

Consortium for International Management, Policy, and Development (CIMPAD)

in partnership with

Malawi University of Science and Technology (MUST)

TECHNOLOGY & INNOVATION

FOR SUSTAINABLE INTERNATIONAL DEVELOPMENT & POLICY



12th International Conference

July 17-20th, 2022

Amaryllis Hotel

Blantyre, Malawi, Africa

Educational Tours

July 21-24th, 2022

Malawi, Africa

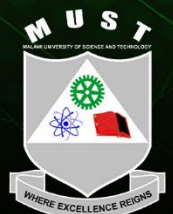


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Technology and Innovation for Sustainable International Development and Policy

Consortium for International Management, Policy, and Development (CIMPAD)

12th International Conference Program

Blantyre, Malawi

July 17 – 20, 2022

Educational Tours: July 21 – 24, 2022

NOTE: Conference consist of

On-Site Sessions
(8:30a.m. – 2:00p.m. Mon – Wed)

Virtual Workshops Mon & Tue
(2:00p.m. – 4:15p.m.)

Bonus Workshops After Hours &
All Accessible via the Internet

All times are Malawi time and sessions are taped for viewing at viewer convenience.

All sessions at Amaryllis Hotel, Blantyre, Malawi, unless noted otherwise.

Day	Time	Session	Speaker
Sunday July 17	7:00p.m.	Welcome Reception VENUE: Amaryllis Hotel	MUST, Malawi & CIMPAD Representatives
Monday July 18	8:30a.m. – 10:30a.m.	REGISTRATION	
MC: Game Bandawe, Ph.D. MUST			
Monday July 18	9:00a.m. – 9:05a.m.	Welcome Remarks and Introduction of Guests	Bertha Chikadza, Ph.D. Chair, MUST Local Organizing Committee
	9:10a.m. - 9:20a.m.	Musical Renditions: Malawi and USA National Anthems Artistic Performance	MUST Orchestra
	9:20a.m. - 9:25a.m.	Introduction of CIMPAD President, Professor Peggy Valentine	Gama Bandawe, Ph.D. MUST
	9:25a.m. – 9:35a.m.	Welcome & Greetings from CIMPAD President	Peggy Valentine, Ed.D. Vice President of Allied Health Education Vanderbilt University Medical Center, US
	9:40a.m. - 9:50a.m.	The CIMPAD Story & Significance of Conference to CIMPAD & USA	Harvey White, Ph.D. CIMPAD Founder; School of Public Policy and Administration University of Delaware, US

Monday July 18	9:50a.m. – 10:15a.m.	Health Break	Gama Bandawe, Ph.D. MUST
	10:15a.m. – 10:20a.m.	Introduction of Keynote Speaker	Gama Bandawe, Ph.D. MUST
	10:20a.m. – 11:00a.m.	Opening Speaker Keynote Address: Malawi 2063	Joseph Nagoli, Ph.D. Director of Knowledge and Learning, National Planning Commission
	11:00a.m. – 11:05a.m.	Introduction of the Guest of Honour US Ambassador to Malawi, Ambassador David Young	Vice Chancellor MUST, Prof. Address Mauakowa Malata
	11:05a.m. – 11:45a.m.	Keynote Address: US Ambassador to Malawi, Ambassador David Young	His Excellency, Ambassador David Young, US Ambassador
	11:45a.m – 11:50 a.m.	Introducing CIMPAD Youth Entrepreneurship & Innovation Award	Gama Bandawe, Ph.D. MUST
	11:50p.m. – 12:50p.m.	CIMPAD Youth Entrepreneurship & Innovation Award <i>(See list of competition finalist, p.9)</i>	Facilitator: Harvey White, Ph.D. School of Public Policy and Administration University of Delaware, US
	12:50p.m. – 1:00p.m.	Closing Remarks & Announcements	Gama Bandawe, Ph.D. MUST
	1:00p.m. – 2:00p.m.	Luncheon	ALL

**Virtual Sessions: 2:00p.m. – 4:15p.m. VENUE: Amaryllis Hotel
Blantyre, Malawi & via Internet/Zoom**
**Participant Questions: Email questions directly to presenters or to
conference@cimpad.org**

Session Chair: Marion Chirwa Kajombo, Ph.D. Lecturer in
Language and Communication Studies, MUST

Monday July 18	2:00 p.m. – 3:00p.m.	Track VIII: Education, Culture, Gender, and Youth Development Waking the Giants: Explaining the Relevance of Youth Demographics to the Development Discourse Workplace Spirituality and Generation Z: The Next Great Movement in Human Capital and Leadership	Presenters: Kendra Brumfield-NaWangna, MPA, Ph.D. Legislative and Policy Analyst City of Wilmington, Delaware, US Rev. Kanika Jones, MBA, Ph.D. Asst. Dean Howard University School of Business, US
	3:00 p.m. – 3:15p.m.	Health Break	

Session Chair: Bennet Kankuzi, Ph.D.
Department Head, Computer Studies MUST

Monday July 18	3:15p.m. – 4:15p.m.	Track VI: Technology & Sustainable Development Malawian Education's Response to the COVID-19 Pandemic: Other Alternatives ----- Drivers of Technological Innovation Transfer Adoption in Developing African ----- Countries A Probit Regression Models Approach Overview & Critical Analysis ----- Track VIII: Education, Culture, Gender, and Youth Development Quality Compromised: Open, Distance, & Electronic Learning in Malawi's Public Universities	Presenters: 1. Justin Immanuel Mthawanji Magawa Secondary School, Malawi 2. Mercent Mthuzi Malawi Union of Academic and Non-Fiction ----- John Kofie Anoku Nelson Mandela University South Africa ----- 1. Justin Immanuel Mthawanji Magawa Secondary School, Malawi 2. Alex S.M. Mhone Beijing Normal University, China; Catholic University, Malawi
	6:00p.m.	Ambassador's Reception (Invitation Required) VENUE: TBD	
Tuesday July 19	8:30a.m. – 10:30a.m.	REGISTRATION	

Session Chair: Prof. Wilson Mandala
Dean, Academy of Medical Sciences MUST

Tuesday July 19	8:30a.m. – 9:30a.m.	Track I: Health, Poverty & Public Policy Examining the Root Causes of Healthcare Disparities Among African Americans ----- Cervical Cancer Screening Status among Women Living with HIV/AIDs in Malawi: A Cross-Sectional Study -----	Presenters: Leslee Battle, Ed.D. Professor & Interim Dean School of Health Sciences Winston Salem State University, US ----- Jacintha T. Mtengezo LifeNet International, Lilongwe, Malawi
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	9:30a.m – 10: 00a.m	Track I: Health, Poverty & Public Policy Examining the Root Causes of Healthcare Disparities Among African Americans	Presenters: Leslee Battle, Ed.D. Professor & Interim Dean School of Health Sciences Winston Salem State University, US
	10:00a.m. – 10:15a.m	Health Break	

Session Chair: Andrew Jamali, Ph.D. Research Manager, NPC			
Tuesday July 19	10:15a.m. – 11:15a.m.	Track VIII: Education, Culture, Gender, and Youth Development Increasing School Retention within Vulnerable Populations Track VI: Technology & Sustainable Development Big Data, Artificial Intelligence & Equitable Use of Technology Practical Consideration in IT Development in Africa: A Case of Zambia	Presenters: Stacy Meyer, Ph.D., Assistant Dean School of Education California Baptist University, US Harvey White, Ph.D. School of Public Policy and Administration, University of Delaware, US Samuel Muzata, CBO, Innovation Dynamics, LTD, Zambia
Session Chair: Isaac Tchuwa, Ph.D. Head of Earth Sciences Department MUST			
Tuesday July 19	11:20a.m. – 12:15p.m.	Track III: Trade, Finance, Entrepreneurship & Sustainability The Role of Foreign Direct Investment in Accelerating Regional Industrial Development in Selected Sub-Saharan African (SSA) Countries Investigating Factors Influencing Malawi Housing Decision-Making Process	Presenters: Bertha Bangara Chikadza, Ph.D. Lecturer in Economics Applied Studies Department Malawi University of Science and Technology Albert K.Y.M. Kayange UNICAF University

	12:15p.m. – 1:00p.m.	CIMPAD Youth Entrepreneurship & Innovation Award (See list of competition finalist, p.9)	Facilitator: Harvey White, Ph.D. School of Public Policy and Administration University of Delaware, US
	1:00p.m. – 2:00p.m.	LUNCHEON	ALL

Session Chair: Vincent Msadala, Ph.D.
Head of Department, Water Resources Management MUST

Tuesday July 19	2:00p.m. – 2:20p.m.	Track II: Public Policy & Disaster Emergency Management Politic of Disaster Prevention & Management in Malawi Nexus of Road Geometrics & Human Factor on Traffic Accidents Along Muzuzu-Jenda M1 Road Stretch	Presenters: 1. Happy Kayuni 2. Maureen Kapanga University of Malawi 3. Japhet Nelson Khendlo Department of Built Environment 4. Brighton A. Chunga Department of Water and Sanitation 5. Mavuto Tembo Department of AgriSciences Faculty of Environmental Science Mzuzu University
		Session Chair: Tiwonge Gawa, PhD. MUST	
Tuesday July 19	2:20p.m. – 4:00p.m.	Track VIII: Education, Culture, Gender, and Youth Development Leveraging Educator Preparation Programs as a Conduit to Human Capital Development ----- Track VII: Decentralization, Governance & Civil Service Non-Governmental Organizations/NGOs as Agents of Governance & Democracy: The Case of Ghana	Presenters: Denise Pearson, Ph.D. Vice Chancellor and Chief Diversity, Equity, and Inclusion Officer, Pennsylvania State System of Higher Education, US ----- Dr. James K. Agbodzakey Director, Urban SERCH Institute CIMPAD Board Member President, COMPA 2020-2021 Associate Professor of Public Leadership University of North Texas at Dallas, US
	4:00pm – 4:30pm	Health Break	

Wednesday	8:30a.m. – 10:00a.m.	REGISTRATION	
July 20			
Session Chair: John Taulo, Ph.D. Head of Department, Energy Resources Management			
Wednesday July 20	8:30a.m. – 9:30a.m.	Track VI: Technology & Sustainable Development Cooking Energy Bottlenecks and Biogas Generation from Urban Solid Waste as a Prospective Solution in Nairobi, Kenya: A Review ----- Track I: Health, Poverty & Public Policy Botched COVID-19 Regulations: The Need to Structure Rulemaking Process in Malawi	Presenters: 1. Hope Baxter Chamdimba Energy Resources Department, Ndata School of Climate and Earth Sciences, Malawi University of Science and Technology Thyolo, Malawi 2. Reuben Gad Mugagga Energy Technology Department, School of Engineering, Kenyatta University, Nairobi, Kenya 3. Isaiah Omosa Civil Engineering Department, School of Engineering, Kenyatta University, Nairobi, Kenya 4. Mapereka Francis Chagunda ----- Benadette Malunga, Ph.D. University of Malawi, Faculty of Law
	10:00a.m. - 10:15a.m.	Health Break	
Session Chair: Mr. Jiyajiya, Lecturer in Language and Communication Studies			
Wednesday July 20	10:15a.m. – 11:00a.m.	Optimizing Africa's Access to Strategic Human Talent	Presenters: Harvey White, Ph.D. School of Public Policy and Administration, University of Delaware, US Captain Prince Bright Majiga Malawi Defence Force

	11:00a.m. – 11:45a.m.	CIMPAD Youth Entrepreneurship & Innovation Award <i>(See list of competition finalist, p.9)</i>	Facilitator: Harvey White, Ph.D. School of Public Policy and Administration, University of Delaware, US
	11:45a.m. – 12:15p.m.	CLOSING KEYNOTE ADDRESS	Vice Chancellor Professor Address Mauakowa Malata, Ph.D. MUST

Wednesday July 20	12:15p.m. – 12:45p.m.	Conference Report CIMPAD Inaugural MOHALE (Hero) Award & Business Meeting	Presenters: Peggy Valentine, President, CIMPAD MUST/Malawi Partners
	12:45p.m.	Lunch Closing Remarks	CIMPAD/MUST Officials
	1:30p.m.	CONFERENCE ADJOURNED	

Please plan to join us for CIMPAD's 13th International Conference in 2024

Depart for Educational Tours
(Additional registration fee required.)

CIMPAD YOUTH ENTREPRENEURSHIP & INNOVATION AWARD COMPETITION FINALISTS

1. Agrinsecta- submitted by Prince Mkwoka
2. Wind Turbine at Tsenga Primary School- submitted by Madalitso Chimpeni
3. Chicken Coop- submitted by Muzza Thole
4. Youth Action Group (YAG)- submitted by Felix Namakhuwa
5. Weaving/Crocheting Bags and Baskets from Plastic Papers- submitted by Faith Chakanza
6. Business Proposal for Briquettes- submitted by Montfort Smith Theo Ghobede
7. Liveonce Healthy Juicers- submitted by Mtsunge Banda
8. Zomera Fruit Propagation Farm- submitted by Matrida Mlotha
9. ANESO CONTRACEPTIVE PROVIDER- submitted by Esau Kawonga
10. Fuel Free Based Generator for Businesses in Malawi- submitted by Justin Jere

Bonus Workshops After Hours & All Accessible via the Internet

Track IX Prevention, Management and Conflict Resolution National Dialogue: The Case of Ethiopia	Presenters Prof. Berhanu Mengistu, Ph.D. Emeritus Professor of Public Policy and Administration College of Business and Public Administration Old Dominion University Dr. Lulseged Abebe, Ph.D. Independent Researcher, Peace and Security Expert
Track VII. Decentralization, Governance, and Civil Service Decentralization and Public Sector Program Delivery Models: Missing Lessons for an African Perspective	Presenters Aziza Zemrani, Ph.D., Professor, University of Texas Rio Grande Valley George Atisa, Ph.D., Associate Professor, University of Texas Rio Grande Valley



CIMPAD CONFERENCE PLANNING CHAIR

Yvonne S. Magee, MSW, MPA, Ph.D.

Hello colleagues from across the globe. The last seven months have been a tremendous experience. Let me begin by thanking CIMPAD leadership for the confidence and trust in hoisting me into the role of Conference Planning Chair for CIMPAD's 12th International Conference. Then, the respect and admiration I have for Malawi University of Science and Technology, those who responded to the call for conference presentations, and to you—the participants in this year's conference—that respect and admiration for each of you have been strengthened. I hope that you realize that you have embarked upon a history-making venture to convene and participate in such a journey during this COVID/post-COVID environment. The decision to move forward with the conference after a two-year hiatus due to the world-wide pandemic, and transition to a hybrid in-person/virtual model was risky and filled with uncertainties. But you have conquered every challenge. Thank you to all who are participating on-site in the beautiful culturally vibrant country of Malawi, to those joining virtually in real-time and to hundreds of others who will be logging on in your various time-zones to be enriched by the conference offerings. You are truly embracing the conference theme of technology and innovation.

It has long been CIMPAD's philosophy that our international conferences are more than just another conference. In keeping with this perspective, I am excited that CIMPAD's launch of the Youth Entrepreneurship and Innovation Award (YEI) occurred this conference year. The YEI is designed to encourage and provide youth social entrepreneurs in the host country (Malawi) with financial and technical support to implement creative business projects. Expect to see great things from these young people. Another first is CIMPAD's inaugural MOHALE' (Hero) Award, which acknowledges the contributions of one of our own to service in the field. I am honored that these highlights occurred this year.

My first CIMPAD experience was in Uganda in 2007. I consider that and each CIMPAD/African continent experience to have been life changing and I truly miss this opportunity to be present on-site in Malawi. I know that you will have a similar experience from this conference. Thank you for your participation in helping to further CIMPAD's mission to inspire and promote collaborative working relationships; and advance knowledge in public administration, management, policy and leadership development, among practitioners and academicians in various African countries and the diaspora. We hope that you will think positively about joining us for future experiences. Please look for our upcoming announcement about the 13th International Conference in 2024.

Best to you all –

Yvonne S. Magee, Ph.D.
CIMPAD Conference Chair - 2022

Malawi University of Science and Technology (MUST)

MUST is pleased to partner with and host the Consortium for International Management, Policy and Development (CIMPAD) 12th international conference to be held July 17-20 at the lovely Amaryllis Hotel in Blantyre, Malawi. Should there be an opportunity, participants are invited to visit the amazing campus of Malawi University of Science and Technology (MUST) in Thyolo, Malawi. With capacity for 5,000, this Wi-Fi enabled campus with beautiful and modern facilities is currently home to 2,500 local and



international students. Four schools comprise the University—Malawi Institute of Technology, Ndata School of Climate and Earth Sciences, Academy of Medical Sciences, and Bingu School of Culture and Heritage. MUST has undergraduate and postgraduate programs in various fields of engineering, the sciences, and the arts. Heralding the motto of “Where Excellence Reigns”, the university’s mission is “to provide a conducive environment for quality education, training, research, entrepreneurship, and outreach to facilitate economic growth in Malawi and beyond”. In addition, the University Centres include (i) Centre for Strategic Studies, (ii) Centre for Clinical and Biomedical Sciences Research, (iii) Centre for Climate Change and Disaster Risk Management and MUST Institute for Industrial Research and Innovation (MIIRI).

We look forward to the opportunities that this conference provides to present cutting edge research, ideas and best practices in political good governance, health and wellness, administrative management and sustainable development, to build strong societies. Additionally, participants will experience the Malawi culture ranging from financial and trading centers to century old mud hut homes of African villages; education, religious, and government venues; wildlife, breath-taking environmental features, works of local artisans, our welcoming hospitality, and so much more.

Malawi University of Science and Technology (MUST) welcomes all—both in-person and virtual participants to Malawi.





National Forum for Black Public Administrators

Many thanks to the National Forum for Black Public Administrators (NFBPA), led by our colleague and friend-- Executive Director Marcia Conner, for the tremendous level of support provided in so many ways. NFBPA, we salute you for achieving excellence in leadership development and enrichment since 1983.

Our overwhelming gratitude as well is extended to the many individuals and organizations that provided support for CIMPAD's Youth Entrepreneurship and Innovation Award encouraging and vesting in the lives, social and economic prowess of Malawian youth. Individual and organizational contributors include the following:

YOUTH ENTREPRENEURSHIP & INNOVATION AWARD CONTRIBUTORS

SPONSORS

1. Conference of Minority Public Administrators
2. University of Pittsburgh Graduate School of Public and International Affairs
3. Black Cops Against Police Brutality (B-CAP)
4. The Family Support Organization of Union County's Youth Partnership Program
5. Dr. Yvonne Magee
6. Dr. Harvey L. White

DONORS

1. Dr. Noela Mogga
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3. Bo Da Goodfella
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6. Dr. David Bell
7. Dr. Kendra and Emanuel NaWang-na
8. Dr. Esther Langston
9. Dr. Berhanu Mengistu

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2. Renee Palmore Beaman
3. Aisha N. White
4. Kevin Coleman
5. Sharrie D'andrea Cranford
6. Deborah Flateman
7. Dawn Close
8. Dr. Anthony Slack
9. Dr. Peggy Valentine

YOUTH ENTREPRENEURSHIP & INNOVATION AWARD COMMITTEE

Chester Thompson
David Bell
Doreen Myrie
Ella Kangaude-Nkata
Harvey White

Kendra Brumfield-NaWangna
Mercy Chikwemba
Richard Chilipa
Wongani Langa
Clifford "Sunkaru" Sykes

Honorary Members:
Address Malata
David Mkwambisi

We acknowledge the contributions of these partners and others, without which this 12th International Conference would not have succeeded. These contributions help CIMPPAD fulfill the commitment that our international conference is much more than just a conference. All are invited to please join us as we continue this quest in the future.

- Peggy Valentine, Ed.D., President and Conference General Chair
- Professor Berhanu Mengistu, Ph.D., Vice President
- Professor/Dean Baakile Motshegwa, 2nd Vice-President
- Professor Sylvester Murray, MGA, MA, Conference General Chair Emeritus
- Professor Harvey White, Ph.D., Founding Conference General Chair
- Professor Esther Langston, Ph.D., Chief Operating Officer
- Mr. John Saunders, III, MS, Treasurer
- Mr. Roy Jones, Asst. Treasurer
- Rev. Guila Cooper, Secretary
- Kendra Brumfield-NaWangna, Ph.D. Asst. Secretary

USA PROGRAM PLANNING COMMITTEE

- Professor Peggy Valentine, Ed.D., Conference General Chair
- Professor Sylvester Murray, MGA, MA, Conference General Chair Emeritus
- Professor. Harvey White, Ph.D., Founding Conference General Chair
- Professor/Dean Baakile Motshegwa, 2nd Vice-President
- Ms. Yvonne Magee, Ph.D., Program Committee Chair
- Reverend Guila Cooper, CIMPAD Secretary
- Mr. John Saunders, III, MS, Treasurer
- Professor Esther Langston, Ph.D., Chief Operating Officer
- Ms. Kendra Brumfield-NaWangna, Ph.D., Asst. Secretary
- Ms. Marcia Connor, MPA, National Forum for Black Public Administrators
- Mr. Cliff (Sunkari) Sykes
- Ms. Carol Porter
- Mr. James Korku Agbodzakey, Ph.D.
- Ms. Doreen N. Myrie, Ph.D.
- Ms. Lori Gentiles, MBA

MALAWI/ MUST LOCAL ORGANIZING COMMITTEE

- Dr. Bertha Chikadza, Chair of Local Organizing Committee, MUST
- Mrs. Lizzie Nyirenda, MUST Secretariat
- Mr. Edward Matengere, MUST Chair of Protocol
- Dr. Kondwani Mkandawire, MUST Chair of ICT and Communication
- Mr. James Mphande, MUST Communications Manager
- Dr. David Mkwambisi, MUST Chair - Procurement and Resource Mobilisation
- Mr. Joseph Muheka, MUST Chair - Budget and Finance
- Dr. Isaac Tchuwa, MUST Chair – Reviews Committee
- Mr. Alfred Ulemu Chinombo, The University Registrar, MUST



Vice-Chancellor

Address Mauakowa Malata

On behalf of the Malawi University of Science and Technology (MUST), we welcome you to the CIMPAD's 12th International Conference whose theme is Technology and Innovation for Sustainable International Development and Policy. We are grateful to our partner, the Consortium for International Management Policy and Development (CIMPAD) for accepting to work with MUST and bringing this conference to Malawi for the first time. We are excited to host all of you.

CIMPAD is an international organisation of like-minded academics and other industry players focusing on the interaction of management, policy, and development with a mission of inspiring and promoting collaborative working relationships towards the advancement of knowledge in public administration, public management, public policy and leadership development, among practitioners and academicians in various African countries and the diaspora. CIMPAD was founded on the need to bring together public service professionals in various countries on several continents to work cooperatively to enhance the provision of public goods and services.

MUST as an African public institution of higher learning shares the values advanced by CIMPAD and it accepted to host this 12th conference to help Malawians and other nationalities share knowledge around the conference's thematic areas. This year's conference will feature presentations and discussions by academics, policymakers, and practitioners from across the world on health, poverty, and public policy, technology and sustainable development and trade, finance, entrepreneurship, and sustainable development, just to mention a few. This kind of programming fits very well into MUST's strategic pillar of Research and Valorisation as well External Engagement.

I am also pleased that the CIMPAD 12th conference will be the 3rd conference that MUST will be hosting this year besides the BANTU 9 conference that was held in June 2022 and the 8th ACIST virtual conference on The Digital African scheduled for 25th – 26th August 2022. This speaks to our commitment as a University to provide platforms for research dissemination, collaboration and through exchange with various players both private and public, local, and international on topical issues and disciplines within our mandate.

Therefore, I thank you all for attending this conference. A special welcome as well to our international guests, welcome to Malawi the Warm Heart of Africa and to MUST the Warm Heart of Higher Education in Africa. Besides the conference, we invite you to experience the unrivalled combination of the Lake, Landscape, Wildlife and Culture in one of Africa's most beautiful and compact countries recently crowned as one of Lonely Planet's Best in Travel Top Countries for 2022.

I wish you all a wonderful conference!

Sincerely,
Professor Address Mauakowa Malata
Vice-Chancellor
Malawi University of Science and Technology





CIMPAD President **Peggy Valentine**

On behalf of the Consortium for international Management Policy and Development (CIMPAD), we welcome you to the 12th International Conference. We are grateful to our sponsor, the Malawi University of Science and Technology (MUST) for its outstanding leadership and partnership in making this conference possible.

As a nonpartisan, nonprofit organization, CIMPAD has promoted collaborative working relationships to advance knowledge and enhance capacity building in Africa for more than 25 years. This conference allows us to build upon a rich legacy of exchanging research and knowledge, sharing ideas, experiences, and best practices to promote sustainable development and effective governance. We will learn from public and private professionals, academicians, students, and practitioners as they share their papers with us. At this conference, CIMPAD will support the work of MUST through various projects, including the entrepreneurial youth program competition.

We thank everyone for attending, whether virtually or in-person, especially those who have traveled abroad, to this most beautiful country. We will experience the warmth of the Malawian people and build relationships that will last a lifetime. My return to Malawi affords me the personal opportunity to renew decades-long relationships with former students and partners through grant-funded projects to prepare more health professionals and strengthen the laboratory infrastructure.

Welcome to Malawi and enjoy the conference!

Sincerely,

Peggy Valentine

CIMPAD President and General Chair
Vice President for Allied Health Education

12th CIMPAD Conference Attendance List

No	Full Name	Institution	Email
1	Andrew Jamali, Ph.D	National Planning Commission	ajamali@npc.mw
2	Bertha Bangara Chikadza, Ph.D	MUST	bchikadza@must.ac.mw
3	Brighton A. Chunga, Ph.D	Mzuzu University	Bachunga@gmail.com
4	Denise Pearson	Virtual	
5	Dr. James Agbodzakey	virtual	
6	Haeok Lee, RN, Ph.D	Virtual	
7	Harvey White, Ph.D	CIMPAD	hlw@udel.edu
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11	Isaac Tchuwa, Ph.D	MUST	itchuwa@must.ac.mw
12	Hope Chamdimba	MUST	hchamdimba@must.ac.mw
13	Jacinta T. Mtengezo	Virtual	
14	John Kofi Anoku	Virtual	
15	Justin Immanuel Mthawanji	Magawa Secondary School	justmthawanji2@gmail.com
16	Kendra Brumfield-NaWagna, Ph.D	Virtual	
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20	Prof. Peggy Valentine	CIMPAD	
21	Rev. Kanika Jones	Virtual	
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24	Ambassador David Young	US Embassy in Malawi	
25	Harvey White, Ph.D	CIMPAD	
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Assessing Spatial Price Efficiency in Malawi's Maize Market

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Abstract:

This study set out to establish empirical evidence of improved spatial price arbitrage efficiency in Malawi maize markets. The study pulls data from a number of sources to estimate the transaction costs between 2006 and 2016. Using Baulch (1997) Parity Bound Model as modified by Zant (2012) this study finds evidence indicative of improved level of spatial arbitrage efficiency across Malawi's maize markets. With appropriate supporting policies in place, findings of this study are positive of likely success of franchising ADMARC social markets which would lessen government's fiscal burden of having to subsidize both production through fertilizer subsidies and consumption of maize through ADMARC social markets. A successful franchise arrangement would also take care of hoarding behavior of the private players in the maize market through properly instituted incentives and other deliberate policy measures. Additionally, the development of better infrastructure (in particular better transport linkages and storage facilities) may be expected to play an important supporting role in promoting structured maize markets in Malawi.

