markets spanning March 2014 to July 2019. Coefficient of variation (CV), Augmented Dickey-Fuller (ADF), Johansen co-integration test and Granger-Causality tests were the analytical tools used for the analysis. The results of CV indicated a spike variation of beans prices over the periods. Urban brown beans experienced the lowest variability of 1.56% in 2015, while rural brown beans experienced the highest variability of 30.03% in 2014. The co-integration test established a long-run dynamic between bean products of different varieties in the same market. However, it failed in the same products in different markets using a bivariate co-integration test. The multivariate co-integration test's results affirmed that bean markets are strongly linked together in the long-run. The results of Granger-causality showed uni-directional and bi-directional causalities in the beans markets. Rural white beans assumed the lead position and formed the major price transmission in the beans' markets in the area. Therefore, for more efficiency in the beans' rural and urban markets, the government should design appropriate market strategies such as accessible market information and infrastructures.

**Keywords:** Beans, Cointegration, Markets, Nigeria, Prices

**JEL Classification:** E21, E32, G14, P22

### INTRODUCTION

Nigeria has favorable weather for cowpea's ((*Vigna unguiculata* (L.) Walp.) growth and production, popularly known as beans. It is one of the common and cheap food crops that have inelastic demand in Nigeria's markets. Its potential health benefits in terms of protein content and different forms it can be processed into makes the

consumption of beans affordable staple food in most homes (Aguilera et al., 2013; Muranaka et al., 2016).

Nigeria is the largest producer and consumer of beans globally, and its share is about 46% of the world's production (IITA, 2019 and FAOSTAT, 2019). Producers worldwide face dramatic variations in the prices, making price a key factor in the supply and demand for goods as in the beans market.

According to Adenegan et al. (2017), price variation creates a profitable avenue that attracts market actors. However, the bone of contention here is the extent of price elasticity, which determines the level of market integration across space. Therefore, several factors such as production seasonality, natural shocks, bargaining power, and responsive capability to price changes have been identified as the main causes of price volatility in agricultural commodity markets (Akpan et al., 2014). Price insecurity and external influences by unofficial actors are also responsible for the price variation (Da Cunha and Wander, 2014).

According to Saka et al. (2018), beans product is affordable and nutritional compared to other food crops in the market. It makes its demand outgrows the market supply and is responsible for the beans product's price skyrocketing. Again, some other factors such as distance, poor road network, seasons, and pest infestation are also responsible for a decline in beans' supply to the market. The scarcity of the beans product causes unexpected shock to both final product sellers and consumers.

As it is also applicable to other agricultural goods, beans' price tends to come down during harvesting periods as there is a glut of beans in the market but goes up during the offseason. Many intermediaries within the beans' value chain hamper the price symmetry between producers and consumers in the market (Da Cunha and Wander 2014). All these calls for an urgent need to tackle the disparity in bean prices between urban and rural markets in producing areas and consuming Nigeria regions.

Many developmental policies on agriculture and research studies on cowpea (beans) have been geared toward production and profitability from the perspective of the producers (farmers) (Mafimisebi, 2012; Mafimisebi et al., 2014). It was observed that little attention is given to research and development in the price mechanism and marketing system, especially in the product market. It implies a dearth of information on the competitiveness and market integration of bean products in Nigeria that needs to be explored for sustainable development.

The few studies carried out on beans markets were from the other regions of Nigeria, but Akpan et al. (2014) and Adenegan et al. (2017) are similar to this study. The difference is that Akpan et al.'s studies were carried out in the South-south region and measured the price integration of maize and beans in rural and urban markets but failed to examine market integration based on the varieties of beans (white and brown). Likewise, Adenegan et al. (2017) only estimated price integration based on one variety (brown beans) in the selected national market but failed to estimate the aggregate co-movement of the brown bean prices between rural and urban markets. The authors also failed to examine the effect of white beans' price on the price transmission between and among the markets.

This study's uniqueness measures price transmission on the aggregate level between rural and urban markets. Unlike other studies, the two common and popular varieties (white and brown beans) are fully included in the model. It is expected to give more insights into how marketers can accurately predict price formation and transmission. Against this background, the study critically examined price variation and

transmission in the beans consuming market in Nigeria's Southwest region. The study specifically determines the extent of price variability of beans prices in the rural and urban markets in the study area, examine the long-run relationship between rural and urban prices for both varieties, and identifies price formation and transmission in both markets and varieties.

**METHODS**

**Study area and sources of data**

The study was carried out in the Southwest region of Nigeria, and the region comprises six States. The region is mainly consuming beans in Nigeria, thereby creating sales points for the producing States. Ondo State was selected for this study because of data availability, its strength in consumption, and the beans market's economic viability. Ondo State has eighteen (18) local government areas with a population of 3,441,024 (NPC, 2006). The study used average monthly prices of beans spanning the periods of 65 observations (March 2014 to July 2019). The data were sourced from the Ondo State Bureau of Statistics for urban and rural markets.

**Analytical tools and model specifications**

**Coefficient of variation (CV).** It is a statistical measure of the dispersion of data points around the mean. It measures the extent of variability of the data set concerning the mean of the population.

**Unit Root Test.** The data (beans prices) were subjected to a unit root test using Augmented Dickey-Fuller (ADF). It is necessary in order to check the order of stationary and the possibility of spurious regression. According to Juselius (2006), a stationary series is one with mean and variance values that will not vary with the sampling period, while a non-stationary series is the one that will exhibit a time-varying mean and variance. The unit root test was checked for integration either at the level I (0) or at the first difference, I (1).

The framework of ADF is based on the equation (1):

$$\Delta P_t = \alpha + \beta P_{t-1} + \gamma T + \sum_{k=1}^n \delta_k \Delta P_{t-k} + \mu_t \dots \dots \dots (1)$$

Where  $P_t$  is the beans prices series being investigated,  $\Delta$  is the first difference operator,  $T$  is time trend variable,  $\mu_t$  represents zero mean, serially uncorrelated, random disturbances,  $k$  is the lag length;  $\alpha$ ,  $\beta$ ,  $\gamma$  and  $\delta_k$  are the coefficient of the vectors.

The unit root test was carried out under the null hypothesis  $\beta = 0$  against the alternative hypothesis of  $\beta < 0$  (Mafimisebi *et al.*, 2014).

**Johansen Cointegration test.** The long-run relationship between rural and urban prices of white and brown beans markets in the State was examined by the co-integration test developed by Johansen and Juselius (1990). If two series are individually stationary at the same order, Johansen and Juselius (1990) and Juselius (2006) model can be used to estimate the long-run cointegrating vector, and it can be stated as:

$$\Delta P_t = \alpha + \sum_{i=1}^{k-1} \Gamma_i \Delta P_{t-i} + \Pi P_{t-1} + \mu_t \dots \dots \dots (2)$$

Where  $P_t$  is a  $n \times 1$  vector containing the series of interest (bean price series) at the time (t),  $\Delta$  is the first difference operator.

$\Gamma_i$  and are  $n \times n$  matrices of parameters on the  $i^{th}$  and  $k_{th}$  lag of  $P_t$ .

$$\Gamma i = (\sum_{i=1}^k A_i) - I_g, \quad \Pi = (\sum_{i=1}^k A_i) - I_g$$

Where  $I_g$  is the identity matrix of dimension  $g$ ,  $\alpha$  is the constant term;  $\mu_t$  is  $n \times 1$  white noise vector.

**Granger Causality test.** To identify price formation and transmission in both urban and rural market pairs, the Granger Causality test was used. It tests the hypothesis for identification of a causal effect of  $\beta_1$  on  $\beta_2$ . Following Mafimisebi *et al.* (2014), the causality test error correlation model (ECM) was expressed as:

$$\Delta P_t^i = \beta_0 + \beta_1 P_{(t-1)}^i + \beta_2 P_{(t-1)}^j + \sum_{k=1}^m \delta_k \Delta P_{(t-k)}^i + \sum_{h=1}^n \alpha_h \Delta P_{(t-h)}^j + \mu_t \dots \dots \dots (3)$$

Let  $m$  and  $n$  denote the number of lags determined by Akaike Information Criterion (AIC). The rejection of the null hypothesis was based on the F-statistic that  $a_h = 0$  for  $h = 1, 2, \dots, n$ .

**Variance decomposition analysis:** This was used to ascertain each endogenous variable's dynamic response to a one-period standard deviation shock to the system. It explains the responsiveness of the dependent variables in the VAR to shocks of each of the variables.

## RESULTS AND DISCUSSION

### Summary statistics of time series variables

Table 1 depicts the summary statistics of the monthly time series data used for the study spanning from March 2014 to July 2019 (65 observations). The subject matter examined were: rural bean white (RBW), urban beans white (UBW), rural beans brown (RBB), urban beans brown (UBB).

Table 1. Descriptive statistics of the prices of the bean in rural and urban markets

Statistics	RBW	RBB	UBW	UBB
Mean	314.2692	397.6555	394.7792	515.1415
Median	316.6700	400.0000	350.0000	450.0000
Maximum	500.0000	600.0000	700.0000	800.0000
Minimum	200.0000	206.1100	197.7800	325.0000
Std. Dev.	80.27151	91.59467	142.1742	152.2140
Skewness	0.166195	0.007582	0.873524	1.001943
Kurtosis	2.402839	2.285762	2.532492	2.357300
Jarque-Bera	1.265019	1.382242	8.858262	11.99419
Probability	0.531257	0.501014	0.011925	0.002486
Sum	20427.50	25847.61	25660.65	33484.20
Sum Sq. Dev.	412385.0	536933.3	1293664.	1482823.
Observations	65	65	65	65

Table 1 revealed that the average prices of beans for the periods were ₦314.27, ₦397.66, ₦394.78, and ₦515.14 for RBW, RBB, UBW, and UBB, respectively. The Jarque-Bera coefficient rejects the null hypothesis that errors are normally distributed for the UBW and UBB. All the series were positively skewed and displayed a platykurtic nature of the distribution.

### Variability in prices among the beans market

The variability in the beans' prices (Table 2) was fair for the periods covered by this study. The prices varied from UBB at 1.56% in 2015 to RBW at 30.03% in 2014. The high CV coefficient implies that the prices of beans widely fluctuate in the period.

The RBW prices experienced high variability in 2014 and 2019 compared to other years. RBB prices highly varied in 2014 and 2019, having 18.20% and 15.28%, respectively. UBW and UBB prices fluctuate widely in 2018 and 2014, with 16.66% and 21.64%, respectively.

**Table 2.** Estimates of the coefficient of variability (CV)

Year	RBW	RBB	UBW	UBB
2014	30.03	18.20	12.33	21.64
2015	6.54	4.11	6.56	1.56
2016	5.05	5.79	7.03	3.29
2017	4.11	3.37	5.64	1.65
2018	12.54	11.91	16.66	18.20
2019	20.03	15.28	12.18	6.67

Despite the disparity observed, the change in prices in both markets assumes relatively the same magnitude. The probable reasons for the price fluctuations in some years, such as 2014 and 2019, are due to a hike in fuel prices, translating to high transaction costs. Ondo State is a consuming market, and the demand is always the same throughout the year. The producing states like Kano and Sokoto determine the selling price in the study area. Price variations are always experienced around January/February, the planting period in the producing States.

Similarly, surplus during the harvesting period brings about price dispersion in the area. Other factors responsible for price variations from producing States are seasonality of production, natural shocks, conflicts, terrorist attacks, producers' failure to react to price signals, and bargaining powers. Simultaneously, the effects are felt in the consuming States like the study area (Akpan et al., 2014). As also observed by Akpan et al. (2014) and Shittu et al. (2017), the beans market's average price variation is more of a spike, and they showed a common pattern of fluctuations in rural and urban markets. The trend of both prices, either in rural or urban markets, has small variations when compared with other food prices.

**Unit root test of beans prices for rural and urban markets**

The stationary status and order of integration of the bean price series were examined using the standard Augmented Dickey-Fuller (ADF) unit root test as presented in Table 3.

**Table 3.** Results of stationarity test of price series for rural and urban markets

Variable	Price at Level I[0]		Price at the first difference I[1]	
	t-statistics	Prob.	t-statistics	Prob.
RWB	-2.0775	0.254	-9.3923***	0.000
RBB	-2.0929	0.248	-6.6930***	0.000
UWB	-1.4785	0.538	-8.5574***	0.000
UBB	-0.3420	0.912	-11.4710***	0.000

\*, \*\*, \*\*\* means significant at 10%, 5% and 1% respectively

The results showed that all the price series (RWB, RBB, UWB, and UBB) in both rural and urban markets were stationary at the first difference I(1). As also observed by Mafimisebi (2012) and Adenegan et al. (2017), these findings imply that all the price series were generated by similar stochastic processes and can exhibit the tendency to long-run equilibrium.

**Johansen co-integration analyses for beans market price series**

Since all the bean price series were integrated at order one  $I(1)$ , this justifies and



fulfill the appropriateness of using the Johansen co-integration test. It should be noted that the null hypothesis of the number of cointegrating equations is rejected if the critical value estimate is less than trace or max-eigenvalues or if the probability level is significant at least 5% level.

Table 4 showed the bivariate horizontal co-integration test results of the prices of the white and brown beans. Out of the four (4) market price pairs subjected to the test, two (2) market pairs rejected the null hypothesis at a 5% significant level. It implied that the cointegrating equation's alternative hypothesis favored price pairs of RWB/RBB and UWB/UBB. It was confirmed by the estimates of the trace test and maximum eigenvalue that their values are greater than the critical value.

**Table 4.** Bivariate Cointegration Tests for Rural and Urban Markets

Price pairs	Trace test statistics	0.05 critical value	Maximum eigenvalue	0.05 critical value
RWB/RBB	38.704**	15.495	35.713**	14.265
UWB/UBB	25.771**	15.495	23.160**	14.265
RWB/UWB	15.336	15.495	14.124	14.265
RRB/UBB	9.976	15.495	8.720	14.265

This finding implies that 100% of beans markets in Ondo State were strongly linked together in the rural and urban markets separately, in the long run despite the short run divergence in the markets. Again, Table 5 presented the multivariate co-integration tests for the beans' prices of the rural and urban markets. The results showed at least two cointegrating equations at the 5% significant level. The test statistics were greater than the critical value. Hence the null hypothesis is rejected in favor of the alternative for both the trace and max-eigenvalues. It still reiterates the fact that the beans products were strongly linked together in the long run.

**Table 5.** Multivariate co-integration tests for rural and urban markets

Null hypothesis	Trace Statistics	0.05 Critical Value	Maximum eigenvalue	0.05 Critical Value
r = 0	68.904*	47.856	38.807*	27.584
r = 1	30.097*	29.797	27.297*	21.132
r = 2	2.800	15.495	2.369	14.265
r = 3	0.431	3.841	0.431	3.841

*Trace test indicates 2 cointegrating eqn(s) at the 0.05 level*

*Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level*

As also observed by Mafimisebi et al. (2014) and Akpan et al. (2014), it implied that there is a presence of market efficiency in the beans market in the study area since market integration is a proxy for marketing efficiency. However, the co-movement of RWB/UWB and RRB/UBB showed marketing inefficiencies over the periods. It implies that RWB and RRBprices exhibit weak exogeneity to their corresponding prices of UWB and UBB, respectively. It showed that there is strong endogeneity, as also reported by Akpan et al. (2014). According to Adenegan et al. (2017), any marketing system's efficiency is determined by the difference in market prices of similar markets. Therefore, there is low market integration between beans of the same variety (white and brown) between rural and urban markets in Nigeria. Akpan et al. (2014) also reported the flow of symmetric market information between the rural and urban markets of beans in their studies in Akwa Ibom State, Southern Nigeria.

**Analysis of variance decomposition**

Table 6 depicts the Vector Autoregression’s Variance Decomposition of beans price series employed for this study. RBW variance decomposition results reflected that it accounts for about 100%, 82%, and 70% of the variations in itself in the short-run, medium-term, and long-run, respectively. RBB explains about 10% variation in RBW in the medium term and 21% in the long run. Similarly, the response of UBB to variation in RBW in the medium and long run was nearly 3.5% and 2.7%, respectively. UBW accounts for about 3.7% and 5.4% of RBW variation in the medium term and long run, respectively.

