



WP/2025/1

BoZ WORKING PAPER SERIES

Kwacha Real Effective Exchange Rate Update

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Bank of Zambia Working Paper Series
Kwacha Real Effective Exchange Rate Update

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March 2025

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Abstract

The shift in trade patterns necessitates the recalibration of the real effective exchange rate (REER) index to measure and represent a nation's underlying external sector competitiveness. In response to the need for a more precise and relevant REER index for Zambia, this study provides an updated series for the index using trade data for the period 2017-2019. The study explores theoretical foundations of the REER, emphasizing its significance in evaluating a nation's global economic position. In this regard, two key definitions of REER are elaborated: external perspective, which adjusts the nominal exchange rate for variations in price levels between countries, and the internal perspective, which assesses relative pricing between tradable and non-tradable goods within a single nation. The study then addresses the complexities of measuring REER in developing countries like Zambia. It highlights the challenges in reconciling bilateral trade flows with major trading partner countries. A comprehensive research methodology, including the selection of appropriate formulas, measures for the nominal exchange rate, methodologies for determining country weights, averaging techniques and suitable price indices are presented. The recomputed REER reveals that the economy was more competitive than previously reported based on the 2005 trade weights. This underscores the need to continuously update trade weights to capture the underlying external competitiveness of the country and also align the measurement more accurately with the contemporary dynamics of the evolving trade landscape.

Keywords: Real effective exchange rate, Re-basing, Re-weighting,
JEL Classification: E3 F1

1.0 Introduction

This paper addresses the dynamics in the Zambian Kwacha (ZMW) effective exchange rate by updating trade weights based on data from 2017 to 2019. The trade weights used in the computation of the real effective exchange rate (REER) have not been updated since 2005. However, the economy has undergone changes in the composition of the trading partners, bilateral relations and further development of regional economic communities focused on enhancing trade among member countries. Given this, it would be expected that the composition of Zambia's trading partners and the trade weights have changed.

To reflect the changing trade dynamics, the paper focuses on refining the REER, a critical economic indicator that plays a pivotal role in assessing a country's international competitiveness in the global economy. By incorporating the latest trade data and using World Bank mirror data, the revised weights provide a more accurate and up-to-date reflection of the REER, offering valuable insights for policymakers.

Zambia is renowned for its abundant natural resources and generally undiversified export base (African Development Bank, 2022). However, Zambia faces a complex economic landscape characterized by volatile global commodity prices, shifting trade dynamics and evolving macroeconomic policies. The REER, which measures the relative value of the Kwacha against a basket of foreign currencies while adjusting for inflation, assumes paramount significance in this dynamic context.

The economy remains reliant on sectors such as mining, agriculture and manufacturing, leaving it susceptible to global economic fluctuations. Simultaneously, economic reforms, including the liberalization of trade and exchange rate regime, and adjustments to the monetary policy framework have redefined Zambia's economic profile. The REER index serves as a critical navigational tool within the landscape of the international economy, providing valuable insights into a nation's external sector competitiveness through the integration of nominal exchange rates and relative price levels. In a world characterized by evolving trade patterns, inflation dynamics and shifting economic structures, the persistent accuracy and relevance of economic indicators become paramount. The re-basing and re-weighting of the REER index emerge as fundamental processes to ensure its continued use and reliability in the face of these ever-changing economic realities.

The relevance of the REER in evaluating a country's international competitiveness has been underscored by renowned scholars like Balassa and Samuelson (1964). They argue that the REER provides valuable insights into a nation's economic performance, particularly in an era characterized by globalization and evolving trade patterns. In addition, Kamin and Rogers (1996) emphasize the importance of the REER in understanding the effects of inflation on domestic activity.

The principal objective of this paper is to revise and update the REER index for Zambia, providing policymakers, economists, and stakeholders with a precise representation of the nation's external competitiveness. This is done by recomputing the REER using the latest

trade data adjusted for mirror data² from the World Bank. Specifically, copper exports are adjusted by using data reported as exports from Zambia by trading partner countries³. Thus, the study integrates recent economic developments, changing trade patterns with adjusted data⁴ and inflation dynamics into a refined REER index for Zambia.

To achieve this objective, the study employs an approach that evaluates the appropriateness of current trade weights in the REER Index to reflect Zambia's evolving trade patterns. Given Zambia's efforts to establish new trade partnerships, particularly with neighboring countries and emerging markets (UNCTAD, 2020), this assessment is crucial. The impact of domestic and global inflation on the REER⁵ is also accounted for. Inflation has played a significant role in shaping the competitiveness of Zambia's exports and imports (World Bank, 2021). Therefore, incorporating inflation dynamics is essential for a comprehensive REER assessment.

The findings based on updated methodologies and data sources offer a contemporary perspective on Zambia's international competitiveness. Policymakers can leverage these insights to make informed decisions regarding exchange rate management, trade policies and potential economic vulnerabilities.