1.0 INTRODUCTION

Following decades of state intervention in food marketing activities, Malawi, under the auspices of the World Bank and the IMF, decided to undertake reforms to liberalize agricultural markets starting mid 1980s (Jayne and

Jones 1997). These reforms came in light of what a vast body of research demonstrated as the failings of the state in commodity markets (Bauer, 1971; Bates, 1981). While liberalization of agricultural markets hoped to remove government involvement and increase private sector participation, various sectors and stakeholders argued against complete withdrawal of the state from the grain market often pointing to the risks of market failure posed by underdeveloped state of many remote markets (Cornia et al., 1992).

Retention of the state owned grain trader Agriculture Development and Marketing Cooperation (ADMARC), for instance, clearly pointed to government's recognition of the poor and fragile state of grain markets across the country where if ADMARC was to pull out, it was unlikely that private traders would have replaced it (World Bank, 2003). Poor prospects of profitable trade arising from high transaction costs of trading due to poorly developed trading infrastructure, uncertainty of potential gains from trade due to price volatility, lack of effective demand, and presence of arbitrage profits elsewhere in

developed grain markets kept profit oriented private traders away from these remote and fragile grain markets (Lundberg, 2005). ADMARC has since, filled this space serving a social role.

Almost three decades into liberalization of grain markets and following poor financial performance, and politicization of ADMARC there have been growing calls for a private sector lean marketing arrangement. The big research question around this debate revolves around efficiency of spatial price arbitrage in Malawi grain market. Spatial price arbitrage efficiency requires that price spreads or price differentials between a pair of, deficit and surplus spatially separated but trading, grain markets be equal or less than transaction costs (Baulch, 1997).

In order to attract and sustain profitable private grain trading in areas where ADMARC operates, there is need of properly developed trading infrastructure and market institutions evidenced by spatial arbitrage efficiency. In an only study on spatial arbitrage efficiency (Zant, 2012) conducted using monthly price data and estimated transaction data from 1999 through 2009, found evidence of spatial arbitrage inefficiency in Malawi maize market. These findings present a serious challenge to private grain traders. Presence of spatial arbitrage inefficiencies, which in-turn cause limited or no trade, mainly due to non-price market constraints such as poor infrastructure and poor market institutions, pause the greatest barrier to the success of private sector lean marketing arrangement.

This paper employs the parity bound model (PBM), to check whether there have been enough improvements to allow for prospects of profitable trade over the past ten years. This paper analyzes grain price data from 2006 through 2016, to test for spatial arbitrage efficiency in Malawi's maize market, hence would support a private sector lean marketing arrangement.

1.1 OBJECTIVES OF THE STUDY

This study seeks to measure the level of integration in Malawi's maize market as possible justification for the proposal to franchise ADMARC's social markets.

The proposed study specifically intends to:

- a. Measure spatial arbitrage efficiency in Malawi maize market
- b. Establish whether frequency of spatial arbitrage efficiency substantially decrease during food shortages increasing either the probability of no trade or loss-making trade or the probability of profitable but unexploited trade opportunities.

1.2 HYPOTHESES

In this study, we investigate the following hypotheses:

- a. There are inefficiencies in spatial maize price arbitrage in Malawi grain market
- b. Probability of spatial arbitrage efficiency does not substantially decrease during food shortages which is catastrophic.

1.3 ORGANISATION OF THE STUDY

This study is structured into five chapters. The remainder of this study is as follows: chapter two discusses theoretical and empirical review of the literature. Chapter three discusses the methodology and data used.

Econometric results of estimated transaction costs equations and discussion of calculated trade regimes are presented in chapter four. And, chapter five concludes the study, states limitations and offers policy recommendations.

2.0 LITERATURE REVIEW

There are quite a number of empirical studies of spatial arbitrage efficiency so far conducted elsewhere in the world yet very few in the Sub-Saharan Africa, a region which undertook extensive reforms in the agricultural markets since 1980s-90s, let alone in Malawi. This section serves to review empirical literature available on arbitrage efficiency studies so far.

In his study Baulch (1997) conceived and applied the Parity Bound Model (PBM) to Philippine rice markets in order to detect spatial arbitrage efficiency a thing which other methods of market integration failed to do. It was noted that tendency to trade within the Philippines, which is basically a group of islands was high due to uneven geographical and seasonal distribution of rice production and consumption. Applying the PBM to wholesale prices on the rice markets the study established that the Philippine rice markets were integrated within a single data period almost 100% of the time. Such results were polar to results found from utilizing price co-movement methods, which found that the markets were imperfectly integrated. Baulch (1997) attributed the failure of traditional tests to detect high levels of market integration as due to their failure to take account of transactions costs and the resulting discontinuity of trade flows between regions. Notwithstanding a number of weaknesses of the PBM viz. failure to go by high frequency data and the use of extrapolated transfer costs, the findings of the study were consistent with the data gathered in trader surveys. The findings were also consistent with observed trade related developments like existence of good telecommunication links between all the markets considered, and the frequency of shipping services relative to the monthly periodicity of the price data used.

Tostão and Brorsen (2005) carried out a study that sort to measure the efficiency of spatial maize price arbitrage in Mozambique's post-reform period. Having noted that spatial price inefficiency did not seem to explain why food shortages continued to occur in southern region of Mozambique, non-price market constraints such as poor infrastructure and poor market institutions were more likely explanations. Results after applying Baulch's spatial efficiency test found spatial arbitrage between central and southern Mozambique to be efficient in 80-100% of the time. However, the study found that it was not profitable to ship maize from northern surplus maize regions to southern maize deficit Mozambique. Corresponding records of inter-regional maize shipments in Mozambique showed that indeed grain was not being shipped from the maize surplus north to the maize deficit south. The study noted that chronic food shortages in some parts of Mozambique was not as a result of lack of traders to ship grain from low price surplus areas to high price deficit areas rather the problem was that transport costs were so high that it was not profitable to ship the grain (there were spatial arbitrage inefficiencies). Despite the usual weakness of PBM having to use extrapolated transfer costs, the model yielded results that reflected better chronic food shortages in the South of Mozambique despite the maize surplus status of the Northern region of Mozambique.

Meyers (2008) conducted a study assessing effectiveness of the private sector maize marketing system in Malawi using threshold auto-regression (TAR) models. The study sort to establish whether spatial and temporal price patterns observed in retail maize markets since 2001 were consistent with conditions required for efficient inter-regional trade and storage. The research found that spatial price transmission and seasonal price patterns in private sector maize markets in Malawi are generally consistent with long-run competitive inter-regional trade and storage behaviour, and that in most cases shocks to long-run equilibrium are arbitrated away quickly. This suggested, to the researcher, that the private sector in Malawi is generally doing a good job of transporting maize from surplus to deficit regions and smoothing maize consumption between harvests. The main problem with this approach in measuring efficiency of spatial arbitrage lies in the use of prices only at the expense of equally crucial factors like transport costs and other transaction costs. This has critical implications for the results. As shown below, another study conducted over similar period found contradicting results. TAR model are also prone to the problem of over-parameterization.

In a study measuring efficiency of arbitrage in Malawi grain market Zant (2012) extended and applied Baulch's spatial efficiency test, allowing for incorporation of transfer costs, to monthly maize price data from 1999 through 2009. His results indicated that the probability of spatial arbitrage efficiency (i.e. market integration with trade) decreases consistently during food shortages, increasing either the probability of no trade or loss-making trade or the probability of profitable but unexploited trade opportunities. The data further supported a negative trend in market integration with trade. The researcher noted that increased market integration observed throughout periods without food shortages could be explained as districts moving into autarky with small food needs catered for by small-scale within-district trading. Inefficient spatial arbitrage due to higher transaction costs of grain trading explained declining market integration with inter-district trade during food shortages. The study concluded that during food shortages, districts are forced to trade with each other in an environment that lacks adequate trading infrastructure for larger volumes. These circumstances induce higher transaction costs, which lead to loss-making trade or block trade despite attractive trade opportunities. These results contradict those found by Meyers (2008) a year earlier. Findings of this study point against any suggestion of yet leaving ADMARC's social markets in the hands of profit seeking private traders.

This current study, applying the PBM on price data from January 2006 through March 2016, intends to seek out evidence of improved levels of spatial arbitrage efficiency in Malawi's grain market, and its policy implications.

3.0 METHODOLOGY

This study employed the Parity Bound Model as modified by Zant (2012). A key element of the modification involves the estimation of unit transaction costs, which is unlike the original Parity Bounds Model wherein only transfer costs were used, and they were linearly interpolated from single period observations. Next, we relate how we are going to compute the indicator of market efficiency.

3.1 TRANSACTION COSTS: EMPIRICAL SPECIFICATION

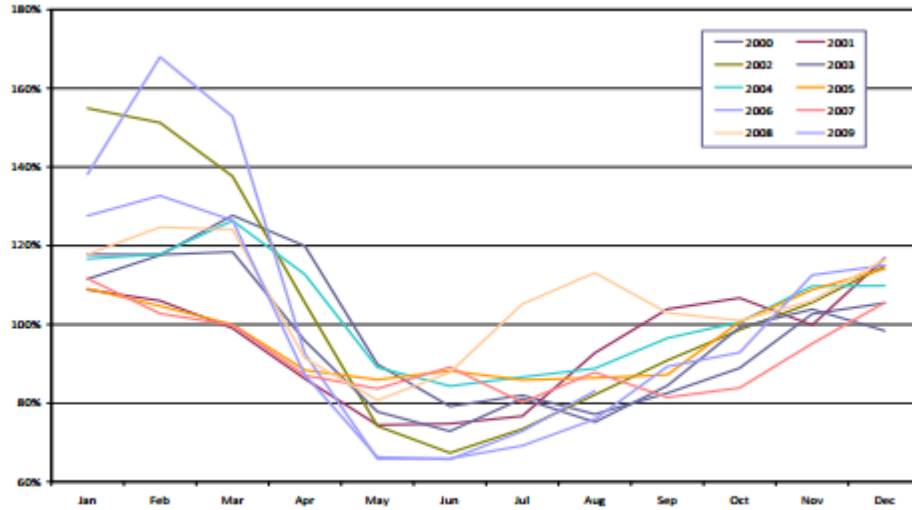
The largest component of transaction costs involves transport costs. We have used transport fuel prices and respective distances¹ between different market pairs under study as an approximation of unit transport costs. To capture developments in road infrastructure and road quality, developments in transportation technology, changes in the structure of the trading sector, and developments in telecommunication infrastructure, a general trend variable is included. The trend variable takes a value of one at the start of the sample period and increases by one each period. There is a distinct seasonality in maize prices as depicted by figure 1 below. Because the domestic maize trade is determined by maize prices in different locations, it is likely that seasonality in maize prices also translates into seasonality in transaction costs. Hence, a set of monthly dummy variables—binary variables with a value of one for a specific month and zero elsewhere—is included to account for seasonality in transaction costs.

Part of transaction costs concerns costs of labour. Unfortunately, we do not have data on wages or unit prices of labor services in trade or the shadow unit price of benefits from self-employment in trade. We have approximated the development of this cost component by using the (natural log of the) South African real wholesale price index as an explanatory variable. South Africa is the dominant economic power in the region and a large chunk of Malawi merchandise imports originate from South Africa (31 to 44%, 2000-2007).

Hence, we assume that producer prices in South Africa – properly converted to control for South

Figure 1: Seasonality in Malawi maize market

¹ Although distance is constant between a particular route, it accounts for costs such as information costs, search costs, economies of scale and scope, road-block costs, and bribes.



Source: As calculated by Zant(2012) based on data from FEWS NET; Ministry of Agriculture and Food Security, Malawi

African rand –Malawi kwacha exchange rate movements - are a suitable approximation for the development of costs in the Malawi domestic trade industry.

Formally, the following equation (all prices and unit values deflated with 2006 as base year and price differentials or transaction costs and transportation costs transformed into natural logarithms) is going to be estimated:

$$\ln(tC_{tkj}) = \beta_0 + \beta_1 \ln(tf_{tkj}) + \beta_3(wpi) + \beta_2 trend + \lambda_{kn} + \varepsilon_{tkj}$$

.....2

Where tC_t^{kj} is the transaction cost of plying grain trade (as inferred from observed price differences) between deficit and surplus areas j and i, tf_t^{kj} is the transfer cost which is the main contributor to per unit transaction cost and it's a function of transport fuel price and distance between respective market pairs, wpi is the South African wholesale price index, trend is the trend variable, λ_{kn} capture the seasonality in transaction costs caused by seasonality in maize prices, ε_t^{kj} is an error term with a zero mean and a constant variance $\varepsilon_t^{kj} \sim (0, \sigma^2)$

$$\frac{\partial (\ln(tC_t^{kj}))}{\partial (\ln(tf_t^{kj}))} > 0, \frac{\partial (\ln(tC_t^{kj}))}{\partial (wpi)} > 0, \frac{\partial (\ln(tC_t^{kj}))}{\partial (trend)} < 0$$

And,

i.e. partial derivatives with respect to transport costs fuel price and distance are expected to be positive because costs in competitive markets will be passed on. Partial derivatives with respect to trends are expected to be negative, reflecting cost reductions caused by structural developments, such as the roll-out of the mobile phone infrastructure, which are shown to reduce the information and search costs of trade.

And, a priori expected sign of partial derivative with respect to the South Africa Wholesale Index is positive.

3.2 SELECTING PRICE DIFFERENCES FOR ESTIMATION OF UNIT TRANSACTION COSTS

Observations of unit transaction costs are inferred from observed price differences assuming competitive markets of maize and domestic trade services and profit maximizing traders.

$$tC_t^{kJ} \equiv P_t^J - P_t^k \dots\dots\dots 3$$

In the first place, economic rationalization for trade requires that we have positive transaction costs hence we restrict our sample to positive price differences between food deficit and surplus locations. Next, it is no higher logic asserting that trade flows are most likely to occur from surplus to deficit locations or from potential export locations to potential import locations. Production above (below) the level of requirements characterizes a potential exporter (importer) or a surplus (deficit) location. Under subsistence farming, the possibility of export and the need to import are determined by the previous season's production of maize available at the start of the marketing year relative to the expected requirements of maize for consumption in the course of the marketing year. Secondly, we condition selection of observations of price differences that are likely to be equal to transaction costs to those trade pairs that connect surplus with deficit locations where potential surplus and deficit locations.

Thus, we condition our sample of

$$tCtkJ \equiv P_t^J - P_t^k$$

on

$$P_t^J > P_t^k$$

$$Q_i > (1 + \varphi)\Sigma_n E(f_{n_t}^i) \text{ and } Q_i < \Sigma_n E(f_{n_t}^i) \dots\dots\dots 4$$

Where Q_i is the available annual production of maize from the previous crop year at the start of the marketing year; $f_{n_t}^i$ is the maize consumption

requirement in month n (considered a function of population size, daily calorie intake) for the current marketing year; φ is the excess over the maize requirements above which exports are triggered; i is the location; t is the year; and E is the expectation operator.

3.3 COMPUTATION OF INDICATORS OF MARKET EFFICIENCY

Regime I, integrated with trade flows, efficient market:

$$-k < (P_t^i - P_t^k - t\tilde{C}_t^{ki}a) < k \quad \dots\dots\dots 5$$

Regime II, integrated, no trade or loss making trade:

$$P_t^i - P_t^k - t\tilde{C}_t^{ki} \leq -k \quad \dots\dots\dots 6$$

Regime III, not integrated, unexploited arbitrage opportunities:

$$P_t^i - P_t^k - t\tilde{C}_t^{ki} \geq k \quad \dots\dots\dots 7$$

The k takes the value of standard deviation of our predicted transaction cost.

This is because only unit transaction costs components of our market ~

indicator $(P_t^i - P_t^k - t\tilde{C}_t^{ki})$ has been estimated (the other two, the prices in both locations, are observed) hence the standard deviation of the market indicator is equivalent to the standard deviation of estimated unit transaction costs.

Regime probabilities for location j at time t are defined as follows:

$$\text{Prob}(\delta)_t^j = \frac{N(\delta)_t^j}{\sum(\delta)_t^j} \quad \dots\dots\dots 8$$

Where δ is regime I, II, or III, and $N(\delta)_t^j$ is the number of cases of regime (δ) in location j at time t.

Once we have a numerical value for k, we can calculate regime probabilities for each location and each period following equation (8). Taking note of poor roads and information lags in many districts in Malawi we are almost certain of some inefficiency hence we don't expect regime probability of 100 percent to signify that the location (district) is fully characterized by this regime. Rather we focus on the magnitude of the regime probabilities. By definition, the three regime probabilities total 100 percent and are, hence, not independent.

3.4 DATA SOURCES

We use secondary monthly price data by district of Malawi from 2005 to April 2016. Data on monthly maize prices by district was obtained through the Food Security Updates of the Famine Early Warning System Network (www.fews.net), which in turn obtains these data from the Ministry of Agriculture and Food Security in Malawi. Going by a market with largest number of observations over the years as a market for each district we select mostly major district towns markets. The price series by district are not complete. We have refrained from filling white spots by interpolation and extrapolation because this may hinder the verification of the spatial arbitrage that governs domestic trade and may lead to poorly based inferences (Zant, 2012). For comparisons over time, all prices and unit values are deflated with the consumer price index. Monthly consumer price index numbers are obtained from the National Statistical Office of Malawi, which differentiates between consumer price index numbers for urban and rural areas.

In estimating transaction costs, prices of fuel for transport are obtained from the Malawi Energy Regulatory Authority (MERA). Distances in kilometres between district towns are obtained from the Travel Distance Calculator (www.mapcrow.info).

3.5 ESTIMATION TECHNIQUE

The ordinary least square method is used to estimate transaction costs and compute probability regimes using Stata 13 version.

4.0 RESULTS AND DISCUSSIONS OF FINDINGS 4.1 ESTIMATED TRANSACTION COSTS

For the estimation of transaction cost equations, we use the specification proposed in equation (2) conditioned on a sample of trade pairs (equation 3) which satisfying conditions specified in equation (4). For comparisons over time, we deflate transportation costs and prices with the Malawi consumer price index with 2006 as the base year. Additionally, we transform unit price differentials, the South African wholesale index and transport costs into natural logarithms. Table 1 reports results of estimated transaction cost equations. Our estimation results are well behaved. Reported estimation output of all equations indicates that transportation cost (the main component of grain trading transaction cost), the common trend, and the South Africa wholesale price variable are statistically significant at 5 percent level of significance and have the expected sign. The elasticity of transaction costs with respect to transportation cost is generally the highest, above unity in all equations, with values between 1.900 and 3.316. This outcome is reasonable because, as stated previously, transport costs constitute a large component of transaction costs, at the same time, we expect transport costs to be passed on in a competitive market hence higher elasticity. Transaction costs seem to be less responsive to the South Africa Wholesale price index. Reported elasticities across all market pairs are less than a unit. This is reflective of the nature of labor services in Malawi grain market where we do not have a formal labor market and many traders employ themselves (Fafchamps et al., 2005). A significant negative common trend is observed in all estimates, reflecting a variety of developments in trading infrastructure and technology. The overall goodness of fit is between 56 and 86 percent with 124 to 144 observations.

Table 1: Estimated Transaction cost equations for all market pairs

Dependent variable: Natural logarithm of per kilogram inter-district transaction cost or price difference

$$(\ln \frac{tc_t^{kj}}{tc_t^{kj}}) \text{ or } \ln(\frac{P_t^j P_t^j}{P_t^k P_t^k}).$$

	Kasungu-Lilongwe	Mwanza-Nsanje	Mulanje-Chikwawa	Mulanje-Thyolo	Kasungu-Nkhotakota	Mchinji-Ntchisi
Intcd	2.145**	1.411*	1.633**	2.114***	3.316***	1.900**
	(3.28)	(2.20)	(2.80)	(3.85)	(5.36)	(3.35)
trend	-0.0705***	-0.0550**	-0.0542***	-0.0744***	-0.102***	-0.0496**
	(4.39)	(3.30)	(3.70)	(5.00)	(6.32)	(3.35)

wpi	0.0899***	0.0656**	0.0617**	0.0868***	0.106***	0.0406
	(4.41)	(3.26)	(3.21)	(4.79)	(5.23)	(1.97)
_cons	20.46***	12.62*	13.37**	17.01***	30.21***	15.43**
	(3.54)	(2.09)	(2.69)	(3.87)	(5.55)	(3.04)
N	131	144	140	124	142	134
R²	0.821	0.556	0.860	0.821	0.556	0.860

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The table reports unit transaction cost estimations on the basis of district maize prices from January 2006 to March

2016. Estimation is by OLS. For comparisons over time, transportation costs and prices have been deflated with the Malawi consumer price index with 2006 as the base year. Prices and transport costs are transformed into natural logarithms.

4.3.2 CALCULATED REGIME PROBABILITIES

Making use of predicted unit transaction costs estimated above, we calculate the value of the market indicator according to equation 4, 5 and 6, which is the price difference less predicted transaction costs, for each location. Table 2 below has summary presentation of the results.

Table 2: Parity Bounds Model's Estimated Regime Probabilities for Malawi Retail Maize Markets Probabilities

	Distance in Kilometers(km)	Regime I	Regime II	Regime III
Kasungu- Lilongwe	108.81	0.974	0.1E-2	0.025
		(0.018)	(0.2E-2)	(0.016)

Mwanza-Nsanje	166.16	0.247	0.753	0.1E-11
		(0.097)	(0.097)	(0.1E-10)
Mulanje-Chikwawa	74.46	0.302	0.540	0.158
		(0.056)	(0.415)	(0.424)
Mulanje-Thyolo	38.60	0.956	0.044	0.4E-10
		(0.039)	(0.039)	(0.2E-9)
Kasungu-Nkhotakota	88.79	0.533	0.467	0.2E-6
		(0.086)	(0.086)	(0.4E-2)
Mchinji-Ntchisi	115.69	0.1E-2	0.179	0.819
		(0.3E-3)	(0.104)	(0.104)

Notes: Regime I, II, and III are defined respectively when price spreads equal, fall below, and exceed transfer cost. Calculated probabilities in each market sum up to one following basic rules of probability. Standard errors of probability regimes are reported in parentheses. Distances in kilometers between district towns are from the Travel Distance Calculator (www.mapcrow.info).

Our results are generally indicative of overall improved spatial arbitrage efficiency across the maize market compared to findings of previous studies. According to our result, the index of market inefficiency, the probability of observing regime III (profitable but unexploited arbitrage opportunities) is substantially low in all markets across the study period.

The index averages 2.5 percent across the study period in the commercial centre of Lilongwe. It is even lower, less than 2 percent in the rest of noncommercial centers serve for Ntchisi. This is a very significant decrease from the 13 to 38 percent incidence of regime III during 1999 to 2008 period as reported by Zant's (2012) study. Notwithstanding lower indicators of market inefficiency, the study found high probabilities of being inside parity bounds (regime II i.e. without trade or with loss-making trade), 75 percent and 54 percent of the time in the Nsanje and Chikwawa respectively. This is suggestive of prohibitive transaction costs of grain trading in the lower shire. Incidence of probability I (efficient spatial price arbitrage) is highest

in commercial centre of Lilongwe, 97 percent and averages 51% in noncommercial centers. This implies, for the period under study incidence of efficient spatial price arbitrage were observed more than 50% of the time across the Malawi maize market. The probability of not being in regime I (the sum of regime II and regime III probabilities) is between 1 to 2 percent in the commercial centre of Lilongwe and between 4 to 40 percent in noncommercial centers. This is a significant improvement from the 46 to 57 percent observed during 1999-09 period in Zant's (2012) study.

Only Ntchisi seem to be showing much inefficiency with the indicator of market inefficiency (regime III) occurring 18 percent of the times and regime II occurring 62 percent across the study period. Only 20 percent incidence of efficient spatial arbitrage was observed in Ntchisi. These results are however not surprising because they are similar to findings of a study on spatial maize market integration by Nyongo (2009). According to Nyongo's study, Ntchisi is not well linked with other maize markets hence its outlier status should not be surprising.

4.3.3 CALCULATED REGIME PROBABILITIES WITH AND WITHOUT FOOD SHORTAGES

Having established that there has been improvement in the Malawi maize market, we turn to establish whether frequency of spatial arbitrage efficiency substantially decrease during food shortages increasing either the probability of no trade or loss-making trade or the probability of profitable but unexploited trade opportunities. Table 3 presents resulting trade regime probabilities allowing for parameter estimates to vary across periods with and without food shortages.

Table 3: Parity Bounds Model's Estimated Regime Probabilities for Malawi Retail Maize Markets During Periods With and Without Food Shortages.

	Distance in Kilometers(KM)	Regime I		Regime II		Regime III	
		Without Food Shortages	With Food Shortages	Without Food Shortages	With Food Shortages	Without Food Shortages	With Food Shortages
Kasungu-Lilongwe	108.81	0.187	0.194	0.621	0.806	0.192	0.9E-10
		(0.098)	(0.077)	(0.095)	(0.077)	(0.078)	(0.4E-9)
Mwanza-Nsanje	166.16	0.1E-2	0.404	0.437	0.597	0.562	0.2E-15

		(0.95)		(0.126)	(0.091)	(0.126)	(0.091)	(0.1E-14)
	74.46	0.548	0.403	0.452	0.598	0.9E-6	0.1E-3	
Mulanje-Chikwawa		(0.143)	(0.119)	(0.143)	(0.119)	(0.1E-3)	(0.1E-2)	
Mulanje-Thyolo	38.60	0.391	0.091	0.609	0.909	0.9E-4	0.1E-8	
		(0.141)	(0.073)	(0.141)	(0.073)	(0.4E-3)	(0.5E-8)	
Kasungu Nkhota	88.79	0.172	0.445	0.420	0.555	0.408	0.3E-5	
Kot		(0.138)	(0.092)	(0.105)	(0.092)	(0.134)	(0.8E-4)	
Mchinji-Ntchisi	115.69	0.363	0.5E-02	0.637	0.077	0.6E-6	0.918	
		(0.108)	(0.241)	(0.108)	(0.059)	(0.2E-5)	(0.263)	

Notes: Regime I, II, and III are defined respectively when price spreads equal, fall below, and exceed transfer cost. Distances in kilometers between district towns are obtained from the Travel Distance Calculator (www.mapcrow.info).

There is slightly more price inefficiency during periods with food shortages than periods without food shortages. The indicator of market inefficiency, regime III, does substantially increase in 83 percent of market pairs during periods with food shortages. This finding is consistent with findings of Zant's (2012) study that equally found that there was substantial decrease in the efficiency of spatial maize price arbitrage across the 2001-02 food shortage period. However, magnitudes of the increase in the indicator of market inefficiency are comparatively small, less than 20 percent, in the period under study pointing to some structural improvements in the Malawi maize markets. The probability of not being in regime I consistently rises across all markets with food shortages both in commercial and non-commercial maize markets. This rise in probability of not being in regime I is also low, between 31 percent and 50 percent, which is lower than the 46 to 57 percent found by Zant (2012). Ntchisi turns out an outlier once more with substantial decrease in spatial arbitrage inefficiency from 91% times observed across periods without food shortages

to less than one percent during periods with food shortages. This may be due to the delinked nature of Ntchisi maize market and data paucity as argued above.

