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An Empirical Analysis of Factors that influence Informal Cross-Border Money Payments in the SADC Region

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Layout of the presentation

- Introduction and background
- Research problem
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- Overview of SA & neighbours' payment systems
- Literature Review Matrix
- Conceptual framework
- Methods
- Empirical Results and Discussion
- Conclusion and Recommendations

Introduction and Background

- **South Africa (SA) has a relatively developed international payments system vs the bordering countries' systems**
- **Could it be perhaps one of the reasons some businesses find it difficult to do business in SA and resort to doing business in other SADC economies with poor or underdeveloped clearing systems?**
- **One wonders if the magnitude of such undeclared transactions has any significance on lost GDP in the short term or long term?**

Research Problem

What we know

- **Studies by Zetsche, Anker-Sørensen, Passador, and Wehrli (2021) used content analysis focusing on the European market.**
- **Cui (2025) employed a qualitative content analysis of Southeast Asia, utilizing a meta-analytical approach**
- **Nguyen, Nguyen, and Tran (2024) used structural equation modelling and partial least squares to analyze the Vietnamese Cross-Border Electronic Commerce (CBEC) and found that a holistic view from management assisted in understanding the factors that promoted informal cross-border e-commerce**
- **Chen, Lan, and Chang (2023) conducted a systematic literature review on CBEC, applying it to 40 CBEC studies using the Stimulus-Organism-Response (S-O-R) framework to gain a better understanding of the CBEC ecosystem.**

Research Problem

What is missing or a study gap?

- It is a study that focuses on an emerging economy in the SADC region
- Poisson Pseudo Maximum Likelihood (PPML) gravity modeling approach

Research Questions

1. What are the factors that influence the use of informal cross-border payments in the SADC region?
2. What is the contribution of informal cross-border payments to GDP in the SADC region?

How to solve the problem:

- PPML gravity model, stylized economic facts, content analysis

Research Questions

- **What are the factors that influence the use of informal cross-border payments in the SADC region?**
- **What is the contribution of informal cross-border payments to GDP in the SADC region?**

Overview of SA & neighbours' payment systems

Table 1: The status of E-Commerce and cross-border legislation in the select SADC

Country	E-Commerce-related legislation exists	Cybercrime-related legislation exists	Law
Botswana	Yes	Yes	National ICT Policy of 2018-2022
Eswatini	No	Draft	National ICT Policy of 2019-2022
Lesotho	Draft	Yes	National ICT Policy of 2016-2021
Mozambique	Yes	Yes	National strategy for the development of information and communication technologies of 2018-2022
Namibia	Draft	No	National ICT Policy of 2016-2021
South Africa	Yes	Yes	South African National E-Commerce Strategy
Zimbabwe	Draft	Yes	National Policy for ICT and the SMART Zimbabwe 2030 Masterplan