The rest of the study is organized as follows. Section 2 provides an overview of the theoretical foundations of the REER. Section 3 presents the methodology for REER computation while Section 4 presents and discusses the results. Section 5 concludes.

2.0 Theoretical Foundations of the Real Effective Exchange Rate

This section provides brief theoretical underpinnings of the REER and its significance in evaluating a nation's external competitiveness. It delves into the fundamental concepts and definitions of the REER, shedding light on its dual perspectives: external and internal. Furthermore, this section addresses the complexities associated with measuring the REER in developing countries like Zambia, considering factors such as unrecorded trade, smuggling, and volatile trade terms. The REER is a multi-faceted and crucial concept in international economics deeply embedded in economic theory.

The REER evaluates the relative value of a country's currency against a basket of foreign currencies adjusted for inflation. This evaluation is grounded in economic theory, notably contributions by Balassa and Samuelson (1964). They assert that the REER provides valuable insights into a nation's economic performance, particularly in a globalized world marked by shifting trade dynamics.

²Mirror data is used in comparing, for the same product and period, the flows reported by one country with those reported by another country for the purpose of establishing consistency of the data.

³ Previously, the REER was computed by using only Zambia trade data reported by the Zambia Statistics Agency.

⁴ Trade data provided by Zambia Statistics Agency was adjusted with mirror data to reflect the destination of copper from Zambia as reported by the recipient countries.

⁵ Other studies use Relative unit labor costs in manufacturing could be used to compute real effective exchange indexes (Turner and Golub, 1997).

In external terms, the real exchange rate is calculated by adjusting the nominal exchange rate for variations in price levels between countries. This definition expresses the ratio of the aggregate foreign price level to the home country's aggregate price level measured in a common currency. This concept stems from the theory of purchasing power parity (PPP), which enables a comparison of two countries based on relative prices of baskets of goods produced or consumed. Conversely, in internal terms, the real exchange rate is the ratio of domestic prices of tradable to non-tradable goods within a single country. This internal perspective provides valuable insights into domestic resource allocation incentives.

Within these overarching definitions of the real exchange rate, various formulations and measures emerge, each offering a nuanced perspective within different analytical frameworks. In the literature, the external real exchange rate can be defined in two distinct ways:

- a. PPP theory: This theory seeks to determine the relative value of currencies by comparing prices of identical baskets of goods and services in different countries. This theory posits that, in the absence of transportation costs and other trade barriers, identical goods should sell for the same price when expressed in a common currency. In other words, the exchange rate between two currencies should adjust so that an equivalent basket of goods has the same cost in both countries. According to Taylor (2004), PPP theory is based on the principle that exchange rates should reflect the relative price levels in different countries, ensuring that one unit of currency has the same purchasing power everywhere. In addition, as highlighted by Isard (2007), PPP theory can be expressed as $E = \frac{P^*}{P}$ where E represents the exchange rate, P^* is the foreign price level and P is the domestic price level. This formula underscores the inverse relationship between exchange rates and relative price levels, indicating that when domestic prices rise relative to foreign prices, the domestic currency should depreciate (Opoku-Afari, 2004); and
- b. Mundell-Fleming "One Composite Good" Model: Examines the relationship between exchange rates, interest rates, and a country's balance of payments. According to Obstfeld and Rogoff (1996), this model simplifies the economy by considering all goods as a composite, which allows for a more straightforward analysis of international economic variables. This model estimates the external real exchange rate by defining PPP in terms of the aggregate production cost of all goods, both traded and non-traded. This approach calculates a price index representing output prices or production costs for the entire economy, including exports and goods for the domestic market, diverging from the expenditure-based price index proposed by the PPP theory; and

Similarly, the definition of the "internal real exchange rate" can vary depending on whether two or multi-good models are considered. In this context, the internal real exchange rate indicates the domestic relative price incentive for producing or consuming tradable goods as opposed to non-tradable goods, serving as an indicator of domestic resource allocation incentives.

For purposes of this paper, the focus is primarily on the concepts, definitions and measurements of the external real exchange rate in the context of Zambia. The Bank of Zambia utilizes the real exchange rate to assess the external sector competitiveness, emphasizing the relevance of the external perspective in this context.

However, the measurement of the real exchange rate, regardless of the theoretical framework employed, presents several challenges. Notably, the necessity to use different empirical price and cost indices in the calculation introduces complexities. These challenges are prevalent in both industrialized and developing countries with the latter facing more severe difficulties. In developing countries, issues such as parallel foreign exchange markets, substantial smuggling and unrecorded trade, and wide fluctuations in the terms of trade as well as trade policies and patterns add layers of complexity to the measurement of the real exchange rate, complexities not commonly encountered in industrialized nations (Edwards, 1989).