5.0 CONCLUSIONS AND POLICY IMPLICATIONS

This study set out to establish empirical evidence of improved spatial price arbitrage efficiency in Malawi maize markets. The study pulls data from a number of sources to estimate the transaction costs between 2006 and 2016. Using Baulch (1997) Parity Bound Model as modified by Zant (2012). The study finds evidence indicative of improved level of spatial arbitrage efficiency across Malawi maize markets. Improved levels of spatial arbitrage efficiency imply traders can efficiently respond to localized shocks on time sourcing and transferring maize to deficit area. In a paper examining likely effectiveness of franchising the water service delivery in South Africa, an emphasis was made on the need to formulate a franchise model that can be developed and made available to current and emerging entrepreneurs as the basis of a viable business (Wall, 2006). The reason, quite simple to grasp, is that such viability will upbeat local entrepreneurs' willingness to take up franchise opportunities the franchisor would be offering. The same issue was re-echoed in a paper assessing the effectiveness of bus franchising in developing countries (Gwilliam, 2005). With appropriate supporting policies in place, findings of this study are positive of likely success of franchising ADMARC social markets. A franchise arrangement for ADMARC's social markets would lessen government's fiscal burden of having to subsidize both production thorough fertilizer subsidies and consumption of maize through ADMARC social markets.

Government has often insisted that food shortages in some areas is exacerbated by hoarding behavior of private grain traders. This is collaborated with the findings of continued trend of decreasing spatial arbitrage efficiency during periods with food shortages (during droughts and famines). A successful franchise arrangement would take care of hoarding behavior of the private players in the maize market thorough properly instituted incentives and other deliberate policy measures including access and use of ADMARC's vast network of storage facilities and selling depots.

Apart from that, the continued trend of decreasing spatial arbitrage efficiency during periods with food shortages still point to structural challenges facing local grain traders hence need for government to still address such issues of trading infrastructure and communication. The development of better infrastructure (in particular better transport linkages and storage facilities) may be expected to play an important supporting role in promoting structured markets in Malawi. For a commodity like maize, with relatively low value to weight ratio, it would greatly benefit from improved trading infrastructure and efficient flow of market information. Malawi's rural road network is one of the poorest in southern Africa, with vehicle operating costs that exceed those in neighboring countries. Building and maintaining better roads and

rehabilitation of rail corridors has potential of significantly reducing transportation costs to areas which are prone to food deficits.

However, there is need to further study the Malawi maize market with more quality and more recent data i.e high frequency wholesale data in order to have a clear picture of developments in the market. This is all worth a while because maize being Malawi's staple food any misinformed policy moves pose a food security hurdle to the masses.

5.1 LIMITATIONS OF THE STUDY

The main challenge in this study hence its limitation has to do with data. The study employed monthly retail maize prices from the Famine Early Warning System. The issue of data paucity can be pointed outright as the main challenge. The Data had many missing values that may have affected our results. In the case of Malawi maize markets, we have no high frequency data (i.e weekly) readily available, let alone for this the purposes of this study.

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APPENDICES APPENDIX A: DIAGNOSTIC TESTS RUN

A number of diagnostic tests were conducted to ensure that estimated transaction costs were correct, hence subsequently computed market indicators and trading regimes are fit for meaningful interpretation.

TESTING WHETHER TO INCLUDE TIME-FIXED EFFECTS: THE TIMEFIXED EFFECTS TEST

To see if time fixed effects are needed in case we will be running a FE model we conduct a joint test to see if the dummies for month, the time variable are equal to 0. If they are, then no time fixed effects needed i.e. there are no time fixed effects needed in this case.

TESTING FOR HETEROSKEDASTICITY: MODIFIED WALD TEST FOR GROUP-WISE HETEROSKEDASTICITY

The modified Wald test is going to be used check for group-wise heteroskedasticity in our regression model. With heteroskedasticity present OLS calculates biased standard errors and inefficient (not “BLUE”) estimates hence need to accordingly address it.

AUTOCORRELATION

Ignoring cross-sectional correlation in the estimation of panel models can lead to severely biased statistical results (Hoechle, 2007). Serial correlation in linear panel-data models biases the standard errors and causes the results to be less efficient hence there is need to identify serial correlation in the idiosyncratic error term in a panel-data model and deal with it appropriately, if any. Wooldridge’s test for serial correlation (in fixed-effects one-way models) (2002) has been chosen in this study because it can be applied under general conditions, it is easy to implement and there is evidence that the Wooldridge test has good size and power properties in reasonably sized samples (Drukker, 2003).

Serial correlation in linear panel-data models biases the standard errors and causes the results to be less efficient, there is need to identify serial correlation in the idiosyncratic error term in a panel-data model. A new test for serial correlation in fixed-effects one-way models derived by Wooldridge (2002) was applied to our fixed effect regression and the following were the results:

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

$F(1, 15) = 45.465$

Prob > F = 0.0000

A significant test statistic indicates the presence of serial correlation. We corrected for this by estimating standard errors that are completely robust to any kind of serial correlation using the ‘cluster’ command in Stata13 and a cross section identifier (csid) in our fixed effect regression. See appendix B for corrected model test results.

CHOOSING BETWEEN FIXED EFFECT AND RANDOM EFFECT MODEL:

HAUSMAN TEST

To decide between fixed or random effects models we run a Hausman test. The Hausman test compares a consistent but less efficient estimator (fixed effects) to a more efficient estimator that is only consistent

under the null (random effects). The null of the Hausman test is that the coefficients from fixed and random effects are not systematically different. Alternatively stated, we basically tests whether the unique errors u_i are correlated with the regressors, and the null hypothesis is that they are not (Green, 2008). If random effects are consistent then we might expect that its coefficient estimates will not be significantly different from the fixed effects ones.

Rejecting our null hypothesis means that it is unlikely for random effects to be consistent, hence fixed effects would be the better choice in our study.

Performing a Hausman test we get:

Test: Ho: difference in coefficients not systematic

$$\begin{aligned}\chi^2(2) &= (b-B)'[(V_b - V_B)^{-1}](b-B) \\ &= 5.19 \\ \text{Prob} > \chi^2 &= 0.0228\end{aligned}$$

Since p-value of our χ^2 is < 0.05 (i.e. it is significant) we go for fixed effects model. This is because random effects is a matrix weighted average of the between and the within variation in our data (fixed effects only uses the within variation and does not consider the information contained in the between variation, hence it is less efficient). Thus, with indication that random effects are not going to be consistent we are better off choosing fixed effects.

TESTING WHETHER TO INCLUDE TIME-FIXED EFFECTS: THE TIMEFIXED EFFECTS TEST

To see if time fixed effects are needed when running a FE model we test conduct a joint test to see if the dummies for month, the time variable are equal to 0, in which case they are then no time fixed effects needed.

- (1) 1.month = 0
- (2) 2.month = 0
- (3) 3.month = 0
- (4) 4.month = 0

(5) 5.month = 0
 (6) 6.month = 0
 (7) 7.month = 0
 (8) 8.month = 0 (9)
 9.month = 0
 (10) 10.month = 0
 (11) 11.month = 0
 (12) 12.month = 0

F(10, 117) = 1.44
 Prob > F = 0.1702

Our Prob>F is > 0.05, so, at 5% level of significance we failed to reject the null that the coefficients for all years are jointly equal to zero, therefore no time fixed effects are needed in this case.

TESTING FOR HETEROSKEDASTICITY: MODIFIED WALD TEST FOR GROUP-WISE HETEROSKEDASTICITY IN FIXED EFFECT REGRESSION MODEL

Conducting a modified Wald test for group-wise heteroskedasticity in fixed effect regression model we find evidence of heteroskedasticity.

H0: $\sigma(i)^2 = \sigma^2$ for all i

chi2 (15) = 1.9e+05
 Prob>chi2 = 0.0000

According to (Wooldridge, 2011), when number of panels is fairly large the "cluster" option after FE in our fixed effect regression estimation in Stata is attractive as option in estimating standard errors that are robust to certain violations of the underlying our econometric model. So, after Wooldridge we estimate and make use of standard errors that are completely robust to any kind of heteroskedasticity in our fixed effect model. See appendix A for corrected model test results.

APPENDIX B: DIAGNOSTICS RESULTS

AFTER CORRECTING FOR HETEROSKEDASTICITY

Fixed-effects (within) regression Number of obs = 144

Group variable: year Number of groups = 15

R-sq: within = 0.0087 Obs per group: min = 3 between =
0.0653 avg = 9.6 overall = 0.0023
max = 12

 F(2,127) = 0.56 corr(u_i, Xb) = -
0.7347 Prob > F = 0.5727

```
-----+----- Inpd3 | Coef.
Std. Err. t P>|t| [95% Conf. Interval]
-----+----- Intcd |1.654325
.5656838 2.92 0.004 .5355011 2.773149 trend |-.0505446 .0136506-
3.700.000 -.0775431 -.023546 wpi | .0534363 .0172383 3.10 0.002
.019342 .0875307
_cons |13.13824 4.795873 2.74 0.007 22.62364 3.652835
-----+----- sigma_u
| .42291997 sigma_e | .92084996
rho | .17418853 (fraction of variance due to u_i)
```

F test that all u_i=0: F(2, 134) = 5.58 Prob > F = 0.0047

Modified Wald test for groupwise heteroskedasticity in fixed
effect regression model

H0: $\sigma(i)^2 = \sigma^2$ for all i

chi2 (15) = 1.9e+05
Prob>chi2 = 0.0000

AFTER CORRECTING FOR AUTOCORRELATION

Wooldridge test for autocorrelation in panel data

H0: no first-order autocorrelation

$$F(1, 14) = 3.283$$

$$\text{Prob} > F = 0.0915$$

DESCRIPTIVE STATISTICS FOR THE MONTHLY RETAIL PRICES

Variable	Obs	Mean	Std. Dev.	Min	Max	-----+-----

kasungu	107	41.69159				
37.32403	7	222	lilongwe	184	53.37332	49.45133 7.02
256.45						
mulanje	184	50.69565	50.77288	6	259	nsanje
	144	53.22917	47.71326	5	277	chikhwawa
140						
54.34286	45.58584	7	253	-----+-----		

thyolo	124	61.81452	53.44435	7	303	
nkhotakota	142	51.82394	44.37306	9	278	mchinji
156						
43.6859	34.4087	6	177	ntchisi	134	50.67164 39.73725
7	250					

Increasing School Retention Within Vulnerable Populations

Author

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Abstract

Approximately 52% of Malawian students complete primary school. Only 16% of children attend secondary school, and of those students, less than 1/4 complete all four years. This has resulted in over 2.4 million children being out of school. High rates of school dropout have directly impacted poverty rates in developing nations. Vulnerable populations are at a higher risk of school dropout and increased rates of poverty. To curb the growth of poverty, governments, organizations, and communities must address the low rates of school completion and high rates of school dropout amongst vulnerable populations.

Government and non-government-initiated life skills programs have been introduced in Malawi's primary and secondary schools to address this concern. One of these programs is Why Wait?. Why Wait? is a Bible-based life skills program that teaches abstinence, being faithful in marriage, and character development. The Why Wait? program was initially designed to decrease the rate of HIV/AIDS and was officially launched in 1995 with the approval of Malawi's government. SAFE, an FBO of Malawi, coordinates the training and implementation of the program.

Recent research revealed how the Why Wait? program is having a significant impact on reducing school dropout rates across all three regions of Malawi. The Why Wait? program combines social and emotional learning components, personal wellness, and critical thinking skills necessary to avoid many of the causes of school dropout, such as pregnancy, marriage, peer pressure, and the cycle of poverty. In addition, Why Wait? is effective in its curriculum design and teacher preparation program. This holistic approach to life skills education has resulted in positive outcomes, including increased academic performance and school retention.

This paper aims to summarize the findings of the study to create a framework stakeholders can use to increase school retention by implementing an effective life skills program that uses practical

teaching practices to meet the needs of the whole child and positively impact communities. A logic model outlines inputs of the organization and community, activities necessary for successful implementation, and both the short and long-term outcomes for individuals, schools, and communities.

Key Words: School retention, school dropout, framework, life skills program, Malawi

Introduction

In 2021, the World Bank released a report showing Malawi's poverty rate at 51%, causing it to be one of the poorest countries in the world. Attributing to high poverty rates is the low degree of school completion. Data reveals only 54% of Malawian students complete primary school, and of the 16% who attend secondary school, only 22% complete all four years (UNAID, 2020; World Bank, 2021). These staggering figures have resulted in nearly 2.4 million children not enrolled in school. Malawi is not the only country struggling to increase school retention. In Ethiopia, only 38% of students persist from the first grade of primary to the last; in Mozambique, only 43%, Uganda, 35%, Ghana, 82%, and Zambia, 55% (World Bank, 2021).

Statement of Problem

Poverty rates in developing nations have been directly impacted by these high rates of school dropout (Glynn et al., 2018). These low rates of school completion and high rates of school dropout must be addressed in an effort to curb the growth of poverty rates amongst vulnerable populations (Maluwa-Banda, 2003).

Recent research revealed how a Biblical Life Skills program called Why Wait? has a significant impact on reducing school dropout across all three regions of Malawi (Meyer, 2022). Findings confirmed the causes of school dropout and the effect within a community. In addition, the study produced information on the effectiveness of the Why Wait? program's curriculum and specific teacher preparation, and how stakeholders could both implement and improve similar programs in their areas to increase school retention amongst vulnerable populations.

This paper aims to summarize the findings of this study to create a framework stakeholders can use to increase school retention by implementing an effective life skills program that uses practical teaching practices to meet the needs of the whole child and positively impact communities. A logic model for increasing school retention has been included. The plan consists of the inputs of the organization and community, activities necessary for successful implementation, and both the short and long-term outcomes for individuals, schools, and communities.

Introduction of Research

In the context of sustainable development, vulnerable groups are defined as,

Any group or sector of society that is at higher risk of being subjected to discriminatory practices, violence, natural or environmental disasters, or economic hardship than other groups within the state; any group or sector of society (such as women, children or the elderly) that is at higher risk in periods of conflict and crisis. (Engel, 2014)

The term vulnerability is then defined as “The predisposition of groups or individuals to be adversely affected by events or shocks.” Vulnerable populations are at a higher risk of school dropout and increased rates of poverty. My recent 2022 research outlines how implementing a Biblical Life Skills program has increased school retention in Malawi.

Researcher

Since 1995, I have been an educator in various capacities, both in and outside the K-12 classroom. I currently work as an Assistant Professor for the School of Education at a private university in the United States. In 2018, I led a group of individuals to serve in Malawi's villages, schools, and communities. During these two weeks, I observed the work of the faith-based non-government organization (FBO), SAFE (Sub-Saharan Africa Family Enrichment). SAFE was founded initially by Americans Dick and Charlotte Day but currently is the work of Malawian nationals. SAFE's mission is to serve the most vulnerable people of Malawi, from the orphans to the elderly. They assist in food security, educational programs, community development, and meeting individuals' spiritual and emotional needs (Gogo Grandmothers, n.d.).

An educational program and intervention designed and implemented by SAFE is a biblical life skills program titled *Why Wait?*. Why Wait? is a life skills curriculum taught at primary and secondary levels in either a life skills course or an extracurricular club. Our 2018 team spent time informally observing Why Wait? being taught in the classroom. Teachers used case studies and Bible stories to teach actual life application of moral standards, problem-solving, and decision-making. School staff shared about the changes they had witnessed in students since the program's implementation. Positive impact stories were shared from individuals who had participated in the program even as far back as the mid-90s.

I also learned that schools implementing the program saw a decrease in school dropout. These claims, and my personal observations, inspired my desire for further research and evaluation of the program and the components having such an impact on students both academically and personally.

Why Wait? Program

Why Wait? is a Bible-based life skills program that teaches abstinence, being faithful in marriage, and character development (Gogo Grandmothers, n.d.). The *Why Wait?* program was initially designed to decrease the rate of HIV/AIDS and was officially launched in 1995 with the approval of Malawi's government. SAFE, an FBO of Malawi, coordinates the training and implementation of the program. SAFE personnel monitoring the program have reported a reduction in school dropout numbers in participating schools (P. Ntibula, personal communication, November 1, 2019).

Research Study

The study was a qualitative case study and formative evaluation to determine if the *Why Wait?* program is effective in decreasing school dropout (Patton, 2015). The study aimed to show the program's overall effectiveness and specific strengths and weaknesses. Data was collected from both primary and secondary schools in each of the three regions of Malawi. Teachers and head teachers were interviewed using a structured protocol. All schools participating in the study had implemented the *Why Wait?* program for a minimum of 3 years. The study's goal was to provide stakeholders in both Malawi and comparable populations with the necessary information to adopt the *Why Wait?* program or improve life skills programs currently being used.

Research Question

This study answered the question,

What were components of the biblical life skills program effective in reducing the rate of school dropout?

Findings

Causes of School Dropout in Malawi

To combat the issue of school retention, it is imperative first to have a clear understanding of the causes of school dropout. Previously, in 2019, USAID reported the top three reasons for school dropout in Malawi were child marriage, early pregnancy, and family responsibilities. In this most recent study, teachers and administrators added to this list when they claimed the top six causes for dropout were poverty, early pregnancy, child marriage, school not deemed as essential or necessary, peer pressure, and a lack of parental care (Meyer, 2022).

Poverty was the top reason given for students dropping out of school. Many experienced a lack of money for school fees, food, or other basic needs. Parents and students did not understand the connection between the level of education and poverty rates. Teachers explained this lack of knowledge resulted in parents pressuring their children to leave school to find work.

Poverty was also seen as an indicator of the number of early pregnancies and child marriages resulting in school dropout. One teacher shared a common scenario: “Some students drop out because of early pregnancy, especially the girls. Poverty makes this happen. To get food, pocket money, clothing, fees, they have to sleep with someone for money.” Teachers also shared how girls were encouraged to show they were fertile to ensure cultural acceptance. The need for money or to prove fertility results in high numbers of pregnancies and marriages.

The absence of parental supervision and community influences also produced increased numbers of students leaving school. Malawi’s high number of orphans suffer from both financial and physical necessities. The basic needs of this vulnerable population create the condition to work, have sex for money, or revert to early marriage. Many parents and community members do not deem school essential and are modeling this for the children. The lack of positive role models leads to further dropout.

Poverty, early pregnancy, child marriage, lack of importance placed on school, peer pressure, and an absence of parental care or role models are the top reasons for school dropout. Understanding this allows stakeholders to design, adopt, and implement a program that targets the issues directly. *Why Wait?* is a program that has been shown to address these specific concerns.

Program Implementation & Training

Currently, the *Why Wait?* program is implemented by over 200 *Why Wait?* trained teachers in 45 select schools. The program can be found in Standards 5 through 8 and Forms 1 through 4 (Chimombo & Day, 2007; Chimombo & Day, 2013). Both primary and secondary schools incorporate the curriculum either within the mandatory life skills course, after school as an extracurricular club, or both. *Why Wait?* teachers participate in a required 5-day training. During the first day of training, trainees are introduced to a variety of *Why Wait?* topics. The teachers first apply these concepts personally as they self-reflect on their spiritual health, relationships, moral values, the country, and communities. Day 2 allows time for individuals to share personal insights from the previous day. The third training day focuses on implementing the program using effective teaching strategies and best practices. During the last two days, individuals learn to utilize a strengths-based approach to education, teach both character and life skills related to real life, and advise or mentor students on a fundamental level.

Curriculum

Each level of the program is broken down into age-appropriate lessons written to the culture and norms of the area. Lessons use the characters within stories to teach key life skills concepts. The Bible is used as a source for teaching each idea and its life application. The World Health Organization (n.d.) defines life skills as

A structured program that teaches a group of psychosocial competencies and interpersonal skills that help people make informed decisions, solve problems, think critically and creatively, communicate effectively, build healthy relationships, empathize with others, and cope with and manage their lives in a healthy and productive manner. (p. 3)

Each of these competencies is taught throughout the *Why Wait?* program. Each of the eight curriculum levels has been written to include 30 individual lessons covering an array of age and culturally appropriate topics (Chimombo & Day, 2007; Chimombo & Day, 2013). In Standard 5, students would be exposed to ideas about rules, responsibilities, HIV/AIDS, and making choices. In the following year, the program introduces family, friends, and self-discipline topics. In Standard 7, the class builds on previous knowledge with the addition of being obedient and dealing with peer pressure. Standard 8 concludes with ideas such as responsibility, practicing abstinence, having patience, and communicating effectively.

In Form 1 of secondary school, *Why Wait?* teaches foundational concepts such as basic human needs, self-worth, and premarital sex (Chimombo & Day, 2007; Chimombo & Day, 2013). In the following year, students discuss the aspects of love, emotions, and leadership. Form 3 allows students to learn decision-making skills, communication, and understanding of their sexuality. Secondary school concludes with instruction on accepting and appreciating others, personal accountability, and parenting responsibilities.

The *Why Wait?* curriculum incorporates Social Emotional Learning competencies such as self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (CASEL, 2020). The program also teaches character traits and implementation strategies such as cooperative learning, moral dilemma discussion, developmental discipline, and school-wide character (Berkowitz, 2011). In addition, the *Why Wait?* curriculum, training, and implementation have been designed to meet Malawi's National Education Standards for Primary and Secondary Education (MoEST, 2015). One tenet of Malawi's Ministry of Education, Science, and Technology (MoEST) National Education Sector Plan (2008-2017) is to "improve quality and relevance of education to reduce drop-out and repetition and promote effective learning." The National Education Standards for Primary and

Secondary Education align with many of the objectives of the Why Wait? program such as teaching life skills, moral values, teacher development, and organization partnerships (Meyer, 2022).

Skills Learned in Why Wait Training & Implementation

The Why Wait curriculum and implementation of the program have been specifically designed to both equip and encourage students in their daily lives to complete their education. One way the program can address the challenges of school dropout is through the skills teachers learn in their Why Wait? training and then implement in their classrooms. Teachers are introduced to the Why Wait? curriculum, how to deliver lessons effectively, the importance of building relationships with students, and how to reflect and grow personally.

Malawi's National Education Standards for Primary and Secondary Education (MoEST, 2015) requires that teachers complete the training necessary to deliver curriculum and standards effectively. UNICEF (2012) says teachers need to role model and facilitate life skills content. This is done effectively when teachers engage students in discussion, cooperative learning, and critical thinking. (Berkowitz, 2012). *Why Wait?* teachers meet both of these objectives when they complete the five days of training. In training, they learn content knowledge, strategies for student engagement and effective implementation, and how to meet students' social and emotional needs.

This study showed that teachers believed the Why Wait? training taught them the skills necessary to create a safe and inclusive place for students to learn (Meyer, 2022). Additionally, they learned how to teach life skills effectively, problem-solving, decision making, goal setting, and how to advise, guide, and counsel students experiencing various life circumstances. Why Wait? trainers taught the group how to incorporate games, role-playing, case studies, and discussion into their lesson delivery. Teachers shared how the new strategies in student engagement quickly replaced their ineffective direct instruction routines. The 5-day training taught the participants how to use the curriculum and support students in applying the concepts to real-life situations. They began to incorporate small group instruction in their courses and learned how to align their lessons to meet Malawi's National Education Standards.

The Why Wait? training focused not only on curriculum and instruction, but participants also understood the importance of building relationships with students through guidance and encouragement. The training explained why meeting students' social and emotional needs were critical and how teachers could assist them in the challenges they encountered in life. Teachers discussed how to share the love of God as they counseled students and advised parents. Because of the personal reflections embedded in the training, trainees shared how their character had changed. They learned to respect students, study the

Bible, and apply life skills. They saw the need for kindness, care, and encouragement in their families, communities, and classrooms.

Teachers who have completed the Why Wait? program were asked what they learned through the process. One shared, “I acquired a lot of skills of how to introduce lessons to learners, how to deliver it, how to give them activities, and how to assist the learners in need who are failing to perform.” Another claimed,

I benefited a lot because some of the skills I learned there I use in other lessons outside of life skills. I am encouraged to use them. They have changed my profession as a teacher. I lacked motivation in the past, but as I implement these skills, I can see this helped me be motivated in my lessons.

Outcomes of the Why Wait Program

The implementation of the Why Wait? program resulted in positive outcomes both in and outside the classroom. Teachers saw a decrease in risky behaviors and school dropout, improved teaching, and increased student performance.

Research findings showed a drastic reduction in risky behaviors that formally led to school dropout. Behaviors such as sexual relationships, early pregnancies, and child marriages had decreased significantly. The peer pressure to use alcohol and drugs and participate in theft had dropped. There was an upturn in the love and respect shown towards peers and authority figures and a lessening of relational conflict. Student behavior was not the only noticeable change; the behavior of teachers improved as well as they modeled the Why Wait? lessons in their own lives. One head teacher shared how parents and other community members noticed these behavioral changes and communicated their approval to school personnel. Much of this change was attributed to teaching Bible knowledge, which is also a part of the spiritual standards. These outcomes resulted in a positive impact on the school, families, and the community.

Because teachers learned strategies to deliver Why Wait? content effectively, they could apply those skills to the other courses they taught. The increase in student engagement across all content areas resulted in a rise in their academic performance. Pass rates for Primary School Leaving Certificate Examination (PSLCE) jumped dramatically upon implementing *Why Wait?* (Meyer, 2022). Acceptance by universities and life skills exam scores increased as well. This growth in student performance caused a substantial rise in student retention. The decline in school dropout is a product of the Why Wait? program. These are significant results critical to aiding stakeholders in designing and implementing successful programs in Malawi and other developing nations.

How Why Wait? Keeps Students in School

Why Wait? teaches individuals the skills necessary to make wise decisions and build healthy relationships. The Bible knowledge studied in the program helps participants appreciate their importance because they were created in the image of God. Because of this, every person understands they are worth waiting for in both sex and marriage (Meyer, 2022). One Why Wait? teacher shared that when you ask the students, “Why wait?” they respond, “Because I am special!” Waiting for both sex and marriage allows students the opportunity to complete school and avoid HIV/AIDs.

The Why Wait? program meets the needs of the whole child by addressing both social and emotional needs and Malawi’s National Education Sector Plan Standards (MoEST, 2015). When teachers were asked what the difference was between Why Wait? and the government issued a life skills curriculum they responded that Why Wait? takes government-required topics and makes them engaging and applicable to real life (Meyer, 2022). One of the teachers interviewed built on this idea when she shared,

I was able to understand that if you understand somebody’s heart, you will be able to learn their mind. I came to understand that these learners have got stories that we need to listen to. They have got experiences that they need to share with us. They have got burdens that we need to understand and at least give them a hope that it will pass them.

Studies show that teaching students to make content applicable to their daily lives helps meet their social and emotional needs. Programs that incorporate social emotional learning (SEL) equip individuals to display positive dispositions and utilize skills that help decision-making (CASEL, 2020). SEL programs include lessons on self-awareness and management, social awareness, relational skills, and problem-solving. These proficiencies result in a decrease in poverty-related issues and risky behaviors (Meyer, 2022). The Why Wait? program combines social emotional learning components, personal wellness, and critical thinking skills necessary to avoid many of the causes of school dropout, such as pregnancy, marriage, peer pressure, and the cycle of poverty.

