



THE ISSUE

IMPRINT

October 2026. Volume 1, No. 1

SERIAL	African Research Journal of Economic Freedom
IMPRINT	AFODIresearch, Action for Development Initiative, Kampala
THIS NUMBER	Volume 1, Number 1, October 2026
THEME	Free market economy and its opportunities for Uganda
NEXT NUMBER	Volume 1, Number 2, December 2026. Uganda in the African context.
FREQUENCY	Quarterly, with two issues in 2026 and four issues from 2027.
LICENCE	CC BY 4.0. Authors retain copyright.
ISSN	ISSN 3137-0276
JOURNAL	arjef.afodiuganda.org
ARCHIVE	zenodo.org/communities/afodiresearch
CONTACT	research@afodiuganda.org
	Namugongo Rd., Kireka, Kampala · +256 777 313 357

CONTENTS

VOLUME 1, NO. 1

October 2026

FRONT MATTER

01 Note on the first issue.....	4
<i>[Editor]</i>	

AFRICAN LIBERTY CAMP TRILOGY 2026

02 African Liberty Camp 2026 Quantitative Evaluation.....	06
<i>Kai H. Kayser, Arthur Odong, Opedun Isaac Joseph and Amito Brenda Olaa</i>	
03 African Liberty Camp 2026 Qualitative Evaluation.....	21
<i>Kai H. Kayser, Arthur Odong, Opedun Isaac Joseph and Amito Brenda Olaa</i>	
04 African Liberty Camp 2026 Mixed-Methods Evaluation.....	38
<i>Kai H. Kayser, Arthur Odong, Opedun Isaac Joseph and Amito Brenda Olaa</i>	

ARTICLES

05 Sound, Fiat, and Digital Money: Uganda's Decisive Policy Choices.....	53
<i>Kai H. Kayser</i>	
06 Macroeconomic effects of Mobile money: Evidence from Uganda.....	90
<i>Joseph Mawejje and Paul Lakuma</i>	
07 Mobile Money Use: The Impact of Macroeconomic Policy and Regulation.....	118
<i>Lorna Katusiime</i>	
08 Europe should stop banning interest on digital money.....	144
<i>Ulrich Bindseil</i>	

POLICY STUDIES

09 Accountability as Policy: Ending Soft Budgets and Public Debt.....	147
<i>Kai H. Kayser</i>	
10 Money Laundering.....	190
<i>Kai H. Kayser</i>	
11 Colophon.....	216

EDITORIAL

NOTE ON THE FIRST ISSUE

Welcome to the first issue of ARJEF. Please be assured that our entire team appreciates your interest. This journal was founded as an attempt to address some of the main problems we see in today's research and in the way it is published:

- We intend to keep formalism at the necessary minimum and not let it get in the way of clarity and common sense.
- We oppose the tendency to dismiss older research results and to insist on the citation of newer studies, a practice that may be well intended but amplifies the weaknesses of the growing formalism just mentioned.

While our focus is evidently on Africa and on free-economy matters, we hope also to become an active platform for interdisciplinarity, interconnectedness and systems complexity, and we will include further research that breaks moulds and conventional patterns.

In keeping with that, our next issue will offer a closer treatment of investment, including sectors such as education and agriculture, from both microeconomic and macroeconomic viewpoints.

With best regards,



K.H. Kayser
Executive Director of Research and Policy, AFODI
Kampala, October 2026

MASTHEAD

PUBLISHER & BOARD

PUBLISHER

Action for Development Initiative (AFODI), a registered non-profit in Kampala, Uganda.

<https://afodiuganda.org> & <https://arjef.afodiuganda.org>

OFFICERS

Arthur Odong, Team Leader. ORCID 0009-0004-5120-5919.

Kai H. Kayser, Executive Director of Policy and Research. ORCID 0009-0000-1700-4997.

Opedun Isaac Joseph, programs and data.

Amito Brenda Olaa, community and operations.

BOARD

Arthur Odong, Chair.

EDITOR

Kai H. Kayser.

ISSN

ISSN 3137-0276

REVIEW

Research articles are peer-reviewed. The review is typically single-blind: the reviewers know the authors, and the authors do not know the reviewers. Editorials and reprints are not reviewed again.

ISSUE

African Research Journal of Economic Freedom (2026) Vol. 1, No. 1. Kampala: AFODI.

ARTICLE CITATION

[Kayser, K.H.](#), [Odong, A.](#), Joseph, O.I. and Olaa, A.B. (2026) African Liberty Camp 2026 quantitative evaluation. Zenodo. Available at: <https://doi.org/10.5281/zenodo.22033709>



AFRICAN RESEARCH JOURNAL OF ECONOMIC FREEDOM
**African Liberty Camp 2026 Quantitative
Evaluation:
Participant-Reported Knowledge Gains,
Perceived Impacts, and Behavioral Intentions**

AFODIresearch
Uganda. August 20, 2026



Authors:

Kai H. Kayser
Arthur Odong
Opedun Isaac Joseph
Amito Brenda Olaa

Citation:

[Kayser, K.H., Odong, A.](#), Joseph, O.I. and Olaa, A.B.
(2026) African Liberty Camp 2026 quantitative
evaluation. Zenodo. Available at:
<https://doi.org/10.5281/zenodo.22033709>

Abstract

This paper presents a quantitative evaluation of Africa Liberty Camp 2026, the 11th edition of an annual intensive residential program held in Uganda. Drawing on feedback from 23 of the 64 participants, the study examines self-reported knowledge gains, perceived influence, session impact, logistical quality, and future engagement intentions.

Participants reported substantial increases in understanding of individual liberty, free markets, entrepreneurship, property rights, and public policy. Between 74% and 91% indicated that the camp had significantly influenced their understanding of liberty, confidence in defending it, leadership ability, entrepreneurial mindset, networking opportunities, and desire to create positive change. Keynote speeches were identified as the most impactful session format. While time management received the weakest

logistical ratings, overall satisfaction remained high, with strong endorsement of the speakers, venue, meals, and many more. Nearly all respondents expressed willingness to recommend the camp and to contribute to future editions.

The findings indicate that Africa Liberty Camp continues to deliver meaningful short-term cognitive and motivational effects and has established itself as a valued platform within East African free-market networks. This study is conducted by Action for Development Initiative (AFODI) and forms the first paper in the Africa Liberty Camp 2026 Impact Trilogy. To the best of our knowledge, AFODI is currently the only organization systematically evaluating the outcomes of the camp and making the results available through open-access publication.

Keywords: liberty education, Africa, quantitative evaluation, Uganda, knowledge gains, participant impact, AFODI

1. Introduction

1.1 Context of Africa Liberty Camp

Africa Liberty Camp has been held annually in Uganda for over a decade and reached its 11th edition in 2026. Organized collaboratively by free-market oriented organizations including Action for Development Initiative (AFODI), Mtindo Network Development Initiative, Action for Liberty and Economic Development (ALED) and other partners, the camp has grown into one of the most established locally organized platforms for introducing young Africans to the ideas of individual liberty, free markets, entrepreneurship, and limited government. The 2026 edition, held under the theme “A Free and Prosperous Africa,” brought together students, young entrepreneurs, professionals, and civil-society actors for an intensive residential program of keynote lectures, panel discussions, networking sessions, and fireside conversations.

1.2 Evaluating Short Intensive Liberty Education

Short intensive educational programs and seminars have long been used by classical liberal and civic education organizations to expose participants to foundational ideas and to stimulate critical discussion. Evaluations of comparable interventions have shown that well-designed programs can produce measurable short-term gains in knowledge, increase conceptual complexity in participants’ understanding of liberty, and foster residual engagement and civic motivation (Arthur et al., 2023; Center for Civic Education, n.d.). At the same time, the literature consistently notes that knowledge gains are often more readily detectable

than durable changes in attitudes or behavior, and that program effects depend heavily on selection, intensity, facilitation quality, and follow-up mechanisms (Wolf, 2007; Liberia Civic Education Impact Evaluation, 2025).

In the African context, where formal curricula and policy environments frequently provide limited sustained exposure to classical liberal ideas, intensive camps of this kind constitute one of the few structured vehicles available for concentrated engagement (Reason, 2018). Systematic quantitative evidence on their short-term cognitive and motivational effects, however, remains scarce.

1.3 Rationale and Research Aim

While qualitative accounts from organizers and speakers provide valuable insight into design intentions and perceived mechanisms of influence, participant-reported outcomes are essential for assessing whether the camp achieves its intended short-term effects. This study therefore examines the self-reported knowledge gains, perceived impacts, and behavioral intentions of participants at Africa Liberty Camp 2026, using anonymized questionnaire data, in order to assess the short-term cognitive and motivational effects of the camp.

1.4 Research Questions

The study is guided by four research questions:

RQ1. To what extent did participants report changes in their understanding of individual liberty, free markets, entrepreneurship, property rights, and public policy after attending the camp?

RQ2. How did participants rate the influence of the camp on their understanding of liberty, confidence in defending liberty, leadership ability, entrepreneurial mindset, networking opportunities, and desire to create positive change?

RQ3. What behavioral intentions related to promoting liberty were most frequently reported by participants, and were higher levels of intention associated with more positive evaluations of the camp experience and logistics?

RQ4. Which session formats and logistical elements were most strongly associated with positive overall evaluations and higher recommendation likelihood?

1.5 Objectives

- To measure and compare participants' self-reported understanding of five core liberty-related topics before and after the camp.
- To describe the distribution of perceived impact across six key areas.

- To identify the most common post-camp behavioral intentions and examine their relationship with overall satisfaction.
- To determine which session types and logistical factors were linked to more positive participant evaluations and recommendation likelihood.
- To generate evidence-based insights that can inform the design and targeting of future liberty-oriented camps.

1.6 Position within the Trilogy

This paper constitutes the first study in the Africa Liberty Camp 2026 Impact Trilogy. It provides the quantitative participant-outcome baseline. The second paper reports qualitative findings from organizers and speakers, and the third integrates both strands in a mixed-methods evaluation.

1.7 The Background of the Trilogy

This evaluation is conducted by Action for Development Initiative (AFODI). To the best of our knowledge, AFODI is currently the only organization systematically studying the outcomes of Africa Liberty Camp and making the findings available through open-access publication. The present paper forms part of AFODI's broader effort to generate rigorous, publicly accessible evidence on liberty-oriented education and policy in Uganda and the wider East African region.

2. Methodology

2.1 Research Design

This study employed a cross-sectional, post-event quantitative design with retrospective pre–post knowledge items. Single-wave post-event surveys with retrospective pre-test questions are widely used in the evaluation of short intensive educational programs when true experimental pre-testing is logistically difficult or risks priming participants (Hill and Betz, 2005; Lam and Bengo, 2003). The design prioritizes the measurement of self-reported cognitive change, perceived influence, and behavioral intentions immediately after the intervention, consistent with established approaches in civic and liberty education evaluation (Arthur et al., 2023; Center for Civic Education, n.d.).

2.2 Participants and Sample

The target population consisted of all participants who attended Africa Liberty Camp 2026. A convenience sample of attendees who completed the feedback questionnaire was analyzed. After data cleaning, 23 fully completed responses were retained.

The sample was predominantly Ugandan, with smaller representation from Kenya and South Sudan. Students constituted the largest occupational group, followed by entrepreneurs, professionals, and civil-society actors. Most respondents were aged 18–24 or 25–34. While the sample size is modest, it is typical of feedback evaluations of intensive residential programs of this scale and provides sufficient data for descriptive analysis and basic comparisons (Malterud, Siersma and Guassora, 2016, on information power adapted to quantitative descriptive studies).

2.3 Instrument

Data were collected using a structured online questionnaire. The instrument contained:

- Six overall experience items rated on a three-point scale (Not at all / Yes / Very much);
- Retrospective pre–post ratings of understanding of five core topics (Individual Liberty, Free Markets, Entrepreneurship, Property Rights, Public Policy) on a five-level scale (Very Low to Very High);
- Six perceived-influence items (Understanding of liberty, Confidence in defending liberty, Leadership ability, Entrepreneurial mindset, Networking opportunities, Desire to create positive change) rated as Not at all / Moderately / Significantly;
- Identification of the most impactful session types;
- Logistics ratings (Registration, Accommodation, Meals, Venue, Communication, Time Management, Overall Organization);
- Behavioral intention and future engagement items;
- A recommendation likelihood item;
- Open-ended questions for qualitative context.

The use of short ordinal scales and retrospective pre–post items is common in post-event evaluation of educational interventions where minimizing respondent burden is important (Pratt, McGuigan and Katzev, 2000; Lam and Bengo, 2003).

2.4 Data Collection

The questionnaire was administered online shortly after the camp (early to mid-August 2026). Participation was voluntary. Responses were anonymized prior to analysis; identifying information (names, emails, phone numbers) was removed. The final analytic dataset contained 23 complete cases.

2.5 Data Analysis

Analysis was primarily descriptive. Frequencies and percentages were calculated for all closed items. For knowledge gains, the proportion of respondents rating their understanding as High or Very High before and after the camp was compared for each topic. Perceived influence was summarized by the percentage

reporting “Significantly.” Session impact, logistics ratings, and future engagement intentions were likewise reported as frequencies and percentages.

Where relevant, simple cross-tabulations were examined to explore associations between overall satisfaction, recommendation likelihood, and other variables. Given the modest sample size and the ordinal nature of most measures, the emphasis remained on transparent descriptive presentation rather than inferential statistics (Field, 2018). Open-ended responses were reviewed for illustrative context but were not subjected to formal thematic analysis in this quantitative paper.

2.6 Ethical Considerations

Participation was voluntary and respondents were informed that their feedback would be used for program evaluation and academic publication. All data were anonymized. No sensitive personal information was retained. The study was conducted as a low-risk program evaluation of an adult educational event and did not require formal institutional review board approval under standard guidelines for such evaluations (British Educational Research Association, 2018).

3. Results

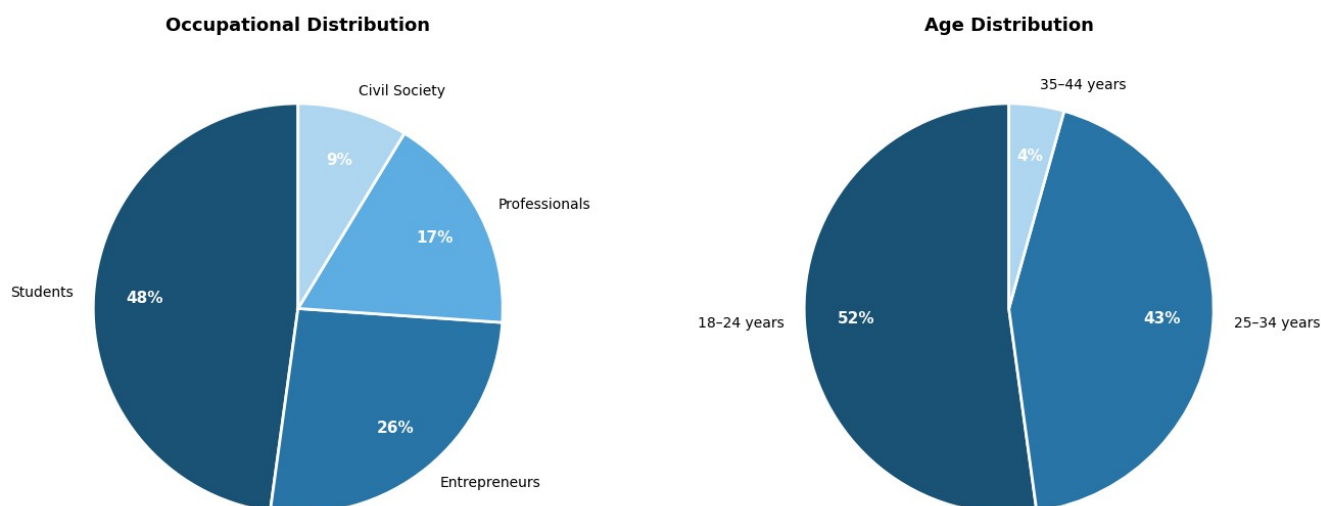
The results are based on 23 completed participant questionnaires. All percentages are calculated against this total ($n = 23$).

3.1 Sample Characteristics

The majority of respondents were Ugandan (approximately 20/23). The sample also included one participant from Kenya and one from South Sudan.

Occupationally, students formed the largest group (about 10/23), followed by entrepreneurs (roughly 6–7/23) and professionals or civil-society actors. Most respondents fell in the 18–24 and 25–34 age ranges.

Figure 1: Profile of Respondents



Source: AFODIresearch, 2026

3.2 Overall Experience Ratings

Participants rated six overall experience items on a three-point scale (Not at all / Yes / Very much).

- **The camp met my expectations:** 10/23 (43%) answered “Very much,” 11/23 (48%) answered “Yes,” and only 1/23 answered “Not at all.”
- **Sessions were relevant:** 10/23 (43%) “Very much,” 11/23 (48%) “Yes,” 1/23 “Not at all.”
- **Speakers were knowledgeable:** 15/23 (65%) answered “Very much” and 7/23 (30%) “Yes.” Only one respondent rated this negatively.
- **Discussions were engaging:** 12/23 (52%) “Very much,” 8/23 (35%) “Yes.”
- **The camp was well organized:** 10/23 (43%) “Very much,” 12/23 (52%) “Yes.”
- **I would recommend this camp:** 17/23 (74%) answered “Very much” and a further 4/23 answered “Yes.” Only one respondent indicated they would not recommend it.

Overall, the large majority of participants expressed positive or strongly positive evaluations of the camp experience.

3.3 Knowledge Gains (Before–After)

Participants rated their understanding of five topics before and after the camp using a five-level scale (Very Low to Very High). Clear upward shifts are visible across all topics.

Individual Liberty

- Before: 15/23 (65%) rated their understanding as Moderate; only 5/23 rated it High or Very High.
- After: 13/23 (57%) rated it Very High and a further 4/23 High.

Free Markets

- Before: responses were more spread (High 10/23, Moderate 5/23, Low 5/23).
- After: 19/23 (83%) rated their understanding as High or Very High.

Entrepreneurship

- Before: 9/23 Moderate, 7/23 Very High, 5/23 High.
- After: 20/23 (87%) rated it High or Very High.

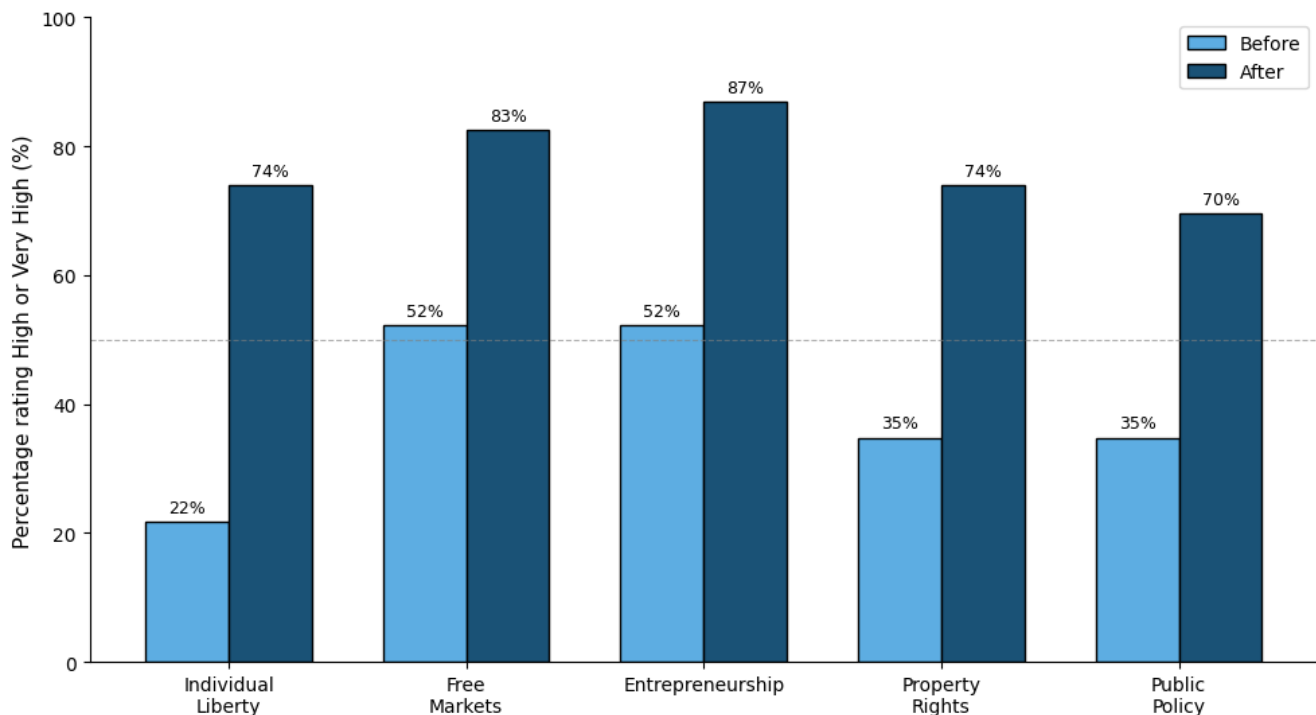
Property Rights

- Before: relatively lower (Moderate 8/23, Low 6/23).
- After: 17/23 (74%) rated it High or Very High.

Public Policy

- Before: lowest starting point (Low or Moderate for 14/23).
- After: 16/23 (70%) rated it High or Very High.

Figure 2: Knowledge Gains



Source: AFODIresearch, 2026

In summary, self-reported understanding increased across all five domains, with the most visible gains in Individual Liberty, Free Markets, and Entrepreneurship.

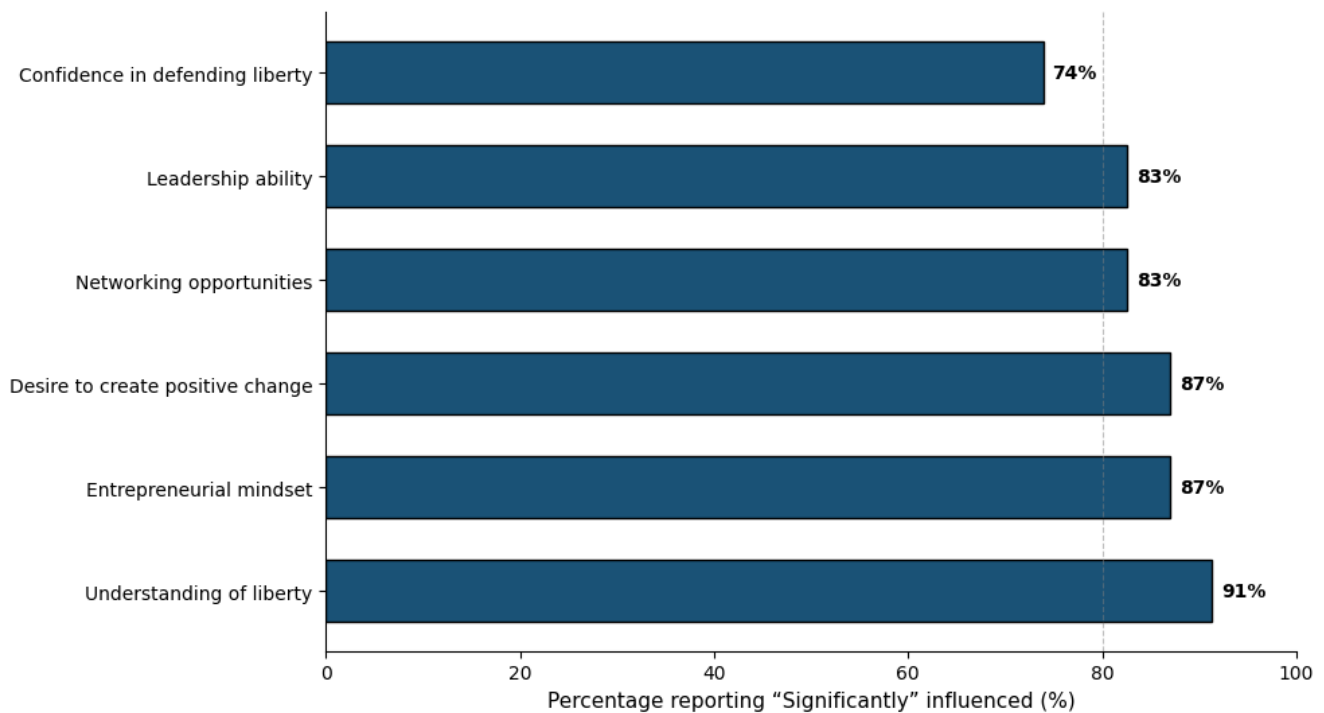
3.4 Perceived Influence of the Camp

Participants rated how much the camp had influenced six areas (Not at all / Moderately / Significantly).

- Understanding of liberty: 21/23 (91%) “Significantly”
- Confidence in defending liberty: 17/23 (74%) “Significantly”
- Leadership ability: 19/23 (83%) “Significantly”
- Entrepreneurial mindset: 20/23 (87%) “Significantly”
- Networking opportunities: 19/23 (83%) “Significantly”
- Desire to create positive change: 20/23 (87%) “Significantly”

Across all six domains, the large majority of respondents reported significant influence. Moderate ratings were few, and negative ratings were almost absent.

Figure 3: Influence



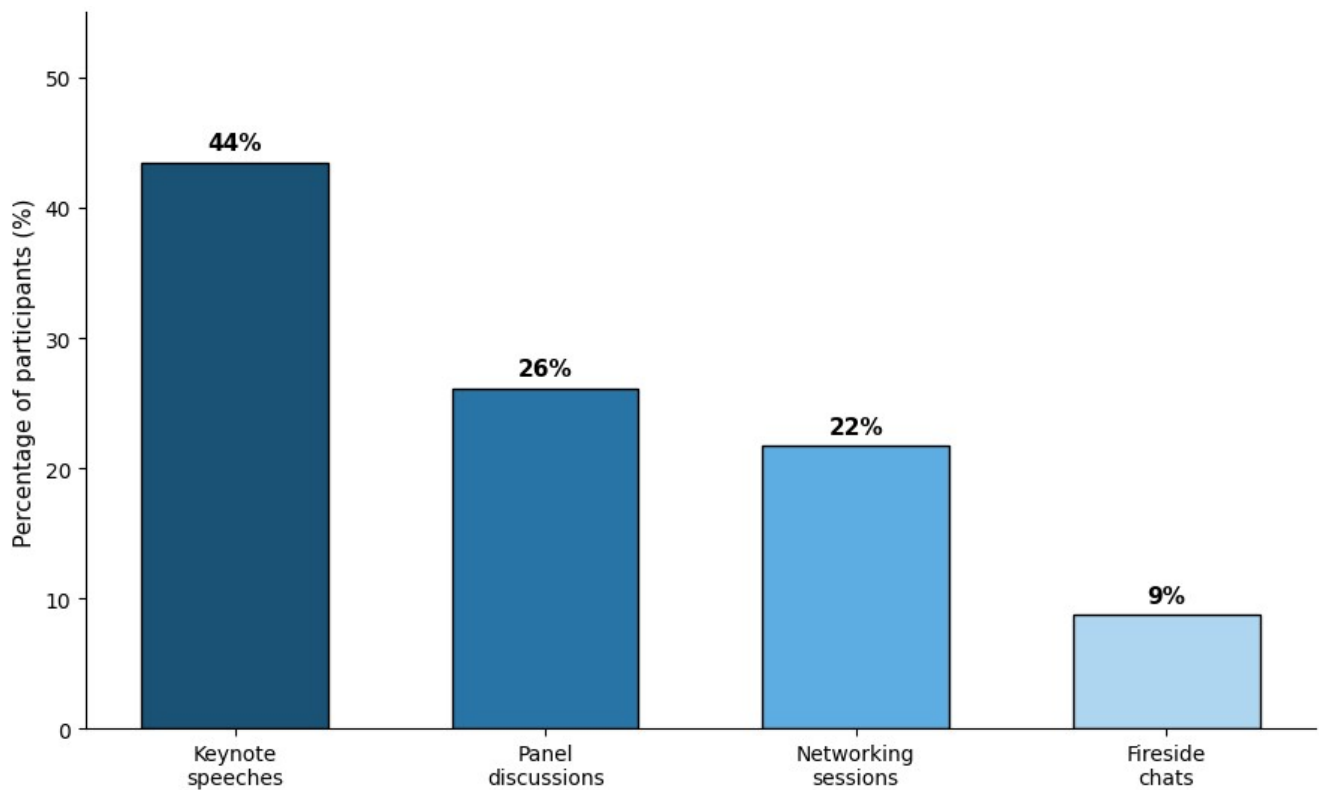
Source: AFODIresearch, 2026

3.5 Most Impactful Session Types

When asked which sessions had the greatest impact:

- Keynote speeches: 10/23 (43%)
- Networking sessions: 5/23 (22%)
- Panel discussions / panel sessions: 6/23 (26%)
- Camp fireside chats: 2/23 (9%)

Figure 4: Impact



Source: AFODIresearch, 2026

Keynote speeches were the single most frequently cited format, followed by panels and networking.

3.6 Logistics Ratings

Logistics items were rated on a scale ranging from Poor to Excellent.

- **Registration:** 20/23 (87%) rated it Very Good or Excellent.
- **Accommodation:** more mixed — 13/23 (57%) Fair, 10/23 Very Good or Excellent.
- **Meals:** 21/23 (91%) Very Good or Excellent.
- **Venue:** 22/23 (96%) Very Good or Excellent.
- **Communication:** 16/23 (70%) Very Good or Excellent; 7/23 Fair.
- **Time Management:** the weakest area — 11/23 (48%) Fair, only 11/23 Very Good or Excellent, and 1 Poor.
- **Overall Organization:** 18/23 (78%) Very Good or Excellent.

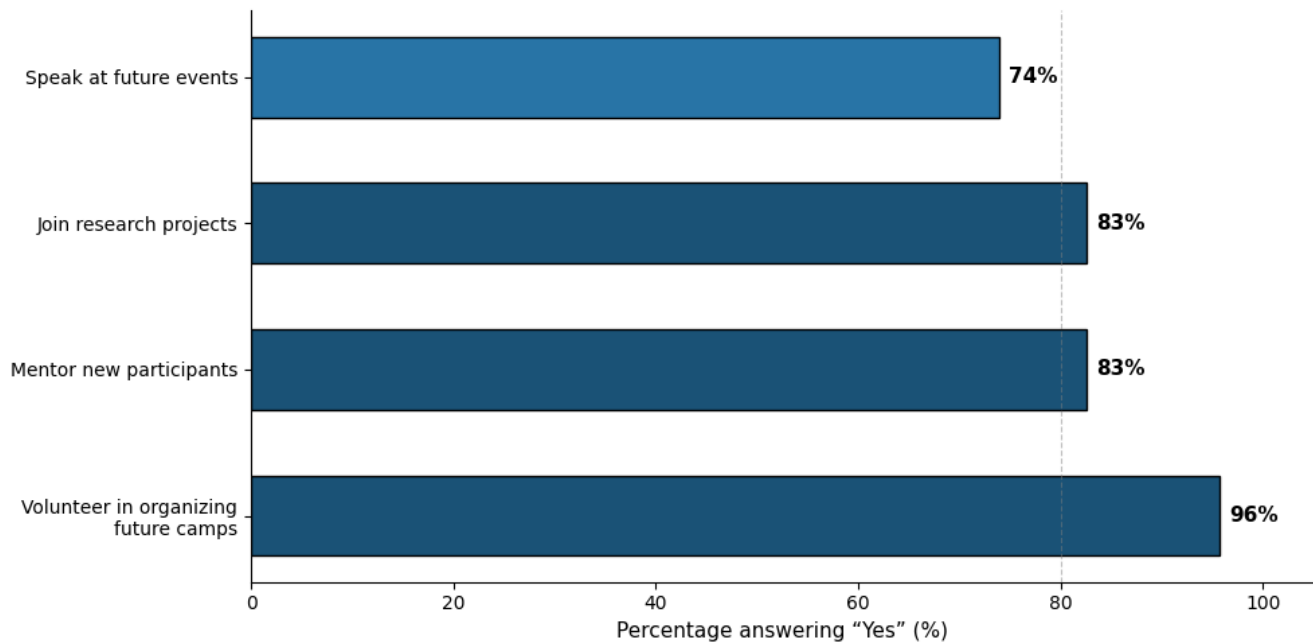
Venue, meals, and registration received the strongest ratings; time management and accommodation were the relative weak points.

3.7 Behavioral Intentions and Future Engagement

Willingness to engage further was high:

- Volunteer in organizing future camps: 22/23 (96%) Yes
- Speak at future events: 17/23 (74%) Yes
- Mentor new participants: 19/23 (83%) Yes
- Join research projects: 19/23 (83%) Yes

Figure 5: Willingness to Engage in Future Activities



Source: AFODIresearch, 2026

3.8 Recommendation Likelihood

When asked how likely they were to recommend Africa Liberty Camp to a friend or colleague, 20/23 (87%) answered "Very much" and the remaining 3/23 answered "Yes." No respondent indicated they would not recommend the camp.

4. Discussion

4.1 Interpretation of Key Findings

Of the 64 participants who attended Africa Liberty Camp 2026, 23 completed the feedback questionnaire, corresponding to a response rate of approximately 36%. While modest, this rate is typical for voluntary post-event surveys of intensive residential programs.

The quantitative results indicate that the camp produced clear, participant-reported short-term effects. Self-reported understanding of the five core topics rose substantially: the share of respondents rating their knowledge as High or Very High increased by more than 30 percentage points in every domain, with the largest gain recorded for Individual Liberty (from 22% to 74%). Perceived influence was equally strong.

Between 74% and 91% of respondents reported that the camp had influenced them “Significantly” across the six measured areas—understanding of liberty, confidence in defending liberty, leadership ability, entrepreneurial mindset, networking opportunities, and desire to create positive change.

Keynote speeches emerged as the most frequently cited high-impact format (43%), followed by panel discussions and networking sessions. Logistics ratings were generally positive, particularly for venue, meals, and registration. Time management was the clearest area of criticism. Nevertheless, the very high levels of reported influence, the strong willingness to remain engaged in future activities (including a 96% readiness to volunteer), and the near-universal willingness to recommend the camp indicate that this operational shortcoming did not undermine the overall perceived value of the experience.

High satisfaction with meals and the particularly strong endorsement of keynote speakers further support the conclusion that the core educational and relational elements of the camp were successful. Combined with the excellent venue ratings and the exceptionally high recommendation rates, the results suggest that Africa Liberty Camp has established itself as a recognized and valued platform within East African libertarian and free-market networks. The data portray a program that, despite identifiable logistical weaknesses, delivers meaningful short-term cognitive and motivational effects and generates substantial residual commitment among participants.

4.2 Implications for Program Design

The data support several practical implications. First, the magnitude of reported knowledge gains and influence suggests that the intensive residential format continues to be an effective vehicle for short-term cognitive and motivational effects. Second, the prominence of keynote speeches underscores the value of high-quality external speakers, while the solid showing of panels and networking points to the importance of balancing didactic and interactive elements. Third, the weaker ratings for time management and accommodation indicate clear operational priorities for subsequent editions. Fourth, the very high future-engagement intentions constitute a ready pool of potential alumni contributors that organizers can systematically cultivate through structured follow-up, mentorship schemes, or alumni roles.

4.3 Limitations

Several limitations should be acknowledged. Although 23 of the 64 camp participants completed the questionnaire (a response rate of 36%), the sample is self-selected; those who responded may differ in motivation or satisfaction from those who did not. All measures are self-reported and collected retrospectively, which raises the possibility of social-desirability bias and recall distortion (Hill and Betz, 2005; Pratt, McGuigan and Katzev, 2000). The predominantly ordinal scales, while reducing respondent burden, limit statistical granularity. Finally, the study captures only immediate post-camp perceptions; longer-term retention of knowledge or translation into behavior is not part of the assessment’s scope.

4.4 Contribution within the Trilogy

Despite these limitations, the study supplies a clear quantitative baseline of participant-reported outcomes. It demonstrates that, from the participants' own perspective, the 2026 camp generated substantial short-term knowledge gains, strong perceived influence, and high residual commitment. These findings will be integrated with the qualitative perspectives of organizers and speakers in the forthcoming mixed-methods paper, allowing a more comprehensive assessment of both outcomes and the mechanisms that produced them.

5. Conclusion

This quantitative evaluation of Africa Liberty Camp 2026 shows that participants reported substantial short-term gains in understanding of core liberty-related topics, strong perceived influence across cognitive, motivational, and relational domains, and high residual commitment to the ideas and the community formed at the camp.

Self-reported knowledge increased markedly across all five measured areas, with the clearest gains in Individual Liberty, Free Markets, and Entrepreneurship. The large majority of respondents indicated that the camp had significantly influenced their understanding of liberty, confidence in defending it, leadership capacity, entrepreneurial mindset, networking, and desire to create positive change. Keynote speeches were identified as the most impactful session format, while venue, meals, and registration received particularly strong logistical ratings. Time management emerged as the principal operational weakness, yet it did not appear to diminish overall satisfaction or willingness to remain involved.

Nearly all respondents expressed readiness to recommend the camp and to contribute to future editions through volunteering, mentoring, speaking, or research. These patterns, drawn from 23 of the 64 participants, portray Africa Liberty Camp as a program that continues to deliver meaningful short-term educational and motivational effects and that has established itself as a valued platform within East African free-market and liberty networks.

As the first paper in the Africa Liberty Camp 2026 Impact Trilogy, this study provides the quantitative participant-outcome baseline. The findings will be integrated with qualitative insights from organizers and speakers in the subsequent mixed-methods evaluation, allowing a more complete assessment of both results and the processes that produced them.

References

- Arthur, J., Harrison, T., Burn, E. and Moller, F. (2023) *Torchbearers of Liberty: Research report*. Birmingham: Jubilee Centre for Character and Virtues.
- British Educational Research Association (2018) *Ethical guidelines for educational research*. 4th edn. London: BERA.
- Brookfield, S.D. and Preskill, S. (2005) *Discussion as a way of teaching: Tools and techniques for democratic classrooms*. 2nd edn. San Francisco: Jossey-Bass.
- Center for Civic Education (n.d.) *We the People: Evaluation findings*. Available at: <https://www.civiced.org> (Accessed: 20 August 2026).
- Field, A. (2018) *Discovering statistics using IBM SPSS statistics*. 5th edn. London: SAGE.
- Hill, L.G. and Betz, D.L. (2005) 'Revisiting the retrospective pretest', *American Journal of Evaluation*, 26(4), pp. 501–517.
- Lam, T.C.M. and Bengo, P. (2003) 'A comparison of three retrospective self-reporting methods of measuring change in instructional practice', *American Journal of Evaluation*, 24(1), pp. 65–80.
- Malterud, K., Siersma, V.D. and Guassora, A.D. (2016) 'Sample size in qualitative interview studies: Guided by information power', *Qualitative Health Research*, 26(13), pp. 1753–1760.
- Pratt, C.C., McGuigan, W.M. and Katzev, A.R. (2000) 'Measuring program outcomes: Using retrospective pretest methodology', *American Journal of Evaluation*, 21(3), pp. 341–349.
- Wolf, P.J. (2007) 'Civics exam: Schools of choice boost civic values', *Education Next*, 7(3), pp. 67–72.



AFRICAN RESEARCH JOURNAL OF ECONOMIC FREEDOM

African Liberty Camp 2026

Qualitative Evaluation:

Organizers' and Speakers' Perspectives on Design and Delivery

AFODIresearch
Uganda. August 14, 2026



Authors:

Kai H. Kayser
Arthur Odong
Opedun Isaac Joseph
Amito Brenda Olaa

Citation:

Kayser, K.H., Odong, A., Joseph, O.I. and Olaa, A.B.
(2026) African Liberty Camp 2026 qualitative
evaluation. Zenodo. Available at:
<https://doi.org/10.5281/zenodo.21938344>

Abstract

This qualitative study explores the perspectives of organizers and speakers involved in Africa Liberty Camp 2026 on the camp's design rationale, implementation processes, and perceived mechanisms of engaging participants with liberty ideas. Drawing on five semi-structured interviews (three organizers and two speakers) collected via online forms, the analysis examines intended goals, facilitating and constraining factors, assessments of program effectiveness, and lessons for future liberty-oriented educational events in Africa. Findings highlight the value of intensive, debate-oriented formats in fostering critical thinking and the conversion of first-time participants, while identifying persistent challenges related to partner commitment, program structure, resource constraints, participant selection, and residual cultural resistance. Organizers framed success in incremental terms and called for expanded scholarships, clearer partner roles, stronger use of alumni, and the inclusion of higher-level audiences in future editions. The study contributes contextual insights that can inform the design of future camps and will later be integrated with participant survey data in a mixed-methods evaluation.

Keywords: liberty education, Africa, intensive camps, qualitative evaluation, organizers, speakers

1. Introduction

Africa Liberty Camp has been held annually in Uganda for over a decade and reached its 11th edition in 2026. Organized collaboratively by free-market oriented organizations including Action for Liberty and Economic Development (ALED), Action for Development Initiative (AFODI), and Mtindo Network Development Initiative, together with other partners, the camp has grown in scale and acceptance as one of the most established locally organized platforms for introducing young Africans to the ideas of individual liberty, free markets, entrepreneurship, and limited government. The 2026 edition, held under the theme “A Free and Prosperous Africa,” continued this tradition of intensive residential engagement aimed at students, young leaders, and emerging professionals.

Short intensive educational programs and seminars have long been used by classical liberal and libertarian organizations to expose participants to the principles of individual liberty, free markets, and limited government. Evaluations of similar initiatives elsewhere have shown that such formats can generate meaningful short-term gains in knowledge, stimulate critical discussion, and foster residual engagement among motivated participants, while also revealing recurring challenges related to selection, organizational capacity, follow-up, and the translation of intellectual exposure into lasting change. In the African context, where formal educational systems and policy environments often provide limited space for sustained engagement with classical liberal ideas, intensive camps represent one of the few structured vehicles currently available.

While participant surveys can capture self-reported knowledge gains and behavioral intentions, they provide limited insight into the intentional design of such programs or the practical realities of their delivery. Understanding how organizers and speakers conceptualize goals, navigate implementation challenges, and evaluate what works is essential for refining future interventions and for generating transferable lessons. This study therefore focuses on the insider perspectives of those who designed, organized, and delivered Africa Liberty Camp 2026.

The study addresses four research questions:

- RQ1. How did organizers and speakers define the intended goals and expected pathways of influence of the camp?
- RQ2. What organizational, logistical, and contextual factors facilitated or constrained the effective delivery of the camp?
- RQ3. From the viewpoint of organizers and speakers, which program elements appeared most and least effective in fostering engagement with liberty concepts, and why?

- RQ4. What lessons do organizers and speakers draw for the design and delivery of future liberty-oriented educational events in Africa?

The study aims to elicit understandings of purpose and theory of change, identify key enablers and barriers, capture assessments of impactful features, document practical lessons, and generate rich contextual data suitable for later mixed-methods integration with participant survey findings. As the second paper in the Africa Liberty Camp 2026 Impact Trilogy, it supplies the qualitative foundation for a subsequent mixed-methods evaluation.

2. Methodology

2.1 Research Design

This study adopted a qualitative, interpretive design to explore the perspectives of organizers and speakers on the design, delivery, and perceived mechanisms of influence of Africa Liberty Camp 2026. A key-informant approach was selected because organizers and speakers possess privileged knowledge of the camp's intended goals, implementation processes, and observed effects (Malterud, Siersma and Guassora, 2016). The study forms the second paper in a three-part evaluation trilogy of the 2026 camp; the first paper reports quantitative participant outcomes, and the third will integrate both strands in a mixed-methods synthesis.

2.2 Participants and Sampling

Purposive sampling was used to recruit individuals with direct responsibility for the design, organization, or delivery of the camp. The target sample comprised approximately three organizers and three to four speakers. Nine submissions were received through the online interview forms. After exclusion of two empty responses, five complete interviews were retained for analysis (three organizers and two speakers). This final sample size ($n = 5$) is consistent with recommendations for focused key-informant studies guided by information power, given the narrow research aim, the high specificity of participants' knowledge, the quality of dialogue, and the single-event focus (Malterud, Siersma and Guassora, 2016). Respondents are anonymized throughout as O1–O3 (organizers) and S1 and S4 (speakers).

2.3 Data Collection

Data were collected through structured online interview forms hosted on Fillout.com. Separate forms were prepared for organizers and speakers, each containing eight open-ended questions aligned with the study's research questions. Respondents could answer by typing text or by uploading audio recordings.

The organizer form addressed expected and unexpected challenges, assessments of success and shortcoming, intended design changes, views on camp frequency, complementary formats, and overall value. The speaker form focused on perceived impact on participants, successes and missed opportunities,

personal challenges in preparation or delivery, willingness to return and recommend the camp, views on the intensive camp format versus more formal educational settings, and suggestions for improvement.

Responses were submitted voluntarily between 11 and 12 August 2026. Four respondents provided written answers and one provided an audio recording that was subsequently transcribed. All five interviews included in the analysis are reproduced in full in the Appendix.

2.4 Data Analysis

The interview data were analyzed using thematic analysis following the six-phase approach outlined by Braun and Clarke (2006, 2021). Analysis was primarily inductive, allowing themes to emerge from the data, while remaining sensitively oriented to the four research questions.

After familiarization with the full dataset, initial codes were generated systematically across all responses. Codes were then collated into candidate themes, reviewed against the coded extracts and the entire dataset, refined, and clearly defined. The final thematic structure was organized according to the research questions to maintain analytic coherence. Full anonymized transcripts were retained to support transparency and are presented in the Appendix.

2.5 Trustworthiness

Several strategies were employed to enhance the trustworthiness of the findings. Credibility was supported through prolonged engagement with the data, systematic coding, and retention of the original wording of respondents. Dependability was strengthened by maintaining a clear audit trail of analytic decisions and by presenting the complete cleaned transcripts in the Appendix. Confirmability was addressed by grounding interpretations closely in the data and by using direct quotations. Transferability is limited by the single-event focus and small sample, but the detailed description of context and participants allows readers to judge relevance to similar settings.

2.6 Researcher Positionality

The author approached the study as an independent researcher with a scholarly interest in liberty education and institutional design in African contexts. While the author had no operational role in the organization or delivery of Africa Liberty Camp 2026, prior professional engagement with related liberty networks is acknowledged. Reflexive attention was maintained throughout the analysis to minimize the influence of personal commitments on interpretation. The use of a structured interview guide, systematic coding, and full transcript disclosure further supported analytic distance.

2.7 Ethical Considerations

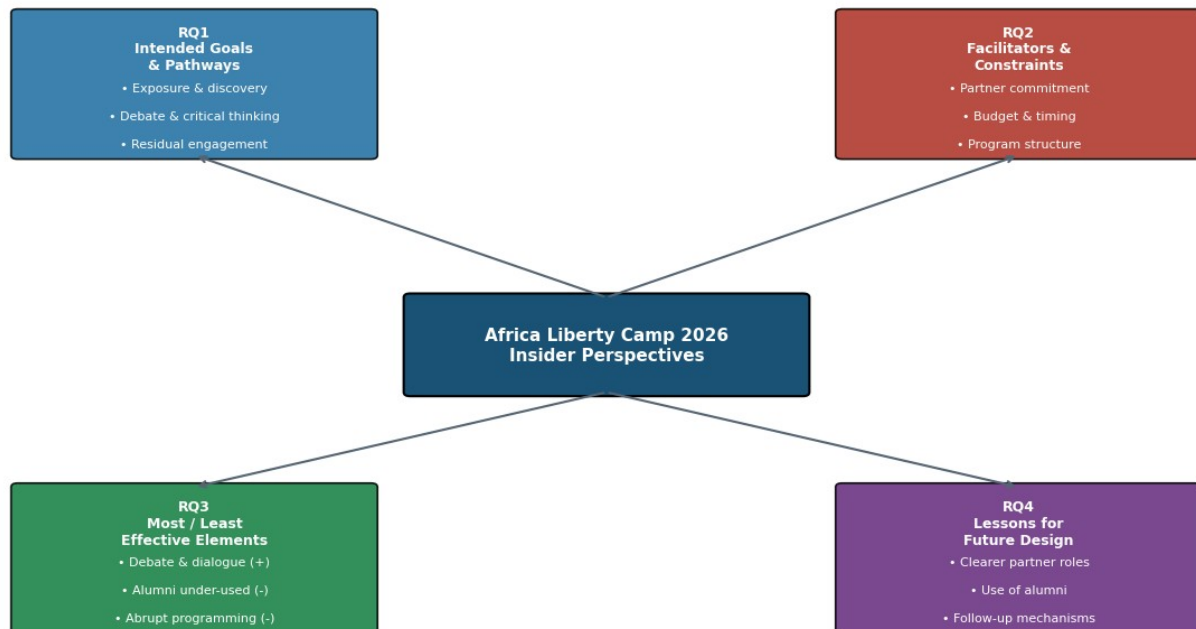
Participation was voluntary. Respondents were informed that their answers would be used for evaluation and academic publication. All data were anonymized using coded identifiers only; no names or institutional affiliations appear in the reported findings or Appendix. Given the low-risk nature of the

study (adult professionals reflecting on a completed professional event) and the absence of sensitive personal data, the research was conducted as a program evaluation exercise without formal institutional review board approval. Consent for the use of responses in multiple related publications within the evaluation trilogy was obtained through the interview form.

3. Findings

Findings are organized according to the four research questions. Quotations are drawn directly from the available text responses and lightly edited for readability while preserving meaning. The complete cleaned and anonymized responses from organizers and speakers are reproduced in the Appendix for transparency. Figure 1 presents an overview of the main themes that emerged from the organizer and speaker interviews, organized according to the four research questions.

**Figure 1. Thematic Map of Key Findings
Africa Liberty Camp 2026 - Organizer & Speaker Perspectives**



Source: AFODIresearch, 2026

3.1 Intended Goals and Pathways of Influence (RQ1)

Organizers and speakers framed the camp's purpose primarily in terms of exposure, discovery, inspiration, and the gradual cultivation of commitment to liberty ideas.

Speakers emphasized the opportunity for participants—especially students—to encounter ideas of freedom, develop critical thinking, and enter into sustained debate. S1 observed that the camp “created debate, critical thinking and civic dialogue which sharpens and empowers leaders,” noting that arguments continued in the camp group after the event. S4 similarly highlighted “giving students an opportunity to discover ideas of freedom.”

Organizers placed particular weight on the conversion of first-time attendees. O3 described the most important success as “having first-time attendees who end up adopting and appreciating the ideas and principles of liberty and freedom... changing one stone at a time.” The same respondent articulated a clear incremental theory of change: the camp aims “to inspire both pro-freedom lovers and those who are not yet freedom lovers,” with the expectation that participants will leave and later influence their societies. O1 reinforced the residual effect by noting that participants “are still willing to engage in libertarian conversations in the group.”

The implicit pathway emerging across responses is therefore: intensive exposure and debate → personal appreciation or adoption of liberty ideas → residual discussion and, potentially, longer-term societal influence.