**Table 6.** A variance decomposition for the prices of the bean

Variance Decomposition of RBW:						
Period	S.E.	RBW	RBB	UBB	UBW	
1	32.91831	100.0000	0.000000	0.000000	0.000000	0.000000
2	41.13264	99.61785	0.001947	0.050976	0.329229	0.329229
3	47.95967	93.86111	2.212733	1.402249	2.523910	2.523910
4	52.36487	88.33969	5.574483	3.062108	3.023717	3.023717
5	56.78170	82.42044	10.36217	3.482116	3.735277	3.735277
6	60.80806	77.72564	14.71343	3.360893	4.200043	4.200043
7	64.16154	74.79686	17.34028	3.158117	4.704745	4.704745
8	67.27780	72.75242	19.21615	2.974561	5.056868	5.056868
9	70.06766	71.53419	20.41557	2.825218	5.225025	5.225025
10	72.87861	70.46777	21.48305	2.681189	5.367998	5.367998

Variance Decomposition of RBB:						
Period	S.E.	RBW	RBB	UBB	UBW	
1	37.71696	45.31551	54.68449	0.000000	0.000000	0.000000
2	41.97939	52.17290	47.78146	0.030874	0.014772	0.014772
3	53.52575	47.69648	45.06051	1.108287	6.134719	6.134719
4	57.27878	48.96502	41.71156	3.791951	5.531469	5.531469
5	65.23647	47.31569	41.90562	4.734450	6.044232	6.044232
6	70.22329	47.22267	41.46957	5.706631	5.601129	5.601129
7	76.17057	46.07202	41.68627	6.088481	6.153230	6.153230
8	80.83833	45.60359	41.55849	6.722987	6.114934	6.114934
9	85.53845	45.16066	41.50599	7.094784	6.238565	6.238565
10	89.96363	44.87009	41.50608	7.410753	6.213072	6.213072

Variance Decomposition of UBB:						
Period	S.E.	RBW	RBB	UBB	UBW	
1	29.29530	13.39430	1.459604	85.14609	0.000000	0.000000
2	50.07746	10.37583	6.719044	78.56377	4.341353	4.341353
3	67.76409	8.189829	12.16895	76.16758	3.473645	3.473645
4	81.54421	7.617019	13.78727	74.84941	3.746306	3.746306
5	94.52540	6.883915	15.63660	73.17978	4.299709	4.299709
6	105.5084	6.734604	15.51760	73.37384	4.373965	4.373965
7	115.9222	6.365445	15.99367	73.08058	4.560305	4.560305
8	125.2257	6.186535	16.02516	73.25609	4.532209	4.532209
9	134.1142	5.976211	16.27031	73.11487	4.638610	4.638610
10	142.4042	5.856645	16.33008	73.15628	4.656991	4.656991

Variance Decomposition of UBW:						
Period	S.E.	RBW	RBB	UBB	UBW	
1	40.73535	65.23517	3.470476	1.502921	29.79143	29.79143
2	55.09187	65.82614	2.239424	6.713600	25.22084	25.22084
3	63.93344	70.50850	3.699116	6.387522	19.40486	19.40486
4	68.88452	72.00875	3.210050	5.726988	19.05421	19.05421
5	74.82232	73.01172	4.337454	5.089554	17.56127	17.56127
6	80.16887	72.97968	4.754689	4.837397	17.42823	17.42823
7	85.21769	73.21907	5.654684	4.791502	16.33474	16.33474
8	89.57493	73.42971	5.892245	4.728442	15.94960	15.94960
9	93.84786	73.68677	6.141169	4.683962	15.48810	15.48810
10	98.03934	73.81911	6.301733	4.642154	15.23700	15.23700

Cholesky Ordering: RBW RBB UBB UBW

The variance decomposition of RBB is accounted for itself at 54.7%, 41.9%, and 41.5% of the variations in the short, medium, and long-run, respectively. Likewise, 45.3%, 47.3%, and 44.9% of the variations in RBB are accounted for by the changes in RBW in the short, medium, and long run, respectively.

The responses of UBB and UBW to the variations in the RBB were very low, with about 7.4% and 6.2% in the long-run, respectively. Furthermore, UBB accounts for about 85%, 73%, and 73% of the short, medium, and long-run variations. UBW explains 4.3% variation in the middle term and 4.7% variation in the long run. Similarly, the response of RBW to variation in UBB in the short, medium, and long-run were 13.4%, 6.9%, and 5.9%, respectively. The changes in RBB account for increased variations of 1.5%, 15.6%, and 16.3% in the short run, medium-term, and long-run, respectively.

UBW reflected significant variations in response to change in the RBW for about 65%, 73%, and 74% for the short term, medium-term, and long run, respectively. The variance decomposition of UBW accounts for 29.8%, 17.6%, and 15.2% in the short, medium, and long term, respectively

### Pairwise Granger Causality tests

The causal relationship identifying the price formation and transmission in urban and rural beans market pairs were depicted in Table 7. The decision criteria reject the null hypothesis if the F statistics' probability value is less than or equal to 0.05 significant level.

The Table results reflected the evidence of causation and exogeneity among prices series of beans varieties in the market. Six (6) out of twelve (12) bean price pairs rejected the null hypothesis of no Granger causality in the study. Two (2) market prices networks exhibited uni-directional (one-way) causality, and they are UWB and RWB, and RBB and UWB. The implication is that there is no causality from the other markets. Likewise, two (2) market price links displayed bi-directional causality (two-way): RBB and RWB, UWB and UBB. The result can be interpreted that RBB granger-caused RWB at 5% significant level in the first market link, while RWB strongly granger-caused RBB at 1% significant level in return. The same goes for UWB that granger-caused UBB at a 5% significant level in the first market link and vice versa.

**Table 7.** Pairwise Granger Causality tests

Null hypothesis	F-statistics	Probability	Decision	Direction
RBB → RWB	2.392*	0.042	Reject	Bi-direction
RWB → RBB	3.872**	0.003	Reject	
UBB → RWB	0.729	0.629	Accept	No direction
RWB → UBB	0.695	0.655	Accept	
UWB → RWB	2.362*	0.045	Reject	Uni-directional
RWB → UWB	0.306	0.930	Accept	
UBB → RBB	0.724	0.632	Accept	No directional
RBB → UBB	1.593	0.171	Accept	
UWB → RBB	1.353	0.254	Accept	Uni-directional
RBB → UWB	2.247*	0.050	Reject	
UWB → UBB	3.213*	0.010	Reject	Bi-directional
UBB → UWB	2.422*	0.041	Reject	

From the results, RWB proved to show strong exogeneity, therefore, occupied the lead position in the beans varieties market in the area. The major price formation and

transmission in the market are assumed to drive the market for other beans variety's prices in the area. Mafimisebi (2012) also reported that dominated price series always formed efficient price transmission in the market. The result agrees with the findings of Adenegan et al. (2017), who reported the presence of both uni-directional and bi-directional granger causality in the prices of beans in Nigeria markets.

Similarly, Akpan et al. (2014) observed a bi-directional relationship between rural and urban beans markets using the Granger causality test in Akwa Ibom State, Nigeria. Although both markets play a vital role in the beans market, beans always demonstrate a strong integration coefficient when market activities are initiated from the rural market. It agreed with Akpan et al. (2014) and Adenegan et al. (2017).

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

The study extensively evaluated the price variations and transmission in beans rural and urban markets in Ondo State, Nigeria. The data used were the average monthly prices from March 2014 to July 2019. The study concluded that beans prices assume relatively the same magnitude with spike variations over the periods. Again, the demand for beans products is the same throughout the year, with little variations in the planting and harvesting periods in the producing States. Moreso, any variation experienced at the producing State is also transmitted into consuming States and therefore cause a change in the prices.

The study also concludes the presence of a long-run dynamic between beans products of different varieties in the same market but failed in the case of the same products in different markets using bivariate co-integration test. The multivariate co-integration test affirmed that bean markets in Ondo State were strongly linked together in the rural and urban markets separately, in the long run, despite the short-run divergence in the markets. There is also evidence of causation and exogeneity among the price series of bean varieties in the market. Rural white beans (RWB) proved to occupy the lead position in the beans varieties market in the area. Therefore, it is the major price formation and transmission in the market which assumed to drive the market for other beans products' prices in the area.

### **Recommendations**

This study's information is vital for designing market strategies that will bring more efficiency to the beans market. It can be achieved through the availability of functioning and accessible market information units that could smoothen price transmission between rural and urban markets.

The government should make market infrastructure a priority in the State by providing storage facilities and a good transportation system. It can ensure stable fuel price and good road network, provide a conducive market environment, building strong market surveillance with effective information technology. Again, most especially in the producing States, the insurgence (Boko Haram) and other natural disasters should be reduced to minimal to experience more market integration in the consuming beans market, especially in the Southern regions.

## **ACKNOWLEDGMENT**

We sincerely thank Dr. (Mrs.) S. Adeniyi for the data input and extraction, and Ondo State Bureau of Statistics to provide data used in this study.

## REFERENCES

- Adenegan, K.O, Bamidele, J.A. & Nwauwa, L.O.E. (2017). Spatial price linkages of brown cowpea (*Vigna unguiculata*) in Nigerian National Markets. *Review of Market Integration*, 8(1&2): 65–78. DOI: 10.1177/0974929216687885.
- Aguilera Y, Díaz MF, Jiménez T, Benítez V, Herrera T, Cuadrado C, Martín-Pedrosa M, & Martín-Cabrejas MA. (2013). Changes in non-nutritional factors and antioxidant activity during germination of nonconventional legumes. *Journal of Agricultural and Food Chemistry*, 61, 8120 - 8125. <http://pubs.acs.org/doi/pdf/10.1021/jf4022652>.
- Akpan, S.B., Udoh, E.J. & Udo, U. J. (2014). Monthly price analysis of cowpea (beans) and maize in Akwa Ibom State, Southern Nigeria. *International Journal of Food and Agricultural Economics*, 2(2), 65 - 86.
- Da Cunha, C.A. & Wander, A.E. (2014). Asymmetry in farm-to-retail dry bean price transmission in São Paulo, Brazil; *Journal on Chain and Network Science*, 14(1), 31 - 41.
- FAOSTAT. 2019. Cowpea production by countries: Nigeria. Retrieved from: <http://www.fao.org/faostat/en/#data>, Accessed 25<sup>th</sup> March 2020.
- Johansen, S. & Juselius, K. (1990). Maximum likelihood estimation and inference on co-integration with application to the demand for money. *Oxford Bulletin of Economic Statistics*, 52(2), 231-254.
- Juselius, K. (2006). *The Cointegrated VAR Model: Methodology and Applications*. Oxford University Press.
- Mafimisebi, T.E. (2012). Spatial equilibrium, market integration and price exogeneity in dry fish marketing in Nigeria: A vector auto-regressive (VAR) approach. *Journal of Economic Finance and Administrative Science*, 17(33), 31 - 37. [https://doi.org/10.1016/52077-1886\(12\)70005-7](https://doi.org/10.1016/52077-1886(12)70005-7).
- Mafimisebi, T.E., Agunbiade, B.O. & Mafimisebi, O.E. (2014). Price variability, co-integration and exogeneity in the market for locally produced rice: A case study of Southwest Zone of Nigeria. *Journal of Rice Research*, 2(118), 1 - 6. <http://dx.doi.org/10.4172/jrr.1000118>.
- Muranaka, S. Shono, M., Myoda, T., Takeuchi, J., Franco, J., Nakazawa, Y. Boukar, O. & Takagi, H. (2016). Genetic diversity of physical, nutritional and functional properties of cowpea grain and relationships among the traits. *Plant Genetic Resources*, 14, 67 - 76.
- National Population Council (NPC). (2006). Nigeria 2006 Population Census
- Saka, J.O., Agbelele, O.A., Ayoola, O.T., Lawal, B.O., Adetumbi, J.A. & Oloyede-Kamiyo, Q.O. (2018). Assessment of varietal diversity and production systems of cowpea (*Vigna unguiculata* (L.) Walp.) in Southwest Nigeria. *Journal of Agriculture and Rural Development in the Tropics and Subtropics*, 119(2), 43–52. <https://doi.org/10.17170/kobra-2018121864>.
- Shittu, A. M., Akerele, D. & Haile, M. (2017). Food price spikes and volatility in local food markets in Nigeria. *ZEF Discussion Papers on Development Policy*, No. 242.



# Trade flow of manufacturing sector and foreign direct investment in ASEAN economic integration: the gravity model of trade

Diah Wahyuningsih

Faculty of Economics and Business, Universitas Trunojoyo Madura, Indonesia

*Correspondence author email: diahwahyuningsih@yahoo.com*

DOI: 10.22437/ppd.v8i6.10289	Received: 18.08.2020	Revised: 20.01.2021	Accepted: 23.01.2021	Published: 01.02.2021
---------------------------------	-------------------------	------------------------	-------------------------	--------------------------

## Abstract.

This study aims to determine the effects of ASEAN economic integration on the manufacturing sector's trade flow and foreign direct investment. This study using panel data regression. The results show that ASEAN economic integration affects trade in the manufacturing sector and foreign direct investment (FDI) in ASEAN member countries. The tariff elimination policy increased trade flows in the manufacturing sector and foreign direct investment. The variable of GDP has a positive and significant effect on the manufacturing sector's trade flows and foreign direct investment. Exchange rate variables have a negative and significant effect on trade flows in the manufacturing sector and foreign direct investment. Meanwhile, the distance variable negatively affects trade in the manufacturing sector, but it does not affect foreign direct investment.

**Keywords:** *Economic integration, Foreign direct investment, Trading*

**JEL Classification:** F1, F15, F21

## INTRODUCTION

Economic globalization refers to the economy's integration process and is interrelated to the world economy nationally, regionally, and locally. Economic globalization covers the international flow of goods, services, and capital, tariff reduction, trade barriers, immigration, technology exchanges, and cross-border knowledge (Samimi & Jenatabadi, 2014). Economic globalization is marked by the increasing welcomes to international trade, encouraging market competition that generates an efficient market by lowering production costs, driving creativity and innovation to create various products (Yulisa, 2017).

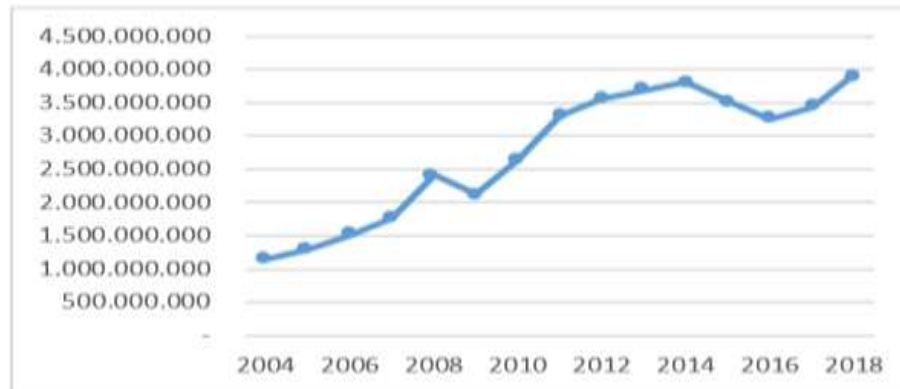
As part of a community globally, Indonesia is actively involved in various economic cooperations to open the access and remove the trade barriers (Damuri, 2006). Economic globalization implicates the international trade system of goods and services by eliminating trade barriers, such as tax reduction, trade quotas, as well as subsidy (Krugman & Obstfeld, 2003). The trade barriers elimination induces industrial activity efficiency and opens access that can develop and expand the market. Thus, international trade flow in both goods and services is certainly developed.

Economic integration as discrimination elimination and trade independence is a form of policy transfer to joint institution. Economic integration has several forms referring to the degrees of integration, such as free-trade area, customs union, common market, economic union, and complete economic integration (Balassa, 1994). In

Southeast Asia, the economic integration is in the form of the ASEAN Free Trade Area (AFTA), established in 1992. AFTA serves to eliminate trade barriers (such as trading cost and tariff) through the Common Effective Preferential Tariff (CEPT) scheme. Common Effective Preferential Tariff is an agreement to reduce the trading tariff and eliminate non-tariff among ASEAN nations. The eliminated tariffs are for the manufacturing and semi-manufacturing products, including capital materials and agricultural processing products. Common Effective Preferential Tariff in AFTA has reached 90% of the total mentioned products.

Furthermore, 65% of products listed in IL (Inclusion List) have been eliminated their tariffs. By eliminating the trade barriers, AFTA changes the ASEAN economy and creates a solid regional market. AFTA, as a gradual liberation trade agreement, has successfully reduced import tariffs of intra-ASEAN by 5% in fifteen years. However, tariff reduction only applies to specific products (as mentioned in the agreement). Nevertheless, it ensures that about 40% of products used are from ASEAN countries. Intra-ASEAN trade increases the involved countries' competition to secure the investment, production materials and capital, and trade in the region.