Figure 3: Summary of SADC countries' simplified facts

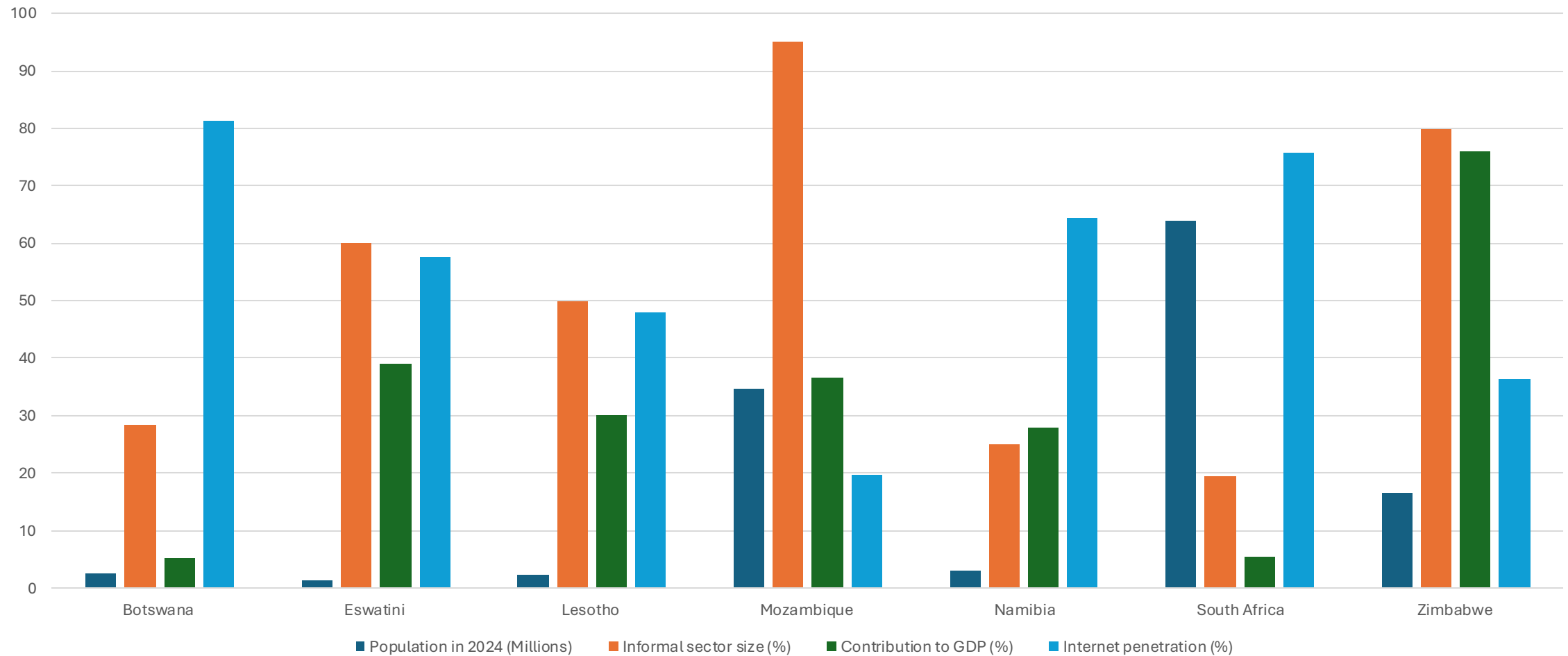
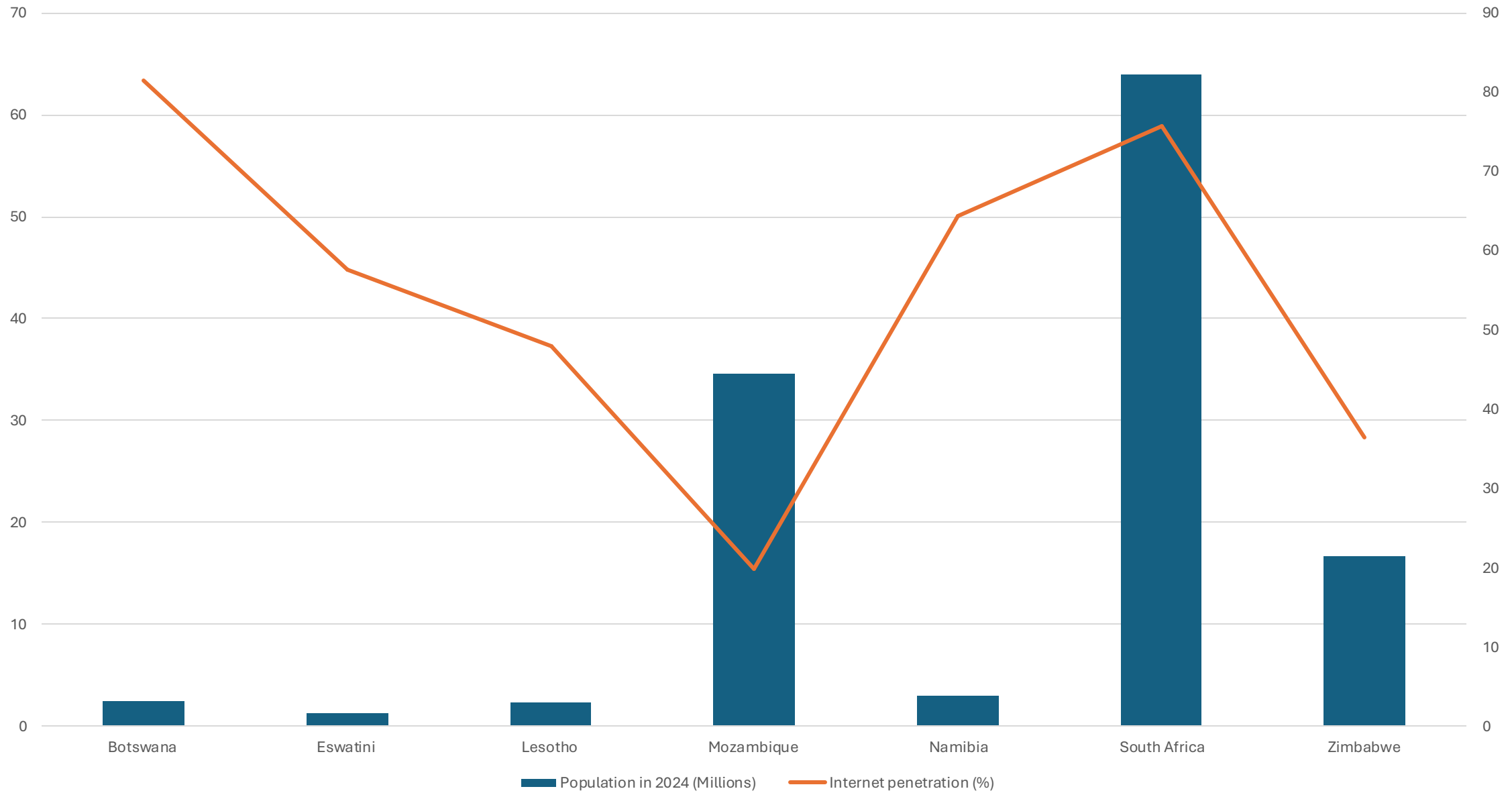