3.2 Facilitating and Constraining Factors (RQ2)

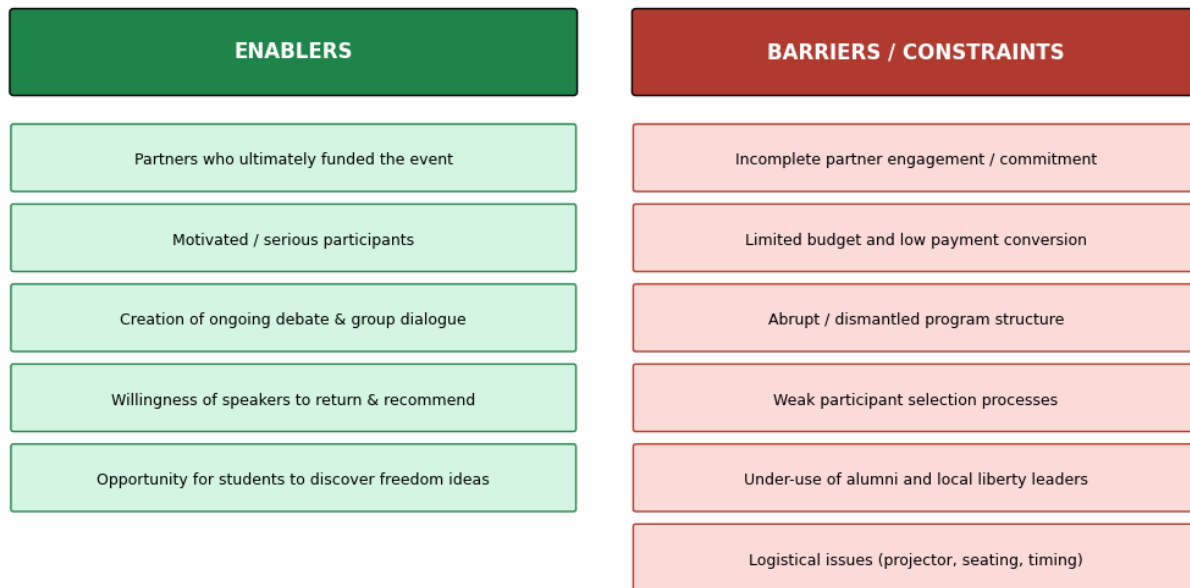
Several recurring constraints emerged. Partner commitment was frequently cited. O1 reported that partners “didn't fully engage in the preparation,” O2 listed incomplete partner commitment alongside limited budget and event timing, and O3 noted both expected “laziness from some partners” and the unexpected failure of some organizers “to fully show up on time and fully cooperate.” Time discipline among participants and the late cancellation of confirmed speakers also forced last-minute program adjustments (O3).

Resource and selection challenges were prominent. Organizers pointed to limited budgets, low payment conversion rates (O2), and the difficulty of mobilizing fee-paying participants (O3). Participant selection itself was identified as a shortcoming (O1).

Facilitating factors included the eventual financial support of some partners (O2) and the presence of motivated participants who engaged seriously with the material (S1). O3 further highlighted the intrinsic value of first-time conversions as the core justification for continuing the effort despite constraints.

Figure 2 summarizes the principal enablers and barriers identified by respondents.

**Figure 2. Enablers and Barriers to Effective Delivery
(Derived from Organizer and Speaker Interviews)**



Source: AFODIresearch, 2026

3.3 Perceived Effectiveness of Program Elements (RQ3)

Elements judged most effective centered on interactive and discursive features and on the conversion of new participants. The creation of space for debate and ongoing group discussion was repeatedly valued (S1). O3 regarded the adoption of liberty ideas by first-time attendees as the single most important success, describing it as the foundational purpose of the camp.

Less effective or missed elements included insufficient program structure and adherence to schedule, which projected an unprofessional image (S1), under-utilization of alumni and existing liberty leaders (S1, S4), and logistical shortcomings such as projector positioning and seating (S4). O3 identified a deeper challenge: the difficulty of shifting cultural mindsets. Even when participants intellectually appreciated liberty ideas, some continued to defend traditional cultural beliefs, which the respondent experienced as limiting the transformative potential of the camp.

3.4 Lessons for Future Design and Delivery (RQ4)

Respondents offered concrete and convergent suggestions. Organizers recommended clearer role definition for partners, elimination of Zoom sessions, and program simplification to allow more participant discussion (O1). Greater local partner recruitment and scheduling during campus terms were proposed (O2). O3 stressed the need for more vigorous screening of applicants and a substantial expansion of scholarships so that financially limited but highly motivated individuals could participate.

Views on frequency varied. O2 considered one camp per year sufficient, while O1 suggested adding a follow-up day event. O3 argued that annual organization is not truly sufficient but is currently constrained by the resource demands of multi-think-tank collaboration; quarterly events would be desirable if funding allowed. Several respondents supported complementary or segmented formats, including gatherings targeted at scholars, leaders, or business practitioners (O3) and the inclusion of higher-level participants such as policymakers and entrepreneurs in future editions (O3).

Speakers emphasized better organization and strict adherence to a planned program (S1), greater use of alumni examples (S4), and the possible addition of online courses before or after the camp (S1). Both S1 and S4 expressed willingness to return and to recommend the camp.

Overall, respondents affirmed the continuing value of the intensive camp format while calling for tighter organization, clearer partner roles, improved and more inclusive participant selection (especially through scholarships), stronger use of alumni, and deliberate strategies to reach higher-level audiences and to address residual cultural resistance.

Figure 3 illustrates the emerging theory of change synthesized from these accounts.

**Figure 3. Emerging Theory of Change
Implied by Organizer and Speaker Accounts**



Pathway synthesized from interview accounts of impact mechanisms

Source: AFODIresearch, 2026

4. Discussion

The findings portray Africa Liberty Camp 2026 as a promising vehicle for liberty education, while also identifying clear areas for improvement.

The intensive, interaction-rich format appears well suited to generating debate, critical thinking, and the conversion of first-time participants—outcomes consistent with experiential and dialogic approaches to civic and ideological education (Brookfield and Preskill, 2005). Organizers explicitly framed success in incremental terms (“changing one stone at a time”), acknowledging both the value and the inherent limits of short intensive interventions. Residual engagement, evidenced by continued group discussions and participants’ reported identification with liberty ideas, further supports the view that the camp can initiate longer-term intellectual trajectories rather than merely delivering one-off knowledge gains.

At the same time, delivery was constrained by a set of recurring organizational and contextual challenges. Uneven partner commitment, last-minute speaker cancellations, weak time discipline, and program fluidity undermined professional presentation and forced reactive adjustments. Resource limitations restricted both the frequency of the event and the ability to offer scholarships at the scale several organizers now regard as necessary. Participant selection processes that relied heavily on ability to pay risked excluding highly motivated but financially constrained individuals—the very profile O3 identified as potentially the most engaged. A deeper constraint concerned cultural resistance: even when participants intellectually appreciated liberty ideas, some continued to defend traditional cultural beliefs, limiting the transformative reach of the program.

These results align with broader observations in the literature on short-term liberty and leadership programs, which frequently report strong affective and discursive effects among engaged participants alongside persistent difficulties in scaling, quality control, follow-up, and the translation of intellectual exposure into durable attitudinal or behavioral change. The emphasis placed by respondents on alumni involvement, expanded scholarships, clearer partner roles, and the possible segmentation of future events (scholars, leaders, business practitioners) points toward concrete design improvements that could strengthen both immediate and longer-term impact.

The emerging theory of change implied by the interviews—intensive interaction and debate leading to personal discovery or adoption of liberty ideas, followed by residual engagement and potential societal influence—offers a useful heuristic for future program design. It also highlights the importance of deliberate post-camp mechanisms and of reaching higher-level audiences if the ambition is to move beyond individual inspiration toward broader institutional or policy effects.

Several limitations must be acknowledged. The study rests on five key-informant interviews focused on a single event; findings cannot be generalized to all liberty education initiatives in Africa. Data were

collected asynchronously through online forms, which limited opportunities for real-time probing. The small sample, while appropriate for information power in a narrowly focused evaluation, means that thematic saturation remains provisional. As the second paper in the Africa Liberty Camp 2026 Impact Trilogy, the present study supplies the contextual and mechanistic insights that will later be integrated with quantitative participant data in the mixed-methods evaluation.

Overall, the findings affirm the continuing relevance of short intensive liberty camps while underscoring that their effectiveness depends heavily on organizational discipline, inclusive selection, resource adequacy, and realistic expectations about the pace and depth of ideological change.

5. Conclusion

Organizers and speakers of Africa Liberty Camp 2026 viewed the intensive camp format as a valuable means of introducing participants to liberty ideas, fostering critical debate, and converting first-time attendees. Success was frequently framed in incremental terms—“changing one stone at a time”—with residual group discussion and personal identification with liberty principles cited as important outcomes.

At the same time, delivery was constrained by uneven partner commitment, resource limitations, program structure problems, selection processes that privileged ability to pay over motivation, and the deeper difficulty of shifting culturally embedded beliefs. Respondents converged on several practical lessons: clearer definition of partner roles, more rigorous and scholarship-supported participant selection, stricter adherence to a well-planned program, greater use of alumni, and the deliberate inclusion of higher-level audiences such as policymakers, entrepreneurs, and business practitioners in future editions.

While annual organization remains the current practical limit imposed by collaborative resource constraints, several participants regarded one camp per year as insufficient and expressed interest in more frequent or segmented events if funding allowed. Overall, the findings affirm the continuing relevance of short intensive liberty camps in the African context while underscoring the need for tighter organization, more inclusive selection, and longer-term design thinking.

As the second paper in the Africa Liberty Camp 2026 Impact Trilogy, this qualitative study provides the contextual and mechanistic insights that will later be integrated with participant survey data in the mixed-methods evaluation.

References

Braun, V. and Clarke, V. (2006) ‘Using thematic analysis in psychology’, *Qualitative Research in Psychology*, 3(2), pp. 77–101.

- Braun, V. and Clarke, V. (2021) *Thematic analysis: A practical guide*. London: SAGE.
- Brookfield, S.D. and Preskill, S. (2005) *Discussion as a way of teaching: Tools and techniques for democratic classrooms*. 2nd edn. San Francisco: Jossey-Bass.
- Kvale, S. and Brinkmann, S. (2015) *InterViews: Learning the craft of qualitative research interviewing*. 3rd edn. Thousand Oaks, CA: SAGE.
- Malterud, K., Siersma, V.D. and Guassora, A.D. (2016) 'Sample size in qualitative interview studies: Guided by information power', *Qualitative Health Research*, 26(13), pp. 1753–1760.

Appendix: Anonymized Interview Responses

The following cleaned responses constitute the complete interview data available at the time of analysis. Respondents are identified only by anonymized codes (O = Organizer; S = Speaker). Two additional speaker interviews (S2, S3) were submitted as audio recordings and remain pending transcription; they will be added once available. Empty submissions have been excluded.

Organizer Responses

O1

Q1. Looking back at the planning and preparation phase, what were the main challenges you expected to face in organizing Africa Liberty Camp 2026?

Partners didn't fully engage in the preparation.

Q2. What unexpected challenges or difficulties actually arose during the organization or delivery of the camp?

Dismantled program.

Q3. From your perspective as an organizer, what do you consider the most important successes of the 2026 camp?

The participants are still willing to engage in libertarian conversations in the group and also debts being covered.

Q4. Conversely, what aspects do you regard as less successful or as shortcomings?

Participant selection.

Q5. Based on this experience, what specific things would you do differently if you were organizing the camp again?

Draw clear roles of partners.

No zoom sessions.

Simplify the program to give room for participants discussion.

Q6. Do you think holding one liberty camp per year is sufficient, or would you recommend organizing a second camp (or a similar event) each year? Please explain your reasoning.

The camp can be added on with a day event in a year to see how ideas got from the camp have been utilized.

Q7. Have you considered developing a complementary format, such as a larger congress or forum that also invites business leaders and practitioners? What are your thoughts on this possibility?

[No response]

Q8. Overall, how would you assess the value of continuing this type of intensive camp for advancing liberty ideas in Africa, and what conditions would make future editions more effective?

[No response]

O2

Q1. Looking back at the planning and preparation phase, what were the main challenges you expected to face in organizing Africa Liberty Camp 2026?

Time of the event.

Partners didn't completely commit to the camp work.

Lack of enough budget.

Q2. What unexpected challenges or difficulties actually arose during the organization or delivery of the camp?

Limited payment from participants who applied. Less conversion rate.

Q3. From your perspective as an organizer, what do you consider the most important successes of the 2026 camp?

Partners who came up and funded the event.

Q4. Conversely, what aspects do you regard as less successful or as shortcomings?

Non.

Q5. Based on this experience, what specific things would you do differently if you were organizing the camp again?

Looking for more partners locally! And organising the camp during the on campus time to attract more students.

Q6. Do you think holding one liberty camp per year is sufficient, or would you recommend organizing a second camp (or a similar event) each year? Please explain your reasoning.

One liberty camp is enough.

Q7. Have you considered developing a complementary format, such as a larger congress or forum that also invites business leaders and practitioners? What are your thoughts on this possibility?

Maybe on the last day of the event we can invite a large crowd with business leaders.

Q8. Overall, how would you assess the value of continuing this type of intensive camp for advancing liberty ideas in Africa, and what conditions would make future editions more effective?

We need more scholarships competed for from intensive reading of literature and essay competitions.

O3

Q1. Looking back at the planning and preparation phase, what were the main challenges you expected to face in organizing Africa Liberty Camp 2026?

One of the major challenges we expected to face was the mobilization of participants. Since there was a fee we were charging, we also expected hardships in the payment by participants. And of course, since we were many co-organizers working together, I also personally expected a little bit of laziness from some partners — specifically, failure to equally put in the efforts required to make the camp successful.

Q2. What unexpected challenges or difficulties actually arose during the organization or delivery of the camp?

One of the unexpected challenges that actually arose was the failure of some of the organizers themselves to fully show up on time and fully cooperate for the camp to be successful. Another unexpected challenge was the failure to adequately respect time, even though all the participants were in the same vicinity and space. A further difficulty was that some of the speakers failed to show up and participate even after confirming their attendance. This brought challenges in having to adjust the program here and there.

Q3. From your perspective as an organizer, what do you consider the most important successes of the 2026 camp?

What I consider the most important success of the camp is having first-time attendees who end up adopting and appreciating the ideas and principles of liberty and freedom. That is very important — a case of changing one stone at a time. When new participants come, really engage, and fall in love with the ideas of liberty and freedom, it becomes a major success because that is the foundation on which we organize the Africa Liberty Camp: to inspire both pro-freedom lovers and those who are not yet freedom lovers, so that they leave inspired by the ideas and knowledge of freedom and liberty.

Q4. Conversely, what aspects do you regard as less successful or as shortcomings?

Some of the aspects I personally consider less successful include the difficulty in dismantling certain

cultural mindsets. Even when some participants appreciate the ideas of freedom and liberty, they still hold on to beliefs that have raised them for a long time in the name of culture. To some extent that becomes a shortcoming, because our bigger intention is not only to inspire but also to challenge these liberty thinkers to operate fully with the ideas of freedom. When someone continues defending culture even while seeing the beauty of freedom ideas, it can feel like a wasted effort. Nevertheless, we shall keep continuing and organizing such camps.

Q5. Based on this experience, what specific things would you do differently if you were organizing the camp again?

One of the things we would do differently in organizing the next camps is to be more vigorous in the surveys and in spotting potential participants. It is not only those who are able to pay who are the best participants. There are also people to whom we can give scholarships and who will fully engage and participate. What we have learned going forward is not to focus only on those who make the payments, but also on those who respond adequately through the application surveys, and to offer genuine and generous scholarships so that we attract as many active participants as possible. We need to thoroughly read through the responses and offer plenty of scholarships for those who may be financially limited but are mentally willing and capable.

Q6. Do you think holding one liberty camp per year is sufficient, or would you recommend organizing a second camp (or a similar event) each year? Please explain your reasoning.

Most times we organize the Africa Liberty Camp through collaboration, where free-market think tanks in Uganda and neighboring countries come together to organize an African event that brings liberty thinkers and other individuals to be inspired by the ideas of liberty. We usually organize it annually because these think tanks are independent and have their own operations. We dedicate one moment in the year to it. It would be beautiful to organize it quarterly, but because it is capital-intensive and requires many independent think tanks to pool resources, it is difficult to do it several times. About sufficiency: organizing it once is not really sufficient, but resource limitations tie us to organizing it once a year.

Q7. Have you considered developing a complementary format, such as a larger congress or forum that also invites business leaders and practitioners? What are your thoughts on this possibility?

Besides the Africa Liberty Camp, the independent free-market think tanks that come together already have their own operations advancing liberty — some in free markets, some in property rights and advocacy, some in policy. It would be beautiful if, as a collaboration, we could organize bigger or more targeted gatherings: for example, one gathering for scholars, another for leaders, and another for business practitioners. That would be helpful, but it again requires adequate resources and a lot of dedication. Sectioning the categories of people in society and organizing unique engagements for them would be really useful.

Q8. Overall, how would you assess the value of continuing this type of intensive camp for advancing liberty ideas in Africa, and what conditions would make future editions more effective?

The value of continuously organizing the Africa Liberty Camp is really great. It helps inspire the young generation and helps create the environment for a free and prosperous Africa, because people who attend end up going out to change their society. We cannot change everybody at the same time, but we can change one person at a time. Future editions should be modified to also bring together higher-level people — policymakers, entrepreneurs, and business experts — all in one space for engagement with the ideas of freedom and liberty. At the moment, because of resource constraints, the organizing is a bit average, but with time we should aim higher.

Speaker Responses

S1

Q1. From your perspective as a speaker, how would you assess the overall impact of Africa Liberty Camp 2026 on the participants?

It had a great impact not to all participants only those who took things seriously and were focused they learnt a lot and even they became libertarians and I know we will begin to see the doing amazing work in other spaces influenced by the camp some of them are already discussing these ideas in media.

Q2. What do you consider the main successes of the camp in terms of engaging participants with liberty ideas?

It created debate, critical thinking and civic dialogue which sharpens and empowers leaders and example is the kind of arguments going on in the camp group even up to now.

Q3. What aspects of the camp do you see as less successful or as missed opportunities?

I think we forgot to majorly make a serious camp program so things were abrupt and it gives a bad image to people who are very professional and have been in bigger serious spaces. Also we have a lot of potential among Alumnis of the camp and Uganda liberty leaders we would have used that to empower new participants.

Q4. What challenges did you personally encounter while preparing for or delivering your session(s)?

I moderated a panel only but some speakers I could reach out to were not ready for impromptu.

Q5. Would you be interested in returning as a speaker at a future edition of the camp? Why or why not?

Of course, because I believe this space can help me champion freedom and empower, inform and engage young Africans on liberty, justice and opportunity which is one of my goals and the organisation I run.

Q6. Would you recommend this camp to your students, colleagues, or professional contacts? Please explain your answer.

Yes, because it will help them start discussions, network and help them innovate and impact their communities.

Q7. In your view, does the intensive camp format work well for promoting liberty ideas, or do you see a need for more formal educational settings (such as university courses or structured programs)? Or do you think both approaches are needed?

It works class settings no unless we open online course for the learners to engage either before or after the camp.

Q8. Looking ahead, what improvements or adjustments would you suggest to strengthen the impact of future liberty camps of this kind?

Let's be organised with the program and strictly follow it. It shows we planned well.

S4

Q1. From your perspective as a speaker, how would you assess the overall impact of Africa Liberty Camp 2026 on the participants?

As a speaker did really appreciate the quality of many participants though many need ideological clarity. I hope to see and judge the impact basing on outcome from participants.

Q2. What do you consider the main successes of the camp in terms of engaging participants with liberty ideas?

The main success is giving students an opportunity to discover ideas of freedom.

Q3. What aspects of the camp do you see as less successful or as missed opportunities?

Story telling and writing experience on interaction of ideas.

Q4. What challenges did you personally encounter while preparing for or delivering your session(s)?

Positioning of the projector and sitting arrangement.

Q5. Would you be interested in returning as a speaker at a future edition of the camp? Why or why not?

Yes.

Q6. Would you recommend this camp to your students, colleagues, or professional contacts? Please explain your answer.

Yes.

Q7. In your view, does the intensive camp format work well for promoting liberty ideas, or do you see a need for more formal educational settings (such as university courses or structured programs)? Or do you think both approaches are needed?

It works well.

Q8. Looking ahead, what improvements or adjustments would you suggest to strengthen the impact of future liberty camps of this kind?

We need more alumni examples.

Note

Responses have been lightly cleaned for readability (correction of obvious typing or speech-to-text errors and formatting) while preserving original wording and meaning. This Appendix contains the full set of interview data used in the analysis (n = 5).



AFRICAN RESEARCH JOURNAL OF ECONOMIC FREEDOM

**African Liberty Camp 2026
Mixed-Methods Evaluation:
Promoting Liberty Through Camp Events in
Africa**

AFODIresearch
Uganda. August 20, 2026



Authors:

Kai H. Kayser
Arthur Odong
Opedun Isaac Joseph
Amito Brenda Olaa

Citation:

[Kayser, K.H.](#), [Odong, A.](#), Joseph, O.I. and Olaa, A.B.
(2026) African Liberty Camp 2026 mixed-methods
evaluation. Zenodo. Available at:
<https://doi.org/10.5281/zenodo.22032026>

Abstract

This mixed-methods study integrates quantitative participant survey data with qualitative insights from organizers and speakers to evaluate the potential of intensive liberty camp events as a vehicle for advancing liberty-oriented ideas in the African context. Drawing on feedback from 23 of the 64 participants at Africa Liberty Camp 2026 and five interviews with organizers and speakers, the analysis examines points of convergence, divergence, and expansion between the two strands.

Quantitative findings show substantial self-reported knowledge gains across core liberty-related topics and high levels of perceived influence on understanding, confidence, leadership, entrepreneurial mindset, networking, and desire for change. Qualitative accounts supply a coherent theory of change centered on exposure, debate, first-time conversion, and residual engagement, while also identifying constraints related to partner commitment, program structure, resource limitations, selection processes, and residual cultural resistance. Integration reveals that positive short-term effects are real but conditional.

The study formulates practical design principles focused on protecting high-quality input and dialogue, treating residual engagement as a core outcome, improving selection through scholarships, strengthening organizational discipline, and maintaining realistic incremental expectations. Conducted by Action for Development Initiative (AFODI), this paper completes the Africa Liberty Camp 2026 Impact Trilogy and contributes open-access evidence on the strengths and limitations of intensive liberty education programs in Africa.

Keywords: mixed methods, liberty education, Africa, intensive camps, program evaluation, AFODI

1. Introduction

1.1 Context of Africa Liberty Camp and the Impact Trilogy

Africa Liberty Camp has been held annually in Uganda for over a decade and reached its 11th edition in 2026. Organized collaboratively by free-market oriented organizations including Action for Development Initiative (AFODI), Mtindo Network Development Initiative, Action for Liberty and Economic Development (ALED) and other partners, the camp has grown into one of the most established locally organized platforms for introducing young Africans to the ideas of individual liberty, free markets, entrepreneurship, and limited government. The 2026 edition, held under the theme “A Free and Prosperous Africa,” brought together students, young entrepreneurs, professionals, and civil-society actors for an intensive residential program of keynote lectures, panel discussions, networking sessions, and fireside conversations.

This paper constitutes the third and final study in the Africa Liberty Camp 2026 Impact Trilogy. The first study presented a quantitative evaluation of participant-reported knowledge gains, perceived impacts, and behavioral intentions based on feedback from 23 of the 64 attendees (Kayser et al., 2026a). The second study offered a qualitative analysis of organizers’ and speakers’ perspectives on design, delivery, and perceived mechanisms of influence (Kayser et al., 2026b). The present mixed-methods study integrates these two strands to generate a more comprehensive understanding of the camp’s effects and the conditions under which intensive camp events can advance liberty-oriented ideas in the African context.

1.2 Rationale for Mixed-Methods Integration

Quantitative participant surveys provide valuable evidence of self-reported outcomes, yet they offer limited insight into the intentional design of the program or the practical realities that shaped delivery. Qualitative accounts from organizers and speakers illuminate goals, constraints, and perceived pathways of

influence, but cannot alone establish the scale or distribution of participant effects. Integrating the two data sources allows for complementarity, triangulation, and the development of meta-inferences that neither strand can produce independently (Creswell and Plano Clark, 2018; Fetters, Curry and Creswell, 2013).

An explanatory sequential design is particularly appropriate here: the quantitative findings identify patterns of knowledge gain, perceived influence, and residual commitment, while the qualitative findings help explain how and under what conditions those patterns emerged. The integration also supports the generation of practical design principles for future liberty-oriented camp events in Africa.

1.3 Research Aim, Questions, and Objectives

The aim of this study is to integrate quantitative participant survey data with qualitative insights from organizers and speakers in order to develop a more comprehensive understanding of the potential and limitations of short intensive camp events as a means of promoting liberty-oriented ideas in the African context.

The study is guided by three research questions:

RQ1. In what ways do the quantitative patterns of knowledge gain, perceived impact, and behavioral intention converge with, diverge from, or expand upon the accounts provided by organizers and speakers?

RQ2. What do the integrated findings reveal about the conditions under which a camp of this type is more (or less) likely to strengthen participants' engagement with liberty ideas?

RQ3. What practical design principles and conceptual insights emerge for the future use of intensive liberty camps as an educational and advocacy strategy in Africa?

The corresponding objectives are:

- To systematically compare and contrast participant-reported outcomes with organizers' and speakers' perspectives on intended and actual effects.
- To identify areas of complementarity, divergence, and expansion between the two data strands.
- To develop meta-inferences regarding the strengths, limitations, and contextual conditions of the camp model.
- To translate the integrated findings into concrete recommendations for the design of future liberty-oriented interventions.
- To contribute both empirically and methodologically to the evaluation of short-term liberty education programs in African settings.

1.4 Contribution and Positioning

This evaluation is conducted by Action for Development Initiative (AFODI). To the best of our knowledge, AFODI is currently the only organization systematically studying the outcomes of Africa Liberty Camp and making the findings available through open-access publication. By completing the Impact Trilogy, the present paper consolidates quantitative and qualitative evidence into an integrated assessment that can inform both scholarly understanding and practical program improvement.

2. Methodology

2.1 Mixed-Methods Design

This study employed an explanatory sequential mixed-methods design (Creswell and Plano Clark, 2018; Fetters, Curry and Creswell, 2013). In this approach, quantitative data are collected and analyzed first; qualitative data are then used to explain, expand, and contextualize the quantitative patterns. The final stage involves deliberate integration of the two strands to generate meta-inferences that neither dataset can produce independently (Tashakkori and Teddlie, 2010).

The design is particularly suited to program evaluation, where participant-reported outcomes benefit from being interpreted in light of the intentions, constraints, and observations of those who designed and delivered the intervention (Greene, Caracelli and Graham, 1989). The present study integrates the quantitative participant survey (Study 1) with the qualitative organizer and speaker interviews (Study 2) to assess the potential and limitations of intensive liberty camp events in the African context.

The purpose of this mixed-methods evaluation, and of the trilogy as a whole, is to examine participant-reported outcomes, organizers' and speakers' perspectives, and the integrated implications for program design. It therefore does not include the full list of speakers, detailed session schedules, or a comprehensive documentary account of the event.

2.2 Quantitative Strand

The quantitative strand drew on feedback from 23 of the 64 participants who attended Africa Liberty Camp 2026 (response rate approximately 36%). The instrument captured self-reported knowledge gains across five core topics, perceived influence on six domains, most impactful session types, logistics ratings, behavioral intentions, and recommendation likelihood. Analysis was primarily descriptive, focusing on frequencies, percentages, and before–after comparisons of knowledge ratings (Kayser et al., 2026a).

2.3 Qualitative Strand

The qualitative strand was based on five complete semi-structured interviews with three organizers and two speakers ($n = 5$). Data were collected via online forms hosted on Fillout.com and analyzed using thematic analysis following Braun and Clarke's (2006, 2021) six-phase approach. The analysis focused on intended goals and pathways of influence, facilitating and constraining factors, assessments of program effectiveness, and lessons for future design (Kayser et al., 2026b). The sample size is consistent with recommendations for focused key-informant studies guided by information power (Malterud, Siersma and Guassora, 2016).

2.4 Integration Procedures

Integration occurred at three levels (Fetters, Curry and Creswell, 2013):

1. **Design level** — sequential timing, with quantitative findings informing the interpretation of qualitative accounts and vice versa.
2. **Methods level** — the two datasets were connected through the shared focus on the same event and overlapping constructs (knowledge, impact, engagement, organizational conditions).
3. **Interpretation level** — joint displays and narrative weaving were used to identify points of convergence, divergence, and expansion. Meta-inferences were developed by asking how the qualitative findings help explain the quantitative patterns and what additional insights emerge only when both strands are considered together (Bazeley, 2018; Guetterman, Fetters and Creswell, 2015).

Particular attention was paid to complementarity (how one strand elaborates the other), triangulation (confirmation or disconfirmation of findings), and expansion (how the combined results extend understanding beyond either strand alone).

2.5 Trustworthiness and Rigor

Trustworthiness was addressed for each strand separately and for the integrated analysis. For the quantitative strand, transparency in reporting frequencies, response rates, and limitations was prioritized. For the qualitative strand, credibility, dependability, and confirmability were supported through systematic coding, retention of original wording, and full transcript disclosure in the Appendix of the qualitative paper (Lincoln and Guba, 1985). At the mixed-methods level, rigor was enhanced by explicit documentation of integration procedures and by grounding meta-inferences in both datasets (Onwuegbuzie and Johnson, 2006).

2.6 Ethical Considerations

Both component studies involved voluntary adult participants reflecting on a completed educational event. Data were anonymized, and consent covered use in multiple related publications within the trilogy. The integrated analysis relies solely on already-collected and anonymized data and introduces no additional ethical risks. The research was conducted as a low-risk program evaluation without formal institutional review board approval, consistent with established guidelines for such evaluations (British Educational Research Association, 2018).

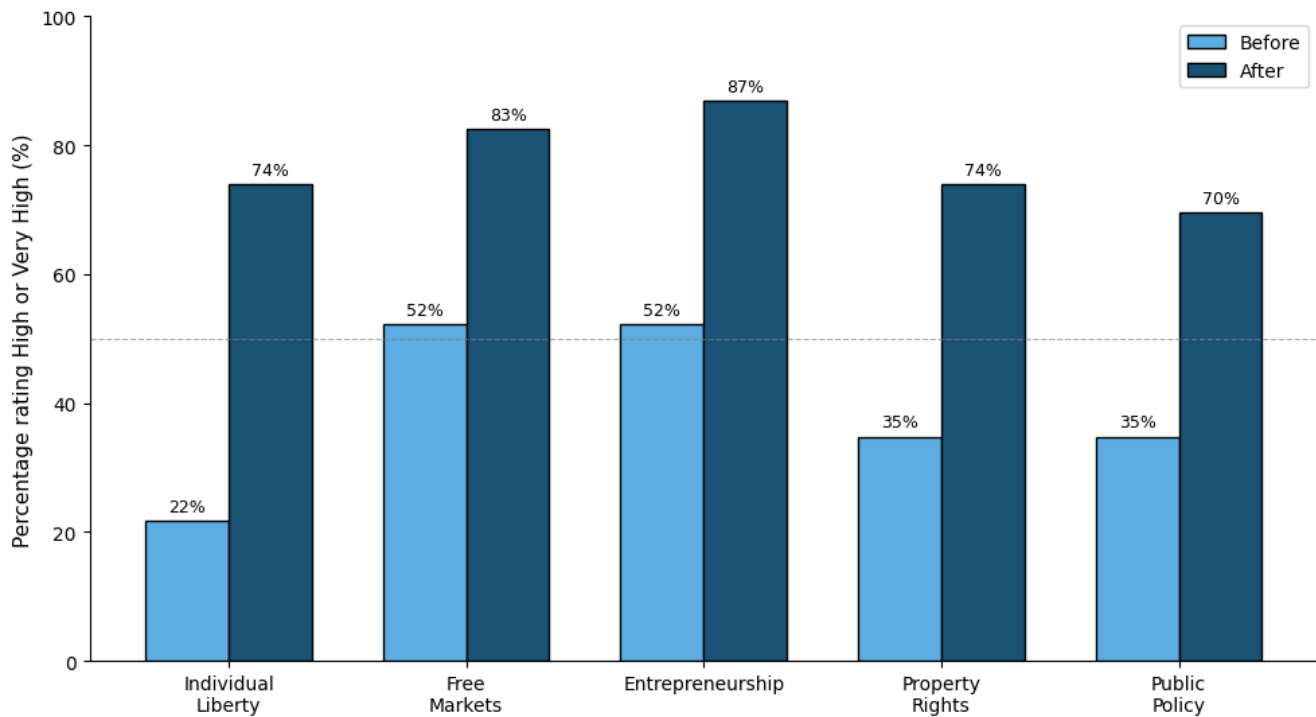
3. Integrated Findings

The integrated analysis brings together the quantitative patterns reported by participants ($n = 23$) with the qualitative accounts of organizers and speakers ($n = 5$). Findings are organized thematically to highlight points of convergence, divergence, and expansion.

3.1 Knowledge Gains and Pathways of Influence

Quantitative results showed clear self-reported increases in understanding across all five core topics. The proportion of participants rating their knowledge as High or Very High rose substantially: Individual Liberty from 22% to 74%, Free Markets from 52% to 83%, Entrepreneurship from 52% to 87%, Property Rights from 35% to 74%, and Public Policy from 35% to 70%.

Figure 3.1: Knowledge Gains (Quantitative Study, 2026)



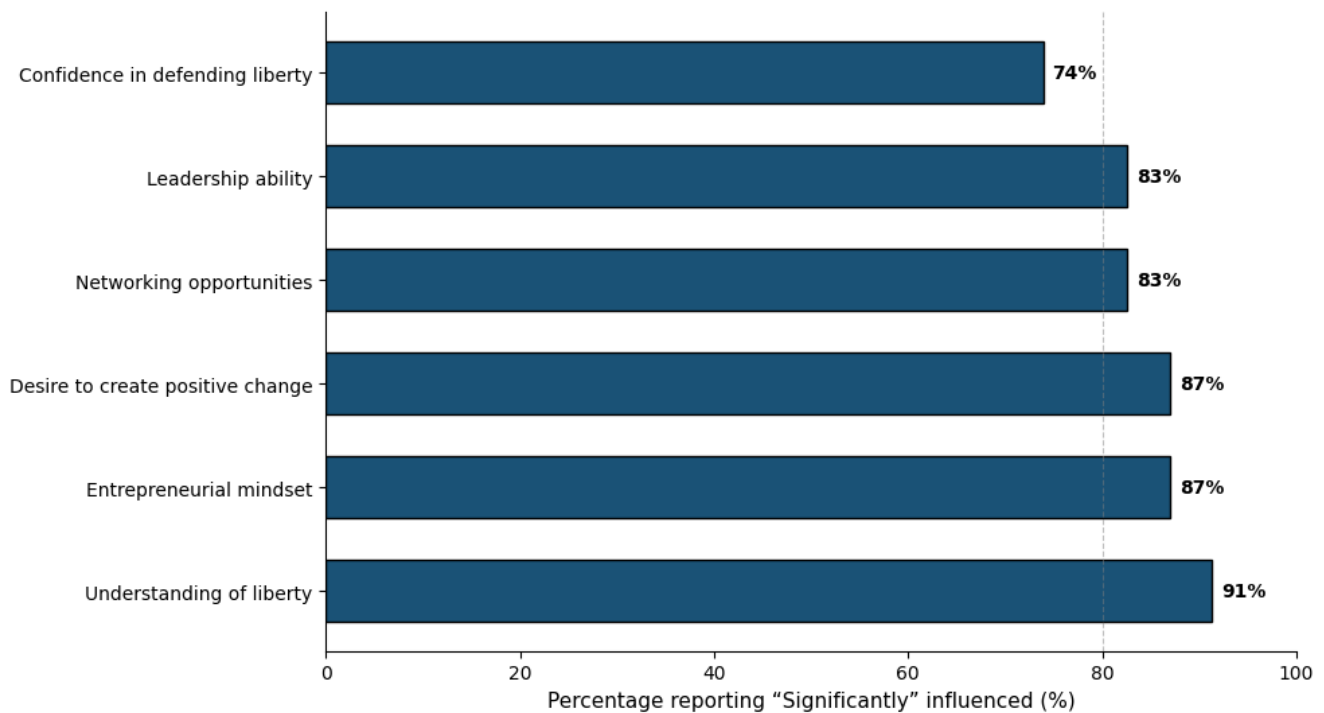
Source: AFODIresearch, 2026

These patterns converge strongly with organizers' and speakers' descriptions of the camp's intended pathways of influence. Qualitative respondents consistently framed success in terms of exposure, discovery, and the conversion of first-time participants. One organizer described the most important outcome as "having first-time attendees who end up adopting and appreciating the ideas and principles of liberty and freedom... changing one stone at a time." Speakers similarly emphasized the creation of debate, critical thinking, and residual engagement. The quantitative knowledge gains therefore align with, and give scale to, the qualitative theory of change centered on incremental personal conversion rather than immediate mass transformation.

3.2 Perceived Impact and Mechanisms

Between 74% and 91% of survey respondents reported that the camp had influenced them "Significantly" across six domains: understanding of liberty (91%), entrepreneurial mindset (87%), desire to create positive change (87%), leadership ability (83%), networking opportunities (83%), and confidence in defending liberty (74%).

Figure 2: Perceived Influence (Quantitative Study, 2026)



Source: AFODIresearch, 2026

Qualitative accounts help explain these high levels of reported influence. Speakers highlighted the value of debate, civic dialogue, and ongoing group discussion that continued after the camp. Organizers pointed to the motivational effect of seeing participants engage seriously with liberty ideas. At the same time, qualitative data introduce important nuances not visible in the survey numbers. One organizer identified residual cultural resistance as a constraint: even when participants intellectually appreciated liberty ideas, some continued to defend traditional cultural beliefs, limiting deeper transformation. This suggests that the high quantitative ratings of influence may coexist with incomplete shifts in underlying worldviews—an expansion of understanding that emerges only through integration.

3.3 Session Formats and Organizational Conditions

Keynote speeches were identified by 43% of participants as the most impactful session type, followed by panel discussions (26%) and networking sessions (22%). Fireside chats were cited by 9%.

These preferences align with qualitative assessments that valued high-quality external input and interactive formats. However, organizers and speakers also identified significant organizational constraints that shaped delivery: uneven partner commitment, last-minute speaker cancellations, weak time discipline, and program fluidity. Time management received the weakest quantitative logistics ratings, confirming the

qualitative reports of abrupt programming and reactive adjustments. Accommodation was another relative weakness, while venue, meals, and registration were strongly endorsed.

The integration reveals a clear pattern: the educational core (especially keynotes and discussion) was experienced as highly effective, yet operational shortcomings reduced the overall professionalism of the event and forced continual adaptation.

3.4 Behavioral Intentions, Residual Commitment, and Sustainability

Willingness to remain engaged was exceptionally high. Ninety-six percent of respondents indicated readiness to volunteer in organizing future camps, 83% to mentor new participants, 83% to join research projects, and 74% to speak at future events. Nearly all stated they would recommend the camp.

These quantitative indicators of residual commitment converge with qualitative observations of continued group discussion and personal identification with liberty ideas. Organizers explicitly linked success to the creation of ongoing engagement rather than one-off exposure. At the same time, qualitative respondents raised structural questions about sustainability: annual organization was viewed by some as insufficient yet constrained by the resource demands of multi-organization collaboration; expanded scholarships and clearer partner roles were proposed as necessary conditions for reaching more motivated participants and reducing dependence on ability to pay.

3.5 Points of Convergence, Divergence, and Expansion

The following joint display summarizes how the quantitative participant findings and the qualitative organizer/speaker accounts relate to one another.

Table 3.1: Summarizing Overview

Domain	Quantitative Pattern (Participants)	Qualitative Insight (Organizers & Speakers)	Relationship
Knowledge & Conversion	Clear gains across all five topics; largest increase in Individual Liberty (22% → 74% High/Very High)	Success framed as “changing one stone at a time”; emphasis on first-time attendees adopting liberty ideas	Convergence – Quantitative scale confirms the qualitative theory of incremental conversion
Perceived Influence	74–91% reported “Significant” influence across six domains	Debate, critical thinking, residual group discussion, and personal inspiration cited as key mechanisms	Convergence + Expansion – High quantitative ratings are explained by interactive mechanisms; qualitative data add the nuance of residual cultural resistance

Domain	Quantitative Pattern (Participants)	Qualitative Insight (Organizers & Speakers)	Relationship
Session Formats	Keynotes most impactful (43%), followed by panels (26%) and networking (22%)	High-quality external input and discussion spaces valued; abrupt programming and under-use of alumni noted as weaknesses	Convergence on the value of keynotes and dialogue; qualitative data expand the picture with organizational shortcomings
Organizational Conditions	Time management weakest logistics rating; venue, meals, and registration strong	Partner commitment problems, last-minute cancellations, resource constraints, and selection challenges repeatedly identified	Divergence in emphasis – Quantitative data show high overall satisfaction despite weaknesses; qualitative accounts place heavier weight on coordination and resource limits
Residual Commitment	96% willing to volunteer; 74–83% willing to mentor, speak, or join research; near-universal recommendation	Ongoing group discussion and personal identification with liberty ideas observed; calls for scholarships, clearer partner roles, and higher-level audiences	Convergence + Expansion – Strong quantitative commitment aligns with qualitative observations; qualitative data add conditions needed for sustainability
Overall Assessment	Substantial short-term cognitive and motivational effects; high residual engagement	Valuable but constrained vehicle; success depends on organization, selection, and realistic incremental expectations	Meta-inference – The camp generates meaningful effects among motivated participants while remaining limited by coordination, resources, selection, and cultural factors

Source: AFODI, 2026

This joint display shows that the two strands largely reinforce each other on the existence and nature of positive short-term effects, while the qualitative data supply explanatory depth and identify structural conditions that the quantitative results alone cannot reveal.

4. Discussion

4.1 Meta-Inferences on the Potential of Intensive Liberty Camps

The integrated findings support a clear meta-inference: short intensive liberty camp events of the kind represented by Africa Liberty Camp 2026 are capable of generating substantial short-term cognitive and motivational effects among motivated participants. The quantitative data demonstrate widespread self-reported knowledge gains and high levels of perceived influence, while the qualitative data supply a coherent theory of change centered on exposure, debate, personal conversion, and residual engagement. Together, the two strands indicate that the intensive residential format remains a viable vehicle for advancing liberty-oriented ideas in the African context, particularly when it successfully creates spaces for critical dialogue and first-time intellectual encounters.

At the same time, the integration reveals important limitations. Organizational coordination problems, resource constraints, uneven partner commitment, selection processes that privilege ability to pay, and residual cultural resistance all constrain the depth and reach of the observed effects. The high quantitative satisfaction scores coexist with qualitative accounts of program fluidity and incomplete worldview shifts. This suggests that positive short-term outcomes are real but conditional: they are most likely when participants are already somewhat receptive, when core educational elements (especially keynotes and discussion) function well, and when operational shortcomings do not overwhelm the experience.

Figure 4.1: Emerging Theory of Change (Qualitative study, 2026)



Pathway synthesized from interview accounts of impact mechanisms

Source: AFODIresearch, 2026

Figure 4.1 illustrates the emerging theory of change synthesized from the integrated quantitative and qualitative findings: intensive interaction and debate foster critical thinking and personal discovery of liberty ideas, which in turn support residual engagement and the potential for longer-term action.

4.2 Conditions for Greater Effectiveness

Several conditions emerge from the integrated analysis as relevant to strengthening future camps:

- **Clearer partner roles and stronger coordination** reduce the risk of last-minute adjustments and uneven contribution.
- **More inclusive selection**, particularly through expanded and competitive scholarships, can bring in highly motivated participants who might otherwise be excluded by cost.
- **Deliberate use of alumni** as mentors, examples, and continuity agents can reinforce residual engagement.
- **Better time management and program discipline** protect the professionalism of the event and the quality of interaction.
- **Realistic incremental expectations** (“changing one stone at a time”) help align design with the actual pace of ideological and cultural change.
- **Strategic inclusion of higher-level audiences** (policymakers, entrepreneurs, business practitioners) may extend influence beyond the student and early-career cohort that currently dominates.

These conditions do not guarantee transformation, but they identify leverage points that both the quantitative patterns and the qualitative accounts point toward.

4.3 Practical Design Principles

Drawing on the integrated evidence, five practical design principles can be formulated for future intensive liberty camp events in Africa:

- Protect and prioritize high-quality input (keynotes) and structured dialogue.
- Treat residual engagement as a core outcome, not a side effect, and design follow-up mechanisms accordingly.
- Address selection and resource barriers simultaneously through scholarships and clearer partner contributions.
- Invest in organizational discipline (roles, timing, program stability) to match the quality of the intellectual content.
- Frame success in incremental and realistic terms while remaining open to segmented or complementary formats for different audiences.

4.4 Limitations of the Integrated Study

The mixed-methods design inherits the limitations of its component strands. The quantitative sample, while representing 36% of attendees, remains self-selected. The qualitative sample is small and focused on a single event. Integration relies on the researchers’ interpretation of points of convergence and divergence; alternative readings are possible. Longer-term behavioral outcomes and the perspectives of non-responding participants or external observers lie outside the scope of the present analysis.

4.5 Contribution

By completing the Africa Liberty Camp 2026 Impact Trilogy, this study moves beyond separate quantitative and qualitative descriptions to an integrated assessment of both outcomes and mechanisms. It contributes empirical evidence on the potential and limits of intensive liberty camps in an African setting and offers concrete design principles grounded in both participant experience and insider perspectives. Conducted by Action for Development Initiative (AFODI), the work forms part of a broader effort to generate rigorous, open-access evaluation research on liberty-oriented education and to position AFODI as a leading source of such evidence in Uganda and the wider region.

5. Conclusion

This mixed-methods evaluation integrated participant survey data with organizers' and speakers' perspectives to assess the potential of intensive liberty camp events as a vehicle for advancing liberty-oriented ideas in the African context. The combined evidence indicates that Africa Liberty Camp 2026 generated substantial short-term cognitive and motivational effects among motivated participants. Self-reported knowledge gains were clear across core topics, perceived influence was high across multiple domains, and residual commitment—expressed through willingness to recommend the camp and to remain actively involved—was exceptionally strong.

At the same time, the integration reveals that these positive outcomes are conditional. Organizational coordination, resource limitations, selection processes, program discipline, and residual cultural resistance all shape the depth and reach of the camp's effects. Success is best understood in incremental terms: the conversion of individuals, the stimulation of critical dialogue, and the cultivation of ongoing engagement rather than immediate large-scale transformation.

The findings support a set of practical design principles centered on protecting high-quality input and dialogue, treating residual engagement as a core outcome, improving selection and resource access through scholarships, strengthening organizational discipline, and maintaining realistic expectations about the pace of change. They also affirm the continuing relevance of the intensive residential format while highlighting the conditions under which it is most likely to succeed.

As the final paper in the Africa Liberty Camp 2026 Impact Trilogy, this study consolidates quantitative and qualitative evidence into an integrated assessment. Conducted by Action for Development Initiative (AFODI), it contributes to the still-limited body of systematic evaluation research on liberty-oriented education in Africa and forms part of AFODI's broader effort to generate rigorous, open-access evidence capable of informing both scholarly understanding and practical program improvement.

References

- Bazeley, P. (2018) *Integrating analyses in mixed methods research*. London: SAGE.
- Braun, V. and Clarke, V. (2006) 'Using thematic analysis in psychology', *Qualitative Research in Psychology*, 3(2), pp. 77–101.
- Braun, V. and Clarke, V. (2021) *Thematic analysis: A practical guide*. London: SAGE.
- British Educational Research Association (2018) *Ethical guidelines for educational research*. 4th edn. London: BERA.
- Brookfield, S.D. and Preskill, S. (2005) *Discussion as a way of teaching: Tools and techniques for democratic classrooms*. 2nd edn. San Francisco: Jossey-Bass.
- Creswell, J.W. and Plano Clark, V.L. (2018) *Designing and conducting mixed methods research*. 3rd edn. Thousand Oaks, CA: SAGE.
- Fetters, M.D., Curry, L.A. and Creswell, J.W. (2013) 'Achieving integration in mixed methods designs—principles and practices', *Health Services Research*, 48(6pt2), pp. 2134–2156.
- Greene, J.C., Caracelli, V.J. and Graham, W.F. (1989) 'Toward a conceptual framework for mixed-method evaluation designs', *Educational Evaluation and Policy Analysis*, 11(3), pp. 255–274.
- Guetterman, T.C., Fetters, M.D. and Creswell, J.W. (2015) 'Integrating quantitative and qualitative results in health science mixed methods research through joint displays', *Annals of Family Medicine*, 13(6), pp. 554–561.
- Kayser, K. H., & Odong, A. (2026). African Liberty Camp 2026 Quantitative Evaluation. Zenodo. <https://doi.org/10.5281/zenodo.22031423>
- Kayser, K.H., Odong, A., Joseph, O.I. and Olaa, A.B. (2026b) *African Liberty Camp 2026 qualitative evaluation: Organizers' and speakers' perspectives on design and delivery*. Zenodo. Available at: <https://doi.org/10.5281/zenodo.21938344>.
- Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic inquiry*. Beverly Hills, CA: SAGE.
- Malterud, K., Siersma, V.D. and Guassora, A.D. (2016) 'Sample size in qualitative interview studies: Guided by information power', *Qualitative Health Research*, 26(13), pp. 1753–1760.
- Onwuegbuzie, A.J. and Johnson, R.B. (2006) 'The validity issue in mixed research', *Research in the Schools*, 13(1), pp. 48–63.

Tashakkori, A. and Teddlie, C. (2010) *SAGE handbook of mixed methods in social & behavioral research*. 2nd edn. Thousand Oaks, CA: SAGE.



AFRICAN RESEARCH JOURNAL OF ECONOMIC FREEDOM
**Sound, Fiat, and Digital Money:
Uganda's Decisive Policy Choices**

AFODIresearch
Uganda. October 2, 2026



Author:

Kai H. Kayser, MBA, MPhil

Citation:

[Kayser, K.H.](https://doi.org/10.5281/zenodo.23107014) (2026) Sound, Fiat, and Digital Money: Uganda's Decisive Policy Choices. ARJEF. Available at: <https://doi.org/10.5281/zenodo.23107014>

Abstract

This conceptual and purposive documentary study with policy recommendations analyzes Uganda's monetary setting as it stood in 2026, in order to evaluate whether and how the shilling, mobile-money balances, gold purchases paid in newly created shillings, and digital-shilling pilots will help or hinder the Ugandan economy and the government programs and policy priorities officials have already named. The paper begins by separating three objects that public discussion places under one word: sound money, which is a scarce good or a claim a court will exchange for a stated quantity of that good; the Ugandan shilling, which the Bank of Uganda issues as fiat money and can enlarge by administrative order; and digital money, here mainly the mobile-money balance Ugandans already use, which is a recorded payment service that still clears in shillings held in bank escrow. It then places those objects against three published

studies, without creating primary data. Maweje and Lakuma (2019) show that mobile-money transfers already move Ugandan aggregates, credit, and activity, while the balances remain claims inside the fiat system. Katusiime (2021) shows that a tax on transfers reduces use. Bindseil (2026) classifies a digital balance as a service whose price a ministry should not freeze. The author sets those results against partial experiments in Argentina, El Salvador, and Panama, where deregulation produced gains and an incomplete monetary reform capped them.

The paper recommends currency competition in the sense Hayek stated, so that parties are free to choose either the shilling or any other medium of preference. Legal tender, if it survives, would bind the state when it collects taxes and pays judgments, and would not void a private contract. The Treasury would lose the power to finance a deficit by ordering an expansion of the shilling. Debt would be repaid inside the term of the officials who signed it, payment services would be priced as services without a further tax, and any official gold purchase would be made with reserves or tax revenue already in hand.

Keywords

Uganda, sound money, fiat currency, mobile money, currency competition, digital payment services, public debt, Bank of Uganda

Chapter 1

Why money stands at the center of Uganda's aims

1.1 Wealth first, then every other public aim

If one can agree that a country's economy is the absolute priority, because only the creation of wealth enables a society to realize its most important aims — safety, education, infrastructure, and technological advance — then one can surely agree that money is not merely a useful tool. Money sits at the core of that economy. A government that declares and pursues serious policies on oil, nuclear power, and education has to understand that its fiscal and monetary arrangements will either make those policies possible or will quietly undo them. The same is true for Uganda's policies on tourism, agriculture, and a better-equipped military. None of those files can be separated from the question of what Ugandans are paid in, what they save in, and what the Treasury borrows in.

Wealth is produced by people who work, trade, plant, build, teach, extract, and invent. An economy is the sum of those acts and of their commission, acceptance, and consumption under a set of rules. Money is the medium of exchange, the exchange of goods and services for the agreed payment. If that medium, that representation of a value, keeps its promise from one season to the next, a farmer can hold cash from a harvest without watching it shrink before the next planting. A firm can sign a multi-year contract without embedding a hidden tax in every invoice. A ministry can collect taxes and pay teachers without first inflating away the value of last year's budget. If the medium does not keep its promised value, every one of those plans becomes a bet on the next circular from the central bank.