Ridhwan et al. (2015) argue that the more increasing the trade is, the more dynamic and multidimensional the involved countries are. Accordingly, in order to ensure economic development, FTA is needed as it eliminates trade barriers. Okabe (2015) mentions that FTAs should eliminate tariffs and liberate the service trade and Foreign Direct Investment (FDI). As an ASEAN member, Indonesia had experienced its impact, which is seen from the total trade development for the manufacturing sector (see Graph 1). The Indonesian trade intra-ASEAN had reached US\$ 250,817.2 million or 202% (from US\$ 118,109.1 million to US\$ 118,109.1 million) in almost 15 years (2004–2018).



**Figure 1.** Development of total trade in the manufacturing sector intra-ASEAN 2004 – 2018

Accordingly, Indonesia becomes the biggest manufacturing industry in ASEAN. This condition means that the national goals that develop the non-oil and gas industry by promoting the manufacturing industry are successfully engaged. Although the total Indonesian trade generally increased (2004–2018), in 2009, it declined due to the global economic crisis of 2008. This situation proves that the manufacturing sector can become the key factor of national economic development by inducing productivity and expanding the market. The manufacturing industry can add raw materials, absorb many laborers, and add national revenue (through tax and excise). Indonesian growth of Manufacturing Value Added (MVA) reached 4.84% (the highest among ASEAN countries), and it is more than ASEAN MVA (4.5%) (Baihaqi, 2018).

The increasing FDI certainly follows the increasing trade volume and market in ASEAN by the conditions of good systems in institutions, facilities, infrastructure, and

low production cost (Kawai & Naknoi, 2015). Krugman and Obstfeld (2003) define FDI or Foreign Direct Investment as the flow of international capital in which the founder (capital owner) establishes or/and expands one's business (company) in other countries. The prominent characteristics of FDI involve not only resource transferring but also power (capital) control. Unfortunately, Indonesia has hardly invited foreign investors compared to other ASEAN countries.

The gravity models are commonly utilized to analyze and assess trade flows in many studies. Besides, Evenett & Keller (1998) mention three types of trade models to analyze the theoretical foundations of gravity equations, namely: (1) the Ricardian model to differentiate the technology across countries, (2) the H-O model to vary the endowment factors in the country, and (3) the Increasing Returns to Scale (IRS) model to measure the increasing returns at the firm level. According to Kepaptsoglou *et al.* (2010), the gravity model uses to describe and foresee the impacts of Free Trade Agreements (FTA) of the involved countries. FTA mostly eliminates tariffs, quotas, and other barriers (some or all) in the trade (among involved parties/ countries). The FTAs aim to increase trade of two or more countries due to unbinding or eliminating institutional and economic barriers.

Meanwhile, Topalova (2004) writes that reducing or loosening the trade protection can encourage productivity in private sectors, but not in the government-owned or foreign company during the post-reformation period. Effendi (2014) finds that the FTA can develop the Indonesian trade performance among other related countries such as ASEAN, ASEAN+3, Uni Eropa, AS, and Australia. Moreover, he successfully used the gravity model to estimate and draw the Indonesian trade performance.

Helpman *et al.* (2004) state that companies participating in foreign markets are because they find an opportunity (foreign market), whether referring to resource availability or growth probability. Hence, they differ the actions into a) withdrawing from foreign markets, b) exporting exclusively to foreign markets, or c) investing in foreign production facilities to serve specific markets (FDI). Export-import has a lower fixed cost, while FDI has low variable costs. Thus, companies (capital owners) encouraged by the "trade-off proximity-concentration" relatively bend to export-import business than FDI. Although FDI reduces transportation costs, it has higher production costs (in terms of facilities). This study is different from previous studies, namely comparing the trade flow in the manufacturing sector with FDI in the presence of tariff reduction of 0-5 percent during fifteen years of ASEAN economic integration. This study aims to determine the effects of ASEAN economic integration on the manufacturing sector's trade flow and foreign direct investment (FDI).

## METHODS

This study uses annual data for the study period from 2004-2018 from 10 ASEAN countries. The data used in this study are secondary data obtained from various sources, namely Comtrade Database, World Bank, The Geographical Distance (GeoDist) Database.

This study employs descriptive analysis and data regression analysis of panel data. Descriptive analysis was employed to determine the development of the variable of the research model. In contrast, data regression analysis was employed to determine the independent variable's effect (ASEAN economic integration) on dependent variables (manufacturing sector trade and FDI).

Combining time-series and cross-section are panel data to find the bigger degree of freedom (Gujarati, 2015). Three models are used to estimate the model parameter, namely: Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect



Model (REM). CEM assumes no difference in both sector and time; thus, it only has a model for the whole observation (Baltagi & Moscone, 2010). Fixed Effect Model or Least Square Dummy Variable (LSDV) model employs the dummy variable addition. LSDV model is used in linear regression parameter assumption with the least-squares method on the model. Meanwhile, REM carries several differences in individual characteristics and times or known as model error. Due to two elements (individual and time), REM combined both elements contributing to the ‘error’ as ‘random error’ (Baltagi, 2008).

The gravity model is a model used to explain two countries' trade flows unsolved by other economic theories. This model is a derivative theory of Newton’s gravitational law stating that two objects' gravitational force is equal to their masses and inversely to their distance squared.

$$F_{ij} = G \frac{M_i M_j}{D_{ij}^2} \dots\dots\dots (1)$$

$F_{ij}$  is the gravitational force of object  $i$  and  $j$ ;  $G$  is the constant;  $M_i$  and  $M_j$  are the mass of objects  $i$  and  $j$ , and  $D_{ij}$  is the distance of two objects. Accordingly, Tinbergen (1962) applied this formula into an economic formula to calculate two countries' trade flows. Its variables are merged into an independent variable of Gross Domestic Product (GDP), namely trade flow and the two countries' distance. Hence, he hypothetically assumed that high GDP’s and close-distance countries tend to open the market to each area (trading).

Besides, Anderson (1979) uses the gravitational equation by differentiating products with the Cobb-Dougllass and CES (constant elasticity substitution) preference. Theory of gravity model from Heckscher-Ohlin (H-O model) and imperfect substitute theory into a mathematical equation which later used by (Krugman & Obstfeld, 2003).

$$T_{ij} = A \frac{Y_i Y_j}{D_{ij}^2} \dots\dots\dots (2)$$

$T_{ij}$  is the gravitational force of object  $i$  and  $j$ ;  $A$  is the constant;  $Y_i$  and  $Y_j$  are the economic force of two countries  $i$  and  $j$ , and  $D_{ij}$  is the distance of two countries.

Therefore, this study refers to prior researches Vahalík (2014) for determining the market size variables, Agnosteva et al. (2019) for determining the trade barriers variables, İncekara & Ustaoglu (2012) for determining tariff reduction variables, Zamroni (2005) for determining the FDI variables, and Silajdzic & Mehic (2018) for determining economic openness. The gravity model equation is modified into two:

Equation 1

$$Trade_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 REER_{it} + \beta_3 DIST_{it} + \beta_4 D_1 AFTA_{it} + \beta_5 OPEN_{it} + \mu_{it} \dots\dots\dots (3)$$

Equation 2

$$FDI_{it} = \beta_0 + \beta_1 GDP_{it} + \beta_2 REER_{it} + \beta_3 DIST_{it} + \beta_4 D_1 AFTA_{it} + \beta_5 OPEN_{it} + \mu_{it} \dots\dots\dots (4)$$

$Trade_{it}$  is the export and import volume on the manufacturing sector of  $i$  country to  $j$  country in year  $t$ .  $FDI_{it}$  is foreign direct investment obtained by  $i$  and  $j$  countries in year  $t$ .  $DGDP_{it}$  is the market size of  $i$  and  $j$  countries in year  $t$ ;  $REER_{it}$  is the exchange rate of  $j$  country in year  $t$ ;  $DIST_{it}$  is transportation cost of  $i$  country to  $j$  country in year  $t$ ;  $D_1 AFTA_{it}$  is dummy variables of non-tariff;  $OPEN_{it}$  is the value of trade openness between  $i$  and  $j$  countries in year  $t$ ;  $\mu_{it}$  is error term;  $\beta_0$  = constant, and  $\beta_0$  = value of trade openness.

GDP represents the size of the two countries' economies, both in production capacity and market size. The market size variable is obtained from the average GDP of

the two trading countries. The Real Effective Exchange Rate shows the purchasing power of domestic output by trading partners. This variable uses a proxy for exchange rate fluctuation obtained from the absolute difference in the currency value on US\$ and the exchange rate of the partnered country in US\$. The distance variable refers to the geographical distance of two countries. This study uses Indonesia's economic distance to the respective countries (ASEAN) as the GDP's partners.

$$DIST_{ijt} = \frac{\text{geographical distance} \times PDB_f}{\sum_1^n PDB_f}$$

$PDB_f$  is the GDP of  $f$  trading partner;  $i$  is Indonesia;  $j$  is trading partner; and  $t$  is the year (observed).  $DIST_{ijt}$  is the distance representing transportation cost. Economic integration is represented through tariff reduction in manufacturing sectors.

This study uses dummy variables to calculate the trade flow before and after implementing tariff reduction policy in manufacturing sectors. Moreover, a degree of openness is represented by economic integration, which employs the proxy ratio between the aggregate value of imports and exports and GDP.

## RESULTS AND DISCUSSION

These calculations on the gravity model are utilized to determine the effect of gross domestic product (GDP), economic distance (DIST), real effective exchange rates (REER), economic openness (OPEN), and before and after the implementation of the AFTA on trade flow of manufacturing sector and FDI. Analysis with a gravity model begins by selecting an estimate, whether it is a common effect model, a fixed-effect model, or a random effect model. The estimation results use a static data panel with a gravity model.

**Table 1.** Chow test result

Effects Test	Equation 1		Equation 2	
	Statistic	Prob	Statistic	Prob
Cross-section F	88.564248	0.0000	4.313614	0.0000
Cross-section Chi-square	259.881672	0.0000	33.873187	0.0000

The chow test result shows that the fixed effect model can better explain the model than pooled least square because the probability is accepted at a 95% level of confidence.

**Table 2.** Hausman test result

Test Summary	Equation 1		Equation 2	
	Chi-Sq. Statistic	Prob	Chi-Sq. Statistic	Prob
Cross-section random	31.973525	0.0000	22.557351	0.0000

The Hausman test result shows that the random effect model can better explain the model than fixed-effect because the probability is rejected at a 95% level of confidence. It indicates fixed effect model is better than compared random effect model.

Equation 1 (see Table 3) shows that GDP has a positive and significant effect on the trade flow of manufacturing sectors with a GDP coefficient of 0,97. It means that if GDP increases by 1%, the trade flow of manufacturing sectors will increase by 0,97%, assuming all other variables remain constant.

The manufacturing sector trade flow is influenced by the income of its trading partners (countries). The bigger the size of the economy (in a country), the greater the trade transactions undertaken by that country. The country's economy's size represents the production capacity to produce manufacturing goods exported to the destination

country for exporting countries. Whereas for importing countries, the country's economy's size represents the demand for imported manufactured goods. The greater the country's economy, the greater the ability to conduct trade in the manufacturing sector.

**Table 3.** Panel data regression result

Variable	Equation 1		Equation 2	
	Coefficient	Prob.	Coefficient	Prob.
GDP	0,968655	0,0000*	1,275509	0,0000*
REER	-0,033268	0,0412**	-1,759794	-0,0006*
DIST	-0,304934	0,0000*	1,614585	0,0992
AFTA	0,126586	0,0174**	1,258973	0,0016*
OPEN	0,932453	0,0000*	1,099272	0,0242**
R-squared	0,997437		0,960592	

\* Significant at  $\alpha = 1\%$ ; \*\* Significant at  $\alpha = 5\%$

Helpman & Krugman (1989) state that economic equity and size have a positive relationship to trade. Countries that have similar (equivalent) economic size will trade in a larger manufacturing sector. It is driven by the influence of economic scale, which makes the country (exporter) produce goods for a larger market (where the demand for these goods is large) and will do the opposite (become an importer country) when the value of the desired goods is lower than the domestic price. There are three consequences of economic scale trading, namely: 1) the price (of goods) is lower than the autarchy in the trading country; 2) the number of companies that can survive (after trading) will decrease compared to autarchy; and 3) the sales of each company (which survive) will increase compared to autarchy (Krugman & Obstfeld, 2003).

This analysis is in line with Wahyuningsih's (2011) research, which states that countries with similar (equal) economies will conduct greater intra-industrial trade. This result is in line with the research conducted by Paulus & Michalíková (2014). They mention that the GDP of a country that engages in trading becomes the driving key to developing trading. Besides, Ugurlu & Jindrichovska (2019) argue that the trading of two countries depends on their GDP's size. According to Frankel & Romer (1999), countries that conducting trading are not affected by the level of people's income, government policies, or other factors that affect the income. Their opinion indicates that the trading rate (between two countries) is not influenced by geographical factors (the level of people's income) existing in that country. It is proved by Nasrullah et al. (2020) through their research on Chinese trading. They find that the increase in trading partners' population (importer countries) affects China's products (exporter country).

Real Effective Exchange Rates have a negative and significant effect on the trade flow of manufacturing sectors with a REER coefficient of -0,03. It means that if the exchange rate increases by 1%, the trade flow of manufacturing sectors will decrease by 0,03%, assuming all other variables remain constant. The two countries' exchange rate is the price level agreed upon by both countries' residents while trading. The exchange rate is distinguished by the nominal exchange rate and the real exchange rate. The nominal exchange rate is the relative price of the two countries' currencies, while the real exchange rate is related to the relative price of goods between the two countries. Mankiw (2009) states that the real exchange rate or trade shows one country's economic behavior in trading manufacturing sector products.

Moreover, he argues that the real exchange rate affects trade volume as it will be changed according to the relative price of goods and services traded. An increasing real exchange rate indicates a depreciation of the domestic currency, which will increase the value of exports. By increasing the real exchange rate, imported goods will be relatively

more expensive than domestic goods. This condition causes the domestic market to reduce their imports and to increase their exports. Exchange rates can affect trade volume because exchange rates will change the relative price of goods and services being traded (Mankiw, 2009). A stable currency value indicates that the country has relatively good economic conditions (Salvatore, 2013). This study's results are consistent with the research conducted by Nicita (2013), which examines the exchange rate has an important role in trading performance determined by exogenous or policy shocks, the relative valuation of currency, and volatility.

Distance has a negative and significant effect on trade in the manufacturing sector with a distance coefficient of -0,30. If distance increases by 1%, the manufacturing sector's trade flow will decrease by 0,30%, assuming all other variables remain constant. This result is supported by Krugman (2000), who mentions that countries' distance is a determinant of international trade. He argues that the farther a country is from its trading partners, the higher the transportation costs borne by the involved countries (the country conducting the trading). Furthermore, this study is in line with the study conducted by Ülengin et al. (2015) on the influence of transportation quotas on textile trading between Turkey and the European Union. Turkey joined the customs union in 1996 and abolished import duties, but several European Union countries still have quotas on imports. The existence of a quota is against the customs union agreement. This caused Turkey to suffer losses because the number of Turkish textile exports to European Union countries decreased. Similarly, Chakravarty & Chakrabarty (2014) find that the apt access between India and ASEAN countries (vice versa) open bigger market for Indian products in ASEAN countries.

This study's policy dummy variable is used to see the differences in the years before and after AFTA was enforced. The estimation results show that the policy dummy is positive and significant for manufacturing sector trade with a coefficient of 0,13. It means that the policy dummy can show a trade difference of 13%  $[(\exp(0.11) - 1) * 100]$  after the write-off policy rates are applied. The elimination of tariffs between member countries causes the market to become more expansive. Production costs fell so that economies of scale were larger than before. Trading costs are also reduced so that trade is increasing compared to before. This dummy indicates whether AFTA brings trade creation because it occurs when trade between members of a preferential trading arrangement replaces what would have been produced in the importing country were it not for the PTA.

The reduction of the tariff was also significantly affected the trade on ASEAN members' manufacture sector. Therefore, effective implementation of the AFTA CEPT scheme to reduce or eliminate tariff barriers may be expected to boost ASEAN members' trade. However, a greater number of products may need to be put on the CEPT inclusion list. This result is similar to Ekanayake et al. (2010), who state that regional trade cooperation has a creative impact on its member countries. Yang & Zarzoso (2014) state that by tariff barriers, reduction and elimination can increase the trading rate value of its members (FTAs' countries) and the neighboring countries that have not or are not included in the FTAs.

Economic openness has a positive and significant effect on trade in the manufacturing sector with a coefficient of 0,93. It means that if economic openness increases by 1%, trade in the manufacturing sector will increase by 0,93%, assuming all other variables remain constant.