Teachers believed there were two causes of school dropout that could be addressed more intentionally through the Why Wait? program. Those were the lack of parental care and the lack of importance placed on attending school. Research participants believed both of these challenges could be addressed through civic education. The program could educate parents, village leaders, and communities about the care for children and how education can help break the cycle of poverty.

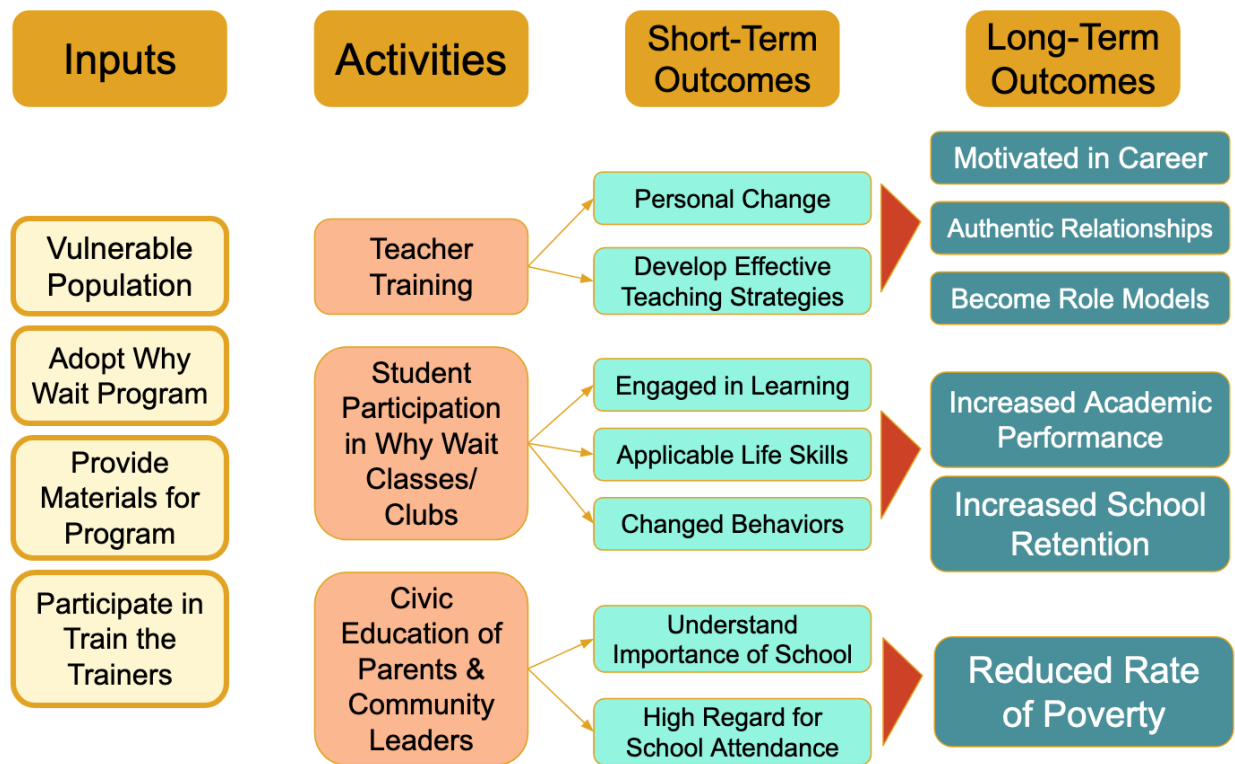
Recommendations for Practice

Logic Model

This article aims to provide stakeholders with the information necessary to increase school retention by implementing the Why Wait? program or other like activities. Figure 1 shows a logic model outlining the inputs and activities of the program and the resulting short and long-term outcomes.

Figure 1

Logic Model: How to Increase School Retention



Stakeholders have the opportunity to reduce school dropout within a vulnerable population. The Why Wait? program is available for adoption within the primary and secondary school contexts. It is vital that program administrators provide adequate materials for its success. These materials include course curriculum, Bibles, and incentives for both teachers and students. Teacher incentives could be name tags,

program shirts, and training certificates. Student incentives could include pencils, participation certificates, candy, or special activities. It is vital all program coordinators participate in a Train the Trainers program. Understanding the program first-hand is critical to successful implementation.

There are three overarching activities essential to the success of the program; teacher training, student participation, and civic education. Each of these three activities produces short-term outcomes stakeholders will see upon implementation. Additionally, the long-term outcomes produced will have significant impacts throughout communities.

All individuals volunteering to teach the course are required to complete the 5-day Why Wait? training. They will engage in personal reflection, character growth, and personal change here. In addition, participants will learn and practice effective teaching strategies shown to engage students in deeper learning. These personal and professional short-term outcomes have long-term effects. Because of the personal change and new teaching skills, individuals have claimed an increase in their personal and professional motivation. The best practices learned during training assist teachers in meeting students' social and emotional needs through the development of authentic relationships. The combination of both personal and professional growth enables teachers to become the role models students need to observe and imitate.

Students should participate in Why Wait? either within a required life skills course, as a member of an extracurricular club, or in both. Students' involvement in the program allows them the experience of being actively engaged in learning. Through the lessons taught and the methods used to deliver them, students can connect the content to their life experiences. This makes learning meaningful, relevant, and applicable. Program participation has shown a reduction in risky behaviors by teaching moral standards, self-worth, and decision making. These short-term outcomes result in substantial long-term impacts with increased academic performance and school retention.

Incorporating the civic education of parents and community leaders is an activity that will increase the program's impact. Why Wait? initiated meetings will allow administrators to educate the community about the relevance of school and its effect on the cycle of poverty. As parents and community members gain this understanding, they will have a higher regard for their children's involvement in school. An increase in school attendance will create higher school retention and reduced poverty rates. This will then have a positive impact on families and communities.

Conclusion

A report published in 2019 revealed that 37% of Malawi's education budget is spent on issues resulting from school dropout and grade repetition (Global Partnership, 2019b). Life skills programs integrating social emotional learning have an 11:1 return on investment (Belfield et al., 2015). The Why Wait? program includes both Malawi's life skills standards and the components of a social, emotionally based curriculum (Meyer, 2022). This holistic approach to life skills education has resulted in positive outcomes, including increased academic performance and school retention.

What does this mean for vulnerable populations other than Malawi? The original research was done with the goal of transferability to similar populations, incorporating a thick, rich description (Meyer, 2022). Information about participants, school site settings, and experiences was carefully noted. The high level of transferability allows stakeholders in both Malawi and other vulnerable populations to implement the program components in specific settings.

One goal of Malawi's National Education Standard 4 (MoEST, 2015) is that "Students' participation in education strives to improve school completion rates and lessen dropout rates." Schools that have adopted the Why Wait? program have seen a dramatic decline in school dropout (Meyer, 2022). Because of this, I, as both a researcher and an educator, believe program implementation would be a benefit in both primary and secondary schools. The program could be initiated in various ways but should be required of all students. Because the Why Wait? training influenced the instruction of all teachers in a way that impacted their overall teaching and student performance, it would be beneficial to incorporate these modules in all teacher preparation programs.

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Leveraging Educator Preparation Programs as a Conduit to Human Capital Development

Author

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Abstract

This paper examines the strategic positioning of American *educator preparation programs* as the nucleus for *human capital development*. It suggests that the capacity for economic, societal, workforce, and moral advancement is predicated on the education of its citizenry – the foundation of a strong democracy. Specifically, it offers an analysis of education preparation programs in the context of historical and contemporary education in America. It asserts that the basis for economic and social prosperity for an increasingly diverse country will be driven by citizens with postsecondary credentials. Subsequently, the foundation of this examination is the roadmap to postsecondary readiness, which is predicated on academic success in primary and secondary education – contingent upon the efficacy of educators prepared through education preparation programs. This paper includes an in-depth examination of public colleges of education at *historically black colleges and universities* (HBCUs) and the role they could play in the most consequential profession in America and, in essence, the future of the country's most valuable resource – its human capital. It concludes with policy and practice recommendations and considerations for further discussion.

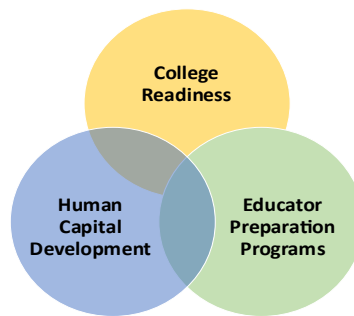
Key Terms: Educator Preparation Programs, Human Capital, Educational Equity, College Readiness

Introduction

This paper was inspired by *Project Pipeline Repair: Restoring Minority Male Participation and Persistence in Educator Preparation Programs*, a multi-state pilot project made possible through funding from the W.K. Kellogg Foundation. As principal investigator and project director for the Project during my tenure as Vice President for Academic Affairs and Equity Initiatives at the State Higher Education Executive Officers Association, Project Pipeline Repair emphasized the importance of a racially diverse teacher force in American schools. Commencing in 2016, the investigation was further influenced by the increasing numbers of students of color in U.S. schools [e.g., African American, and Latino students], inequitable student outcomes, and persistent teacher shortages. I remain grateful to the W.K. Kellogg Foundation for seeding my research for this consequential and complex policy and practice research area.

Leveraging Educator Preparation Programs as a Conduit to Human Capital Development connects several concepts that I argue cannot be decoupled in policy and practice discussions, when creating fair and equitable societies is prioritized. Examining the concepts of human capital development, educator preparation programs, and college readiness offers policy makers and practitioners a rational vehicle to develop and implement outcomes-based reforms that have local, state, and national impacts. To U.S.'s detriment, it is common for these interrelated concepts to be discussed and debated separately despite evidence of their correlation to one another.

Conceptual Coupling



Human capital development can be simply defined as the development of knowledge, skills, and experiences in people to create value and reduce costs to the country, communities, and employers. Human capital drives economic growth at the local, state, national, and international levels, and higher education is a primary driver of this knowledge and skills acquisition necessary for sustained economic growth and workforce development. According Carnevale, A.P. et al. (2014), by 2020, 65 percent of all jobs in the U.S. economy were expected to require postsecondary education and training beyond high school. Acknowledging multiple pathways to the workforce, the bachelor's degree is still considered the leading pathway to economic prosperity – accounting for 56% of all good jobs as defined by the Carnevale, A.P. et. al at the Georgetown Center on Education and the Workforce (2018).

Preparedness for postsecondary education is critical for long-term professional and personal success including access career opportunities. Furthermore, as the pathway to postsecondary education begins with a high school diploma it is incumbent upon policy makers, colleges and universities, and schools to ensure that students with postsecondary aspirations have access to colleges and universities, in addition to programs and services to support attainment. This is where the concept of college readiness intersects with human capital development and educator preparation programs. According to Association for Institutional Research (n.d.) high school graduation rates have increased but there is evidence that suggests too many students are not ready to access or succeed in postsecondary education. College readiness definitions and standards expectedly vary by state, but commonalities have been observed among policies and practices aimed at improving student outcomes and transition from high school to postsecondary education and will be discussed more later in this paper.

Anchoring this discussion and necessary for postsecondary attainment conversations is the positioning of educator preparation programs (EPPs) at the nexus of human capital development strategies. EPPs are responsible for preparing future teachers for U.S. schools, in addition to advancing research to improve education systems and policy. According to the Association of Colleges of Teacher Education (AACTE 2018) there are approximately 2300 colleges and universities that award credentials in education, and more than 300K teaching credentials were conferred between 2015-16. EPP graduates have a direct and consequential impact on student outcomes including postsecondary aspirations, access, and attainment. Despite this impact, the U.S. is experiencing widespread teacher shortages, which will be discussed in more detail later.

James Purcell, Executive Director of the Alabama Commission for Higher Education, is quoted as saying, “No state with a low proportion of bachelor’s degrees has a high per capital income. No state with a high proportion of bachelor’s degrees has a low per capita income.” Those are compelling assertions, especially in a country where demographics are shifting and there are alarming gaps in student outcomes when data are disaggregated by race and socioeconomic status.

Historically black colleges and universities (HBCUs) are featured in this paper given their historical and contemporary roles in American postsecondary education, teacher preparation. The first HBCUs were founded in Pennsylvania and Ohio before the American Civil War with the purpose of educating African Americans who were not otherwise afforded postsecondary educational opportunities due to legal racial segregation and discriminatory policies and practices in the U.S. The basic education and training provided was to become teachers or tradesmen. The Higher Education Act of 1965, as amended, defines an HBCU as: “...any historically black college or university that was established prior to 1964, whose principal mission was, and is, the education of black Americans, and that is accredited by a nationally recognized accrediting agency or association determined by the Secretary [of Education] to be a reliable authority as to the quality of training offered or is, according to such an agency or association, making reasonable progress toward accreditation.” (U.S. Department of Education, n.d.).

Beginning at the end of the Civil War and the abolition of slavery, HBCUs were founded throughout the South with support from the Freedmen’s Bureau, a federal organization that operated during Reconstruction to help former slaves adjust to freedom. In 2020, there were 101 HBCUs located in 19 states, the District of Columbia, and the U.S. Virgin Islands. (National Center for Education Statistics). These institutions, which are a source of accomplishment and great pride for African Americans and others, offer students, regardless of race, educational opportunities. HBCUs remain an important part of U.S. higher education and the White House Initiative on Advancing Educational Equity, Excellence, and Economic Opportunity through Historically Black Colleges and Universities currently works with the Executive Office of the President on key Administration priorities related to advancing educational equity, excellence, and economic opportunity through HBCUs with HBCU leaders, representatives, students, and alumni,” a testament to the enduring importance of these institutions as part of the U.S. postsecondary education ecosystem (U.S. Department of Education, n.d.).

Finally, the concept of equity, which is increasingly at the forefront of cross-sector policy and practice discussions, is included as central to arguments presented in this paper. USC Center for Urban Education (n.d.) asserts that “equity refers to achieving parity in student educational

outcomes, regardless of race and ethnicity. It moves beyond issues of access and places success outcomes for students of color at center focus.” The Center focuses their equity efforts specifically on race and ethnicity citing the historical marginalization of certain racial and ethnic groups in American systems of education.

The Center goes further and uses the term equity-mindedness that refers to perspectives exhibited by practitioners, calling attention to patterns of inequity in student outcomes. These practitioners assume responsibility for the success of their students, and critically reassess their own practices. Equity-mindedness also requires practitioners to be race-conscious and aware of the social and historical context of exclusionary practices in American Higher Education. (USC Center for Urban Education, n.d.).

Together, the concepts of human capital development, college readiness, educator preparation programs, HBCUs and equity offer a foundation and framework to more closely examine strategies that leverage educator preparation for human capital development. There are, however, several converging challenges to this proposition that are discussed in the next section of this paper.

Leveraging Educator Preparation Programs: Converging Challenges

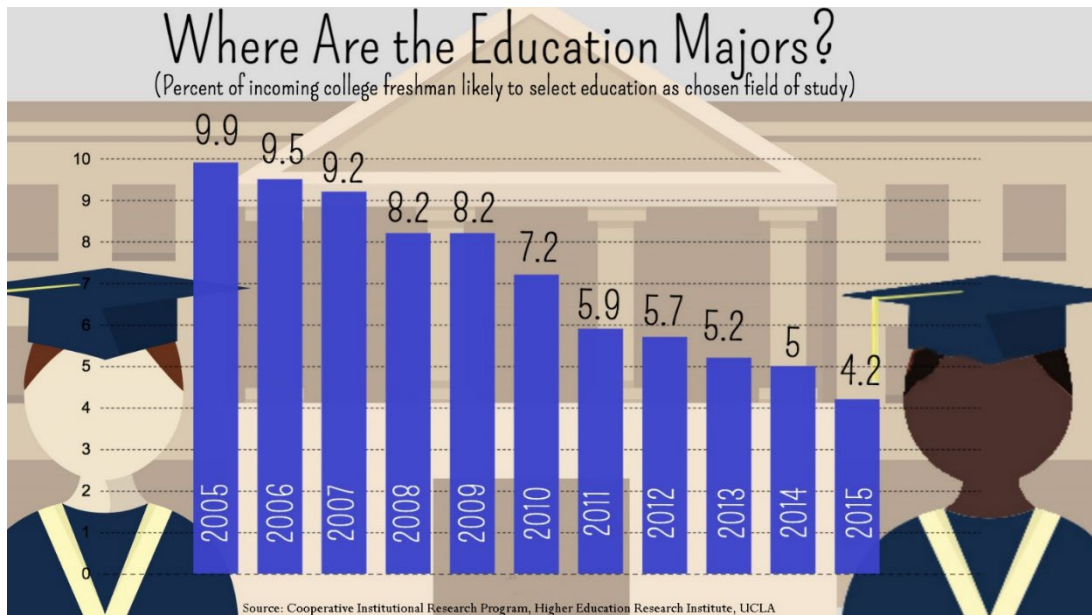
Based on the premise that all economic growth for individuals, families, cities, states, and countries are driven by college educated workers, education preparation programs are necessarily implicated, and policy makers and practitioners are thus compelled to reexamine their effectiveness continually. In addition, developing an equity mindset would further ensure these programs are credentialing teachers who can enter school systems prepare students to access and succeed in postsecondary education. In essence, the argument here is to center teacher preparation programs more intentionally in policies and practices that focus on improving college readiness, dismantling generational poverty, combatting systemic racism, and strengthening human capital in general. This, however, requires closer examination of presenting challenges.

Challenge #1. Declining Interest in the Teaching Profession

Despite the critical importance of an educated citizenry propped up by educator preparation programs responsible for preparing effective teachers to serve in school districts throughout the country, there is declining interest in the profession.

There are myriad reasons for this decline with the most recent being the impact of the COVID pandemic on teachers, which was thoroughly examined in a New York Times article (Goldberg, 2021). The author points out “few professions have been more upended by the pandemic than teaching, as school districts have vacillated between in-person, remote and hybrid models of learning, leaving teachers concerned for their health and scrambling to do their jobs effectively.”

Impact from the pandemic is compounded by educator preparation program administrators’ claims that these current and other longstanding challenges are dissuading potential applicants to these postsecondary education programs given the multitude of alternative majors to pursue. This persistent decline has been observed for decades as illustrated below from a National Education Association (NEA) article.



Source: NEA article “Number of Future Teachers Reaches All Time Low. (Flannery, 2016).

Other and more longstanding reasons for declining interests include competition from other professions, compensation, negative images of the profession in the U.S., and challenging work environments. For African American and other minoritized teachers, pay gaps between white and black teachers, bias and discrimination, and high responsibility and low resource allocation in majority-minority public schools (where many teachers of color are employed) are commonly cited for declining interest in the profession.

The AACTE’s 2018 Colleges of Education: National Portrait (2022) adds to the discussion of challenges, adding the following report highlights:

- Community colleges make important contributions by preparing a diverse student body to pursue careers in the education profession.
- The number of undergraduate education degrees awarded annually was stable until the early 2010s. In 2018–19, fewer than 90,000 bachelor’s degrees were conferred in education.
- Over the last decade, there has been a significant decline in the number of degrees and certificates conferred in high-need specialties, including a 4% decrease in special education, 27% decrease in science and mathematics education, and 44% decrease in foreign language education.
- There is strong evidence that all students of color and white students alike benefit academically from teachers with diverse backgrounds, but there is a mismatch between teachers and PK-12 students served. In 2022, 55% of students in public schools are non-white, presenting an opportunity to engage in early recruitment efforts of diverse candidates.
- Despite concerted efforts to recruit diverse students to pursue teaching as a career path, comparatively few candidates of color are completing traditional teacher preparation programs, with 71% of completers identified as white.

- Colleges of education also lack diversity in their faculty and leadership. Deans, associate/assistant deans, and tenure-track faculty are overwhelmingly white.

Challenge #2. Nationwide Teacher Shortages

Sutcher et al. (2016) report a national teacher shortage of approximately 112,000 teachers. These shortages occur when schools cannot find enough teachers in specific subjects to fill the available job openings – “unable to staff vacancies at current wages with individuals qualified to teach in the fields needed” (Garcia and Weiss, 2019). Reasons for teacher shortages vary by school district, but there are consistent themes across districts, reported by Sutcher et al. to include large scale layoffs that occurred during the Great Recession resulting in thousands of teachers leaving the profession, the precipitous growth in the student population, and a decline in the number of people entering teacher preparation programs. The COVID pandemic also impacted the decision for some teachers to leave the teaching profession.

Regardless of the reasoning, the consequences are measurable and troubling, especially from an equity perspective. Garcia and Weiss (2019) conducted a study that further validated the teacher shortage, characterizing it as “real, large and growing, and worse than we thought.” They pointed to indicators of teacher quality (certification, relevant training, experience, etc.) and asserted the shortage to be even more severe than estimated, with high-poverty schools suffering the most from the shortage of credentialed teachers. They reminded us that teacher shortages have negative consequences for students, teachers, and the public education system in general. In addition to its impact on student learning, high teacher turnover consumes economic resources that may be required elsewhere. Garcia and Weiss also conclude that teacher shortages hinder efforts create and maintain a more positive reputation for the teaching profession, which exacerbates teaching shortages. From an equity perspective, Garcia and Weiss point out that teacher shortages are distributed unevenly among students from different socioeconomic backgrounds, which further challenges the U.S. education system’s need to provide high quality education equitably to all children, regardless of their starting point in life.

Teacher shortages are a national concern as affirmed by U.S. Education Secretary Miguel Cardona’s urging of states, school districts, and higher education institutions to address the issue. In a call to action (March 2022), Cardona is quoted as saying “I have always known that a well-prepared, well-supported, well-compensated, and diverse educator workforce is the foundation for student success. Educator vacancies and other staff shortages represent a challenge as schools work to recover, falling hardest on students of color, students in rural communities, students from low-income backgrounds, students with disabilities, and multilingual learners... Today, I am calling on states, districts, and institutions of higher education to use ARP [American Recovery Program] funds to address the teacher shortage and increase the number of teacher candidates prepared to enter the teaching profession. My team will continue to advise state and local leaders on how they can seize this moment; put COVID relief dollars to work in our schools; and achieve a lasting, equitable recovery for our students.”

Challenge #3. Lack of Teacher Diversity

Teacher shortages have local, state, national, and global consequences, which are compounded by a lack of teacher diversity – another major challenge garnering growing attention in policy and practice areas, including educator preparation environments.

A diverse teacher workforce benefits all students, particularly students of color. Pearson (2019) points to research that highlights the criticality of diverse schools, particularly for African American and other minoritized students raised in low-resourced school districts and communities. As previously mentioned, *Project Pipeline Repair* previously mentioned, elevates the positive impact of teachers of color (e.g., African American, Latino, and Indigenous people) on the academic achievement of students of color as documented by researchers including Scholes, 2018; Carver-Thomas, 2018; Irvine & Fenwick, 2011; and Gershenson, et al., 2017). The table below illustrates the positive impact of teacher diversity and the consequences of its absence.

TeacherDiversity

Presence of Teacher Diversity	Absence of Teacher Diversity
Higher high school completion rates; lower suspension and expulsion rates	Higher rates of suspensionsand expulsions
Higher aspirations to pursue postsecondary education	Higher rates of special education placements
Higher rates of participation in dual creditand Honors programs	Exacerbates the school-to-prison pipeline.
Higher participation in mentoring & study abroad programs	Higher levels of participation in remedial education
Improved college readiness	Decreased college readiness

Teacher shortages have local, state, national, and global consequences, which are compounded by a lack of teacher diversity – another major challenge garnering growing attention in policy and practice areas, including educator preparation environments.

Though the number of teachers of color has grown, it has not kept pace with shifts in the student population. According to Carver-Thomas (2018) the percentage of teachers of color in the workforce has grown from 12% to 20% during the past three decades. However, the teacher workforce does not reflect the country’s growing diversity, where people of color represent about 40% of the population and 50% of students. Carver-Thomas also points out that the number of Indigenous American and African American active teachers is declining, unlike the populations

of Latino and Asian American teachers. Making matters worse, teachers of color collectively have higher turnover rates than White teachers.

The benefits of a diverse teacher workforce extend beyond those students who have long been disadvantaged by the nation's education system. The National Council on Teacher Quality (NCTQ) asserts this in a 2021 Teacher Prep Review, saying "more diverse teacher workforce provides an important first lesson for all children: that the world outside their immediate neighborhood is a tapestry of cultures, traditions, and experiences to embrace, not to be feared or mistrusted" (p.3). Despite benefiting all students, regardless of race and ethnicity, U.S. schools continue to suffer from the lack of diversity – it remains a persistent challenge for leaders throughout the education ecosystem.

Challenge #4. Postsecondary Education Attainment Goals

An attainment goal refers to the educational levels of a state's population; a completion goal speaks to the credential completion of students enrolled at an institution or group of institutions. Improving a state's educational attainment levels requires the collaboration of all educational institutions and other partners, such as K-12 and workforce. It also requires focusing on the completion of students already enrolled, as well as the engagement, enrollment, and completion of new students to meet the broader needs of the state, its employers, and its residents. Attainment goals set the target to which completion goals for postsecondary systems and institutions are aligned. The completion goals may be described as total credentials awarded each year to reach the attainment goal (Lumina Foundation, 2018).

Under the administration of President Barack Obama, the federal government established national degree attainment goals in 2009. The federal goal called for 60 percent of Americans between the ages of 25 and 34 to have earned a two- or four-year college degree by 2020. The Lumina foundation set a similar goal calling for 60 percent of Americans ages 25 to 64 to have a postsecondary credential by 2025 (Lumina Foundation, 2020). Michael Nettles (2017) warns policy makers and others, however, that focusing on producing more degrees by 2020 and 2025 is shortsighted. He asserts that progress in the nation's economy and society will depend more heavily on achievement of these three outcomes:

1. Closing gaps in educational attainment among chronically trailing U.S. population groups
2. The broad array of the nation's colleges and universities major fields are contributing to the degree production and quality assurance progress
3. U.S. colleges and universities and the workforce make substantial gains in increasing their racial and ethnic diversity (p.3-4).

In the ETS report, Nettles makes some sobering forecast about achieving national degree attainment goals. He forecast that several majority groups will not reach goals and that known educational inequities need to be included in intervention and strategy discussions.

Nettles predicts, using census projections and historical college enrollment data, that the nation will reach the 60% attainment goal by 2041. However, African American men, American

Indian/Alaska Natives and Hispanics are not estimated to reach this goal even by 2060 (the furthest the study could project. African American women are expected to reach the 60% goal by 2058. Nettles is quoted as saying, “By 2060, I’ll be 101 years old, and African American, American Indian and Hispanic populations will still not have met attainment goals,” Nettles is quoted as saying, “If college attainment efforts aren’t refocused, our country risks continuing and even broadening the current inequities in postsecondary education.” (Alim, n.d.).

Strategy Labs (2021) produced a report of *States with Higher Education Attainment Goals*. These states have articulated a statewide higher education attainment goal, which has been set by their governor, legislature, or college or university systems. Statewide attainment goals seek to increase the educational levels of the adult population and are aligned to address the workforce needs of the state. The report notes the goal setting organization, year adopted, and provides links to individual state goal statements. Expectedly, there is a range of attainment goals among states – some closer to 60% goal than others and some exceeding the 60% goal.