This is not a philosophical view, but a factual one. It is the practical reason oil wells, reactors, classrooms, hotels, farms, and barracks either get finished on time or stall. A barrel of oil priced in a stable claim is a different commercial object from a barrel priced in a claim that the issuer can multiply. A school-construction bond that must be repaid in honest money forces the politician who signs it to think about revenue. The same bond, repaid in diluted money, lets that politician leave office and call the later inflation an external shock.

In its policy priorities, Uganda has named all the right sectors, and this paper acknowledges that, in order to ask whether the monetary arrangements around those sectors will help or hinder the work.

Uganda is not starting from ruin and has growth that has held above six percent. Relations with its five neighbors (Rwanda, the Congo, South Sudan, Kenya, and Tanzania) have been workable. Officials have treated oil, nuclear generation, and education as real aims rather than as campaign decoration. Those facts matter because they make the monetary question sharper, not softer. A country that is already moving can waste years by paying for progress in a medium that slowly impoverishes the people who produce it. A country that adopted sound money, opened markets, and cut the regulations that protect incumbents would reach the same declared aims sooner, and would keep the capital that produced them instead of undermining it. Sustainability, in the sense of medium- and long-term functionality and efficiency, begins there.

The present world order does not give small and mid-sized economies a level field. Every country today, and all recognized nations, now use a fiat currency, even those that do not issue one. That fact is often recited as if it were proof that the arrangement works, which is a logical fallacy, but it does prove that the arrangement is convenient, especially for the organizations that spend newly created money first. Finance ministries, central banks, official lenders, and the large states that dominate reserve holdings live on that privilege. Households, small firms, and poorer countries pay for it. Fairness, used without a political sub-tone and in its actual meaning — like rules for like parties, without privileges from recent political fashion — does not describe a system in which a few issuers set the measuring rod and everyone else needs to scramble. Wars, famines, and long impoverishment have more than one cause, but the fiat currencies among them are an unnecessary cause and one that inevitably leads to crises, disaster, and often even collapses. A monetary system that lets governments spend without first collecting or honestly borrowing is simply not sustainable. Writers in the Austrian line, and empirical work associated with Richard Werner on bank credit and with Hans-Hermann Hoppe on the incentives of political authority, have said this for decades. The record of the twentieth and early twenty-first centuries does not contradict them.

If money were sound, bureaucracies would have to shrink, because they could no longer pay themselves with claims manufactured for the purpose. Markets would open, because the measuring rod would no longer be an instrument of industrial policy. Innovation would follow from that opening, not from a ministry plan. The middle class would keep more of what it earned. Poverty would fall because production would no longer be taxed twice: once by the published tax code, and again by the quiet reduction in what a shilling, a dollar, or a euro will buy. That is the empirically argued claim this paper offers Uganda. Money matters, and so does deregulation. It matters enough that a government serious about oil, power, schools, farms, tourism, and defense cannot treat the shilling, mobile-money balances, gold purchases, and digital-shilling pilots as technical side issues.

1.2 Three different things that Ugandans already call money

Ugandans already handle several objects under one word. They handle notes and coins, deposits at commercial banks, and mobile-money balances that move across a rail far larger, in transaction value, than the stock of bank assets. Officials and private partners have described digital-shilling projects reserved in cash, treasury bills, or bonds. The Bank of Uganda has begun to buy gold from licensed miners and to pay for it in shillings. The government has revived a plan to print banknotes in Uganda. Calling all of this “money” hides the only distinction that later policy needs.

Sound money is a scarce physical good, or a legally enforceable claim on a stated quantity of such a good. Gold and silver coin are the most cited historical cases, but other examples were nails, ammunition, and dried tobacco, which are mentioned to underline how “usability” allows for intrinsic value. A warehouse receipt for a numbered bar in a named vault is still sound money if the holder can take delivery and if the vault can be audited (which is the origin of the early bills). The good does not have to be a metal. Oil in a bonded tank, titled land under a court that will enforce the title, or a metered claim on electric output can serve if the claim is specific and if no minister can double the stock at will. Physical sound money does not disappear when the grid fails. A transfer of the good itself does not pay a card-network fee of two or three percent. Parties may still pay an assayer or a money changer. They do not pay a distant network for permission to complete the exchange.

Fiat money is a token that circulates because the state declares it legal tender and because people expect other people to accept it, which means it is trust-based. But its scarcity or ubiquity is a centralized decision, not a market consequence. The Bank of Uganda (100 percent state-owned) issues the shilling under an inflation-targeting framework and a floating exchange rate. The Ugandan shilling, abbreviated as UGX, can thus undergo a couple of quiet years, with little to no problems, and then suddenly slide when fuel import demand rises, as it did in September 2026 when the shilling traded near 3,925 to the dollar and the Bank raised the cash reserve requirement from 11.0 percent to 13.5 percent. Such swings are the inherent nature of fiat currencies, which are a centralized system that does not have the means or the technology to act at the speed of changes in complex markets.

Digital money, as this paper uses the phrase, is a recorded balance that exists only while a network, a power source, and an issuer's books remain intact. A Ugandan's mobile-money balance in Uganda is such a case; it does not involve a coin and exists in the form of a digitalized claim by a non-digitalized operator (a human), who holds a matching digitalized deposit at a digitalized platform (a supervised bank), which holds a digitalized claim in the digitalized central-bank system. Each step is a service and a process, and therefore each step can fail. Each step requires electricity, efficient software, and reliable hardware. Each step can be expressed in cost and effort. Bindseil's European argument, which Chapter 3.3 will take up in detail, is useful here even though he does not write about Africa. Banknotes cannot pay interest because no one records how long each holder keeps a note. Electronic balances can pay interest because the ledger already stamps every holding and a law prohibiting interest is a political choice, not a technical necessity. A transfer tax on mobile money is the same kind of choice. Both are prices of a service, but they are not applicable to money that is the (contractually promised) equivalent of a good. So is money either the one or the other? Service or thing?

There is a third way, where money is both. As a token on a blockchain, it can allow the claim on whatever good one chooses — gold, real estate, commodities, or a fiat currency. That makes blockchain technology indeed very interesting, both for those who demand to charge money (government and central bankers) and for those who want sound money. If the token is a clean claim on vaulted gold, the holder has come close to sound money with a digital wrapper. If the token is a claim on Ugandan treasury paper, the holder

has a digital form of fiat. If the token has no published reserve, the holder has a service contract with political risk attached. The interface does not decide the class. The backing does.

This paper does not ask the state to forbid the shilling. People who want to use it should use it but be free to opt for any other medium of preference. Currency competition, in the sense Hayek gave the phrase, means that people who want a gold claim, a foreign currency, or a privately issued token redeemable in a named good should be equally free to contract in that or any other medium of preference. Legal tender, if it survives, should bind the state when the state collects taxes and pays judgments. It should not bind two private parties against their own contract. Chapter 4 will return to that rule and will compare it with the incomplete experiments of Argentina, El Salvador, and Panama. The point of stating it here is only to keep the later chapters from being misread as a campaign to outlaw fiat in a country where every neighbor still uses it.

1.3 Methodology and its three source studies

This paper is a purposive documentary and conceptual study with policy recommendations. It analyzes the Ugandan monetary setting as it stood in 2026, uses three published studies as its analytical foundation, and then applies the Austrian propositions of currency competition and fiscal accountability. It does not run a new vector-error-correction model or a new autoregressive distributed lag. Those tools belong to the authors who already used them on Ugandan mobile money. A reader who wants coefficients can go to those papers. This paper is directed to a reader who wants to know what kind of object a mobile-money balance is, which options and opportunities arise from it, and what kind of constitution would stop the Treasury from treating the central bank as a back office.

The first source study is Mawejje and Lakuma (2019), “Macroeconomic effects of mobile money: evidence from Uganda,” published in *Financial Innovation*. The authors estimated a long-run demand function for mobile money and then traced short-run effects on monetary aggregates, prices, private credit, and economic activity. They separated balances from transfers. Transfers had the stronger macroeconomic effects. Balances responded to policy instruments, which the authors read as a sign that the Bank of Uganda could still reach the new mobile-money system. The late Governor Emmanuel Tumusiime-Mutebile had

already warned, in 2015, that if mobile money ever displaced bank demand deposits, the interest-rate channel that runs through bank reserves would weaken. Mawejje and Lakuma recorded that warning. Their study is not about gold or commodity-backed currency but about a digital service traded in and referring to shillings. This paper takes their result as evidence that mobile money in Uganda is already large enough to matter for the whole economy, and as evidence that a mobile-money balance is still a claim inside the fiat system, not a separate kind of money.

The second source study is Katusiime (2021), “Mobile money use: the impact of macroeconomic policy and regulation,” published in *Economies*. Using monthly data from March 2009 to September 2020, Katusiime asked how economic activity, inflation, interest rates, the exchange rate, financial innovation, and a mobile-money tax affect usage. In the short run, inflation was associated with higher usage; financial innovation, the exchange rate, interest rates, and the tax were associated with lower usage. In the long run, economic activity, inflation, and the COVID-19 period raised usage; customer balances, interest rates, the exchange rate, financial innovation, and the tax reduced it. The result that matters most for this paper is the tax result: when the state taxes transfers, people make fewer transfers. That is how customers behave when a service becomes more expensive without any improvement. It is not how holders of a coined good behave. This paper does not follow Katusiime into a recommendation that the state subsidize local mobile-money infrastructure. It acknowledges the measured mechanism and then asks a different question: why a payment service is being taxed as if it were a luxury, and why that tax is discussed as monetary policy rather than as an increased price.

The third source study is Bindseil (2026), “Europe should stop banning interest on digital money,” published by Bruegel, with the longer working paper *Remunerating means of payment* behind it. Bindseil writes about the European Union’s ban on interest for e-money, e-money tokens, and the proposed digital euro. He argues that the ban is a tax on holders, that the tax is regressive, and that circumvention is already visible. His policy conclusion is modest. The Union need not force issuers to pay interest. It should stop forbidding them to do so, and should let issuers compete on the terms they offer. This paper does not import European banking law into Kampala. It takes Bindseil’s classification. Digital balances are a service. The price of the service, including any interest and any fee, belongs on an open market. A government or a

central bank that freezes that price, or that adds a further levy, is regulating a service market. It is not defending money, just distorting the market.

Those three texts are helpful thoughts on the matter. This study does not exist to follow them or to pick them apart. Their true points stand and offer valuable aspects. Mobile money moves Ugandan aggregates, while taxing it reduces usage. A digital balance is market-compatible, but a ban on that price is an unnecessary political act. The aim here is larger because it is to say what money is and what it can be or do. This study's intent is to evaluate what a payment service is, and what a country that already has oil, power, and school plans should and could realize using improved money and its transfer.

This chapter ends by pointing out two further limits. First, later chapters will use current Ugandan facts — the exchange rate in September 2026, the reserve-ratio increase, the gold-buying program, the note-printing revival, and the digital-shilling pilots — as they were reported at the time of writing and can (and will) change at any moment. Second, Chapter 4 will compare Uganda with Argentina under Milei, with El Salvador after dollarization and the Bitcoin law, and with Panama's long dollarization without a central bank. Those comparisons test the claim that deregulation helps, even if only partial, and that incomplete monetary reform caps the gain, but also that a small country can become a regional financial center if it uses actual values instead of manufacturing its own measuring rod. Uganda could take that path, and succeed, given its unusually many natural advantages and its economic potential. The remaining chapters explain what that path requires, and what trade-offs would be a part of it.

Chapter 2 will set out the three objects — sound money, fiat money, and digital money as a service — at the length the distinction needs, including electricity, records, fees, and the difference between a token reserved in gold and a token reserved in government paper.

Chapter 2

Sound money, fiat money, and digital money as a service

2.1 Sound money

Sound money was originally a scarce good that people actually accept in payment, or a legally enforceable claim on a stated quantity of such a good. The concept of money representing a scarce good, also known as “backed” money (a representation backed by the real thing and exchangeable for the real thing at any time and at full value), came later, and not to defraud people of the real thing the money represented, but simply for convenience and efficiency. The bigger the volume of a market, the higher the amounts of money in it, and that scale requires efficient systems, and a guaranteed representation is a highly practical and efficient system. Gold and silver coin are the historically successful cases and far superior to fiat currencies: neither kings, nor treasuries, nor miners can trick gold or silver into existence. Only serious effort results in gold, and that effort cannot be overwritten by a command, ensuring its continued value. Criminals can try to forge gold, silver, or other precious metals and materials, but technology can reveal the fraud. That is a crucial detail, because when a government claims to have printed a certain amount of fiat bills, while actually having printed secretly more — who is to know? How to prove the declared amounts are true or not? The registered gold bar backing a representative bill is still sound money if the holder of the bill can exchange it for the given amount of gold — that is called the gold standard, or money backed by gold.

That system is the most efficient money system known to man, but it requires strict oversight and constant control of the amounts of both the gold and the bills representing that gold, which is true for all other systems one way or another. The argument that it is “tedious” and “limiting the efficiency” of money flows, and therefore that fiat money is the far better choice, is thus misleading, although the statement in itself is of course true: digital fiat money backed by nothing and created out of thin air is tremendously fast and convenient, enriches those who create it and those who get it first, while slowly impoverishing and expropriating everyone else.

The good backing sound money does not have to be a metal. Anything of acceptable value can guarantee the money, be it oil in a bonded tank, titled land under a court that will enforce the title, or gems and jewels. Chapter 1 already mentioned bullets and nails, as historical examples of “usability” creating an acceptable value for the exchange of goods and services. Today, blockchain technology allows for near-unlimited agreements on exchange value, as explained in detail in 2.3.

Ludwig von Mises built *The Theory of Money and Credit* on that point: money begins as a commodity that already had a use, and only then becomes the common medium of exchange (Mises, 1953). The regression theorem explains why a newly invented token with no prior use and no redeemable backing has to lean on law, habit, or hope.

Two properties of physical sound money matter for every later chapter. First, the good does not need electricity in order to exist. A coin in a pocket remains a coin during a blackout, a tower failure, or a court order that freezes a bank account. Second, handing over the good itself does not trigger a card-network fee. Parties may still pay an assayer, a transporter, or a money changer, but the value of the exchanged amount is not reduced through the transfer itself. They do not pay two or three percent to a distant network for completing the exchange. Those two facts are ordinary. Policy discussions treat them as if they were optional details. They are not, because they determine the difference between a good and a service contract.

Sound money does not make every holder honest and does not abolish theft, and neither does any other money. But unlike other forms of money, sound money stops the issuer from skimming, distorting, and diluting the issued money through the process of its creation. A government that must tax or honestly borrow before it spends has to choose among roads, barracks, classrooms, and payroll, given functioning law and accountability. A government without any constraints, oversight, or transparency, on the other hand, can issue new claims first, and collect later from everyone who holds the old claims, and does not have to choose in the same way. Hans-Hermann Hoppe’s work on political incentives is blunt on this point: an authority that can dilute the medium of exchange faces a weaker constraint than an authority that cannot (Hoppe, 2001). Richard Werner’s work on bank credit makes a related operational point. Most of

what people call “money creation” in a modern system is not a ministry printing notes. It is banks booking loans and thereby booking deposits (Werner, 2014; Werner, 2016). Sound money does not deny that mechanism. It asks whether the base onto which that mechanism sits is a good or a permission.

Gold is neither magic nor fraud. Its stock grows slowly because geology and cost limit gold’s flow and circulation — which is exactly what makes gold so useful not just in theory but as proven in practice. A society can still suffer from fraud: a badly written gold-coin law, clipped coins, a state that seizes and steals at will and with insolence. History is full of those failures, but that neither changes the value of gold, nor does it make fiat a solution. They show that fraud and criminal energy are devastating. The argument for sound money is therefore not that gold solves politics. The argument is that a medium whose quantity politicians cannot manipulate removes one of the cheapest ways politics has found to spend other people’s fruit of labor.

Blockchain can — so far reliably — record a bar, a barrel, a plot, a megawatt-hour, or a work of art. If the record is a clean title and there is a legal system available to enforce the contract, the holder has sound money in the form of digital proof. That form is still not the good, and when a government removes the possibility or, even worse, the legality of the contract, the form becomes useless — which, again, is possible with any form of money and exchange media. Chapter 6 will return to that distinction. It is enough here to say that technology does not turn a token into a value, but the backing which the technology enables does.

2.2 Fiat money

Fiat money is a token that a central bank creates, and it circulates because the state declares it legal tender. As long as citizens trust that token’s ability to be exchanged for goods and services, the token works, but nothing guarantees its quantity or its scarcity, which makes it the most unreliable money known. Even the Swiss franc, one of the steadiest fiat currencies, has lost around 72% of its value, by official admission (Federal Statistical Office, 2026). The United States dollar has lost about 97 percent of its purchasing power since the Federal Reserve began operations in 1913, so that one 1913 dollar buys only about 3 percent of what it bought then (Minneapolis Fed, 2026). Measured in gold, the euro has lost about 94 percent of its purchasing power since its launch in 1999 (Tara Gold and Silver, 2026). To put that in perspective, every

country on earth uses a fiat currency, and not one of those currencies has gained value over an extended period. They have all lost value. Saving in fiat therefore means losing purchasing power. Public debt makes the loss worse, and wages then grow more slowly than the prices of housing and other goods.

At that point the connection has to be stated plainly. What has fiat money to do with wages and real estate? Everything, which is why Chapter 1 began by stating that the economy and the society sit on money.

Inflation, in the sense this paper uses, is the loss of purchasing power that follows when the issuer enlarges the money supply. Other definitions confuse the result with the cause. If the supply grew at the same rate as demand — a growing workforce, growing consumption, growing production — prices could stay stable.

That theory runs both ways. It would also require the issuer to shrink the amount of money when the economy shrinks. Italy's birth rate has fallen over the last quarter century, a large part of its workforce has retired, and its production and exports have barely held steady. Italy did not reduce the money in circulation in order to hold inflation at zero. It could not have done so even if its government had wanted to. Italy uses the euro, which the European Central Bank manages, and Rome has near-zero influence over that stock. No other country has shrunk its fiat currency because the economy shrank. A theory that would make fiat workable therefore has no realistic operator. Governments and central banks instead argue that inflation of 2 to 3 percent is a beneficial mechanism that drives the economy. They have not produced proof. That claim has the same standing as a claim that a performance enhancer is healthy. Inflation redistributes. It limits the purchasing power of people who work and produce, and it privileges people who can leverage new money first — governments and the financial industry. That fact also corrects a widespread criticism of capitalism. Capitalists in the sense of industrialists do not profit from inflation.

They suffer from it. The loser sits near the production and trade of goods. The beneficiary of fiat currencies is the administrator, the extractor, and the bureaucrat, in other words the person who does not produce a good for an actual market. If a critic defines "capitalism" as cronyism and corporate kleptocracy, the charge of harm can stand, but the word no longer means what it says. The only way large industries can battle inflation is to leverage assets and stock markets in order to make up for the profitability that fiat currencies take from the goods they sell. There is no amount of inflation that benefits citizens, consumers,

or producers. Even a small amount raises costs, reduces purchasing power, and limits the profitability of goods and services (Rothbard, 1963; Hoppe, 2001; Ammous, 2018).

The Bank of Uganda issues the shilling under an inflation-targeting framework and a floating exchange rate. In that arrangement, saving in shillings is a losing strategy over time, and the prices of houses and other goods must rise. Unlike Portugal, Spain, and Italy, Uganda has strong GDP growth, largely because its population is still growing and its industrial output is rising, slowly but in a real way. Uganda is not in a degrowth phase. It is in a growth phase, so the collapse that follows a boom is not the present threat. It is the later one. That is a plain consequence of the record, not propaganda. Fiat currencies produce boom-and-bust cycles regardless of intention, because no government has reduced the money supply when the economy has reduced. Uganda is in a long, slow, and rather steady boom, which is why officials could present the shilling as unusually stable through 2025 and point to low inflation by African standards (Ggoobi, 2026; Ayota, 2026). How fragile that system is became visible when fuel imports rose in price in September 2026 and the shilling traded near 3,925 to the dollar, its weakest level since early 2024. The Bank raised the cash reserve requirement from 11.0 percent to 13.5 percent rather than sell dollars as a first response (Bank of Uganda, 2026; Atingi-Ego, 2026). It tried to defend the shilling by draining shillings from the banks, not by redeeming the claim in a commodity. Those episodes do not make the shilling a counterfeit. They expose the problem built into the fiat system. Whatever small short-term benefit an issuer can claim, the long-term loss makes the arrangement unreasonable. That is why this paper agrees with Rothbard, Hoppe, and Saifedean Ammous, and treats fiat money as a lose-lose for the people who hold it (Rothbard, 1963; Hoppe, 2001; Ammous, 2018).

That judgment does not single out Uganda. Every country uses a fiat currency. Officials often recite that unanimity as if it proved superiority. It proves only that the political class that spends new money first has refused the test a redeemable claim would impose. Richard Cantillon described the sequence in the eighteenth century: the organizations that spend newly created money — finance ministries, armies, large contractors, official lenders — receive the new claims before prices have moved, and households and small firms receive them later, after prices have moved (Cantillon, 1755). Wires have not changed that order. A

world in which a few large issuers set the reserve assets, and smaller economies price their wages and debts against those assets, is not a level field.

Chapter 1 already stated the rule this paper takes from Hayek. A government may issue a currency. It should not forbid every other issuer (Hayek, 1978). The institutional conditions that follow — an independent central bank if one remains, and personal liability for public debt that outlives the term of the politician who signed it — belong to Chapter 4, where the Argentine, Salvadoran, and Panamanian cases can test them. What belongs here is the classification. The shilling is a managed claim. A gold-buying program that pays miners in newly created shillings is a fiscal operation, whatever the press release calls it. A note-printing plant on Ugandan soil changes where the token is manufactured but doesn't allow its exchange into a good.

2.3 Digital money is a service

Digital money, as this paper uses the phrase, is a recorded balance that exists only while a network, a power source, and a platform are functioning. Despite that common denominator, the different forms of digital currency have to be kept apart, and most of them carry severe risks. A cryptocurrency that a central bank or a government issues is a different object from a decentralized unit whose supply the issuer cannot enlarge at will. Bitcoin is the best-known case of the second kind. This paper will not discuss every form. It focuses on mobile money.

Mobile money is practical and fast, and it is also brittle. A customer's phone stores an account number and a PIN, not value. The operator saves the data on its platform and on the servers behind that platform. Under Uganda's rules, a supervised bank holds a matching escrow deposit. The agent who pays out cash has to hold physical shillings in a drawer. That fact is worth stating on its own. The system that customers treat as digital still pays out in a currency that is itself fiat, and that fiat has no good behind it. Every part of the chain needs electricity: the towers, the data centers, and the phones of the users. A transfer that looks instant on a screen is the result of those parts communicating. If the power-protection system at one building trips, that communication stops and the system fails. On 5 July 2026 that is what happened at MTN Uganda's Mutundwe data center. An internal power-protection mechanism shut down part of the

site after an abnormal power event. For more than six hours, subscribers could not call, could not use data, and could not complete mobile-money transfers. MTN's chief executive, Sylvia Mulinge, later said the outage hit about 40 percent of the active customer base, and that mobile-money users felt a wider hit because payments, banks, and agents sit on the same network. MTN had about 14.7 million mobile-money customers at the time (Independent, 2026a; Independent, 2026b). That record does not make mobile money too risky to use, or a bad alternative to a bank queue. Card readers in European supermarkets glitch, and customers then stand in long lines and curse a technology they otherwise find practical. Cash does not have that failure. A note works without electricity and in any weather.

The more pressing question, besides the electricity and the equipment, is the cost. In September 2026, a customer who sent 60,000 shillings to another MTN number paid 500 shillings for the send, while the recipient who withdrew that sum paid 1,500 shillings to the agent and a government levy of 0.5 percent, which on 60,000 shillings is 300 and already meets the stated cap, so that 1,800 shillings left at cash-out before the recipient held the notes and the sender's 500 had already left at the earlier step, which puts the three charges at 2,300. On Airtel the send cost 1,000 shillings and the withdrawal 2,200, plus the same levy (SwiftPesa, 2026). On a 150,000-shilling MTN withdrawal that drew public complaint in April 2026, the posted total was 4,325 shillings, which MTN split as 750 shillings for the 0.5 percent government levy, 466 shillings as excise duty on the service fee, 1,600 shillings to the agent, and 1,509 shillings retained by MTN, so that the government-related deductions were about 28 percent of the fee stack (Edge.ug, 2026).

Parliament heard the same complaint that month. MTN and Airtel asked the Finance Committee to cut the withdrawal levy from 0.5 percent to 0.25 percent and to cap it at 5,000 shillings. The Otuke County MP, Paul Omara, told the committee that withdrawals had become more expensive than ordinary bank transactions (Uganda Broadcasting Corporation, 2026). Katusiime had already measured the earlier version of this tax. People make fewer transfers when the service becomes more expensive (Katusiime, 2021). Bindseil looks at the same problem from another statute book. A legal rule that freezes the price of a digital balance, or that adds a fee or a tax to it, distorts the price. Issuers and customers should set that price on an open market (Bindseil, 2026).

Fraud, the usual companion of a new payment method, enters in the form of the false reversal. A stranger claims to have sent money by mistake and presses the victim to send it back, or to open a link that “cancels” the transfer. A genuine reversal goes through the operator, not through a stranger’s instructions. The other common trick is the agent who asks for a second cash fee on top of the fee the system already deducted. Both networks deduct their charges automatically. An extra cash demand is a theft, not a tariff (SwiftPesa, 2026). SIM-swap and PIN theft work the same way. The thief does not take the value at the first step. He takes the access, and then he sends the instruction. Once he has the correct access, the platform accepts the instruction, and the victim then spends days arguing with a call center.

Ownership is a sovereignty question, and the two firms should not be confused. MTN Uganda is a subsidiary of MTN Group, which keeps its headquarters in Johannesburg. In 2025 the group began separating the mobile-money company from the listed Ugandan telecom so that MTN Group Fintech would hold about 76 percent of the new fintech firm, with a trust holding the rest for minority shareholders of the Uganda listing (MTN Uganda, 2025). Airtel Uganda is not a South African company. Its controlling shareholder sits in the Airtel Africa group, whose parent is Bharti Airtel of India. The National Social Security Fund holds 10.6 percent and is the largest Ugandan institutional shareholder. In October 2026 Airtel handed NSSF a dividend of 42.6 billion shillings on that stake (Independent, 2026c). Ugandans who warn about foreign control of the payment system are not entirely wrong when they call both firms foreign-controlled. Headquarters in Johannesburg and in India supervise the ledgers that carry most retail payments.

The Ugandan government can order its central bank to produce notes, but it can neither order the Mutundwe data center to stay reliably online, nor can it order managers in other countries and jurisdictions. A listing on the Uganda Securities Exchange offers Ugandan shareholders a dividend, and the National Social Security Fund’s stake allows pension members a claim on Airtel’s profit, but neither the listing nor the stake gives those shareholders, or the cabinet, control over the foreign companies, only over their local subsidiaries.

A new name does not turn a digital shilling into a different kind of money. If the issuer keeps cash and treasury bills against the token, the holder owns an entry on a server. That server still needs power. The operator can still freeze the account, and the state can still freeze it. If the issuer keeps treasury bonds against the token, the holder owns a promise from the Treasury, and the same servers still carry that promise. If the token were the right to exchange it for a registered gold bar in a supervised vault, in a jurisdiction that enforces the contract, the token would be as sound as money can get, as section 2.1 already described. In the case of mobile money as it actually works, the token is backed by whatever the issuer holds in reserve, and the servers add the failure possibilities already listed: power cuts, foreign control, fees, fraud, hacking, and the withdrawal of operating licenses by the local government.

2.4 Uganda's limits on mobile money and digital money processing

A mobile-money transfer is a process that involves multiple steps and technical requirements, quite sophisticated and demanding, involving safety and reliability measures of large complexity. As such, there are prerequisites also on the customer-user side: a working phone, a paid data bundle or a USSD session, charging options, an ID, and more. Mawejje and Lakuma, Katusiime, and Bindseil measure what happens after that chain is already up, contracts and their conditions are accepted, and the entire infrastructure is functioning, and that is not an omission or a flaw on their side. This paper, which is conceptually based on systems complexity, therefore adds the inherent limitations and failure options, such as the price and technical specifications of the handset, the bundle, and the Kampala power cuts, in order to estimate the true current state of mobile-money technology and use in Uganda, in the form of the table below with the late-2026 prices and the power constraint.

Table 2.1 Components required for a mobile-money cash-out in Uganda, late 2026: data prices, handset cost, and power interruptions.

Component	Price	Ratio to income*	Why the share limits the transfer	Source
Short mobile bundle	2 GB for 6,500; 4 GB for 10,000 (30 days)	3.3 %; 5 %	A light user can open the application. Repeats and receipts	Pulse Uganda, 18 September 2026

Component	Price	Ratio to income*	Why the share limits the transfer	Source
			take a larger share.	
Monthly mobile bundle	MTN 20 GB for 26,000; Airtel 30 GB for 26,000, capped at 1 GB a day	13 %	One working bundle is more than a tenth of the median cash month, before any withdrawal fee.	UG Standard, 26 August 2026; Pulse Uganda, 18 September 2026
Larger mobile bundle	100 GB for 100,000	50 %	Half a month's cash earnings, which most paid employees will not spend on data.	Same
Home fibre	Airtel 100 Mbps from 99,000; MTN 100 Mbps 110,000 on auto-renewal	50 %; 55 %	A household line costs half the median month and still does not hold the balance.	Pulse Uganda, 2 September 2026
Satellite	Starlink about 203,704 a month, kit about 2.3 million	~102 % monthly; kit about 11.5 months	Above the median earner.	Same
Handset	Entry Tecno from about 219,000	About 1.1 months of cash earnings	GSMA 2025: 53 percent of urban non-users and 49 percent of rural non-users name the handset as the main barrier. No phone, no transfer.	GSMA Consumer Survey 2025; retailer lists, October 2026
Withdrawal on top	60,000 cashed out: about 1,800 in agent fee and 0.5 percent levy	0.9 % monthly, and 3 % of the sum withdrawn	The levy falls on a customer who has already bought the bundle and the phone.	SwiftPesa, 26 September 2026
Kampala power	No official annual count. UEDCL, 2 October 2026, called interruptions in Kira frequent and started upgrades for more than 80,000 customers. A trade	Not a shilling price. A cut sets the purchased bundle to zero for those hours.	A charged phone and a live data center are part of the same purchase.	PML Daily, 2 October 2026; Powerbulb, April 2026

Component	Price	Ratio to income*	Why the share limits the transfer	Source
	guide estimates 4 to 8 hours a week under UEDCL in 2026.			

*Purchasing power is the crucial limit: The ratios use 200,000 shillings, the median monthly cash earnings in the Uganda National Household Survey 2023/24. A customer at that median cannot treat a 26,000-shilling bundle, a 219,000-shilling phone, and the withdrawal fees and taxes as small technical details, because together they decide whether the transfers in the source studies are available to that customer at all.

In Uganda in late 2026 a customer pays 6,500 shillings for 2 GB or 26,000 shillings for a monthly bundle of 20 to 30 GB, while an entry smartphone starts near 219,000 shillings, and the GSMA 2025 survey found that about half of non-users name the handset as the reason they stay offline (Pulse Uganda, 2026; GSMA, 2025). Home fibre at 99,000 to 110,000 shillings a month does not remove that step, because the operator still keeps the balance on its servers. UEDCL has not published a Kampala blackout count. It said, in October 2026, that interruptions in Kira and the surrounding wards are frequent enough to justify upgrades for more than 80,000 customers (UEDCL, via PML Daily, 2026). A service that requires a charged phone, a powered tower, and a powered data center is limited by those prices and those cuts before the operator adds the withdrawal levy.

Chapter 3

The three source studies and their relevant points for this paper

3.1 Mawejje and Lakuma on mobile money and the Ugandan aggregates

Joseph Mawejje and Corti Paul Lakuma published “Macroeconomic effects of mobile money: evidence from Uganda” in *Financial Innovation* in 2019. They asked whether mobile money, introduced in March 2009, had moved the national figures, and whether the Bank of Uganda could still reach those balances with its existing instruments. After estimating a long-run demand function with a vector error-correction model, they separated balances from transfers and then traced short-run effects with a structural vector autoregression, on

- the money stock,
- the consumer price index,
- interest rates,
- private-sector credit, and
- a composite index of economic activity.

The setting they recorded shows why paper still matters: Formal, regulated intermediation reached about 20 percent of the population. By 2016 registered mobile-money accounts stood at 21.6 million, against about 5.2 million bank accounts, in a population of about 35 million. In August 2016 the value of mobile-money transactions reached 3.6 trillion shillings, and balances on the accounts reached 326 billion shillings, equal to 2.6 percent of M2 and 1.8 percent of M3. An average of 122 billion shillings moved each day, mostly in tickets a little above 70,000 shillings. Operators did not hold the float as a private hoard. A supervised bank held a matching escrow deposit and released it on demand. Mawejje and Lakuma listed the services that had already grown out of person-to-person transfers: bill payments, salaries, taxes, cross-border remittances, bank-to-wallet transfers, airtime, microfinance, and village savings accounts.

Their results were moderate, and they were not uniform. Mobile money raised monetary aggregates, the consumer price index, private-sector credit, and the activity index. Transfers had stronger macroeconomic effects than balances. Balances responded to changes in policy instruments, which the authors read as a sign that the Bank could still reach the new accounts. They also recorded a warning the late Governor Emmanuel Tumusiime-Mutebile had given at a 2015 Kampala conference. If mobile money ever replaced demand deposits, the Bank would lose the channel through which it sets short-term rates, because that channel works by varying the liquidity banks need in order to meet reserve requirements. Maweje and Lakuma did not test that future. They tested a service that still cleared in shillings and still sat on bank escrow.

What this study takes from Maweje and Lakuma is very specific. Mobile money was already large enough, by 2016, to move prices, credit, and activity. These facts do not change the further fact that the system is still a claim inside the fiat system. Transactional use mattered more than idle balances, which fits a payments service better than a store of value. This paper does not follow them into a claim that the Bank's control is therefore secure. Mutebile's warning, which they record, is the open end of their article. If the mobile-money ledger displaces bank deposits, the interest-rate tool weakens, which is an institutional risk, not a coefficient.

3.2 Katusiime on the tax, the exchange rate, and the decision to use the service

Lorna Katusiime, of the Bank of Uganda's Economic Research Department, published "Mobile money use: the impact of macroeconomic policy and regulation" in *Economies* in 2021. She asked a different question from Maweje and Lakuma. They had asked what mobile money does to the aggregates. She asked what policy and the macroeconomy do to mobile-money use. She used monthly data from March 2009 to September 2020 and an autoregressive distributed lag. Her usage measure was the average transaction value, total value divided by the number of transactions. She included economic activity, inflation, the interest rate, the exchange rate, a financial-innovation ratio of M2 to M1, a mobile-money tax, customer balances, and registrations.

In the short run, inflation was associated with higher usage. Financial innovation, the exchange rate, interest rates, and the mobile-money tax were associated with lower usage. In the long run, economic activity, inflation, and the COVID-19 period raised usage. Customer balances, the interest rate, the exchange rate, financial innovation, and the tax reduced it. A long-run rise in economic activity of 1 percent was associated with a rise in usage of roughly 0.95 to 1.85 percentage points, depending on the specification. Registered accounts raised usage. Larger balances on customer accounts were associated with slightly lower transactional usage, which is consistent with money sitting still rather than moving.

The result that matters here is the tax. When the state levied transfers, people made fewer transfers. Katusiime treated that as a regulatory fact and recommended an enabling environment, including public support for local infrastructure. This paper takes the measurement and refuses the recommendation. A tax on a withdrawal is a price on a service. Customers who face a higher price, with no improvement in the service, use less of it. Holders of a coined good do not pay the Treasury a percentage each time the coin changes hands. The exchange-rate result belongs with the tax result. When the shilling weakened, usage fell. Customers were not treating the balance as a separate store of value. They were treating it as a claim denominated in a unit whose command over dollars had just shrunk.

Katusiime's sample ends in September 2020, before the 0.5 percent withdrawal levy had settled into the fee stack that MTN and Airtel described to Parliament in 2026. The mechanism does not need a new sample in order to be readable. Section 2.3 already priced a 60,000-shilling cash-out. Katusiime supplies the behavioral half of that price: people step back when officials add a levy. She does not supply a case for the state to subsidize the operators who charge the rest of the fee.

3.3 Bindseil on the price of a digital balance

Ulrich Bindseil published "Europe should stop banning interest on digital money" as a Bruegel note on 28 September 2026, with the working paper *Remunerating means of payment* behind it. He does not write about Uganda. He writes about a European rule, and the rule is a pricing rule. Banknotes cannot pay interest, because no one records how long each holder keeps a note. Electronic balances can pay interest, because the ledger already stamps every holding. Whether they do is a legal choice, not a technical limit.

The European Union has made that choice unevenly. Banks may remunerate sight deposits. E-money, e-money tokens, and the proposed digital euro may not. The digital-euro proposal also caps how much one person may hold.

Bindseil's argument is that a ban on remuneration is a tax on the holder, and that the tax rises with the market rate. Wealthier households move surplus balances into interest-bearing accounts, money-market funds, or securities. Poorer households keep more of their wealth in payment balances and have fewer alternatives. A zero-interest rule therefore hits the second group harder. He also records the ways holders already step around the ban. Some European e-money firms pay a monthly cashback that is interest under another name. United States platforms offer returns on stablecoin holdings even where issuers may not pay interest directly. Instant payments and tokenized assets have cut the cost of switching, so funds can leave a capped, non-interest balance as soon as the rate elsewhere rises. Bindseil treats that flight as a stability risk: if the central bank raises rates, issuers of constrained balances may have to sell reserves in a hurry.

He rejects the usual defenses. Capital and liquidity rules, not a ban on interest, are the proper answer to reckless deposit competition. If bank intermediation has a social benefit, a targeted subsidy is clearer than a hidden subsidy that moves with the interest rate. Brazil remunerates fintech accounts linked to Pix at the interbank rate. India and Mauritius let everyday payment accounts pay close to market rates. Those countries have not produced the instability the franchise argument predicts. His conclusion is narrow. The Union need not force issuers to pay interest. It should stop forbidding them to do so, and let issuers compete on the terms they offer holders.

This paper takes that classification and does not import the statute. A mobile-money balance in Uganda is the same kind of object as the e-money balance Bindseil describes: a recorded claim, a service, a price. The Ugandan price is a fee plus a 0.5 percent withdrawal levy, not a European ban on interest. The distortion is the same type. Officials, not customers and not competing issuers, set part of the price. Bindseil does not argue that digital balances are sound money. He argues that they are a service whose price a ministry should not freeze.

Chapter 4

Currency competition, and three partial experiments

4.1 The rule Hayek stated, and the rule this paper uses

Friedrich Hayek did not ask governments to stop issuing money. In *Denationalisation of Money* he asked them to stop forbidding every other issuer. A private issuer who inflated his unit would lose holders, because holders could leave. He wrote that private enterprise, if governments had not blocked it, would long ago have offered a choice of currencies, and that the currencies which survived that choice would have kept their purchasing power (Hayek, 1978). This paper takes that rule and does not add a ban. Ugandans who want the shilling should use the shilling. Ugandans who want a gold claim, the dollar, or a privately issued token redeemable in a named good should be free to contract in that medium, or any other chosen one for that matter, subject to ordinary fraud law. Legal tender, if it survives, should bind the state when the state collects taxes and pays judgments. It should not bind two private parties against their own contract.

The same rule covers the central bank and the public debt. Austrian writers do not agree on whether a central bank should exist at all. This paper does not close that argument. It states a condition. If Uganda keeps the Bank of Uganda, the Treasury cannot order an expansion to cover a deficit, and the cabinet cannot sit on the policy committee with the power to command new shillings. Debt that outlives the term of the politician who signed it should be reauthorized in a recorded decision, and the officials who signed it should remain liable if the proceeds were wasted and the balance is not paid. Directors of a firm already face that kind of account. Ministers do not. Fiat makes the account harder to enforce, because a thinner shilling can impersonate repayment. Competition makes the thinning visible, because holders can leave.

4.2 Argentina, El Salvador, and Panama

Javier Milei took office in Argentina at the end of 2023 with annual inflation above 200 percent and a primary deficit. His government repealed the 2020 rental law, cut exchange controls for individuals, posted a primary surplus, and removed a large body of price and import rules. Inflation fell from triple digits to

about 33 percent by August 2026, and the sovereign spread narrowed sharply from the distress levels of late 2023 (IMF, 2026). The rental repeal did what a repeal of a binding control usually does: landlords put flats back on the market. The monetary half of the program stopped short of the promise he had made as a candidate. He did not dollarize. He did not close the central bank. In 2026 the bank still ran a floating band, and a proposed reform would have barred the bank from financing state spending rather than abolishing the bank. The gains are real. The cap on those gains is also real. Argentina still has a peso that officials can enlarge, and a mortgage market that revived and then stalled when the bank raised rates to defend that peso.

El Salvador dollarized in 2001. It did not shut its central bank. The Central Reserve Bank remained, as a regulator and as the state's fiscal agent, without the power to issue the circulating currency. In 2021 the government made bitcoin legal tender and required firms to accept it. That mandate did not become everyday money. In January 2025 the legislature amended the law, under an IMF program, so that private acceptance is voluntary, taxes are not paid in bitcoin, and public bodies need not facilitate bitcoin payments. The state still holds a bitcoin reserve. It agreed not to buy more with public funds. In September 2026 the government was shifting retail crypto payments toward dollar stablecoins, after surveys had found that most Salvadorans had not used bitcoin (IMF, 2025; Bloomberg, 2026). Dollarization is the part that worked. It removed the local printing press. Bitcoin did not replace the dollar, and a law that ordered shops to accept it did not create a demand the shops did not have. The question for Uganda is not "why not copy the bitcoin mandate." The question is why a small country that already depends on an imported unit for fuel and debt should keep a domestic unit that officials can enlarge.

Panama has used the United States dollar since the early years of the republic. It has never had a central bank. It issues balboa coins locked one-for-one to the dollar, and it issues no paper of its own. The Banco Nacional de Panamá handles treasury deposits and some clearing. It cannot print. The Superintendency of Banks licenses and supervises. Banks hold more capital and more liquidity than banks in countries where a central bank can issue emergency money, because Panama has no lender of last resort and no deposit insurance (IMF, 2024; World Bank, 2024). That is a cost. It is also why Panama became a regional banking center. Foreign banks could book deposits in a unit they already trusted, under a supervisor who could not

dilute that unit. Singapore is not a copy of Panama, and Panama is not a copy of Singapore. The shared fact is narrower. A small jurisdiction that does not manufacture its own measuring unit can host other people's money if its courts and its bank rules hold.

4.3 What the three cases ask of Uganda

The three cases do not line up as a single recipe. Argentina shows that deregulation works on the market it actually opens, and that a central bank left in place caps the monetary gain. El Salvador shows that dollarization can hold for a generation, and that an added token does not become money because a statute says so. Panama shows that a country can run payments, banks, and a regional center without a domestic paper issue and without a central bank. Uganda is not Argentina, and it is not a canal state. It has its own gold, a growing population, oil still to come, and a retail payment system that two foreign groups already operate. Those facts make the Panama question sharper, not softer. Officials who can order the Bank to print notes cannot, by that order, give the shilling the record the dollar has had in Panama since the start of the republic. They can let contracts in gold, in dollars, and in redeemable tokens stand beside the shilling. Chapter 5 will state the tests that follow from that choice.

Chapter 5

Institutional policies, public debt, and payment services

5.1 Six institutional consequences of the monetary distinction

On the basis of the distinction this study has drawn between a scarce good, a fiat token, and a recorded payment service, and on the basis of the costs that follow when a government treats the second as if it were the first, the Ugandan government should adopt six institutional rules, because each rule changes who may contract, who may enlarge the shilling, and who remains answerable when public money is lost. A central bank that spends its time manufacturing policy at the taxpayer's expense, as the Bank of Portugal has done inside the euro arrangements, is an office Panama has declined to keep, and an office Uganda has no reason to enlarge, because the shilling already exists and a further layer of monetary administration would consume revenue that deregulation and a smaller budget would leave in private hands. What has already been issued cannot be unissued by a new committee. The practical course is to deregulate, to cut expenditure sharply, to repay outstanding debt quickly, and then to stop borrowing, while any later loan would be short, recorded, and repaid inside the term of the officials who signed it (Kayser, 2026). Revenue kept back from that smaller state, and taxes reduced by the same cut, would increase the money households and firms can actually use. While the establishment shrinks, officials who have already succeeded in a trade or a firm, and who then serve, should be paid more than the present scale, but only for two terms at most, and only if they leave no unpaid debt and no public loss behind them, because a professional political class that lives on the issue of new claims is the arrangement the monetary record has already failed.

- Private contracts in more than one medium. A landlord, an exporter, a wage earner, and a miner would remain free to price and settle in the shilling, in gold, in dollars, or in a privately issued token that a court can exchange for a named good, while the fraud statutes would still forbid a seller from advertising a reserve he does not hold.

- A limited privilege for the shilling. The Uganda Revenue Authority could continue to collect taxes in shillings, which is a narrower rule than a legal-tender statute that voids private contracts written in another medium.
- No Treasury command over the issue. If the Bank of Uganda remains during the repayment period, the Treasury would lack authority to order an expansion in order to finance a deficit, and cabinet ministers would not sit on the policy committee with power to command new shillings, because that power is the channel through which public spending reaches households before prices have moved.
- Debt inside the term, and personal liability. Debt that cannot be repaid inside the term of the politician who signed it would not be contracted, while any balance that outlives that term would require a recorded reauthorization, and the officials who signed the original paper would remain liable if the proceeds were wasted and the balance was not repaid (Kayser, 2026).
- Payment services priced as services, without regulatory interference. Whatever private companies charge is already taxed through corporate income tax, so any further charge is multiple taxation, which is unethical in itself and a severe obstacle to economic growth, and therefore counterproductive. Katusiime measured a fall in transfers when the tax rose, and Bindseil showed that a frozen price on a digital balance functions as a tax on the holder, which is why interference in the price of the service does not work.
- Gold bought with funds already in hand. If the state wishes to hold gold, the Bank would purchase it with reserves already on its books or with tax revenue already collected, rather than with shillings created for the purchase, because a miner who receives newly mobilized shillings is the first recipient in the sequence Cantillon described.

Deregulation, a small establishment, and little interference in prices and entry are the arrangements that have left households with more of what they produce, which is why the six rules above cut the monetary privilege rather than staff a new one. A state that had become prosperous on those terms would still require a small, highly skilled, and well-armed defense, together with an armed population, because prosperity that

cannot be defended is a stock others can take, although defense is not the subject of this paper and the monetary rules do not depend on a longer treatment of it.

5.2 Domestic printing of notes under a legal tender and under competition

While the shilling is the only lawful means of payment, a factory that prints the notes is a supply question for the state, because plates, paper, and inks have to arrive or the issue stops. In 2026 Presidency Minister Milly Babalanda signed a memorandum under which Uganda Security Printing Company and a German banknote firm would study a plant for notes, passports, and identity documents, while Governor Mutebile had already told the finance minister, in 2016, that Uganda's volumes would not cover the fixed costs and that paper, inks, and security features would still be imported (Namatovu, 2026). Under the competition rule in 5.1 that plant is a bidder. A local printer and a foreign printer would each offer a price and a standard of work, the issuer would award a probationary term to the bid that met both, and a longer contract would follow only if the notes held that standard through the trial, which leaves Mutebile's cost warning on the bid sheet rather than in a statute that forbids every other note.

5.3 Claims on a blockchain reserved in a good, and held offline

Chapter 1 already set out the third arrangement, in which a token on a blockchain records a claim on a specific good and under specific ownership circumstances. Since that good can be gold, land, or another commodity, the token is equal to sound money and not at all like mobile money or a central-bank digital currency. A mobile-money balance is data on an operator's digital platform, matched by shillings in escrow, and a central-bank digital currency is a fiat token on the bank's own ledger, not backed by anything and even less reliable as printed fiat money, that -at least- cannot be closed down on governmental order. Cold storage on the other hand, limits the electrical dependence because it allows the holder to keep the private key on a device or in a form that is not connected, so the claim does not have to pass through towers and data centers in order to persist. Mobile-money balance has to remain online at each of those stages, which is why the power-protection trip of 5 July 2026 stopped transfers and technical issues could arise at any time. An offline key proves a holder's claim, but only in a remote form that has no physical connection to the claimed good itself, which can remain stored in a vault or in whatever other place the parties arranged.

The good still has to be in its place when the holder asks for it, and a court still has to enforce the contract. When the holder wishes to exchange, he needs the electrical power for that step only, which is a significantly narrower dependence than a service that must stay connected around the clock. Under the rule in 5.1, issuers of these claims would win or lose on whether the vault answers and on the fee, rather than on a statute that names one token legal tender.

Chapter 6

This study's limitations and recommendations

6.1 The limits of the three studies and of the foreign cases

Mawejje and Lakuma stop in 2016, which is a full decade ago, and Katusiime stops in September 2020, over half a decade ago. Therefore neither paper includes the 0.5 percent withdrawal fee as MTN described it to Parliament in 2026, and neither paper saw the Mutundwe outage of 5 July 2026. Their mechanisms still hold, and a larger ledger moves aggregates, while a tax on transfers reduces transfers, but circumstances have changed in 2026. Bindseil writes about a European ban on interest, not the Ugandan fee on cash-out. This paper referred to Bindseil's classification, that a digital balance is a service with a price, without proposing Brussels as a model for Kampala.

Argentina, El Salvador, and Panama are partial records, not templates. Milei opened markets he actually deregulated and left the central bank in place. El Salvador kept the dollar and then learned that a bitcoin mandate does not create users, and that implementation needs time. Panama never issued paper and never built a central bank, and it also has no lender of last resort. Uganda has a fully state-owned central bank, a shilling, a dollar debt, and mobile money that uses that legal tender through two foreign firms, MTN and Airtel. These are all important facts this paper uses to analyze mobile money in its necessary context, but these facts are not policy recommendations.

6.2 Clarification of measures and estimates

This paper did not try to estimate a new demand function, and it did not price a gigabyte against a day's wage. A mobile-money balance is useless to a person who cannot pay for data or for a phone able to run the application, and while that is self-evident, those limits are rarely mentioned, which is why they belong in later measurements, beside more complete price-structure analyses and in context with the exit of a platform such as Uber. The paper also did not audit the Bank's gold purchases, the escrow banks behind MTN and Airtel, or the reserve behind any digital-shilling pilot. It classified those projects by what officials

and firms have said they hold. A reader who wants to act on a number should check it against the Bank of Uganda's own release, because the September 2026 rate and the reserve ratio can change, and will.

6.3 Classification and the institutional choice

The study has separated three instruments that public discussion often places under one name. Sound money is a scarce good, or a right to take a stated quantity of that good from a vault if a court orders delivery. Fiat money, in Uganda, is the shilling, which the Bank of Uganda can enlarge by administrative order. Mobile money is a recorded payment service: customers receive cash quickly when the servers and the agents are working, they pay a fee and a levy at cash-out, and the ledgers are controlled by MTN Group in Johannesburg and by Bharti Airtel, through Airtel Africa, in India.

What the paper recommends, in Chapter 5, is currency competition and a narrower state. Parties who prefer the shilling would remain free to use it, but also any other medium of preference, while officials would deregulate prices and entry, cut expenditure, and repay debt inside the term of the politicians who contracted it. If, instead, statute keeps the shilling as the only lawful payment, and if the Treasury can instruct the central bank to finance expenditure by a larger issue, the oil, power, school, farm, tourism, and defense programs already announced would be paid in an inflationary currency subject to ever-increasing taxation and redistribution.

Chapter 7

Conclusion

This paper has distinguished a scarce good, or a claim enforced by a legal system, from the shilling, which the Bank of Uganda issues and can enlarge by administrative order, and from mobile-money balances, which MTN and Airtel record as digital data controlled from foreign headquarters. Mawejje and Lakuma, Katusiime, and Bindseil supply the empirical points the distinction uses: mobile money already moves Ugandan aggregates, a tax on transfers reduces use, and a rule that freezes the price of a digital balance taxes the holder. Those results point to deregulation as beneficial, and this paper tests that indication against the outcomes of partial deregulation in Argentina, El Salvador, and Panama. On those facts and on that empirical record, this paper recommends not the partial measures of the countries named, but deeper policies, which redefine public debt and limit inflation, because both are primary causes of the long-term lose-lose outcome.