Economic openness is an indicator to show the level of a country's exports and imports. The advantages of economic openness are (1) for a country with a relatively small domestic market, the potential for existing resources can still be processed for sale

abroad; (2) economic openness will direct a country to productivity and production efficiency. It is what encourages the competitiveness of a country to improve its position in international trade. With this openness, the demand for imported goods increases, and the demand for goods decreases in response to changes in relative prices. In the short term, trade causes individuals to increase consumption so that demand is high. Economic openness is an indicator of the degree of economic relations between a country and another. The greater the value of economic openness will increase the degree of trade liberalization in the country. Increased trade impacts production efficiency, labor absorption, and decreased production costs to increase product competitiveness and ultimately increase ASEAN member countries.

In equation 2, GDP shows a positive and significant effect on FDI with a GDP coefficient of 1,28. It means that if GDP increases by 1%, FDI will increase by 1,28%, assuming all other variables remain constant.

The Harrod-Domar model explained the roles of investment in economic growth, namely: 1) investment has a role in increasing income and 2) investment can increase the production capacity of the economy by increasing the capital stock (Jhingan, 2011). According to the Neoclassical Solow Growth Theory, growth of the capital stock, labor force, and technological advances connects to the economy. It affects the GDP (the aggregate output produced by a country) (Mankiw, 2009). This result is also in line with endogenous growth theory, emphasizing capital accumulation in economic growth (Arsyad, 2010).

Foreign Direct Investment (FDI) becomes an important investment for developing countries because FDI allows local companies or manufacturing industries to obtain additional capital from foreign countries regarding technology and knowledge transfer and funding. It allows them to grow and results in increasing economic growth. Increasing economic growth indicates a big economic size and attracts foreign investment, which surely affects FDI. The size of the economy as a determinant of FDI is according to the theory of economic scale. The results of this study support the prior studies conducted by Rezac (2014); Sousa & Lochard (2006); Stojkov & Warin (2018); Biro et al. (2019), who mainly states that the bigger the size of an economy is, the higher the FDI increases.

The Real Effective Exchange Rate shows negative and significant effects on FDI with a REER coefficient of  $-1,76$ . It means that if the exchange rate increases by 1%, FDI will decrease by 1,76%, assuming all other variables remain constant. In terms of exchange rates, FDI serves as an investment in capital goods, land, and inventory. FDI is generally only carried out by multinational companies that manage natural resources and are engaged in export-oriented manufacturing and services. The effect of the exchange rate on FDI depends on the company's objectives. If investors purpose to export their products, the domestic currency depreciation will increase FDI due to increased product competitiveness. It happens because investment in that country is relatively cheaper than in other countries or even in the investors' countries. The real exchange rate stability also determines the amount of investment obtained by a country. This study supports the prior study conducted by Kahouli & Omri (2017), who find that REER affects a country's trading.

Distance does not have any significant effect and is not by the theory. Transportation costs do not affect FDI because ASEAN member countries are free to invest with ASEAN Economic Community's implementation. FDI inflows are still dominated by ASEAN member countries, followed by Japan and other emerging market countries in Asia (including China). FDI provides an opportunity to reduce production costs while increasing market share. On the other hand, FDI is believed to benefit

recipient countries, including economic growth, new capital inflows and technology, and increased employment. To attract FDI, each country takes different steps, depending on its characteristics, such as infrastructure, the trade regime adopted, the availability of skilled personnel, and institutions' quality.

The tariff elimination policy caused FDI to increase compared to before. One way of integrating investment into an economic regionalism model is to link discrimination in trade liberalization with relative factor remuneration changes. It is leading to changes in investment flows. Countries that are relatively abundant in the capital will experience a net inflow of investment with an increase in interest relative to wages. A relatively labor-abundant country will experience a net capital outflow due to decreased capital interest relative to wages—FTA or customs unions' effect on FDI location selection and its impacts on social welfare. Economic integration, through tariff reductions, will lead to greater FDI and hence, improve social welfare. FDI resulting from trade expansion is not necessarily beneficial to the host and/or home countries. There is some evidence that increased FDI due to trade enhancement leads to less competition in the domestic market and inadequate technology transfers. This study's results are from the research conducted by Sousa & Lochard (2006) that economic integration lowers the transaction costs and adds Kox & Rojas-Romagosa (2019). They find that FTA on Pacific Alliance positively influences foreign direct investment entries.

The analysis shows that economic openness (OPEN) has a significant positive effect on the manufacturing sector's trade flow by 0,93. If economic openness (OPEN) increases by 1%, trade flow in the manufacturing sector will increase 0.93%, assuming all other variables remain constant. Whereas for FDI, OPEN has a significant positive effect with a significance value of 1.09, which means that for every percent increase in economic openness (OPEN), there will be a 1.09% increase in its foreign direct investment (FDI).

Economic openness is an indicator to show the level of a country's exports and imports of the country concerned. This significance (in economic openness) impacts the increasing potential of overseas markets (in countries with small domestic markets) as well as increases the effectiveness, efficiency, and productivity of the manufacturing industry (in the domestic country). Apart from this, economic openness can boost the competitiveness of a country in the international trade arena. Economic openness brings in the opportunities for imports to meet the demand of goods from the domestic market due to a relatively low price (exchange rates) and opens up export opportunities for domestic goods to enter foreign markets. Economic openness is also an indication of the degree of economic relations among countries (one to another). The greater the value of economic openness, the higher the degree of trade liberalization from that country.

## **CONCLUSIONS AND RECOMMENDATIONS**

### **Conclusions**

Economic integration in the form of reduced import tariffs and trade openness increases trade and FDI volume. It is one of the pillars of establishing the ASEAN economic community, namely establishing ASEAN as a single market and based on a single production supported by elements of the free flow of goods, services, investment, educated labor, and freer capital flows. There is a similarity in the size of ASEAN member countries' economies, which tend to conduct trade and FDI with trading partner countries in ASEAN. Exchange rate stability is important for a country's economy. Fluctuating exchange rate movements will affect trade volume and FDI. Meanwhile, low transportation costs will increase trade and FDI in ASEAN countries.

## Recommendations

The ASEAN single market aims to create an integrated market among ASEAN member countries. The goal is to increase ASEAN's economic competitiveness as a product based on facing competition in world markets. It creates fierce competition in the ASEAN market and can increase competitiveness, so there needs to be a strategic policy to regulate this.

Governments in ASEAN countries make policies to create technology transfer and skill management between FDI-giving and receiving countries. Government policies in ASEAN countries to increase FDI to support infrastructure development and various other government policies such as FDI in strategic sectors and companies can provide optimal added value to improve ASEAN countries' economies.

## REFERENCES

- Agnosteva, D. E., Anderson, J. E., & Yotov, Y. V. (2019). Intra-national trade costs: Assaying regional frictions. *European Economic Review*, 112, 32–50. <https://doi.org/10.1016/j.euroecorev.2018.11.008>
- Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *The American Economic Review*, 69(1), 106–116. <https://www.jstor.org/stable/1802501>
- Arsyad, L. (2010). *Ekonomi Pembangunan*. (5th ed.). Yogyakarta: UPP STIM YKPM.
- Baihaqi, R. (2018). Industri manufaktur Indonesia terbesar di ASEAN. Available at: <https://economy.okezone.com/read/2018/02/12/320/1858169/industri-manufaktur-indonesia-terbesar-di-asean>
- Balassa B. (1994) The Theory of Economic Integration: An Introduction. In: Nelsen B.F., Stubb A.CG. (eds) *The European Union* (pp. 125-137). London: Palgrave. [https://doi.org/10.1007/978-1-349-23984-9\\_15](https://doi.org/10.1007/978-1-349-23984-9_15).
- Baltagi. (2008). *Econometric analysis of panel data*. New Jersey: John Wiley and Sons.
- Baltagi, B. H., & Moscone, F. (2010). Health care expenditure and income in the OECD reconsidered: Evidence from panel data. *Economic Modelling*, 27(4), 804–811. <https://doi.org/10.1016/j.econmod.2009.12.001>
- Biro, F. P., Erdey, L., Gall, J., & Markus, A. (2019). The effect of governance on foreign direct investment in Latin America - issues of model selection. *Global Economy Journal*, 19(1). <https://doi.org/10.1142/S2194565919500064>
- Chakravarty, S. L., & Chakrabarty, R. (2014). A gravity model approach to Indo-ASEAN trade-fluctuations and swings. *Procedia - Social and Behavioral Sciences*, 133, 383–391. <https://doi.org/10.1016/j.sbspro.2014.04.205>
- Damuri, Y. (2006). *An evaluation of the need for selected trade facilitation measures in Indonesia: Implications for the WTO negotiations on trade facilitation*. Asia-Pacific Research and Training Network on Trade Working Paper Series, No. 10. Available at: [https://www.unescap.org/sites/default/files/AWP No. 10.pdf](https://www.unescap.org/sites/default/files/AWP%20No.%2010.pdf)
- Effendi, Y. (2014). Implementasi ASEAN free trade agreement terkait Kinerja perdagangan Indonesia: Pendekatan model gravitasi. *Buletin Ilmiah Litbang Perdagangan*, 8(1), 1–22.
- Ekanayake, E. M., Mukherjee, A., & Veeramacheneni, B. (2010). Trade blocks and the gravity model: A study of economic integration among Asian developing countries. *Journal of Economic Integration*, 25(4), 627–643. <https://doi.org/10.11130/jei.2010.25.4.627>
- Evenett, S. J., & Keller, W. (2002). On theories explaining the success of the gravity equation. *Journal of Political Economy*, 110(2), 281–316. <https://doi.org/https://doi.org/10.1086/338746>
- Frankel, J. A., & Romer, D. (1999). Does trade cause growth? *Journal of American*

- Economic Review*, 89(3), 379–399.  
<https://doi.org/10.1080/07448481.2018.1463228>
- Gujarati, D. (2015). *Econometrics by examples* (2<sup>nd</sup> Edition). London: Red Globe Press
- Helpman, E., & Krugman, P. R. (1989). *The impact of trade openness on economic growth: The case of Cote d'Ivoire* (3rd ed.). Massachusetts: The MITT Press.
- Helpman, E., Melitz, M. J., & Yeaple, S. R. (2004). Export versus FDI with heterogeneous firms. *American Economic Review*, 94(1), 300–316.
- İncekara, A., & Ustaoglu, M. (2012). European Union's multilateralism on trade policies, custom unions and free trade agreements; comparative SWOT analyses of Turkey and South Korea's automotive industries. *Procedia - Social and Behavioral Sciences*, 58, 464–473. <https://doi.org/10.1016/j.sbspro.2012.09.1023>
- Jhingani, M. L. (2011). *The Economics of Development and Planning* (40th ed.). Vrinda.
- Kahouli, B., & Omri, A. (2017). Foreign direct investment, foreign trade and environment: New evidence from simultaneous-equation system of gravity models. *Research in International Business and Finance*, 42, 353–364. <https://doi.org/10.1016/j.ribaf.2017.07.161>
- Kawai, M., & Naknoi, K. (2015). *ASEAN economic integration through trade and foreign direct investment: Long-term challenges*. ADBI Working Paper No. 545. Available at: <https://www.adb.org/publications/asean-economic-integration-through-trade-and-foreign-direct-investment-long-term>
- Kepaptsoglou, K., Karlaftis, M. G., & Tsamboulas, D. A. (2010). The gravity model specification for modeling international trade flows and free trade agreement effects: a 10-year review of empirical studies. *The Open Economics Journal*, 3, 1–13. <https://doi.org/http://dx.doi.org/10.2174/1874919401003010001>
- Kox, H., & Romagosa, H. R. (2019). Gravity estimations with FDI bilateral data: Potential FDI effects of deep preferential trade agreements. *SSRN Electronic Journal* (No. 70; Issue June). <https://doi.org/10.2139/ssrn.3457319>
- Krugman, P., & Obstfeld, M. (2003). *International economics: Theory and policy* (Sixth Ed). Elm Street Publishing Services, Inc. <https://doi.org/10.4324/9780203462041>
- Mankiw, N. G. (2009). *Macroeconomics* (7 (ed.)). New York: Worth Publishers.
- Nasrullah, M., Chang, L., Khan, K., Rizwanullah, M., Zulfiqar, F., & Ishfaq, M. (2020). Determinants of forest product group trade by gravity model approach: A case study of China. *Forest Policy and Economics*, 113, 1–14. <https://doi.org/10.1016/j.forpol.2020.102117>
- Nicita, A. (2013). Exchange rates, international trade and trade policies. *International Economics*, 135–136(56), 47–61. <https://doi.org/10.1016/j.inteco.2013.10.003>
- Okabe, M. (2015). Impact of free trade agreements on trade in East Asia. *ERIA Discussion Paper Series* No. 32. Available at: <https://www.econstor.eu/bitstream/10419/120420/1/804992568.pdf>
- Paulus, M., & Michalíková, E. (2014). Gravity model analysis: Robust evidence from the Czech Republic and corruption matching. *IES Working Paper No. 32/2014*. Available at: <https://www.econstor.eu/bitstream/10419/120420/1/804992568.pdf>
- Rezac, M. (2014). *Determinants of foreign direct investment inflows to China: A Gravity Model Approach*. [Bachelor thesis]. Charles University in Prague. Available at: <https://is.cuni.cz/webapps/zzp/download/130123358>
- Ridhwan, M., Wicaksono, G., Nurliana, L., Bary, P., Suryani, T. & Satyanugroho, R. (2015). Industri nasional di era masyarakat ekonomi ASEAN dan perdagangan bebas. *Working Paper*. Jakarta: Bank Indonesia
- Salvatore, D. (2013). *International economics* (11th ed.). New Jersey: Wiley.
- Samimi, P., & Jenatabadi, H. (2014). *Globalization and Economic Growth: Empirical*



- Evidence on The Role of Complementarities. *PLoS ONE*, 9(4), 1–7. <https://doi.org/10.1371/journal.pone.0087824>
- Silajdzic, S. & Mehic, E. (2018). Trade openness and economic growth: Empirical evidence from transition economies. In V. Bobek (Ed.), *Trade and Global Market*. London: IntechOpen
- Sousa, J. de, & Lochar, J. (2011). Does the single currency affect FDI? A gravity-like approach. *Journal of Economics*, 113(3), 553–578. <https://www.jstor.org/stable/23017117>
- Stojkov, A., & Warin, T. (2018). EU membership and FDI: Is there an endogenous credibility effect? *Journal of East-West Business*, 24(3), 1–26. <https://doi.org/10.1080/10669868.2018.1431579>
- Topalova, P. (2004). Trade liberalization and firm productivity: The case of India. *IMF Working Papers*, 04(28). Available at: <https://doi.org/10.5089/9781451844696.001>
- Ugurlu, E., & Jindrichovska, I. (2019). Estimating gravity model in the Czech Republic: Empirical study of impact of IFRS on Czech international trade. *European Research Studies Journal*, 22(2), 265–281. <https://doi.org/10.35808/ersj/1438>
- Ülengin, F., Çekyay, B., Toktaş Palut, P., Ülengin, B., Kabak, Ö., Özaydin, Ö., & Önsel Ekici, Ş. (2015). Effects of quotas on Turkish foreign trade: A gravity model. *Transport Policy*, 38, 1–7. <https://doi.org/10.1016/j.tranpol.2014.09.006>
- Vahalík, B. (2014). Regional bilateral trade analysis of The European Union, China and ASEAN. *Procedia Economics and Finance*, 12, 709–717.
- Wahyuningsih, D. (2011). Analisis perdagangan intra industri sektor manufaktur: Studi kasus ASEAN-5. *Media Trend*, 6(1), 23–32.
- Yang, S., & Zarzoso, I. M. (2014). A panel data analysis of trade creation and trade diversion effects: The case of ASEAN-China Free Trade Area. *China Economic Review*, 29, 138–151. <https://doi.org/10.1016/j.chieco.2014.04.002>
- Yulisa, A. (2017). *Analisis faktor-faktor yang mempengaruhi investasi langsung asing di Thailand*. [Undergraduate Thesis]. Institut Pertanian Bogor. <https://repository.ipb.ac.id/bitstream/handle/123456789/88863/H17ayu.pdf?sequence=1&isAllowed=y>
- Zamroni. (2005). Analysis of intra-industry trade between Indonesia and Japan: A case study in manufactured and agricultural products. *Economic and Finance in Indonesia*, 53(1), 97–113.