In light of these complexities, this paper endeavors to generate a new series of the real exchange rate for Zambia by employing updated weights and a revised base year of 2019. The process entails careful consideration of several key factors, including the choice of formula, selection of appropriate measures for the nominal exchange rate, determination of country weights, averaging methods and the utilization of suitable price indices. These refinements aim to provide a more accurate representation of Zambia's external sector competitiveness, accounting for evolving dynamics of the economy in an increasingly interconnected global landscape.

3.0 Methodology for Computing the Real Effective Exchange Rate

There are multiple interpretations of the REER within academic literature. Nonetheless, the REER can be characterized as the outcome of multiplying the nominal effective exchange rate (NEER) by effective relative price indices. These price indices commonly encompass metrics such as the weighted wholesale price index of trading partners and consumer price index for the domestic country (Clark, 2005). This definition encapsulates the essence of the REER, which takes into account not only the exchange rate itself, but also relative price levels between the home country and its trading partners (Opoku-Afari, 2004). By incorporating these price indices, the REER provides a more comprehensive assessment of a country's competitiveness in international trade. This can be defined in domestic currency terms using the arithmetic mean (AM) method of averaging as:

$$REER_j = \sum_{i=1}^k (NEER_{ji}) (P_i^* / P_j) \quad (1)$$

where subscripts j and i represent a home country and trading partner country, respectively. $P^* i$ is the total trade⁶ weighted price index (wholesale price index) of trading partners

⁶ The price or cost varies with the version of REER to be estimated.

representing the price of tradables, and P_j is the consumer price index (CPI) of the domestic or home country (a proxy for price of non-tradables); NEER as defined earlier.

The NEER ji denotes the nominal effective exchange rate for the home country with respect to each partner i . This is defined as an index reflecting movements in the exchange rate between a home country and trading partners adjusted for respective weights of the trading partners. Like the REER, the NEER is also a measure of the multilateral exchange rate defined in domestic currency terms using the AM as:

$$NEER_{ji} = \sum_{j=1}^k W_{ji}^* E_j \quad (2)$$

where E_i is the period average nominal exchange rate between the home country and each trading partner, and w is the appropriate total trade weight for each trading partner $i(i=1, \dots, k)$. The geometric averaging method for the NEER is:

$$EP_{gf} = \prod_{i=1}^k E_j^{w_{jt}}$$

where w_{it} are the trade weights with major trading partners.

The multilateral nominal effective exchange rate is chosen over the bilateral rate in this definition of the REER. The multilateral rate is the product of the weighted average of the relative price indices and the bilateral nominal exchange rate. This is done due to the attractiveness of the NEER over the bilateral nominal exchange rate, which allows for nominal exchange rate to reflect movements in exchange rates of trading partners relative to the domestic currency.

Alternatively, the REER, using the geometric mean (GM) method of averaging, can be defined as the product of the nominal effective exchange rate and the effective relative price indices:

$$REER_{ji} = \frac{NEER_{ji} * EP_{gf}}{P_{gd}} \quad (3)$$

where $EP_{gf} = \prod_{i=1}^k p_{gf}^{w_{it}}$ and w_{it} are the trade weights with the major trading partners, P_{gf} and P_{gd} are the foreign price index (using WPI as a proxy) and the domestic price index (using CPI as a proxy) respectively.

The difference between these two alternative ways of defining the REER index is the method of averaging used, either GM or AM. In the case of Zambia, the REER is computed using the geometric averaging method for the aggregate foreign price index and the aggregate nominal exchange rate.

The revised trade weights incorporate two major changes to the existing weights:

- A standardized methodology has been adopted for nine specific countries. In this novel approach, the revised system harnesses mirror data sourced from the World

Bank specifically focusing on imports from Zambia. This data-driven method is employed to discern Zambia's expanded top seven trading partners that constitute the highest trade in value⁷ and assign corresponding trade weights (Table 1). This represents a notable improvement over the conventional practice of relying solely on Zambia's export data. By incorporating recipient countries' import data, this methodology offers a more precise representation of what these trading partners actually imported from Zambia.

- **Incorporation of data from 2017 to 2019:** This window was chosen strategically to include the most recent and comprehensive data available before the onset of the COVID-19 pandemic. By excluding the pandemic-affected period, the analysis seeks to avoid distortions or anomalies in the data caused by the unprecedented economic disruptions associated with the global health crisis. This approach ensures that the data remain consistent and reliable for meaningful analysis and policy considerations.