Central to this paper's recommendations is the Austrian case for currency competition, under which those who prefer the shilling would use it, and others would use the medium they prefer. If officials also place severe limits on public debt, and repay existing debt strictly and quickly, later detaxation would become a realistic option, which economic growth and further industrial development require. Under current regulations, with the shilling as the only lawful payment and with the Treasury able to finance expenditure by a larger issue, Uganda's oil, power, school, farm, tourism, and defense programs would be paid at an ever-increasing cost, which would jeopardize their intended results and, in some cases, their feasibility.

References

- Ammous, S. (2018) *The Bitcoin Standard: The Decentralized Alternative to Central Banking*. Hoboken: Wiley.
- Atingi-Ego, M. (2026) Remarks at the Annual Bankers Conference, Kampala, September.
- Ayota, P. (2026) Remarks at the Uganda–UAE Business Forum.
- Bank of Uganda (2026) Circular on the cash reserve requirement, 15 September. Kampala: Bank of Uganda.
- Bindseil, U. (2026a) ‘Europe should stop banning interest on digital money’, *Bruegel First Glance*, 28 September.
- Bindseil, U. (2026b) *Remunerating means of payment*. Bruegel Working Paper. Brussels: Bruegel.
- Bloomberg (2026) ‘Bukele turns to stablecoins as bitcoin payments fail to catch on’, 29 September.
- Cantillon, R. (1755) *Essai sur la nature du commerce en général*. Translated by Higgs, H. (1931). London: Macmillan.
- Edge.ug (2026) ‘MTN clarifies MoMo rates amid withdrawal tax debate’, 19 April.
- Federal Statistical Office (2026) ‘CPI, global index on all index bases’, indexation table, 1 October. Neuchâtel: Federal Statistical Office.
- Ggoobi, R. (2026) Third-quarter budget briefing, Kampala, January.
- GSMA (2025) *Consumer Survey*. London: GSMA. Urban and rural mobile-internet use and handset-cost barriers for Uganda, as reported in Khusoko, 29 September 2026.
- Hayek, F.A. (1978) *Denationalisation of Money: The Argument Refined*. 2nd edn. London: Institute of Economic Affairs.
- Hoppe, H.-H. (2001) *Democracy: The God That Failed*. New Brunswick: Transaction.
- Independent (2026a) ‘MTN outage disrupts calls, internet and mobile money services’, 5 July.

- Independent (2026b) 'MTN further clarifies July 5 service disruption', 7 July.
- Independent (2026c) 'Airtel Uganda hands Sh42.6 billion dividend to NSSF', 1 October.
- International Monetary Fund (2024) 'Financial safety nets in dollarized economies', *Panama: Staff Report, Country Report 2024/189*. Washington, D.C.: International Monetary Fund.
- International Monetary Fund (2025) *El Salvador: Request under the Extended Fund Facility*, Country Report 25/58. Washington, D.C.: International Monetary Fund.
- International Monetary Fund (2026) *Argentina: 2026 Article IV Consultation*, Country Report 2026/105. Washington, D.C.: International Monetary Fund.
- Katusiime, L. (2021) 'Mobile money use: the impact of macroeconomic policy and regulation', *Economies*, 9(2), 51.
- Kayser, K.H. (2026) Sovereignty, Soft Budgets, and the Demographic Window: Why Uganda Should Exit Public Insurance Monopolies. Zenodo. <https://doi.org/10.5281/zenodo.21971730>
- Mawejje, J. and Lakuma, C.P. (2019) 'Macroeconomic effects of mobile money: evidence from Uganda', *Financial Innovation*, 5, 23.
- Minneapolis Fed (2026) *Consumer Price Index, 1913–*. Minneapolis: Federal Reserve Bank of Minneapolis.
- Mises, L. von (1953) *The Theory of Money and Credit*. New edition. New Haven: Yale University Press.
- MTN Uganda (2025) *Abridged circular to shareholders on the proposed structural separation of MTN Mobile Money (U) Limited*, June–July. Kampala: MTN Uganda.
- Namatovu, J. (2026) 'Uganda revives plan to print own currency despite Mutebile-era resistance', ChimpReports, 28 August. Available at: <https://chimpreports.com/uganda-revives-plan-to-print-own-currency-despite-mutebile-era-resistance/>
- PML Daily (2026) 'UEDCL unveils power upgrade plan to tackle Kira's frequent outages', 2 October.
- Powerbulb (2026) 'UEDCL vs Umeme 2026 — protect your Kampala home', 15 April.

- Pulse Uganda (2026a) 'MTN Uganda introduces new monthly data bundle', 19 August.
- Pulse Uganda (2026b) 'Starlink goes live in Uganda; price comparisons against MTN, Airtel', 2 September.
- Pulse Uganda (2026c) 'Airtel Uganda cuts data prices', 18 September.
- Pulse Uganda (2026d) '2025 financial results: comparing MTN and Airtel Uganda', 14 March.
- Rothbard, M.N. (1963) *What Has Government Done to Our Money?* Auburn: Ludwig von Mises Institute, later reprints.
- SwiftPesa (2026) 'MTN MoMo and Airtel Money charges in Uganda 2026', 26 September.
- Tara Gold and Silver (2026) *How the euro has devalued versus gold since 1999*. Dublin, January.
- Tumusiime-Mutebile, E. (2015) Remarks at the International Growth Centre conference 'Mobile Money and the Economy', Kampala. Quoted in Maweje and Lakuma (2019).
- Tumusiime-Mutebile, E. (2016) Letter to the Minister of Finance on a domestic banknote plant. Cited from contemporary reporting; the letter itself was not inspected for this draft.
- Uganda Broadcasting Corporation (2026) 'Telecom companies urge lower mobile money taxes to boost financial inclusion', 16 April.
- Uganda Bureau of Statistics (2025) *Uganda National Household Survey 2023/24*. Kampala: Uganda Bureau of Statistics. Median monthly cash earnings of 200,000 shillings.
- UG Standard (2026) 'MTN Uganda boosts data on monthly bundles, keeps prices unchanged', 26 August.
- Werner, R.A. (2014) 'Can banks individually create money out of nothing? The theories and the empirical evidence', *International Review of Financial Analysis*, 36, pp. 1–19.
- Werner, R.A. (2016) 'A lost century in economics: three theories of banking and the conclusive evidence', *International Review of Financial Analysis*, 46, pp. 361–379.
- World Bank (2024) *Panama: Financial Sector Assessment*. Washington, D.C.: World Bank.

Macroeconomic effects of Mobile money: evidence from Uganda



REPRINT

Original available under <https://link.springer.com/content/pdf/10.1186/s40854-019-0141-5.pdf>

REPRINT

Maweje, J. and Lakuma, P. (2019) 'Macroeconomic effects of mobile money: evidence from Uganda', *Financial Innovation*, 5, 23.

<https://doi.org/10.1186/s40854-019-0141-5>

Open access under the Creative Commons Attribution 4.0 licence. The graphs and tables below are taken from that file so that none of them is left out.

** Correspondence: jmaweje@gmail.com 1The World Bank, Juba, South Sudan Full list of author information is available at the end of the article*

Macroeconomic effects of Mobile money: evidence from Uganda

Joseph Maweje^{1*} and Paul Lakuma²

Abstract

This study examined the effects of mobile money—a recent innovation in Uganda's financial-sector landscape—on aggregate economic activity and other macroeconomic variables. We first estimated the long-run mobile-money demand function using vector error correction (VEC) techniques, distinguishing between balances and transfers/ transactions. We then estimated the short-run effects of mobile money on selected macroeconomic variables using structural vector autoregressive (SVAR) methods. The results showed that mobile money had moderate positive effects on monetary aggregates, consumer price index, private-sector credit, and aggregate economic activity. Mobile money balances responded to changes in

monetary policy instruments, signaling possible ameliorating effects for the conduct of monetary policy. Finally, the results showed that transactional motives related to mobile money had stronger macroeconomic effects than savings motives. Keywords: Mobile money, Monetary policy, Inflation, Interest rates, Private-sector credit, Money demand, GDP, Uganda

Introduction

There has been growing enthusiasm for, and investigations of, the potential benefits of new financial innovations for poverty reduction and inclusive economic growth (e.g., Chibba 2009). Equally interesting are the implications of such financial innovations for the conduct of monetary policy (Ndirangu and Nyamongo 2015; Mehrotra and Yetman 2015). Mobile money is one such innovation that has revolutionized the financial-sector landscape with regard to the way people save, make payments, and make transfers. There is growing interest in how mobile money might affect macroeconomic outcomes in developing countries (e.g., Nampewo et al. 2016; Aron et al. 2015). The rapid expansion of mobile money has attracted much debate regarding its implications for the growth of the financial sector and the effectiveness of monetary policy. For example, mobile money can facilitate effective monetary policy to the extent that it improves financial inclusion. This is because households with access to formal financial markets can have complete access to instruments that facilitate borrowing and savings. Consequently, changes in policy interest rates have direct effects on intertemporal consumption and investment decisions. Lwanga and Adong (2016) found that having a registered mobile money account increased the likelihood of having some household savings in Uganda. This implies that in the presence of imperfections in financial

© The Author(s). 2019 Open Access This article is distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made.

markets, the increased adoption and use of mobile money could lead to increased formal savings. There are concerns, however, that the proliferation of mobile transactions will change the landscape of traditional banking, carrying implications for financial-sector development, the conduct of monetary policy, and financial-sector regulation. Kamukama and Tumwine (2012) argued that the proliferation of mobile payments in Uganda could disadvantage commercial banks by weakening their liquidity. Concerns have also been raised about the implications of mobile money for the conduct of monetary policy in Uganda. The adoption and use of mobile money imply a gradual substitution of real cash balances for bank deposits. This creates a larger money multiplier since all mobile money balances must be backed up by cash deposits

in the escrow account of a partner commercial bank. Moreover, mobile money will obviously increase the velocity of money in circulation because it reduces the time and transaction costs of making retail payments. Indeed, innovations in the financial sector, including mobile money, have been shown to have statistically significant positive long-term effects on money velocity in Uganda (Nampewo and Opolot 2016). At a 2015 conference convened by the International Growth Center in Kampala under the theme “Mobile Money and the Economy,” the governor of the Bank of Uganda expressed his concerns thus:

If more radical mobile banking business models are eventually developed in which mobile money becomes a substitute for demand deposits in banks, the ability of central banks to control interest rates could be undermined. This is because central banks control short-term interest rates by varying the liquidity available for commercial banks to meet their reserve requirements. But if mobile money eventually leads to a diminution of the role commercial banks play in the financial system, the interest rate transmission mechanism, which relies on movements in short-term interbank rates being transmitted along the yield curve to all other interest rates in the economy, will be weakened, which in turn will weaken the transmission mechanism of monetary policy. (Tumusiime-Mutebile 2015)

Despite these concerns, there is insufficient research on the links between mobile money and its effects on the economy and the conduct of monetary policy. Nampewo et al. (2016) examined the role of mobile money in the supply of private-sector credit in Uganda. Similarly, Aron et al. (2015) examined the relevance of mobile money in inflationary processes. The present study provides novel evidence of the macroeconomic effects of mobile money in Uganda within a broader framework. In particular, this study examined the effects of mobile money on money stock, consumer price index, interest rates, private-sector credit, and gross economic activity. An important aspect of this study is that it establishes the implications of mobile money shocks for the conduct of monetary policy. The results showed that mobile money has moderate positive effects on monetary aggregates, the consumer price index, and private-sector credit. Mobile money transactions are correlated with the composite index of economic activity. Mobile money deposits respond to changes in monetary policy instruments, signaling possible ameliorating effects for the conduct of monetary policy.

The rest of this study is structured as follows: Section 2 provides the background for mobile money development in Uganda. Section 3 presents a brief survey of the literature. Section 4 introduces the analytical framework. The data and methods used in the analysis are discussed in section 5. The results are presented and discussed in section 6. Finally, section 7 concludes the study and makes policy recommendations.

Background

The financial sector in Uganda has expanded rapidly over the last two decades. This growth was made possible by reforms that allowed for competition, particularly in the banking sector. However, despite these positive developments, access to formal financial services is still low: only 20% of the population has access to formal regulated financial intermediation services (World Bank 2017). The introduction of mobile money in 2009 helped expand formal financial services to populations previously excluded. The adoption of mobile money has been rapid: a 2013 FINSCOPE survey showed that 56% of adults were using mobile money services, of which 34% were registered users (EPRC 2013). This has been attributed to the increased demand for domestic remittances, the improved quality of existing financial services, and improved regulatory frameworks, among other reasons (Evans and Pirchio 2014). The number of registered mobile money accounts reached 21.6 million in 2016—more than half of Uganda’s population of 35 million—and the number of formal commercial bank accounts was estimated at 5.2 million in 2016 (Bank of Uganda 2016). By August 2016, the value of mobile money transactions had reached UGX 3.6 trillion, and balances on mobile money accounts had reached UGX 326 billion—the equivalent of 2.6% and 1.8% of M2 and M3, respectively (Fig. 1). An average of UGX 122 billion, or USD 34 million, is transferred through mobile money each day, mostly in small amounts averaging just over UGX 70,000 (USD 20) per transaction. However, there is scope for expanding access to mobile money services. A significant portion of Ugandans know about mobile money but do not use it. Close to 43% are considered “aware nonusers”; they are primarily poor, rural, and less educated (EPRC 2013).

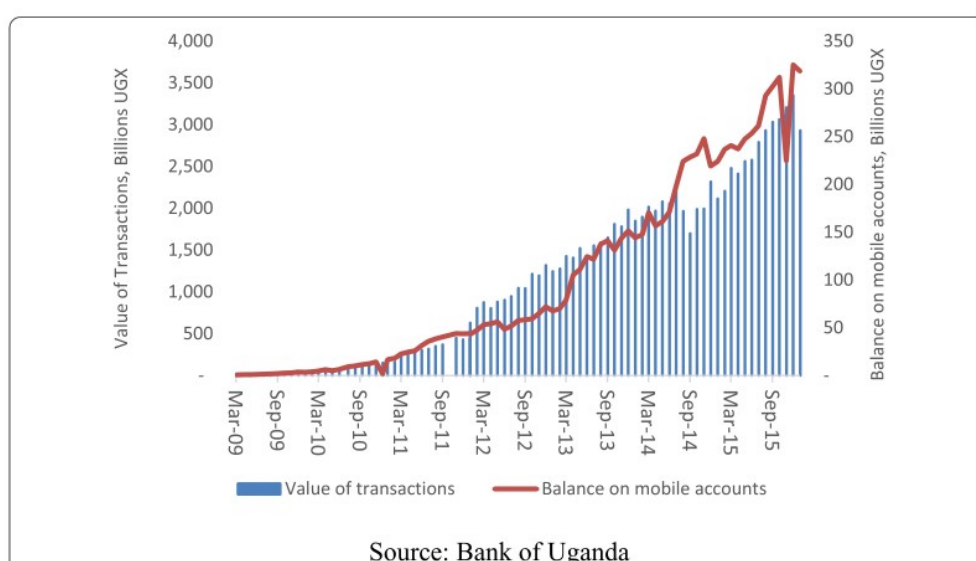


Fig. 1 The volume of mobile money in Uganda

Currently, mobile money solutions are provided through four mobile network operators (MNOs): MTN Uganda, Airtel Uganda, Africell Uganda, and Uganda Telecom. A significant number of non-MNO mobile payments providers—such as M Cash, Ezee Money, PayWay, and Smart Money—also provide mobile money services (Bank of Uganda 2015). Mobile money service providers partner with a supervised financial institution (SFI) to provide mobile money services. These financial institutions hold escrow accounts that mirror the mobile money deposits held. Currently, four Ugandan financial institutions—Stanbic Bank, Equity Bank, Centenary Bank, and Standard Chartered Bank—directly partner with mobile money service providers (Nampewo et al. 2016). Individual mobile money service providers partner with financial institutions to effect mobile money services. While commercial banks have not been active mobile money providers in Uganda, the introduction of agency banking in 2016 could facilitate the entry of these institutions into mobile service provision. Uganda’s business model follows the Smart Money of Smart Communication model in the Philippines, where an MNO collaborates with a commercial bank to offer mobile money services (MMS) (Ssonko 2011). A commercial bank’s role is mainly to hold customers’ funds in escrow accounts and release them on demand. Mobile money services have evolved from person-to-person transfers and the storage of electronic value to include other services such as the following: checking bank balances; paying bills, utilities, salaries, social benefits, and taxes; making cross-border remittances; making transfers from a bank account to a mobile wallet; purchasing mobile phone airtime and data; extending microfinancing services; and facilitating village savings and loan accounts (VSLA), among other services (see Table 1). Mobile money is also increasingly being used as a means to store value. As mentioned earlier, mobile money encourages savings by providing a secure and widespread mechanism to facilitate formal savings across socioeconomic boundaries. In Uganda,

Table 1 The evolution of mobile money in Uganda

Date	Developments
March 2009	Mobile money is introduced in Uganda
March 2009	Domestic transfers/remittances P2P introduced
July 2010	Government payments of social benefits (G2P) introduced
January 2010	Merchant payments – enabling SMEs and corporates to receive payments P2B introduced
June 2011	Financial Consumer protection guidelines took effect
October 2013	Mobile money guidelines came into force
April 2014	Mobile banking; transfers from bank account to M-wallet commences
June 2015	Bulk payments: salaries, wages B2P e.g. sugar, tea and construction firms commence
August 2015	Cross border transfers enabled
November 2015	Statutory payments (Taxes) P2G commences
March 2016	Group wallets for SACCOs and VSLA on the mobile money platform
June 2016	International transfers enabled

August 2016	Micro loans and savings program on the mobile money platform Introduced
January 2017	Insurance service on the mobile money platform introduced
Source: Authors construction from key informant interviews with industry – January 2017	

mobile money platforms are integrated with participating banks to provide mobile savings products. Available evidence shows that individuals with mobile money accounts are 32% more likely to have some savings than those without accounts (Lwanga and Adong 2016).

Literature review

There is a growing body of literature showing that mobile-phone-based technologies play a critical role in fostering financial inclusion and growth, particularly by reducing transaction costs and time constraints (Andrianaivo and Kpodar 2011). Relatedly, previous research has suggested that mobile money can help improve the incompleteness of financial markets with implications for macroeconomic stability (Adam and Walker 2015; Weil et al. 2012). In recent years, there has been increased debate on the macroeconomic effects of the various facets of financial innovations, including mobile money. Sahay et al. (2015) examined the macroeconomic effects of financial inclusion with a special focus on economic growth, financial and economic stability, and inequality. First, they argued that financial inclusion increases economic growth—but only to a certain point, indicating that this relationship may be nonlinear. Second, they argued that unregulated credit expansion could be a basis for elevated financial risk. Lastly, they also argued that, in contrast to credit access, other forms of financial inclusion do not have adverse effects on financial stability. Research investigating the effect of mobile money on financial-sector development is scarce and inconclusive. Earlier studies have suggested that mobile money could be detrimental to the ability of banks to mobilize savings and deposits (Kamukama and Tumwine 2012). However, such findings have been challenged by, among others, Nampewo et al. (2016), who used vector error correction modeling and Granger causality analysis to show that mobile money is an important driver of the private-sector credit supply via its effect on savings and deposit mobilization. Ndirangu and Nyamongo (2015) used autoregressive distributed lag (ARDL) methods to investigate the effect of innovations in Kenya's financial sector on the stability of the money demand function. They found that the rapid pace of financial innovation during the period 1998–2013 did not distort the equilibrium of the money demand function. Nampewo and Opolot (2016) examined the impact of financial innovations on money velocity in Uganda. They were primarily interested in determining whether money velocity was still important in the inflation-targeting regime. Using a cointegrated ARDL econometric approach, they found negative and positive effects of financial innovations on the velocity of money in the short and long runs, respectively. Weil et al. (2012), focusing on the “new” phenomenon of mobile money in Kenya, were among the first to examine the

implications of innovations in the financial sector for the conduct of monetary policy. While they documented the high velocity of mobile money transactions, they found that M-Pesa velocity was not any higher than the velocity of other monetary aggregates. They concluded that the implications of mobile money for the conduct of monetary policy were at best minimal. To examine the macroeconomic effects of the rapid adoption of mobile money, Adam and Walker (2015) developed a Dynamic Stochastic General Equilibrium Model that clearly distinguished between households in rural and urban economies. In their model, mobile money serves as a remittance tool that enables urban households to

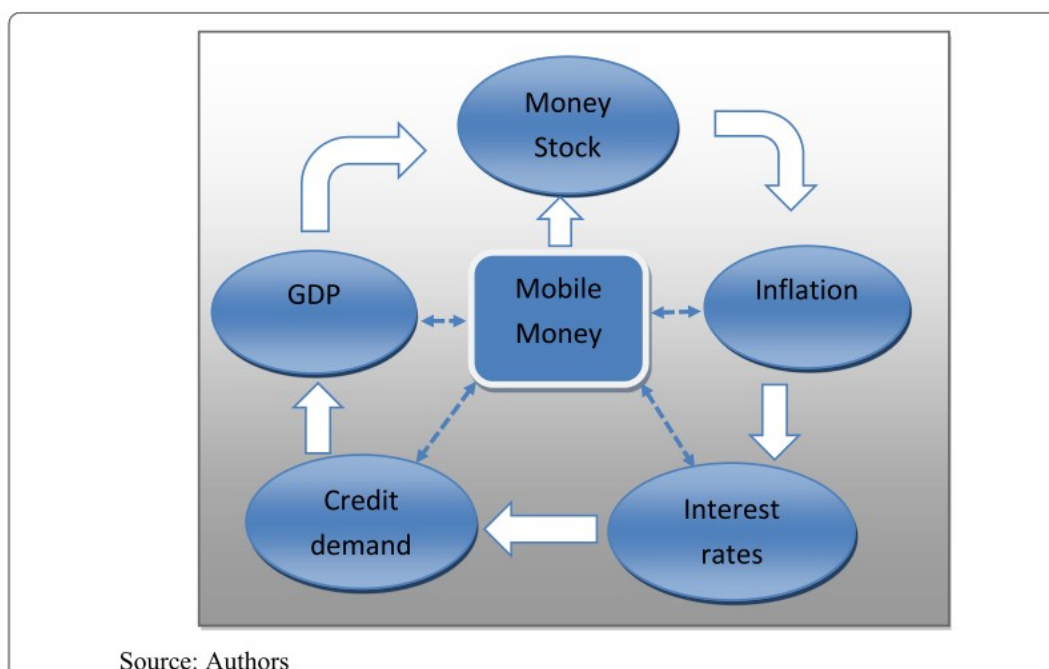
send money to their rural counterparts, thus acting as insurance against unanticipated income fluctuations. Their results showed that mobile money might not undermine the conduct of monetary policy but, rather, improve macroeconomic stability, lending support to encouraging the spread of mobile money services. There have been concerns that financial inclusion through the increased use of mobile money could lead to elevated inflationary risks. The potential impact of mobile money on inflation was first discussed by Simpasa and Gurara (2012), who argued that increased money velocity might propagate inflation, thus complicating the conduct of monetary policy. However, such claims were disputed by Aron et al. (2015), who, focusing on Uganda, developed inflation forecasting models using error correction techniques and did not find sufficient evidence to support the claim that mobile money is inflationary. A growing strand of literature has examined the implications of financial inclusion for the design of monetary policy. Mehrotra and Yetman (2015) developed a theoretical framework to examine the effects of financial inclusion on maximizing monetary policy and found a positive relationship between financially included households and the ratio of output volatility to inflation volatility. Financial inclusion could improve the effectiveness of monetary policy through its effect on financial-sector development. Opolot et al. (2015) argued that the efficacy of monetary policy and monetary policy transmission mechanisms depend on the strength of a country's "financial architecture." This implies that greater financial inclusion could improve the effectiveness of monetary policy to the extent that it improves the size, stability, and composition of the formal financial sector. Indeed, Mehrotra and Yetman (2015) argued that an increase in financial inclusion affects the effectiveness of monetary policy in two distinct ways. First, financial inclusion helps more households to smooth their consumption overtime, thus influencing basic monetary policy choices, including the target price index. Second, it encourages households to hold more noncash financial assets.

Analytical framework

Drawing on the literature, we developed a framework that aimed to link mobile money with macroeconomic indicators, including money stock, inflation, interest rates, private-sector credit, and aggregate economic activity. Figure 2 shows the analytical framework. Below, we map out the potential linkages between mobile money and these macroeconomic indicators.

Mobile money and money stock

There are two competing views regarding the likely impact of mobile money on money stock. The first view contends that financially excluded people might accumulate savings in the form of nonfinancial assets such as land, livestock, and jewelry (Mehrotra and Yetman 2015). For many households, mobile money could present opportunities to substitute such nonfinancial assets for electronic money, thus increasing the demand for broad money. Under such circumstances, we would expect mobile money to be positively associated with monetary aggregates. The second view contends that financial innovations might reduce the demand for money owing to improvements in transaction efficiency (Ndirangu and Nyamongo 2015). In particular, mobile money could



Source: Authors

Fig. 2 Analytical framework

reduce the transaction demand for money if it reduces the transaction costs and risks involved in dealing with cash, such as travel (to the bank), waiting times, and the risk of exposure to losses (e.g., via theft).

Mobile money and inflation

With regard to the potential relationship between mobile money and inflation, there are two alternative views. Mobile money could prove to be inflationary if it affects the velocity of money circulation without necessarily improving the levels of aggregate output. This is the view propagated by, among others,

Simpasa and Gurara (2012). However, there could also be countervailing effects where mobile money improves productivity and economic efficiency, leading to lower transaction costs, higher output, and consequently a lower or nonexistent effect on inflation (Aron et al. 2015).

Mobile money, interest rates, credit, and aggregate output

Mobile money could affect interest rates through its effect on money demand and the supply of private-sector credit. If mobile money leads to an increase in money demand and inflation, then monetary authorities might respond by pursuing tight monetary policies leading to high interest rates. In addition, mobile money can affect private-sector credit. Essentially, mobile money deposits held in financial institutions' escrow accounts can be turned into loanable funds by financial institutions. Indeed, Nampewo et al. (2016) found that mobile money had emerged as an important determinant of private-sector credit growth in Uganda through its crucial role in savings and deposit mobilization. Finally, if mobile money leads to economic efficiency through reduced transaction costs, better resource allocation, and credit, then it follows that aggregate economic activity will be supported. In this regard, there is emerging evidence linking mobile money use to increased firm-level investments (Islam et al. 2017), agricultural

and labor-market efficiency (Aker and Mbiti 2010; Sekabira and Qaim 2017), risk sharing (Mawejje, 2019; Riley 2018), and financial-sector development (Munyegera and Matsumoto 2018). These effects will likely have positive implications for growth (Andrianaivo and Kpodar 2011).

Data and methods

Data

We used monthly data spanning a period of 90 months between March 2009 and August 2016. This period is important because it relates to the introduction of mobile money services in Uganda. The data were collected from the Bank of Uganda and the Uganda Bureau of Statistics. In particular, this study used the natural logarithm of mobile money balances (LMMB), the natural logarithm of money stock (LM2), the natural logarithm of consumer price index (LCPI), treasury bill rates (TBR), the natural logarithm of private-sector credit demand (LPSC), and aggregate economic activity. The Uganda Bureau of Statistics only compiles quarterly GDP data. We therefore used the natural logarithm of the composite index of economic activity (LCIEA) as a proxy for real economic activity. The CIEA is highly correlated with quarterly GDP and is a useful leading indicator for the short-term analysis and forecasting of economic activity (Anguyo 2011). Ideally, we should have used the central bank rate (CBR) as an indicator of monetary policy changes. However, the CBR was only introduced in June 2011, and using it would have led

to a significant loss of data points and degrees of freedom. We thus used the 91-day treasury bill rate, which is available on a monthly basis and is well correlated with the CBR. Table 2 provides the descriptive statistics of the data. Before proceeding with the analysis, it was important to establish the time-series properties of the data. We employed the Dickey-Fuller Generalized Least Squares (DFGLS) procedure of Elliott et al. (1996) to test for unit roots in the data-generating process. The DFGLS procedure was preferred because of its power and superior performance, especially with relatively small samples. In carrying out the unit root tests, we considered both trends and intercepts in the data-generating processes. The unit root test results (Table 3) showed that all variables had unit roots and therefore followed I (1) processes.

Vector error-correction methods

We used vector error-correction methods to investigate the dynamic linkages between mobile money balances and money demand. A major advantage of using vector error correction methods is that they provide convenient ways to deal with nonstationarity in

Table 2 Descriptive statistics

Variable	Obs	Mean	Median	Std Dev	Min	Max
LMMB	90	3.887	4.193	1.731	-0.509	5.808
LMMVT	90	6.242	7.114	1.964	-0.716	8.207
LM2	90	9.024	9.060	0.269	8.437	9.417
LCPI	90	4.850	4.895	0.166	4.533	5.069
TBR	90	10.822	9.596	4.366	3.696	20.282
LPSC	90	8.894	8.980	0.356	8.176	9.367
LCIEA	90	5.066	5.086	0.132	4.847	5.285

Table 3 Stationarity tests

Variable	DFGLS Unit Root Test Statistics		Order of
			Integration
	In levels	In first differences	
LMMB	-1.065	-10.172***	I(1)
LMMVT	-0.873	-11.961***	I(1)
LM2	-1.558	-3.471***	I(1)
LCPI	-1.322	-6.322***	I(1)
TBR	-2.233	-5.451***	I(1)
LPSC	-0.505	-8.866***	I(1)
LCIEA	-2.462	-6.314***	I(1)
Notes: *** indicate significance of the Elliott–Rothenberg–Stock DFGLS test statistic at the 1% level			

data series without the loss of critical information that is inherent in data-generating processes in levels. In particular, when the variables under consideration are first-difference stationary, vector error-correction frameworks can be used in a way that avoids loss of information by modeling the linear combinations of the data in levels. Assume a k -dimensional vector autoregressive representation that can be expressed as in eq. 1) below:

$$Z_t = B(L)Z_t + \mu_t \quad (1)$$

$$Z_t = B(L)Z_t + \mu_t \quad (1)$$

where $Z_t' = Z_{1t}, Z_{2t}, \dots, Z_{kt}$ is a vector of endogenous variables; $B' = (B_1, B_2, \dots, B_p)$ represents a $k \times k$ matrix of coefficients; L is the lag operator; $\mu_t \sim \text{iid } N(0, \delta)$ is a k -dimensional vector of Gaussian errors, with $E(\mu_t) = 0$; and $t = 1, 2, \dots, T$ indexes the time periods. Equation (1) may be expressed in an error-correction formulation, combining both the levels and the first differences of the data series, as shown in Eq. (2). Importantly, the multicollinearity problem often present in time series data is reduced by this transformation:

$$\Delta Z_t = \alpha\beta'Z_{t-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta Z_{t-1} + \mu_t \quad (2)$$

$$\Delta Z_t = \alpha\beta'Z_{t-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta Z_{t-1} + \mu_t \quad (2)$$

where Z_t is a vector of endogenous variables of interest; $\alpha\beta'$ and Γ_i are the long-run and short-run coefficients to be estimated by the Johansen (1988) procedure; and $i = 1, \dots, k - 1$ represents the optimal lags included in the system computed using the appropriate lag selection criteria. If the variables in Z_t are first-difference stationary or first-order integrated (i.e., $I(1)$), then the long-run matrix $\alpha\beta'$ can be said to be of reduced rank, where α represents the adjustment parameters and β is the matrix of long-run coefficients. To obtain the long-run equilibrium, we proceeded as follows: we investigated the time-series properties of the data series. It is important that all variables are difference stationary. We then estimated a vector autoregressive (VAR) model and obtained the appropriate lag length. We tested for cointegration and determined the number of cointegrating relationships in the long-run matrices $\alpha\beta'Z_{t-1}$ following Johansen's procedure. We then estimated the unrestricted cointegrating relations in the vector error correction model to determine the equilibrium long-run relationship. Finally, we tested for model stability.

Structural vector autoregressive model

The structural vector autoregressive (SVAR) approach allows for contemporaneous feedback between variables while imposing the minimal structural restrictions on the model (Kim & Roubini 2000). In a VAR framework, all variables are endogenous, and as a reduced-form representation of a large class of structural models, an SVAR model offers both empirical predictability and a link between data and theory using the assumptions underlying the structure of the economy (Hamilton, 1994). Thus, we could formulate the structural autoregressive model as shown in Eq. (3):

$$AZ_t = \gamma + \sum_{i=1}^p A_i Z_{t-i} + B\mu_t \quad (3)$$

$$AZ_t = \gamma + \sum_{i=1}^p A_i Z_{t-i} + B\mu_t \quad (3)$$

where Z_t is an $n \times 1$ vector of endogenous variables; A and B are invertible $n \times n$ matrices capturing contemporaneous relations among the variables in vector Z_t ; γ is a vector of constants; A_i are $n \times n$ matrices of unknown parameters on lagged values of Z_t to be estimated; μ_t is an $n \times 1$ vector of uncorrelated structural innovations or shocks corresponding to each element of Z_t with covariance matrix $E[\mu_t \mu_t'] = \Sigma$ for $t = 1, 2, 3, \dots, T$; and n is the number of variables in the system. A reduced-form representation of Eq. (3), generated by multiplying through both sides of the equation by the inverse of matrix A , is shown in eq. (4):

$$Z_t = \varphi + \sum_{i=1}^p \phi_i Z_{t-i} + \varepsilon_t \quad (4)$$

$$Z_t = \varphi + \sum_{i=1}^p \phi_i Z_{t-i} + \varepsilon_t \quad (4)$$

where $\varphi = A^{-1}\gamma$; $\phi_i = A^{-1}A_i$; and $\varepsilon_t = A^{-1}B\mu_t$. In the formulation given in Eq. (3), structural shocks are orthogonal to each other. We used the Cholesky decomposition of the variance-covariance matrix of the reduced VAR residuals, Σ , to generate the structural shocks. To identify A and B and thus generate impulse response functions, at least $2n^2 - n(n+1)/2$ additional restrictions are required in addition to n normalization restrictions for the system to be just identified (Lutkepohl 2005). We adopted a recursive identifying structure whereby a priori restrictions were imposed on contemporaneous interactions among Z_t variables to identify the coefficient matrix A . Thereafter, the dynamic impact of μ_t could be traced on the path of any element in Z . In this specification, mobile money balances (LMMB), money stock (LM2),

consumer price index (LCPI), treasury bill rates (TBR), private-sector credit demand (LPSC), and aggregate economic activity (LGDP) were entered as endogenous variables. All variables, except treasury bill rates, were expressed in natural logarithms. The order of the variables is important in an SVAR model because it defines the transmission of structural shocks in a way that mimics economic theory. Following our analytical framework, we assumed that mobile money balances are only affected by own innovations; money stock is only affected by mobile money; the consumer price

index is affected by money stock and mobile money; treasury bill rates are influenced by the consumer price index, money stock, and mobile money; private-sector credit is influenced by treasury bill rates, consumer price index, money stock, and mobile money; and GDP is affected by all endogenous variables included in the model. The ordering of the variables is expressed in the following system of equations:

$$\varepsilon_t^{LMMB} = \mu_t^{LMMB} \quad (5)$$

$$\varepsilon_t^{LMMB} = \mu_t^{LMMB} \quad (5)$$

$$\varepsilon_t^{LM2} = a_{21}\mu_t^{LMMB} + \mu_t^{LM2} \quad (6)$$

$$\varepsilon_t^{LM2} = a_{21}\mu_t^{LMMB} + \mu_t^{LM2} \quad (6)$$

$$\varepsilon_t^{LCPI} = a_{31}\mu_t^{LMMB} + a_{32}\mu_t^{LM2} + \mu_t^{LCPI} \quad (7)$$

$$\varepsilon_t^{LCPI} = a_{31}\mu_t^{LMMB} + a_{32}\mu_t^{LM2} + \mu_t^{LCPI} \quad (7)$$

$$\varepsilon_t^{TB91} = a_{41}\mu_t^{LMMB} + a_{42}\mu_t^{LM2} + a_{43}\mu_t^{LCPI} + \mu_t^{TB91} \quad (8)$$

$$\varepsilon_t^{TB91} = a_{41}\mu_t^{LMMB} + a_{42}\mu_t^{LM2} + a_{43}\mu_t^{LCPI} + \mu_t^{TB91} \quad (8)$$

$$\varepsilon_t^{LPSC} = a_{51}\mu_t^{LMMB} + a_{52}\mu_t^{LM2} + a_{53}\mu_t^{LCPI} + a_{54}\mu_t^{TB91} + \mu_t^{LPSC} \quad (9)$$

$$\varepsilon_t^{LPSC} = a_{51}\mu_t^{LMMB} + a_{52}\mu_t^{LM2} + a_{53}\mu_t^{LCPI} + a_{54}\mu_t^{TB91} + \mu_t^{LPSC} \quad (9)$$

$$\varepsilon_t^{LCIEA} = a_{61}\mu_t^{LMMB} + a_{62}\mu_t^{LM2} + a_{63}\mu_t^{LCPI} + a_{64}\mu_t^{TB91} + a_{65}\mu_t^{LPSC} + \mu_t^{LCIEA} \quad (10)$$

$$\varepsilon_t^{LCIEA} = a_{61}\mu_t^{LMMB} + a_{62}\mu_t^{LM2} + a_{63}\mu_t^{LCPI} + a_{64}\mu_t^{TBR} + a_{65}\mu_t^{LPSC} + \mu_t^{LCIEA} \quad (10)$$

Results and discussion

Mobile money demand functions

In estimating mobile money demand functions, we proceeded as follows. First, we estimated the traditional Keynesian representation that only includes three variables: the natural logarithm of real mobile money balances (LRMMB), the natural logarithm of the composite index of economic activity (LCIEA), and treasury bill rates (TBR). We then reestimated the model using the real mobile money value of transactions/transfers (LRMMVT). In estimating these functions, we applied one lag for each variable as indicated by the Schwartz information criterion, as shown in Table 4. The Hannan-Quinn information criterion indicated an optimal lag length of two, and LR, FPE, and AIC all indicated lag lengths of eight; however, we did not use them because of issues with degrees of freedom given the relatively small sample we had to work with. The Johansen cointegration procedure indicated that there was at least one cointegrating relationship that explained an equilibrium long-run relationship in the money demand equation (Table 5). In particular, the maximum eigenvalue was greater than the associated critical value, suggesting that the null hypothesis of “no cointegration” is rejected in favor of the alternative hypothesis for one rank at the 1% level of significance. Taking the Keynes (1936) postulation as a starting point for our analysis, we estimated the demand for real mobile money balances (LRMMB) as a function of the composite index of economic activity (LCIEA) and the opportunity cost of holding money, taking the treasury bill rate (TBR) as the policy instrument, such that

Table 4 Lag length selection in the money demand function

Lag	LogL		LR		FPE	AIC	SC	HQ
0	-42.650		NA		0.001	1.113	1.201	1.148
1	304.511		660.453		0.60e-07	-7.134	-6.782*	-6.993
2	319.476		27.374		1.39e-07	-7.279	-6.663	-7.032*
3	329.425		17.472		1.36e-07	-7.303	-6.422	-6.949
4	341.078		19.610		1.28e-07	-7.367	-6.223	-6.908
5	344.111		4.882		1.49e-07	-7.222	-5.813	-6.656
6	359.556		23.733		1.28e-07	-7.379	-5.706	-6.707
7	365.336		8.457		1.41e-07	-7.301	-5.363	-6.523
8	380.123		20.557*		1.25e-07*	-7.442*	-5.240	-6.558
Note: * Lag order selected by								

the criterion at 5% level								
LRMMBt = f TBRt; LCIEAt		δ		β				$\delta 11\beta$

where $f TBR' < 0$ and $f LCIEA' > 0$ imply that real mobile money demand was reduced in the policy (interest) rates and increased in economic activity. We then examined the long-run transaction demand for mobile money. The idea was to examine how mobile money is related to aggregate economic activity and interest rates, and not necessarily to arrive at the true mobile money demand function for Uganda. Consequently, the mobile money transaction demand function we estimated took the following form:

$$LRMMVT_t = f(TBR_t, LCIEA_t) \quad (12)$$

$$LRMMVT_t = f(TBR_t, LCIEA_t) \quad (12)$$

Table 6 presents the results for the long-run mobile money demand functions. Panel

(1) shows the demand function for mobile money balances (savings), and panel (2) presents the demand function for mobile money transactions (transfers). The results indicated that, as expected, both real mobile money balances and the volume of transactions were negatively affected by interest rates and positively associated with economic activity. Importantly, the coefficient of the natural logarithm of the composite index of economic activity was larger in the mobile money transactions model, signifying that shocks to economic activity had larger corresponding effects on mobile money transactions than on mobile money balances. The error correction terms for the two models in Table 6, -0.059 and -0.099 , are statistically different from zero, implying that 6% and 10%, respectively, of disequilibria in the long-run relationships in panels (1) and (2) were corrected in the following time period. The inverse roots of the characteristic polynomial indicated that both models were stable, seeing that all roots located within the unit circle. Further diagnostic tests revealed that the models were well specified and suffered no autocorrelation.

Macroeconomic effects of mobile money

To evaluate the short-term macroeconomic effects of mobile money, we estimated the SVAR model presented in section 4.3. In the SVAR, we included a selection of macroeconomic variables that included the natural logarithms of nominal mobile money

Table 5 Cointegration test based on the trace and max tests

H0	Trace test	Max test
$r = 0$	32.435**	17.826**

r = 1	15.166	12.256
** denotes rejection of the hypothesis at the 5% level		

balances (LMMB), money stock (LM2), consumer price index (LCPI), treasury bill rates (TBR), nominal private-sector credit (LPSC), and the composite index of economic activity (LCIEA), in that order. As discussed earlier, the SVAR identifies structural shocks in the VAR system by imposing restrictions that mimic economic theory. The SVAR we estimated assumed the variables were related in a recursive manner in the order explained above. In estimating SVAR, we applied one lag for each variable in the underlying VAR, as indicated by the Schwartz and Hannan-Quin information criteria (Table 7). While the FPE and AIC indicated a lag length of eight, and the LR indicated an optimal lag length of 7, we opted to work with a shorter lag length because of concerns about the loss of degrees of freedom and efficiency, given the relatively small sample size. The results shown in Fig. 3 show the short-run effects of mobile money on the set of macroeconomic variables. The blue lines show the reaction of a given variable due to a Cholesky one standard deviation innovation in mobile money balances. The red lines show the confidence bands around the estimated impulse. The effect of a positive mobile shock on the consumer price index is similar to that of the money stock. A one standard deviation positive shock in mobile money balances initially results in a decline in the consumer price index during the first 6 months, which thereafter gradually rises, becoming significant between the eighteenth and twenty-fourth months. While these results do not concur with Aron et al. (2015), who found modest if insignificant effects of mobile money on inflation processes, they are certainly in line with other findings showing that the macroeconomic effects of mobile money are at best modest. With regard to the effect on money stock, a one standard deviation positive shock in mobile money balances results in an increase in money stock in the first 8 months, before the effect starts to decline. However, this result is not statistically significant and projects weak mobile money effects on money demand. This result is consistent with the theory that mobile money may lead to the liquidation of nonfinancial assets, which results in a larger money stock in the short run, especially in developing countries like Uganda that are still at lower levels of financial inclusion.

Table 6 The long-run mobile money demand model

	(1)	(2)
LRMMB	1.000	
LRMMVT		1.000
LCIEA	4.367 [2.615] ***	5.495 [6.097] ***
TBR	-0.089 [-1.813]*	-0.059 [-2.304] ***
Constant	17.486	2.674
Error correction	-0.059 [-6.169] ***	-0.099 [-6.751] ***
Notes: 1. Tabulated are the coefficients, t-statistics are in square brackets. 2. Significance levels: *** = significant at the 1%		

level, * = significant at the 10% level		
---	--	--

Table 7 Lag-order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	153.512	NA	1.84e-08	-3.622	-3.475	-3.563
1	684.661	984.567	8.01e-14	-15.967	-15.086*	-15.613*
2	717.211	56.366	6.71e-14	-16.151	-14.537	-15.503
3	744.525	43.970	6.45e-14	-16.207	-13.859	-15.265
4	772.055	40.958	6.27e-14	-16.269	-13.187	-15.032
5	796.451	33.322	6.72e-14	-16.254	-12.439	-14.723
6	837.861	51.510	4.90e-14	-16.655	-12.105	-14.828
7	893.755	62.710*	2.61e-14	-17.408	-12.125	-15.287
8	927.189	33.433	2.52e-14*	-17.614*	-11.597	-15.198

According to Simpasa and Gurara (2012), who first discussed the possible inflationary effects of mobile money, the inflationary effect is probable if, as evidenced by our results, mobile money does not lead to an improvement in economic activity (GDP). If mobile money greatly serves to facilitate transactions, and not the creation of added value, then it might serve to increase money velocity, as discussed by Nampewo and Opolot (2016). A positive shock in mobile money is associated with a reduction in treasury bill rates. A one standard deviation positive shock in mobile money balances results in a decline in the treasury bill rates within the first 4 months. However, this effect is modest and not statistically significant. The effect of a positive mobile money shock on private-sector credit is positive and statistically significant between the third and thirteenth months. The impact of a mobile money shock on private-sector credit is at its maximum during the twelfth month. These findings are consistent with Nampewo et al. (2016), who found that mobile money was associated with the supply of credit by commercial banks. Indeed, this finding is also consistent with the negative impact of mobile money on treasury bill rates. To corroborate the findings, we reestimated the SVAR using the natural logarithm of the value of mobile money transactions/transfers. The results shown in Fig. 4 were largely unchanged, aside from larger and statistically significant effects on money demand, interest rates, and the index of economic activity. This indicates that the transactional value of mobile money has stronger macroeconomic effects than its savings value.

Mobile money and the conduct of monetary policy

With regard to the implications of mobile money for the conduct of monetary policy, we evaluated the responses of mobile money balances and other key macroeconomic variables to policy rate shocks. The results presented in Fig. 5 show that mobile money balances respond to changes in the policy rate. Specifically, a one standard deviation positive shock in the monetary policy rate results in a decline in

mobile money balances. The impact of treasury bill rates on mobile money balances reaches its maximum between the twelfth and fourteenth months. These findings alleviate any fears that the development of mobile money technologies might weaken monetary policy transmission mechanisms. Indeed, these results are consistent with Adam and Walker (2015), who used DSGE

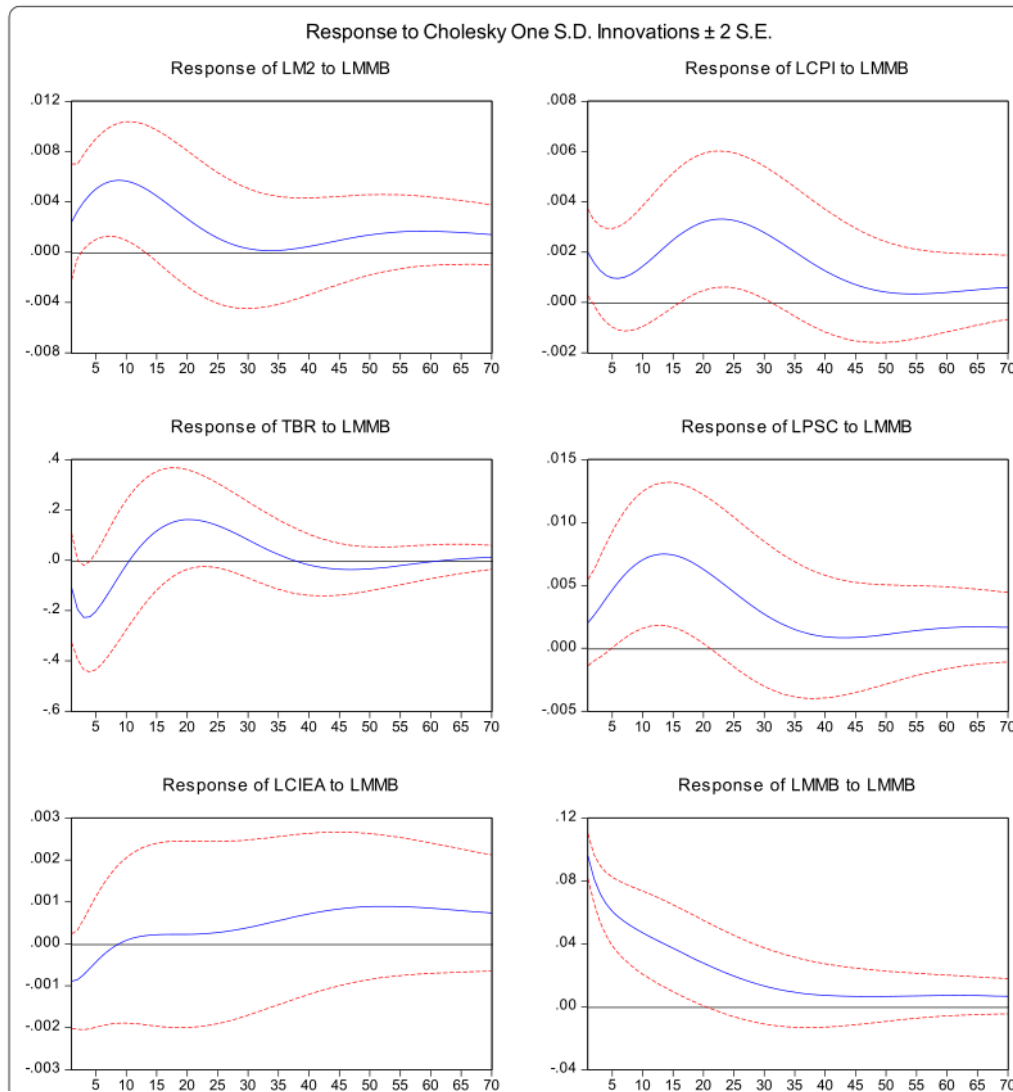


Fig. 3 The macroeconomic impacts of mobile money balances

methods to show that mobile money technology does not undermine monetary policy transmission but, instead, increases macroeconomic stability. Again, as in the previous subsection, we reestimated the SVAR model using the logarithm of the value of mobile money transactions to examine the differentiated implications for the conduct of monetary policy. The results shown in Fig. 6 were largely unchanged,

except that mobile money transactions were not statistically significantly responsive to shocks in the policy rate. This implies that improvements in the conduct of monetary policy are stronger for “savings” as opposed to “transactions” in mobile money motives. The effect of treasury bill rate shocks on the rest of the macroeconomic variables conformed to a priori expectations. A one standard deviation shock in treasury bill rates results in a decline in the demand for money, and the effect is statistically significant within 18 months after the shock. High interest rates incentivize economic agents to substitute liquid assets for financial assets, thus reducing the demand for money. This is consistent with the Keynes (1936) postulation regarding the money demand function.