© 2021 by the authors. Licensee JPPD, Indonesia. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

## Long term relationship between exports, gross domestic capital formation, transfer fund allocation, and private investment in Jambi Province

Sayid Syekh<sup>1</sup>; Zainuddin Zainuddin<sup>2\*</sup>

<sup>1</sup>) Development Economics Department, University of Batanghari, Indonesia

<sup>2</sup>) Agribusiness Department, University of Batanghari, Indonesia

*\*To whom correspondence should be addressed. Email: zainuddin.ubr11@gmail.com*

DOI: 10.22437/ppd.v8i6.10757	Received: 23.10.2020	Revised: 25.01.2021	Accepted: 30.01.2021	Published: 01.02.2021
---------------------------------	-------------------------	------------------------	-------------------------	--------------------------

### Abstract

This study investigates the relationship between Jambi export with gross domestic capital formation, allocation of transfer funds, and private investment, based on the Vector Error Correction Model (VECM). The results show that, both in the short and long term, the gross domestic capital formation, allocation of transfer funds, and private investment can explain changes in Jambi exports. The gross domestic capital formation strongly influences Jambi's export fluctuations compared to other variables. There is a disequilibrium relationship in the short term, and it becomes equilibrium in the long run. Only 69 percent of export changes can be determined in the current period, and the rest is determined in other periods. Likewise, the gross domestic capital formation, only 38 percent, can be determined in the current period, and the rest is determined in other periods. Based on the impulse response function, the impact of export shocks has a large impact on itself. Shocks have a very significant impact and have a long lead to stable levels. Shocks can cause changes in Jambi exports to gross domestic capital formation. Shocks to the formation of gross domestic capital formation require a long time to reach a stable level.

**Keywords:** *Cointegration, Export, Private investment, Transfer funds*

**JEL Classification:** C32, E22, H54.

### INTRODUCTION

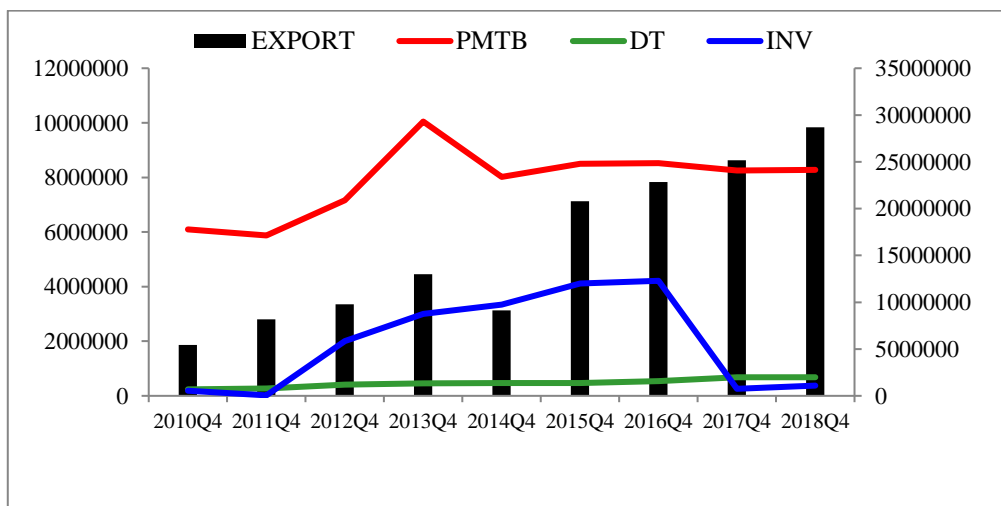
Government reform accompanied by openness has become a demand in Indonesia, especially about transparency, accountability, and the authority of financial governance and development financing. That aspect is important to drive the process of switching from a centralized system to a decentralized system in the format of regional autonomy.

Regional autonomy is the area's right, authority, and obligation to govern and manage government affairs and local communities' interests by statutory regulations. This autonomy is based on Law of the Republic of Indonesia Number 23 of 2014 concerning Regional Government, and Law of the Republic of Indonesia Number 33 of 2004 concerning Financial Balance between Central and Regional Government.

Since the enactment of the fiscal decentralization policy is expected, the local government is more independent. One of its indicators is the increase of financing from the Local Own-source Revenue (PAD) and funding source from the central government. PAD is derived from: a) intensification and extensibility of regional levies in the form of retribution or taxes; b) Exploration of natural resources; c) Capital formation schemes or regional investments through fundraising or attracting investors.

Jambi Province is one of the provinces in Indonesia. Various financing types in the Jambi Province government budget are characterized by a relatively large share of the central government's transfer funds allocation. The realization of PAD is relatively small in financing the implementation of government and development. Therefore this region is still highly dependent on the allocation of transfer funds (DT) in the form of General Allocation Funds (DAU), Special Allocation Funds (DAK), and revenue share, grants, and others. Relatively large dependent conditions will limit regional development, especially economic development by the potential of Jambi's natural resources.

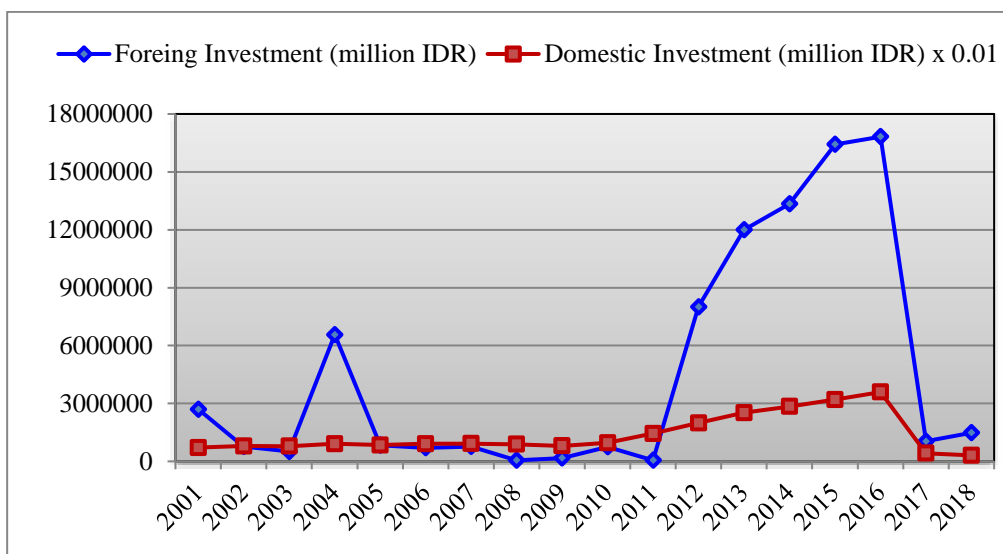
The Jambi Province economy is characterized by a high dependence on the abundance of natural resources, which determines the types of commodities exported to various destination countries. Jambi Province is quite prominent in realizing the export of plantation commodities and various processed plantation products. Exports of agricultural commodities in the form of primary commodities increased by 2.26 percent (Figure 1). The primary commodities exported are areca nuts, coffee beans, tea, spices, fish, and shrimp. Exports of various processed products from the plantation and forestry industry also experienced a relatively higher increase of 4.39 percent (BPS Jambi, 2020a). The types of processed industrial products predominantly exported to various countries are crude palm oil (CPO), coconut oil (VCO), SIR rubber and various processed rubber, plywood and various other wood products, pulp and paper, and charcoal.



Sources: BPS Jambi (2020a), BPS Jambi (2020b), BPS Jambi (2020c)

**Figure 1.** Export trends, gross fixed capital formation, allocation of transfer funds, and private investment in Jambi (million IDR)

With the realization of investment, both PMDN (Domestic Investment) and PMA (Foreign Investment) also have increased. The highest percentage increase, both PMDN, and PMA occurred from 2012 to 2016. More details can be seen in Figure 2.



Source: BPS Jambi (2020b)

**Figure 2.** Investment trends come from domestic (PMDN) and foreign (PMA)

Based on the descriptions, the authors are interested in researching the relationship between exports, gross domestic capital formation, transfer funds, and private investments in Jambi Province. The purpose of the research is to analyze the short-run and long-term (long-run) relationship between exports, gross domestic capital formation, transfer funds, and private investments in Jambi Province period 2001Q1 to 2018Q4.

## LITERATURE REVIEW

### Local autonomy dan transfer funds

Regional autonomy is defined as the granting of authority by the central government to local governments to regulate and manage local communities' interests based on people's aspirations by applicable laws and regulations. In the implementation of regional autonomy, which is in the interests of local governments at least include: (1) realizing what is called political equality, regional autonomy opens more opportunities for people to participate in political activities at the local level; (2) creating local accountability, regional autonomy will increase the ability of regional governments to fulfill the rights of the people; (3) facilitate the anticipation of various problems that arise and at the same time increase the acceleration of social and economic development in the region (Abdullah & Halim, 2003).

Transfer funds from the central government to regional governments are sources of income from The Indonesian Budget (APBN) to support regional governments' implementation in granting autonomy to the regions, especially carried out to improve regional communities' services and welfare. Transfer funds are given to local governments to increase revenue with the priority to finance salaries and employee benefits, operational and maintenance activities, construction of facilities and infrastructure in public services, basic services, and public services needed by local communities. Regional revenues originating from general allocation funds (DAU) and special allocation funds (DAK) are a form of transfer funds from the central government to regional governments. Fund transfers also function in the correction of fiscal inefficiencies and fiscal equality between regions.

### **The public and private investment relationship**

Nguyen & Trinh (2018) conducted a study of the effects of public investment and private investment during the 1990-2016 period in Vietnam with the ARDL model. The findings show that public investment has a pattern of influence on private investment, encouraging in the short term but crowding-out in the long run. It implies that when the economy requires an investment environment to attract private investment, public investment plays an important role; however, public investment is reduced in the long run.

From an empirical point of view, Gjini & Kukeli (2012) estimate public investment's crowding-out effect in private investment. They combined cross-sectional data from eleven selected Eastern European countries to estimate the marginal effects of public investment, bank credit available to private investors, inflation, and the real interest rate on private investment. The results show that there is no crowding-out effect from public investment on private investment. The marginal effect of public investment on private investment is positive and decreases as the country moves from less developed regions to more developed regions.

Mallick (2016) evaluates the effect of shocks in government investment on private investment and national income, focusing on the crowding-in or crowding-out effect in India. Recent studies do not deal with this issue by considering the heterogeneous effect of public investment regarding infrastructure uses structural vector auto-regressions (SVAR). The study finds evidence of government investment's crowding-out effect, mainly due to the non-infrastructure part of government investment. Private investment is vital to achieving higher growth in market-led economies, and public investment should complement each other. Hence, the Indian government should design policies to attract more investment expenditure in infrastructure and other productive activities to encourage (crowded-in) private investment.

The positive effects of public investment resulting from the government budget on private investment are often found from previous studies. Hatano (2010) investigates the effects of public investment on private investment based on Japanese empirical data. The results show that there is a cointegration relationship between private capital and public capital. Accordingly, the relationship between private and public investment should be represented by an error correction mechanism designed to achieve a long-run stock equilibrium.

### **Export, gross fixed capital formation, and investment relationship**

Rajni (2013) studied the relationship between exports, imports, and gross domestic capital formation in a developing country. The study variables have a long-run equilibrium relationship between them, although they may be in disequilibrium in the short-run. The analysis results conclude that both exports and gross capital formation are significantly influencing each other.

Fedderson et al. (2017) concluded in their study in South Africa that capital has a significant positive long-run association with both Gross Domestic Expenditure and exports, respectively. Moreover, the short-run VECM shows that capital positively impacts Gross Domestic Expenditure at one lag. Therefore, the results suggest a capital-output connection and that exports play a role in supporting capital stock accumulation. Zhanje & Garidzirai (2018), in their study, concluded that the ARDL cointegrating and long-run results indicated that FDI and other control variables, economic growth, and terms of trade are significant and positively related to export performance in Zimbabwe. In his empirical study in Bangladesh, Khan & Sultana (2013) identified whether foreign investment significantly affected the Bangladeshi economy by investigating the

relationship between foreign investment and exports. They analyzed the data needed for the last ten years (2001-2010), the findings show that foreign investment has a significant positive relationship with exports, which helps Bangladesh's economic growth.

Furthermore, Sharma & Kaur (2013) found a unidirectional causal relationship between foreign direct investment and exports in China. He also discovered a different relationship in India, which showed a bidirectional relationship between foreign direct investment and exports. Karimov (2019) also found that investment (FDI) had a positive relationship with Turkey's trade.

**VEC Models**

The relationship between economic variables by modern econometrics often uses the VAR and VEC models. The VAR model usually involves several endogenous variables together. However, each endogenous variable is described by its own lag value, current endogenous, and other lag endogenous variables. Deriving the structural form from the VAR model produces several Autoregressive Distributed Lag (ARDL) models. If the data on all variables used are stationary I (0), use the conventional VAR model. Conversely, if the data on all variables are not stationary I (0) but only stationary I (1), it is recommended to use the Vector Error Correction Model (VEC).

Suppose that in the long-run equilibrium, the relationship between economic variables as a model (1):

$$Y_t = a_0 + a_1 X_t \dots\dots\dots (1)$$

This relationship can also be formed as a model that describes the dynamic behavior between X and Y (model 2). The model is also in the form of an Autoregressive Distributed Lag (ARDL) model.

$$Y_t = b_0 + b_1 Y_{t-1} + c_0 X_t + c_1 X_{t-1} \dots\dots\dots (2)$$

Certain conditions will be determined under which model (2) is consistent with a model (1). The initial step ignores the dynamics and stochastic fluctuations in a model (2), so that

$$Y_t = Y_{t-1} = Y^* \quad \text{dan} \quad X_t = X_{t-1} = X^*$$

which results in changes like the model (3).

$$Y^* = b_0 + b_1 Y^* + c_0 Y^* + c_1 Y^* = \frac{b_0}{1-b_1} + \frac{c_0+c_1}{1-b_1} X^* \dots\dots\dots (3)$$

Model (3) will be consistent with a model (1) if:

$$a_0 = \frac{b_0}{1-b_1} \quad \text{dan} \quad a_1 = \frac{c_0+c_1}{1-b_1} \dots\dots\dots (4)$$

Furthermore, by substituting the relationship (4) in a model (2), by making the simplification, an Error Correction (EC) model is obtained as (5).

$$\Delta Y_t = c_0 \Delta X_t + (1 - b_1)(a_1 + a_1 X_{t-1} - Y_{t-1}) \dots\dots\dots (5)$$

The derivation of the Error Correction (EC) model above adopts what has been done by Engle & Granger (1987), who combine cointegration and error correction models to form a trace error correction model. They explained that if there is a cointegration relationship between economic variables, the error correction model can be derived from the Autoregressive Distributed Lag (ARDL) model or a model in the dynamic form of a system of equations in the form of Vector Autoregressive (VAR). Therefore, the VEC model is a VAR model with cointegration limitations. The VEC model requires a cointegration relationship to explain the long-term relationship

between economic variables, besides explaining dynamic behavior in the short term. The dynamic short-term behavior of endogenous variables will converge towards long-term equilibrium in several periods

The relationship between economic variables can also be presented in vector and matrix form. As Verbeek (2017) assumed  $Q_t = (Q_{1t}, Q_{2t}, \dots, Q_{pt})'$  as p-dimensional stochastic time series,  $t = 1, 2, \dots, T$  and  $Q_t \sim I(1)$ , each  $Q_{pt} \sim I(1)$ ,  $i = 1, 2, \dots, p$  is affected by exogenous time series of q-dimension  $X_t = (X_{1t}, X_{2t}, \dots, X_{qt})'$ ; then the VAR model can be established as follows:

$$Q_t = A_1 Q_{t-1} + A_2 Q_{t-2} + \dots + A_p Q_{t-p} + B X_t + \mu_t, \quad t = 1, 2, 3, \dots, T \quad \dots \dots \dots (6)$$

If  $Q_t$  is not affected by exogenous time series of q dimension  $X_t = (X_{1t}, X_{2t}, \dots, X_{qt})'$ , then the VAR model of formula (6) can be written as follows:

$$Q_t = A_1 Q_{t-1} + A_2 Q_{t-2} + \dots + A_p Q_{t-p} + \mu_t, \quad t = 1, 2, 3, \dots, T \quad \dots \dots \dots (7)$$

With cointegration transformation of formula (7), we can get that

$$\Delta Q_t = \Pi Q_{t-1} + \sum_{i=1}^{p-1} \theta_i \Delta Q_{t-i} + \mu_t \quad \dots \dots \dots (8)$$

where:  $\Pi = \sum_{i=1}^p A_i - I, \quad \theta_i = -\sum_{j=i+1}^p A_j$

If  $Q_t$  has cointegration relationship, then  $\Pi Q_{t-1} \sim I(0)$  and formula (8) can be written as follows:

$$\Delta Q_t = \alpha \beta' Q_{t-1} + \sum_{i=1}^{p-1} \theta_i \Delta Q_{t-i} + \mu_t \quad \dots \dots \dots (9)$$

$\beta' Q_{t-1} = ECM_{t-1}$  is the error-correction term, which reflects long-term equilibrium relationships between variables. The formula (9) can be written as follows:

$$\Delta Q_t = \alpha ECM_{t-1} + \sum_{i=1}^{p-1} \theta_i \Delta Q_{t-i} + \mu_t \quad \dots \dots \dots (10)$$

Formula (10) is the vector error correction model (VECM), in which each equation is an error correction model.