As states approach the year 2025 and beyond, researchers, policy makers, practitioners, and others will be continue evaluating progress (or lack of), disaggregate data by race and ethnicity, and hopefully with greater focus and intentionality, consider implications for educator preparation programs that prepare teachers to prepare students for postsecondary aspiration, access, and attainment.

Policy and Practice Recommendations

An effort was made above to articulate the connectedness of key concepts and solidly center educator preparation programs as fundamental to strategic interventions that shift student outcomes and human capital trajectories. The proposition is unconventional and complex, and any success will require authentic and transparent cross-sector collaboration, informed by disaggregated data. Presented next are specific policy and practice considerations to strengthen the positioning of EPPs in human capital and economic development efforts, at the state and national levels. The overarching argument is that EPPs must be strategically and consistently positioned in discussions aimed at improving college readiness, achieving federal and state goals, increasing teacher diversity, and building on the historical successes of HBCUs.

Recommendations

Human Capital Development

These recommendations are informed by a Milken Institute report which found that increases in average level of postsecondary/higher education by one year, increases a community’s Gross Domestic Product (GDP) by 17.4% and real wages per worker by 17.8% (Alabama Commission on Higher Education, 2017). Clifton (2011) and Florida (2011) found that thriving communities are those with access to the following resources:

- Quality schools, colleges, and universities
- Active regional economic development strategies (rather than statewide)
- Higher levels of educated, skilled, and credentialed workers
- Local leadership committed to the community

These findings support the connection to educator preparation programs and the recommendation to reposition them in human capital and workforce policy and practice conversations. The following recommendations are offered:

1. Evaluate cross-sector leadership collaboration efforts (leadership from K-12 and postsecondary education) to ensure the connection between high quality educator preparation programs is linked to human capital and workforce development strategies.
2. Strengthen existing partnerships between the business community and colleges/schools of education.
3. Strategically engage local government and diverse community leaders in statewide human capital development strategy conversations.
4. Incentivize partnerships between the business community and college/schools of education with focus on access, student success, and enhancing educator preparation program effectiveness.
5. Develop improved and transparent systems of communication including data sharing that connect human capital and workforce development to educator preparation program outcomes.

College Readiness

Successful participation in an increasingly global economy requires students to graduate from high school with the knowledge and skills to pursue postsecondary education and secure meaningful work. However, studies examining the transition from high school to postsecondary education suggest a need to re-examine state policies to ensure students are entering colleges and universities equipped for success. The sense of urgency is even greater in communities with majority populations of African American, Latino, and other marginalized and minoritized populations – typically lower-wealth communities.

There are multiple state leaders who have a voice in determining college readiness policies and practices. They include governors, legislators, K-12 and postsecondary education leaders, and national associations such as the Council of Chief State School Officers and the National Governors Association. In addition, there are substantial reports that address the topic with a cross-sector lens (Nash Association of System Heads, 2016; Association for Institutional Research, 2014; Education Commission of the States (2014); and Education First (2015). The following recommendations considered these and other findings.

1. Strengthen cross-sector and community-based dialogue about the meaning of college readiness. Be intentional about including representation from minoritized and historically excluded groups, including parent/guardian groups.
2. Engage in purposeful dialogue with local communities about the myriad ways college readiness is assessed and the impact on access to postsecondary institutions. Be intentional about strategies to broadly communicate this consequential information, including low-wealth, marginalized, and minoritized communities.
3. Engage in cross-sector collaborations to develop localized interventions to improve college readiness, especially in low-wealth and minoritized communities.
4. Develop improved and transparent systems of communication including data sharing that connect college readiness to educator preparation program outcomes.
5. Don't forget about educating stakeholders about the Free Application for Federal Student Aid (FAFSA).

Educator Preparation Programs

Effective pathways to degree attainment cannot be decoupled from educator preparation programs that credential teachers to be effective in K-12 classrooms. Positive K-12 student outcomes correlate to improved college readiness and increased degree completion and attainment levels. Recommendations offered are informed by these connections in addition to consideration for the racial and ethnic diversity of teacher workforce.

1. State, local, and school district leadership should collaborate and develop a shared statement underscoring the intersection between the economic and social stability of communities, and the educator preparation programs that serve them.
2. State, local, and school district leadership should collaborate with educator preparation program and community leaders to develop and implement a public campaign to address the low supply and high demand for teachers. Emphasis should include the importance of teacher diversity.
3. State, local, and school district leadership should collaborate and conduct a review of teacher preparation and licensure requirements to diagnose the impact of policies and procedures on historically excluded groups, particularly African Americans, Latino, and other minoritized groups. The process should identify and eliminate barriers to entering and remaining in the teaching profession, particularly among African American, Latino, and other minoritized groups.
4. Educator Preparation Program accreditors (e.g., Council for the Accreditation of Educator Preparation and National Association for Teacher Quality) should collaborate with educator preparation program providers to establish standardized cultural competency requirements for all teacher candidates. NOTE: In a study conducted by the Higher Education Research Institute (2014), 73% of college freshmen reported that the racial composition of the communities they grew up in were White/Mostly White. For teacher candidates, such lack of exposure to diversity can have catastrophic consequences for certain groups of students. It can impact perceptions candidates have about “others” and whether they are able v. unable, worthy v. unworthy, etc. It can also influence how perceptions set the achievement bar based for others?

Honoring and Building on the Legacy of HBCUs as Producers of Educators

Without question, when the majority of students in public schools are students of color and only 18 percent of our teachers are teachers of color, we have an urgent need to act. We’ve got to understand that all students benefit from teacher diversity. We have strong evidence that students of color benefit from having teachers and leaders who look like them as role models and also benefit from the classroom dynamics that diversity creates. But it is also important for our white students to see teachers of color in leadership roles in their classrooms and communities. The question for the nation is how do we address this quickly and thoughtfully? ~ U.S. Education Secretary John B. King, Jr., speaking at Howard University, March 8, 2016

Many of HBCUs began as teachers’ colleges, and as a whole they continue to graduate the majority of African American students with degrees in the field of education. These institutions, born among the saddest times in U.S. history, have played a critical role in the U.S. system of higher education since the early 1800s. Today they are part of a diverse landscape of postsecondary institutions, joined by women’s colleges, church-affiliated colleges, Hispanic-

serving institutions, and tribal colleges. Nearly two centuries since their founding, HBCUs continue to meet a distinctive need for many students who pursue higher education to improve their trajectory in life (Pearson, 2017).

The 1954 *Brown v. Board of Education* Supreme Court case outlawing school segregation had unanticipated consequences regarding the representation of African Americans in the teaching profession. Following the Court decision, thousands of African American teachers lost their jobs followed by severe declines in the number of African American students enrolling in educator preparation programs. Also contributing to the decline was the advent of new teacher certification and program admission requirements, compounding declines between 1984 and 1989 (Tillman, 2004).

Today, male college students of color aspiring to join the teaching profession through traditional EPPs are frequently confronted by formidable program admission and completion barriers, which include academic achievement gaps (reflecting lack of opportunity versus lack of ability); insufficient familiarity with standardized testing; and EPP program costs (testing, student-teaching insurance, background checks, licensing fees, etc.). Project Pipeline Repair, mentioned in the Introduction, offers another perspective for further exploration to connect human capital development with educator preparation programs. Below are the goals for Project Pipeline Repair. A full report of *Strategic Priorities for HBCUs with Teacher Preparation Programs* (Toldson and Pearson, 2019) is available here: https://sheeo.org/wp-content/uploads/2019/10/SHEEO_StrategicPriorities_for_HBCUs_Teacher_Prep.pdf

Project Pipeline Repair Goals:

- Increase the participation and persistence of minority males in educator preparation programs at HBCUs in participating states.
- Close academic achievement gaps and increase college readiness for participating males through extensive academic enrichment programming during junior and senior years of high school
- Shift the narrative to reflect education as a viable career option for minority males, emphasizing advocacy for equity and social justice
- Increase the number of highly competent minority male teachers to teach in underserved elementary schools and mitigate teacher shortages in participating states

Although HBCUs were originally founded to educate African American students, they continue to enroll students of all races. With changes in U.S. society and educational policy, the composition of HBCUs has changed over time. In 2020, non-Black students made up 24 percent of enrollment at HBCUs, compared with 15 percent in 1976 (U.S. Department of Education). This represents another collaborative opportunity for educator preparation programs to maintain programs that support the staffing of schools that are diverse teachers and support the intellectual and social development of all students in an increasingly diverse country.

Summary

The U.S. and states' ability to meet postsecondary (certificate and degrees) attainment goals is inextricably linked to its ability to expand access to all citizens who have higher education aspirations. Consequently, state leaders across multiple sectors will need to continually examine pathways to higher education, beginning with K-12 systems of education, which are inextricably linked to educator preparation programs and the teachers they produce.

The higher education ecosystem is dynamic and complex, but effectiveness and efficiency can be measured by equity in access, completion, diversity, and ultimately human capital and workforce development gains. The challenges are real, but they are not insurmountable when policies, practices, and resource allocation are aligned with a clear mission, vision, and goals. Educator Preparation Program providers are central, because they are best positioned to prepare teachers equipped to make the following promise to all students.

An Equity-Minded Teacher's Oath
(A recipe to improve aspiration, access, and attainment)

Dear Students,

I do solemnly swear:

I will care about each person in my class. I will support and I will encourage. I won't just mouth it; I will live it.

Each day unconditionally, I will teach to nurture, not to weed out. I will greet and embrace and accept each student and will not greet anyone with the expectation that he or she will fail.

I will not treat anyone as dumb and unwanted; I will treat everyone as capable and belonging here. I will greet each person knowing her or she has a unique potential to be cultivated. I will greet each person knowing that she or he can learn, achieve, and succeed.

I will have faith in, belief in, hope for, and compassion for each person. Each day unconditionally. I will treat each class as a "gathering of sacred ones," of diverse, individual, noble, and very special human beings. I will treat each person with equal dignity and unqualified respect. I will not let anyone go unnoticed; I will not allow anyone's face to get erased.

I will not let anyone go nameless; I will not place anyone in the background; I will not place anyone in the shadows or the corners; I will not shun; I will not ignore; I will not belittle; I will not demean anyone. Everyone will start with a clean slate, and I will not judge anyone for the ring in their belly or the tattoo on their arm or the clothes they wear or the whispers of others or a GPA or the accent of their speech or the color of their ethnicity or their religion or their gender or sexual preference, or whatever else.

I will never be negative; I will strive to be upbeat, offering nothing less than praise and/or positive and constructive critique. I will focus on each student and their learning and reflect on my teaching as part of the process. I will be there to help each student help himself/herself become the person he/she is capable of becoming.

And nothing will matter if I don't help each student help himself/herself become a more educated person and live a good life.

I make these promises sincerely, freely, and upon my honor.

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Cooking Energy Bottlenecks and Biogas Generation from Urban Solid Waste as a Prospective Solution in Nairobi, Kenya: A Review.

Authors

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Abstract.

At 75% Nairobi City County has the highest electrification rate in Kenya. However, this success does not translate to improved access to modern cooking energy as only 20% of the households use electricity for cooking because it is less affordable. Government policies that proposed the introduction of electricity subsidies and the re-introduction of a 16% Value Added Tax on Liquefied Petroleum Gas benefit the high income consumers, while leaving low income households more vulnerable. Therefore, the aim of this paper was to review biogas generation from organic municipal solid waste as a probable solution to cooking energy bottlenecks facing the city. This review paper used secondary data in order to achieve the intended objectives. The findings show that 73.15% (i.e. 2,340.8 tons) of the solid waste generated per day is in the form of paper and other organic waste. Based on the case studies, it is estimated that such 2,340 tons of the organic solid waste has the potential to yield 327.6 thousand m³ of biogas per day. This amount of biogas is enough to meet the daily cooking energy demand for 131,040 households, which is equivalent to about 8.8% of the total 1.49 million households that are located in the city. Considering an average cost in USD per delivered Giga Joules of energy, statistics show that biogas at 32.78USD/GJ is more competitive against fuelwood, Liquefied Petroleum Gas and ethanol. However, charcoal and kerosene at 13.33 USD/GJ and 19.42 USD/GJ, respectively, remain more competitive than biogas. Biogas purification and bottling will augment the use of this fuel for cooking considering that apart from having higher energy content than Liquefied Petroleum Gas and other fuels, it will be easier to transport, distribute, store and use. Producing biogas commercially on large scale in the city will help to increase its availability and lower the cost, thus making biogas more competitive. Introducing biofuels friendly policies will further increase the adoption of biogas and make it more competitive as an alternative cooking fuel in the city.

Key Words: Nairobi City County, Municipal Solid Waste, Cooking Energy, Alternative Energy, Biogas Purification and Bottling.

1.0 Introduction.

Nairobi City County (NCC), like many other cities in the developing countries is experiencing high rates of urbanization, which usually affects the provision of basic services such as energy and waste collection (Muniafu & Otiato, 2010; Taboada-González et al, 2010, 2010; Zakarya et al, 2020). Urban energy poverty will remain a major concern in the city, where low income households that cannot afford to purchase modern energy such as LPG and electricity are greatly affected (Dalberg, 2018; Shupler et al., 2022a). Therefore, the majority continue to rely on biomass in the form of fuelwood and charcoal, which is becoming a scarce commodity due to increased deforestation being experienced in the urban as well as rural areas (Dalberg, 2018; Twinomunuji et al., 2020; World Bank, 2018). Several efforts are being made to improve access to cooking energy in the country (Dalberg, 2018; MoE, 2018). For instance, the overall objective of the Kenya National Energy Policy (2018) is to ensure that the country is able to provide affordable, competitive, sustainable and reliable energy at an acceptable cost in order to achieve development goals, while also safeguarding the environment (MoE, 2018; Kioli & Ngare, 2019). In addition, Kenya adopted the Sustainable Energy for All (SE4All) Initiative in 2015 which among others calls for universal access to energy (MoE, 2016; MoE, 2018; World Bank, 2018).

Currently, it is estimated that electricity access rate is at 75%, and electricity connections have been growing at a rate of 22% per year that enabled the country increase the number of households connected to the grid from 2.3 million in 2013 to more than 6.9 million at present (Munyoki & Olesen, 2020). However, one of the major predicaments to improved access to modern energy is high levels of poverty (MoE, 2016; Dalberg, 2018). Generally, electricity remains unaffordable for cooking by low income households. Unaffordable electricity will continue to be a major bottleneck to the achievement of goals on cooking energy. In its quest to achieve universal access to modern cooking energy, Government of Kenya (GoK), among others, must focus on improved cookstoves and clean fuels, which implies exclusion of all non-solid fuels (Dalberg, 2018). Therefore, considering alternative energy options such as biofuels (i.e. biogas, ethanol, biodiesel etc.) that are more affordable must form part of the government's strategy to achieve the goal on access to modern sources of energy for cooking (Munyoki & Olesen, 2020). Waste-to-Energy (WtE) must be prioritized considering that it is an intervention that addresses multiple challenges including urban energy, sanitation and climate change (Moya et al, 2017; Kothari et al., 2010). WtE is a process of converting wastes to useful energy forms like hydrogen (bio hydrogen), biogas and bio-alcohol (Kothari et

al., 2010) through either direct combustion (for example incineration, pyrolysis, and gasification); anaerobic digestion or mechanical biological treatment (Cheng and Hu, 2010; Knight, 2010).

2.0 Energy Access and Urban Cooking Energy Supply in NCC.

2.1 Increased Access to Electricity in NCC and Kenya, yet not affordable.

Access to electricity in NCC is estimated to be at 75%, and the country is on the way to achieving the ambitious Sustainable Energy for All (SEforALL) goal of universal access to modern energy by the year 2030 (Munyoki & Olesen, 2020; Dalberg, 2018). However, electricity remains unreliable due to frequent power outages that also cost companies about 10% of their production (Mokveld & Eije, 2018). Biomass in the form of wood fuel, charcoal and agricultural wastes remains the main source of energy for cooking and heating although there is an increase in access to electricity in NCC due to its unreliability and unaffordability (Munyoki & Olesen, 2020; Hamid & Blanchard, 2018; Dalberg, 2018).

Generally, electricity is viewed as an unaffordable source of cooking energy in NCC; as such it is mainly used for lighting and powering some home appliances. This means that electricity remains out of reach for the majority of people in Kenya regardless of high connectivity due to its unaffordability. Owuor et al (2017) observes that only 20% of the population in the city rely on electricity for cooking. It anticipated that electricity will continue to play a marginal role in the provision of cooking solutions in Kenya as the SEforAll (i.e. Kenya Action Agenda) targets only a 2.3% contribution of electricity to household clean cooking energy by the year 2030 (MoE, 2019). However, universal access to modern cooking energy can be achieved through different pathways including LPG, household biogas, and efficient cookstoves for wood and charcoal (Munyoki & Olesen, 2020; Dalberg, 2018). Therefore, Hamid & Blanchard (2018), Dalberg (2018), MoE (2019) and MoE (2018) concluded that alternative sources of cooking energy that are more affordable must be explored and that research and development (R&D) will be very critical in this regard.

2.2 Rising costs of LPG in NCC due to a Change in Government Policies.

GoK introduced a duty free policy on LPG in 2016 in order to increase consumption of LPG from 20% in 2016 to 35% by the year 2030 (World Bank, 2018; Shupler et al., 2022a; Shupler et al., 2022b). The duty free policy resulted in low cost of the LPG and an increase in its use mainly for cooking. Therefore, it was common for households to use the most affordable LPG for cooking, while expensive electricity was mainly used for lighting and other uses in the urban. However, in 2021 the GoK reintroduced a 16% Value Added Tax (VAT) on LPG, which led to a dramatic increase in the cost of LPG, making it less affordable to low income households in NCC (Shupler et al., 2022a; Dalberg, 2018; Shupler et al., 2022b).

It is understandable that the government seeks to reduce the national bill for the imported petroleum products that account for 25% of the national import bill (IEA, 2015). However, its impact on access to modern energy services is far reaching (Shupler et al., 2022a). The provision of unaffordable modern energy service such as LPG and electricity is almost equal to having no access to energy for the urban poor in NCC. For instance, studies show that LPG consumption has declined by 50% in the urban Kenya since the re-introduction of a 16% VAT, thus more households are reverting fuelwood and charcoal use (Shupler et al., 2022b). On the other hand, the re-introduction of 16% VAT on LPG favors local production of the alternative cooking energy such as biofuels produced from Municipal Solid Waste (MSW), industrial and agricultural wastes (Dalberg, 2018; Shupler et al., 2022a). However, implementation of the policy must be done very carefully in order to ensure that national energy goals such as universal access to clean and affordable energy services are not interfered with, and the poor in the rural areas as well as in the urban are protected (Shupler et al., 2022a).

2.3 Overreliance on Raw Biomass and Lack of Alternative Sources of Energy.

In general, Kenya's energy mix shows that biomass, petroleum and electricity accounts for 69%, 22% and 9% of the country's energy requirements, respectively (MoE, 2018; MoE, 2016; Munyoki & Olesen, 2020). Biomass is considered to be relatively a cheaper source of energy for cooking in rural as well as urban areas (World Bank, 2018). In addition, charcoal is easier to transport and store as such it remains the principal source of cooking energy in urban Kenya (IEA, 2015). The introduction of any alternative source of energy demands for the removal of energy access barriers by careful consideration for energy accessibility, affordability and user friendliness. However, there is anticipation that the country's biomass supply deficit will continue to widen in the country over the coming years as more forests are being cleared unsustainably. There is therefore a need to reduce biomass consumption to sustainable limits (Munyoki & Olesen, 2020).

Government's efforts have failed to successfully ban unsustainable charcoal production and use in Kenya (World Bank, 2018). Household cooking energy mix indicates that charcoal and fuelwood account for 70-75% of cooking and heating energy (MoE, 2019; MoE, 2020a; MoE, 2020b; Dalberg, 2018). Charcoal for residential use alone has an annual market value of 68 billion KES (i.e. 596.5 Million USD), which is 40% more than what households spent on electricity in 2018, and twice the amount spent on LPG the same year (MoE, 2019). This overdependence on charcoal contributes to deforestation, where 10.3 million cubic metres of wood is lost annually (Dalberg, 2018; World Bank, 2018). In NCC, similar trends are observed as indigenous trees are diminishing, thereby, significantly altering the natural vegetation of the city.

In NCC, methane (CH₄) (biogas) is mainly used for cooking but its consumption levels remain very low (Dalberg, 2018), which can be attributed to lack of political will as the current policies do not support the growth of the biofuels industry in the country. The statistics regarding energy status in the country

specifically suggest that stakeholders should pay more attention to cooking energy. In this vein, improved bioenergy technologies such as WtE and the development of biofuels shall play a decisive role in meeting the national target of 100% access to clean cooking by the 2028, which is in line with the SE4ALL objectives (MoE, 2020a). However, the adoption of policies that consider different pathways for achieving universal access to modern cooking energy services must be adopted. Furthermore, in order to address the socio-economic and environmental challenges associated with the dependence on the imported fuels there is a need for relevant stakeholders to promote local production of cooking fuels such as biogas generated from MSW. Figure 1 shows the share of different sources of energy for cooking, and Figure 2 explains challenges facing cooking energy in urban Kenya.

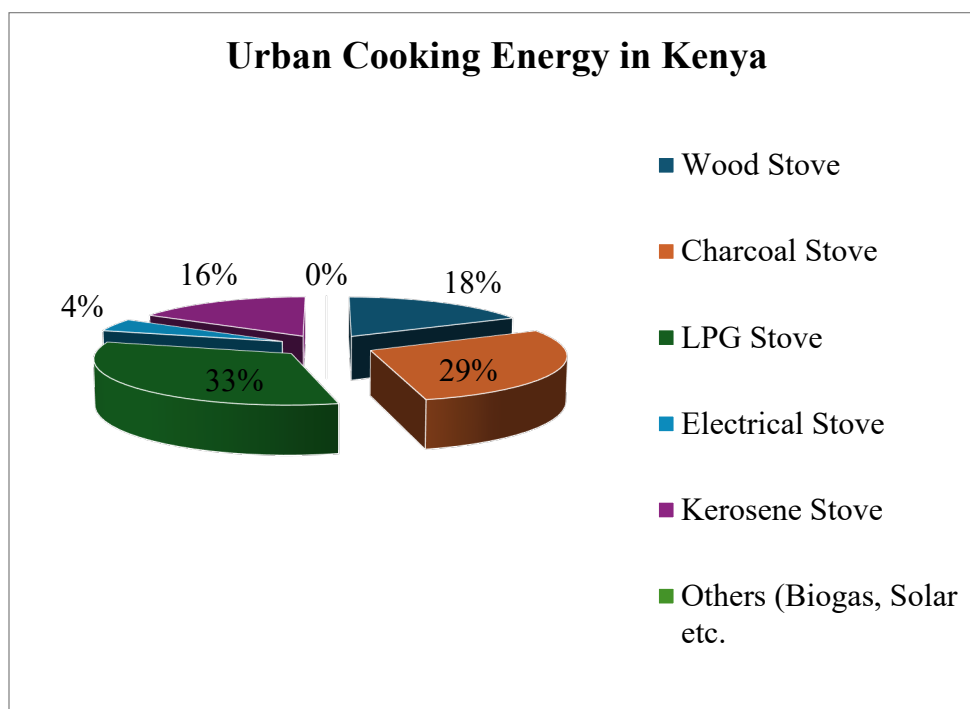


Figure 1: Urban Cooking Energy Mix in Kenya; Source: MoE (2019).

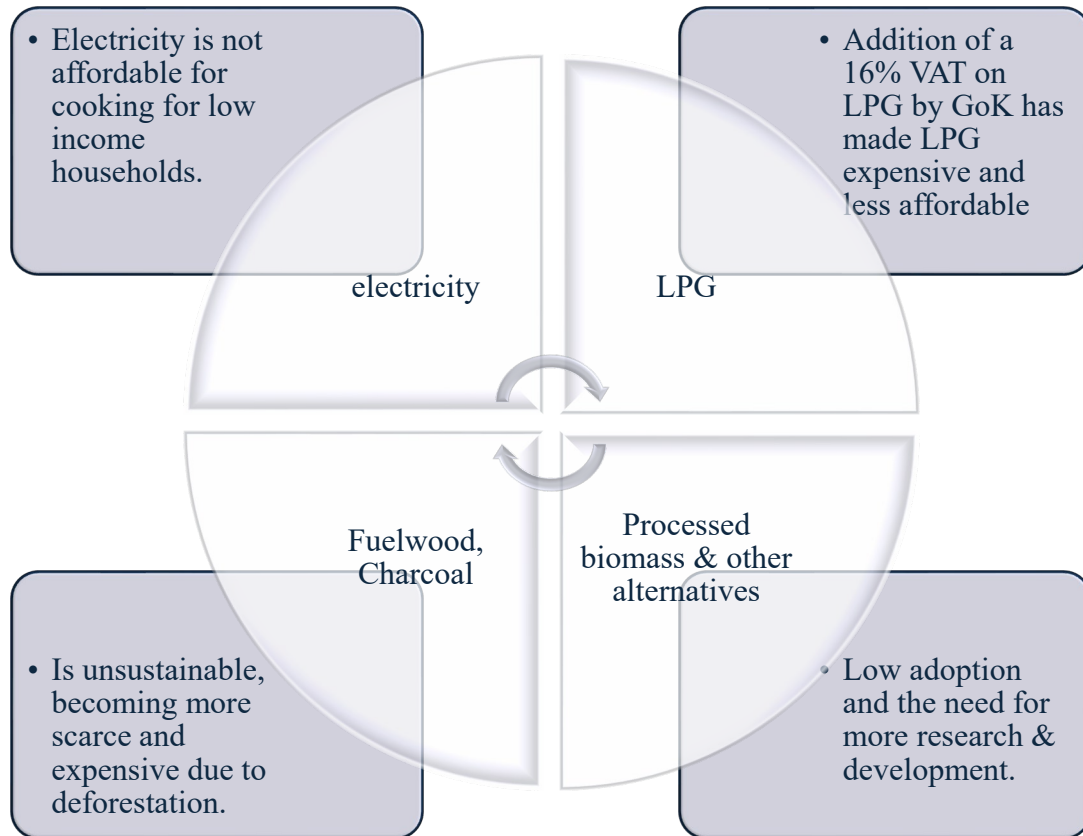


Figure 2: The status of cooking energy in NCC.

3.0 MSW and Energy Recovery.

3.1 MSW Generation, Management and WtE.

NCC generates more than 3,200 tons of MSW on daily basis, which translates to 1.17 megatons per annum (Rosenthal & Kaudia, 2018). However, it is estimated that about 50% of this MSW is uncollected by the local authorities, and only 33% of it is effectively dumped at Dandora Dumpsite, which is also overflowing (Muniafu & Otiato, 2010; Rosenthal & Kaudia, 2018). The situation is not different in Mombasa, where 750 tons of MSW is generated per day, yet only 56% of it is collected (UN-Habitat, 2020; Rosenthal & Kaudia, 2018). Converting these waste management challenges into opportunities that benefit the urban population is increasingly being adopted as it helps to manage MSW more sustainably (Knight, 2010). Therefore, job creation and business opportunities presented by the waste sector should always be explored in the urban settings (Chamdimba, et al., 2020; Muniafu & Otiato, 2010; Rosenthal & Kaudia, 2018).