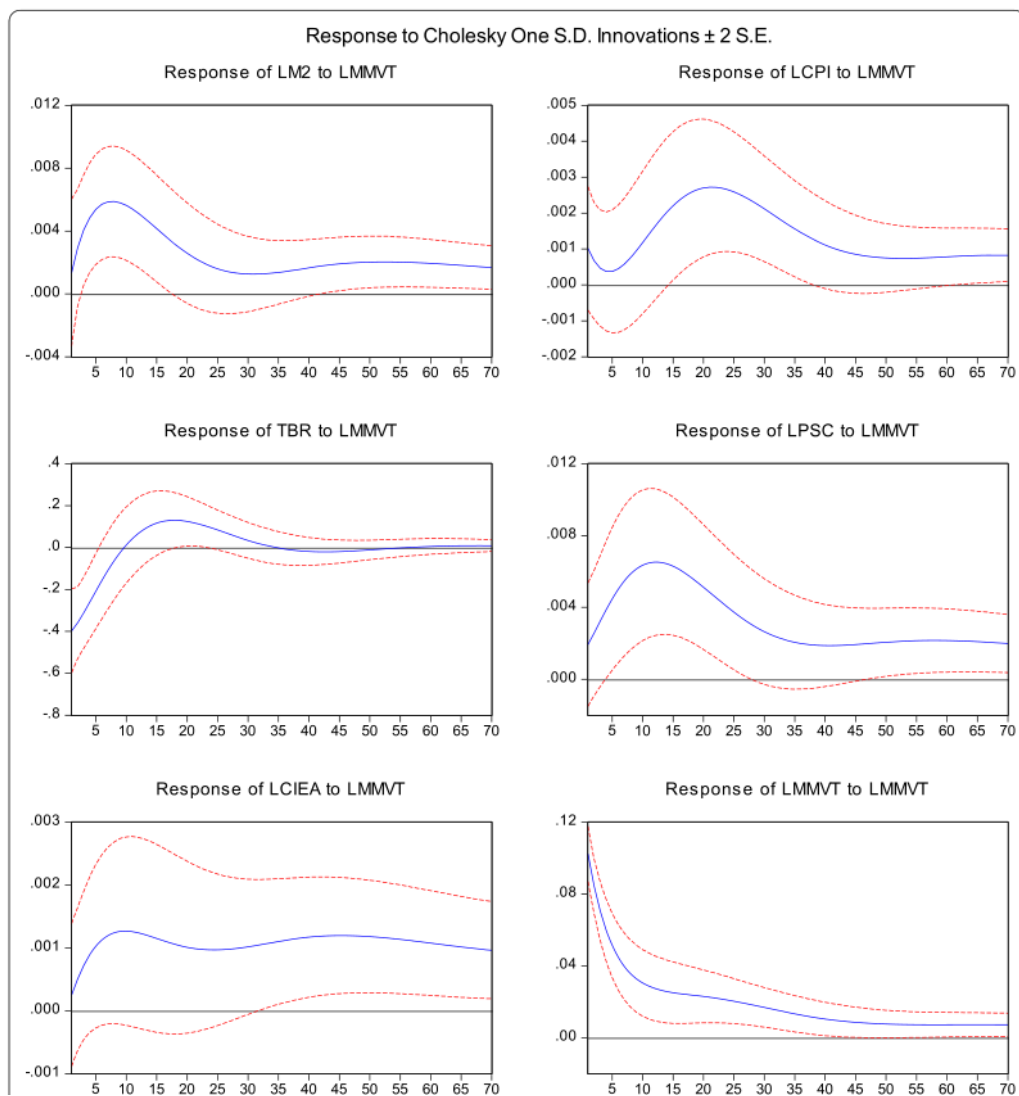


Fig. 4 Macroeconomic effects of mobile money transactions

An increase in treasury bill rates initially results in an increase in consumer price, albeit insignificantly, within the first 6 months before the CPI starts to decline significantly. The maximum impact of a monetary policy shock on the CPI is realized within 21 months, before becoming insignificant within 34 months. This finding suggests that monetary policy effects on inflation take time to reach their full effects. A positive shock in treasury bill rates affects GDP and private-sector credit. The impact of a treasury bill shock on private-sector credit is at its maximum eighteen months after the shock. Likewise, the effect of a shock in treasury bill rates on gross domestic product is at its maximum sixteen months after the shock. These results are consistent with Nampewo et al. (2016), who found that interest rate shocks affected aggregate production, with potential implications for the demand for private-sector credit.

Conclusion and policy options

Access to quality and affordable financial products remains a key challenge in the growth and competitiveness of Uganda's economy. Developing innovative financial products, including those on mobile platforms, has been at the forefront of improving

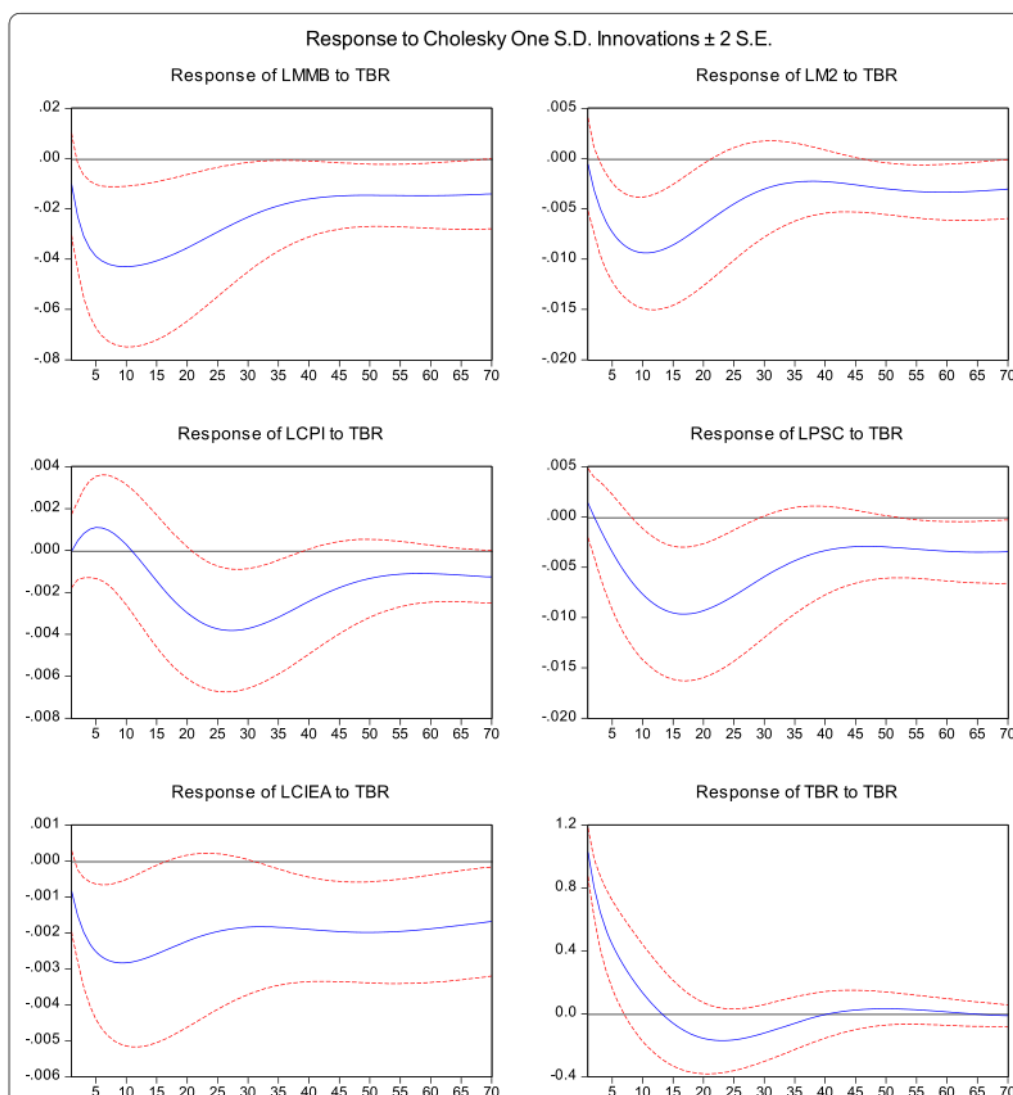


Fig. 5 Mobile money balances and the conduct of monetary policy

financial inclusion outcomes across a number of African countries. Uganda is one of the countries where access to and the use of mobile money have expanded rapidly in recent years. Despite the known benefits of mobile money with regard to easing commerce, savings, and risk management, there are concerns that it might undermine financial-sector stability and alter the landscape for the conduct of monetary policy. This study set out to examine the macroeconomic impacts of mobile money. In particular, we investigated the responsiveness of key macroeconomic variables (e.g., interest rates, money stock, the consumer price index, and private-sector credit) to changes in mobile money balances. An important aspect of this study is the consideration of the implications of mobile money for the conduct of monetary policy. In particular, we wanted to know if mobile money balances respond to short-term changes in central bank policy rates. Our

econometric analysis was based on two separate but complementary approaches: vector error correction (VEC) and structural vector autoregressive (SVAR) methods. First, VEC methods showed that mobile money is increasing in gross economic activity and reducing in interest rates. The effect of gross economic activity is stronger for the

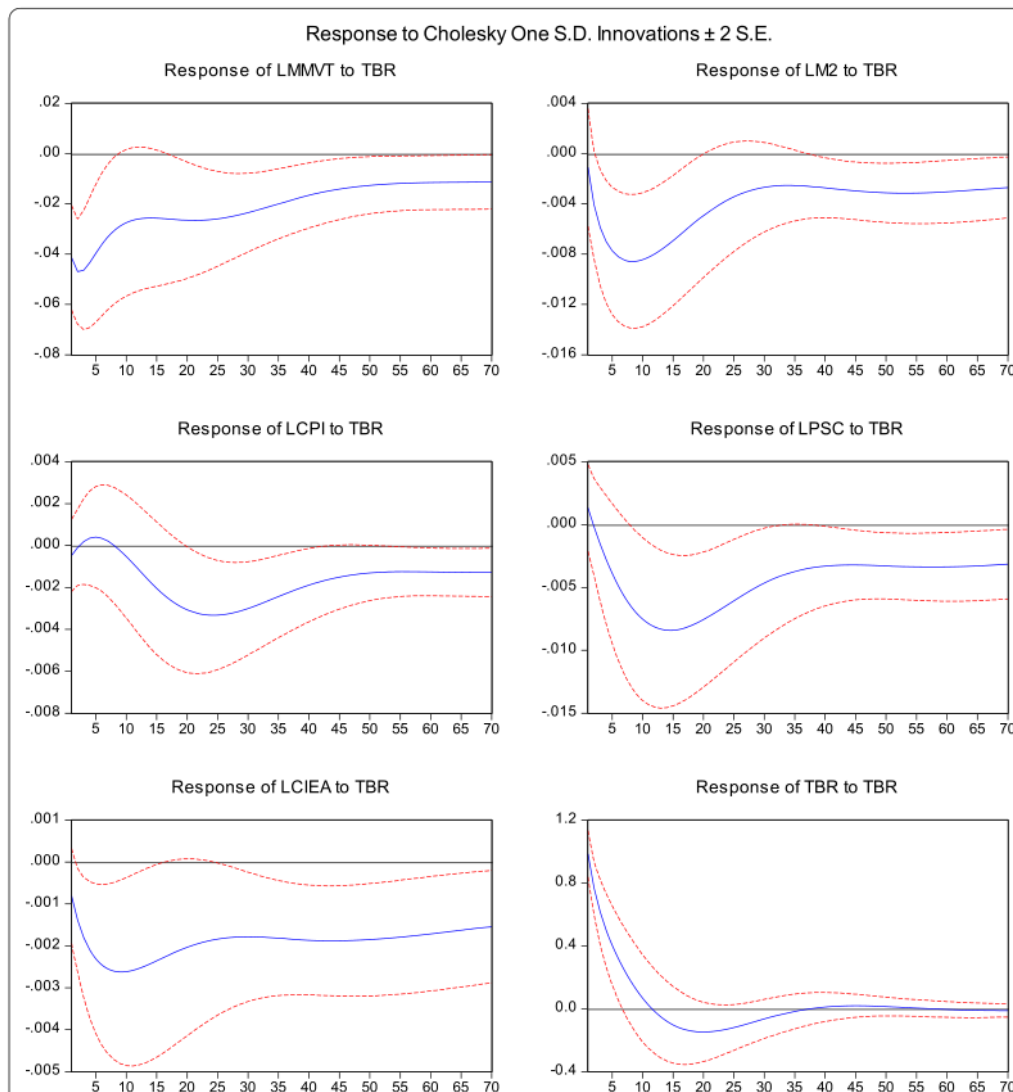


Fig. 6 Mobile money transactions and the conduct of monetary policy

transaction value of money. Second, SVAR models showed moderate short-term macroeconomic effects of mobile money. In particular, positive shocks to mobile money balances were found to be positively associated with higher consumer price indexes and private-sector credit. The effect on other macroeconomic variables was invariably modest. However, shocks to mobile money transfers exhibited

larger effects on money demand and gross economic activity. In addition, the ameliorating effects of mobile money in the conduct of monetary policy were stronger for “savings” as opposed to “transaction” mobile money motives. These results suggest that 1) mobile money has helped households to substitute liquid and other lumpy assets for financial assets, 2) mobile money has modest macroeconomic impacts, and 3) mobile money has the potential to improve the effectiveness of the conduct of monetary policy. These results provide additional evidence for policy makers to continue supporting the growth of mobile money platforms. In particular, policy makers should provide a policy and regulatory framework through which mobile money balances can become interest-bearing assets. This will further strengthen the monetary policy transmission mechanism because economic agents will be able to

more directly respond to changes in the policy rate. Exploring mechanisms through which mobile money can more ably contribute to growth is an important area for further investigation. These results, however, should be interpreted with caution given the relatively short time span of the analysis. In addition, given that mobile money adoption is still developing at breakneck speed, there could be nonlinearities that might mask its full effects. Finally, ongoing innovations in mobile money markets—such as the introduction of microcredit facilities—might alter the established macroeconomic consequences of mobile money.

Abbreviations ARDL: Autoregressive Distributed Lag; B2P: Business-to-Person; CBR: Central Bank Rate; CIEA: Composite Index of Economic Activity; CPI: Consumer Price Index; DFGLS: Dickey-Fuller Generalised Least Squares; G2P: Government-to-Person; GDP: Gross Domestic Product; MMB: Mobile Money Balances; MMS: Mobile Money Service; MMVT: Mobile Money Value of Transactions; MNO: Mobile Network Operator; P2G: Person-to-Government; P2P: Person-to-Person; PSC: Private Sector Credit; SACCO: Savings and Credit Cooperative; SFI: Supervised Financial Institution; SVAR: Structural Vector Autoregressive; TBR: Treasury Bill Rate; UGX: Uganda Shillings; USD: United States Dollars; VAR: Vector Autoregressive; VEC: Vector Error Correction; VSLA: Village Savings and Loan Association

Acknowledgements

This study benefited from insightful discussions and comments from colleagues at the Economic Policy Research Centre, Makerere University, and three anonymous peer reviewers. All errors are omissions are ours.

Authors' contributions

JM conceptualized the study, contributed the data analysis and parts of the literature review. PL contributed the background, parts of the literature review, and refined the draft paper. All authors read and approved the final manuscript.

Funding

This research did not benefit from any funding body.

Availability of data and materials

All data used in the study are available from the Bank of Uganda at: https://www.bou.or.ug/bou/rates_statistics/statistics.html

Competing interests

The authors declare that they have no competing interests.

Author details

¹The World Bank, Juba, South Sudan. ²Economic Policy Research Centre, Makerere University, Kampala, Uganda.

Received: 20 October 2017 Accepted: 26 May 2019

References

- Adam C and Walker SEJ (2015) Mobile money and monetary policy in east African countries, University of Oxford. Oxford: United Kingdom
- Aker JC, Mbiti IM (2010) Mobile phones and economic development in Africa. *J Econ Perspect* 24(3):207–232
- Andrianaivo M, Kpodar K (2011) ICT, financial inclusion, and growth: evidence from African countries, IMF working paper WP/ 11/73. International Monetary Fund, Washington DC
- Anguyo FL (2011) A model to estimate a composite indicator of economic activity (CIEA) for Uganda. Working Paper BOUWP/11/11. Bank of Uganda, Kampala
- Aron J, Muellbauer J, and Sebudde R (2015) Inflation forecasting models for Uganda: is mobile money relevant? CSAE Working Paper WPS/2015-17. Centre for the Study of African Economies: University of Oxford
- Bank of Uganda (2015) Annual Supervision Report 2015/2016", Issue No. 6, Bank of Uganda: Kampala

Bank of Uganda (2016) Annual Report 2015/2016. Bank of Uganda, Kampala

Chibba M (2009) Financial inclusion, poverty reduction and the millennium development goals. *Eur J Dev Res* 21(2):213–230

Elliot G, Rothernberg TJ and Stock JH (1996) Efficient tests for an autoregressive unit root. *Econometrica*, 64(4):813–836.

EPRC (2013) Uganda 2013 FinScope III Survey Report: Unlocking Barriers to Financial Inclusion. Economic Policy Research Centre, Kampala

Evans DS, Pirchio A (2014) An empirical examination of why mobile money schemes ignite in some developing countries but flounder in most. *Rev Netw Econ* 13(4):397–451

Hamilton JD (1994) Time series analysis. Princeton university press, Princeton

Islam A, Muzi S, Meza JLR (2017) Does mobile money use increase firms' investment? Evidence from Enterprise surveys in Kenya, Uganda, and Tanzania. *Small Bus Econ*. <https://doi.org/10.1007/s11187-017-9951-x>

Johansen S (1988) Statistical analysis of cointegration vectors. *J Econ Dyn Control* 12:231–254

Kamukama N, Tumwine S (2012) Mobile money services: a liquidity threat to Uganda's commercial banks. *African Journal of Accounting, Economics, Finance and Banking Research* 8(8):33–46

Keynes JM (1936) The general theory of employment, interest and money. Brace and company, Harcourt: New York, NY

Kim S, Roubini N (2000) Exchange rate anomalies in the industrial countries: a solution with a structural VAR approach. *J Monet Econ* 45(3):561–586

Lutkepohl H (2005) New introduction to multiple time series analysis. Springer: Berlin, Heidelberg, New York

Lwanga MM, Adong A (2016) A pathway to financial inclusion: mobile money and household saving behavior in Uganda, Research Series No. 127. Economic Policy Research Centre, Kampala

Maweje J (2019) Financial inclusion, shocks and coping strategies: survey evidence from Uganda. *Afr J Econ Manag Stud*. <https://doi.org/10.1108/AJEMS-10-2018-0325>

- Mehrotra, A. and Yetman A. (2015) Financial inclusion – issues for central banks. BIS quarterly review. Bank for International Settlements: Basel
- Munyegera GK, Matsumoto T (2018) ICT for financial access: Mobile money and the financial behaviour of rural households in Uganda. *Rev Dev Econ* 22(1):45–66
- Nampewo D, Opolot J (2016) Financial innovations and money velocity in Uganda. *Afr Dev Rev* 28(4):371–382
- Nampewo D, Tinyinondi GA, Kawooya DR, Ssonko GW (2016) Determinants of private sector credit in Uganda: the role of mobile money. *Financial Innovation* 2(13):1–16
- Ndirangu L, Nyamongo EM (2015) Financial innovations and their implications for monetary policy in Kenya. *J Afr Econ* 24(AERC Supplement 1):i46–i71
- Opolot J, Nampewo D, Ntumwa CA, Nyanzi S (2015) Financial Architecture and the Monetary Policy Transmission Mechanism in Uganda. Working Paper 02/2013. Bank of Uganda, Kampala
- Riley E (2018) Mobile money and risk sharing against village shocks. *J Dev Econ* 135:43–58
- Sahay R, Čihák M N'Diaye P, Barajas A, Mitra S, Kyobe A, Mooi YN, and Yousefi SR (2015) Financial inclusion: can it meet multiple macroeconomic goals? IMF staff discussion note SDN/15/17. International Monetary Fund: Washington, DC
- Sekabira H, Qaim M (2017) Mobile money, agricultural marketing, and off-farm income in Uganda. *Agric Econ* 48(5):597–611
- Simpasa A, Gurara D (2012) Inflation Dynamics in selected East African countries: Ethiopia, Kenya, Tanzania and Uganda. AFDB Brief 2012. African Development Bank, Abidjan
- Ssonko GW (2011) Status of mobile money services in Uganda: an exploratory study. Working paper 08/11. Bank of Uganda, Kampala
- Tumusiime-Mutebile E (2015) Mobile Money and the Economy, Opening Remarks by Prof. Emmanuel Tumusiime-Mutebile Governor, Bank of Uganda at workshop on the Economics of Mobile Money. International Growth Centre, Kampala
- Weil D, Mbiti I and Mwega F (2012) The implications of innovations in the financial sector on the conduct of monetary policy in East Africa, Working Paper 12/0460. International Growth Centre

World Bank (2017). Step by step: Let's solve the finance puzzle to accelerate growth and shared prosperity.
Uganda Economic Update, Eighth Edition: Washington DC

Publisher's Note

Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

Mobile Money Use: The Impact of Macroeconomic Policy and Regulation

Lorna Katusiime

Economic Research Department, Bank of Uganda, Kampala 7120, Uganda

Economies 2021, 9(2), 51; <https://doi.org/10.3390/economies9020051>

More formats ▼

Version Notes

Order Reprints

Abstract

This paper examines the effects of macroeconomic policy and regulatory environment on mobile money usage. Specifically, we develop an autoregressive distributed lag model to investigate the effect of key macroeconomic variables and mobile money tax on mobile money usage in Uganda. Using monthly data spanning the period March 2009 to September 2020, we find that in the short run, mobile money usage is positively affected by inflation while financial innovation, exchange rate, interest rates and mobile money tax negatively affect mobile money usage in Uganda. In the long run, mobile money usage is positively affected by economic activity, inflation and the COVID-19 pandemic crisis while mobile money customer balances, interest rate, exchange rate, financial innovation and mobile money tax negatively affect mobile money usage.

Keywords: [mobile money usage](#); [mobile money tax](#); [mobile money customer balances](#); [mobile money registration](#); [economic activity](#); [inflation](#); [interest rate](#); [exchange rate](#); [financial innovation](#); [COVID-19 pandemic crisis](#)

JEL Classification: E4; E5; E42; G20; G21; G28; G29; O23

REPRINT

Katusiime, L. (2021) 'Mobile money use: the impact of macroeconomic policy and regulation', *Economies*, 9(2), 51. <https://doi.org/10.3390/economies9020051>

Open access under the Creative Commons Attribution 4.0 licence. The figures and tables are taken from the MDPI file so that none of them is left out.

Citation: Katusiime, Lorna. 2021. *Mobile Money Use: The Impact of Macroeconomic Policy and Regulation*. *Economies* 9: 51. <https://doi.org/10.3390/economies9020051> Academic Editor: Joydeep Bhattacharya Received: 2 February 2021 Accepted: 23 March 2021 Published: 7 April 2021 Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations. Copyright: © 2021 by the author. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Article

Mobile Money Use: The Impact of Macroeconomic Policy and Regulation

Lorna Katusiime

Economic Research Department, Bank of Uganda, Kampala 7120, Uganda; c3153227@uon.edu.au

Abstract: This paper examines the effects of macroeconomic policy and regulatory environment on mobile money usage. Specifically, we develop an autoregressive distributed lag model to investigate the effect of key macroeconomic variables and mobile money tax on mobile money usage in Uganda. Using monthly data spanning the period March 2009 to September 2020, we find that in the short run, mobile money usage is positively affected by inflation while financial innovation, exchange rate, interest rates and mobile money tax negatively affect mobile money usage in Uganda. In the long run, mobile money usage is positively affected by economic activity, inflation and the COVID-19 pandemic crisis while mobile money customer balances, interest rate, exchange rate, financial innovation and mobile money tax negatively affect mobile money usage.

Keywords: mobile money usage; mobile money tax; mobile money customer balances; mobile money registration; economic activity; inflation; interest rate; exchange rate; financial innovation; COVID-19 pandemic crisis

JEL Classification: E4; E5; E42; G20; G21; G28; G29; O23

1. Introduction

The ongoing global COVID-19 pandemic has sparked an economic crisis that could surpass the global financial crisis of 2008–2009, in part because the containment and mitigation measures aimed at limiting the spread of the virus came at the cost of reduced economic activity in many countries (Loayza and Pennings 2020). African countries have been more severely impacted due to their limited health care capacity, larger informal sectors, shallower financial markets, and poorer governance among other things. As the pandemic ravages on, governments are forced to develop appropriate policy responses that address the unintended negative economic consequences related to the COVID-19 pandemic. While mobile money services were already facilitating financial inclusion in Africa before onset of the pandemic, policy makers put in place measures that support the widespread use of mobile money services as an effective tool for moving money within African countries under restrictions, particularly during the COVID-19 pandemic

(Chadha et al. 2020). The advent of mobile money transformed the landscape of financial inclusion in developing countries, giving access to essential financial services for the vulnerable and poor who constitute a large segment of the population. For instance, in Africa, the continent where financial exclusion is a serious impediment to development, mobile money technology has 26 times the reach of ATMs and 58 times the reach of bank branches (Ahmad et al. 2020). This is because unlike conventional banking and financial services, mobile network operators (MNOs) have networks that reach further and deeper into rural areas historically marginalised. It is thus not surprising that the scale of mobile money in Africa continues to grow, with more than 481 million registered mobile money accounts in 2019 (Andersson-Manjang et al. 2020). Nevertheless, harnessing the full potential of mobile money technology's ability to facilitate financial inclusion and consequently poverty reduction and development remains a challenge.

While there is a considerable and growing literature on mobile technology and its potential for promoting financial inclusion (Ahmad et al. 2020; Di Castri 2013; (Groupe Speciale Mobile Association) GSMA 2021; Maina 2018; Porteous 2006), a significant part of it is concerned with the management of mobile technology (e.g., (Davidson and McCarty 2011; Donner 2008)), rather than with formal empirical investigation of its implications, costs and benefits (Ahmad et al. 2020). Given the financial inclusion benefits of mobile money (see (Ahmad et al. 2020; Aron 2018; Demircuc-Kunt et al. 2018; Masocha and Dzomonda 2018; Mothobi and Grzybowski 2017) among others, an understanding of the effects of macroeconomic policy and regulation on mobile money usage is pertinent for developing an effective policy framework that is genuinely enabling for the growth and development of the mobile money industry. This is particularly important because access to financial services may be compromised by economic obstacles (Aron 2018). In view of the paucity of empirical evidence on the impact of macroeconomic and regulatory variables on the usage of mobile money at a national level, this study examines the effect of macroeconomic policy and mobile money tax on the use of mobile money in Uganda. Uganda is one of the countries where access to and the use of mobile money have expanded rapidly in recent years (Bank of Uganda n.d.). More specifically, the study applies the ARDL framework to investigate the effect of macroeconomic and regulatory variables, namely; economic activity, inflation, interest rate, exchange rate, financial innovation and mobile money tax on the use of mobile money in Uganda using monthly data spanning the period March 2009 to September 2020. The study also investigates the effects of mobile money registrations, mobile money customer balances and COVID-19 on mobile money usage. To the best of our knowledge, no previous empirical study has explicitly investigated the effect of macroeconomic policy variables such as economic activity, inflation rate, interest rate, and exchange rate on mobile money usage in Uganda. The rest of this paper is organised as follows: Section 2 provides an overview of the literature on macroeconomic policy and regulation in the context of mobile money use. Section 3 gives an overview of mobile money and the macroeconomic landscape in Uganda,

while Section 4 describes the methodology employed in the analyses by describing the models and estimation technique used, namely, the Autoregressive Distributed Lag (ARDL) bounds testing approach introduced by Pesaran et al. (2001). Section 5 reports and discusses the empirical results and Section 6 draws some conclusions and makes policy recommendations.

2. Macroeconomic Policy, Regulation and Mobile Money Usage: An Overview

The growing appreciation of the importance of financial inclusion for economic growth and development has moved the subject up the development agenda in recent years (Aron 2018; Demirguc-Kunt et al. 2018; Di Castri 2013; Dipasha 2016; Kim et al. 2018; Lahaye et al. 2015). Although financial inclusion remains a global challenge, recent evidence suggests that mobile money can play a vital role in promoting financial inclusion, especially in sub-Saharan Africa (Demirguc-Kunt et al. 2018; Di Castri 2013). This notwithstanding, uncertainties remain regarding the speed and nature of customer adoption and usage in the mobile money field which is relatively new albeit fast evolving especially in Africa. In a recent survey of the literature in the context of sub-Saharan Africa, Ahmad et al. (2020) find mixed evidence on mobile money's contribution to financial inclusion and economic development and conclude by highlighting issues that require further empirical investigation, key to which are the determinants of mobile money adoption and usage. This corroborates reports from mobile money service providers in Africa which highlight uncertainties over drivers of customer adoption and regulatory issues as some of the main barriers to their growth (Maina 2018; Porteous 2006). Consequently, in order for mobile money to realize its full potential in promoting financial inclusion for those who lack it, then identifying enabling policies and regulation is important to facilitate the creation of favourable conditions to scale up access and use of mobile money systems.

The regulatory and policy environment for mobile money is complex and often ill-defined since it cuts across various regulatory domains (Maina 2018; Porteous 2006). Insight into the enabling elements of policy and regulation, particularly what promotes and what hinders mobile money adoption and usage, can help policy makers, regulators and industry players in their efforts to develop robust and inclusive mobile money systems. This is particularly important because effective and appropriate policy and regulation can advance financial inclusion, integrity and stability as well as help to reduce economic inequalities while increasing employment and economic growth by increasing widespread access to and usage of mobile money services (Di Castri 2013; GSMA 2021; Maina 2018; Porteous 2006). According to the Mobile Money Regulatory Index scores, Sub-Saharan African countries with a few exceptions have broadly enacted enabling regulatory frameworks based on their higher country index scores ranging between 70 and 100, which is an indication of more enabling regulation for widespread mobile money adoption (GSMA 2019). Although macroeconomic and regulatory frameworks are important determinants of the

success of mobile money systems, empirical evidence on the effect of macroeconomic policy and regulation on mobile money usage is very sparse in Africa, constrained by, among other things, data limitations because it is a relatively new field. A substantial number of studies are survey-based, but there is a lack of consistency among surveys, across countries and over time (Ahmad et al. 2020; Aron 2018). In addition, this literature has focused on the effects of regulation on mobile money, with little work on the effects of macroeconomic policy on mobile money (see (Di Castri 2013; Maina 2018; Rulangaranga et al. 2016). For instance, Di Castri (2013) presents enabling regulatory solutions, backed by evidence and internationally recognised regulatory standards, that could be applied extensively across all markets which simply need to be adapted to the local context, leveraging local opportunities and adjusting to the peculiarities of each jurisdiction. He also argues that the mobile money industry has found it challenging to launch and scale services for the unbanked because many policy and regulatory environments are still not genuinely enabling. An enabling policy and regulatory framework creates an open and level playing field that fosters competition and innovation, attracts investments, and allows providers to focus on refining operations and promoting customer adoption while ineffective policies and cumbersome regulatory barriers have a negative effect on the development of mobile money and the expansion of financial inclusion (Di Castri 2013; Maina 2018). Similarly, Maina (2018) assembles a range of key considerations for financial regulators and other stakeholders in the mobile money industry which is meant to serve as a practical guide to regulatory best practice and a window into industry perspectives among other things, drawing on the GSMA's unique insights into the mobile sector and mobile money industry. According to this report, although there is positive momentum in several markets where mobile money is operating, particularly in achieving financial inclusion and boosting the social and economic impact of private sector investments, supporting policies and enabling regulation have not kept pace with the changes largely because mobile money services are still evolving. In addition, financial regulators are now working to strike the right balance between creating an enabling environment that supports competition and innovation in the mobile money industry, and safeguarding private sector investments. Overall, the regulatory environment for mobile money services has a strong impact on whether a provider can enter the market and sustainably provide services. One of the major areas of regulatory controversy is the taxation of Mobile money services and products. The last few years has seen the emergence of mobile money sector specific taxation across Sub-Saharan Africa largely driven by governments' need to find innovative means to widen the tax base and plug budget spending deficits (Clifford 2020; Maina 2018). Yet structural weaknesses within these environments often lead to badly designed taxes, in part due to a lack of capacity and national policy frameworks to guide at the policy level, with the result that the full impact of mobile money taxes across the whole of the tax system is not properly assessed (Clifford 2020; Maina 2018). When mobile money taxes were implemented, mobile money transaction values contracted and their

growth trajectory reduced with negative implications for wider corporate income tax (CIT) and value added tax (VAT). Given that many mobile money users belong to marginalised societal groups and the negative impact of mobile money tax on financial inclusion and broader development goals is significant (Clifford 2020; Maina 2018). The macroeconomic policy context also plays a critical role in the success of mobile money systems. A few studies investigate the impact of mobile money on macroeconomic policy variables (See for instance (Kipkemboi and Bahia 2019; Mawejje and Lakuma 2019)). However, there is a paucity of empirical studies on the impact of macroeconomic policy variables on mobile money. To the best of our knowledge, the investigation of the impact of macroeconomic policy variables on mobile money usage has not been done previously. Among the few available studies is Mahmoud (2019) who investigates the determinants of mobile money adoption and includes economic activity among the list of explanatory variables. Thus, this paper aims to bridge the knowledge gap by providing empirical evidence of the effect of macroeconomic policy variables and regulation on mobile money usage within the context of Uganda. More specifically, we investigate the effect of macroeconomic and regulatory variables, namely; economic activity, inflation, interest rate, exchange rate, financial innovation and mobile money tax as well as mobile money registrations, mobile money customer balances and COVID-19 on mobile money usage in Uganda.

3. An Overview of Mobile Money in Uganda

Like many developing countries, the financial sector in Uganda has undergone rapid transformation over the last two and half decades (Mawejje and Lakuma 2019; Whitworth and Williamson 2010). This growth has been possible due to reforms that enabled the development of market-based institutions, particularly in the financial sector. Prior to the early 1990s, Uganda operated under a system of direct controls on prices and flows of goods and capital, however in the early 1990s, following a decade of political instability and economic decline, the government began implementing macroeconomic reforms aimed at returning the economy onto a sustainable growth trajectory with assistance from international donors, including the International Monetary Fund and The World Bank (Whitworth and Williamson 2010; Wiegratz et al. 2018). The Government of Uganda also pursued prudent macroeconomic management under a framework of market-based policies with the aim of ensuring macroeconomic stability, promoting competitiveness and efficiency, increasing financial market intermediation and encouraging greater private sector participation. The impact of these reforms has been a substantial reduction in poverty and high and sustained economic growth, earning the country recognition as one of the fastest growing economies on the African continent, which in turn has exerted a strong influence on development thinking and international aid architecture in other developing countries in Africa (Whitworth and Williamson 2010; Wiegratz et al. 2018). Notwithstanding these positive developments, access to formal financial services in Uganda remains low, albeit with signs of improvement (see Figure 1). Only 29 percent of the adult population had deposit

accounts in formal regulated financial institutions in 2014 compared to nearly 43 percent as at June 2019. While various efforts have been made by both the government and its partners to sustainably improve financial inclusion which have seen payoffs, recent developments in Uganda are largely attributed to the adoption and evolution of mobile money services which helped to expand financial services to populations that were previously excluded. For instance, as shown in Figure 1, the percentage of adults with an active mobile money account was 77 as of June 2019 which exceeded 43 percent, the percentage of adults with at least one type of regulated deposit account in formal financial institutions including commercial banks, credit institutions and microfinance depositing taking institutions combined. In addition, as in June 2019, the number of mobile money agents stood at over 200,000 compared to 712 commercial bank branches with 9370 Commercial banks and Credit Institutions Agents and 956 Automated Teller Machines (ATMs).

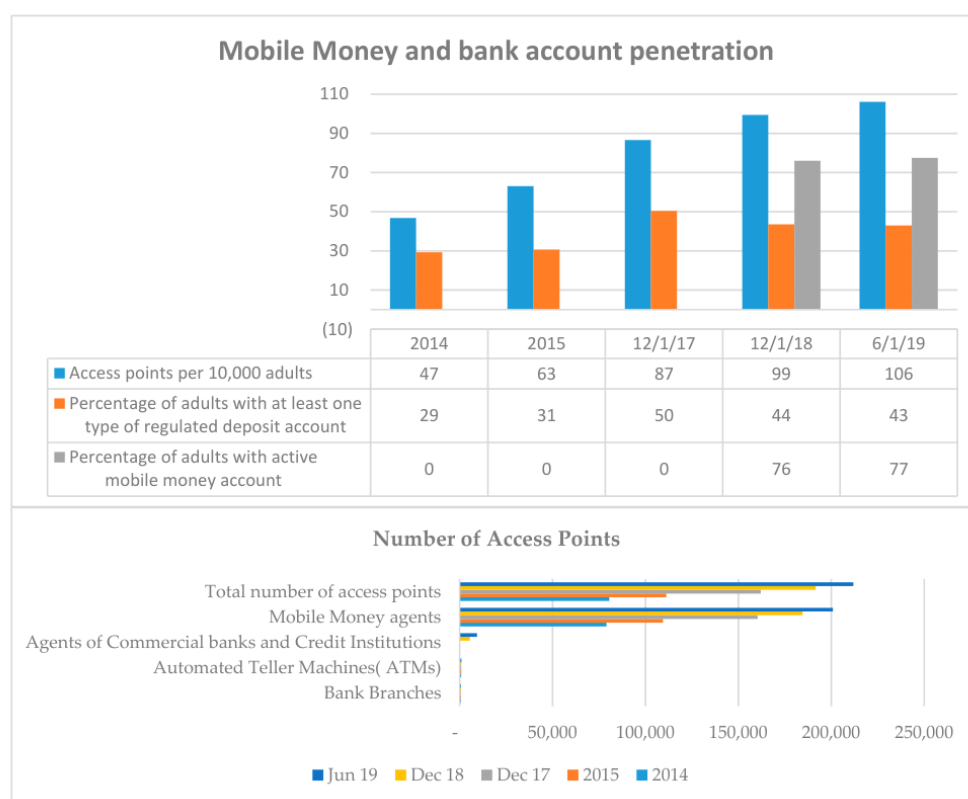


Figure 1. Indicators on the Penetration of financial services in Uganda. Source: Bank of Uganda.

Mobile money services were introduced in Uganda in March 2009 and currently, there are six mobile money schemes, namely; MTN mobile money, Airtel money, M-Sente, Ezee money, M-cash, and Africell money. These schemes are supported by five operators who collaborate closely with five regulated commercial banks whose role is largely to hold a customer's funds in escrow accounts and to release those funds on demand. The service has evolved from person-to-person transfers and storage of electronic value

to include other services, such as a way to check bank balances; pay bills, salaries, social benefits and taxes; send cross-border remittances; transfer from a bank account to a mobile wallet; purchase mobile phone airtime; extend micro-finance services and facilitate village savings and loans accounts (VSLA), amongst other services (Lwanga and Adong 2016; Mawejje and Lakuma 2017). The use of mobile money is largely regulated through legal instruments provided in the Financial Consumer Protection Guidelines 2011 and the Bank of Uganda Mobile Money Guidelines 2013. The main objective of the regulation is to protect users' funds in the mobile money platform, counter money laundering and terrorism, ensure the traceability of transactions and the auditability of escrow accounts, facilitate interoperability of data among operators, guarantee data back-up and business continuity, and arbitrate disputes between the various stakeholders (Mawejje and Lakuma 2019). The law requires mobile money operators to register with the Bank of Uganda or partner with a regulated financial institution. The rapid expansion of mobile money has attracted much interest and debate from government regulators, development agencies and academics alike seeking a greater understanding of mobile money technology and how it can be effectively and efficiently deployed in support of national objectives such as financial inclusion and poverty reduction

and economic growth. In the Ugandan context, there is an emerging body of literature evaluating the economic effects of mobile money both at the micro and macro levels. For instance, Lwanga and Adong (2016) provide a micro perspective on the impact that mobile money services have on an individual's saving behaviour. Their study finds that having a registered mobile money account increases the likelihood of saving with mobile money and conclude that overall, a low level of mobile money use as a saving mechanism may be partly explained by legal limitations that do not incorporate mobile finance services into mobile money. In addition, the absence of interest payments on mobile money savings may also act as a disincentive to save through this mechanism. Mawejje and Lakuma (2019) examine the effects of mobile money on aggregate economic activity and other macroeconomic variables and find mobile money has moderate positive effects on monetary aggregates, the consumer price index, and private sector credit. On other hand, the study finds that Mobile money deposits do respond to changes in monetary policy instruments, signalling possible ameliorating effects for the conduct of monetary policy. The study concludes that policy makers need to continue supporting the growth of mobile money platforms, particularly in developing a policy and regulatory framework through which mobile money balances can become interest-bearing assets, as this will further strengthen the monetary policy transmission mechanism.

4. Methodology

4.1. Theoretical Foundations

A growing demand for mobile money funds to facilitate increasing transactions will require a significant amount of physical currency to be moved from circulation into the banking system to back up the mobile money held in the mobile phones and as such a use of mobile money causes the currency in circulation (M0) to decrease while causing demand deposits (M1) to increase. A critical point to consider when modelling mobile money usage is the identification problem arising from the non-observability of the mobile money demand. Given that mobile money is, among other things, used as a medium of exchange to facilitate transactions which generate mobile money usage and demand, the study draws on the theoretical framework of quantity theory of money by Irvin Fisher and others (Dimand 2019) to investigate mobile money demand. We derive the demand for mobile money in accordance with Fisher's identity $MV = PT$, where PT represents the total value of transactions undertaken by mobile money and PT/V is the average transaction value of mobile money use, which is the dependent variable. Accordingly, $M = PT/V$ which is the average amount of mobile money held. The standard practice in the literature is to model the demand for real money balances as a function of a scale variable (capturing the transaction variables) and some measures of the opportunity cost of holding money, usually a short term interest rate, expected inflation, expected exchange rate depreciation or a combination of all. Accordingly, the general specification of money demand function is assumed to take the following functional form: $M_d = f(Y, INT, INF, EX)$, where M_d is demand for money, Y is income which represents

the scale variable, INT is the interest rate, INF and EX are, respectively, inflation and the exchange rate. The a priori expected signs are positive for income elasticity and negative for interest semi-elasticity and inflation elasticity. The sign of exchange rate elasticity is theoretically ambiguous. The income elasticity is expected to be either unity according to the quantity theory, or 0.5 according to the Baumol-Tobin inventory model of money demand. It can also be greater than unity if the demand for money rises at a faster rate than income due to, for instance, monetisation, limited opportunities to economise on cash balances, and the paucity of other assets in which to hold savings.

4.2. Model Specification

The effect of macroeconomic and regulatory variables on mobile money usage in Uganda is investigated using an autoregressive distributed lag (ARDL) Bounds testing approach derived by Pesaran et al. (2001). Unlike other cointegration techniques, the

ARDL approach is advantageous because it is less restrictive, applicable regardless of the orders of integration of variables and provides unbiased coefficient estimates. Specifically, the ARDL approach does not impose a restrictive assumption that all the variables under study must be integrated of the same order and can be applied regardless of whether the underlying regressors are integrated of order one I(1), order zero I(0) or mutually cointegrated (Pesaran et al. 2001). The bounds test is applicable whether variables have mixed orders of integration (Bahmani-Oskooee et al. 2010; Morley 2006) and as such the approach does not require pre-testing the order of integration of the variables, especially when the computed Wald or F-statistic falls outside the critical value bounds which eliminates the uncertainty associated with low power of unit root tests in pre-testing the order of integration (Pesaran et al. 2001). Nevertheless, it is still necessary to conduct unit root tests such that no I(2) variable is involved since the presence of an I(2) variable renders the computed F-statistics of the bounds test for testing cointegration invalid (Ibrahim 2015). In addition, the ARDL model accounts for endogeneity, providing unbiased estimates and valid t-statistics, irrespective of the endogeneity of some regressors (Harris and Sollis 2003; Pesaran and Shin 1998) and is less sensitive to sample size (Narayan 2005; Pesaran and Shin 1999). A general ARDL relationship may be specified as follows:

$$\varphi(L, p)y_t = \beta_i(L, q_i)x_{it} + \alpha'z_t + \varepsilon_t \quad (1)$$

where L is the lag operator; $\varphi(L, p) = 1 - \varphi_1L - \varphi_2L^2 - \varphi_3L^3 - \dots - \varphi_pL^p$ and $\beta_i(L, q_i) = \beta_{i0} + \beta_{i1}L + \beta_{i2}L^2 + \dots + \beta_{iq_i}L^{q_i}$ and z is a vector of deterministic variables comprising

the intercept, time trends and/or exogenous variables with fixed lags, y_t is the dependent variable, x_{it} represents explanatory variables in the cointegrating vector, p and q_i are the lag lengths, α' represents coefficient on the deterministic variables, and ε is the error term.

The error-correction representation of Equation (1) takes the following form:

$$\Delta y_t = \sum_{i=1}^k \beta_{i0} \Delta x_{it} + \alpha' \Delta z_t - \sum_{j=1}^{\hat{p}-1} \theta_j^* \Delta y_{t-j} - \sum_{i=1}^k \sum_{j=1}^{\hat{q}_i-1} \beta_{ij}^* \Delta x_{i,t-j} - \theta(1, \hat{p}) ECT_{t-1} + \varepsilon_t \quad (2)$$

where Δ is the first difference operator; the error-correction term is given by $ECT_t = p \sum_{i=1}^{\hat{p}} \theta_i x_{it} - \hat{\Psi}' z_t$ and $\theta(1, \hat{p}) = 1 - \sum_{j=1}^{\hat{p}} \theta_j$ measures the quantitative significance of the error-correction term. The coefficients θ_j^* and β_{ij}^* relate to the short-run dynamics of the model's convergence to equilibrium. The specific form of our base model for mobile money usage can be expressed as follows:

$$\Delta \ln MMA_t = \alpha_0 + \alpha_1 \Delta \ln MMA_{t-k} + \alpha_2 \Delta \ln MMB_{t-k} + \alpha_3 \Delta \ln MMR + \beta_1 \Delta \ln CIEA_{t-k} + \beta_2 \Delta \ln \Delta \ln INF_{t-k} + \beta_4 \Delta \ln TB_{t-k} + \beta_5 \Delta \ln ER_{t-k} + \beta_6 \Delta \ln FI_{t-k} + \dots$$

$$\sum_{k=0}^n \sum_{k=0}^n (3) \sum_{k=0}^n \sum_{k=0}^n n_7 n_8 + \beta_7 k \Delta \text{COVID}_t - k + \beta_8 k \Delta \text{TAX}_t - k + \gamma_0 \ln \text{MMA}_{t-1} + \gamma_1 \text{MMB}_{t-1} + \gamma_2 \text{MMR}_{t-1} + \varepsilon_t \sum_{k=0}^n \sum_{k=0}^n$$

where $\ln$ denotes natural logarithm, MMA is Mobile Money Usage, MMB is the balance on customers' mobile money accounts, MMR is number of registered mobile money users, CIEA denotes economic activity measured by the Composite Indicator of Economic Activity index, ER is natural log of the nominal Uganda Shilling per US Dollar (UGX/USD) exchange rate, INF is inflation, TB is 91-day Treasury bill interest rate, FI denotes financial innovation, COVID-19 denotes a Dummy for the COVID-19 pan-demic crisis, and TAX denotes a Dummy for Mobile Money tax. It is expected that $\alpha_2 k +$ or $-$, $\gamma_1 +$ or $-$, $\alpha_3 k +$, $\gamma_2 +$, $\alpha_4 k +$, $\alpha_5 k +$, $\alpha_8 k +$, $\alpha_9 k +$ and $\alpha_6 k -$, $\alpha_7 k -$, $\alpha_{10} k -$. These specifications provide estimations of both long run and short run effects. The short run effects are inferred from the estimates of α_{ik} , while the long run effects are inferred from γ_{ik} respectively normalised by α_0 . The test for cointegration is based on the joint F-statistic suggested by Pesaran et al. (2001). The null hypothesis of no cointegration

is tested against the alternative by restricting all estimated coefficients of lagged level variables equal to zero that is:

$$H_0 : \gamma_0 = \gamma_1 = \gamma_2 = 0 \quad (4)$$

$$H_1 : \gamma_0 \neq \gamma_1 \neq \gamma_2 \neq 0 \quad (5)$$

If the computed F-statistic lies above the upper level of the band, the null is rejected indicating co-integration while the null hypothesis cannot be rejected for values of the F-statistic that lie below the lower bound. If the F-statistic falls within the band, then inference is inconclusive. In this case, the error correction parameter can be viewed as a cointegration test (Kremers et al. 1992).

4.3. Data and Measurement of Key Variables

The study uses monthly data spanning the period March 2009 to September 2020 and consists of 139 observations. The choice of the sample period and data frequency is guided by data availability. Data on the variables of interest, namely mobile money usage (MMA), balance on customers' mobile money accounts (MMB), number of registered mobile money users (MMR), economic activity (CIEA), exchange rate (ER), inflation (INF), interest rate (TB), financial innovation (FI) was obtained from Bank of Uganda's database. Table 1 provides a summary of descriptive statistics.

Variable	Description	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
MMA	Natural Log of Average Mobile Money Transaction value	10.63	10.71	11.08	10.01	0.27	139
MMB	Balance on customers Mobile Money accounts (Billions)	234.09	228.58	814.11	0.60	208.74	139
MMR	Number of Registered Mobile Money Users (Millions)	14.85	18.70	30.37	0.01	9.66	139
CIEA	Natural Log of Composite Indicator of Economic Activity	4.66	4.68	4.97	4.23	0.21	139
INF	Natural Log of Inflation (Natural Log of Difference of the domestic consumer price index)	6.20	4.70	21.80	0.26	4.88	139
TB	91-day Treasury bill interest rate (percent)	11.16	10.00	23.10	3.80	4.26	139
LER	Natural Log of Nominal UGX/USD exchange rate (Average)	7.98	7.94	8.25	7.54	0.21	139
LFIN	Natural log of Financial innovation (M2/M1)	0.54	0.54	0.59	0.47	0.02	139

Table 1. Summary statistics.

We estimate mobile money usage (MMA) using the average mobile money transaction value which is calculated by dividing the total value of all mobile money transactions in a given period by the number of transactions in that period. Inflation is measured as the first difference of the natural log of the consumer price index, where $INF_t = (\ln \text{cpit} - \ln \text{cpit}-1) \times 100$. The exchange rate is defined as the amount of domestic currency per unit of foreign currency and thus an increase (decrease) in exchange rate is interpreted as the depreciation (appreciation) of domestic currency against foreign currency. In addition, given that financial innovation affects the nature and composition of monetary aggregates, the ratio of M2 to M1 is used to capture the effects of financial innovation. A number of studies use M2/M1 as a proxy of financial innovation (see for instance (Ansong et al. 2011; Hye 2009)). The effects of the recent COVID-19 pandemic on mobile money use is captured using a dummy for the COVID-19 pandemic crisis which takes on the value of 1 during the COVID-19 pandemic crisis (March to September 2020) and 0 otherwise, while the effects of mobile money tax on mobile money use is captured by a dummy for mobile money tax which takes on the value of 1 following the introduction of mobile money tax (March 2018

to September 2020) and 0 otherwise. This study applies the ARDL estimation technique and E-views version 9.0 statistical package software.

5. Results and Discussion

5.1. Unit Root and Cointegration Tests Results

The ARDL technique does not require pre testing of the orders of integration of variables of interest. Nevertheless, within the ARDL framework, the series should not be I(2), because this integration order invalidates the F-statistics and all critical values established by Pesaran. We therefore conduct unit root

tests using the ADF, PP and KPSS tests to ascertain the order of integration of the variables of interest. The unit root test results presented in Table 2 indicate that there is a mixture of $I(1)$ and $I(0)$ variables. Since the variables are either $I(0)$ or $I(1)$ and none appear to be integrated at an order higher than one, we apply the ARDL technique. It is important to ensure that the optimal lag order of the model is chosen appropriately. The ARDL bound testing approach requires the determination of the optimal lag for the cointegrating equation based on the assumption of serially uncorrelated residuals. The lags must be long enough to render ε_t serially uncorrelated and not too long as to lead to an over parameterization (Narayan 2005; Pesaran et al. 2001). For the sake of parsimony, the lag length for each variable of the ARDL model is chosen based on the Schwarz information criterion (SBC) and Hannan-Quinn (HQ) information criterion assuming a maximum lag length of 12 lags. As a precaution we apply the Heteroscedasticity and Autocorrelation Consistent Covariance (HAC) estimators in the ARDL model estimations to ensure that our results are robust in the presence of heteroscedasticity and serial correlation (Note that the HAC approach alters the estimates of the coefficient standard errors of an equation but not the point estimates themselves). The SBC results indicate an ARDL (1,0,0) model hereinafter referred to model 1 as the best model while the HQ results indicate an ARDL (6,0,0) model hereinafter referred to model 2 as the best model (Both Akaike information criterion (AIC) and Hannan-Quinn (HQ) information criterion select ARDL (6,0,0) as the best model. Having dealt with the issues of lag selection, we proceed to our autoregressive distributed lag (ARDL) analysis. The bounds test for cointegration was carried out using EVIEWS 9 based on Equation (3). The results are reported in Table 3. For model 1, the F-test statistic of 27.6 is higher than the upper bounds of the critical values of 4.85 at the 5 percent significance level and likewise for model 2, the F-test statistic of 35.6 is also higher than the upper bounds of the critical values of 4.85 at the 5 percent significance level. Thus, the null hypothesis of no long run equilibrium relationship between mobile money usage and the explanatory long run forcing variables in Models 1 and 2 is rejected at the 5 percent significance level.