Figure 4: Select SADC countries: Population vs internet penetration



Literature Review Matrix

	Authors	Time/place	Methodology	Findings
1	Ayodele (2023)	SA	Mixed methods	Rural poor are still excluded
2	Botha and Makina(2011)	SA	-Silo institutional approach	-SA started as an institutional approach -
3	McCallum and Aziakpon (2023)	SA	-regulatory sandbox used in FinTechs and was launched in 2020	-The regulatory sandbox fell short of having an implementation structure
4	Mhlongo, Kunjal and Muzindutsi (2025)	SA, 2000-2023	QUANT using panel regression	-FinTechs enhance competition through mobile transactions,
5	Gondwe (2021)	SA	QUAL	Focus on the supervisory frameworks
1	Chitimira and Torerai (2021) &2024	ZIM	Content Analysis	--Traditional banking is losing pace at the innovation speed
1	Rapanyane and Ngoepe (2019)	SA	Thematic content analysis	the impact of IFRS illicit financial flows (IFFS) on the country's governance and development

Conceptual framework

What drives informal or formal cross-border payments between developed and less developed financial payment systems?

Theoretical contributions

- Institutional approach
- Multi-sector regulatory approach
- Open enterprise sharing approach
- SADC model law
- Regulatory sandbox

Empirical contributions

- Stylized economic facts
- Descriptive statistics
- Empirical studies from SADC, SA, emerging economies, and SSA
- Poison PPML model

Cost of formal transfer (CFT_{it})



Financial inclusion index (FII_{it})