In relation to sustainable cities, Kenya Vision 2030, the Kenya's long-term development blueprint recognizes that attainment of well-functioning cities and metropolitans such as Nairobi Metropolitan is key to economic sustainability of the country (Soezer et al., 2017; IBRD/WB, 2016). In this case, issues of energy and MSW are critical, especially in NCC (Muiruri et al., 2020). The concept of a circular economy

in the context of sustainable cities, therefore, proposes that none-reusable waste should be used to produce energy such as CH₄ for consumption in the cities (Fattibene et al., 2020; CoA, 2017; Cherosky, 2012; Rosenthal & Kaudia, 2018). Adopting sustainable methods for MSW management is demanded in urban settings at time when cities like Nairobi are increasingly facing the challenge of waste collection and disposal (Wanjiru et al., 2019; Soezer et al., 2017).

WtE technologies simultaneously solve multi-faceted challenges, including environmental and energy (ADB, 2020; Chamdimba et al., 2020). Such technologies can also play an important role in decarbonizing the energy sector, thus helping GoK meet its international obligations on climate change (ADB, 2020; Cherosky, 2012; Mugagga & Chamdimba, 2022). WtE is also an opportunity that needs not to be missed at a time when resource limitation is an emerging challenge in the urban settings, where 60-80% of national resources are consumed (Muiruri et al., 2020; Zakarya et al., 2020). The WtE rationale must be stronger for Nairobi as the city consumes more than 50% of the national power yet still facing the challenge of shortages of power as well land for MSW disposal (Owuor et al, 2017; Khamala & Alex, 2013).

3.2 MSW Composition in NCC.

Full potential of MSW based bioenergy remains unexplored in NCC due to research limitations, thus creating a knowledge gap that eventually costs the city. Therefore, more investment in R&D and innovation is demanded if the biofuels industry is to make a meaningful contribution to the city's energy goals (MoE, 2018). The National Energy Policy (2018) highlighted that lack of knowledge on feedstocks for biofuels production remains a major challenge. However, biogas potential from waste related feedstock such as MSW, sisal and coffee production is estimated to be 29 to 131 MW of electricity (Munyoki & Olesen, 2020). Based on the MSW composition in NCC, different WtE options can be evaluated in order to determine their viability. A number of studies conducted in NCC and regional countries show similar characteristics in terms of compositions (Rosenthal & Kaudia, 2018). Organic waste accounts for the largest share of MSW (Table 1), thus favoring Anaerobic Digestion (AD) WtE technique for MSW treatment (Zakarya et al., 2020; Moya et al., 2017; Ugwu et al, 2020).

Table 1: MSW Composition in NCC by Percentages According to Literature.

	Khamala & Alex, 2013). (average values)	Muiruri, Wahome & Karatu, K. (2020).	(JICA,2010)	(Kasozi & Von Blottnitz, 2010)	(Palfreman, 2015).
Organic Waste	59.33%	51.5%	62.4%	50.9%	68%

Plastics	14.15%	-	10.9%	16.1%	-
Papers	12.65%	-	14.0%	17.5%	-
Metals	-	-	0.7%	2.0%	23%
Glass	-	-	1.5%	2.0%	
Leather and Textile	7.53%	-	-	-	-

3.3 *The Available MSW Resource for Biogas Production in NCC.*

Considering the average compositions of MSW and the MSW generation rate of 3,200 tons per day in NCC the amount of each MSW component is determined to be 1,869.76 tons of organic waste, 439.04 tons of plastics, 471.04 tons of papers, 274.24 tons of metals, 56 tons of glass, and 240.96 tons of leather and textile (Table 2). Based on these statistics it would be easier to identify the most suitable WtE technique that will help to address both solid waste and energy challenges facing the population in NCC (Taboada-González et al., 2010; Knight, 2010). In this case, organic waste accounts for the largest share of MSW in the city. Generation rate of organic MSW at 1,869.76 tons per day shows that employing composting and AD types of waste treatment techniques will play a crucial role in managing solid waste in NCC (Ugwu et al., 2020; Knight, 2010). In addition, 471.04 tons of paper waste that is generated in the city can supplement the organic waste for biogas production, thus in total the city generates 2,340.8 tons of biodegradable waste per day that can be exploited for biogas production or composting. However, AD will be the most favorable option as it helps solve both energy and agriculture challenges through generation of biogas and organic manure for the urban farming (Thenabadu et al., 2015). Table 2 shows the compositions of MSW generated in NCC.

Table 2: MSW Resource Available.

	Average MSW Compositions in NCC	Weights (in tons) of Different Components of MSW Generated per Day in NCC.
Organic Waste	58.43%	1,869.76
Plastics	13.72%	439.04
Papers	14.72%	471.04
Metals	8.57%	274.24
Glass	1.75%	56
Leather and Textile	7.53%	240.96

3.4 Recoverable Biogas from MSW for Urban Cooking in NCC.

Understanding the potential recoverable biogas from the MSW in NCC is very crucial. To do this, the paper considers the amount of the suitable MSW for biogas generation (i.e. organic waste) and the recoverable biogas per ton of MSW based on the global case studies. In this case, the suitable waste that is generated in NCC for biogas production is 2,340.8 tons/day (i.e. organic plus paper components of MSW) (Table 3). On average a ton of organic MSW can yield 140m³ of biogas (Seruga et al, 2020; Environment Canada, 2013; Wu, 2014). Therefore, it is estimated that 2,340 tons of MSW generated per day will yield 327.6 thousand m³ of biogas/day. Msibi and Kornelius (2017) reported that an average cooking energy demand for low income households per day was 2,500 liters of biogas (i.e. 2.5 m³ of biogas). Therefore, 327.6 thousand m³ of biogas that can potentially be generated from organic and paper waste components of MSW in NCC can meet the daily cooking energy demand for 131,040 households (Table 3), which is equivalent to about 8.8% of the total 1.49 million households located in NCC (KNBS, 2019).

3.5 Affordability of Biogas in NCC.

Access to cooking energy is incomplete in NCC without considering the cost of the available fuels. Biogas generated may not reach the estimated 131, 040 households in the city if it is less affordable than the alternative fuels for cooking. A comparative analysis must be undertaken in order to determine the cost effectiveness of the biogas in the city. According to Chamdimba et al (2022) and World Bank, (2018) a general comparison of affordability of cooking fuels by considering an average cost in USD per delivered GJ of energy in NCC shows that biogas at 32.78USD/GJ is more competitive against fuelwood, LPG and ethanol (Table 4). However, charcoal and kerosene at 13.33 USD/GJ and 19.42 USD/GJ, respectively remains more competitive.

Table 3: Potential Recoverable Biogas.

Type of Waste Treatment	Suitable Waste Amount)	Recoverable Biogas	Potential NO. of Households to Benefit per Day
AD	Organic and paper waste i.e. 2,340.8 tons/day	327.6 thousand m ³ of biogas/Day	131,040 assuming that on average a household demand 2.5m ³ of biogas per day.

Table 4: The Cost of Different Cooking Fuels in USD per Gigajoule delivered in NCC ; Source: Chamdimba et al (2022).

Fuel Source	Fuel Energy Content	Fuel Average Cost in USD per delivered GJ of Energy in NCC
CH ₄	50-55 MJ/kg	-
Biogas	19.83MJ/Kg	32.78
LPG	46-51 MJ/kg	30.93
Kerosene	43MJ/kg	19.42
Fuelwood	16 MJ/kg	31.25
Charcoal	30 MJ/Kg	13.33
Ethanol	16.7-21.2 MJ/litter	50.13
Agricultural Waste	-	-
Others	-	-

3.6 Biogas Purification and Bottling for Improved Access to Biogas for Cooking in NCC.

Ability to produce these fuels on large scale will help to meet the market demand. The ease with which these fuels can be transported, distributed, stored and used for cooking will also play a crucial role in their adoption (Twinomunuji et al., 2020). For instance, biogas in NCC mostly is used at the point of generation, where the biogas digesters directly feed the biogas cookstoves in the kitchen. However, purified biogas has improved energy content and can easily be compressed and bottled, thus can easily be transported, distributed and used for cooking by consumers located away from the point of generation (Salihu & Alam, 2015). However, more R&D is needed in NCC as some commercial scale biogas bottling studies conducted in Africa and India have provided limited evidence to support biogas bottling potentials (Twinomunuji et al., 2020). Alternatively, biogas producers are using biogas backpacks to transport or distribute unpurified

and uncompressed biogas. However, the problem is that biogas backpacks are bulky and difficult to transport to potential consumers that are located very far from the point of generation (Figure 3).



Figure 3: Unsustainable small scale biogas generation and the use of biogas backpacks.

The main constituents of biogas are CH_4 and carbon dioxide (CO_2), with numerous quantities of contaminants, such as ammonia (NH_3), water vapor (H_2O), hydrogen sulfide (H_2S), methyl siloxanes, nitrogen (N_2) and oxygen (O_2) (Awe et al., 2017; Manjula, 2015). Biogas usually consists of 50–70% CH_4 , and the concentration CH_4 depends on the type of feedstock used for biogas production (Salihu & Alam, 2015). Lower CH_4 content in biogas reduces the quality of biogas, and the presence of toxic contaminants such as Sulphur may result in corrosion of downstream equipment due to formation of acids, and such contaminants may present health risks to biogas users (Awe et al., 2017; Cherosky, 2012; Ryckebosch et al., 2011; Manjula, 2015).

Biogas purification is dependent on the specific purpose, which can be to increased energy content or to remove toxic contaminants. The removal of contaminants from biogas is known as “biogas cleaning”, whereas the improvement of biogas energy content is called “biogas upgrading” (Black et al., 2021; Awe et al., 2017). Biogas upgrading techniques are absorption, adsorption, cryogenic, membrane separation and biological methods (Ryckebosch et al., 2011). The use of a particular technique depends on the level of

energy intensity, level of CH₄ upgrade required, material availability, operational and maintenance costs, skill and expertise of operator and the quantity of the gas to be upgraded (Awe et al., 2017).

The absorption technique employs the scrubbing using alkali (NaOH, Ca(OH)₂), lime, amine compounds (Mono-, di-, tri ethanolamine). Usually a packed column reactor is used where the liquid and gas flow in a counter current manner with the aid of packing materials in the absorption column. This is the cheapest and most widely used technology. The adsorption technique utilizes the intermolecular Van der Waals attraction where the gaseous molecules are bound to the surface of the porous media. They usually proceed with energy generation and involve the use of silica-gel, activated carbon, zeolite and activated charcoal. This method is cost effective with high stability (Salihu & Alam, 2015). Cryogenic separation is a technique that is reliant on the use of low temperature i.e. less than -50°C in fractional condensation and distillation. The CO₂ and hydrogen sulfide freeze at lower temperatures (-78°C and -60°C respectively) as opposed to CH₄ (Bauer et al., 2013; Manjula, 2015). The process has high utility requirement and capital costs. The membrane separation technique is based on the principle that different biogas constituents have different permeabilities and selectivity as they are transported through small membranes due to different partial pressures. The difference between the CH₄ and CO₂ permeability must be considerably high to achieve high purification (Manjula, 2015). Some membrane materials include polyimides, acetate-cellulose, and composites. However, this technology shall take more time to outcompete conventional technologies (Salihu & Alam, 2015). Biological methods employ bio-filters onto which the microorganisms are fixed. They are classified into two i.e. phototropic and chemotropic bacteria. With the former, micro-organisms containing bacteriophyll are used to capture light and then oxidize sulphides whereas the in later, the bacteria grow and reproduce using CO₂ and chemical energy from oxidation of reduced inorganic compounds like hydrogen sulfide (Cherosky, 2012).

4.0 Recommendations.

- Inability by GoK to successfully ban unsustainable charcoal production shows that charcoal remains more affordable than most of the cooking energy solutions. However, its accessibility and affordability is challenged by high rates of deforestation, which eventually will make the fuel less affordable. Therefore, GoK should focus on providing alternative cooking energy sources that are more sustainable, affordable and user friendly at the same time.
- The increased use of electricity for cooking has a great potential for improving access to modern cooking energy in NCC considering that electricity access rate at 75% is very high. However, only 20% of the households in NCC use electricity for cooking. This shows that electricity too is less affordable as such GoK should invest in alternatives.

- Organic solid waste in NCC has the potential to generate 327.6 thousand m³ of biogas per day, which is enough to meeting daily cooking energy needs of 131,040 assuming that on average a household demand 2.5m³ of biogas per day. However, commercialization of biogas generation will be required in order to increase the availability of the biogas as an alternative fuel.
- Biogas purification and bottling will be required for biogas to make a meaningful contribution to cooking energy in NCC. Upgraded and bottled biogas can easily be transported, distributed, stored and used for cooking in the city.

5.0 Conclusions.

An increase in access to electricity in NCC indicates that it is not enough to improve access to modern cooking energy services as long as electricity is not affordable to the majority of the population. LPG had been an alternative cooking energy choice for people in NCC as it was relatively affordable due to an exemption of a 16% VAT policy on this fuel. The re-introduction of the VAT on LPG has made the cooking fuel more expensive, as such some people will be forced to revert to biomass based fuels. Local production of the biofuels for cooking could be a major benefit of the government policy change on LPG. Therefore, this paper recommends that biogas generation from the MSW should be commercialized in NCC in order to increase the availability of the fuel at an acceptable price. However, in order to increase the competitiveness and accessibility of the fuel on the market there is a need for the adoption of biogas purification and bottling technologies. Low heating value of CH₄ is higher than that LPG, and bottling it will help to make the fuel easier to transport, distribute, store and use. Biogas will also become a direct competitor of LPG on the cooking energy market in NCC. However, in order to realize benefits presented by biogas fuel there is a need for the adoption of biofuels friendly policies. In addition, more R&D will be required in order to improve biogas generation, purification and bottling, where research institutions must play a key role.

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Malawian Education's Response to the COVID-19 Pandemic: Other Alternatives

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Malawian Education's Response to the COVID-19 Pandemic: Other Alternatives

Abstract

This study assessed the effectiveness of the Malawian Education system response to the COVID-19 pandemic and to further suggest other alternatives. Spurred by the Critical Emancipatory Research theoretical framework which champions equality in the attainment of education, the paper employed the mixed method research design where quantitative data has been analysed using SPSS whilst qualitative data has been analysed thematically. Using 52 respondents from various schools respectively and Ministry of Education headquarters, it has been found that transition to online learning has proven to be challenging especially within lower-income countries by demonstrating that relying on online learning to deliver primary and secondary education during COVID-19 school closures has not only exposed the country's deep digital divide but also exacerbated and highlighted existing inequalities in access to education. The study's findings and their attendant implications are instrumental in informing the development of feasible, sustainable, sector-wide policy, system, process and capacity reform that will guide the Malawian education system in the wake of any crisis emanating from pandemics or any other natural disasters.

Keywords: Pandemic; COVID-19; Access; Education; School closures; online learning

Background

The Corona Virus Pandemic has primarily affected the public health systems but its ripple effect is being felt in the education sector world-wide due to the prolonged school closures. At the middle of April 2020, approximately 1.723 billion learners had been affected due to school closures in response to the pandemic. According to UNESCO (2020), 191 countries had implemented nationwide closures and 5 had implemented local closures, impacting about 98.4 percent of the world's student population. The impact was more severe for disadvantaged children and their families, causing interrupted learning, compromised nutrition, childcare problems, and consequent economic cost to families who could not work. In a bid to control the spread of the novel Corona Virus, the Malawi government closed schools on March 23, 2020. In response to school closures, various stakeholders recommended the use of distance learning programs and open educational applications and platforms that schools and teachers can use to reach learners remotely and limit the disruption of education. The Ministry of Education in the week 20th to 24th April 2020 launched the online learning programme for secondary schools. Through the initiative secondary

school students were to access learning through an online platform hoisted on the Ministry of Education's website, www.education.gov.mw at no data cost. Private sector mobile phone companies of Telecom Networks Malawi and Airtel supported this initiative (Sharra, 2020). Close to five months without school, save for the web based Open Education Resources and home-schooling radio interventions by the government, there was a growing fear that the education sector, which already boasts a fragile retention rate, will experience massive drop out rendering the policies of Education for All and Leave no child behind at stake. UNESCO (2020) warns that "Covid-19 school closures around the world will hit girls hardest". It is feared that it will lead to increasing "drop-out rates which will disproportionately affect adolescent girls, further entrench gender gaps in education, and lead to increased risk of sexual exploitation, early pregnancy and early and forced marriage". Unfortunately, this prophecy has been fulfilled in Malawi as there has been a surge of teenage pregnancy during the school closures due to the COVID-19. For instance, data from Mzimba south shows that 528 school going boys and girls had gotten married. The Kasungu Education Network on its meeting with various stakeholders, reported that since the shutdown of schools due to the COVID 19 pandemic, the district recorded a total of 573 early pregnancies while 208 girls and 113 boys got married. Data obtained from the Nkhotakota DEM's office also shows that since school closure, the district recorded 201 pregnancies among the school going girls and 63 school going boys are in early marriages. The Daily Times Newspaper of July 2020, reported that 7274 teenage girls, whom 166 were of ages between 10 to 14, from Mangochi became pregnant from January to June of 2020. This data, a drop in the ocean, raised questions as to the effectiveness of the government's Open Education resources to keep the students preoccupied during the COVID-19 induced school closure. Despite that nearly all African countries having implemented school closures as one of the measures to control the spread of Corona Virus and a number of studies being undertaken to assess the impact of the school closures in various developing countries as a whole and some focusing on Africa as a continent with various interventions suggested (Dube, 2020; Anifuwoshe et al, 2020 and Ngogi, 2020), no well-grounded research has been conducted to assess the effectiveness of the government's home-schooling interventions and how they have affected school retention rates in Malawi. This study, therefore, seeks to fill this niche by assessing the effectiveness of the Malawian Education system response to the COVID-19 pandemic and to further suggest other alternatives. The study's findings and their attendant implications are instrumental in informing the development of feasible, sustainable, sector-wide policy, system, process and capacity reform that will guide the Malawian education system in the wake of any crisis.

Literature Review

This section reviews literature on the major themes of pandemics and school closure, effects of school closure and alternative schooling approaches in the context of pandemics. The aim is to provide a theoretical and practical evidence on what knowledge already exists so as to better contextualise the study. This review is critical as it reveals key issues and findings arising from a number of studies on pandemics and alternative schooling approaches.

Epidemics and School Closure

Charlotte et al (2020) established that school closures are able to reduce transmission of pandemics amongst children. Mathematical modelling has shown that transmission of an outbreak may be delayed by closing schools. Additionally, in some cases, the reopening of schools after a period of closure has resulted in increased infection rates. As closures tend to occur concurrently with other interventions such as public gathering bans, it can be difficult to measure the specific impact of school closures. Lee (2020) found that during the 1918-1919 influenza pandemic in the United States, school closures and public gathering bans were associated with lower total mortality rates. Cities that implemented such

interventions earlier had greater delays in reaching peak mortality rates. Schools closed for a median duration of 4 weeks according to a study of 43 US cities' response to the Spanish Flu. School closures were shown to reduce morbidity from the Asian flu by 90% during the 1957–58 outbreak, and up to 50% in controlling influenza in the US, 2004–2008. He further found that closures in the city of Oita, Japan, were found to have successfully decreased the number of infected students at the peak of infection; however, closing schools was not found to have significantly decreased the total number of infected students. During the swine flu outbreak in 2009 in the UK, in an article titled "Closure of schools during an influenza pandemic" a group of epidemiologists endorsed the closure of schools in order to interrupt the course of the infection, slow further spread and buy time to research and produce a vaccine (Jackson et al, 2014). It could be mentioned that a rapid systematic review of school closure during Covid-19 concludes that it is unclear whether school closures is an effective measure. Predictive models suggest this alone will only reduce the number of deaths by 2–4%. Interventions related to other forms of social distancing seem more effective. This indicates that less disruptive measures should be considered (Viner et al., 2020). Ferguson et al (2020) modelled the estimated effects of a range of different social distancing measures and combinations of measures. They used UK population and schools' data together with data on transmission dynamics reported from the COVID-19 outbreak in Wuhan. Using data from previous influenza outbreaks, they assumed that per-capita contacts within schools were double those in households, workplaces, or the community, and that, overall, approximately a third of transmission occurred in schools. They modelled a scenario in which all schools and 25% of universities were closed and where the effect on non-school social contacts was an increase of 50% in household contact rates for families with children and a 25% increase in community contacts during the closure. They concluded that school closure as an isolated measure was predicted to reduce total deaths by around 2–4% during a COVID-19 outbreak in the UK, whereas single measures such as case isolation would be more effective, and a combination of measures would be the most effective. The authors concluded that school closure is predicted to be insufficient to mitigate the COVID-19 pandemic in isolation, which is in contrast to seasonal influenza epidemics where children are the key drivers of transmission.

Effects of School Closure

According to Meyers & Thomasson (2017) the 1916 outbreak generated substantial fear within all social class families. The effects of school closure as established by the study include that parents are worried about their siblings catching the disease, and this force parents to withdraw their children from school before official school closure. Parents also delay sending students to school after reopening. The study further establish that long term school closure leads to school dropouts, where older children of legal working age opt to join the workforce, making them acquiring a lower level of educational attainment than they might have if schools were not disrupted. School closures, according to UNICEF (2020) lead to loss of education; a decrease in access to reproductive health information and services; a loss of livelihoods, social support networks and increased child marriage. Charlotte et al (2014) explained that “the benefit of school closure in reducing clinically important outcomes needs to be balanced against secondary adverse effects which may not affect all sections of society equally.” It also asserts that effects of school closures will depend on the timing of closure in relation to the progress of the epidemic in the population, (Charlotte et al, 2014). Robert Jenkins, UNICEF’s chief of education explains that, “The closures not only interrupted educational progress; they also curtailed normal social interaction and limited access to essential services families relied on, including school nutrition and health programs, information on disease prevention, and access to clean water and sanitation.” These are important effects of school closures, in addition to increases in violence, sexual abuse, and rising numbers of adolescent pregnancies (Rothe et al. 2015; Mulhern and Walsch, 2019). For many children, schools serve as safe places, which keep them away from child labour and early pregnancies. Social distancing may also cause

negative effects on mental health (Lee, 2020; Fisher et al., 2018). The most disadvantaged groups, including children, seem to suffer the most (Fisher et al., 2018; UNDP, 2015). School meals are an important part of the daily nutritional uptake for many African children. When schools are closed, children may suffer from hunger.

The impact also affects future earnings of students. The impact of school closures on future earnings depends on the duration as well as the economic return of education, which again will depend on the quality of education and future employment opportunities. A study covering 61 developing countries finds that one year of lost education is associated with a 6.5% loss in future income (Fink and Peet, 2014). The loss is higher in tertiary education and smaller in primary education. A study from Argentina analyzing the long-term impact on future income as a result of lost school days due to teachers' strikes found that even short strikes had a negative effect on expected future incomes (Jaume and Willen, 2019).

Alternative Schooling Approaches during School Closure.

The Association for the Development of Education in Africa (ADEA) developed a report based on different studies in April 2020 titled *Delivering education at home in African member states amid the Covid-19 pandemic: Country status report*. The study examined the impact of Covid-19 on education which highlights school closures are one of the interventions which also comes with several challenges. The study established that several African governments made alternatives which would allow learning continue. The strategies include “the ministry of education; holding of virtual/remote governance and coordination education meetings via digital spaces and video conferences; diversification of communication and distance education channels, namely using radio, television and social media channels; use of official electronic portals of education ministries, universities and public and private education establishments; and electronic communication.” (ADEA, 2020).

Brooks et al, (2020) explains that in Europe and other western countries, several initiatives were taken to grant that students and teachers can have access to open educational resources, or understand copyright limitations. Russell et al (2020) explained that The International Council for Open and Distance Education issued a special website to provide webinars, tips for online teaching and resources for teachers. They further explain that in New Zealand, a group of publishers agreed to allow for virtual public readings of their materials from libraries and classrooms. A similar agreement took place in Australia, where the Australian Publishers Association, the Australian Library and Information Association and the Australian Society of Authors agreed on a set of exceptional measures to allow libraries to provide educational content (Russell et al, 2020)

Theoretical Framework

For the purpose of this study, the theoretical point of departure is the framework of Critical Emancipatory Research (CER) borrowed from Dube (2020) who explains that CER is an offshoot of the critical theory of Germany's Frankfurt School for Social Research, which had been established at the University of Frankfurt in 1923 and, in particular, CER is based on the work of “Habermas, who was influenced by Marxist perspective on economic and social questions”. According to Nkoane (2013) cited by Dube (2020) the CER proponents at the Frankfurt School represented a left-wing group that had “philosophical roots in several traditions such as Marx's analysis of socioeconomic conditions and class structure, Habermas's notion of emancipatory knowledge and Freire's transformative and emancipatory pedagogy”. Dube (2020) concludes by emphasizing that in the context of COVID-19 there is need for conditions that would emancipate learners and promote social and learning conditions in the wake of COVID-19 induced school closures as it is very relevant in addressing the challenges of learning in the time of COVID-19.

Methodology

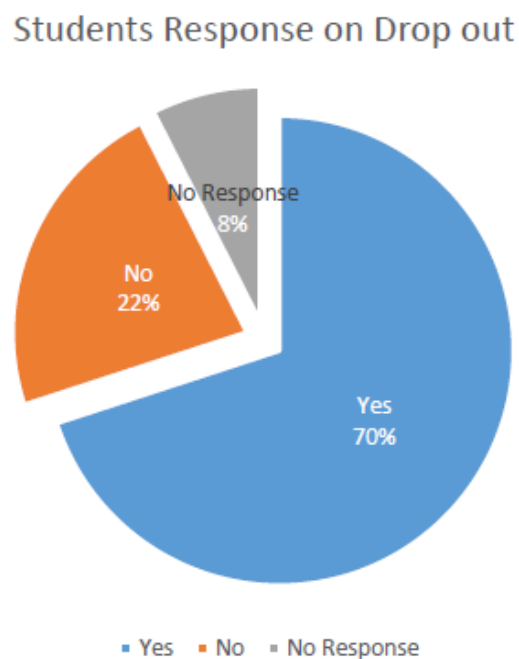
The study employed a mixed method research survey design. It targeted 60 students, 2 head teachers, 4 teachers and 2 members of the PTA, 2 officials from CWED, 1 Official from MoE and 1 expert from UNESCO. The study employed purposive sampling to select the schools for the study. Stratified random sampling was also used to ensure equal representation of boys and girls per school. The primary data was collected through questionnaires to students, Focus Group Discussions and Key Informant Interviews. A coefficient value of zero point seven (0.7) made items of the research instrument acceptable for study. The data was analysed using Statistical Package for Social Sciences (SPSS). Descriptive statistics were used in the presentation and interpretation of results. The respondents were protected and all procedures were explained to them and participation was based on consent of the subject. Confidentiality was observed and no experiments were conducted.