5.2. Discussion of Results

Given the conclusive evidence of cointegration, we proceed to estimate the long run and short run dynamics. The results presented in Table 4 correspond to ARDL specification in Equation (3) for model 1 and 2. Table 4 also presents the results for model 3, which incorporates the interaction term. The long run and short run results for the three models are qualitatively similar, with similar coefficients signs and fairly similar magnitudes (Given that the interaction variable is not statistically significant we focus our discussion on the results of models 2 and 3). For instance, in all models, the long run and short run coefficients have the expected signs with the exception of the financial innovation variable. The coefficient of the error correction term (ECT) in all models is negative and significant at the 1 percent level giving

further support of a long run level relationship between mobile money usage and the long run forcing variables in both ARDL models.

Unit Root Tests	Augmented Dicky-Fuller (ADF)		Phillips Peron (PP)		Kwiatkowski-Phillips-Schmidt-Shin (KPSS)		Inference
	Levels	1st Difference	Levels	1st Difference	Levels	1st Difference	
LMMA	-1.962228	-11.86386	-2.014659	-12.06845	0.458776	0.081336	I(1)/I(0)
MMB	0.473457	-12.89705	0.555081	-12.83595	1.372059	0.199461	I(1)
MMR	-0.118995	-11.79004	-0.109655	-11.79145	1.443672	0.156811	I(1)
LCIEA	-1.300322	-10.38295	-1.272236	-10.37384	1.454289	0.107708	I(1)
TB	-2.463695	-7.633031	-2.106246	-7.553277	0.160929		I(1)/I(0)
LER	-1.001393	-7.668598	-1.273988	-7.418793	1.394466	0.076915	I(1)
DLCPI	-3.931403		-2.693618	-8.320295	0.519801	0.041123	I(1)/I(0)
LFIN	-5.455232		-5.328579		0.294096		I(0)

Notes: The figures in this table are unit-root test statistics. The corresponding critical values for the ADF, PP and KPSS unit root tests at the 5% significance level are—-2.882, -2.882 and 0.463, respectively.

Table 2. Unit root test results.

Dependent Variable ^a	F-Statistic for Case III Intercept No Trend ^b	Conclusion
MODEL 1 (ARDL 1,0,0)		
MMA	27.57277	Cointegration
MMB	4.287839	No cointegration
MMR	0.840364	No cointegration
MODEL 2 (ARDL 6,0,0)		
MMA	35.60444	Cointegration
MMB	4.287839	No cointegration
MMR	1.275704	No cointegration
MODEL 3 (ARDL 1,0,0)		
MMA	26.86052	Cointegration
MMB	4.324306	No cointegration
MMR	0.785251	No cointegration

NOTES: ^a The cointegrating vector includes Mobile Money usage (MMA), Balance on customers Mobile Money accounts (MMB) and the Number of Registered Mobile Money Users (MMR) while economic activity measured (CIEA), exchange rate (ER), inflation (INF), interest rate (TB), financial innovation (FI), COVID-19 pandemic crisis (COVID-19) and Mobile Money Tax (TAX) is excluded from the cointegrating vector but included in the short run dynamics. In Model 3, the interaction term (TAX×FI) is also included in the short run dynamics. The F-test indicates which variable should be normalised when a long-run relationship exists between the lagged level variables in the cointegrating vector. Three alternative cointegrating relationships are examined with different dependent variables. If the F-statistic lies between the bounds, the test is inconclusive. If it is above the upper bound, the null hypothesis of no level effect is rejected. If it is below the lower bound, the null hypothesis of no level effect cannot be rejected. ^b The relevant critical value bounds of the F-statistic are obtained from Pesaran et al. (2001) Table CI(iii) Case III: Unrestricted intercept and no trend when k = 2. They are 3.79 and 4.85 for the lower and upper bound, respectively, at 95 percent significance level. In models 1, 2 and 3, the respective log likelihood and lag selection criteria based on the Schwarz criterion are 160.6, 173.9 and 160.7 and -1.9, -2.0 and -1.9.

Table 3. autoregressive distributed lag (ARDL) bounds cointegration test results.

Regressors	MODEL 1			MODEL 2		
	ARDL (1,0,0)	LONG RUN	SHORT RUN	ARDL (6,0,0)	LONG RUN	SHORT RUN
Intercept	5.452 ** (2.55)		3.776 *** (5.18)	5.479 *** (4.04)		3.931 *** (6.42)
Mobile Money Usage (-1)	0.492 *** (4.22)			0.435 ** (2.40)		
Δ Mobile Money Usage (-1)						-0.054 (-0.89)
Mobile Money Usage (-2)				-0.136 (-1.44)		
Δ Mobile Money Usage (-2)						-0.137 ** (-2.28)
Mobile Money Usage (-3)				0.031 (0.57)		
Δ Mobile Money Usage (-3)						-0.127 * (-1.91)
Mobile Money Usage (-4)				-0.021 (-0.35)		
Δ Mobile Money Usage (-4)						-0.104 * (-1.75)
Mobile Money Usage (-5)				0.123 (1.42)		
Δ Mobile Money Usage (-5)						-0.001 (-0.01)
Mobile Money Usage (-6)				0.008 (0.08)		
Balance on customers Mobile Money accounts	-0.0003 ** (-2.18)	-0.0005 ** (2.14)		-0.0002 ** (-2.54)	-0.0003 ** (-2.71)	
Δ (Balance on customers Mobile Money accounts)			-0.0003 * (-1.87)			-0.0002 (-1.44)
Number of Registered Mobile Money Users	0.009 * (1.82)	0.017 ** (2.35)		0.005 (1.23)	0.008 (1.26)	
Δ (Number of Registered Mobile Money Users)			0.001 (0.11)			0.001 (0.05)
Economic activity	0.484 * (1.87)	0.953 * (1.82)		1.038 *** (3.01)	1.852 *** (3.73)	
Δ (Economic activity)			0.327 (0.63)			0.545 (1.13)
Inflation	0.017 *** (3.64)	0.033 *** (6.56)		0.017 *** (4.11)	0.030 *** (6.64)	

Table 4. ARDL model results.

Regressors	MODEL 1			MODEL 2		
	ARDL (1,0,0)	LONG RUN	SHORT RUN	ARDL (6,0,0)	LONG RUN	SHORT RUN
Δ (Inflation)			0.019 *** (3.23)			0.023 *** (4.40)
Interest rate	-0.008 ** (-2.28)	-0.015 ** (-2.73)		-0.005 * (-1.86)	-0.008 ** (-2.04)	
Δ (Interest rate)			-0.013 ** (-2.09)			-0.009 * (-1.68)
Exchange rate	-0.169 (-1.10)	-0.333 (-1.21)		-0.458 *** (-3.22)	-0.817 *** (-4.20)	
Δ (Exchange rate)			-0.439 (-1.56)			-0.871 *** (-3.28)
Financial innovation	-1.803 ** (-2.84)	-3.547 *** (-3.32)		-1.303 *** (-3.05)	-2.325 *** (-3.59)	
Δ (Financial innovation)			-1.191 *** (-2.94)			-0.963 ** (-2.54)
COVID-19 pandemic crisis	0.075 (1.41)	0.148 (1.29)		0.070 * (1.91)	0.125 ** (2.00)	
Δ (COVID-19 pandemic crisis)			0.008 (0.11)			0.007 (0.11)
Mobile Money Tax	-0.417 *** (-4.70)	-0.821 *** (-14.28)		-0.494 *** (-5.15)	-0.881 *** (-18.63)	
Δ (Mobile Money Tax)			-0.694 *** (-9.06)			-0.718 *** (-10.49)
Interaction term						
Δ (Interaction term)						
ECT(-1)			-0.351 *** (-5.17)			-0.402 *** (-6.42)
Model Diagnostics						
Adjusted R-squared		0.91			0.93	
Log-likelihood value		162.42			174.89	
S.E. of regression		0.08			0.08	
Schwarz Bayesian Criterion		-1.96			-2.04	
Hannan-Quinn criterion		-2.10			-2.25	
DW-statistic		1.49			1.74	
Bounds Tests F-statistic		27.57			35.60	
Lower Bound		3.79			3.79	
Upper Bound		4.85			4.85	
Optimal lag (SC and HQ)		1			1	

Notes: The values in parentheses are t-ratios. The asterisks *, ** and *** denote statistical significance at 10 percent, 5 percent and 1 percent significance level respectively. HQ is the Hannan-Quinn information criterion.

Table 4. Cont.

The coefficient of the measure of mobile money balances on customer accounts (MMB) is negative and statistically significant in the long-run for both model 1 and 2. In the long run, a 1 billion UGX increase in mobile money balances on customer accounts results in a 0.0003 to 0.0005 percentage point decline in mobile money usage for transactions usage and the effect is statistically significant at the 5 percent level. In the short run, an increase in mobile money balances on customer accounts by 1 billion Uganda Shillings (UGX) results in a 0.0002 to 0.0003 percent decline in mobile money usage and the effect is statistically significant at the 10 percent level only in model 1. While it is expected that the usage of mobile money services increases as mobile money balances increase, this may be moderated by regulatory limits on customer transactions and balances. The Bank of Uganda's mobile money regulations (Bank of Uganda 2013) require among other things that mobile money service providers set limits on frequency, volume and value of transactions and these limits, as well as any revisions thereof, be sent to Bank of Uganda for approval. According to the regulator, this is to ensure that mobile money service providers have measures in place to prevent money laundering and terrorist financing. The negative effect of customer mobile money account balances on mobile money use may thus be a result of mobile money regulation which

limits mobile money customer transactions and account balances. The mobile money services industry has sought a balance between the objectives of facilitating the financial inclusion of the poorest, making mobile money services attractive to the greatest number of people and mitigating the risks of money laundering and terrorist financing (GSMA 2019). In contrast, the number of registered mobile money users has a positive effect on mobile money usage both at the short run and long run horizons in both models, although its impact is statistically significant at the 5 percent level only in the long run in model 1 where an increase in the number of Registered Mobile Money Users by 1 million accounts results in 0.02 percentage point increase in mobile money usage at the 5 percent level. As expected, the growth in mobile money usage is spurred by an increase in the number of mobile money users. Although all transactions are charged a predetermined fee, mobile money registration is free, simple and convenient to encourage the public's adoption and use of mobile money services in Uganda. One of the critical facilitators of mobile money usage is the ability to make a mobile money transaction upon registration for a mobile money account (GSMA 2019). Uganda's increase in mobile money registered accounts is partly attributed to the increased proliferation of mobile phone usage and the mandatory registration of SIM cards (Lwanga and Adong 2016). As expected, we find a very strong positive association between economic activity and mobile money usage in both the short and long run. However, the effect is only statistically significant in the long run. In the long run, a one percent increase in economic activity increases mobile money usage by 0.95 to 1.85 percentage points. This implies that robust economic activity supports the long term use of mobile money in Uganda. Payment systems trace economic transactions and a well-functioning mobile money platform facilitates economic activity and supports long-run economic growth. As economic activity increases, households and businesses demand safer and ever faster payment platforms such as mobile money technology which enables e-commerce for small business owners and entrepreneurs who use mobile money as a key part of their business. In addition, the coefficient of inflation is positive and statistically significant at the 5 percent level in both the short and long run. In the short run, a 1 percent increase in inflation is associated with a 0.02 percent rise in mobile money usage, while in the long run it leads to a 0.03 percent rise in mobile money usage in models 1 and 2. On the one hand, the positive effect of inflation on mobile money use may signal concerns from businesses and consumers afraid that rising inflation will erode their future purchasing power. In Uganda, mobile money users do not receive interest on their electronic account balances and bear the risk of loss of value through inflation. On the other hand, a moderate amount of inflation is generally considered to be a sign of a healthy economy, because as the economy grows, demand increases. In July 2011, the Bank of Uganda reformed

its monetary policy framework to meet the challenges of macroeconomic management generated by the transformation of the economy over the last 10 years, and in particular the rapid growth and diversification of the financial system (Bank of Uganda 2021). Since then, the Ugandan economy has generally continuously combined high levels of economic growth with low levels of inflation (Whitworth

and Williamson 2010). In the five years to 2019 annual core inflation averaged at 4.34 percent which is below the central bank target of 5 percent over the medium term with an annual headline inflation average at 4.38 over the same period (Bank of Uganda 2021; Uganda Bureau of Statistics 2020). Thus, we conclude that the positive coefficient indicates a rise in the use of mobile money by businesses and consumers in response to moderate increases in inflation driven by rising economic activity in a growing economy. The results reported in Table 4 also show a negative and statistically significant association between the interest rate and mobile money usage in both the short and long run in models 1 and 2. In the short run, a one percent increase in the 91-day Treasury bill interest rate reduces mobile money usage by about 0.01 percentage point, while in the long run a one percent increase in the 91-day Treasury bill interest rate results in a decline in mobile money usage of approximately 0.01 to 0.02 percentage points. While under the Bank of Uganda's Inflation Targeting (IT) for monetary policy framework the central bank rate (CBR) is the policy rate used to signal to all other rates, the 91 T-bill rate is highly correlated with the CBR and therefore was considered as a proxy for the policy rate in the analysis. Thus, an increase in the 91 day Treasury bill interest rate signals a tightening of monetary policy, reducing the supply of credit to firms and dampening economic activity. The results are an indication that the resultant fall in economic activity following a rise in the 91 day Treasury bill interest rate contracts the mobile money use as consumers and businesses cut back on spending. We also find a negative relationship between the exchange rate and mobile money usage in both models, although the effect is statistically significant in both the short and long run only in model 2. The negative relationship could arise from an exchange rate depreciation pass through to inflation which would lead to a rise in interest rates and indirectly affect mobile money usage, while the statistical insignificance of the effect may be a result of Uganda's foreign mobile money remittance market which is small but thriving due to the high transaction costs. Further, both model 1 and 2 show a negative and statistically significant relationship between financial innovation and mobile money usage in both the short and long run. In the short run, a 1 percent increase in financial innovation is associated with a 1.0 to 1.2 percent fall in mobile money usage, while in the long run it leads to a 2.3 to 3.5 percent decline in mobile money usage. Although financial innovation is expected to positively affect mobile money use, our finding of a negative effect of financial innovation on mobile money use may be attributed to the growing dynamism in the present era of technology, where more options for financial services are availed in the financial sector which offer viable alternatives to the use of mobile money services. More interestingly, the negative effect of financial innovation on mobile money use may thus be a reflection of absorption process of the unbanked mobile money users into the formal financial system. Mobile money among other benefits provides an entry point into the formal financial system, and so helps promote increased saving and self-insurance against small adverse shocks (Aron 2018; Demircuc-Kunt et al. 2018; Di Castri 2013). This implies that the increased adoption and use of mobile money should result in increased access to and use of formal financial institutions including banks, by the unbanked mobile

money users. Lwanga and Adong (2016) have shown that having a registered mobile money account increases the likelihood of having some household savings. In Uganda, the mobile money platform is integrated with participating banks to provide mobile financial services products such as saving. Thus, it is imperative that government policy and regulation focuses on overall financial sector development rather than developing the banking sector at the expense of other platforms such as mobile money so as to ensure that mobile money services remain competitive in their product and service offerings as the financial sector develops.

We find a positive association between the COVID-19 crisis and mobile money usage in both the short and long run in both models. However, the effect is only statistically significant in the long run for model 2. The COVID-19 pandemic brought unprecedented challenges to the global economy, whose impact disproportionately affects poorer countries and vulnerable populations. In wake of the COVID-19 pandemic, governments, regulators and mobile money providers in many African countries responded with rafts of measures aimed at limiting the spread of the COVID-19 virus by encouraging mobile money use. For instance, in an effort to shield the most vulnerable user segments in Uganda, the Bank of Uganda and mobile money operators waived fees on all merchant payment transactions and provided total or partial fee waivers on person-to-person (P2P) transactions as well as increasing transaction and balance limits. Thus, we conclude that efforts by policy makers and operators to promote the use of mobile money during the COVID-19 crisis may have somewhat encouraged the use of mobile money as a safe and efficient money transfer and payments service. Importantly, mobile money usage is also moderated by mobile money tax regulation. The coefficient of the measure of mobile money tax regulation carries the expected negative sign and is statistically significant in both models 1 and 2 at both the short run and long run horizons. While mobile money tax regulation is associated with a 0.7 percentage point decline in mobile money usage in the short run, in the long run it leads to a 0.8 to 0.9 percentage point decline in mobile money usage. Taxation levied on mobile money services, especially over and above standard rates, make the use of mobile money services less attractive to the detriment of the financial inclusion of marginalised groups (Ahmad et al. 2020; Andersson-Manjang et al. 2020; Bahia and Muthiora 2019; Kipkemboi and Bahia 2019; Maina 2018). In 2018, Uganda introduced a one per cent tax on all mobile money transactions, over and above the 10 per cent excise duty levied on transaction charges which was later that same year revised to 0.5 per cent on withdrawal transactions only following public outcry and pressure (Bahia and Muthiora 2019; Maina 2018; Pasti 2019). Bank of Uganda officials, who spoke out against the tax, called the new tax discriminative, unfair, and restrictive to financial inclusion (Maina 2018). This notwithstanding, the adverse impact of the tax was immediate, as customers shunned transactions and mobile money agents, particularly in rural areas, saw significant fall in traffic and revenues (Bahia and Muthiora 2019; Maina 2018; Pasti 2019). However, the common explanation for directly taxing mobile money transactions in African low income countries such as Uganda is to widen the revenue base of the

government, considering the size and rapid growth in the mobile money sector, as well as the relatively narrow tax base (Ahmad et al. 2020; Maina 2018). However, rather than applying punitively direct excessive taxes on mobile money transaction values, the government could apply tax treatment that is aligned with best practice principles of taxation in order to avoid the distortionary effect of taxes on the mobile money industry's development and align mobile taxation with that applied to other sectors (Maina 2018; Pasti 2019). In addition, the government should consider leveraging mobile money to increase collection of existing taxes in a digital and efficient way by enabling the payment of fees, rates, taxes and levies due from taxpayers via mobile money services (Pasti 2019). The coefficient of the error correction term (ECT) which measures the speed of adjustment to the long run steady state of Mobile money usage following external shocks is negative and highly significant at the 5 percent level. The coefficient of ECT is -0.35 , implying that 35 percent of any deviation from equilibrium is corrected in one month. Thus, the results demonstrate that Uganda's Mobile money usage trajectory moves toward a long run steady state although the speed of adjustment is slow, estimated to be approximately 35 percentage points per month with the full adjustment to equilibrium expected to take approximately 3 months. The significant error correction term also provides further support of a long run level relationship between Mobile money usage and the long run forcing variables in the model.

5.3. Model Specification and Robustness Test Results

Table 5 reports the model specification and diagnostic tests used to ascertain the robustness of the estimated models. The results reveal that only the ARDL (6,0,0) model passes all the diagnostic tests with exception of the normality test suggesting that only this model can be reliable for policy making and statistical inferences. The test statistics for serial correlation, heteroscedasticity and functional form are found to be lower than the critical values at a 5 per cent significance level, leading to the acceptance of the null hypothesis of the presence of no serial correlation, homoscedasticity and a well-specified functional form. In addition, the test for the overall significance of the estimated models depends on the significance of F-statistic and the F-statistic values for both models are highly significant at 1% level of significance, an indication that all the explanatory variables in the estimated models are jointly significant in explaining the changes in mobile money usage.

Residual Diagnostics	MODEL 1	MODEL 2	MODEL 3
Serial Correlation ¹	1.80 [0.105]	1.94 [0.149]	1.76 [0.113]
F-statistic	148.02 [0.00]	118.36 [0.000]	133.71 [0.000]
Heteroscedasticity ²	0.089 [0.58]	0.592 [0.736]	2.816 [0.019]
Functional Form ³	2.18 [0.0314]	1.74 [0.084]	2.28 [0.024]
Normality ⁴	28.261 [0.000]	80.86 [0.000]	27.00 [0.000]

Notes: ¹ Breusch-Godfrey Lagrange multiplier test of residual serial correlation. ² ARCH test for Heteroskedasticity based on the regression of squared residuals on squared fitted values. ³ Ramsey's RESET test for omitted Variables/Functional form. ⁴ Jarque-Bera Normality test based on a test of skewness and kurtosis of residuals. The values in parentheses are t-ratios while probabilities are brackets.

Table 5. ARDL Model Diagnostic Tests.

Figures 2–4 show conflicting results regarding parameter stability. In both model 1, 2 and 3, the CUSUM test suggests parameter stability, whereas the CUSUMSQ test shows signs of parameter instability. The contradiction in results of the model stability tests is caused by the fact that there is a break in the intercept of the regression equation instead of the slope coefficient, in which case, the CUSUM test has higher power compared to the CUSUMSQ test (Turner 2010). The CUSUM test which is based on the residuals from the recursive estimates, is a powerful tool for the detection of unknown structural breaks in the regression equation (Turner 2010) and as such the results of the Cumulative sum tests in this study indicate that all three ARDL models are stable, meaning that the estimators measure the relationship between the cointegrated variables accurately. The test results indicate parameter stability when the cumulative sum falls within the 5% critical lines.

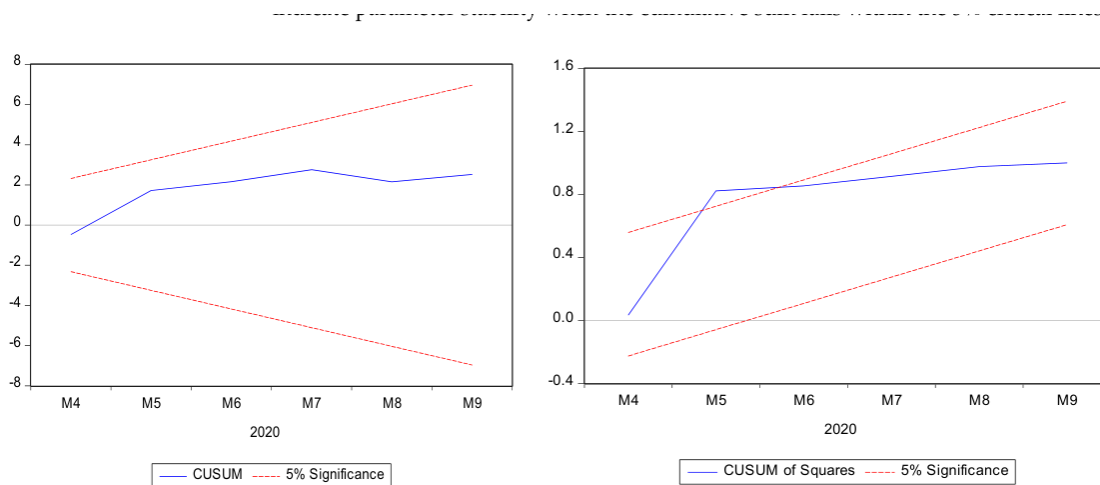


Figure 2. Plot of CUSUM and CUSUMSQ tests for Model 1.

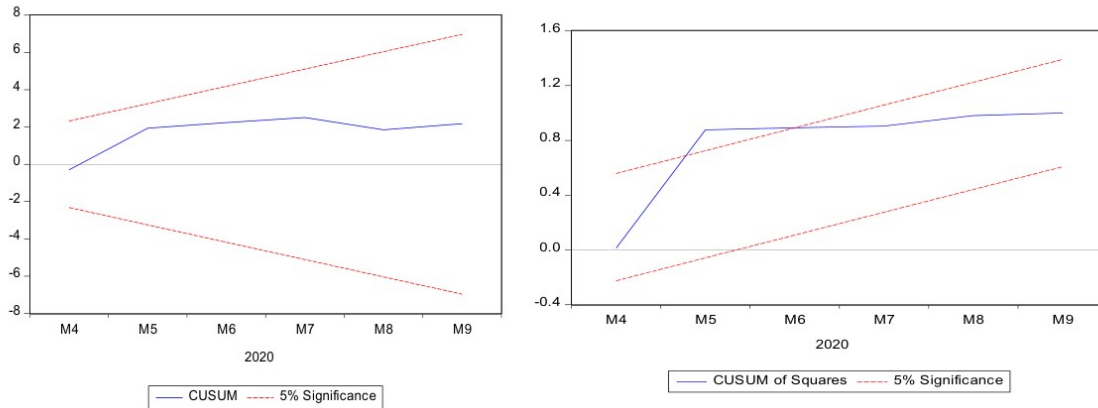


Figure 3. Plot of CUSUM and CUSUMSQ tests for Model 2.

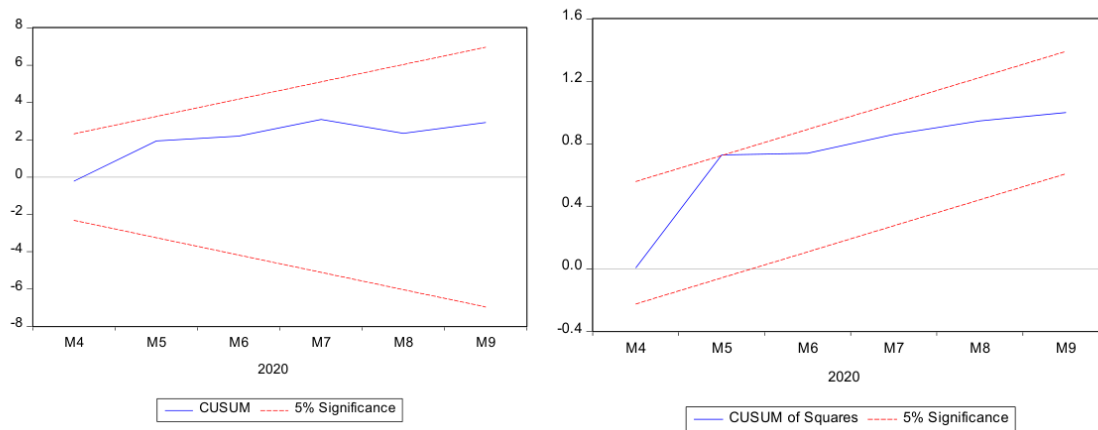


Figure 4. Plot of CUSUM and CUSUMSQ tests for Model 3.

6. Conclusions

This paper provides new insights on the effects of macroeconomic and regulatory policy on mobile money usage in Uganda, within the ARDL cointegration theoretic framework. We posit that macroeconomic and regulatory variables such as economic activity, inflation, interest rate, exchange rate, and mobile money tax play a vital role in the use of mobile money. The cointegrating test results indicate a long run equilibrium relationship between mobile money usage, mobile money customer account balances and mobile money registration. Our empirical findings show that there exist short run and long run effects of macroeconomic variables and regulatory tax on mobile money usage. In the short run, mobile money usage is largely positively affected by inflation while financial innovation, exchange rate and mobile money tax are the main negative determinants of mobile money usage in Uganda. In the long run, positive innovation in

mobile money use in Uganda are mainly driven by economic activity and the COVID-19 pandemic while negative innovations are largely explained by financial innovation, the exchange rate and mobile money tax. Based on the potential benefits of mobile money, we recommended that governments subsidize the development of local mobile money infrastructure and adopt policies that create an enabling environment for the development, adoption and continued usage of mobile money in Uganda.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Restrictions apply to the availability of these data. Data was obtained from Bank of Uganda and are available with the permission of Bank of Uganda.

Conflicts of Interest: The author declares no conflict of interest.

References

- Ahmad, Ahmad Hassan, Christopher Green, and Fei Jiang. 2020. Mobile money, financial inclusion and development: A review with reference to African experience. *Journal of Economic Surveys* 34: 753–92. [CrossRef]
- Andersson-Manjang, Simon, Kennedy Kipkemboi, and Tapiwa Jakachira. 2020. State of the Mobile Money Industry in Africa. Available online: https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2020/10/GSMA_The-state-of-the-mobile-money-industry-in-Africa.pdf (accessed on 18 January 2021).
- Ansong, Abraham, Edward Marfo-Yiadom, and Emmanuel Ekow-Asmah. 2011. The Effects of Financial Innovation on Financial Savings: Evidence from an Economy in Transition. *Journal of African Business* 12: 93–113. [CrossRef]
- Aron, Janine. 2018. Mobile Money and the Economy: A Review of the Evidence. *The World Bank Research Observer* 33: 135–88. [CrossRef]
- Bahia, Calvin, and Brian Muthiora. 2019. The Mobile Money Regulatory Index. Available online: <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/03/The-Mobile-Money-Regulatory-Index-1.pdf> (accessed on 26 January 2021).

Bahmani-Oskooee, Mohsen, Marzieh Bolhassani, and Scott William Hegerty. 2010. The effects of currency fluctuations and trade integration on industry trade between Canada and Mexico. *Research in Economics* 64: 212–23. [CrossRef]

Bank of Uganda. 2013. Mobile Money Guidelines, 2013. Available online: https://archive.bou.or.ug/archive/opencms/bou/bou-downloads/supervision/Circulars_and_Guidance_Notes/2013/All/Mobile-Money-Guidelines.PDF (accessed on 24 January 2021).

Bank of Uganda. 2021. BOU Reforms Monetary Policy Framework. Bank of Uganda | Monetary Policy Framework. Available online: <https://www.bou.or.ug/bou/bouwebsite/MonetaryPolicy/mpframework.html> (accessed on 25 January 2021). Bank of Uganda. n.d. Bank of Uganda | Data and Statistics. Retrieved 18 January 2021. Available online: <https://www.bou.or.ug/bou/bouwebsite/PaymentSystems/dataandstat.html> (accessed on 18 January 2021).

Chadha, Sakshi, Brian Muthiora, and Kennedy Kipkemboi. 2020. GSMA | Tracking Mobile Money Regulatory Responses to COVID-19— Part 2 | Mobile for Development. Mobile for Development. Available online: <https://www.gsma.com/mobilefordevelopment/region/sub-saharan-africa-region/tracking-mobile-money-regulatory-responses-to-covid-19-part-2/> (accessed on 31 January 2021).

Clifford, Killian. 2020. The Causes and Consequences of Mobile Money Taxation An Examination of Mobile Money Transaction Taxes in Sub-Saharan Africa. Available online: www.gsma.com/mobilemoney (accessed on 21 January 2021). Davidson, Neil, and Yasmina M. McCarty. 2011. Driving Customer Usage of Mobile Money for the Unbanked. London: GSM Association (GSMA).

Demirguc-Kunt, Asli, Leora Klapper, Dorothe Singer, Saniya Ansar, and Jake Hess. 2018. The Global Findex Database: Measuring Financial Inclusion and the Fintech Revolution Overview Booklet. Washington: World Bank Group. Di Castri, Simone. 2013. Mobile Money: Enabling Regulatory Solutions. London: GSMA, (Issue SSRN 2302726).

Dimand, Robert W. 2019. Revitalizing the Quantity Theory of Money: From the Fisher Relation to the Fisher Equation BT—Irving Fisher. Edited by Robert W. Dimand. Berlin: Springer International Publishing, pp. 45–73. [CrossRef]

Dipasha, Sharma. 2016. Nexus between financial inclusion and economic growth: Evidence from the emerging Indian economy. *Journal of Financial Economic Policy* 8: 13–36. [CrossRef]

Donner, Jonathan. 2008. Research approaches to mobile use in the developing world: A review of the literature. *The Information Society* 24: 140–59. [CrossRef]

GSMA. 2019. Mobile Money Metrics-Regulatory Index. Available online: <https://www.gsma.com/mobilemoneymetrics/#regulatory-index?y=2019> (accessed on 20 January 2021).

GSMA. 2021. GSMA | Policy and Regulation | Mobile for Development. Available online: <https://www.gsma.com/mobilefordevelopment/mobile-money/policy-and-regulation/> (accessed on 20 January 2021).

Harris, Richard, and Robert Sollis. 2003. *Applied Time Series Modelling and Forecasting*. Chichester: Wiley.

Hye, Qazi Muhammad Adnan. 2009. Financial innovation and demand for money in Pakistan. *The Asian Economic Review* 51: 219–28.

Ibrahim, Mansor H. 2015. Oil and food prices in Malaysia: A nonlinear ARDL analysis. *Agricultural and Food Economics* 3: 2. [CrossRef] Kim, Dai-Won, Jung-Suk Yu, and Kabir M. Hassan. 2018. Financial inclusion and economic growth in OIC countries. *Research in International Business and Finance* 43: 1–14. [CrossRef]

Kipkemboi, Kennedy, and Kalvin Bahia. 2019. The Impact of Mobile Money on Monetary and Financial Stability in Sub-Saharan Africa. Available online: <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/03/The-impact-of-mobile-money-on-monetary-and-financial-stability.pdf> (accessed on 21 January 2021).

Kremers, J. J. M., N. R. Ericsson, and J. J. Dolado. 1992. The power of cointegration tests. *Oxford Bulletin of Economics and Statistics* 54: 325–48. [CrossRef] Lahaye, E., E. Dashi, E. Dolke, and M. Soursourian. 2015. *Spotlight on International Funders' Commitments to Financial Inclusion*. Washington: The World Bank. Loayza, N. V., and S. Pennings. 2020. *Macroeconomic Policy in the Time of COVID-19: A Primer for Developing Countries*. Washington: World Bank, Available online: <https://ourworldindata.org/coronavirus-source-data> (accessed on 21 January 2021). Lwanga, M. M., and A. Adong. 2016. *A Pathway to Financial Inclusion: Mobile Money and Individual Savings in Uganda*. Kampala: Research Series-Economic Policy Research Centre, vol. 127.

Mahmoud, Z. 2019. Determinants of Mobile Money Adoption. Paper Presented at 2nd Europe–Middle East–North African Regional ITS Conference, Aswan, Egypt, February 18–21. *Leveraging Technologies For Growth*, 201742.

Maina, Juliet. 2018. *Mobile Money Policy and Regulatory Handbook*. London: GSMA.

- Masocha, Reginald, and Obey Dzomonda. 2018. Adoption of Mobile Money Services and the performance of small and medium enterprises in Zimbabwe. *Academy of Accounting and Financial Studies Journal* 22: 11. Available online: <https://www.researchgate.net/publication/325877641> (accessed on 18 January 2021).
- Mawejje, Joseph, and Paul Corti E. Lakuma. 2017. *Macroeconomic Effects of Mobile Money in Uganda*. Kampala: Research Series-Economic Policy Research Centre, vol. 260017.
- Mawejje, Joseph, and Paul Lakuma. 2019. Macroeconomic effects of Mobile money: Evidence from Uganda. *Financial Innovation* 5: 2. [CrossRef]
- Morley, Bruce. 2006. Causality between economic growth and immigration: An ARDL bounds testing approach. *Economics Letters* 90: 72–6. [CrossRef]
- Mothobi, Onkokame, and Lukasz Grzybowski. 2017. Infrastructure deficiencies and adoption of mobile money in Sub-Saharan Africa. In *Information Economics and Policy*. Amsterdam: Elsevier B.V., vol. 40, pp. 71–9. [CrossRef]
- Narayan, Paresh Kumar. 2005. The saving and investment nexus for China: Evidence from cointegration tests. *Applied Economics* 37: 1979–90. [CrossRef]
- Pasti, Francesco. 2019. *State of the Industry Report on Mobile Money*. London: GSMA, Available online: <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2019/02/2018-State-of-the-Industry-Report-on-Mobile-Money.pdf> (accessed on 26 January 2021).
- Pesaran, Mohammad Hashem, and Yongcheol Shin. 1998. An autoregressive distributed-lag modelling approach to cointegration analysis. *Econometric Society Monographs* 31: 371–413.
- Pesaran, Mohammad Hashem, and Yongcheol Shin. 1999. An Autoregressive Distributed-Lag Modelling Approach to Cointegration Analysis. In *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*. Edited by Strøm S. Cambridge: Cambridge University Press, pp. 371–413. [CrossRef]
- Pesaran, Mohammad Hashem, Yongcheol Shin, and Richard J. Smith. 2001. Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics* 16: 289–326. [CrossRef]
- Porteous, David. 2006. *The Enabling Environment for Mobile Banking in Africa Report* Commissioned by Department for International Development (DFID). Available online: <https://www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/06/theenablingenvironmentformobilebankinginafrica.pdf> (accessed on 20 January 2021).

Rulangaranga, Donatus, Eva Mpaata, and Joshua Muwema. 2016. Mobile money regulations and protection of users of Mobile Money in Uganda. *International Journal of Management and Economics Invention*. [CrossRef]

Turner, Paul. 2010. Power properties of the CUSUM and CUSUMSQ tests for parameter instability. *Applied Economics Letters* 17: 1049–53. [CrossRef]

Uganda Bureau of Statistics. 2020. Uganda Bureau of Statistics 2020 Statistical Abstract. Available online: https://www.ubos.org/wp-content/uploads/publications/11_2020STATISTICAL__ABSTRACT_2020.pdf (accessed on 25 January 2021).

Whitworth, Alan, and Tim Williamson. 2010. Overview of Ugandan economic reform since 1986. In *Uganda's Economic Reforms Insider Accounts*. Edited by Kuteesa Florence, Emmanuel Tumusiime-Mutebile, Alan Whitworth and Tim Williamson. Oxford: Oxford University Press Inc.

Wiegatz, Jörg, Giuliano Martiniello, and Elisa Greco. 2018. Introduction: Interpreting change in neoliberal Uganda. In *Uganda: The dynamics of Neoliberal Transformation*. Edited by Jorg Wiegatz, G. Martiniello and E. Greco. London: Zed Books, p. 39. Available on-line: https://www.researchgate.net/profile/Elisa_Greco/publication/328968636_Conclusions_neoliberalism_Institutionalized/links/5cab1774299bf118c4ba9182/Conclusions-neoliberalism-Institutionalized.pdf (accessed on 20 January 2021).



REPRINT

Bindseil, U. (2026) 'Europe should stop banning interest on digital money', Bruegel First Glance, 28 September.

<https://www.bruegel.org/first-glance/europe-should-stop-banning-interest-digital-money>

Ulrich Bindseil

Bruegel Non-resident Fellow

Europe should stop banning interest on digital money

Non-remuneration in the EU of e-money and the digital euro lacks an economic basis, burdens less-wealthy households and is increasingly circumvented.

Banknotes cannot pay interest. As a note passes from hand to hand, no one records how long each holder keeps it. But the daily use of ready [cash in transactions is declining](#) and electronic money is different. There is no technical constraint on e-money, stablecoins or a future digital euro earning interest. Whether they do is a regulatory choice.

The European Union has made this choice unevenly. Banks may remunerate sight deposits, but e-money, e-money tokens or cryptocurrencies [may not](#) be remunerated. In 2023, the European Commission proposed [a legal framework for the digital euro](#) under which it will earn no interest and will also be subject to individual holding limits. Instruments that households use for payments are thus treated differently, depending on who issues them.

There is an ample economic literature on the interest rate spread between money and neighbouring financial assets. None of the various approaches implies that money should earn nothing, whether market

rates stand at zero, 3% or 10%. A spread equal to the full market rate is the product of regulation, not of any equilibrium.

Bans on remuneration for some forms of money act as a [tax on money holders](#) that rises with nominal interest rates and accrues to issuers. This tax is regressive. Wealthier households move surplus balances into high-interest accounts, money market funds or securities. Less-wealthy households hold more of their wealth in payment balances and have fewer alternatives. Under current and proposed EU rules – the digital euro framework is [still to be agreed](#) – this ‘inflation tax’ on cash is thus extended to electronic money.

Meanwhile, remuneration bans are in any case slipping. ‘Internal’ circumvention is already visible. Some EU e-money institutions pay monthly ‘cashback’ that is interest in all but name. United States crypto platforms offer returns on stablecoin holdings, despite [the US currently prohibiting remuneration](#) by issuers.

‘External’ circumvention means flight into easily accessible alternative assets. Instant payments, open banking, tokenisation and artificial-intelligence-based liquidity management now push switching costs towards zero. Funds will flow in and out of constrained instruments, such as stablecoins, over the interest-rate cycle for no reason other than the remuneration ban. This poses risks to financial stability: if the central bank needs to increase short-term interest rates for monetary-policy reasons, it could as a side-effect trigger liquidity outflows from stablecoins, pushing stablecoin issuers to rapidly liquidate their reserves.

There are arguments in favour of the remuneration bans, but they are inconsistent. The first is that competition for deposits induces reckless risk-taking by banks. Capital and liquidity requirements are the proper answers to that. The second is the claim that bank intermediation has positive economic externalities for society. If so, targeted subsidies are more transparent and effective than an implicit subsidy that fluctuates with interest rates. The third argument is that banks deserve compensation for working within heavy regulation; this contradicts the principle of ‘one function, one risk, one regulation’.

By banning remuneration for some forms of money, the EU is also out of step with some other jurisdictions. In Brazil, fintech accounts linked to the [Pix instant payment system](#) are remunerated at the interbank rate. In India and Mauritius, savings accounts paying close to market rates serve for everyday payments. These countries have not seen the instability that the franchise argument predicts.

A genuine second-best case exists only for stablecoins circulating on pseudonymous public blockchains. Remuneration could add to their appeal for illicit use, although non-remuneration does little to deter such use, except for the store-of-value function in countries subject to capital controls.

For the EU, this suggests three implications as work on the digital euro continues and rules on [other electronic money forms are reviewed](#). First, the digital euro could replace the combination of zero remuneration and holding limits with tiered remuneration, with a less favourable rate on larger balances. This would address fears that the digital euro could replace bank deposits to some extent. It would also avoid making central bank money the only widely available money subject to quantity limits, which inverts the normal hierarchy of money.

Second, the [current block on interest for payment stablecoins](#) need not be lifted overnight, but could be made subject to review, tied to effective enforcement of anti-money-laundering rules on public blockchains. Third, the prohibition on remunerating e-money should be abolished.

None of this requires the EU to impose remuneration. It only requires the EU to stop prohibiting it, and to let issuers of all forms of electronic money compete on the terms they offer to those who hold it.

Read the Working Paper, [‘Remunerating means of payment’](#), by Ulrich Bindseil.

Accountability as Policy: Ending Soft Budgets and Public Debt

Kai H. Kayser, MBA, MPhil

AFODIresearch

Uganda. August 12, 2026

Abstract

Modern societies display persistent unemployment alongside unmet needs, slow productivity growth despite technological progress, housing shortages under regulatory complexity, educational decline relative to spending, substance-related harms expanded by prohibition and prescription regimes, and public debts that outlive the politicians who authorized them. These are routinely blamed on scarcity, market failure, or inequality. The evidence points to incentive misalignment: status-based and fixed-salary compensation, political insulation from debt consequences, high taxation of productive activity, and dense regulation that protects incumbents.

This study is not a restatement of familiar libertarian themes. It advances a concrete policy architecture built on three operational mechanisms: pure performance-based pay with zero fixed salaries, progressive detaxation of productive activity, and systematic deregulation. The distinctive contribution lies in the precise institutional rules. Politicians operate under strict term limits and personal liability: any public debt they authorize must be cleared within twelve months and never carried beyond their term; failure triggers repayment or criminal accountability. No exemptions are granted for claims that a project serves “the poor,” “the handicapped,” or other sympathetic categories. Soft budgets are abolished. Compensation for politicians, entrepreneurs, and employees alike is residual only—earned solely through verified results. Early high-quality completion is rewarded; miscalculation is borne by the decision-maker.

Taxation is treated as a disincentive. While government persists, revenue should be drawn preferentially from behaviors widely regarded as costly rather than from value creation, with long-run neutrality as the objective. Deregulation removes the artificial barriers that currently blunt residual incentives. Empirical patterns from performance-pay studies, tax reforms, licensing and land-use research, telecommunications liberalization, private higher-education expansion, high-powered residual contracts, and low-tax open-entry jurisdictions support the directional claims. Partial application produces partial gains; only joint operation yields compounding effects.

Standard objections—rising inequality, unprotected vulnerability, externalities, transition costs, and public-health risks—are addressed directly. Inequality of outcomes is treated as functional and diversity-enhancing. Protection of the vulnerable is located in voluntary institutions and residual-claim arrangements (including scholarships and internships) rather than in soft budgets. Long-term private investment, charity, and education are not abolished; their material base expands. The path is sequential: bridge reforms that progressively constrain soft budgets and entry barriers, moving first toward functional minarchy and later toward more fully voluntary orders, without system collapse. The study therefore supplies both a diagnosis and a set of enforceable institutional instructions that render debt-financed redistribution and political predation increasingly difficult.

Keywords

Performance-based pay, Residual-claim compensation, Detaxation, Deregulation, Soft budget constraint, Political debt liability, Meritocracy, Minarchy, Aparactonomy

Chapter 1

Introduction: The Failure of Status-Based and Redistributive Systems

Modern societies continue to display a recurring set of problems: persistent unemployment in the presence of unmet needs, slow productivity growth despite technological progress, housing shortages amid regulatory complexity, declining educational outcomes relative to expenditure, substance-related harms that expand under prohibition and prescription regimes, and large public debts that outlive the politicians who authorized them. These are routinely attributed to insufficient resources, market failure, or inequality of outcomes. The evidence points elsewhere. The dominant pattern is incentive misalignment created by status-based compensation, fixed salaries, political insulation from consequences, high taxation, and dense regulation.

These misalignments are -obviously- systemic, meaning that they are the outcome of abuses consequential to regulation, system immanent loopholes. Antisocial characters (especially sub-clinical ones) are particularly drawn to seek and explore these loopholes and systemic errors, and we tend to see that as “bad”, understandably. However, certain antisocial dispositions, for example high achieving or successful psychopaths (dark triad and dark tetrad in particular) are also real “movers and shakers” and not necessarily all “bad”, even capable of overall beneficial outcomes – given the right circumstances: Transparency, accountability and meritocracy (Kayser, 2025a). The biggest fallacy is to think society can central plan and regulate itself out of corruption, theft and crime. On the contrary, deregulation, decentralization and a radical shift towards self organization and self responsibility are the empirically proven alternative that works much faster and better.

Best practice is accountability and individual responsibility, solely result driven and without any form of bail-out, or community payment to cover losses.

These realities force two further recognitions. First, “bad” or high-Dark-Triad individuals will always be present; the task is not to pretend otherwise but to design systems that keep their capacity for predation tightly constrained through transparency, personal liability, and the absence of bail-outs. Second, the claim that government may legitimately commit acts that would be criminal if performed by private persons—

because it acts for a supposed greater good—is false. Theft remains theft and coercion remains coercion; there are no moral or legal exceptions.

The three mechanisms examined in this study—pure performance-based pay with zero fixed salaries, progressive detaxation, and systematic deregulation—constitute a practical route for keeping crime and political predation in check. They enable a gradual, non-collapsing reduction of government first to a functional minarchy and later toward aparactonomy, while simultaneously strengthening the conditions for long-term private investment, genuine charity, and higher-quality education (Kayser, 2025b). None of these goods is abolished; all are improved by restoring residual claims, eliminating soft budget constraints, and removing artificial barriers to voluntary cooperation.

When compensation is detached from results, when political decision-makers can create obligations that fall on others, and when entry and experimentation are restricted by law, predictable distortions follow. The study that follows examines three interlocking mechanisms that directly attack these distortions: pure performance-based pay with zero fixed salaries, radical reduction or elimination of taxes, and systematic deregulation. Together they make debt-financed redistribution and the corruption it enables increasingly difficult while leaving voluntary long-term private investment fully intact.

Closed Systems and the Limits of Central Provision

Two well-documented experiments illustrate the difficulties that arise when material provision is separated from productive roles and from continuous market feedback.

John B. Calhoun's Universe 25 experiment (1968–1973) created a “mouse utopia” with unlimited food, water, nesting space, and freedom from predators and disease. Starting with eight mice, the population grew rapidly, doubling roughly every 55 days until it reached approximately 620 animals. Growth then slowed. The population peaked near 2,200—well below the physical capacity of the enclosure—and thereafter collapsed. By the early 1970s the colony was effectively extinct.

Behavioral changes preceded demographic collapse. Dominant males lost territorial control. Females neglected or attacked their young; infant mortality in some areas exceeded 90 percent. A subset of males,

later labeled “the beautiful ones,” withdrew from mating, fighting, and social interaction, spending their time eating, sleeping, and grooming. Social organization disintegrated into what Calhoun termed a “behavioral sink.” Mice removed from the enclosure and placed in lower-density settings often retained the dysfunctional patterns. Calhoun (1973) summarized the sequence as a form of “death squared”: the suppression of mortality produced the death of social organization, which in turn produced the inability to reproduce (Calhoun 1973; Ramsden & Adams 2009).

The experiment did not demonstrate that density alone destroys societies. It demonstrated that an environment of guaranteed material provision without corresponding productive roles or selective pressures can erode the behaviors required for continuation. Abundance without consequence proved corrosive.

Biosphere 2 (1991–1993) tested a closed, deliberately designed ecological system intended to support eight humans for two years. The structure contained multiple biomes, intensive agriculture, and recycling systems. Despite an expenditure reported in the range of \$150–200 million, the system failed to maintain stable conditions. Oxygen levels fell from the normal 21 percent to approximately 14–15 percent—equivalent to high-altitude conditions—necessitating external oxygen injection. Carbon dioxide fluctuated dangerously. Pollinators (hummingbirds and honeybees) died, impairing crop reproduction. Pest populations (cockroaches, crazy ants, mites) exploded. Crop yields proved insufficient; crew members lost significant body weight and relied in part on stored food. Interpersonal conflict intensified under the stress. Scientific advisory boards resigned amid disputes over methods and transparency (Cohen & Tilman 1996; Nelson et al. various; contemporary reporting summarized in Alling & Nelson accounts and subsequent analyses).

Biosphere 2 was not a pure failure of engineering knowledge; it was a demonstration that even carefully planned, resource-rich, closed systems struggle to deliver the continuous, decentralized adjustment that open markets and residual-claim incentives provide routinely. Central design could not replicate the error-correction of voluntary exchange and personal stakes.

These cases are extreme. They are useful precisely because they isolate the consequences of removing ordinary feedback loops while maintaining material sufficiency. Parallel patterns appear, in attenuated form, wherever political systems socialize losses, guarantee outcomes independent of contribution, and insulate decision-makers from the residual claims of those who must ultimately pay.

Performance, Taxation, and Regulatory Barriers: Empirical Patterns

Compensation linked to measured results consistently outperforms time-based or status-based pay. Meta-analytic and quasi-experimental evidence shows positive effects of performance-related pay on productivity. Individual incentive schemes have produced large gains; one classic field change from hourly to piece-rate pay raised productivity by approximately 44 percent, roughly half from increased effort and half from sorting of higher-productivity workers into the firm (Lazear 2000 and subsequent reviews). Group profit-sharing and collective performance pay show smaller but still positive average effects, often stronger when combined with employee participation or capital investment (Doucouliagos et al. 2020). Recent Chinese state-owned enterprise reforms that strengthened the link between wages and enterprise performance raised labor productivity by nearly 5 percent relative to private firms (Liu 2026). Public-sector meta-analyses find smaller but statistically detectable positive associations (meta-analyses in public administration literature, e.g., 2023 reviews). The direction of the evidence is clear: tying residual claims more tightly to results improves outcomes.

Taxation extracts resources that would otherwise remain available for private reinvestment and labor supply. The 2017 U.S. Tax Cuts and Jobs Act provides a large recent quasi-experiment. Studies exploiting cross-state variation find that tax reductions equivalent to 1 percent of adjusted gross income raised payroll employment by 0.8–1.5 percent and labor-force participation by 0.7–1 percentage point in the following years (various TCJA labor-market analyses). Corporate provisions were associated with increased domestic investment; one careful assessment places the rise in tangible corporate investment near 11 percent, with longer-run capital-stock effects (Chodorow-Reich, Zidar & Zwick 2024). Effects are heterogeneous and debated in magnitude, yet the directional evidence that lower marginal rates expand activity, particularly for employment and investment, is substantial. High tax wedges and complex

compliance costs fall disproportionately on smaller firms, the primary source of net job creation in most economies.

Occupational licensing and related entry regulations illustrate the employment effects of barriers. Licensing is associated with wage premiums for those inside the regulated occupation, but also with reduced employment, higher unemployment for unlicensed workers in related fields, and greater earnings inequality (Makridis & McLaughlin 2024; Dodini 2023; multiple state-level studies). Delicensing episodes and cross-state comparisons show that reducing these barriers expands opportunity, especially at the lower end of the skill distribution. The pattern is consistent: rules that protect incumbents raise the cost of experimentation and of matching talent to tasks.