**METHODS**

**Data and variables**

The analysis period uses the data used in the study from 2010Q1 to 2018Q4. Data collected includes the total export value of Jambi (EX), gross fixed capital formation (PMTB), transfer fund allocation (DT) in the Jambi Province budget, and private investment (INV) originating from domestic private investment and foreign direct investment. Data sources were obtained from related institutions, namely BAKEUDA, Jambi Province Bappeda, Jambi Central Statistics Bureau, and other relevant agencies.

**The specification of the econometric model**

The allocation of transfer funds and private investment in Jambi Province from 2001Q1 to 2018Q4 used a more appropriate analysis model to analyze the long-term relationship between export variables and gross domestic capital formation. If the statistical test results show that the data on all variables used in the analysis are only stationary in the first difference I (1), the Vector Error Correction (VEC) model is used. All the variables in the VEC model take the form of a first difference as in the following model:

$$D(\log EX) = \beta_{10} + \sum_1^n \beta_n D(\log PMTB)_{t-n} + \sum_1^n \beta_{2n} D(\log DT)_{t-n} + \sum_1^n \beta_{3n} D(\log INV)_{t-n} + \gamma_1 \{D(\log EX)_{t-1} - \alpha_1 D(\log PMTB)_{t-1} - \alpha_2 D(\log DT)_{t-1} - \alpha_3 D(\log INV)_{t-1}\} + e$$

$$D(\log PMTB) = \beta_{20} + \sum_1^m \beta_m D(\log PMTB)_{t-m} + \sum_1^m \beta_{2m} D(\log DT)_{t-n} + \sum_1^m \beta_{3m} D(\log INV)_{t-m}$$

$$\begin{aligned}
 & + \gamma_2\{D(\log\text{PMTB})_{t-1} - \alpha_1 D(\log\text{EX})_{t-1} - \alpha_2 D(\log\text{DT})_{t-1} - \alpha_3 D(\log\text{INV})_{t-1}\} + e \\
 D(\log\text{DT}) & = \beta_{30} + \sum_1^p \beta_p D(\log\text{PMTB})_{t-p} + \sum_1^p \beta_{2p} D(\log\text{DT})_{t-p} + \sum_1^p \beta_{3p} D(\log\text{INV})_{t-p} \\
 & + \gamma_3\{D(\log\text{DT})_{t-1} - \alpha_1 D(\log\text{EX})_{t-1} - \alpha_2 D(\log\text{PMTB})_{t-1} - \alpha_3 D(\log\text{INV})_{t-1}\} + e \\
 D(\log\text{INV}) & = \beta_{40} + \sum_1^q \beta_q D(\log\text{PMTB})_{t-q} + \sum_1^q \beta_{2q} D(\log\text{DT})_{t-q} + \sum_1^q \beta_{3q} D(\log\text{INV})_{t-q} \\
 & + \gamma_4\{D(\log\text{INV})_{t-1} - \alpha_1 D(\log\text{EX})_{t-1} - \alpha_2 D(\log\text{PMTB})_{t-1} - \alpha_3 D(\log\text{DT})_{t-1}\} + e
 \end{aligned}$$

Where:

D(logEX) = difference in exports (logarithms) between quarters last period.

D(logPMTB) = difference in the gross fixed capital formation (logarithms) between quarters

last period.

D(logDT) = difference in transfer funds (logarithms) between quarters last period.

D(logINV) = difference in private investment (logarithms) between quarter's last period.

$\alpha$  dan  $\beta$  = parameters;  $\gamma$  is adjustment parameter;  $e$  is error terms

## RESULT AND DISCUSSION

### Stationarity test

The commonly accepted ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) unit root tests are adopted to the stationary test of EX, PMTB, DT, and INV series. The test results in Table 1 show that the three sequences' level value is nonstationary. The further test indicates that EX, PMTB, DT, and INV sequences are first-order difference stationary. In order to reduce data fluctuation, a first-order difference is made on the four sequences. Value in brackets in Table 1 is P values. ADF and PP values are less than the significant value of 5%, which indicates that the four sequences are stationary.

**Table 1.** Unit roots test results of variables

Variables	Augmented Dickey-Fuller (ADF) Test	Phillips-Perron (PP) Test
Level		
EX	-1.1166 (0.6982)	-0.7850 (0.8110)
PMTB	-2.6837 (0.2532)	-2.6375 (0.2698)
DT	-3.2862 (0.1001)	-3.1548 (0.1243)
INV	-3.7080 (0.0571)	-1.4363 (0.8108)
First Difference		
EX	-7.0287 (0.0000)	-13.9486 (0.0000)
PMTB	-4.8476 (0.0066)	-4.8425 (0.0067)
DT	-4.2005 (0.0261)	-14.3023 (0.0001)
INV	-3.6519 (0.0167)	-3.6518 (0.0167)

### Estimation of VAR models

The first issue of the VAR model is to determine lag intervals for endogenous. The larger the lag intervals for endogenous is, the more it can entirely reflect the model's dynamic nature. However, in this case, more parameters will be needed to be estimated to reduce the freedom degrees of the model constantly. It is a contradiction in the selection of proper lag intervals for endogenous. Many methods can determine the optimal lag period for the VAR model. In careful consideration of selecting lag intervals for endogenous, this paper adopted lag length criteria and Ar roots graph to determine



lag intervals for endogenous, as shown in Table 2. According to Table 2, after the comparison of lag length criteria, it can be found that the optimal lag order for the VAR model is 6. The VAR (lag period is sixth order) model is established, shown in Appendix 2.

The value of the log-likelihood function for the model is relatively large, and the AIC value is small, indicating that the model's explanatory ability is very strong. After determining the lag order of 6, the VAR (6<sup>th</sup> order) model is reestablished. Then test stationarities of the VAR model and modulus of AR characteristic root reciprocal of VAR model are shown in the circle. That is to say, a lag order of 6 is appropriate, and the established VAR model is stable after going through a stability test.

**Table 2.** Determine lag intervals for endogenous with lag length criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	12.26493	NA	6.65e-06	-0.569995	-0.381402	-0.510930
1	22.82391	17.47694	9.81e-06	-0.194753	0.748210	0.100572
2	30.84835	11.06819	1.82e-05	0.355286	2.052619	0.886869
3	46.43398	17.19793	2.27e-05	0.383864	2.835567	1.151706
4	76.15002	24.59259	1.33e-05	-0.562070	2.644003	0.442032
5	127.5147	28.33911*	2.72e-06	-3.001011	0.959432	-1.760650
6	198.6962	19.63628	4.37e-07*	-6.806633*	-2.091819*	-5.330012*

\* indicates lag order selected by the criterion  
 LR: sequential modified LR test statistic (each test at 5% level)  
 FPE: Final prediction error  
 AIC: Akaike information criterion  
 SC: Schwarz information criterion  
 HQ: Hannan-Quinn information criterion

**Cointegration test**

The key to the cointegration test lies in selecting the proper form of cointegration test and lag order. The cointegration relationship between variables in the VAR model is generally tested with the Johansen (1988) and Juselius (1990) method. Here the selected sequences are linear trend terms, and then the test form of the cointegration equation is “intercept only”.

Table 3 shows the Johansen cointegration test on four variables: EX The test shows that, both in the trace test and the maximum eigenvalue test, statistically accept the null hypothesis. It means that there is a stable and long-term equilibrium relationship between the variables. Based on the cointegration relationship, VEC modeling can be carried out further.

**Table 3.** Results of cointegration test

Hypothesized No. of CE(s)	Unrestricted Cointegration Rank Test (Trace)			
	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.991949	198.8956	47.85613	0.0000
At most 1 *	0.790497	59.05919	29.79707	0.0000
At most 2	0.242722	13.73163	15.49471	0.0906
At most 3 *	0.177560	5.668913	3.841466	0.0173
Hypothesized No. of CE(s)	Unrestricted Cointegration Rank Test (Maximum Eigenvalue)			
	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.991949	139.8364	27.58434	0.0000
At most 1 *	0.790497	45.32756	21.13162	0.0000
At most 2	0.242722	8.062719	14.26460	0.3724
At most 3 *	0.177560	5.668913	3.841466	0.0173

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level  
 Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level  
 \* denotes rejection of the hypothesis at the 0.05 level \*\*MacKinnon-Haug-Michelis (1999) p-values

**VECM estimation and analysis**

The VEC model's estimation results The adjustment coefficient of 0.69 shows that exports (EX) are in a condition of short-run imbalance but experience dynamics towards long-run equilibrium relationships in some periods with other variables.

The short-term imbalance and dynamic structure can be expressed as VECM. Since the lag order of VAR is 6, VECM's lag order should be 3. The estimated results of the VECM model are the first equation treated as the cointegration equation of the VEC model. The equation's results are shown in Table 4. The cointegration equation is  $\log EX(-1) = -0.1399 + 5.1971 * \log PMTB(-1) + 1.4565 * \log DT(-1) + 0.1442 * \log INV(-1)$

**Table 4.** Results of cointegration equations

Variables	Coefficients
logEKSPOR (-1)	1,0000
logPMTB (-1)	5.1971 (5.3087)
logDT (-1)	1.4565 (1.4544)
logINV (-1)	0.1442 (0.9122)
C	-0.1399

From this equation, it can be seen that other things being equal, an increase in PMTB will increase exports by 5.19 percent. Likewise, an increase in the allocation of transfer funds by one percent will increase exports by 1.45 percent. The investment response also points in the same direction that a one percent increase in INV will increase exports by 0.14 percent.

The VEC model analysis results found a short-term and long-term relationship between Jambi exports with gross domestic capital formation, allocation of transfer funds, and private investment. In the short term, there is a disequilibrium relationship, and that becomes a long-term balance. Only 69 percent of export changes can be determined in the current period, and the rest is determined in other periods. Likewise, in the gross domestic capital formation, only 38 percent can be determined in the current period, and the rest is determined in other periods. Vector error correction model (VECM) is as follows:

$$\begin{bmatrix} \Delta \log EKSPOR_t \\ \Delta \log PMTB_t \\ \Delta \log DT_t \\ \Delta INV_t \end{bmatrix} = \begin{bmatrix} -0,0304 \\ -0,0128 \\ -0,0012 \\ -0,0057 \end{bmatrix} + \begin{bmatrix} -0.3241 & 0.2312 & -0.1157 & 0.0695 \\ 3.0831 & 0.6490 & 0.0806 & 0.3374 \\ 1.7489 & 0.5767 & -1.0233 & 0.2288 \\ 0.1214 & 0.0439 & -0.0236 & -0.7600 \end{bmatrix} \begin{bmatrix} \Delta \log EKSPOR_{t-1} \\ \Delta \log PMTB_{t-1} \\ \Delta \log DT_{t-1} \\ \Delta INV_{t-1} \end{bmatrix}$$

$$+ \begin{bmatrix} -0.0493 & 0.1958 & -0.0964 & 0.1448 \\ 2.7728 & 0.2829 & 0.1190 & 0.2131 \\ 2.8159 & 0.9148 & -0.7699 & 0.5870 \\ 0.0778 & 0.0600 & -0.0332 & -0.5110 \end{bmatrix} \begin{bmatrix} \Delta \log EKSPOR_{t-2} \\ \Delta \log PMTB_{t-2} \\ \Delta \log DT_{t-2} \\ \Delta INV_{t-2} \end{bmatrix}$$

$$+ \begin{bmatrix} 0.2063 & 0.0997 & -0.0514 & 0.1944 \\ 1.3325 & -0.1953 & 0.2038 & -0.0922 \\ 1.8327 & 0.8505 & -0.4446 & 0.3433 \\ 0.0830 & 0.0668 & -0.0487 & -0.3008 \end{bmatrix} \begin{bmatrix} \Delta \log EKSPOR_{t-3} \\ \Delta \log PMTB_{t-3} \\ \Delta \log DT_{t-3} \\ \Delta INV_{t-3} \end{bmatrix}$$

The data in Appendix 3 show that the fitting degree of VEC model  $R^2 > 0.5$ , and AIC and SC criteria values are relatively small, indicating the model estimation's reasonability. Zero average lines represent a stable and long-term equilibrium relationship among variables. There was a large fluctuation at the end of 2014, which shows that the short-term fluctuation significantly deviated from the long-term

equilibrium relationship. The effect of short-term fluctuations is the sharp decline in exports of Jambi Province caused by the sharp decline in the price of natural rubber starting in 2014, shown in Figure 1.

Furthermore, the long-term relationship between EX and PMTB, DT, and INV in Jambi Province is still in line with economic theory thinking. Increasing infrastructure stocks financed by public and private investment and increasing education and health financing from local government expenditures, especially transfer funds, are important in achieving regional development goals. The increase in infrastructure stocks and human resources quality have been linked directly or indirectly to the increase in Jambi Province exports in the long term.

The relationship between exports and investment, especially in infrastructure, is also shown by Sorianoa & Garridoa (2015). They tested the hypothesis of whether a public-private investment in infrastructure had a positive impact on agricultural exports, using a panel data approach covering 52 developing countries from 1995 to 2011. One of the conclusions in their article states that public-private investment in infrastructure has contributed positively to increased agricultural exports in developing countries. There is a positive and significant relationship between public-private investment in infrastructure and agricultural trade.

An increase in public investment under certain conditions can promote the increasing number of private investments by domestic and foreign investors. Jambi Province has advantages in the abundance of natural resources, especially land. In the span of the analysis period, it shows that Jambi's export products are dominated by natural resource content. Therefore, more private investors invest in utilizing these natural resources, such as plantations, forestry, and mining. The previous VEC model estimates provide empirical evidence that there is a link between private investment and increased exports in the long run.

The positive relationship between private (domestic) investment and government spending and foreign direct investment (FDI) is shown in previous studies. Choong et al. (2015) investigate the linkages between private investment, government investment, foreign investment (FDI), and Malaysia's economic growth. Based on the cointegration test, the results reveal a single cointegrating vector in the system. It implies that private investment, government spending, FDI, economic growth, and interest rate move together to achieve their steady-state long-run relationship. Besides, they find that both government spending and FDI have a positive effect on private investment and these two types of investments are "crowd in" private investments in the long run and the short run.

Previous empirical facts also show a positive relationship between private investment, especially foreign direct investment (FDI), and export performance in several countries. Khan & Sultana (2013) identified whether foreign investment significantly affected the Bangladeshi economy by investigating the relationship between foreign investment and exports. They analyzed the data needed for the last 10 years (2001-2010), the findings show that foreign investment has a significant positive relationship with exports, which helps Bangladesh's economic growth.

A study by Mukhtarov et al. (2019) investigates the impact of investment (FDI) on exports in the case of Jordan, employing Autoregressive Distributed Lag Bounds Testing (ARDL BT) cointegration approach to the data ranging from 1980 to 2018. The results indicate that there is a long-run relationship among the variables. Also, we find a positive and statistically significant impact of FDI on export in the long-run. The estimation results indicate that a 1% increase in FDI increases exports by 0.13%.

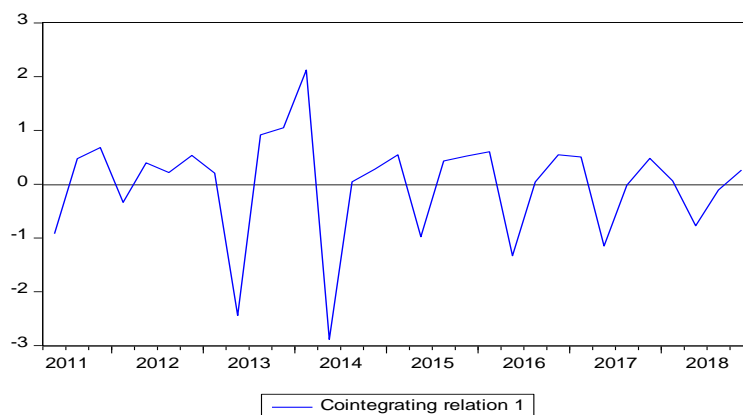
In contrast, the study results by Jana et al. (2020) encourage new empirical evidence on how FDI is relevant to the growth of foreign trade in India using an autoregressive vector specification. The Johansen's cointegration test documents a

significant and positive long-run co-movement between FDI and foreign trade in India. The vector error correction model suggests a unidirectional long-run causality from foreign trade to FDI. However, the Granger causality test confirms a bidirectional short-run causal relationship between these variables. Further, the variance decomposition analysis approves a strong exogeneity of foreign trade. Again, the impulse response function analysis reveals that the responses generated from a positive shock of foreign trade to FDI and vice versa are small and initially negative and, after that, remain persistently positive at a constant level. The study finally concludes that the absence of long-run causality from FDI to export results from foreign investors' domestic market orientation and less emphasis on India's export-oriented sectors.