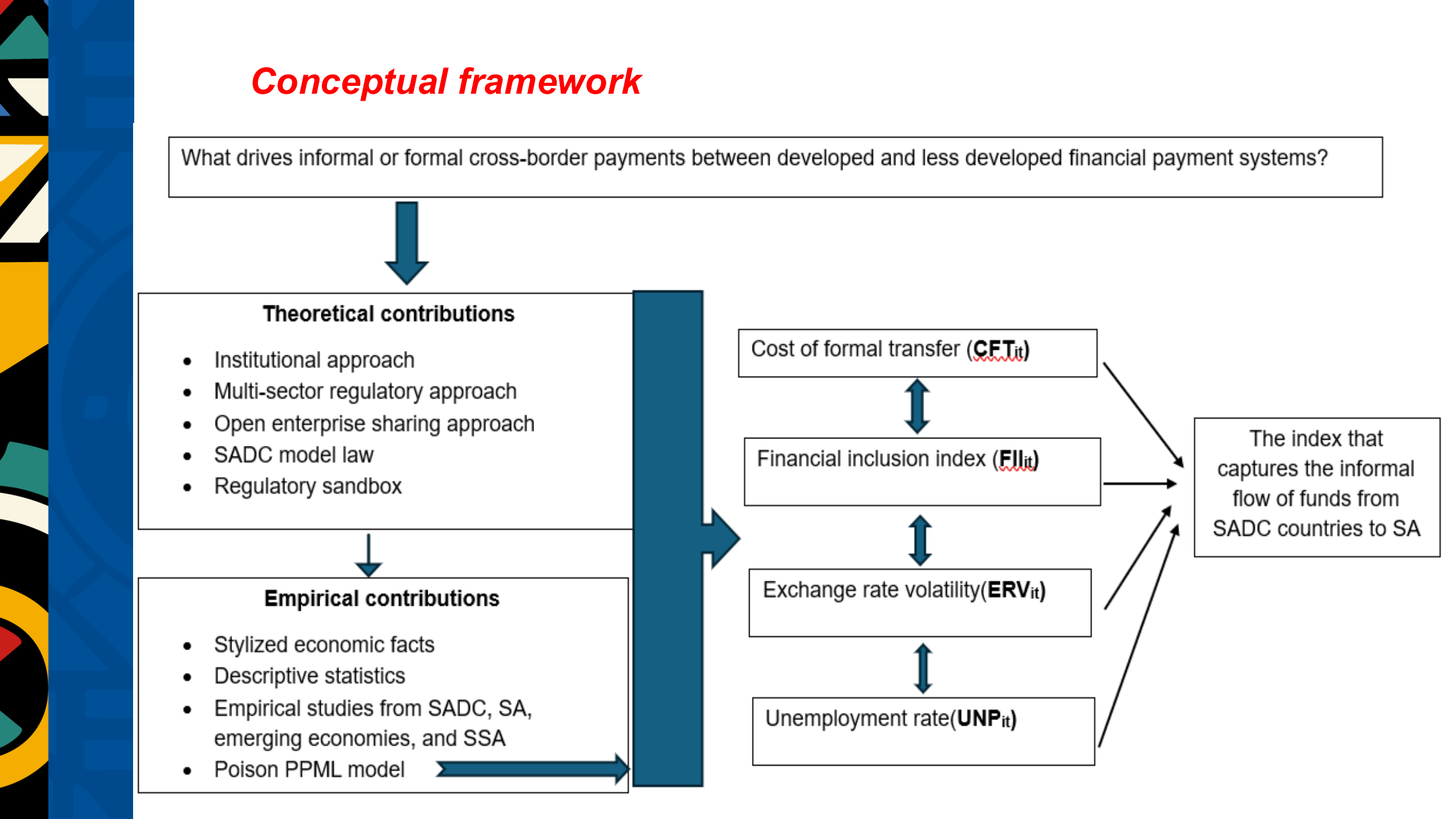


Exchange rate volatility (ERV_{it})



Unemployment rate (UNP_{it})