Soft budget constraints compound these distortions. When lower-level governments or public enterprises expect bailouts, they expand debt and spending. Swedish local-government data show that moving from a hard to a soft budget constraint increases debt by more than 20 percent on average (Pettersson-Lidbom 2010). Cross-country and subnational evidence links vertical fiscal imbalances plus borrowing autonomy to higher public spending, including in health (IMF analyses). Politicians who can create obligations that outlast their terms face weak incentives to internalize long-run costs. Emotional justifications—“for the poor,” “for the vulnerable”—routinely override solvency tests. The result is intertemporal transfer of liability and the corruption that accompanies discretionary redistribution.

The Proposal and Its Scope

This study advances a coherent alternative built on three mechanisms.

First, pure performance-based pay with zero fixed salaries. Every participant—politician, entrepreneur, or project contributor—contracts for defined outcomes. Compensation is a residual share of verified results. Finish early at full quality and the time and efficiency gains belong to the performer. Miscalculate or under-deliver and the residual shrinks or disappears. For public offices the rule is stricter: debt incurred must be cleared within twelve months and never carried beyond the individual’s term. Unresolved obligations at term end trigger personal liability, including potential criminal consequences. No

exemptions for emotional appeals. Charity and social purposes remain possible only inside financially solvent structures.

Second, detaxation—progressive reduction toward minimal or zero taxation of productive activity.

Taxation functions as punishment of value creation. Selective “sin” taxes may serve as temporary bridges; the long-run direction is neutrality so that individuals and firms retain the fruits of successful calculation.

Third, deregulation—systematic removal of barriers to entry, experimentation, pricing, and voluntary association. The fewer the artificial constraints, the faster discovery and error correction occur.

These mechanisms are mutually reinforcing. Performance pay without low taxes is blunted by extraction. Low taxes without deregulation still confront artificial scarcity. Deregulation without residual-claim incentives produces disorder rather than coordination. Together they raise the cost of creating public debt and of large-scale redistribution until both become impractical.

Long-term investment is not suppressed. Private entities remain free to commit their own capital to multi-year or multi-decade projects and to bear the consequences. In a fully private-law order the same residual logic applies to everyone. In a bridge (minarchist) setting the strict short-horizon personal liability attaches only to public offices. The three points target political socialization of risk and the corruption that accompanies it; they leave voluntary long-horizon commitment untouched.

Chapter 2

Performance-Based Pay: Meritocracy as Absolute Equalizer

Pure performance-based pay (PBP) is the operational core of the three mechanisms examined in this study. Under this rule, no one receives a fixed salary. Compensation is earned exclusively through verified results. Individuals or teams sign onto defined projects or outcome contracts, calculate the required inputs and timelines themselves, and execute. If they finish early without quality deficits, the surplus time and any efficiency gains belong to them. If they miscalculate or under-deliver, they bear the full residual consequences—zero or negative pay, and, in the case of public office, personal liability.

This arrangement is the purest available form of meritocracy. Age, race, formal credentials, religion, seniority, and political connections become irrelevant. The only currency is results. It is therefore the only compensation system that is simultaneously radically fair and radically productive.

The Centerpiece Comparison

The following table contrasts current incentive structures with the pure performance regime for the three main categories of actors.

Table 2.1

Incentive Alignment under Pure Performance Accountability

(Zero fixed salaries of any kind)

Actor	Current Treatment & Reimbursement	Current Accountability	Proposed Treatment & Reimbursement	Proposed Accountability
Politicians	Fixed salaries, pensions, benefits, and post-office opportunities largely independent of results. Debt can be	Weak. Failures are externalized; emotional appeals routinely override results.	Zero fixed pay. Compensation consists solely of a verified share of the net surplus generated by projects initiated	Debt must be extinguished within 12 months of creation and never carried beyond the individual's term.

Actor	Current Treatment & Reimbursement	Current Accountability	Proposed Treatment & Reimbursement	Proposed Accountability
				Unresolved debt at term end triggers personal liability: repay the shortfall or face criminal consequences including jail. No emotional exemptions. Charity elements are permitted only if the overall project remains financially solvent.
	expanded without personal consequence.		and completed under their authority. No surplus = no income.	
Entrepreneurs	Residual claimants but heavily taxed and regulated; occasional political insulation or bailouts.	Market discipline exists but is distorted by subsidies, barriers, and limited-liability privileges.	Pure residual claim after all voluntary contracts. Near-zero taxation and minimal regulation leave the full upside and downside with the entrepreneur.	Full market accountability. Success produces high personal returns; failure produces personal loss. No political safety nets.
Employees / Project Contributors	Time-based wages, seniority, credentials, or collective	Limited. Underperformance is frequently	Zero fixed salary. Individuals or teams contract for defined	Continuous and direct. Persistent shortfall = reduced or

Actor	Current Treatment & Reimbursement	Current Accountability	Proposed Treatment & Reimbursement	Proposed Accountability
	agreements. Performance often secondary.	protected.	outcomes. Pay is a pre-agreed share of the value actually delivered. Finish early at full quality → keep the time and efficiency gains.	zero residual. Accurate calculation and execution are the only routes to earnings.

The table makes the shift concrete. Current systems protect status and time; the proposed system protects only verified contribution.

Empirical Record of Performance-Linked Pay

The private-sector evidence is extensive and directionally consistent. When pay is more tightly linked to measured output, productivity rises.

Lazear's classic study of the Safelite Glass Corporation remains one of the cleanest field experiments. The firm switched from hourly wages to piece rates. Productivity increased by 44 percent. Roughly half the gain came from higher effort by the same workers; the other half came from sorting—more productive workers stayed or joined, while less productive workers left (Lazear 2000).

Meta-analyses of profit-sharing and group performance pay find positive average effects on productivity, with stronger results when combined with employee participation or capital investment (Doucouliagos et al. 2020). Individual incentive schemes generally produce larger gains than group schemes, as free-rider problems are reduced (reviews summarized in IZA World of Labor and related syntheses).

A recent quasi-experiment in Chinese state-owned enterprises is instructive. After a 2018 reform that strengthened the link between wages and enterprise performance, labor productivity in the affected SOEs

rose by approximately 5 percent relative to private firms (Liu 2026). The mechanism was precisely the increased sensitivity of pay to results.

Public-sector meta-analyses report smaller but still positive associations between performance-related pay and employee or organizational outcomes. Effect sizes are typically modest, which is consistent with the residual political constraints and measurement difficulties that remain in government settings (public-administration meta-analyses, 2023 reviews). The pattern across sectors is the same: the closer compensation tracks verified contribution, the higher the measured performance.

A further, and frequently overlooked, consequence of pure performance-based pay is the powerful incentive it creates for continuous process improvement. Critics of residual-claim systems sometimes assert that free-market and self-regulatory arrangements are “anti-progressive” and that they delay concerted scientific or technological effort. The opposite is the case. Because compensation rises directly with verified output and quality, every participant has a strong personal interest in discovering methods that deliver the same or better results in less time or at lower cost.

A simple illustration makes the mechanism clear. A secretary contracted to transcribe taped notes at \$20 per completed letter may require forty minutes using conventional typing. If she adopts a reliable voice-to-text system and produces the identical letter in five minutes at equal or higher quality, she still receives the full \$20—only far more quickly. The surplus time is hers to use as she wishes; the client receives the work sooner. Both parties gain. The same logic applies to better machinery, improved software, automation, or any other process innovation. Under residual-claim contracts, technological and organizational progress is not an external goal imposed by planners; it is the direct route to higher personal earnings. The result is faster adoption of useful tools rather than resistance to them.

These findings hold after accounting for sorting effects, which are themselves a feature rather than a bug. Systems that reward results attract and retain people who can deliver results. Systems that reward tenure, credentials, or political affiliation do the opposite.

Application to Public Office

The most radical—and most necessary—application is to politicians and public officials. Under the pure performance rule there is no fixed salary, no automatic pension accrual based on time served, and no insulation from the financial consequences of decisions.

A concrete illustration clarifies the standard. A president with a four-year term authorizes the construction of four small modular reactors at a cost of \$2 billion. Construction is projected to take twelve months, after which the assets begin generating returns. If the project is completed on schedule and the debt is retired within the twelve-month window (or the verified ROI covers the obligation before the term ends), the office-holder may receive a pre-agreed share of the net surplus created. If construction is delayed and the term ends with unresolved debt, the individual is personally liable. The shortfall must be repaid or criminal consequences, including imprisonment, follow.

Emotional justifications are inadmissible. Claims that “the hospital will treat the poor” or “the school will serve the handicapped” do not suspend the solvency requirement. Functional models of charity and mutual aid exist and can be integrated into projects that remain financially sound. Projects that cannot meet a basic residual test are simply failed projects. There are no sob-story exemptions.

This rule directly attacks the soft-budget-constraint problem documented in the empirical literature. When decision-makers know that unresolved obligations will follow them personally, the incentive to create long-lived public debt declines sharply. Swedish local-government data show that the mere expectation of a soft budget increases debt by more than 20 percent (Pettersson-Lidbom 2010). Removing that expectation is the point.

Psychological and Cultural Effects

When residual claims are the only path to income, the focus of attention shifts from entitlement and status defense to accurate calculation and continuous improvement. Early completion without quality loss is rewarded with free time—an outcome that is both efficient and humane. Persistent under-performance is not cushioned by tenure rules or collective agreements; it simply produces lower or zero residual.

Identity-based conflicts lose much of their force. When the only publicly relevant metric is results, arguments over proportional representation by age, race, religion, or formal credential become secondary. The system is the total equalizer precisely because it ignores those categories.

High-Dark-Triad individuals are not eliminated—such personalities will always exist—but their scope for predation is narrowed. Transparency of outcomes, personal liability for losses, and the absence of bail-outs raise the cost of exploitation. Under these conditions, the same traits that can produce destructive rent-seeking can, in some cases, be channeled into high-value creation. The institutional design does the work; moral exhortation is secondary.

Measurement and Scope

Not every activity yields an immediate, cleanly measurable residual. Complex or long-horizon private projects remain fully possible; the individuals or organizations that undertake them simply bear the risk with their own capital. In public office the rule is deliberately stricter and shorter-horizon precisely because political actors currently externalize costs onto non-consenting parties. The study does not claim that every public function can be reduced to a simple twelve-month residual. It claims that the default should be residual accountability, that exceptions must be justified by clear evidence rather than emotional appeal, and that the current default of fixed pay plus soft budgets is the empirically weaker arrangement.

Pure performance-based pay does not operate in isolation. Its effects are amplified by lower taxation (which leaves more of the residual with the producer) and by deregulation (which removes artificial barriers to entry and experimentation). Those interactions are examined in subsequent chapters. The central claim of this chapter is narrower and prior: when compensation is detached from results, distortions follow; when it is reattached, performance improves and many forms of political and social conflict lose their material basis.

Chapter 3

Detaxation: Ending the Punishment of Productivity

Taxation is not a neutral transfer. It is the compulsory extraction of resources from individuals and organizations that have created value, enforced by the threat of force. In that precise sense it functions as a punishment of productive activity. The more successfully a person or firm calculates, innovates, and delivers results under the pure performance rules described in Chapter 2, the larger the share that is taken. This severs part of the residual claim that would otherwise remain with the producer and thereby weakens the very incentives the previous chapter showed to be effective.

Taxation is, at root, a punishment, a discouragement, and a de-incentive. It raises the cost of the activity to which it is applied. Therefore, for as long as a society chooses to maintain a government, the least damaging use of that instrument is to levy taxes primarily on behaviors and outcomes that the same society regards as disadvantageous or undesired. This is a double-edged sword—just as the existence of government itself is a double-edged sword—but it is preferable to the present practice of placing the heaviest burdens on diligent and productive citizens.

Under this transitional logic, taxes could be directed toward such activities as the consumption of heavily pre-processed, industrial, or high-sugar foods; pollution; the intensive use of synthetic pesticides and fertilizers; the importation of fruits and vegetables that can be grown domestically; luxury vehicles; the failure to equip vehicles with effective filtration or exhaust systems; the development of morbid obesity; or public begging. These remain personal decisions. By a strict libertarian standard they should not be punished at all. Yet while a coercive government continues to exist and requires revenue, it is far better to extract that revenue from choices widely viewed as costly to the individual or to others than to punish the creation of value through income, capital, and productive exchange.

The long-run direction remains neutrality and progressive detaxation of productive activity. The above list is offered only as a bridge principle for the period in which government has not yet been reduced to a minimal residual function.

The Knowledge and Legitimacy Problem

No central authority possesses the knowledge or the moral standing to rank consumption and lifestyle choices as “good” or “bad” on behalf of others. Decisions about how much to work, what risks to take, what products to buy, or how to allocate personal resources are exercises of self-responsibility. When the state imposes differential taxes according to its own ranking of those choices, it substitutes political preference for individual judgment. The long-run direction consistent with the rest of this study is therefore neutrality: the progressive reduction of taxes on productive activity toward the lowest feasible level, ideally approaching zero on income, capital, and value-added transactions that arise from voluntary exchange.

Temporary, narrowly targeted “sin” taxes on alcohol and tobacco may serve as bridge measures while broader detaxation proceeds. Even these, however, rest on contested judgments and create their own distortions and black markets. They are not a permanent feature of a residual-claim order.

Empirical Patterns of Lower Taxation

The evidence linking lower marginal tax rates to higher economic activity is substantial, even if magnitudes remain debated.

The 2017 U.S. Tax Cuts and Jobs Act supplies a large recent quasi-experiment. Studies that exploit cross-state variation in the resulting tax shocks find that reductions equivalent to 1 percent of adjusted gross income were associated with a 0.8–1.5 percent increase in payroll employment and a 0.7–1 percentage-point rise in labor-force participation over the subsequent two years (TCJA labor-market analyses). Corporate provisions reduced the tax wedge on new investment; careful assessments place the rise in tangible corporate investment in the range of 11 percent, with longer-run positive effects on the capital stock (Chodorow-Reich, Zidar & Zwick 2024). Labor productivity growth also accelerated relative to the pre-reform trend in the immediate post-TCJA years.

Meta-analytic and narrative reviews of corporate tax changes reach more mixed conclusions once publication bias is taken into account, yet the directional finding that lower rates expand investment and activity remains common in the literature that corrects for endogeneity. Effects are typically larger for

smaller and more financially constrained firms—the same firms that constitute the primary engine of net job creation in most economies. High tax compliance costs and complex rate structures fall disproportionately on small and medium-sized enterprises, reducing their capacity to reinvest residual earnings and to expand employment.

Cross-jurisdictional patterns are consistent with these results. Low-tax environments, whether national (certain historical episodes or contemporary low-tax jurisdictions) or subnational, tend to attract capital, labor, and entrepreneurial activity relative to high-tax neighbors, holding other factors constant. The mechanism is straightforward: more of the residual generated under performance-based arrangements remains with the people who produced it, raising both the return to successful calculation and the resources available for further private investment.

Unemployment as a Policy Artifact

A large share of observed unemployment is not an inevitable market outcome but the product of policy. Tax wedges between what an employer pays and what a worker receives, combined with welfare benefits that phase out steeply, create unemployment traps. Regulatory barriers to hiring and to business formation compound the effect. When these wedges and barriers are reduced, measured unemployment falls and labor-force participation rises—the pattern visible in the TCJA employment results and in multiple earlier episodes of tax and labor-market reform. The claim that unemployment is primarily a deficiency of aggregate demand or of private willingness to hire is difficult to reconcile with the repeated observation that lowering the tax and regulatory cost of employment expands the number of people working.

Prescription Regimes and Controlled Substances

A particularly clear illustration of the costs of political ranking of “good” and “bad” consumption appears in pharmaceutical and controlled-substance regulation. Prescription-only regimes and scheduling systems create artificial scarcity, raise prices, and generate opportunities for corruption and black-market activity. Individuals who need particular medications for legitimate medical reasons face higher costs and

gatekeeping; individuals who seek the same substances for other reasons turn to illegal supply. The poor are hit hardest on both margins—higher legal prices and greater exposure to unsafe illegal markets.

These regimes are defended as protecting public health. The empirical record is more ambiguous: prohibition and tight prescription controls have repeatedly failed to eliminate non-medical use while generating substantial collateral harm. A residual-claim, self-responsibility framework does not require the state to declare certain substances virtuous or vicious. It requires only that individuals bear the consequences of their own choices and that voluntary providers of information, insurance, and mutual aid be free to operate. Bridge measures may retain limited controls; the long-run direction is the removal of political gatekeeping that raises costs without eliminating the underlying demand.

Interaction with Performance Pay and Deregulation

Detaxation multiplies the effect of pure performance-based pay. When residual claims are the sole source of income, the share that remains after tax determines the strength of the incentive. High taxation blunts the gains from finishing early, adopting better methods, or taking calculated risks. Low or zero taxation restores the full force of those gains.

Deregulation works in the same direction. Tax reductions that leave more residual with producers are partially offset if artificial barriers still prevent new firms from entering, new methods from being tried, or capital from being reallocated. The three mechanisms are therefore complementary: performance pay aligns individual incentives, detaxation leaves the resulting residual intact, and deregulation clears the path for both.

Long-Term Investment and Social Goods

Nothing in the detaxation argument requires the abolition of long-term private investment, charity, or education. On the contrary, when more resources remain in private hands and when residual claims are secure, the capacity for voluntary long-horizon projects, philanthropic activity, and high-quality education expands. These activities continue—and typically improve—precisely because they are no longer dependent on political extraction and soft budget constraints. The study's aim is not the destruction of

collective goods but their transfer from coercive to voluntary provision under conditions of transparency and personal accountability.

Summary

Taxation punishes success. It weakens residual claims, raises the cost of employment, and substitutes political rankings of consumption for individual responsibility. Empirical patterns from tax reforms and cross-jurisdictional comparisons show that lowering these burdens expands employment, investment, and the resources available to small and medium-sized firms. Prescription and controlled-substance regimes illustrate the additional harms that arise when the state claims the authority to declare certain choices illegitimate.

The consistent direction is progressive detaxation toward neutrality, with narrowly targeted bridge measures only where politically unavoidable and always under explicit sunset. Combined with pure performance-based pay and deregulation, the effect is to make debt-financed redistribution and the corruption it enables increasingly difficult while leaving voluntary long-term cooperation fully intact.

Chapter 4

Deregulation: Clearing the Path for Discovery

Regulation is not a neutral framework that simply corrects market failures. Every rule imposes costs: compliance time, legal uncertainty, barriers to entry, and the protection of incumbents who already know how to navigate the existing system. These costs compound. The more complex the rulebook becomes, the greater the advantage conferred on large, established organizations and the smaller the space left for new experimentation, rapid error correction, and voluntary coordination.

The governing principle of this chapter is straightforward: the fewer the artificial constraints, the wider the scope for discovery. Individuals and organizations that operate under pure performance-based residuals (Chapter 2) and that retain more of what they produce (Chapter 3) still cannot act if the law prohibits the relevant contracts, land uses, hiring arrangements, or product offerings. Deregulation removes those prohibitions so that residual-claim incentives can operate.

The Compounding Costs of Rules

Empirical patterns across several domains illustrate the burden.

Occupational licensing is one of the clearest cases. Licensing regimes raise wages for those inside the regulated occupation while reducing overall employment in that field and increasing unemployment among workers who lack the credential. Recent studies find that higher regulatory restrictiveness is associated with elevated wages but lower employment, with the employment losses concentrated in lower-wage segments of the labor market (Makridis & McLaughlin 2024; Dodini 2023). Cross-state comparisons and delicensing episodes show that reducing these barriers expands opportunity, particularly for workers without advanced formal credentials. The wage premium enjoyed by licensed practitioners is, in significant part, a transfer extracted from consumers and from excluded workers rather than a pure reflection of higher productivity.

Housing and land-use regulation produce parallel effects. Strict zoning, lengthy permitting processes, and density restrictions raise the cost of building and limit the supply response to rising demand. The result is

higher prices, longer commutes, and reduced labor mobility. Jurisdictions that have simplified approval processes or relaxed density limits have seen faster housing supply responses and more moderate price growth relative to tightly regulated peers. The pattern is consistent with the broader finding that artificial scarcity created by rules benefits incumbents (existing homeowners and permitted developers) at the expense of newcomers and renters.

Similar dynamics appear in product standards, finance, education, and health. Complex approval processes slow the introduction of new tools and methods. Compliance costs that are fixed or rising with complexity fall more heavily on smaller firms, reinforcing concentration. In each domain the rulebook protects those who have already incurred the cost of compliance and raises the threshold for anyone attempting a different approach.

The Simplicity Fallacy: Not what it seems

A recurring obstacle to deregulatory reform is that the proposed alternatives appear too simple. Because the core institutional rules—performance-based residuals, low or zero taxation of productive activity, and the removal of artificial barriers—can be stated briefly, many observers dismiss them as naïve or “anti-progressive.” In reality, the underlying reasoning developed by thinkers such as Sowell, Rothbard, and Hoppe requires considerable analytical capacity to grasp fully. The apparent simplicity is deceptive.

A useful analogy clarifies the point:

$E=mc^2$	versus	A player is in an offside position if, at the moment a teammate plays the ball, any part of their head, body, or feet is in the opposing team’s half and nearer to the opponents’ goal line than both the ball and the second-last opponent
----------	--------	---

Einstein’s equation looks elementary, yet few people truly understand its implications. By contrast, the offside rule in soccer is lengthy and intricate but millions of fans nevertheless apply the rule accurately in real time. Complexity of formulation and depth of understanding are not the same thing. Institutional rules

that can be stated simply are often rejected for that very reason, even when their operational logic is more demanding—and more effective—than the elaborate regulatory systems they would replace.

Another Simplicity Fallacy: Protect through Rules and Laws

At first glance, many problems appear best solved through additional rules and laws. The history of mixed martial arts illustrates the pattern. When MMA emerged, numerous politicians and commentators moved quickly to ban it as excessively brutal and dangerous. Comparative evidence has since shown that the far more heavily regulated sport of boxing produces higher rates of serious head trauma and greater long-term neurological risk. One direct comparison of medical outcomes found loss of consciousness in 7.1% of boxing bouts versus 4.2% in MMA, along with higher rates of serious eye injury among boxers (University of Alberta data summarized in subsequent reviews). Brain-imaging studies have documented greater reductions in thalamic and hippocampal volumes among boxers relative to MMA fighters (Bernick et al., 2015 and related analyses). Historical fatality counts and chronic traumatic encephalopathy findings further indicate that boxing's repetitive, head-focused striking under tightly controlled rules has generated more severe cumulative brain injury than the broader rule set of MMA (systematic reviews in *Clinical Journal of Sport Medicine* and related sources). The initial regulatory impulse protected a familiar, highly controlled activity while suppressing a newer format that proved less damaging under open competition.

Minimum-wage laws follow a similar logic. They are widely regarded as simple fairness. Yet a large body of empirical work finds that binding minimum wages reduce employment among the lowest-skilled and youngest workers—the precise groups the policy intends to help. Reviews that compile U.S. estimates report a clear preponderance of negative employment elasticities, with stronger disemployment effects for teens, young adults, and the less-educated (Neumark & Shirley, 2022; earlier syntheses by Neumark & Wascher). Firms respond by cutting hours, reducing hiring at the bottom of the skill distribution, or accelerating automation. While some recent studies of broader low-wage groups report smaller or near-zero average effects, the directional evidence that minimum wages price the least productive workers out of the market remains robust in the segments where the constraint binds most tightly.

Fraud and theft are universally rejected, and laws against them are therefore taken as self-evident. In practice, complex regulatory systems often create legal loopholes and compliance safe harbors that allow unethical conduct to continue under formal legality. Lightly regulated or open markets rely primarily on customer feedback and residual reputation. Firms that systematically cheat lose repeat business and face rapid exit. In these settings the feedback loop is faster and more precise than administrative enforcement.

The recurring error is the assumption that the first, most intuitive legal intervention is also the most effective. Experience repeatedly shows the opposite: the more a domain is insulated from residual claims and direct customer feedback, the greater the scope for both unintended harm and legalized predation.

Amplification of Performance Pay and Detaxation

Deregulation multiplies the effects of the first two mechanisms. Pure performance-based pay creates strong incentives to finish early and to adopt better methods, but those incentives are blunted if the law forbids the relevant contracts or tools. Detaxation leaves more of the residual with the producer, yet the extra resources cannot be deployed if entry is blocked or if new product categories require years of administrative approval. Removing artificial barriers allows residual claims and retained earnings to translate into actual experimentation and expansion.

In labor markets, the combination is especially powerful. When workers and firms can contract freely over outcomes rather than hours, when the tax wedge on employment is low, and when occupational licensing and other entry barriers are minimized, the cost of creating new jobs falls and the return to accurate calculation rises. Unemployment that is currently sustained by the interaction of tax wedges, welfare traps, and licensing restrictions becomes harder to maintain.

Long-Term Private Investment and Social Cooperation

Deregulation does not prohibit long-horizon projects. Private individuals, firms, universities, and associations remain free to commit their own capital to multi-year research, infrastructure, or educational initiatives and to bear the consequences. What disappears is the political ability to socialize the risks of those projects onto non-consenting parties or to protect incumbents from competition while the projects

are underway. Voluntary long-term investment, charity, and education continue; they simply operate under residual-claim discipline rather than under soft budget constraints and regulatory privilege.

Summary

Regulation compounds costs, protects incumbents, and slows discovery. Empirical evidence from occupational licensing, housing, and related domains shows that reducing these barriers expands employment and opportunity while lowering artificial scarcity. The apparent simplicity of deregulatory rules is often mistaken for naivety; in practice, simple residual-claim institutions demand more rigorous calculation and faster error correction than complex administrative systems.

Combined with pure performance-based pay and progressive detaxation, deregulation clears the path for residual incentives to operate. The three mechanisms together raise the cost of debt-financed redistribution and political predation while leaving voluntary long-term cooperation intact. The practical direction is the systematic removal of rules that cannot be justified by clear evidence of net benefit under residual-claim conditions, with the long-run aim of reducing government first to a functional minarchy and later toward more fully voluntary orders.

Chapter 5

Synergies and Systemic Effects

The three mechanisms examined in the preceding chapters—pure performance-based pay with zero fixed salaries, progressive detaxation, and systematic deregulation—are not independent policy tools. They form a mutually reinforcing system. Each amplifies the others; each is weakened when the others are absent. Their combined operation produces effects that none can achieve alone: stronger residual claims, faster error correction, broader opportunity for small and medium-sized enterprises, reduced scope for political predation, and a gradual shift from coercive to voluntary provision of social goods.

Interaction of the Three Pillars

Pure performance-based pay aligns individual effort with verified results. Yet when high taxes remove a large share of the residual, the incentive to finish early, adopt better methods, or take calculated risks is blunted. Detaxation restores that residual, but the extra resources remain constrained if regulation blocks new contracts, new land uses, new hiring arrangements, or new product categories. Deregulation clears those barriers, yet without residual-claim discipline the newly opened space can be filled by soft-budget behavior or by status-based allocation rather than by value creation.

Only the joint operation of all three produces the full effect. Performance pay supplies the directional incentive. Detaxation preserves the material reward. Deregulation removes the artificial obstacles. Together they raise the cost of creating public debt that outlives the decision-makers who authorized it and of sustaining redistributive coalitions that sever contribution from reward. The result is a progressive tightening of soft budget constraints and a corresponding expansion of voluntary coordination.

The interaction of the three mechanisms can be illustrated with a simple four-quadrant framework that captures both intentional and unintentional inefficiency in centralized systems.

Table 5.1: Incentive Alignment versus Extraction and Barriers

	High taxation + dense regulation	Low taxation + light regulation
Status / time / credential-based pay	Soft budgets, rent-seeking, protection of incumbents, slow error correction. Rules either deliberately favor connected parties or simply exceed any human capacity to manage millions of people and billions of transactions.	Resources remain private and entry is easier, yet allocation still follows seniority, credentials, or political connection rather than verified results. Growth occurs, but misallocation persists.
Pure residual-claim pay (zero fixed salaries)	Incentives exist but are heavily blunted. Effort and innovation occur, yet much of the residual is extracted or blocked by rules. Only partial improvement.	Full alignment. Residuals stay with producers, artificial barriers fall, and every participant has a direct interest in faster and better methods. Small improvements are rewarded immediately and propagate through voluntary imitation. Compounding discovery becomes the dominant pattern.

The productivity gains from residual-claim pay (Lazear, 2000; Doucouliagos et al., 2020), the employment and investment responses to lower tax wedges (Chodorow-Reich, Zidar & Zwick, 2024), and the employment expansion that follows reductions in licensing and entry barriers (Makridis & McLaughlin, 2024; Dodini, 2023) are each stronger when the other two conditions are also present. Partial movement into any single quadrant produces only limited improvement; simultaneous movement into the lower-right quadrant produces the compounding pattern.

When taxation and regulation are high and compensation remains tied to status, time, or credentials, the dominant outcome is soft budgets, rent-seeking, and slow error correction. Rules either deliberately favor connected incumbents (“rigging the game”) or simply exceed any human capacity to manage millions of people and billions of daily transactions. In either case the result is systemic inefficiency.

Shifting only to pure residual-claim pay while leaving high extraction and dense rules in place produces limited gains: incentives exist, yet most of the residual is removed or blocked. Shifting only to low taxes and lighter regulation while retaining status-based pay allows more resources to remain private and lowers entry barriers, but allocation continues to follow seniority or political connection rather than verified results.

Only when pure performance-based pay, low taxation, and deregulation operate together does the system enter the quadrant of rapid discovery. Residuals stay with those who create them, artificial barriers fall, and every participant has a direct interest in methods that raise speed and quality. Small improvements are rewarded immediately and propagate through voluntary imitation. The effects are compounding rather than merely additive—precisely the pattern described by systems and complexity perspectives. No central planner is required to coordinate the process; the residual-claim structure itself generates continuous adaptation.

Effects on Small and Medium-Sized Enterprises

Small and medium-sized enterprises are the primary source of net job creation and of incremental innovation in most economies. They are also the organizations most damaged by the current combination of fixed labor costs, high tax compliance burdens, and dense regulatory entry barriers. Under pure residual-claim contracts, lower taxation, and lighter regulation, these firms gain three advantages simultaneously: they can pay for results rather than for time or credentials; they retain more of the surplus they generate; and they face fewer artificial obstacles to hiring, pricing, and experimentation.

The employment and investment patterns reviewed in Chapters 2–4 are consistent with this prediction. When the tax wedge on labor falls and when occupational and permitting barriers are reduced, measured employment and business formation respond positively, with the strongest effects often visible among smaller and more constrained firms. The same residual logic that rewards a secretary for adopting voice-to-text technology rewards an entrepreneur for discovering lower-cost production methods or new service models. Scale advantages of large incumbents that rest on regulatory complexity rather than on superior performance are eroded.

These patterns are consistent with the soft-budget-constraint evidence: when decision-makers expect losses to be socialized, debt and inefficiency expand (Pettersson-Lidbom, 2010). Residual-claim rules combined with low extraction and open entry reverse that dynamic for the firms most sensitive to cost and regulatory barriers.

Broader Social and Cultural Consequences

When residual claims become the dominant source of income and status, several secondary effects follow. Identity-based claims lose material force because the only publicly relevant metric is verified contribution. Arguments over proportional representation by age, race, religion, or formal credential become harder to sustain when compensation and opportunity track results rather than category membership.

Personal responsibility rises because losses are no longer routinely socialized. High-Dark-Triad individuals continue to exist, yet their scope for predation narrows when transparency of outcomes, personal liability, and the absence of bail-outs raise the cost of exploitation. The same traits that can produce destructive rent-seeking can, under residual-claim conditions, be channeled into high-value creation.

Technological and organizational progress accelerates because every participant has a direct interest in methods that raise speed and quality. The secretary who adopts better transcription tools, the manufacturer who automates a costly process, and the service provider who eliminates unnecessary steps all capture a larger residual. Progress is no longer an external goal imposed by planners; it is the internal route to higher earnings.

Social problems that are currently addressed through political redistribution and regulatory mandate shift toward voluntary solutions. Charity, mutual aid, long-term research, and education continue—and typically improve—because more resources remain in private hands and because residual-claim discipline replaces soft budget constraints. Long-horizon private investment is not suppressed; it is simply required to bear its own risks rather than shifting them onto non-consenting parties.

Feedback Loops and Institutional Trajectory

Success under residual-claim rules generates its own cultural and political support. When individuals and firms experience higher returns to accurate calculation and faster correction of error, the constituency for further liberalization expands. Each increment of detaxation and deregulation makes the next increment less costly to achieve, because the alternative of returning to high extraction and dense rules becomes more visibly inferior.

The practical trajectory is sequential rather than revolutionary. The three mechanisms can be advanced within existing political systems as a bridge toward a functional minarchy—government limited to the residual tasks that cannot yet be performed voluntarily. Further success under those conditions creates the basis for still greater reliance on private-law and voluntary orders (aparactonomy). At no point is the system required to collapse; it is required only to adapt continuously toward self-reliance and residual accountability.

Summary

Performance-based pay, detaxation, and deregulation reinforce one another. Their joint operation strengthens residual claims, expands opportunity for smaller enterprises, reduces the material basis of identity conflict, accelerates useful innovation, and shifts social provision from coercive to voluntary channels. Long-term private investment, charity, and education are improved rather than abolished. Crime and political predation are constrained not by ever-more-complex rules but by transparency, personal liability, and the absence of bail-outs.

The three mechanisms therefore constitute a coherent, empirically grounded route for keeping predation in check while raising the general level of prosperity and self-reliance. The chapters that follow examine available case evidence, measurement difficulties, and the principal objections that arise when residual-claim logic is applied consistently.

Chapter 6

Real-Life Evidence and Partial Applications

The three mechanisms—pure performance-based pay, progressive detaxation, and systematic deregulation—rarely appear together in pure form. The historical record consists of partial applications. These cases remain valuable because they show directional effects consistent with residual-claim logic and because they reveal what remains incomplete when only one or two of the mechanisms operate.

High-Powered Residual Claims: Tesla's 2018 CEO Performance Award

In January 2018 Tesla granted Elon Musk a ten-year compensation package containing no salary, no cash bonus, and no equity that vested with the mere passage of time. The award consisted entirely of stock options that vested only upon simultaneous achievement of extremely ambitious market-capitalization milestones (beginning at \$100 billion and rising in \$50 billion increments to \$650 billion) and corresponding revenue and adjusted EBITDA targets (Tesla, 2018 SEC filings and company announcement).

This structure is a near-pure application of the first mechanism in the present study: zero fixed pay and compensation solely as a residual claim on verified extraordinary results. At the time many observers considered the targets unrealistic. The subsequent rise in Tesla's valuation and the vesting of large portions of the award demonstrated that extreme residual-claim contracts can attract and retain the capacity required for difficult technological and organizational goals. The case does not prove universal success; it shows that removing fixed compensation and tying reward strictly to outcomes is operationally feasible even under intense public and regulatory scrutiny. It also illustrates the amplifying role of the other two mechanisms: the residual would have been less powerful under high personal taxation, and the operational freedom required to pursue the milestones would have been more constrained under denser product and labor regulation.

Low Taxation Combined with Open Entry: Post-War Hong Kong

For several decades after the Second World War, Hong Kong maintained low flat tax rates (salaries tax reaching a standard rate of 15 percent, profits tax remaining modest), no capital-gains tax, no sales tax or VAT, minimal tariffs, and deliberately light regulation of business formation. Financial Secretary John Cowperthwaite and his successors resisted detailed economic planning and kept the overall tax burden low—commonly cited as never exceeding roughly 14 percent of GDP for extended periods (Littlewood, 2010; contemporary policy accounts). Company registration was simple; the tax code itself remained short by international standards.

The results were rapid compounding growth. Per-capita income rose from approximately one-quarter of the British level in 1960 to substantially above it by the mid-1990s. Life expectancy, educational attainment, and living standards advanced sharply despite the absence of natural resources and the presence of high population density (Friedman comparisons; IEA and related historical summaries). Hong Kong never operated a pure residual-claim system, yet it combined the second and third mechanisms—low extraction and relatively open entry—for a sustained period. The outcome was one of the clearest large-scale demonstrations that keeping more of the residual in private hands while lowering artificial barriers produces rapid improvement in material conditions. Later political and regulatory shifts altered the environment; the earlier decades remain instructive precisely because they approximated two of the three pillars simultaneously.

Market Opening in Telecommunications

Across multiple countries, the privatization of state telephone monopolies and the subsequent relaxation of entry and price controls produced rapid gains in access, quality, and affordability. Mobile telephony, once restricted and expensive, became a mass-market service within a relatively short period once statutory monopolies were broken and new competitors were permitted to operate. Studies of post-liberalization performance document increases in output, operating efficiency, and capital investment, together with declines in real prices and expansion of service to previously underserved populations (World Bank telecom reform analyses; national liberalization reviews).

These episodes primarily illustrate the third mechanism—deregulation and the removal of legal barriers to entry—while also allowing residual claims to operate more freely among the new private operators. Where taxation remained high or residual labor and spectrum rules stayed restrictive, the gains were -significantly- blunted. Where entry was genuinely opened, the speed of adoption and cost reduction accelerated. The pattern supports the study’s claim that residual incentives produce limited results when artificial scarcity is maintained by law.

Higher Education Entry Liberalization: Spain after the Early 1990s

Higher learning itself has deep non-state roots. The major classical Greek philosophical schools (Plato’s Academy, Aristotle’s Lyceum, and others) were private initiatives founded and directed by individual scholars. The University of al-Qarawiyyin in Fez, Morocco, founded in 859 by the private benefactor Fatima al-Fihri as a mosque and madrasa, is recognized as the oldest continuously operating higher-learning institution. The later European university model and the modern predominance of state-controlled institutions are subsequent developments, and not without criticism. Global ranking patterns are consistent with the residual-claim perspective: many of the highest-ranked universities in major international league tables (particularly in the United States) are private institutions that operate with greater autonomy over resources, hiring, and strategy.

Spain’s university framework was modified beginning in the early 1990s, making the legal creation of private universities feasible under defined conditions. From a very small base, the number of private institutions expanded rapidly. By the mid-2020s more than forty private universities were operating. They enrolled roughly 300,000 undergraduate (*grado*) students and had surpassed public institutions in master’s-level enrollment, while also attracting substantial numbers of students from other Spanish-speaking countries (Spanish Ministry of Science, Innovation and Universities data; CYD Foundation analyses).

This expansion was a clear instance of the third mechanism in the present study: regulatory liberalization that lowered statutory barriers to entry. New providers competed on program design, flexibility, and employability, and residual-claim dynamics (tuition-dependent revenue) reinforced responsiveness to student demand.

From 2021 onward, however, the central government reversed course. A series of decrees (commonly referred to as the “anti-chiringuito” rules), intensified under the Sánchez administrations, imposed substantially higher barriers: minimum enrollment thresholds (later set at 4,500 students), mandatory research-expenditure and competitive-funding quotas, requirements for multiple doctoral programs, binding quality reports from evaluation agencies, and stricter solvency and promoter-experience rules. Institutions that fail to meet the new criteria face the risk of forced closure or severe operational constraints.

The re-tightening of entry and operating conditions illustrates the fragility of partial deregulation. When residual barriers are re-imposed, the earlier supply response is constrained and competitive pressure is reduced. Recent international rankings reflect the broader pressures on the Spanish system: multiple leading Spanish universities have declined in position in successive QS editions, and no Spanish institution ranks in the global top 100 (QS World University Rankings recent editions). The Spanish case therefore demonstrates both the positive effects of lowering entry barriers and the rapid erosion of those gains when regulation is re-expanded.

The Spanish example illustrates how heavier regulation and soft-budget public financing tend to raise costs (borne by taxpayers) while weakening competitive pressure on quality. Lower entry barriers and residual-claim mechanisms expand supply and allow market feedback to discipline cost and performance. A parallel relative decline is visible across much of Europe and, on pure research-output metrics, among leading Western institutions. In the Nature Index 2026 Research Leaders rankings, Harvard University lost the top academic position it had held for a decade, replaced by Zhejiang University; Chinese institutions took nine of the overall top ten places (Nature Index, 10 June 2026). Traditional reputation-based rankings (QS, THE) still show strong performances by certain US and UK universities at the very top, but the output-based shift recorded by the Nature Index and the CWTS Leiden Ranking confirms a rapid change in the global distribution of high-quality research production.

Limits of Partial Reform

Each of the cases improved measured outcomes relative to the prior status quo. None implemented pure performance-based pay, near-zero taxation of productive activity, *and* systematic deregulation at the same time. High-powered residual contracts still operated inside taxed and regulated environments. Low-tax jurisdictions retained other distortions. Sectoral liberalizations left surrounding tax and labor rules intact.

The recurring pattern is that partial movement produces partial gains. Soft-budget behavior, residual extraction, and remaining entry barriers continue to limit the compounding effect described in Chapter 5. Full coherence remains the arrangement most consistent with rapid discovery, broad opportunity for smaller enterprises, and the progressive reduction of debt-financed political predation.

Chapter 7

Objections and Replies

Any proposal that removes fixed salaries, sharply reduces taxation of productive activity, and systematically lowers regulatory barriers encounters a standard set of objections. This chapter addresses the most common ones directly, drawing on the residual-claim logic and the empirical patterns already presented.

Objection 1: Inequality of outcomes will increase

The claim is that pure performance-based pay and open competition will widen material differences and that such widening is inherently undesirable.

Reply: Inequality of outcomes is not a defect of residual-claim systems; it is a necessary consequence of differences in contribution, risk-taking, time preference, and accuracy of calculation. The study treats this inequality as functional, dynamic, motivating and driving diversity. Division of labor and specialization require that people who create more value receive more residual. Attempts to suppress outcome differences through status-based pay, progressive extraction, or regulatory protection of lower performers reduce the incentive to create value and protect incumbents at the expense of newcomers.

Empirical patterns support the distinction. Residual-claim arrangements raise overall productivity and expand absolute opportunities even while relative rankings change (Lazear, 2000; Doucouliagos et al., 2020). The relevant comparison is not between equal and unequal outcomes under residual claims, but between a system that rewards verified contribution and one that rewards credentials, tenure, or political connection. The latter produces its own inequalities—often less transparent and less productive.

Objection 2: Who protects the vulnerable?

Critics argue that residual-claim systems abandon those who cannot compete effectively—children, the disabled, the temporarily unemployed, or the low-skilled.

Reply: Protection of the vulnerable does not require soft budget constraints, fixed political salaries, or dense regulation of productive activity. Voluntary institutions—families, mutual-aid societies, charities,

insurance markets, and residual-claim enterprises that choose to incorporate social purposes—have historically provided substantial support and continue to do so. Private entities frequently assist through scholarships, internships, and targeted training programs that simultaneously develop talent and serve organizational needs: a win-win arrangement that does not rely on coercive redistribution. The study's framework improves the material base for such voluntary provision by leaving more resources in private hands and by removing barriers to the formation of new mutual-aid and charitable organizations.

Minimum-wage laws and occupational licensing, often defended as protections for the vulnerable, frequently reduce employment opportunities precisely for the lowest-skilled (Neumark & Shirley, 2022; Makridis & McLaughlin, 2024; Dodini, 2023). Soft-budget public programs create dependency traps and intertemporal debt burdens that fall on future workers (Pettersson-Lidbom, 2010). Residual-claim systems do not eliminate hardship; they reduce the political creation of artificial scarcity and the socialization of losses that currently magnify it.

Objection 3: Externalities and public goods

Some goods and harms are said to spill over so widely that residual claims and voluntary exchange cannot handle them—basic research, certain forms of infrastructure, pollution, or contagious disease.

Reply: The existence of externalities does not automatically justify fixed political salaries, high extraction from productive activity, or comprehensive entry barriers. Many externalities can be addressed through clearer property rights, residual-claim contracts, reputation mechanisms, and voluntary associations.

Where genuine public-goods problems remain, the residual-claim framework still favors transparent, time-limited, and personally accountable provision over open-ended soft budgets. Long-horizon private investment in research and infrastructure remains fully possible; the restriction is only on the political socialization of the associated risks.

Historical and contemporary cases of telecommunications liberalization, private higher-education expansion, and high-powered residual contracts (Tesla 2018 award) show that domains once thought to

require heavy state control can generate rapid progress once residual claims and open entry are allowed to operate.

Objection 4: Transition costs and political feasibility

Even if the destination is desirable, the path is said to be politically impossible or economically disruptive.

Reply: The study does not require simultaneous, system-wide rupture. The three mechanisms can be advanced sequentially as bridge reforms: strengthening residual claims in public and private compensation, reducing tax wedges on production and employment, and removing the most damaging entry barriers first. Each step that improves measured performance expands the constituency for the next step. Partial applications already demonstrate directional gains (performance-pay productivity effects, tax-cut employment responses, licensing reform employment effects). Full coherence is the logical extension, not a utopian precondition.

Political feasibility is constrained by existing interest groups that benefit from soft budgets and regulatory protection. That constraint is real. It does not invalidate the residual-claim diagnosis; it explains why incomplete reform is the historical norm and why soft-budget and barrier-creating policies persist despite their costs.

Objection 5: Substance use and public health

Residual-claim and deregulatory approaches are said to ignore the harms of addiction, obesity, or other health-related behaviors.

Reply: Political ranking of “good” and “bad” consumption has repeatedly produced black markets, higher prices for legitimate users, and corruption of medical gatekeeping. Prescription regimes and controlled-substance schedules raise costs and restrict access while failing to eliminate non-medical use. A residual-claim framework does not require the state to declare particular substances or lifestyles virtuous or vicious. It requires individuals to bear the consequences of their choices and leaves voluntary providers of information, insurance, treatment, and mutual aid free to operate. Bridge measures may retain limited

controls; the long-run direction is the removal of political gatekeeping that creates artificial scarcity without eliminating the underlying demand.

Summary of the Replies

The recurring pattern in the objections is the assumption that residual claims, low extraction, and open entry leave important social functions unprovided. The empirical record of partial applications points the other way: residual-claim pay raises productivity, lower tax wedges expand employment and investment, and reductions in entry barriers increase opportunity and supply. Voluntary institutions and clearer residual liability address many of the concerns raised about vulnerability, externalities, and health. Transition is feasible as sequential constraint of soft budgets and artificial barriers rather than as instantaneous system replacement.

The three mechanisms do not claim to eliminate every hardship or coordination problem. They claim to make debt-financed redistribution and political predation increasingly difficult while improving the conditions under which voluntary cooperation, long-term private investment, charity, and education can operate. That claim is consistent with the directional evidence reviewed throughout the study.

Chapter 8

Conclusion: Residual Claims, Constraint of Soft Budgets, and the Path Forward

The recurring problems of modern societies—persistent unemployment alongside unmet needs, slow productivity growth despite technological advance, housing shortages amid regulatory complexity, declining educational outcomes relative to expenditure, substance-related harms expanded by prohibition and prescription regimes, and public debts that outlive the politicians who authorized them—are not primarily the result of insufficient resources or inherent market failure. They are the predictable consequences of incentive misalignment: status-based and time-based compensation, political insulation from the consequences of debt, high taxation of productive activity, and dense regulation that protects incumbents while blocking experimentation.

This study has examined three interlocking mechanisms that directly attack those misalignments: pure performance-based pay with zero fixed salaries, progressive reduction or elimination of taxes on productive activity, and systematic deregulation. Together they raise the cost of debt-financed redistribution and political predation while leaving voluntary long-term investment, charity, and education fully intact—and typically improved.

Synthesis of the Argument

Pure residual-claim pay aligns individual effort with verified results. Early high-quality completion is rewarded; miscalculation is borne by the decision-maker. The centerpiece comparison of politicians, entrepreneurs, and employees shows how current status-based and fixed-salary arrangements sever contribution from reward, while the residual-claim alternative restores it. Politicians who create unresolved debt within their term face personal liability; no sob-story exemptions apply. Inequality of outcomes under these rules is treated as functional: it reflects differences in contribution, risk-taking, and accuracy of calculation, and it enables division of labor and diversity rather than suppressing them.

Detaxation ends the punishment of productivity. Taxation is a disincentive. While government continues to exist, the least damaging use of that instrument is to place burdens on behaviors widely regarded as

costly rather than on the creation of value. The long-run direction remains neutrality. Empirical patterns from major tax reforms show employment and investment responses consistent with this logic.

Deregulation clears the path for residual incentives to operate. Occupational licensing, land-use controls, product standards, and entry barriers compound costs, protect incumbents, and slow discovery. Partial liberalization episodes—telecommunications, Spanish private higher education in the 1990s–2010s, and high-powered residual contracts such as Tesla’s 2018 CEO award—demonstrate directional gains. Re-imposition of barriers, as in the later Spanish university decrees, erodes those gains. Ranking and research-output data further show relative decline among many heavily regulated European systems alongside rapid rises in research production elsewhere (Nature Index 2026; QS and Leiden rankings).

The three mechanisms are synergistic. Performance pay without low taxes is blunted; low taxes without open entry leave resources trapped; deregulation without residual discipline opens space that can still be filled by soft-budget behavior. Only joint operation produces the compounding pattern of rapid error correction and continuous adaptation illustrated in the four-quadrant framework of Chapter 5.

Path and Feasibility

The study does not require instantaneous system-wide rupture. The mechanisms can be advanced sequentially as bridge reforms: strengthening residual claims in compensation, reducing tax wedges on production and employment, and removing the most damaging entry barriers first. Each measured improvement expands the constituency for further steps. Long-horizon private investment, mutual aid, scholarships, internships, and voluntary education remain free and are strengthened by the larger residual base left in private hands.

“Bad” actors and Dark-Triad dispositions continue to exist. The residual-claim framework constrains them through transparency, personal liability, and the absence of bail-outs rather than through ever-more-complex rules that themselves create new loopholes. Government is granted no moral exception: theft remains theft, and soft budgets that socialize losses remain a form of predation.

Final Statement

The dominant pattern of incentive misalignment is systemic. Antisocial and high-Dark-Triad individuals exploit the loopholes that regulation and soft budgets create. The empirically supported alternative is not more central planning but residual claims, low extraction, and open entry. These three mechanisms make debt-financed redistribution and political privilege increasingly difficult while improving the conditions under which voluntary cooperation, long-term private investment, charity, and education can operate. The result is not the abolition of social goods but their transfer from coercive to residual-claim and voluntary provision under conditions of transparency and personal accountability.

That is the practical content of the study.

References

- Bernick, C., Banks, S., et al. (2015 and subsequent analyses) Professional Fighters Brain Health Study: neuroimaging and brain-volume comparisons between boxers and MMA athletes.
- Calhoun, J.B. (1962) 'Population density and social pathology', *Scientific American*, 206(2), pp. 139–148.
- Calhoun, J.B. (1973) 'Death squared: The explosive growth and demise of a mouse population', *Proceedings of the Royal Society of Medicine*, 66(1 Pt 2), pp. 80–88. <https://doi.org/10.1177/00359157730661P202>
- Chodorow-Reich, G., Zidar, O. and Zwick, E. (2024) 'Lessons from the biggest business tax cut in US history', *Journal of Economic Perspectives*, 38(3), pp. 61–88.
- Cohen, J.E. and Tilman, D. (1996) 'Biosphere 2 and biodiversity: The lessons so far', *Science*, 274(5290), pp. 1150–1151. (Commentary on the limits of engineered closed ecological systems.)
- Crew, B. (2026) 'Harvard loses first place in Nature Index', *Nature Index*, 10 June. Available at: <https://www.nature.com/nature-index/news/harvard-loses-first-place-nature-index>
- Centre for Science and Technology Studies (CWTS) (2025) *CWTS Leiden Ranking 2025*. Leiden University. Available at: <https://www.leidenranking.com/>

- Dodini, S. (2023) ‘The spillover effects of labor regulations on the structure of earnings and employment: Evidence from occupational licensing’, *Journal of Public Economics*, 225, 104947.
- Doucouliafos, H., et al. (2020) ‘Is profit sharing productive? A meta-regression analysis’, *British Journal of Industrial Relations*, 58(2), pp. 364–395.
- Fundación CYD (various years) *Informes CYD* and analyses of the Spanish university system.
- Kayser, K. H. (2025a). From Chaos to Progress: Behavioral Disorders as Catalysts of Universal Flux. Zenodo. <https://doi.org/10.5281/zenodo.21908498>
- Kayser, K.H. (2025) Aparactonomy: An evolutionary and economic framework for decentralized self-rule – A meta-analytical study. DeSci Labs. Available at: <https://beta.dpid.org/721>
- Lazear, E.P. (2000) ‘Performance pay and productivity’, *American Economic Review*, 90(5), pp. 1346–1361.
- Littlewood, M. (2010) *Taxation Without Representation: The History of Hong Kong’s Troublingly Successful Tax System*. Hong Kong University Press.
- Lystad, R.P., Gregory, K. and Wilson, J. (2014) ‘The epidemiology of injuries in mixed martial arts: A systematic review and meta-analysis’, *Orthopaedic Journal of Sports Medicine*.
- Makridis, C.A. and McLaughlin, P. (2024) ‘How state occupational licenses affect jobs and salaries’, Mercatus Center Working Paper.
- Ministerio de Ciencia, Innovación y Universidades (Spain) (various years) Official enrollment and institutional statistics on public and private universities.
- Nature Index (2026) *Nature Index 2026 Research Leaders rankings*. Springer Nature.
- Neumark, D. and Shirley, P. (2022) ‘Myth or measurement: What does the new minimum wage research say about minimum wages and job loss in the United States?’ Related NBER and journal syntheses.
- Pettersson-Lidbom, P. (2010) ‘Dynamic commitment and the soft budget constraint: An empirical test’, *American Economic Journal: Economic Policy*, 2(3), pp. 154–179.