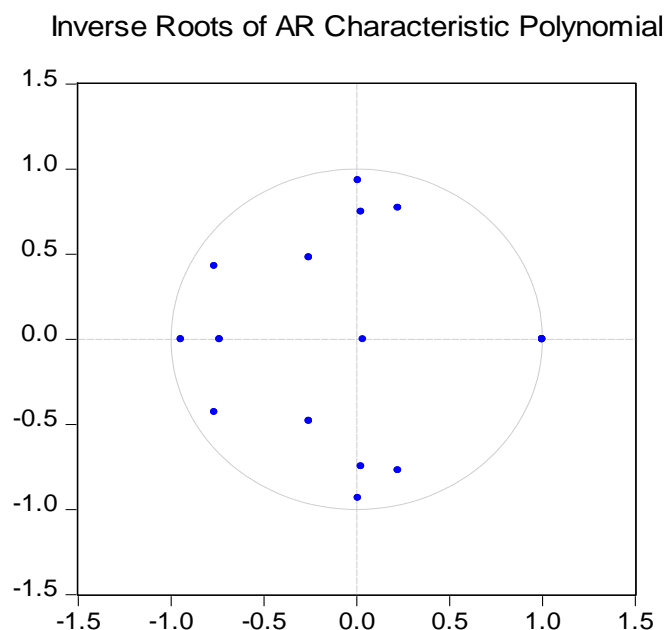
**VECM stability test**

Figure 4 shows The root of 6 residual stability test results in 1, and the root of other residual stability test results in less than 1. So the VECM model satisfies the stability condition.

Testing autocorrelation to residuals shows the majority of there is no specific relationship patterns shown in Figure 3. Thus it can be concluded that, at the same time, it does not have autocorrelation. On the whole, the VECM model has good effects.



**Figure 3.** Cointegration relationship graph



**Figure 4.** Residual stability test of ECM model

### Impulse response function

Further analysis is made through impulse response function and variance decomposition based on VECM. It aims to analyze the model's dynamic effects responding to certain shocks and how the effects are among the four variables.

According to Figure 5, the positive export shock has a large impact. Exports fell rapidly after the shock, reached the lowest point in the second period, then rose slowly, reaching a peak in the fourth to sixth period, then dropped again in the seventh period. After that, it goes up to the eighth period to a stable level. It shows that positive export shocks significantly affect their improvement and have relatively long effectiveness towards a stable level.

Figure 5 shows the impulse response function of export changes caused by the shock of gross fixed capital formation. The positive shock of one standard deviation of gross fixed capital formation reduces exports relatively sharply to the lowest point in the fourth period. Then it rises sharply again until the sixth period, after which it falls again until the ninth period. Furthermore, exports rose again until the eleventh period and towards a stable level.

Gross fixed capital formation shocks significantly affect Jambi export fluctuations and require a long enough period to reach a stable level. Most of Jambi's export commodities come from the natural resource-based economic sector. Therefore it is necessary to adjust the capital stock level to increase production and exports.

Figure 5 shows the impulse response function of export changes caused by shocks to allocating transfer funds. The positive shock of one standard deviation of transfer fund allocation has increased exports in the initial period but has declined sharply until the fifth period. Exports sharply increased until the sixth period, and after that, exports headed to a stable level condition.

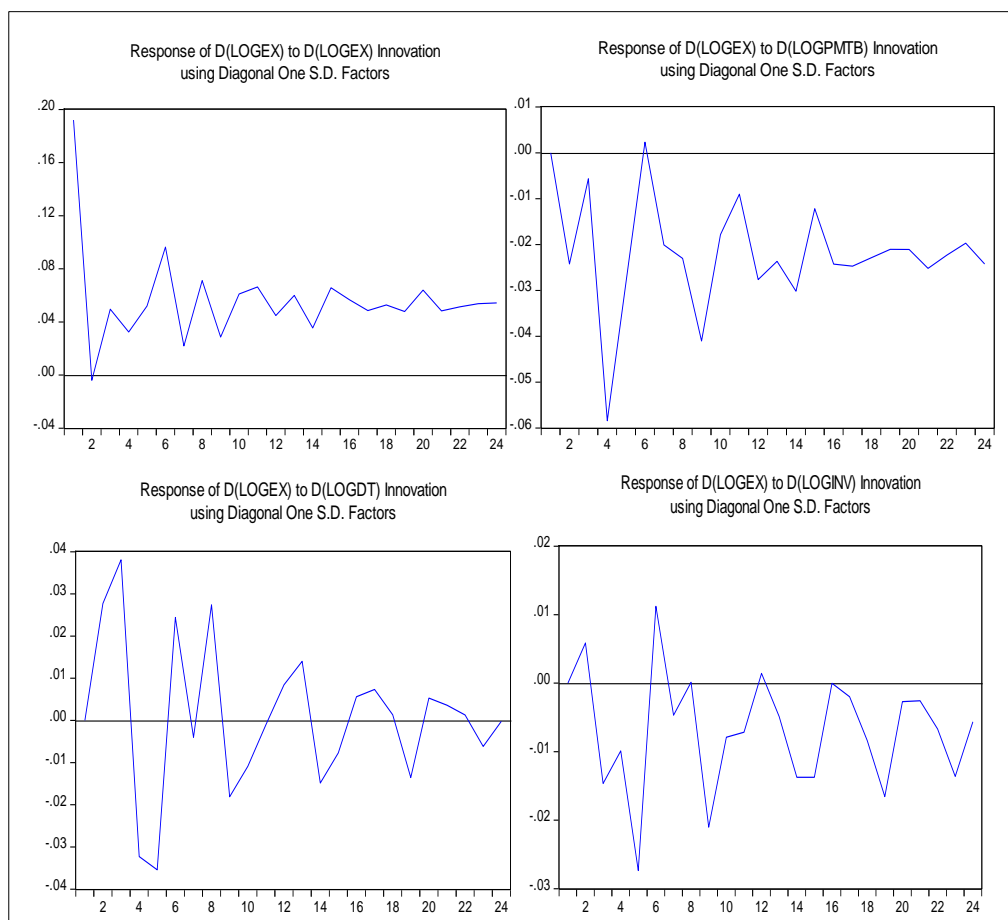


Figure 5. Impulse response to innovations

The transfer fund allocation shock significantly affects Jambi export fluctuations and requires a period fast enough to reach a level of stability. Some of the transfer fund allocations are used to finance the construction of economic infrastructure that takes one to one and a half years (range of the government budget) to be used for economic activities. Whereas the allocation of transfer funds through education and health investment is likely to impact economic activities, especially in the export sector, requiring a longer period.

Figure 5 shows the impulse response function of export changes caused by private investment shocks. Private investment is a combination of domestic private investment and foreign investment. The positive shock of one standard deviation gives the effect of reducing exports relatively sharply to the lowest point in the fifth period. After that, it goes down again until the seventh period. It experienced a relatively weak increase until the eighth period, and subsequently, exports returned to stable levels.

Private investment shocks significantly affect Jambi export (fluctuations and require a long time to reach a stable level. The dominance of Jambi's export commodities in natural rubber, crude palm oil, pulp and paper, coffee beans, and coal. It all comes from natural resource-based economic sectors, which need a longer period to adjust capital stock levels to increase production and exports.

### Variance decomposition

The impulse response function is adopted to reflect the shock effect of a system on an internal variable. Variance decomposition refers to the decomposition of mean square error into each variable's contributions. Variance decomposition can be applied to analyze each variable's influence on other variables (Figure 6).

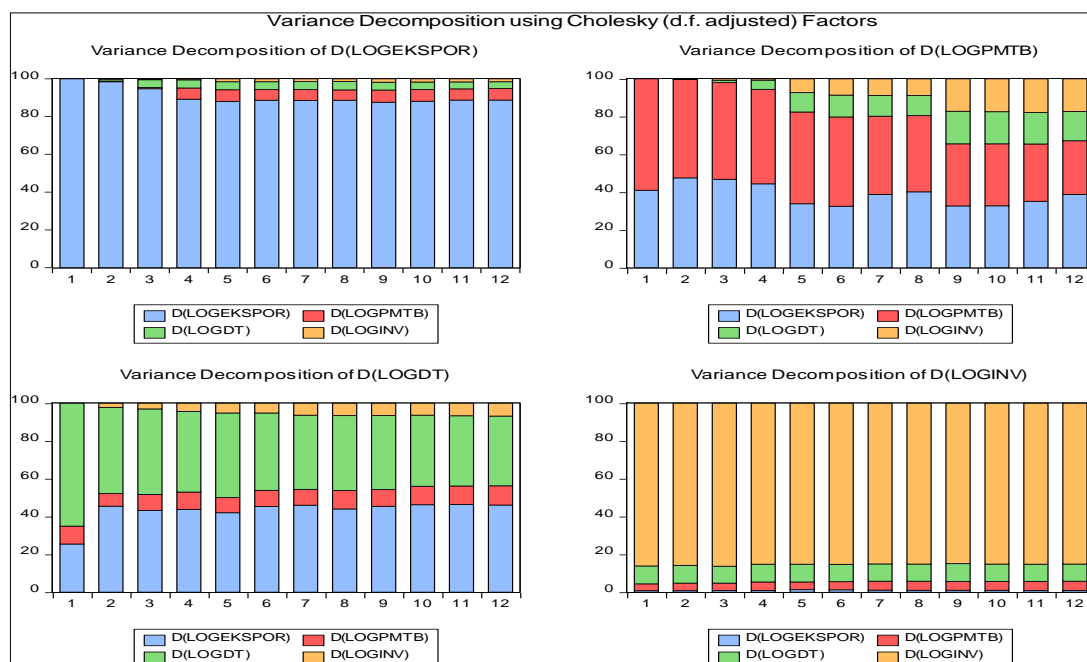


Figure 6. Variance decomposition of the variables

Figure 6 is the predicted export variant. The contribution of exports gradually declined from the third period, reaching 88% from the fourth to the twelfth. Jambi is a producer and exporter of natural resource commodities abundant in the trade-in industrial raw materials. The possibility of patron-client relationships in business

activities, trade contracts, and supply chain continuity plays an important role in explaining the analysis results.

The contribution of exports will determine the gross fixed capital formation. Business entities use a portion of the export value to reinvest in adjusting the desired stock of capital. The contribution of exports to the gross domestic capital formation has remained stable from period to period. Gross fixed capital formation is also influenced by itself, but its contribution tends to decrease slowly.

Furthermore, private investment dominates total investment in Jambi. The relative level of contribution is around 85 percent from period to period. The implication of this analysis results is the importance of creating a conducive and attractive investment climate for investors to decide on investments in business activities in Jambi.

Several factors related to creating a conducive and attractive investment climate need to be considered, such as the adequacy of various infrastructures, simplification of regulations, skilled labor, good public services, information on investment opportunities, and security stability. It can be stated that the gross domestic capital formation has a great influence on export. In the long run, the influence is leveling off. As presented in the model, the export is related to the lag period's current variables and the variables.

## **CONCLUSIONS AND RECOMMENDATION**

### **Conclusion**

This article sets out a model of the relationship between exports, gross domestic capital formation, allocation of transfer funds, and private investment in Jambi Province. The results show that, both in the short and long term, the gross domestic capital formation, allocation of transfer funds, and private investment can explain changes in Jambi exports. The gross domestic capital formation strongly influences Jambi's export fluctuations compared to other variables. We know that the stock of fixed capital in the economy in the province of Jambi is influenced by private investment and local government investment.

There is a short-term and long-term relationship between Jambi exports with the establishment of gross domestic capital formation, allocation of transfer funds, and private investment. There is a disequilibrium relationship in the short term, and it becomes equilibrium in the long run. Only 69 percent of export changes can be determined in the current period, and the rest is determined in other periods. Likewise, in the gross domestic capital formation, only 38 percent can be determined in the current period, and the rest is determined in other periods.

The impact of export shocks has a large impact on itself. The shock has a very significant impact and has relatively long effectiveness towards a stable level. Furthermore, as an impulse response function, changes in Jambi exports can be caused by shocks to gross fixed capital formation. The shock of gross fixed capital formation had a negative effect on Jambi's exports in the initial period, after which it increased and turned to a stable level. The shock of the gross domestic capital formation requires a long period to reach a level of stability.

### **Recommendation**

The economy of Jambi Province is supported by exports, especially agricultural commodities, processed agricultural and forestry products, and coal mining. The increase in exports in 2010 - 2018 has provided employment and business for the community and a share of local taxes. Empirical evidence provides information on a

strong relationship with the role of gross fixed capital formation on Jambi's exports. There is also a strong relationship between private investment and transfer funds on gross fixed capital formation.

Efforts to achieve the Jambi economy's sustainability, especially exports, require increasing export growth due to encouraging investment (investment-led exports). This achievement is suggested to the Jambi local government to carry out a regional investment promotion program for potential domestic investors and foreign investors. In the context of a significant increase in investment, it is necessary to prepare local governments to provide adequate infrastructure (public investment) and effective communication about the potential of natural resources and a more conducive socio-cultural security condition for investors. Besides, harmonious interaction between Jambi local government (including local communities) and investors is the key to attracting more investment.