The index that captures the informal flow of funds from SADC countries to SA



Econometric model

- **Informal cross-border payments are conceptually linked to informal cross-border trade (ICBT) and both are latent constructs.**
- **Previous studies have focused on ICBT because it is comparatively easier to approximate than informal cross-border payments (Bouët et al. 2020; Lesser and Moisé-Leeman 2009; Peberdy and Crush 2017).**
- **Approaches in the literature include census-based surveys, estimation techniques and econometric modelling (African Union 2024).**
- **This study adopts the econometric approach and applies a gravity modelling framework.**

Gravity model selection

$$ICBT_{it} = f(CPI_{it}, EVOL_{it}, MVOL_{it}, GDPP_{it}, NBR_{it}, UE_{it}, DIST, PS_{it}, RQ_{it}, GE_{it}, RL_{it}, VA_{it}, CC_{it}, U_{it}) \dots\dots\dots (1)$$

where i denotes country i , t denotes year t , and U_{it} captures unobservable factors. Adopting a log-linear specification for the macroeconomic and business variables (so that coefficients can be interpreted as elasticities) while keeping ICBT and governance indices in levels, the empirical model is expressed as:

$$ICBT_{it} = LNCPI_{it} + LNEVOL_{it} + LNMVOL_{it} + LNGDPP_{it} + LNNBR_{it} + LNUE_{it} + LNDIST_{it} + Gov_{it} \dots\dots\dots (2)$$

where Gov_{it} represents a governance indicator for country i , in year t . To address potential autocorrelation, the six governance indicators were introduced separately during estimation. These include Political Stability (PS), Regulatory Quality (RQ), Government Effectiveness (GE), Rule of Law (RL), Voice and Accountability (VA), and Control of Corruption (CC).

Gravity model selection

crude proxy for informal cross-border trade, as it is based on reported import figures that also include trade with countries other than South Africa. ICBT is estimated using the formula:

$$ICBT_{it} = \frac{GDP \text{ in Country } i, \text{ year } t - \text{Imports of Country } i, \text{ year } t}{GDP \text{ in Country } i, \text{ year } t} \dots\dots (3)$$

Definition of variables

Variable code	Variable explanation	A priori sign	Source
$ICBT_{it}$	The index that captures informal flow of funds from SADC countries to SA and other countries.	Dependent variable	WBI (2025)
$LNCPI_{it}$	is log of consumer price index in SADC country i , year t	Positive	WBI (2025)
$LNEVOL_{it}$	is log of export volume index in SADC country i , year t	Negative	WBI (2025)
$LNMVOL_{it}$	is log of import volume index in SADC country i , year t	Positive	WBI (2025)
$LNGDPP_{it}$	is log of GDP per capita in SADC country i , year t	Positive	WBI (2025)
$LNNBR_{it}$	is log of new business registered index in SADC country i , year t	Positive	WBI (2025)
$LNUE_{it}$	is log of total unemployment in SADC country i , year t	Positive	WBI (2025)
$LNDIST_{it}$	is log of distance from capital Pretoria to the capital city of SADC country i , year t	Negative	WBI (2025)
PS_{it}	Political stability and absence of violence/terrorism index in SADC country i , year t	Negative	WBI (2025)
RQ_{it}	Regulatory quality index in SADC country i , year t	Negative	WBI (2025)
GE_{it}	Governance effectiveness index in SADC country i , year t	Negative	WBI (2025)
RL_{it}	Rule of law index in SADC country i , year t	Negative	WBI (2025)
VA_{it}	Voice and accountability index in SADC country i , year t	Negative	WBI (2025)
CC_{it}	Control of corruption index in SADC country i , year t	Negative	WBI (2025)