QS Quacquarelli Symonds (2026) *QS World University Rankings 2026*. Available at:

<https://www.topuniversities.com/world-university-rankings/2026>

QS Quacquarelli Symonds (2027) *QS World University Rankings 2027*. Available at:

<https://www.topuniversities.com/world-university-rankings>

Tesla, Inc. (2018) 'Tesla Announces New Long-Term Performance Award for Elon Musk', Press Release, 23

January. Available at: <https://ir.tesla.com/press-release/tesla-announces-new-long-term-performance-award-elon-musk>

Tesla, Inc. (2018) Form 8-K Current Report (filed 21 March 2018), U.S. Securities and Exchange Commission. Available at:

https://ir.tesla.com/_flysystem/s3/sec/000156459018006479/tsla-8k_20180321-gen_0.pdf

Times Higher Education (various years) *THE World University Rankings*. Available at:

<https://www.timeshighereducation.com/world-university-rankings>

World Bank (various years) Policy Research Working Papers and sector studies on telecommunications privatization, competition, prices, access, and investment outcomes.



AFRICAN RESEARCH JOURNAL OF ECONOMIC FREEDOM

**Failure and fraud:
anti-money-laundering policy,
a warning to Uganda**

AFODIresearch
Uganda. October 4, 2026



Authors:

Kai H. Kayser

Citation:

[Kayser, K.H.](#) (2026) Failure and fraud: anti-money-laundering policy, a warning to Uganda. Zenodo.
Available at:
<https://doi.org/10.5281/zenodo.23138452>

Abstract

This heterodox study is a critical policy analysis. It uses published recovery estimates, legalization records, and Ugandan labor and housing figures, and it does not generate a new confiscation series. The object is the anti-money-laundering duty officials have copied from the Financial Action Task Force, and the question is whether that duty is a failure, held in place by officials who believe a further report will repair a ban that has already failed, or a fraud, operated by officials and contractors who keep the fine, the forfeiture, and the compliance contract because those flows pay them. The argument is that the duty multiplies prohibitions that were already inefficient and, where the act has no complainant, already wrong, so that a seizure existing only because the prior ban was unsound inherits that unsoundness. Concealment after theft, deceit, or coercion remains a second unethical act. Concealment after a consensual exchange does not. Ronald Pol's estimate of less than a tenth of one percent recovered, Europol's confiscation figure of about one percent, and the revenue that appeared where Germany and American states stopped prosecuting consensual trades are the evidence the analysis reads, together with account refusals in Hong

Kong, the Emirates, Estonia, Georgia, and Panama. The close is addressed to Uganda, whose informal employment is about nine workers in ten. Members of Parliament who confine punishment to acts that have a victim, and who drop the reporting duty, leave the Uganda Revenue Authority a larger open base than a fine on a missing form can supply.

Keywords:

Anti-money laundering; prohibition; victimless offenses; compliance costs; informal employment; Uganda; deregulation; critical policy analysis.

CHAPTER 1

Money-laundering laws as a failure leveled on a failure

1.1 Empirical evidence and statistical impossibility

Money-laundering laws are either a failure or a fraud, because they are built on prohibitions that were already inefficient and, in the cases that have no complainant, already wrong, so that any official action only multiplies the mistake instead of repairing it. Similar to the legal expression “fruit of the poisonous tree,” which names evidence that officers obtained illegally, the same relation holds here, because a seizure, a fine, or a conviction that exists only because the prior prohibition was unsound inherits that unsoundness and cannot launder it into a success. Academic writing frowns on a statement this clear, from a semantic habit that separates improbability from impossibility, but the empirical evidence and the inherent fallacy of anti-money-laundering (AML) dismiss any linguistic softening. Whatever officials try to present as success consists of arrests and expropriations, and those acts already show an undeniable negative bottom line, because governments have spent far more taxpayer money on fighting the named evil than they have taken back from the people they call perpetrators, and because they have created bureaucratic hurdles for banks and their customers that consume extreme amounts of time, effort, and cost.

Ronald Pol’s estimate in 2020, that the intervention touches less than a tenth of one percent of criminal finances while compliance costs exceed recovered funds by more than a hundred to one, and Europol’s report in 2017, that European authorities confiscate about one percent of criminal proceeds, record the scale of that negative bottom line, as does the finding by Fracassi, Lee, and Roukny in 2025 that a closer alignment with the standards of the Financial Action Task Force raises detected concealment cases and reduces some trade without a measurable effect on fraud or on drug trafficking. Gullible households fund both the believer’s failure and the operator’s fraud, while officers who alone may seize an account and imprison a trader for a missing report supply the monopoly of violence that makes the exaction enforceable. Congress required American banks to report large cash movements in 1970, and in 1986, when prosecutors wanted another route to drug money, Congress made concealment a federal offense, after which the Group of Seven and the European Commission created the Financial Action Task Force in 1989 and almost every capital copied the recommendations. Industry estimates now put global compliance spending above \$200 billion a year, while false alarms account for the great majority of the automated alerts, and Pol wrote that blaming banks for the poor result is a convenient fiction, because the defect sits in the prescription itself, which officials enlarge whenever a failed fight against a prohibited act is followed by a second fight against the money.

Table 1.1 is limited to official figures, no office counts every state and local post that exists only because of the drug war. The Drug Enforcement Administration (DEA) is the best documented case, the other rows add further official data on overall cost and outcome aspects, like arrests, seizures, etc. The negative bottom line is visible without treating a street-value claim as money taken back.

Table 1.1 The US American war on drugs in facts and official numbers

Item	Figure	Source and limit
Drug Enforcement Administration staff, 2024	10,169 employees, of whom 4,924 are special agents; 241 domestic offices and 91 foreign offices in 69 countries	Agency formed in 1973 for this campaign. Figure is the direct federal employment created, not state and local police.
Office of National Drug Control Policy staff	About 61 employees in May 2026	Coordination office created in 1988. It does not itself arrest or seize.
FBI staff charged to drug control, fiscal 2024	945 full-time equivalents; about \$179 million in drug-control obligations	A slice of an older agency, not a body created for the war.
Federal drug-control budget, one year	\$44.5 billion requested for fiscal 2025, of which treatment is \$21.8 billion, interdiction \$6.5 billion, and the Drug Enforcement Administration \$3.3 billion	White House request across 19 agencies. State, local, court, and prison spending sit outside this request.
Cumulative spending since President Nixon's declaration in 1971	More than \$1 trillion by the fiftieth anniversary in 2021	University of Pennsylvania estimate, reported by CNBC. Later years are not in that total.
Drug arrests, 2024	822,488, of which 721,322 were possession and 101,166 were sale or manufacture	FBI estimates. Possession is about 88 percent of the arrests.
Drug Enforcement Administration arrests, fiscal 2023	25,110, led by methamphetamine (7,381) and opioids including fentanyl (6,688)	Federal arrests only.
People in federal prison for drug offenses	60,848, about 43 percent of the sentenced federal population, as of September 2026	Bureau of Prisons count of prisoners, not of staff. A Sentencing Commission extract for September 2025 counted

Item	Figure	Source and limit
		61,238 drug-trafficking sentences and 2,927 money-laundering sentences.
Justice forfeiture stock, fiscal 2025	\$8.2 billion in assets on hand; \$602 million shared with state and local agencies; \$475 million paid to victims and claimants	Marshals Service figure for the whole forfeiture program, not for drugs alone.
HIDTA task-force claim, 2025	About \$22 billion in drugs and cash seized	Office of National Drug Control Policy claim of estimated value, not cash deposited against the \$44.5 billion annual request.
Users, deaths, and the trade	Past-month illicit drug use in the United States was 16.8 percent in 2023, or 47.7 million people aged 12 or older. Global drug-use disorder prevalence rose 34 percent from 1990 to 2021, to 53.1 million people, and new cases rose 36 percent, while drug-related deaths rose 2.2-fold. The United States age-adjusted overdose death rate rose from 8.9 per 100,000 in 2003 to 32.6 in 2022, then to 31.3 in 2023, when 105,007 people died. In Britain, cocaine prices fell about 30 percent and heroin prices about 33 percent during 2022.	The United States survey counts marijuana, which several states have legalized, inside illicit use. Heroin use in that survey has fallen in the latest years. The global prevalence rate, once population growth is removed, edged down about 6 percent. None of those qualifications produces a fall in deaths, in the American overdose rate, or in the availability that lower street prices record.

Officials created a Drug Enforcement Administration of 10,169 people and request on the order of \$44.5 billion a year, after more than \$1 trillion since 1971, while past-month illicit use stood at 47.7 million people, overdose deaths reached 105,007 in a year, and street prices of cocaine and heroin fell. The arrests, about 88 percent of them for possession, and a forfeiture stock of \$8.2 billion for every kind of case the Marshals hold, did not reverse that rise, and the \$22 billion HIDTA figure does not close the gap, because it is an estimated value of drugs and cash seized rather than taxpayer money returned.

1.2 The multiplier examined

The fallacies of bans on which these laws rest have been and continue to be examined elsewhere, so that this study does not reopen that examination and concentrates on anti-money-laundering (AML) laws (Rothbard, 1973; Hoppe, 2012; Kayser, 2026). As a quick summary, to ease into the study's main argument, it should suffice to say that the evolutionary record and human history already show that a written prohibition neither creates the ethical majority nor removes the deviant minority. People who live in

groups already punish theft, deceit, and coercion, while some individuals commit those acts whether or not a clerk has forbidden them, and Gary Becker, writing in 1968, showed that a sanction changes the price only for the person who calculates. A ministry declaring a consensual sale illegal, or allowing loopholes in prosecuting a true harm, interferes in a trade. Worse, it creates beneficiaries who did not contribute positively or meaningfully in the first place. The legal additions and amendments create that beneficiary, and the comparatively small profits of the tolerated channel grow substantially for both official bodies and the unofficial organizations that serve them. Money-laundering laws sit on top of that interference. They are the failure on top of the failure, because they take a ban that has not extinguished its object and they add a reporting duty, a forfeiture, and a compliance industry, so that the same interest groups grow richer while the society that pays for the first failure pays again for the second. After the ban on drugs did not work, the war on drugs created still more consumption and addiction, and with them more death and misery, while it made cartels and gangs richer than before. Authorities did not try the opposite course, although repeal had worked better with alcohol, prostitution, and gambling. They created vastly expensive and still less efficient employment, and they grew the bureaucracy and its cost, without a trade-off in which the added outlay bought a smaller harm. The argument that legalization does not fully solve the drug problem is a fair argument, because a trade-off is a reasonably best outcome once cost, risk, and benefit are counted together, and because legalization and deregulation do not claim to turn a harm into a benefit. They are a compromise that depends on full transparency, including education on the consequences of drug abuse.

Where the underlying prohibition has a just cause, as with theft, the deceit of a customer, or coercion, the inefficient legal form still harms the wider economy, because it burdens every trader in order to reach a minority whom the price does not deter. Where the underlying prohibition is unnecessary or wrong, as with a consensual sale that has no complainant, the concealment of payment is a victimless activity, and it can be a form of self-defense by a household that the authority has pushed out of the open. Loek Groot, in a chapter published in 2013, grouped that concealment with drug selling and prostitution where the prior act has no complainant, while a paper in the Proceedings of the National Academy of Sciences in 2026 describes the purchase of concealment services as a deal both parties enter willingly (Ferwerda and Reuter, 2026). In neither case is the concealment itself the failure or the fraud. The laws that punish it, and that sell the punishment as a remedy, are the multiplier.

1.3 Who gains, and who is made poorer

The pattern that proves the failure and the fraud is the direction of the money. British merchants and the East India Company enlarged the opium trade in China while Qing officers tried to suppress it, because from 1773 most opium entering Chinese ports moved on British accounts, the Company grew the drug in Bengal, and by 1838 traders were landing about 40,000 chests a year, after which Lin Zexu's destruction of

more than 20,000 chests at Canton was answered by war, by the Treaty of Nanking in 1842, and by imports of 50,000 to 60,000 chests a year. William Jardine called the trade the safest speculation he knew, and Parliament had a fiscal stake in the tea the opium paid for. The fight increased the trade, and the licensed and official sellers gained while Chinese households bore the addiction. A modern drug administration repeats the enrichment when street prices fail to rise as a successful suppression would require, which is the movement the Institute of Economic Affairs recorded for cocaine and heroin in Britain during 2022, while users and deaths rose across the decades in which the Financial Action Task Force standards spread.

State officials in California allocated nearly \$24 billion to homelessness and housing programs from July 2018 through June 2023, while the single-night count rose from 151,278 people in 2019 to 187,084 in 2024, and figures for the middle of that period show that most placements went into interim shelter, from which 44 percent of exits returned to the street. Counties, charities, and departments were paid to process a population that grew with the appropriation, so that the organizations gained while the housed public paid and the unsheltered public remained. Money-laundering laws multiply that distribution. Compliance vendors, examiners, and forfeiture offices receive the new flow, banks shift the cost onto ordinary customers and close the accounts of small firms, and the perpetrator whom the parent ban did not catch remains largely untouched, because a recovery of about one percent in Europe, and of less than a tenth of one percent in Pol's global estimate, is a rounding error beside the harm done to people whom the bureaucracy harasses.

1.4 Uganda, and the imported multiplier

Members of Parliament passed the Anti-Money Laundering Act in 2013, the Financial Intelligence Authority has supervised reporting since the following year, and foreign reviewers kept Uganda on a monitoring list from 2020 until the exit in February 2024, with a European delisting in 2025. The exit removed a label after Kampala copied the duties. It did not shrink the parent markets, and it did not justify a deeper copy. The Economic Policy Research Centre puts informal activity at 54.5 percent of output and about 92 percent of employment, while the Uganda Revenue Authority draws most of its revenue from a narrow register and has set a higher tax-to-output ratio as its aim. A further reporting duty, imposed so that correspondent banks and donors remain quiet, multiplies an interference that already pushes households into private dealing, enriches the authority, the compliance trade, and the unlicensed seller who captures the risk premium, and makes poorer the people who pay the fees and lose the accounts.

European interference in that reporting duty is unacceptable, because a gray list, a delisting, and a correspondent-bank threat are not a Ugandan finding that concealment has a victim, while they may be the result of years of payments that guarantee countries such as Germany access to African markets and goods, and while they open the gates to foreign influence and corruption. Uganda and its African neighbors would do far better without German, French, or American interference in their banking rules, because those

countries would buy African products and commodities anyway, and because no trade in coffee, minerals, or oil required Kampala to copy a Financial Action Task Force recommendation before the sale could clear. There is no good reason to allow the United Nations, the International Monetary Fund, or any other outside body access to national policy, most especially not in a backhanded way that leverages “money laundering” to distort markets and banking and to victimize the entire economy. Confining punishment to theft, fraud, and coercion, punishing who was paid while the caseload grew, and allowing deregulation and a lower tax to bring earnings back into the open, is the course that avoids the multiplier whose foreign results already speak for themselves.

CHAPTER 2

2.1 Conviction as main motivation

Examiners, ministers, and bankers who truly believe a campaign against concealed money is necessary and righteous assist a machine whose recovery Ronald Pol, writing in 2020, estimated at less than a tenth of one percent of criminal finances, with compliance costs exceeding recovered funds by more than a hundred to one, and whose European confiscation rate Europol, reporting in 2017, put at about one percent of criminal proceeds. Their work is a failure in the service of a belief. It is not evidence that the office is held by people of low intelligence, because a person of low intelligence may reach an unsuitable post by luck and will not hold it for long, while intelligence and schooling are not the same thing as experience or foresight. Highly intelligent and accomplished people remain hindered by beliefs and by emotions. A conviction is hard to overcome by facts, which is an ordinary human limit rather than a defect peculiar to ministries.

Leon Festinger, writing in 1957, described the discomfort that follows when a person holds two inconsistent cognitions, and the effort that follows to protect the cognition he will not give up. Lord, Ross, and Lepper, writing in 1979, found that people shown the same mixed evidence on a contested policy became more convinced of the view they already held. Raymond Nickerson, writing in 1998, reviewed confirmation bias as the seeking and reading of evidence in ways partial to a belief already in hand, and Ziva Kunda, writing in 1990, treated motivated reasoning as the use of cognitive effort to reach a conclusion the person wants. Keith Stanovich and Richard West, writing in 2007, found that cognitive ability does not reliably protect a person against myside bias, so that a high score on an intelligence test does not dissolve a conviction about a ban. A minister who has been praised for a drug war, a housing appropriation, or a reporting duty can read Pol's estimate and still treat another amendment as the remedy, because the conviction that the ban was righteous arrives before the table, and because colleagues and reviewers reward the conviction rather than the recovery rate.

2.2 Dark traits as main motivation

People who understand that the campaign does not close the named market, and who use the fine, the forfeiture share, the compliance contract, and the power to close an account in order to move income from households and small firms toward agencies, vendors, and incumbents, operate a scheme of financial gain. That side of the ban, and of the AML duty laid on top of it, is not rescued by assuming that every operator is a believer who has not yet been shown the figures. Psychopathy, narcissism, and Machiavellianism, which Delroy Paulhus and Kevin Williams, writing in 2002, named the dark triad in ordinary populations, and everyday sadism, which Erin Buckels, Daniel Jones, and Paulhus added in 2013 to make the dark tetrad, are common enough in competitive offices that a study of the fraud cannot leave them out. Paulhus has

described the triad as traits that flourish in everyday society rather than as rarities confined to a prison, and Buckels and Paulhus have described the everyday sadist as a person who will incur a cost for the chance to see another harmed.

Belinda Board and Katarina Fritzson, writing in 2005, compared personality-disorder traits in senior business managers with forensic and psychiatric samples and found that the managers' profile contained significant elements of disorder, particularly the emotional components associated with psychopathic personality. Paul Babiak, Craig Neumann, and Robert Hare, writing in 2010, reported psychopathy scores in a corporate sample high enough to treat the trait as present in the executive ranks rather than as a clinical curiosity, which is the finding Babiak and Hare had already pressed in their 2006 account of psychopathy in the workplace. A person with those traits can hold a post for a long time, because charm, a taste for dominance, and an indifference to the household that pays the fee are advantages in a bureau that lives on emergencies, while the gullible public funds the believer and does not audit the operator. Officers who alone may seize an account and imprison a trader for a missing report supply the monopoly of violence that makes the exaction enforceable, so that a conviction on one side and a dark-tetrad advantage on the other share an instrument that no complaining customer gave them. The amount of such characters need not be a majority for the influence to be decisive, because a few people who do not share the loss can steer a conviction that many honest officials still hold.

2.3 Financial consequences and vicious cycles

Outlawing victimless acts, whether from greed, from narcissism, or from conviction, is the issue that created the AML policies, because a ministry that has declared a consensual exchange illegal then needs a second rule to punish the concealment of payment for that trade. The policies not only fail, they make a bad problem worse, not least because they misallocate funds the economy needs into a governmental money-shredding system that enlarges a parasitical bureaucracy. Ronald Pol, writing in 2020, estimated that the intervention touches less than a tenth of one percent of criminal finances while compliance costs exceed recovered funds by more than a hundred to one, and Europol, reporting in 2017, found that European authorities confiscate about one percent of criminal proceeds. What makes AML policies especially bad is that, unlike most police work, they are pure bureaucracy. C. Northcote Parkinson, writing in 1955, observed that administrators multiply even when the work does not, and William Niskanen, writing in 1971, argued that a bureau seeks a larger budget rather than a finished task, which is the vicious cycle in which a failed duty becomes the reason for a larger duty. Gary Hamel and Michele Zanini, writing in 2016, put the cost of excess bureaucracy in the United States at more than \$3 trillion a year, about 17 percent of output, with as much as half of internal compliance time of questionable value, while the Ifo Institute in 2024 put superfluous bureaucracy in Germany at about €146 billion a year, more than double the official compliance-cost account. Anti-money-laundering administration sits in that cycle and worsens

it, because each missed recovery is returned to the ministry as a reason to hire, to report, and to fine again. Police forces weaken and dilute the action that is truly needed, because they do not focus on real crime, which allows actual criminals to go free, while a struggling household that committed no harm pays in multiple forms and fees, in closed accounts, and in time. It is in Uganda's best interest, and that includes its government, to abandon bureaucratic policies, especially anti-money laundering, and to deregulate severely and focus prosecution on theft, fraud, coercion, and acts that have a victim.

CHAPTER 3

3.1 Reports, discarded alarms, and closed accounts

Anti-money-laundering work differs from the pursuit of a thief, because without a bank employee witnessing any theft or an examiner naming any victim, both process a report as required by a rule. These regulations invert the legal order into guilty until proven innocent, because firms and households must produce a substantial paper trail to prove a source of funds, and to explain a payment before it may bank, while the authority does not have to show a victim or any indication of a criminal wrongdoing before the account is delayed or closed. Industry reviews cited by Lipton Matthews in 2022 put the share of automated alerts closed as false positives above 95 percent before a suspicious-activity report is filed, and Europol, reporting in 2017, found that financial-intelligence units in the European Union received almost one million reports in 2014, of which about 10 percent were investigated further. A duty whose ordinary product is a discarded alarm is the bureaucracy Chapter 2.3 described, in which a missed recovery returns to the ministry as a reason to widen the list of firms that must report. The household and the new firm pay in a form the parent ban does not itself impose, because a bank that fears a fine closes the account of a small company, a money-transfer shop, or a customer whose papers are costly to explain. The Institute of Economic Affairs, in the 2024 pamphlet *Debanked*, treated that closure as the predictable answer to a threat examiners can enforce and a recovery they cannot show. Fracassi, Lee, and Roukny, in the 2025 paper Chapter 1 cites, found that stronger alignment with Financial Action Task Force standards reduces bilateral trade by about 4 percent, which falls on lawful shipments rather than on a prohibited sale.

3.2 Hong Kong

Hong Kong's freer decades were the product of a deliberate refusal to manage the economy. Financial secretaries from John Cowperthwaite onward practiced what they called positive non-intervention, with low taxes, easy company formation, and banks that opened accounts for trading firms, and the city became a commercial center out of proportion to its population (Rabushka, 1979). Mainland administration after 1997 did not immediately end that practice. The National Security Law of 2020, the pandemic closures, American sanctions, mainland capital controls, and Singapore's recruitment of the same trading houses all sit beside the AML file, so that a single cause cannot carry the later decades. What the file did change was the link between a new company and an account. The Hong Kong Monetary Authority recorded that overseas small and medium-sized firms and start-ups had difficulty opening accounts at the international banks that were their first port of call, and in September 2016 it issued a circular on de-risking and financial inclusion because that difficulty had become a supervisory problem (Hong Kong Monetary Authority, 2016; Hong Kong Monetary Authority, n.d.). A mystery-shopping program in 2018, covering twenty retail banks, still found practices the Authority told banks to correct (Hong Kong Monetary Authority, 2019). The Authority has also said that the difficulty does not appear industry-wide. That limit

belongs in the paragraph. It does not restore the older practice, in which a trading firm received an account as part of setting up. Where a founder already had a factory, staff, and a domestic account in Shenzhen, routine company work could sit there while the Hong Kong company remained unbanked, and other bookings moved to Singapore. No public register in this chapter counts those moves. The mechanism is the split the Authority itself documented, between a company the registry would accept and an account the international bank would not.

3.3 The United Arab Emirates

Dubai and the other free zones offered a lighter bargain than the Hong Kong file had become. A firm could incorporate with full foreign ownership, bring capital in and send profit out, and pay no tax on the company, only a seemingly small set of fees, which is the model Dubai had used since its early free zones (Washington Institute, 2023). Officials then added the file and the tax. A value-added tax of 5 percent arrived in 2018. The Financial Action Task Force placed the country on its increased-monitoring list in March 2022 and removed it in February 2024. Federal Decree-Law No. 47 of 2022 imposed a 9 percent corporate tax from June 2023, and a free-zone firm that wants the zero rate must qualify, keep substance, prepare audited accounts, and file a return even if the tax due is nothing (United Arab Emirates, 2022). The Washington Institute recorded the Emirates' own view that 9 percent would not drive investment away, and that the rate remained the lowest in the Gulf. The Washington Institute recorded the Emirates' own view that 9 percent would not drive investment away, and that the rate remained the lowest in the Gulf. That view is a forecast, not a result, and it underlines the change a founder met on arrival: the potential bargain comes with compliance and many fees. Whether entrepreneurs still have sufficient reasons to sit in a free zone is a judgment this study makes from that noted reality, not a finding the Washington Institute stated.

3.4 Estonia, Georgia, and Panama

Estonia, Georgia, and Panama each watched a lighter regime draw firms, and each then laid a reporting duty over it. Estonia's e-Residency program, begun in 2014, let a foreigner form a company online and keep profits untaxed until distribution. Banks then applied their own anti-money-laundering tests, and the program's own guidance tells applicants that a digital residence does not produce an account, that banks reject beneficial owners from disfavored countries, and that the state will not intervene in those rejections (e-Residency, 2025; e-Residency, 2026). Estonia's 2025 national risk assessment treats companies with weak local ties, often managed by e-residents, as a raised money-laundering risk, and the same assessment reports that investigative authorities find 98.5 percent of e-residents and 94.2 percent of their companies uninvolved in suspicious activity (Estonian Financial Intelligence Unit, 2025). The second figure keeps the first from being read as a claim that the program was a criminal market. It does not give the rejected founder an account. Georgia, after the 2004 reforms, cut licenses and taxes and rose in the World Bank's

Doing Business ranks by making registration fast and cheap (World Bank, 2007). The National Bank of Georgia requires banks to apply customer due diligence aligned with Financial Action Task Force recommendations, and foreign corporate clients meet a heavier file than a domestic limited company, including incorporation documents, source-of-funds evidence, and, in ordinary bank practice, an appearance or a notarized representative (National Bank of Georgia, anti-money-laundering rules, as applied by Bank of Georgia). The registry can remain easy while the account does not. This chapter does not have a census of foreign-owned firms that left. Panama taxed on a territorial basis and sold inexpensive corporations for decades. Law 23 of 2015, which predates the Panama Papers of April 2016, already set the anti-money-laundering duties. The Papers damaged the reputation of the shelf company, and the Financial Action Task Force placed Panama on its increased-monitoring list in June 2019 and removed it in October 2023, during which correspondent banks reinforced controls on Panama-related payments (Newsroom Panama, 2019; Government of Panama, 2023). The reporting duty did not add a victim to a territorial holding company. It added the clerk and the correspondent question, and a firm that needed an account elsewhere could leave.

3.5 Prosecution that already has a victim

Uganda has not yet traded a working lighter regime for this file in the way the places above have. Chapter 1.4 already records the informal share of output and employment, and the narrow register from which the Uganda Revenue Authority collects. A reporting rule pushes that base further into private dealing, while a lower tax on an open sale returns more to the authority than a fine on a missing form. Prosecution focused on theft, fraud, coercion, and other acts that have a victim does not need the discarded alarm, the closed account, or the correspondent threat. Those instruments are what Hong Kong's international banks, the Emirates' tax statute, Estonia's banks, Georgia's due-diligence file, and Panama's monitoring period added after a lighter rule had already drawn firms.

CHAPTER 4

4.1 Courts, prosecutors, and the customers they hunted

Where officials forbid a consensual sale, the people who are paid are not only the unlicensed sellers. Police hunt the customers, prosecutors file the cases, defense lawyers bill the hearings, and courts keep the calendars, so that a consensual act supports a professional income until a later revision treats the same act as no great matter. Careers and family lives are spent on the file. The revision does not give those years back. It shows that the harm officials had punished was the procedure itself, and that lawyers, district attorneys, and courts had been beneficiaries of a prohibition the next set of officials was willing to drop.

Senator Joseph Biden helped write the Violent Crime Control and Law Enforcement Act of 1994, President Bill Clinton signed it, and the mandatory minimums and the money for state prisons sat on drug laws that already sent large numbers of young Black men to jail for possession and for small sales of cannabis. The later licensed trade in the same plant is taxed and advertised. AML administration keeps a remainder of that beneficiary list, because a compliance lawyer, an examiner, and a bank that closes an account are paid on trades the criminal file has already left behind.

4.2 Prostitution in Germany

The Bundestag passed the Prostitution Act in 2002 and removed the older rule under which a contract for sexual services was void, so that an adult seller could enforce a fee and register the work as a trade. Income from that trade falls under section 15 of the income-tax code, and value-added tax applies at the standard rate unless the seller stays inside the small-business threshold, which is the treatment a freelance tradesman receives (GTK, 2024). Richard Reichel, at Erlangen-Nuremberg, estimated in 2007 that the sector turned over about €7 billion a year and that a fuller assessment could yield about €1.4 billion in tax, while most of the income still went unreported. Coercion and under-reporting did not vanish. What ended was the public cost of prosecuting a consensual sale, and what replaced it was a taxable trade, incomplete in its returns and still larger as a revenue stream than the fines a ban had produced.

4.3 Cannabis in Germany and in the American states

Politicians in both places warned that a legal sale would raise severe addiction and would lead users on to other drugs. The Bundestag's Cannabis Act, in force from 1 April 2024, allows an adult to possess up to 25 grams in public and 50 grams at home, to grow three plants, and, from 1 July 2024, to join a non-profit club of at most 500 members. It did not open taxed shops. A wastewater programme across fifteen cities found no significant short-term rise in THC metabolites after April 2024, adult use moved with the trend that had already been under way, and use among young people stayed stable or fell slightly (Cannabis Health News, 2026, reporting the Ekocan evaluation). A 2021 estimate from the University of Düsseldorf, that

taxed recreational sales could raise on the order of \$5.3 billion a year, remains an estimate, because the 2024 act did not create that market.

American states that did open a retail market produced the revenue the German estimate only projected. The Marijuana Policy Project's tally, reported by Forbes in 2025, put cumulative state cannabis taxes at \$24.7 billion by March 2025, and collections in 2024 alone at more than \$4.4 billion. Past-month use among Colorado high-school students fell from 22 percent in 2011 to 12.8 percent in 2023, and tenth-grade use in Washington fell from 20 percent in 2010 to 8.4 percent in 2023. An illicit residue remains, and some state collections have eased from their peaks. Growers, distributors, and retailers now employ people and remit excise tax, which reverses the earlier outlay on possession arrests, while banks in several of those states still refuse the firms because a federal reporting duty treats the proceeds as suspect.

4.4 Mixed martial arts

Senator John McCain, after watching a tape in 1996, called the contests human cockfighting and wrote to the governors of all fifty states asking for a ban. Thirty-six states enacted bans on no-holds-barred fighting. New York prohibited the contests and became the last state to lift that prohibition, in 2016 (Meltzer, 2016). State Senator Joseph Bruno told colleagues that the injury figures did not justify a ban and that professional boxing was more violent. Formula 1, which no ministry proposed to forbid, already had a long list of deaths. Promoters added weight classes, gloves, and a ban on head butts, commissions sanctioned the bouts, and ticket sales, broadcast fees, and taxes on the gates replaced the cost of keeping the events out. A full arena is a revenue stream. A ban had been an appropriation with no gate.

4.5 Prescription drugs

Laws that regulate drugs through a prescription are described as protection of the patient and the user. The protection is from the user himself, which is a nanny-state arrangement in which officials declare citizens too stupid to decide what they will swallow, while the same arrangement funnels large sums to prescribers, wholesalers, and the agencies that live on the permission. Resistance to antibiotics tracks the way people take the drug, interrupted courses, alcohol taken with the dose, and stopping early, more closely than it tracks the presence of a counter sale, and a script has not prevented resistance in countries that require one. First-generation antihistamines such as diphenhydramine remain on open shelves although they sedate, while bilastine, sold as Bilaxten, is held to a prescription in much of Europe although clinicians do not describe it as a drug of inebriation. The buyer pays in time and in a higher price. The interest group is paid for a gate the danger of the molecule does not explain.

4.6 Restriction cost versus legality

The four rows support a limited claim. Where officials ended a restriction and opened a taxed or ticketed trade, the public cost of prosecuting a consensual act fell, and a revenue stream appeared or became

available. The conduct officials had called an unacceptable risk, a gateway to sin or injury, or incompatible with a civilized society did not produce the issues and risks they had named, and the legal trade became the better alternative in a trade-off, because the harm did not surge in the figures this chapter has, while the outlay on courts and police gave way to a tax or a gate.

Table 4.1. Public cost during ban and revenue capacity after legalization

Trade	Cost while officials restricted it	Revenue after the restriction ended
Year of the figure	1971–2021 and fiscal 2025; through 2001; 1996–2016	2024 and 2025; 2007; 2025; 2026
Drugs, United States	More than \$1 trillion from 1971 to 2021; federal request about \$44.5 billion for fiscal 2025	\$24.7 billion in state cannabis taxes by March 2025; more than \$4.4 billion in 2024. Colorado: \$3.1 billion in taxes and fees by December 2025
Prostitution, Germany	About €30 million a year in legal bills, this study's estimate, for the decades of charges before the 2002 act, taking later-period prostitution-related cases on the order of 20,000 a year at €1,500 for a defense or legal-aid file. The figure does not include policing. No ministry publishes the case total or the bill	€1.4 billion a year, potential (2007)
Mixed martial arts, United States	Thirty-six states banned the contests after 1996. New York prohibited them until 2016. No national appropriation	\$1.502 billion in 2025, UFC alone
Cannabis, Germany	No euro prosecution total for the years before 1 April 2024	No shop tax in 2025 or 2026. 474 cultivation clubs approved by September 2026. Clubs are non-profit

Sources: University of Pennsylvania estimate, CNBC, 17 June 2021, and Office of National Drug Control Policy fiscal 2025 request, Chapter 1. Marijuana Policy Project via Forbes, 22 June 2025, and Colorado Department of Revenue through December 2025, Chapter 4. Reichel, Reuters, 9 August 2007, Chapter 4. The €30 million is this study's defense-cost estimate and does not include policing. UFC revenue: TKO Group Holdings filing for the year ending 31 December 2025, \$1.502 billion, reported February 2026. That figure is the UFC segment only, not Bellator, not regional promotions, and not a tax receipt. Meltzer,

MMA Fighting, 3 April 2016, for the bans, Chapter 4. Clubs: Federal Association of Cannabis Cultivation Associations, 474 approvals by September 2026.

The American cannabis taxes, \$24.7 billion by March 2025, are a receipt. Reichel's €1.4 billion is a capacity, because German sellers still under-report. Mixed martial arts has no published national tax total, so the \$1.502 billion is the UFC alone, a gate where a ban had none, not a national sum. The trillion-dollar drug outlay is a federal and programmatic total, not a bill for courts alone, and the table does not separate lawyers' fees from interdiction. Within those limits the direction is the same. Police, prosecutors, and courts drew an income from cases a later revision treated as ordinary commerce, and the household paid in ruined years, which the cannabis sentences under the 1994 act make concrete.

Table 4.2 clarifies these numbers in more context. Cannabis reports are a comparatively small part of the US American drug trade, about 88,000 marijuana suspicious-activity reports in 2024 against a national compliance bill of \$61 billion, which is on the order of 2 percent if staff time tracks report volume.

Germany provides no official accounting of the AML cost, so the cell uses the European compliance total and Germany's share of obliged-entity reports, and does so conservatively. The Düsseldorf figure in the revenue cell is a projection of a shop market the 2024 act did not create.

Table 4.2. Cost of ban and AML versus deregulation savings and added revenues: Cannabis USA and Germany

Trade	Outlawing cost	Added anti-money-laundering cost	Deregulation savings	Added revenue
Cannabis, United States	\$3.6 billion a year	\$61 billion a year (about 2 percent, \$1.2 billion, cannabis reports)	\$3.6 billion a year	\$4.4 billion in 2024
Cannabis, Germany	No euro total published	About €12 billion a year, estimated	No euro total published	\$5.3 billion a year, projected

Sources: \$3.6 billion, American Civil Liberties Union possession-enforcement cost, Wegman, New York Times, 28 July 2014, Chapter 4. \$61 billion, North American financial-crime compliance, LexisNexis Risk Solutions / Forrester. The 2 percent is this study's estimate: FinCEN-tracked marijuana suspicious-activity reports were 88,326 in 2024 (CRB Monitor, 2025), a thin share of all bank reports, applied to the \$61 billion. Chapter 1 cites global compliance above \$200 billion. \$4.4 billion, Marijuana Policy Project via Forbes, 22 June 2025, Chapter 4. Germany publishes no euro total for cannabis prosecutions before April 2024. The €12 billion is this study's estimate from the European compliance total of about \$85 billion (LexisNexis Risk Solutions / Forrester, Europe, Middle East and Africa) and Germany's weight in obliged-entity reporting to the Financial Intelligence Unit, not a BaFin or FIU budget line. \$5.3 billion, University of Düsseldorf, 2021, Chapter 4, a commercial market the 2024 act did not open.

AML administration is the duty that would put this revenue back under suspicion. Cash fees in a German registered trade, club payments, licensed-cannabis receipts, and ticket income become reports, and a bank that fears a fine closes the account of a seller who has already left the criminal calendar. The beneficiary then shifts from the tax office, which gains when the trade is open, to the examiner, the compliance lawyer, and the vendor who is paid on the file. Uganda, which has not yet licensed these trades or sunk the American outlay, has the comparison before the duty is copied: a restriction enriches the courts while it lasts, and a reporting rule keeps a share of that enrichment after the restriction has been dropped. It is a capacity where, as in German prostitution, the trade is lawful and the returns are still incomplete. It is not yet a receipt in Germany's cannabis clubs, which are non-profit. In each row the restriction had a cost, lawyers and courts drew an income from the cases, the named conduct continued, and the legal trade, once officials allowed it, produced or could produce a revenue stream the ban had spent money to prevent.

CHAPTER 5

5.1 Informal work

Most Ugandans who work are not on a formal payroll. The National Labour Force Survey put informal employment at 92 percent of total employment in 2020/21, up from 90.7 percent in 2016/17, so that formal employment was about 8 percent (Economic Policy Research Centre, 2026, citing the survey). The Uganda Bureau of Statistics labour-market report for 2025 put informal employment at 89.2 percent and formal employment at 10.8 percent, with Kampala, the most formal city, still at only 26.5 percent formal (Nile Post, 22 April 2026). Day-to-day workers, market sellers, riders, and small builders get by without a contract the revenue authority can see. A reporting duty that treats unexplained cash as suspect falls on that majority. It does not formalize them. It raises the cost of the account and of the receipt, and it pushes the same work further into private dealing, which is the opposite of the larger open base on which the Uganda Revenue Authority could collect.

5.2 Housing and roads

The Ministry of Lands, Housing and Urban Development, through the Minister of State for Housing, has put the national housing deficit at about 2.48 million units, a shortage that presses hardest on Kampala's informal settlements (Nile Wires, 1 October 2026). Officials have answered with dialogues and partnership calls. The shortage is a permission problem as much as a money problem, because builders who could add rooms meet plot rules, permit delays, and finance products drawn for salaried borrowers, while the households who need the rooms earn irregularly. The road network shows that will and capability are not what is missing. Highways the government has chosen to finish are of a quality drivers can use, while city and feeder roads remain broken, so that the same administration can build when it concentrates and can neglect when the work is dispersed. Deregulation of building and of local contracting, rather than a further housing authority, is the move that matches that record. Free-market self-regulation, in the form of owners who live with the result and neighbors who refuse a dangerous structure, is the check a permit office has not supplied.

5.3 What a smaller government would use

Uganda needs fewer rules, which means a smaller government, lower administrative cost, and a use of habits the administration did not invent. Diligence in small trade, obligations inside families and clans, and the politeness with which people already settle ordinary disputes are the means by which most transactions already clear. A significant part of the violence in Kampala is condemned by Ugandans and, on the argument of this chapter, committed by foreigners who do not intend to integrate, which is a police matter with a victim, not a file on a market seller's cash. Members of Parliament who support people already here would be using a habit the refugee law has already written down. The Refugees Act of 2006 gave refugees

land, freedom of movement, and the right to work, and the United Nations High Commissioner for Refugees described Uganda as a world leader in refugee policy. By October 2025 the country hosted about 1.96 million refugees, the largest number in Africa, up from about 160,000 when the act entered into force (East African, via Refugees International, 2026). That welcome is the regulation this chapter means when it distinguishes foreigners who integrate from those who do not. Diligence in small trade, obligations inside families and clans, and the politeness with which people already settle ordinary disputes, including the expectation that food and a greeting are offered to a visitor, are the means by which most transactions already clear (Semuwemba, 2024). A significant part of the violence in Kampala is condemned by Ugandans and, on the argument of this chapter, committed by foreigners who do not intend to integrate, which is a police matter with a victim, not a file on a market seller's cash. Members of Parliament who support people already here would allow civilian firearms for defense of household and trade, as the case in Kayser (2026) sets out, would remove illegal immigrants who do not wish to integrate, and would keep the door open to foreigners who do, which is the distinction the 2006 act already draws between a person admitted to work and a person who has not been admitted. That allocation uses the police on actual crime, protecting Uganda and its society and future.

5.4 Deregulation, tax, and the reporting duty

Deregulation is the first step to a lower tax, because a lower tax and a simpler permission raise the share of work people will do in the open, and the Uganda Revenue Authority collects more from a larger open base than from a fine on a missing form. Anti-money-laundering administration is the opposite arrangement. It is a failure where officials believe the file will repair a ban that has already failed, and a fraud where the fine, the forfeiture, and the contract pay the examiner and the vendor while the day-to-day worker pays in closed accounts and in time. Chapters 1 and 4 have already recorded the foreign recovery and the revenue that appeared when officials stopped prosecuting consensual trades. Kampala does not need a further copy of that file. It needs the police on theft, fraud, coercion, and other acts that have a victim, and it needs the builder, the rider, and the market seller left outside a duty whose measured return does not pay for itself.

CHAPTER 6

Conclusion

Money-laundering laws are either a failure or a fraud, because officials built them on prohibitions that were already inefficient and, where the act has no complainant, already wrong, so that a reporting duty, a forfeiture, and a compliance contract multiply the mistake instead of repairing it. A seizure that exists only because the prior prohibition was unsound inherits that unsoundness, and arrests and expropriations that cost more than they recover are a negative bottom line rather than a success. Concealment after theft, deceit, or coercion is a second unethical act by the person who committed the first. Concealment after a consensual exchange is a victimless activity, and it can be a form of self-defense by a household the authority has pushed out of the open. Officials who still believe the file will repair the ban are held there by conviction, which capable people do not easily give up, while officials and contractors who keep the fine and the contract because those flows pay them operate the fraud, and dark traits are common enough in competitive offices that the fraud side cannot be left as a residue of the failure.

Where officials lifted a restriction on a consensual trade, the public cost of prosecuting it fell and a tax or a gate appeared, while the harms they had named did not surge in the figures Chapter 4 assembled. Where they kept the file, as in the account refusals of Hong Kong, the Emirates, Estonia, Georgia, and Panama, incorporation survived and bankability did not. Uganda, whose informal employment is about nine workers in ten and whose housing deficit the ministry puts near 2.48 million units, has not yet sunk the American outlay. Members of Parliament who confine punishment to theft, fraud, coercion, and other acts that have a victim, who drop the reporting duty, and who allow a lower tax and fewer permissions to bring day-to-day work into the open, serve the long-term interest of the government as well as of the household, because the Uganda Revenue Authority collects more from a larger open base than from a fine on a missing form. Anti-money-laundering administration spends that base on a bureaucracy without ROI but unnecessary foreign involvement.

References

- Allingham, M.G. and Sandmo, A. (1972) 'Income tax evasion: a theoretical analysis', *Journal of Public Economics*, 1(3–4), pp. 323–338.
- Babiak, P. and Hare, R.D. (2006) *Snakes in suits: when psychopaths go to work*. New York: HarperCollins.
- Babiak, P., Neumann, C.S. and Hare, R.D. (2010) 'Corporate psychopathy: talking the walk', *Behavioral Sciences and the Law*, 28(2), pp. 174–193.
- Becker, G.S. (1968) 'Crime and punishment: an economic approach', *Journal of Political Economy*, 76(2), pp. 169–217.
- Board, B.J. and Fritzon, K. (2005) 'Disordered personalities at work', *Psychology, Crime and Law*, 11(1), pp. 17–32.
- Buckels, E.E., Jones, D.N. and Paulhus, D.L. (2013) 'Behavioral confirmation of everyday sadism', *Psychological Science*, 24(11), pp. 2201–2209.
- Cannabis Health News (2026) 'Germany's Cannabis Act two years on: what government data shows', 8 April.
- CNBC (2021) 'The U.S. has spent over a trillion dollars fighting the war on drugs', 17 June, reporting the University of Pennsylvania estimate of cumulative spending since 1971.
- Colorado Department of Revenue (2025) Cannabis tax and fee receipts, cumulative through December 2025.
- East African, via Refugees International (2026) 'Uganda's generous open-door refugee policy is breaking down', 21 April.
- Economic Policy Research Centre (2026) *An assessment of the informal sector in Uganda: a consolidated report*. Kampala: EPRC.
- e-Residency (2025) 'What to do if you can't get a business bank account', e-Residency blog, 11 August.
- e-Residency (2026) 'Restrictions on e-Residency applications', Knowledge base.
- Estonian Financial Intelligence Unit (2025) *National risk assessment of money laundering, 2025*. Tallinn: Ministry of Finance.
- Europol (2017) *Does crime still pay? Criminal asset recovery in the EU*. The Hague: Europol.
- Ferwerda, J. and Reuter, P. (2026) 'The money laundering market: an economic analysis', Proceedings of the National Academy of Sciences, 123(33), e2512080123. <https://doi.org/10.1073/pnas.2512080123>

- Festinger, L. (1957) *A theory of cognitive dissonance*. Stanford, CA: Stanford University Press.
- Forbes (2025) 'Legal weed is working: \$24.7 billion in taxes, teen use down in most states', 22 June, citing the Marijuana Policy Project.
- Fracassi, C., Lee, E.S.C. and Roukny, T. (2025) 'No country for dirty money? The economic footprint of anti-money laundering standards', SSRN working paper, 22 August.
- Germany, Bundestag (2002) *Prostitutionsgesetz* (Prostitution Act).
- Germany, Bundestag (2024) *Cannabisgesetz* (Cannabis Act), in force 1 April 2024.
- Government of Panama (2023) 'Panama officially removed from FATF grey list', 27 October.
- Groot, L. (2013) 'Money laundering, drugs and prostitution as victimless crimes', in Unger, B. and van der Linde, D. (eds.) *Research handbook on money laundering*. Cheltenham: Edward Elgar, pp. 57–67.
- GTK Rechtsanwälte (2024) 'Die steuerlichen Freuden der Prostitution in Deutschland', 18 May.
- Hamel, G. and Zanini, M. (2016) 'Excess management is costing the U.S. \$3 trillion per year', *Harvard Business Review*, 5 September.
- Hong Kong Monetary Authority (2016) 'De-risking and financial inclusion', circular, 8 September.
- Hong Kong Monetary Authority (2019) Circular on mystery shopping and the thematic review of SME onboarding, 14 June.
- Hong Kong Monetary Authority (n.d.) 'Role of the HKMA', account opening. Available at: <https://www.hkma.gov.hk/eng/smart-consumers/account-opening/role-of-the-hkma/>
- Hoppe, H.H. (2012) *Wettbewerb der Gauner*. Berlin: Holzinger.
- Ifo Institute (2024) Estimate of superfluous bureaucracy in Germany, about €146 billion a year, reported November 2024.
- Institute of Economic Affairs (2022) Record of British street prices for cocaine and heroin during 2022. London: IEA.
- Institute of Economic Affairs (2024) *Debanked: the economic and social consequences of anti-money laundering regulation*. London: Institute of Economic Affairs.
- Kayser, K.H. (2026) *Armed and educated: a policy case for civilian firearms reform in Uganda*. Zenodo. <https://doi.org/10.5281/zenodo.21856164>
- Kunda, Z. (1990) 'The case for motivated reasoning', *Psychological Bulletin*, 108(3), pp. 480–498.

- Lord, C.G., Ross, L. and Lepper, M.R. (1979) 'Biased assimilation and attitude polarization: the effects of prior theories on subsequently considered evidence', *Journal of Personality and Social Psychology*, 37(11), pp. 2098–2109.
- Matthews, L. (2022) 'Money laundering: another noncrime pursued by criminal authorities', *Mises Wire*, 29 November.
- Meltzer, D. (2016) 'A look back at the 1990s hysteria which got MMA banned in New York', *MMA Fighting*, 3 April.
- Newsroom Panama (2019) 'Panama returns to financial watchdog gray list', 21 June.
- Nickerson, R.S. (1998) 'Confirmation bias: a ubiquitous phenomenon in many guises', *Review of General Psychology*, 2(2), pp. 175–220.
- Nile Post (2026) '89.2 percent of Ugandans stuck in informal work, new UBOS report reveals', 22 April.
- Nile Wires (2026) 'Government calls for stronger partnerships to address Uganda's 2.48 million housing unit deficit', 1 October.
- Niskanen, W.A. (1971) *Bureaucracy and representative government*. Chicago: Aldine-Atherton.
- Office of National Drug Control Policy (2024) *National drug control budget, FY 2025 funding highlights*. Washington, DC: Executive Office of the President.
- Parkinson, C.N. (1955) 'Parkinson's law', *The Economist*, 19 November.
- Paulhus, D.L. and Williams, K.M. (2002) 'The dark triad of personality: narcissism, Machiavellianism, and psychopathy', *Journal of Research in Personality*, 36(6), pp. 556–563.
- Pol, R.F. (2020) 'Anti-money laundering: the world's least effective policy experiment? Together, we can fix it', *Policy Design and Practice*, 3(1), pp. 73–94.
- Rabushka, A. (1979) *Hong Kong: a study in economic freedom*. Chicago: University of Chicago Press.
- Reichel, R. (2007) Estimate of German prostitution turnover and potential tax, reported in Reuters, 'German tax revenues could rise with prostitute levy', 9 August.
- Rothbard, M.N. (1973) *For a new liberty: the libertarian manifesto*. New York: Macmillan.
- Semuwemba, A.K. (2024) 'Comparison of the food sharing and uninvited guests culture in Uganda and UK', *Watchdog Uganda*, 25 December.
- Stanovich, K.E. and West, R.F. (2007) 'Natural myside bias is independent of cognitive ability', *Thinking and Reasoning*, 13(3), pp. 225–247.

Uganda (2006) *Refugees Act*.

Uganda (2013) *Anti-Money Laundering Act*.

United Arab Emirates (2022) Federal Decree-Law No. 47 of 2022 on the taxation of corporations and businesses.

United States (1994) Violent Crime Control and Law Enforcement Act.

University of Düsseldorf (2021) Estimate of tax and employment from legal recreational cannabis sales in Germany.

Washington Institute (2023) 'The UAE formally ceases to be a tax-free haven', Policy Analysis.

World Bank (2007) *Doing Business 2008*. Washington, DC: World Bank.

COLOPHON

All copyrights in this issue have been observed, and all reprints were explicitly permitted by their stated rights. ARJEF would never knowingly or on purpose infringe on intellectual property, and the journal expresses its gratitude to all open access publishers.

NEXT NUMBER

The next issue, Volume 1, No. 2, is scheduled for December 26, 2026.