Results and Discussions

Impact of the COVID-19 on enrolment and retention rates of students in different primary and secondary schools in Malawi

The study sought to know from the students, headteachers, DoSs and the EDM whether there were students who had dropped out of school due to the COVID-19 induced school closures. The results for the students are as shown in **Figure 1** below

Figure 1: Students' Responses on students who dropped Out of School



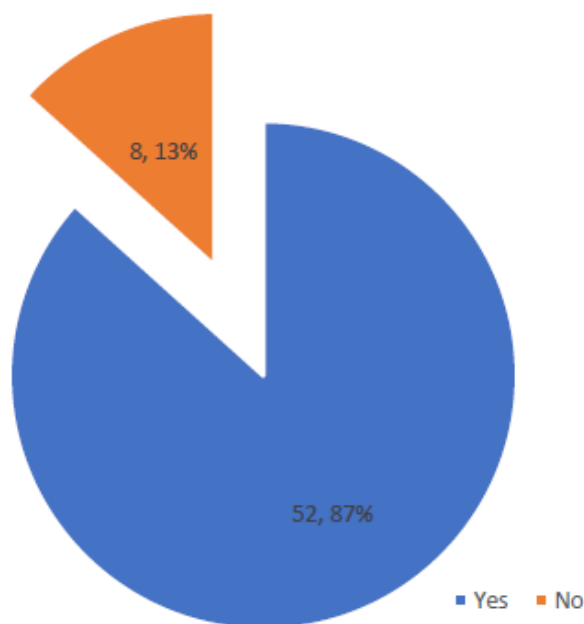
Majority (70%) of the students indicated that there were some friends who had dropped out of school and 22.5% of them said there were no students who had dropped out school. All the head teachers confirmed that there were students who had dropped out of their schools, with the Ministry Officials indicating that had received reports of students who had dropped out school in their time of stay in the district. This prompted the researcher to enquire from the head teachers the classes that were more affected. Both head teachers noted that forms 3 and 4 and Standards 6 to 8 were more affected than other classes with an

approximate 10% of students gone. The researcher observes that this was a high rate of drop out compared to the rate of enrolment and retention. The Ministry Officials also noted that there was rampant drop out cases reported to their offices and they are persuading the parents to encourage their children back to school. On the reasons for dropping out, many students at secondary school cited pregnancies for girls and drug and substance abuse and some gone to seek jobs in South Africa on the part of boys. Primary school students cited pregnancies and taking care of households for girls and loss of interest in some boys whilst others had gone to seek for jobs due to poverty at home. These results concur with the findings of a study done by Bandiera et al., (2018) of how the Ebola outbreak affected 4,700 school going women in Sierra Leone. In their study it was found that Ebola induced school closures led to the likelihood increase of early pregnancy by ten percent. Mulhern and Walsch, (2019) renders weight to the findings of this study by weighing in that for many children, schools serve as safe places which keep them away from child labour and early pregnancies hence any school closure will lead to the rise in pregnancies and child labour.

The effect of government Open Education Resources and Tikwere Interactive radio program interventions in keeping students in school

The study sought views from the respondents as to the effectiveness of the Malawi Ministry of Education's Open Education Resources and Tikwere Interactive radio programme. All Teachers, Head teachers and Parents confirmed knowing of the existence of the government's Open Education Resources and Tikwere Interactive Radio Programs. Of the 60 students who took part in the study, 52 students representing 87% were in the affirmative as to the knowledge of the existence of government's Open Education Resources and Tikwere Interactive Radio Programs as shown in the **Figure 2** below:

Knowledge of Online and Radio Lesson



Despite such a large percentage knowing the existence of the programs, only 3 students representing 5% of the respondents found the programs useful with most of the respondents explaining that the Open

Education Resource portal was not user friendly and the Tikwere Interactive programme was faster than their teachers.

Responding to the issue of accessibility of the Open Education Resources portal, a majority of students (94%) from both Secondary and Primary school explained that they were not able to access online lessons at home because they don't have a Smart Phone, computer or access to the internet. This matches with the sentiments from secondary school students gathered from diaries compiled by UNICEF staff during the school closures also depict challenges with the online learning intervention. For instance, in his diary of 10th of June 2020, Mbayeni reporting on a Form 3 female students from Mkhwichi Community Day Secondary School notes that the girl complains:

"Since schools were closed, I lost touch with my teachers, friends for study circles and I don't have a mobile phone. It would greatly help me if I had a laptop or any device that would enable me to access the online lessons"

The sentiments of the two unrelated students, renders weight to the findings of the GSMA Mobile Connectivity Index 2019, which found that Malawi has a 42% mobile penetration and only 16% of Malawians have access to 3G. These findings echo the findings of Dube (2020) who, in his study on the effectiveness of rural online learning in the context of COVID-19 in South Africa, found that lack of devices to connect for online learning was one major hurdle in the attainment of education during the online lessons introduced due to the COVID-19 induced school closures. The devices mentioned by the participants in Dube (2020)'s study included cell phones, computers, laptops and smart phones that are compatible with low-tech teaching apps, such as Blackboard.

The results from these studies concur with the findings of the World Bank specialists who, despite underscoring the importance of keeping up some learning or connection to schools during closure, found that a large share of the children in sub-Saharan Africa did not engage in any form of home-schooling during the Covid-19 outbreak (Hallegarten, 2020). One study by Rothe, et al. (2015) found that in Liberia, only 40% of them did and in Sierra Leone only 30%

The Education expert cited by Bhunu (2021) expressed his reservations on the effectiveness of these interventions. On the challenges on access to online learning the expert explained that:

"Much as we appreciate this intervention, we must be frank with ourselves that only a few students had access to such platforms because of how we are doing as country on access to the internet and a radio. Factor in the issue of connectivity in some areas across the country; you will see that not all the targeted population had access to these lessons. It is necessary for government to make policy modifications to the education systems"

Thus, in a country where the majority are poor and live in rural areas, there are fears that it was and will not be easy to effectively implement such as ambitious programme.

Parents too had their fears as regards the benefits of online lessons under the Open Education Resources. One PTA member believes online learning in rural areas is practically impossible. This is what the parent had to say:

"We cannot manage this online thing to be honest. Electricity comes when the people at ESCOM want it and most of us are not even connected to the national grid. You talk about phones and computers? That's insulting us. Let the children of the rich learn. We will give ours land to farm when they grow up as this is what the government wants"

The concerns raised by the parent tallies with the findings of the World Bank (2021) which explains that only 11.4% of Malawians have access to electricity. Another parent went further to argue that even teachers in most schools do not have the capacity to design online content and deliver it.

Some parents had reservations especially how students will be monitored on the internet. For instance, one parent explained that:

“it sounds very ambitious but I doubt its success. My fear is who will be policing these naughty children of ours on the internet. They will surely deviate to other useless sites. Like those of music and nude videos”

When asked as to the weakness of the of the Government’s interventions, it was observed by one official from the Ministry of Education that the majority of Malawian parents and students are not technologically literate such that they may not be able to appreciate online learning the way those who are literate would do. This implies that there are a lot of gaps that need to be filled before Malawian students can equitably benefit from online learning interventions.

Strategies used by schools and communities to retain students in school in the wake of the COVID-19 epidemic

The study sought to know from teachers, headteachers, and Parents some of the strategies they used to keep students busy with learning during the school closures. Since most students from Magawa Secondary school are boarders, the school teachers explained that they resorted to the usage of WhatsApp, a social media site, to arrange lessons where forums according to forms were created and teachers will post their lessons and most of the students who took part in these forums confessed that the interaction was both positive and helpful. The choice of WhatsApp, a social media site to host these lessons, has been supported with the findings of the study by the GSMA Mobile Connectivity Index 2019 who found that Social Media sites, are the second top accessed in the country. Coming second to pornographic sites only.

Both the teachers and students agreed that the main setback faced during the WhatsApp lessons is that students from poor backgrounds were exempted from these lessons due to lack of smartphones and also the expensive nature of internet costs in Malawi made the teachers and parents shoulder the economic burden of these lessons as there was no financial support from the school or the government.

Table 1: Students’ attendance on WhatsApp lessons by Form

FORM	ATTENDANCE	ENROLLMENT	PERCENTAGE
1	23	186	12%
2	36	181	20%
3	67	169	40%
4	51	91	57%
TOTAL	177	627	28.2%

It can be seen that only 28.2% of the enrolment were participating in the WhatsApp lessons which is a small percentage. The majority of those who participated in the WhatsApp lessons were from Form 4

since they were afraid of examinations and that most of them were trusted by their parents to have smart phones and also most of them confessed to buying data to access the lessons on their own.

Teachers from Kamwendo primary School, confessed that there were no strategies put in place to help students be in school since government had banned all meetings in public places hence learners were on their own. One Parent confessed of asking some teachers to offer private lessons which were done with utmost secrecy and each learner was required to pay 5000 Kwacha. When asked for enrolment figures, the parent said that the figures were not recorded and only the teachers who were collecting the fees are in the best position to give the figures.

The Official from the Division explained that they expected schools to offer supporting services like borrowing students Text books and clarifying points which students didn't understand during the online and radio lessons. He further explained that communities were expected to put up by-laws to nip child marriages resulting from early pregnancies.

Suggested learner friendly ways of keeping students preoccupied with home schooling during the COVID-19 epidemic

The study sought to draw from the participants, suggestions on learner friendly ways to keep students preoccupied with home schooling in the wake of another epidemic induced school closure. 87% of students suggested that schools should never be closed again as it is very difficult and challenging to learn at home. 13% of the students called for government to distribute tablets or printed materials that should be used during school closures. Teachers suggested that the government should only institute a partial school closure where examination classes should be allowed to keep on learning at school and they should adhere to the core the strict health measures as put by the government. One official from the MoE explained that the government is in the process of establishing an Education Radio that will entirely focus on airing lessons and that they are also empowering the ODeL Directorate to work with the MIE to produce materials that will be used in the wake of another pandemic induced school closure.

Conclusion

Basing on the responses given by the study population, it is clear that the Government's interventions were not effective enough to help keep students in schools as they failed to reach the education needs of many students either through the lack of gadgets (Radios, Phones and Laptops), lack of orientation of teachers, un-user friendly of the radio and online lessons, expensive nature of internet, intermittent supply of electricity and poor connectivity of internet.

It can further be concluded that the school closures and the interventions that government put and also the measures that parents and schools put forward systemically entrenched elitism as only the few children coming from well to do families were able to continue with learning at the expense of their fellow students from poor families. It has also been found that the government was not clear as to the roles of schools and teachers in the continuation of learning during school closures. The government further overlooked emotional support on children during school closures hence many children were involved in drug and substance abuse whilst some got pregnant and got married.

Recommendations

In the light of the findings and conclusions of this study the following recommendations were made;

- I. The Ministry of Education should provide a clear policy to guide teaching and learning during pandemics and not to resort to firefighting methods. The ministry should further

- provide capacity building for Head teachers and teachers particularly in methods to support learning in the wake of school closures during school closures. Teachers should further be trained in the usage of various Open Education Resources sites so that they provide required help to students.
- II. The MoE should fully utilise the Open and Distance Learning centres in all universities so as to develop materials that can be used to teach and learn during school closures. The MoE should also use the various social media sites to provide lessons as they are easy to access and they are user friendly such that even parents with limited technical know-how of using the internet technology can be helpful during home schooling.
 - III. The government should lobby for the lowering of data cost so that they are easily accessed by the populace whom most are poor. The government should further set up sites that can be accessed for free the way people access Facebook social media site for free
 - IV. Government and other stakeholders should construct more classrooms in schools so as to create more room for students so that there should no longer be school closures in the wake of any pandemic. Each school should be attached to a specific hospital or health centre for fast response to any medical emergency.
 - V. Teachers should equip students with the skill of self-assessment which will ensure greater preparedness for future potential crises and significantly contribute to improving inclusive and quality education. The skill of self-assessment supports students to regulate their own learning by requiring them to monitor how they are working, and encouraging them to modify their approach if something is not working. Self-assessment also enhances students' self-efficacy and support ownership of learning hence in cases of disruptions of education delivery, as it happened during the pandemic, students possessing the skill of self-assessment will be able to continue learning independently even if access to online platforms still remains a challenge.
 - VI. Parents should be sensitised on the re-admission policy so that those students who have dropped out of school due to various reasons should be encouraged to go back to school.

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National Dialogue: The Case of Ethiopia

Author

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INTRODUCTION

National dialogue is one of the most imposing and grandest undertakings by a nation to begin the conflict resolution, peacemaking, and reconciliation processes. Dialogue is the communication methodology that is used in undertaking such processes. National Dialogue is also often used as a consensus-based constitution making processes as was the case, for example, in the 1990s in many Latin American and African countries in an attempt to strengthen participatory governance and development.

The purpose of this brief article is to provide both a conceptual and practical definition of dialogue, as a communication tool, and address the typical questions often raised regarding a national dialogue forum such as who initiates the national dialogue, how does the dialogue process work, what is term of office for the dialogue commissioners, how transparent is the dialogue forum, who participates in the dialogue, is it wise to allow the involvement of external factors such as international peacemaking entities and other countries in the dialogue processes, and how independent are the commissioners from political interferences by the initiating governmental body. The data sources for this brief description and analysis include, in addition to our personal experiences and research in the field of conflict resolution, the body of the literature in alternative dispute resolution, the experiences of other countries in national dialogue such as the Republic of South Africa and recent examples such as Libya. Accordingly, we start with the definition and the how of dialogue.

Foundational Steps in Peacemaking Through Dialogue

What is meant by dialogue? One quick way of defining a concept is to share what it is not and in this case a forum for a dialogue is not a forum for debate. As Thomas Jefferson reported to have said “I never saw an instance of one or two disputants convincing the other by argument (debate)” Regardless of context and level of engagement, dialogue is a forum for holding open conversations that are typically controversial, may be even risky, and emotional in nature. Its core purpose is to allow the free flow of relevant information about the issues that are negatively impacting relationship and national unity. Participants in a dialogue forum openly, candidly, and honestly express their respective opinions, perspective, and feelings. They will be encouraged by skilled facilitators to articulate their understanding of the issues and concerns that they believe are causes for the conflict. They willingly share their views, even when the expressed views are controversial and at times unpopular. In short, when constructively framed and engaged, dialogue is a communication tool that would bridge even radical differences. In short, dialogue in the context of peacemaking is about exploring common ground regarding underlying sources of conflict by:

- Assuming that all participants in the dialogue process have the pieces of the answers to the questions of the sources of the conflict and its plausible resolutions
- Revealing one's assumption for re-evaluation
- Participants in the dialogue process are willing to work together towards the goal of collective understanding of the problem
- Will engage in empathic listening to understand and finding meaning that hopeful will lead to agreement
- Willingness to see the issues from others' perspectives, again empathetic communications
- Admitting that others' thinking might improve one's own thinking
- Searching for strength and values in other's positions jointly reframing them to interest-based negotiated settlements and.
- Jointly discovering new options to effectively address the underlying sources of the conflict rather than seeking to opt for quick closures.

The Dialogue Process

The how of the dialogue process depends on the participants in the forum. If the participants are some representatives of the public, the best the facilitators or the moderators/mediators, and in the case of Ethiopia the commissioners, could do is organize public forums with established agenda items to guide the discussions and subsequently document the articulation of the problems as perceived and shared by the public representatives in attendance. On the other hand, if the participants to the forum are going to be the very political party leaders in the conflict, there are general dialogue processes to be followed and some “principles” of dialogue for crucial conversations that the commissioners ought to share with the participants by way of an ice breaker.

There are different models and frameworks that can be used to run national dialogues. These models should be adapted to fit the context. Harold Saunders, Sustained Dialogue (Saunders, 2000) framework which includes five phases: (1) Defining the Problems and Deciding to Engage, (2) Mapping Issues and Relationship, (3) Generating the will for a Joint Solution, (4) Scenario Building and Negotiation, and (5) Acting Together to Implement Agreements. The phases are not linear but adaptable to the context and dependent on the progress the participants were able to make.

National Dialogue

There have been several National Dialogues (ND here after) over the last 25 years. However, there does not seem common understanding of the function of dialogue at a national level among international mediation and peacebuilding communities. And yet, the evidence is clear, as we can see in the cases we will be analyzing below, that some national dialogue processes have contributed to successful political transition. They also serve as change management and transformation tools. According to the [National Dialogue Handbook](#)², “National Dialogues present a valid way to overcome internal rifts and to rebuild relations between state, its institutions and different groups in a conflict-torn society, to ideally reach a new social contract between the various interest groups to the conflict.”

² National Dialogue Handbook: A guide for Practitioners is available from [National Dialogue Handbook - Berghof Foundation \(berghof-foundation.org\)](#)

However, ND should not be considered as an end by itself as issues to be addressed and discussed are dynamic, changing, and mutate over time. What this means is that the ND processes should also be dynamic to accommodate emerging changes. Since the processes, especially at the initial stage, have the potential to trigger tensions which can lead to the collapse of the processes, it should not be rigid but flexible enough to accommodate radical differences, emotional feelings and even the articulations of hostility to one other. The ND processes should also be designed to address crossing cutting themes (issues) and not to focus on the interest of one group or the other. Because if the design of the process is focused on mutual gains, the outcome will lead to constructive discussion of the crosscutting issues which may in the final analysis benefit all stakeholders. It may even enable the parties to agree in the drafting or reviewing of a given national constitution and establishing a Truth, Justice, Reconciliation, and peace Committees that will investigate atrocities committed to the populous and designing a new social contract for governance.

Experience from some countries indicates that it will be challenging to address all national issues among communities at the same time or concurrently. However, at the design stage of a ND or while in session working groups can be established, formed to address, and focus on emerging, critical issues or specialised topics or themes. For example, the Kenya National Dialogue and Reconciliation was established to address the violence erupted following the result of the 2007 Presidential election. However, the Kenya National Dialogue and Reconciliation did not focus only on [Constitutional and Legal systems/structures](#) linked to the Presidential elections but addressed past, current, and dormant conflicts triggered due to social and economic issues which continue to [divided Kenyan Societies](#): such as land reform, poverty, inequality and regional imbalance, unemployment, among the youth, transparency, accountability, and consolidation of national unity. In short, National Dialogues should typically be accompanied by broader societal consultations and are designed to communicate results of the negotiations and channel people's demands into the process.

Initiating and designing a ND

Once a conflict has reached its climax (fully escalated), there are different factor variables which will help in contributing to the de-escalation process, (Kriesberg, 1998) (Lund, 2000). ND can be considered as one of the de-escalation tools, from inception to the implementation processes. Generally, there are two broad categories of interventions, Track I and Track II. Track I is a formal government or inter-governmental initiative; Track II is informal, unofficial, and non-governmental initiative. As such ND can be initiated by individuals, groups, NGOs, the incumbent government, intergovernmental agencies such as UN, EU, and AU, etc. It can serve as an appropriate intervention tool that will help in deescalating a conflict or resolving it ((Moore, 1996) (Kriesberg, 1998, p. 231). Both Track I and II are roles that can be described as an intermediary or mediator roles in the conflict de-escalation and peacemaking initiatives.

As will be briefly described and analyzed below the ND in south Africa was a result of two parallel processes where external and internal actors synchronized their interventions that lead to an agreement between the African National Congress (ANC), Inkatha Freedom Party (IFP) and the National Party which is the party of the incumbent government (Rothchild, 1997, p. 191). The interventions in Kenya, Yemen, and Libya, however, were initiated externally by AU, UN, and EU. However, it was not left for the external actors but the incumbent government, political parties, CSOs, etc. participated in the delivery of services.

As indicated earlier, the role of the initiator is to establish or put together a group of people who can lead the process and provide directive. Different names or titles are ascribed to the body, mostly

Commissioners and their mandate is made public in most cases by a decree of the incumbent government (Kenya, Ethiopia), or the institutions designated to take the lead (AU, UN).

ND as a de-escalation mechanism/process, the role of the Commissioners is to facilitate and accompany stakeholders to discuss and clarify contentious issues and reach a consensus to take responsibility to implement for the good of all concerned. As suggested earlier, the commissioners/the facilitators should design a process which is flexible enough to accommodate any issues that might evolve in the process. The driving force should not be only the book (law), the proclamation, experience from other countries, etc. but context, the need and demand of the stakeholders. However, it should not be a process which will be overwhelmed and lose directions. The commission should always keep the steering wheel and navigate it.

Pre dialogue Preparation

The preparation phase is very important as the success of the official process is dependent on the time and resources allocated to teeth out the objectives, the process, rule of engagement, develop a code of conduct, etc. It is during this stage where the nitty gritty of the dialogue are going to be ironed out. It can also help in building trust among all the stakeholders. This phase includes series of mini-negotiation processes among the commissioners and between the stakeholders and the commissioners to establish key parameters and the institutional framework required to make the ND effective and successful. As stated earlier, there is not a generic formula to use in designing the preparation stage but is dependent on the context and the complexity of the conflict. For the preparation, some countries establish technical committee, or a commission, or a structure that facilitate and coordinate the process. During this stage stakeholders will start experiencing, how compromise will help them to move forward and reach a consensus. ND is not negotiation but can be perceived as pre-negotiation. According to Rothman, it can be "...an integrated process in which highly placed representatives of parties in a conflict prepare for negotiation by jointly framing the issues of conflict, generating various options for handling them cooperatively, and interactively structuring [the] substance and process for future negotiation" (Rothman 4).

Inclusivity of the ND

The participation of different stakeholders in the ND processes is very important, and indeed inclusivity is central for its success. Another critical variable for the success of ND is perceived legitimacy of both the process and representativeness. However, it should be recognized up front that identification of participants and developing an acceptable framework is challenging and it is difficult undertaking. In a country like Ethiopia where there is many interest, ethnic, social, and political groups, recruiting participants from all groups may compromise the quality and effectiveness of the dialogue process due to size of the audience in attendance. In any meeting, it will be difficult to manage and form a solid (cohesive) group when the size of the group continues to grow. When the group size is big, members participation, contribution will be reduced and gradually diminishes, as some members of the group will not be comfortable to speak in a big group, thus self-appointed leaders will emerge and will dominate the discussion. But this should not be used as an excuse to compromise inclusivity. One approach for handling such challenges is to establish different groups to discuss and address a specific issue in different times and space such as in a Focus Group Discussion.

As mentioned earlier, there is no as such a universal formula for the nominations and identification of participants; it is largely dependent on the leadership which should consider the context, the culture and generally the social and political fabrics of a given country. It will help to understand how and why groups are formed and operate and how roles are designated to members in the group.

Extra efforts should be made to make sure there is a reasonable balance of participants from all groups should be maintained, as the issue of representation will crop up during the ND process; it should be avoided from becoming part of the negotiation platform between the dominant and the minority groups and derail the ND. This was what happened in Yemen where the number of the participants from CSOs were dominant, and the focus of the negotiation was about their space at the negotiating table and their role rather than on the national dialogue.

In short, when it comes to participation in ND the body of literature, we assessed, is very clear and that is, it should be inclusive, and nobody should be left out as a unit considered to be small or insignificant today might turn out to be big tomorrow. The wider population also must be involved indirectly as the Commissioners should organize (create) a platform such as town hall meetings, to be updated on the processes and consult on the next moves or provide directions.

Agenda setting³

Since NDs are established for a limited time, mostly three years, possible extension should be made available as is the case in Ethiopia (Article 8, sections 1, 2)⁴. Such possibility will help the ND process from overburdening itself with many agenda items. The agenda setting process should be organized on a rolling basis, selecting and prioritizing issues which have the potential to escalate and disintegrate the system and leads to violence. As Kriesberg (1998: 217) tell us that “... social conflicts are socially constructed, and they often can be restructured and reframed so they become a shared problem that requires a joint solution.” Furthermore, the agenda items should not be framed as linear as there will be overlaps and instead, they should be flexible to juggle among different issues. However, the goal of the flexible agenda setting and the opportunity to move them around should not slow the ND process but assist to reach a consensus and subsequently resolution of the conflict.

Agenda setting should not be left to the political elites or other stakeholders, as the voices of the people should be included and integrated. As is the case often, the agenda and the priorities of the political elites and the people can be different; it will be a mistake to assume that it will be the same every time and help the nation move forward. For example, power sharing might be a priority for the political elites while for the people it can be the economy that will improve and sustain quality of life. In some cases, the agenda setting might be complicated by the interest of external actors as well as by many intergovernmental agencies and INGOs who have their own priority, including insisting the use of a template applied in another country. In such scenarios, it is advisable for the commissioners to be creative and innovative in producing an amalgamated agenda which has the potential to address the interests of all stakeholders. In short, as mentioned earlier, drawing an agenda involves a mini-negotiation within and among the stakeholders and that in turn involves mediation and problem solving for win-win outcomes

³ The agenda for the dialogue should not be left to one group, for example the Commissioners, the elites, political parties, etc but it should be set through a consultative process, thus can be considered as prenegotiation where stakeholders must participate. It will also create an opportunity for the Commissioners to test the water among stakeholders, their commitment, readiness, and willingness to compromise, and endorse the process, as they discuss the agenda some stakeholders might raise thorny issues which has the potential to derail and abort the national dialogue.

⁴ Full version of the Proclamation is available from <https://chilot.me/2022/03/03/ethiopian-national-dialogue-commission-establishment-proclamation-no-1265-2021/>

Overall, ND agenda should include and deliberate on political, economic, and social issues and serve as a platform to generate and explore ideas which can be used as an input and contribute to shaping the outcomes including revision of a constitution as was the case in South Africa, Tunisia, and Benin. It should also serve in framing a new social contract with the people, systems, and structures for good governance and subsequently to help in improving relationship among political parties. Along the way there will be conflict over the process and yet if the conflict is properly managed it will help move forward the process rather than derailing it.

Setting the agenda for ND is clearly a challenge. The literature in Alternative Dispute Resolution and our own collective experiences suggest that such undertakings require skilled leadership that can navigate through the bumpy processes.

Setting a precondition to participate in the dialogue

ND is not an interest-based negotiation of different actors but a platform for reflection on national agenda which helps move the nation as a unit, rather than the interest of different groups. However, the process is expected to indirectly address stakeholders' (participants') interests. Stakeholders should be encouraged to come together to put their concerns and interests openly and constructively on the table for discussions. Given that during ND there are lots of things to be unpacked, participants should come ready and willing to engage in give and take. But boycotting or setting preconditions to participate in the dialogue should be avoided. Failure in the ND does not benefit any one of the actors, the nation, or the causes of other stakeholders. The goal of ND is to create awareness of the issues as others perceive them, reach to some type of consensus and finally to collectively seek solutions to the underlying causes of the national conflict.

In a national dialogue, it should be emphasized that boycotting or setting preconditions to participate in the dialogue is only an early signal of failure of the national dialogue processes. The processes should instead be accepted as an opportunity to learn from the experiences of fellow citizens and come up with plans that will not only end the present conflicts but also prevent the nation from further protracted and intractable conflicts.

The involvement of external actors

At the risk of stating the obvious, it is a given that in the 21st century the world has come closer due to, among other things, various channels of communications; governments and communities do not operate in isolation, though the depth and strength of relationship among and between nation states vary. Due to this relationship members of the international community have interests in the ND processes in each country and in this case Ethiopia. The question actually is not whether or not there would be external involvement, rather the question is the degree and extent of the involvement as well as the possible negative impact on the process.