EMPIRICAL RESULTS AND DISCUSSION

Table 5: Results with the dependent variable $ICBT_{it}$

MODEL	[7]	[8]	[9]	[10]	[11]	[12]
VARIABLES	ICBT	ICBT	ICBT	ICBT	ICBT	ICBT
LNCPPI	0.0144	0.120***	0.0627*	0.0704**	0.0360	0.0923**
	(0.345)	(3.698)	(1.656)	(2.184)	(1.029)	(2.248)
LNVEV	-0.0128	-0.0534	0.193	0.333*	0.0699	-0.0790
	(-0.0799)	(-0.239)	(1.069)	(1.808)	(0.362)	(-0.322)
LNGDPPC	0.872***	0.715***	0.826***	0.618***	0.694***	0.785***
	(6.481)	(7.770)	(6.679)	(6.720)	(7.100)	(5.855)
LNMOV	0.0998	0.272	-0.0869	-0.486**	0.185	0.319
	(0.403)	(1.116)	(-0.355)	(-2.131)	(0.784)	(1.146)
LNBR	0.154***	0.283***	0.105**	0.111**	0.213***	0.120***
	(3.472)	(5.297)	(2.489)	(2.508)	(4.562)	(2.623)
LNUE	-0.452***	-0.587***	-0.356***	-0.490***	-0.389***	-0.600***
	(-4.198)	(-5.373)	(-3.191)	(-4.597)	(-3.581)	(-4.316)
LNDIST	-0.274	-1.663***	-0.873***	-0.346**	-0.847***	-0.584***
	(-1.606)	(-6.832)	(-4.990)	(-2.426)	(-4.464)	(-2.803)
PS	-0.654***					

Discussion

- **A positive and significant relationship exists between the consumer price index and ICBT across all the models, except (1) and (5), which supports the hypothesis that inflation pushes trade into informal channels**
- **The coefficient on export volume is positive and significant at the 10 per cent level**
- **The coefficient on import volume is negative and significant at the five percent level**
- **The mixed pattern observed across different model specifications underscores the complex relationship between recorded trade volumes and informal flows.**

Discussion (Condt....)

- **The variable for unemployment displays a strong negative and statistically significant coefficient in all models, with values from negative 0.356 to negative 0.600**
- **The findings also highlight the spatial dimension, with the estimated coefficient for distance being negative and statistically significant in most model specifications.**
- **The results for the six governance indicators convey a clear and consistent pattern. All six measures exhibit a statistically significant negative association with informal cross-border trade.**

Conclusion and Policy Implications

Conclusions

- **The empirical results demonstrate that informal cross-border trade is not a peripheral activity but is systematically influenced by macroeconomic conditions, entrepreneurial dynamics, and the quality of governance.**
- **The significant negative coefficient for distance from Pretoria underscores South Africa's role as the regional economic hub around which informal trade flows are organized.**
- **Informal cross-border trade is closely linked to formal economic activity**
- **This suggests that informal cross-border trade frequently functions as an entrepreneurial response rather than as a coping mechanism for the unemployed**
- **Weaker governance is associated with higher levels of informal trade, indicating that businesses and individuals resort to informal channels when formal institutions are perceived as inefficient, corrupt, or burdensome.**

Recommendations

- **Governments should prioritize institutional reforms that enhance transparency, streamline customs procedures, and reduce bureaucratic obstacles to decrease incentives for informal trade**
- **Simplifying registration processes and lowering the costs of formal cross-border compliance could encourage entrepreneurs to operate within formal channels.**
- **Regional cooperation should be strengthened to harmonise trade policies and improve cross-border infrastructure, thereby reducing the transaction costs associated with geographical distance**
- **creating a predictable, efficient, and business-friendly formal trading environment**

Conclusion and Policy Implications (condt....)

Limitations and areas for future studies

- **One limitation concerns the reliance on aggregate data, which does not allow for a detailed exploration of the individual motivations and strategies adopted by traders.**
- **Future research could therefore employ mixed-method approaches, combining econometric modeling with qualitative techniques such as trader surveys and interviews, to uncover the micro-level decision-making processes that underpin the use of informal channels.**
- **Another valuable direction would be to disentangle the relative effects of the six governance indicators, with particular attention to whether specific dimensions of institutional quality**
- **Comparative analyses across African regional economic communities would also be useful to establish whether the observed patterns are unique to the SADC context or are more broadly generalizable**
- **In addition, given the increasing importance of digital platforms in trade, future studies should consider the evolving role of mobile money services and social media in shaping and transforming informal cross-border trade networks.**



The End !!

Thank You