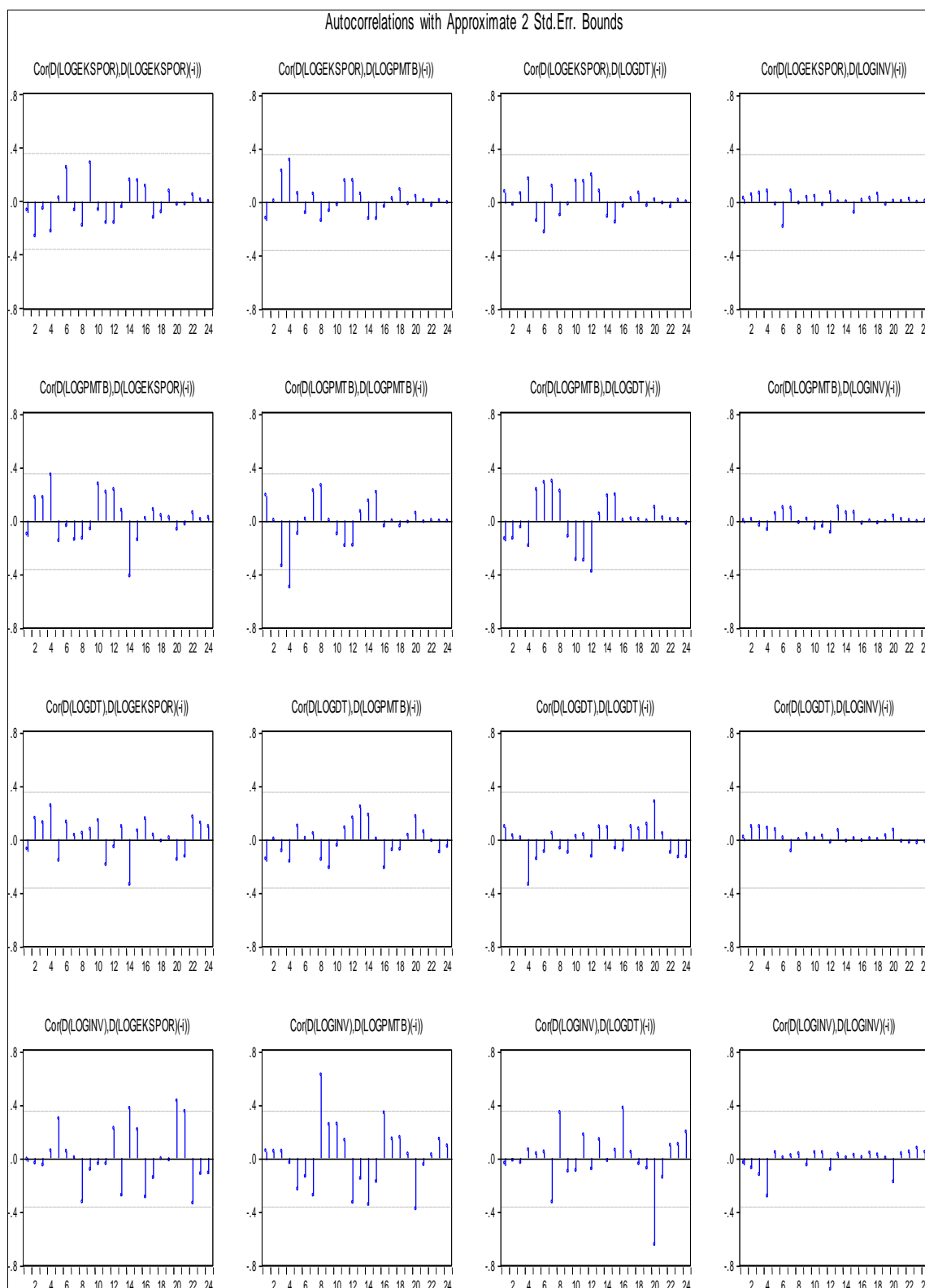
## REFERENCES

- Abdullah, S. & Halim, A. (2003). Pengaruh Dana Alokasi Umum (DAU) dan Pendapatan Asli Daerah (PAD) Terhadap Belanja Pemerintah Daerah: studi Kasus Kabupaten/Kota Di Jawa dan Bali, *Proceeding Simposium Nasional Akuntansi VI*, 16-17 October 2003, Surabaya.
- BPS Jambi. (2020a). *Statistik ekspor Jambi*. Available at: [www.bps.jambi](http://www.bps.jambi)
- BPS Jambi. (2020b). *Statistik investasi Jambi*. Available at: [www.bps.jambi](http://www.bps.jambi).
- BPS Jambi. (2020c). *Anggaran Pemerintah dan Belanja Daerah (APBD) Jambi*. Available at: [www.bps.jambi](http://www.bps.jambi).
- Choong, C. K., Law, S. H & Pek, C. K. (2015). The Linkages between Private and Public Investments in Malaysia: The Role of Foreign Direct Investment. *International Journal of Economics and Management*, 9(1), 139-153
- Engle & Granger (1987). Co-Integration and Error Correction: Representation, Estimation and Testing. *Econometrica*, 55(2), 251-276
- Feddersen. M, Nel. H, & Botha. F. (2017). Exports, capital formation and economic growth in South Africa. *African Review of Economics and Finance*, 9(1), 213-244
- Gjini. A. & Kukeli. A. (2012). Crowding-out effect of public investment on private investment: an empirical investigation. *Journal of Business & Economics Research*, 10(5), 269-276
- Hatano. T. (2010). Crowding-in effect of public investment on private investment. *Public Policy Review*, 6(1), 105-120
- Jana, S.S., Sahu, T.N., & Pandey, K.D. (2020). How far is FDI relevant to India's foreign trade growth? An empirical investigation. *Journal of Economic Structures*, 9, 1-19
- Khan, A & Sultana, M. (2013). Impact of Foreign Direct Investment on the Exports: Bangladesh Perspective, *Jagannath University Journal of Business Studies*, 3(2), 55-68
- Karimov. M. (2019). The Impact of Foreign Direct Investment on Trade (Export and Import) in Turkey. *European Journal of Interdisciplinary Studies*. 5(1), 6-17
- Mallick. J. (2016). Effects of government investment shocks on private investment and income in India. Indian Council for Research on International Economic Relation (ICRIER). *Working Paper*, No. 315



- Mukhtarov, S., Mustafa, M., A., Ibadov, E & Huseynli, A. (2019). The impact of foreign direct investment on exports in Jordan: An empirical analysis. *Journal of International Studies*, 12(3), 38-47
- Nguyen.T.C & Trinh. L.T. (2018). The impacts of public investment on private investment and economic growth: Evidence from Vietnam. *Journal of Asian Business and Economic Studies*, 25(1), 15-32
- Rajni, P. (2013). Linkages between Export, Import and Capital Formation in India. *International Research Journal of Social Sciences*, 2(3), 16-19
- Sharma. R & Kaur. M. (2013). Causal Links between Foreign Direct Investments and Trade: A Comparative Study of India and China. *Eurasian Journal of Business and Economics*, 6(11), 75-91
- Sorianoa, B & Garrido, A. (2015). The role of private sector in development: The relation between public-private investment in infrastructure and agricultural exports in developing countries. *Economía Agraria y Recursos Naturales*, 15(2), 93-117
- Verbeek, M. (2017). *A guide to modern econometrics. 5th edition*, John Wiley & Sons.
- Zhanje. S & Garidzirai. R. (2018). Export Performance and Foreign Direct Investment in Zimbabwe: An ARDL Approach. *The 3rd Annual International Conference on Public Administration and Development Alternatives* (04 -06 July 2018), Stellenbosch University, Saldahna Bay, South Africa

**Appendix 1. VECM autocorrelation diagram**



**Appendix 2.** Estimation results the VAR model

	D(LOGEKSPORT)	D(LOGPMTB)	D(LOGDT)	D(LOGINV)
D(LOGEKSPOR(-1))	-0.985308 (0.38773) [-2.54124]	-0.009298 (0.05867) [-0.15849]	-0.032525 (0.07958) [-0.40873]	0.578507 (1.09979) [ 0.52602]
D(LOGEKSPOR(-2))	-1.100396 (0.55040) [-1.99927]	0.182917 (0.08328) [ 2.19639]	0.196156 (0.11296) [ 1.73649]	0.976243 (1.56121) [ 0.62531]
D(LOGEKSPOR(-3))	-0.623262 (0.34747) [-1.79371]	0.042935 (0.05258) [ 0.81664]	0.139694 (0.07131) [ 1.95887]	0.445921 (0.98560) [ 0.45243]
D(LOGEKSPOR(-4))	-0.356863 (0.45892) [-0.77761]	-0.169702 (0.06944) [-2.44389]	-0.067678 (0.09419) [-0.71855]	0.183382 (1.30173) [ 0.14088]
D(LOGEKSPOR(-5))	-0.206234 (0.50055) [-0.41202]	-0.094061 (0.07574) [-1.24193]	-0.150518 (0.10273) [-1.46517]	0.934813 (1.41981) [ 0.65841]
D(LOGEKSPOR(-6))	-0.678223 (0.50599) [-1.34040]	0.255748 (0.07656) [ 3.34047]	0.240832 (0.10385) [ 2.31912]	0.866799 (1.43523) [ 0.60394]
D(LOGPMTB(-1))	1.886578 (4.02450) [ 0.46877]	-1.989665 (0.60895) [-3.26739]	-2.180395 (0.82597) [-2.63980]	1.640227 (11.4155) [ 0.14368]
D(LOGPMTB(-2))	-3.250732 (2.25121) [-1.44399]	0.696506 (0.34063) [ 2.04475]	1.040747 (0.46203) [ 2.25255]	2.079601 (6.38559) [ 0.32567]
D(LOGPMTB(-3))	-0.893775 (1.84612) [-0.48414]	-1.342027 (0.27934) [-4.80435]	-0.683393 (0.37889) [-1.80367]	1.467093 (5.23653) [ 0.28017]
D(LOGPMTB(-4))	-0.792306 (2.27445) [-0.34835]	-0.855196 (0.34415) [-2.48497]	-1.270325 (0.46680) [-2.72135]	2.693582 (6.45151) [ 0.41751]
D(LOGPMTB(-5))	-3.637424 (2.82232) [-1.28881]	0.932429 (0.42705) [ 2.18344]	1.419795 (0.57924) [ 2.45113]	2.195047 (8.00554) [ 0.27419]
D(LOGPMTB(-6))	1.216724 (2.41018) [ 0.50483]	-1.280992 (0.36468) [-3.51260]	-1.110764 (0.49466) [-2.24553]	0.513150 (6.83650) [ 0.07506]
D(LOGDT(-1))	-3.136239 (4.41071) [-0.71105]	1.693243 (0.66738) [ 2.53713]	2.042697 (0.90523) [ 2.25654]	0.443614 (12.5110) [ 0.03546]
D(LOGDT(-2))	2.979013 (2.75085) [ 1.08294]	-0.910895 (0.41623) [-2.18843]	-1.090609 (0.56457) [-1.93174]	-0.485885 (7.80283) [-0.06227]
D(LOGDT(-3))	-0.495640 (1.91918) [-0.25826]	0.562535 (0.29039) [ 1.93716]	0.779397 (0.39388) [ 1.97874]	-2.450129 (5.44377) [-0.45008]
D(LOGDT(-4))	0.351202 (1.83178) [ 0.19173]	-1.436071 (0.27717) [-5.18127]	-0.554544 (0.37595) [-1.47506]	-0.502857 (5.19585) [-0.09678]
D(LOGDT(-5))	0.227284 (3.63914) [ 0.06246]	-0.743403 (0.55064) [-1.35007]	-1.904535 (0.74688) [-2.54998]	3.957772 (10.3225) [ 0.38341]
D(LOGDT(-6))	-7.395859 (5.81953) [-1.27087]	3.312388 (0.88055) [ 3.76171]	3.103022 (1.19438) [ 2.59803]	2.179236 (16.5072) [ 0.13202]
D(LOGINV(-1))	0.079647 (0.17242) [ 0.46195]	0.008845 (0.02609) [ 0.33903]	-0.001832 (0.03539) [-0.05178]	-0.068624 (0.48906) [-0.14032]

	D(LOGEKSPORT)	D(LOGPMTB)	D(LOGDT)	D(LOGINV)
D(LOGINV(-2))	0.000324 (0.17152) [ 0.00189]	0.041854 (0.02595) [ 1.61265]	0.021891 (0.03520) [ 0.62186]	-0.058180 (0.48653) [-0.11958]
D(LOGINV(-3))	0.093702 (0.19218) [ 0.48757]	0.042419 (0.02908) [ 1.45874]	0.035027 (0.03944) [ 0.88804]	-0.221022 (0.54513) [-0.40545]
D(LOGINV(-4))	0.088644 (0.17339) [ 0.51123]	-0.075624 (0.02624) [-2.88246]	0.052469 (0.03559) [ 1.47440]	-0.079097 (0.49183) [-0.16082]
D(LOGINV(-5))	0.436570 (0.56134) [ 0.77773]	-0.195121 (0.08494) [-2.29727]	-0.289847 (0.11521) [-2.51589]	0.055877 (1.59224) [ 0.03509]
D(LOGINV(-6))	-0.544288 (0.52529) [-1.03617]	0.288719 (0.07948) [ 3.63254]	0.265203 (0.10781) [ 2.45996]	0.022332 (1.48998) [ 0.01499]
C	0.587772 (0.24067) [ 2.44222]	-0.037625 (0.03642) [-1.03319]	-0.031697 (0.04939) [-0.64172]	-0.547738 (0.68267) [-0.80235]

**Appendix 3.** VECM estimation results and test

Error Correction:	D(LOGEKSPORT)	D(LOGPMTB)	D(LOGDT)	(LOGINV)
CointEq1	-0.696445 (0.47395) [-1.46945]	-0.382134 (0.11157) [-3.42507]	-0.015616 (0.09323) [-0.16749]	-0.123598 (0.69206) [-0.17859]
D(LOGEKSPOR(-1))	-0.324122 (0.48382) [-0.66992]	0.231197 (0.11389) [ 2.02994]	-0.115744 (0.09518) [-1.21610]	0.069554 (0.70648) [ 0.09845]
D(LOGEKSPOR(-2))	-0.049311 (0.46485) [-0.10608]	0.195846 (0.10943) [ 1.78972]	-0.096397 (0.09144) [-1.05416]	0.144841 (0.67878) [ 0.21338]
D(LOGEKSPOR(-3))	0.206376 (0.30826) [ 0.66948]	0.099760 (0.07257) [ 1.37473]	-0.051434 (0.06064) [-0.84818]	0.194406 (0.45013) [ 0.43189]
D(LOGPMTB(-1))	3.083097 (1.89274) [ 1.62890]	0.649021 (0.44556) [ 1.45664]	0.080669 (0.37234) [ 0.21666]	0.337429 (2.76381) [ 0.12209]
D(LOGPMTB(-2))	2.772846 (1.32861) [ 2.08703]	0.282951 (0.31276) [ 0.90469]	0.118981 (0.26136) [ 0.45524]	0.213134 (1.94005) [ 0.10986]
D(LOGPMTB(-3))	1.332545 (0.69207) [ 1.92545]	-0.195397 (0.16292) [-1.19937]	0.203877 (0.13614) [ 1.49754]	-0.092263 (1.01056) [-0.09130]
D(LOGDT(-1))	1.748905 (1.27548) [ 1.37118]	0.576685 (0.30025) [ 1.92066]	-1.023341 (0.25091) [-4.07854]	0.228866 (1.86246) [ 0.12288]
D(LOGDT(-2))	2.815917 (1.39715) [ 2.01547]	0.914808 (0.32890) [ 2.78145]	-0.769932 (0.27484) [-2.80134]	0.587077 (2.04013) [ 0.28776]
D(LOGDT(-3))	1.832729 (0.92637) [ 1.97840]	0.850573 (0.21807) [ 3.90043]	-0.444608 (0.18223) [-2.43978]	0.343312 (1.35269) [ 0.25380]
D(LOGINV(-1))	0.121391 (0.17074) [ 0.71097]	0.043939 (0.04019) [ 1.09318]	-0.023588 (0.03359) [-0.70228]	-0.760070 (0.24932) [-3.04859]
D(LOGINV(-2))	0.077881 (0.19098) [ 0.40780]	0.060083 (0.04496) [ 1.33644]	-0.033249 (0.03757) [-0.88502]	-0.511029 (0.27887) [-1.83250]
D(LOGINV(-3))	0.083070 (0.16110) [ 0.51565]	0.066823 (0.03792) [ 1.76207]	-0.048690 (0.03169) [-1.53642]	-0.300851 (0.23524) [-1.27893]
C	-0.030409 (0.11133) [-0.27314]	-0.012845 (0.02621) [-0.49013]	-0.001197 (0.02190) [-0.05466]	-0.005720 (0.16256) [-0.03519]
DUMMYOIL	0.104604 (0.18607) [ 0.56216]	0.054922 (0.04380) [ 1.25386]	-0.007966 (0.03660) [-0.21763]	-0.008081 (0.27171) [-0.02974]
R-s quared	0.653980	0.930790	0.773408	0.435245
Log likelihood	66.90616			
Akaike information criterion	-0.187494			
Schwarz criterion	2.772995			
Number of coefficients	64			



© 2021 by the authors. Licensee JPPD, Indonesia. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).

### **Author Guidelines**

1. Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is published six times a year.
2. The manuscript is the original work that has not been published or considers to be published in other publications.
3. The manuscript may be the result of research, literature/theoretical study, methodological review, original critical ideas, hot issues/development issues, hot issues/development issues, reviews of seminars, or book reviews.
4. The manuscripts are arranged in English, accompanied by abstracts in English and Indonesian (if any). For more detailed information and journal templates can be accessed <https://online-journal.unja.ac.id/index.php/JES/author-guidelines>
5. The manuscript should be submitted through our online submission system at <https://online-journal.unja.ac.id/JES>. Registration and login are required to submit items online and to check the status of current submissions.

Jurnal Perspektif Pembiayaan dan Pembangunan Daerah (The Journal of Perspectives on Financing and Regional Development) is indexed and abstracted in the following databases/resources:

- Google-Scholar
- DOAJ-Directory of Open Access Journals
- EBSCO Open Science Directory
- Crossref
- IPI-Indonesian Publication Index
- Mendeley
- Microsoft Academic Search
- OpenAire
- MIAR
- OAJI-Open Academic Journal Index
- Moraref
- Princeton University Library
- Universiteit Leiden
- University of Oxford
- Harvard Library
- The University of Sheffield
- University of Saskatchewan-University Library
- Capilano University Library
- State Library New South Wales
- Vrije Universiteit Brussel (VUB)
- UNSW Australia Library
- Merchyhurst University
- University of Illinois at Chicago (UIC) Library
- Universitat Kasse
- State Library of Victoria
- Simon Fraser University Library Electronic Journals
- BJMU
- Library & Learning Center
- Aberystwyth University
- City University of London
- University of Edinburgh
- University of Glasgow
- University of Hull
- Imperial College London
- University of Manchester
- Open University
- University of York
- London's Global University
- Trinity College
- University of Alberta
- University Library
- BASE (Bielefeld Academic Search Engine)
- CiteFactor
- Open Access Library (OALIB)
- Scholarsteer
- JournalTocs
- Worldcat
- CORE
- Research Bible
- Academickeys
- Citeulike
- JOURLIB
- Global Impact Factor
- Jifactor
- General Impact Factor
- e-Journal Portal BKS PTN Wilayah Barat
- Cosmos Impact Factor
- OneSearch
- International Innovative Journal Impact Factor (IIJIF)
- Journal Factor
- Directory of Research Journal Index
- Eurasian Scientific Journal Index (ESJI)
- National Library of Australia