The experiences of other countries in ND that we briefly looked at suggests that the involvement of external actors is a double-edged sword, as they struggle to keep the balance with their own respective interests (ideological, economical, peace and security) and the national interest of the given country, which is and ought to be the sole owner of the process. The double-edged nature of the involvement of the external actors comes on the one hand, they may help influence the belligerent party to the conflict to participate on the ND processes. On the other hand, the external involvement may result in power

imbalance in the process, especially if they consciously or unconsciously align with one or more of the stakeholders. It is possible, again intentionally or unintentionally, to influence and pressurize the Commissioners, among other things to sponsor and promote agenda items that are not only culturally irrelevant to the national interest but may end up as reasons for making the process of the ND infeasible.

As a cursory review of the literature in national dialogue indicates, external actors sometimes come up with a template which was used in another country under a different context and insist to use in guiding the process. The negative impact of international approach is one of the factor variables that derailed the ND processes in Libya and Yemen. The ND of Yemen was espoused by the Gulf Cooperation Council, and the USA and Saudi Arabia backed the process (were behind it). USA and Saudi Arabia had different national interests that were not [consistent to that of Yemen's](#)⁵. As the Yemeni situation amply demonstrates, even which international actor or actors to involve in the process may negatively impact on mutually agreeable outcomes of the conflicting parties. In Yemen, the Houthi movement which controls the north territory of the country, having a strong army and benefiting from foreign support, was not in favor of the recommendation made at the national dialogue forum on the assumption that it favored their adversaries and deny them access for foreign support.

The experience of other countries in ND seem to suggest is what is healthy and sustainable is to limit the involvement of external actors. The commissioners should control and manage the processes without interferences from within or without. There are cultural elements which external actors assume that they understand, but that does not seem to be the case often; because culture is deep and as Avruch (1998:5) teach us that “culture is a derivative of individual experiences, something learned or created by individuals themselves or passed on to them socially by contemporaries or ancestors”.

2. A brief Comparative analysis of National Dialogues

The presentation below is a brief comparative analysis of ND of four countries, two successful and two “unsuccessful” processes. At the outset though, it should be noted that there are different factors in measuring success; in the cases we identified, the outcome that led to a process or series of processes for the settlement of political disagreements, resulting in the revision of constitution, establishment of new social contract as well as the establishment of a “meeting place”, to quote Lederach (1997), where four “parties” or actors, Peace, Justice, Truth, and Mercy, can come together is considered a success.

Success, however, should be assessed on the objectives, mandates, and the context of each case study. In all the cases analysed here at a minimum de-escalating the intensity (level) of conflict and designing strategies for reform were anticipated. Overall, it will be unfair to concluded that the processes have failed even if a consensus has not been reached to draw a policy; as such “... dialogues sometimes produce ideas than can fruitfully be fed into the policymaking processes.” (Fisher, 1997: 121). In most cases there is a possibility of getting an unintended outcome which are not necessarily associated to the mandate, this can include developing the culture of dialogue among different groups, breaking off taboos, empowering some members of the society for example marginalised groups (for example in Yemen women and youth), etc. As the late Archbishop Desmond Tutu said “[t]here is no handy roadmap for reconciliation. There is no short cut or simple prescription for healing the wounds and divisions of a society in the aftermath of sustained violence.”

⁵ Full version of the Yemen National Dialogue is available from the Middle East Institute <https://www.mei.edu/publications/yemens-national-dialogue>

The South African case is a bit different from the three, as there was not as such a National Dialogue⁶ however, the negotiation among political elites led to the signing of the National Peace Accord which led to the establishment of the Truth Reconciliation Commission (TRC) of South Africa. The TRC had three working committee: Human Rights Violations Committee, Amnesty Committee, and Reparations and Rehabilitation Committee. Each committee played a specialised role including a National Dialogue function as they “... helped to air out the atrocities committed during the apartheid regime...” (Abebe, 2009, p. 108).

Thus the genesis of the “ND” is that after President Frederik W. de Klerk [unbanned ANC and other anti-apartheid movements](#) on 2 February 1990 and released Nelson Mandela. Following this, there were series of negotiations between NP and ANC including all political parties which led to the signing of a peace agreement: National Peace Accord on 14 September 1991 where in total twenty-seven political parties, governments, and organisation signed. This led to the foundation of the Convention for Democratic South Africa (CODESA) where nineteen political parties came together on 21 December 1991 to discuss the future of South Africa, this was the beginning of formal negotiation after signing CODESA I - Declaration of Intent (Abebe, 2009, p. 96). (Ottaway, 1993).

Synopsis of the Kenya National Dialogue and Reconciliation, Yemen National Dialogue Conference, South Africa Truth and Reconciliation Commission and Libyan Political Dialogue Forum.

⁶ National dialogues which are inclusive and participatory are designed to generate ideas, where a peace accord can be one idea (outcome) where the stakeholders sign a peace accord to end violence. In the case of South Africa, the dialogue (negotiation) was among the political elites where they signed National Peace Accord which led to the establishment of TRC, Constitutional Review Committee, and Elections Commission.

Factors/Countries	Kenya The Kenya National Dialogue and Reconciliation (KNDR) ⁷	Yemen (National Dialogue Conference NDC) ⁸⁹	South Africa ¹⁰ Truth and Reconciliation Commission	Libya Libyan Political Dialogue Forum (LPDF) ¹¹¹²
Mandate (Objectives) of the Commission	• Mediate among political parties to stop the violence triggered by the outcome of December 2007 Presidential election • Post-election violence of 2008, promote reconciliation and healing • Revision of the Constitution for fostering democratic governance	• Reform the constitution • Determining the process of drafting the Constitution, • Establish Constitutional Drafting Commission	• To investigate gross human rights violations that were perpetrated during the period of the Apartheid regime from 1960 to 1994, including abductions, killings, torture. Including violation by the state and the liberation movements • to hold special hearings focused on specific sectors, institutions, and individuals. • to grant amnesty to perpetrators who confessed their crimes truthfully and completely to the commission.	"to generate consensus on a unified governance framework and arrangements that will lead to the holding of national elections in the shortest possible timeframe in order to restore Libya's sovereignty and the democratic legitimacy of Libyan institutions." ¹³

⁷ As the name implies it is a double thronged institution as it includes dialogue and reconciliation

⁸ The NDC was part of the transitional process of 2011 to resolve the conflict between the incumbent government lead by President Salleh, political parties, and the people, a spillover of Arab Spring

⁹ The following is the statement from the final report "The National Dialogue Conference has succeeded in bringing us together and reformulating an image for the future of the entire country based on a new vision for a modern, civil, democratic federal and effective State that will safeguard the foundations of a just, symbiotic and prosperous society for the benefit of all Yemenis. We have to free ourselves from our past and roll out our sleeves to build our new Yemen to be established on the basis of shared responsibility, common heritage, diverse resources - granted us to by the Almighty the most Merciful, lead by human beings who have creative energy and absolute faith as well as hard work in collective action towards our future and the future of generations to come. This is our social contract ... This is the promise." Page 235. Full text of the report is available at <https://www.peaceagreements.org/masterdocument/1400>,

¹⁰ After President Frederik W. de Klerk [unbanned ANC and other anti-apartheid movements](#) on 2 February 1990 and released Nelson Mandela. Following this there were series of negotiations between NP and ANC which led to the signing of a peace agreement: National Peace Accord on 14 September 1991 where twenty seven political parties, governments, and organisation signed. This led to the foundation of the Convention for Democratic South Africa (CODESA) where nineteen political parties came together on 21 December 1991 to discuss the future of South Africa, this was the beginning of formal negotiation after signing CODESA I - Declaration of Intent (Abebe, 2009, p. 96). (Ottaway, 1993)

¹¹ https://berghof-foundation.org/files/publications/BF_NDH_Libya_ENG-WEB.pdf

¹² The LPDF is an inclusive a 75-member body which led the national dialogue processes and developed a road map (https://unsmil.unmissions.org/sites/default/files/lpdf_-_roadmap_final_eng_0.pdf) did not deliver what was stated in the objectives. <https://www.aljazeera.com/news/2021/7/3/un-backed-libya-talks-fail-to-reach-consensus-on-elections>

¹³ https://en.wikipedia.org/wiki/Libyan_Political_Dialogue_Forum#cite_note-UNSMIL_LPDF_defn-1

Factors/Countries	Kenya The Kenya National Dialogue and Reconciliation (KNDR) ⁷	Yemen (National Dialogue Conference NDC) ⁸⁹	South Africa ¹⁰ Truth and Reconciliation Commission	Libya Libyan Political Dialogue Forum (LPDF) ¹¹¹²
Number of commissioners/members	AU Panel of Eminent African Personalities ¹⁴	9 ¹⁵	• seventeen commissioners: nine men and eight women.	75 ¹⁶
Initiated by	AU following the post elections violence of 2007.	The incumbent government (the troubled) ¹⁷	• The incumbent government (National Party)	• United Nations Support Mission in Libya (UNMSIL) initiated the process late 2020 to implement UNMSIL 3-point plan of July 2019 ¹⁸ • Subsequent decisions of the UNSCR 2570 and 2571 ¹⁹
Time frame (initiated)	• Initiated on January 2008 ²⁰	• 2 years • 18 March 2013 still ongoing ²¹	• 1990 to 1998 ²²	First virtual meeting 26 October 2020
Inclusivity	• Agreement to end the violence was signed	• Convened with 565 delegates	• Originally it was only political parties, the government, and	• Youth participation ²⁴ • Libyans mayors

¹⁴ The AU Panel of Eminent African Personalities included Mr. Kofin Annan, former Tanzanian President Benjamin Mkapa, former Mozambique Minister and First Lady Graca Machel

¹⁵ The NDC was headed by a nine-member presidency including President Abd Rabbu Mansour Hadi (NDC Chairman), Abdul-Kareem Al-Eryani (General People's Congress), Yassen Saeed No'man (Yemeni Socialist Party), Sultan Al-Atwani (Nasserite Unionist Party), Yassin Makkawi (Peaceful Southern Movement), Saleh bin Habra (Houthis), Abdul-Wahab Al-Ansi (Islah Party). Nadia Al-Sakkaf, and Abdullah Lamlas. The conference was overseen by Jamal Benomar, representative to the United Nations.

(https://en.wikipedia.org/wiki/National_Dialogue_Conference#cite_note-5)

¹⁶ The Forum which consisted of 74 members elected from different walks of life adopted [a road map](#) had an advisory and legal committee which supported the Forum. The UNMSIL took the lead in establishing and facilitating the Forum. Besides, France, Germany, Egypt, Turkey, Tunisia, Algeria, Italy, US, Russia, the United Arab Emirates and others were working behind the scenes either supporting or obstructing it.

¹⁷ The incumbent government established 25 persons a Technical Committee (TC) by Presidential decree, July 2012.

¹⁸ UNSMIL 3- point plan included Due to the COVID-19 pandemic the meetings were virtual and face to face. Additional information available from <https://unsmil.unmissions.org/unsmil-statement-resumption-intra-libyan-political-and-military-talks>

¹⁹ <https://reliefweb.int/report/libya/un-secretary-general-special-envoy-libya-j-n-kubi-remarks-opening-session-libyan>

²⁰ The first meeting was held on January 2008, the agenda and the timeline was agreed during the fourth meeting as a one-year processes but the issues on agenda 4 which required a long-term engagement are still ongoing.

<https://peacemaker.un.org/kenya-agenda2008>

²¹ The discussion to establish the NDC started in 2011 as part of the transition and took two years before the NDC was launched. A technical committee was established to facilitate the process

<https://reliefweb.int/report/yemen/hadi-approves-technical-committee-recommendations>

²² The ND process of South African is a continuum (1990 to 1998) as it includes the unbanning of ANC and all Antipartheid organization, the release of Nelson Mandela, the negotiation processes (CODESA I, II, & III) the signing of the National Peace Accord, the establishment of different committees, including the Constitution Drafting Committee and the Truth and Reconciliation Commission (Abebe, 2009) (Ottaway, 1993)

²⁴ Libyan Youth Track had Digital Dialogue where 1000 young Libyans from Libya and the diaspora participated.

Additional information on Youth Participation is available from <https://unsmil.unmissions.org/unsmil-launches-youth-track-within-libyan-political-dialogue-forum-participants-agree-important>;

<https://unsmil.unmissions.org/unsmil-statement-resumption-intra-libyan-political-and-military-talks>. The Final Recommendation of the Youth Track is available from https://unsmil.unmissions.org/sites/default/files/youth_track-final_recommendations_-_20102020_english.pdf

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	between the two political parties, subsequent meeting involved stakeholders	• 50 per cent was from the South • Used quota system, 20 percent youth and 30 percent for women²³	antiapartheid movements (CODESA I, II, & III) • TRC covered all affected during the apartheid regime	
Involvement of International Communities	• AU initiated • AU appointed members of the panel²⁵	• Implemented by Gulf Cooperation Council • USA • Saudi Arabia	• Yes there were advisors who served as members of different committees	• UNSC resolution 2510 (2020)²⁶ • UNSMIL 3-Point Plan
Challenges	The implementation of the recommendations such as youth employment, land reforms, and equitable development programs	• Lack of clarity and consensus on the interpretation of the mandate • Failed to bring all actors to table • Cultural limitation as men did not want to sit with women and youth • The President handpicked participants especially the political parties	• TRC did not complete the rehabilitation and repatriation task	• The agreement did not get traction on the ground, though leaders of a government was elected^{27 28} • Peace and security issues, open violence among different armed groups and foreign governments
Outcome/results²⁹	• An accord was signed on 28 February 2008 • Stopped violence • Delivery of humanitarian • Power sharing mechanism agreed	• Produced a report³¹ • It did not lead to the peaceful transition. To date there is violence as the processes did not manage to establish an inclusive government or renewed social	• TRC established mandated to persecute perpetrators • The government designated different line ministries to implement the recommendations, but were not realised for example the reparations and established	• National elections on 24 December 2021 • Restructuring the executive authority • A formation of the advisory committee to accompany the selection of temporary executive authority³²

²³ The conference allocated 20 per cent of seats to youth delegates and 30 per cent to women (Hartmann, 2017; Papagianni, 2014).

²⁵ KNDR was chaired by Ghanaian diplomat and former UN secretary general Kofi Annan, and Benjamin Mkapa, former president of Tanzania, and Graça Machel, widow of the late Samora Machel and Nelson Mandela, former presidents of Mozambique and South Africa respectively were members.

²⁶ https://unsmil.unmissions.org/sites/default/files/s_res_25102020_e_2.pdf

²⁷ <https://www.libyaherald.com/2021/02/breaking-new-libya-government-selected-by-lpdf-in-geneva/>

²⁸ <https://www.crisisgroup.org/middle-east-north-africa/north-africa/libya/libyan-political-dialogue-incomplete-consensus>

²⁹ All stakeholders a comprehensive vision report, a social contract among and between actors: “The Kenya National Dialogue and Reconciliation - Building a Progressive Kenya - Our Common Vision: Vision of Stakeholders” This document is available from [The Kenya National Dialogue and Reconciliation - Building a Progressive Kenya - Our Common Vision: Vision of Stakeholders - International Security Sector Advisory Team \(ISSAT\) \(dcac.ch\)](https://www.issat.org/kenya-national-dialogue-and-reconciliation-building-a-progressive-kenya-our-common-vision-vision-of-stakeholders)

³¹ Detail report of the is available at <https://www.peaceagreements.org/masterdocument/1400>

³² The outcome of the LPDF is identified in the opening remarks of the Stephanie Turco Williams, the Acting Special Representative of the Secretary General and Head of UNSMIL during a press conference in Geneva, 16 January 2021. Full text of the remark is available from <https://unsmil.unmissions.org/transcript-opening-remarks-stephanie-turco-williams-acting-special-representative-secretary-general>

Factors/Countries	Kenya The Kenya National Dialogue and Reconciliation (KNDR) ⁷	Yemen (National Dialogue Conference NDC) ⁸⁹	South Africa ¹⁰ Truth and Reconciliation Commission	Libya Libyan Political Dialogue Forum (LPDF) ¹¹¹²
	• Legal, constitutional, and institutional reforms • The establishment of National Cohesion and Integration Commission (NCIC) • Devolved government • Establishment of TRJC³⁰	contract between the government and the people.	a task force to monitor the implementation • TRC produced a five-volume report	

³⁰ Kenya Truth, Justice, and Reconciliation Commission (TJRC) was established in 2009 to ‘promote peace, justice, national unity, healing, and reconciliation among the people of Kenya’.

Conclusion: do not expect the unexpected the ND of Ethiopia

In the case of Ethiopia, there was a kind of national dialogue in 1991 to prepare a level ground for EPRDF to take power. This process was not widely recognized nor accepted as it lacked transparency, trust, legitimacy, and espoused by external actors. However, the need for ND remained important, even if EPRDF pushed it to the backburner on a false pretext that there is not any conflict that requires a national level intervention. For the last twenty plus years, the EPRDF government which created and governed with ethnic enclaves was on a state of denial about the tensions among different groups, whereas the relationship among different ethnic groups were at the state of brink (collapse). It was a time bomb where the clock was ticking and went off in 2018, paved a way for the incumbent government. The incumbent government realized the need, initiated the processes, and submitted a draft proclamation to the House of Peoples Representative to establish and National Dialogue Commission.

When compared to the four case studies, the process used to establish the National Dialogue Commission followed, more or less, similar procedures which is generic. In case of Ethiopia, the incumbent government (Council of Ministers) put in motion the process, drafted a The Ethiopian National Dialogue Commission Establishment Proclamation, and submitted it to the Legislative: House of Peoples Representatives, to approve it. The House of Peoples Representatives reviewed, [amended and approved](#) the Proclamation published on the [Federal Negarit Gazette](#) of the Federal Democratic Republic of Ethiopia on 13 January 2022. The 11 Commissioners were appointed³³ according to Article 13 of the Proclamation and [took oath on](#) 23 February 2022³⁴.

The [Preamble](#) recognises the diverse views of the issues which have created rift among different groups and stressed the need for an inclusive dialogue, “there are difference of opinions and disagreements among various opinion leaders and segments of society in Ethiopia on the most fundamental national issues and it is a necessity to alleviate and resolve the differences and Disagreements through broad based inclusive public dialogue that engenders national consensus;”. Despite this, there are still some sceptics who does not want to give a chance for the dialogue. There are different triggers which include politics (politically motivated), immediate access to power, or lack of knowledge about the value and advantage of ND as an important tool to establish structures and systems for good governance. Due to this perspective, the Commission has a huge task ahead as it must work hard to create awareness, build trust and [confidence among stakeholders](#). For example, one of the contentious issues is inclusivity and participation, “[t]o be truly representative, the National Dialogue will need to include not only opposition parties and other constituencies, but also non-state armed groups such as the TPLF and Oromo Liberation Army (OLA). These organisations have great influence at the local level and control large swaths of territory.”³⁵ At the same time [some opposition political parties](#) have started engaging with the Commission constructively but critically which is very important and helps to move the process forward and achieve ND objectives³⁶.

However, the Commission has started rocking and the statement made by the Chairperson during the [orientation meeting](#) with the Speaker of the House of the People’s Representative on 23 February 2022 confirmed his commitment to serve as a Chairperson but stressed that any form of interference from any

³³ [#ASDailyScoop: Dialogue Commission Commissioners to be selected by public; proclamation has no "content on negotiation": Chairperson - Addis Standard](#)

³⁴ <https://ethiopia.me.uk/encyclopedia/commissioners-of-the-national-dialogue-commission/>

³⁵ [#NewsAlert: OFC, ONLF say Dialogue Commission process unrepresentative, not impartial; decline Parliament invitation today - Addis Standard](#)

³⁶ [አገራዊ ምክክሩ ስኬታማ እንዲሆን የፖለቲካ ፓርቲዎች የሚጠቅሙትን ሃላፊነት መወጣት አለባቸው ተባለ - Welcome to Fana Broadcasting Corporate S.C \(fanabc.com\)](#)

organs of the government including the House of People's Representatives or the Judiciary or the Executive will not be tolerated, and indicated that he will be forced to resign from the position. [Such strong statement](#) from the Chairperson helps increase trust and decrease scepticism and provide a sense of assurance about the neutrality of the Commission.

The Commission continued its genesis, holding the first public meeting with [faith leaders, የሰላም አምባሳደር እናቶች and elders was](#) phenomenal, one it is cultural (any such national level events needs the blessings faith leaders, elders and women) and two brought upfront the *Women Peace Ambassadors* who represent the majority of the population in the country and have wealth of experience in peacebuilding. The Chairperson of the Commission in addressing the religious leaders stressed that the role of the Commissioners will be facilitation and coordination, and their blessings and the participation of Ethiopians is central for its success.

The 11 Ethiopians Commissioners of this home-initiated process (National Dialogue) reflects the mosaic Ethiopia as the Commissioners come from different cultures who have rich life and academic experience. They have started and indicated their commitment to design and use a hybrid dialogue process which is culturally relevant and appropriate.

Ethiopians at home and abroad are expecting the ND to do (bring) miracles overnight resolving all issues forgetting the complexity and nested nature of the conflicts. According to the literature and indicated in the cases studies, ND produce ideas, and recommend the establishment of systems and structures and it over to them to draw a plan of action for implementation and follow up. This is also true for the Ethiopian ND, that is generating ideas which can help the country to move forward and recommend the establishment of institution(s), structures, and systems. Therefore, the people at home and in the diaspora must manage their expectations and weigh against the mandate of the ND and experience from similar processes in other countries.

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APPENDIX 1:

Presentation slides – Assessing Price Arbitrage Efficiency in Malawi's Maize Market

Assessing Spatial Price Arbitrage Efficiency In Malawi's Maize Market

Presented at the CIMPAD's 12th International
Conference

P. J. Banda & J. Allan

June 2022

Outline

- Introduction
- Main objectives of the study
- Literature review
- Methodology
- Estimation results
- Conclusion and recommendations

Background

- 1970s & 80s – demonstrated failings of the state in
- Mid 1980s - liberalization of agricultural markets
- Some quarters argued against complete government withdrawal:
 - Risk of market failures
 - Fragile & poorly integrated grain markets
 - Hence retention of ADMARC



Main objectives

- This study seeks to measure the level of integration in Malawi's maize market, in particular:
 - i. Measure spatial arbitrage efficiency in Malawi maize market
 - ii. Establish whether frequency of spatial arbitrage efficiency substantially decrease during food shortages increasing either the probability of no trade or loss-making trade or the probability of profitable but unexploited trade opportunities.

Literature review

- Parity Bound Model (PBM) originally conceived by Baulch (1997)
 - First applied the PBM to Philippine rice markets
- Tostão and Brorsen (2005)
- Meyers (2008)
- Zant (2012)

Methodology

- The ordinary least square method is used to estimate transaction costs and compute probability regimes using Stata 13 version.
- Empirical specification of transaction costs:

$$\ln(tc_t^{kj}) = \beta_0 + \beta_1 \ln(tf_t^{kj}) + \beta_3(wpi) + \beta_2 trend + \lambda_{kn} + \varepsilon_t^{kj}$$

Cont.:

- Empirical specification of computation of indicators of market efficiency:

- Regime I, integrated with trade flows, efficient market:

$$-k < (P_t^i - P_t^k - t\tilde{C}_t^{ki}a) < k$$

- Regime II, integrated, no trade or loss making trade:

$$P_t^i - P_t^k - t\tilde{C}_t^{ki} \leq -k$$

- Regime III, not integrated, unexploited arbitrage opportunities:

$$P_t^i - P_t^k - t\tilde{C}_t^{ki} \geq k$$

Estimation results: Transaction cost equation

	Kasungu- Lilongwe	Mwanza-Nsanje	Mulanje- Chikwawa	Mulanje- Thyolo	Kasungu- Nkhosakota	Mchinji- Ntchisi
Inted	2.145** (3.28)	1.411* (2.20)	1.633** (2.80)	2.114*** (3.85)	3.316*** (5.36)	1.900** (3.35)
trend	-0.0705*** (4.39)	-0.0550** (3.30)	-0.0542*** (3.70)	-0.0744*** (5.00)	-0.102*** (6.32)	-0.0496** (3.35)
wpi	0.0899*** (4.41)	0.0656** (3.26)	0.0617** (3.21)	0.0868*** (4.79)	0.106*** (5.23)	0.0406 (1.97)
_cons	20.46*** (3.54)	12.62* (2.09)	13.37** (2.69)	17.01*** (3.87)	30.21*** (5.55)	15.43** (3.04)
N	131	144	140	124	142	134
R²	0.821	0.556	0.860	0.821	0.556	0.860

Cont.: Regime Probabilities

	Distance in Kilometers(km)	Regime I	Regime II	Regime III
Kasungu-Lilongwe	108.81	0.974 (0.018)	0.1E-2 (0.2E-2)	0.025 (0.016)
Mwanza-Nsanje	166.16	0.247 (0.097)	0.753 (0.097)	0.1E-11 (0.1E-10)
Mulanje-Chikwawa	74.46	0.302 (0.056)	0.540 (0.415)	0.158 (0.424)
Mulanje-Thyolo	38.60	0.956 (0.039)	0.044 (0.039)	0.4E-10 (0.2E-9)
Kasungu-Nkhotakota	88.79	0.533 (0.086)	0.467 (0.086)	0.2E-6 (0.4E-2)
Mchinji-Ntchisi	115.69	0.1E-2 (0.3E-3)	0.179 (0.104)	0.819 (0.104)

Regime probabilities with and without food shortages

	Regime I	
	Without Food Shortages	With Food Shortages
Kasungu-Lilongwe	0.187 -0.098	0.194 -0.077
Mwanza-Nsanje	1.00E-03 -0.95	0.404 -0.126
Mulanje-Chikwawa	0.548 -0.143	0.403 -0.119
Mulanje-Thyolo	0.391 -0.141	0.091 -0.073
Kasungu-Nkhotakota	0.172 -0.138	0.445 -0.092
Mchinji-Ntchisi	0.363 -0.108	5.00E-03 -0.241

Cont.:

Regime II		
	Without Food Shortages	With Food Shortages
Kasungu-Lilongwe	0.621	0.806
	-0.095	-0.077
Mwanza-Nsanje	0.437	0.597
	-0.091	-0.126
Mulanje-Chikwawa	0.452	0.598
	-0.143	-0.119
Mulanje-Thyolo	0.609	0.909
	-0.141	-0.073
Kasungu-Nkhotakota	0.42	0.555
	-0.105	-0.092
Mchinji-Ntchisi	0.637	0.077
	-0.108	-0.059

Cont.:

Regime III		
	Without Food Shortages	With Food Shortages
Kasungu-Lilongwe	0.192	9.00E-11
	-0.078	-4.00E-10
Mwanza-Nsanje	0.562	2.00E-16
	-0.091	-1.00E-15
Mulanje-Chikwawa	9.00E-07	1.00E-04
	-1.00E-04	-1.00E-03
Mulanje-Thyolo	9.00E-05	1.00E-09
	-4.00E-04	-5.00E-09
Kasungu-Nkhotakota	0.408	3.00E-06
	-0.134	-8.00E-05
Mchinji-Ntchisi	6.00E-07	0.918
	-2.00E-06	-0.263

Conclusion and recommendations

The study finds evidence indicative of improved level of spatial arbitrage efficiency across Malawi maize markets with a number of policy implications:

- i. positive of likely success of a private sector learn marketing arrangement for ADMARC social markets
- ii. positive of viable partnerships between ADMARC and farmer organisations like Cooperatives, NASFARM and Farmers Union of Malawi (FUM)
- iii. need to still address issues of trading infrastructure and communication

Thank you!