4.0 Results and Discussion

The trade weights of major trading partner countries are critical to the calculation of the real effective exchange rate. Prior to updating the REER weights, customs data from ASYCUDA⁸ was adjusted with mirror data from Zambia's trading partner countries. Tables 1 to 3 outline adjusted trade data from 2017 to 2019. Adjusted data represent the data modified using mirror data from trading partner countries. They enhance Zambia's customs data with mirror data of trading partners. In cases where the importing country reports higher figures than are reported as exports in Zambia's export data, the former's data are preferred and considered in the computation of the REER. This process is implemented for all the trading partners, especially those with whom copper is traded. A country's sub-weight reflects its total trade (imports plus exports) with Zambia divided by the sum of the seven major trading partner countries trade data with Zambia. The resulting individual country weights over the three years are generally stable with the country ordering unchanged. This reflects stable trade between Zambia and its trading partner countries.

⁷ DRC and United Arab Emirates are among Zambia's major trading partners. However, due to the unavailability of continuous and reliable CPI series, their weights were zeroed.

⁸ ASYCUDA is an information and communications technology-based customs management system targeted at reforming the customs clearance processes of developing and middle-income countries.

Table 1: 2017 Trade Weights Adjusted with Mirror Data

	Imports (US\$ million)	Exports (US\$ million)	Adjusted trade data (US\$ million)	Sub Weight
China	1120.7	3438.3	3975.7	0.42
South Africa	2456.9	453.8	2699.4	0.28
DRC	1804.4	544.0	2297.8	0.00
India	246.2	175.9	1312.1	0.14
Euro Area	342.0	81.5	605.6	0.06
Singapore	28.6	495.3	521.6	0.05
United Arab Emirates	468.0	293.6	456.7	0.00
United Kingdom	141.8	184.5	323.1	0.03
United States	108.5	4.00	112.5	0.01

Source: Author computations

* Customs figures before adjustment for energy trade and discrepancy with mirror data

DRC is Democratic Republic of the Congo

Table 2: 2018 Trade Weights Adjusted with Mirror Data

	Exports* (US\$ million)	Imports* (US\$ million)	Adjusted trade data (US\$ million)	Sub Weight
China	1,336.9	1,290.7	5,206.1	0.45
South Africa	438.7	2,726.8	3,007.4	0.26
DRC	855.6	1,393.7	2,205.9	-
India	185.9	442.6	1,167.3	0.10
Euro Area	377.4	400.6	775.1	0.07
Singapore	699.7	33.1	731.0	0.06
United Kingdom	352.9	185.5	537.4	0.05
United Arab Emirates	236.5	595.7	453.2	-
United States	12.5	194.6	205.63	0.02

Source: Author computations

* Customs figures before adjustment for energy trade and discrepancy with mirror data

DRC is Democratic Republic of the Congo

Table 3: 2019 Trade Weights Adjusted with Mirror Data

Row Labels	Exports* (US\$ million)	Imports* (US\$ million)	Adjusted trade data (US\$ million)	Sub Weight
China	1,502.70	1,020.90	4,105.32	0.44
South Africa	296.87	2,222.66	2,446.54	0.26
DRC	901.42	232.21	1,091.25	-
India	54.87	351.87	1,048.47	0.11
Euro Area	327.55	439.00	764.92	0.08
Singapore	579.42	55.42	630.28	0.07
Japan	14.86	218.54	325.80	-
United Arab Emirates	47.61	740.23	214.63	-
United Kingdom	32.64	130.66	163.31	0.02
United States	5.0	186.23	190.23	0.02

Source: Author computations

*Customs figures before adjustment for energy trade and discrepancy with mirror data.

DRC is Democratic Republic of the Congo

The updated trade weights for Zambia's major trading partners⁹ for the period 2017 to 2019 are reported in Table 4. Notwithstanding different computational periods (sample period), the composition of trading partner countries in the REER in this paper differs from those in the GDP-9 Index by Chokwe et.al. (2020) because the latter only used export data to determine trade weights (2015 to 2019) while this paper utilizes both export and import trade data (2017 to 2019).

Table 4: Average Trade Weights, 2017 - 2019

	2019	2018	2017	Average
China	0.44	0.45	0.42	0.43
South Africa	0.26	0.26	0.28	0.27
India	0.11	0.10	0.14	0.12
Euro Area	0.08	0.07	0.06	0.07
Singapore	0.07	0.06	0.05	0.06
United Kingdom (UK)	0.02	0.05	0.03	0.03
United States of America (USA)	0.02	0.02	0.01	0.02

Source: Author Computations

The average trade weights in Table 4 show that China is Zambia's dominant trading partner followed by South Africa. India is third, albeit with fluctuating weights over the period. The euro area collectively contributes a notable weight of 0.07. Singapore exhibits a stable weight of about 0.12 while Singapore's trade weight is 0.06. The UK and USA show very limited weights of 0.02 and 0.03, respectively. Overall, the weights provide insights into the dynamic nature of international economic relationships and the varying degrees of influence from different trading partners.

⁹ The top five export and import commodities from major trading partner countries are respectively shown in Tables 6 and Tables 7 in the appendix.

Switzerland is absent from the reconstituted REER basket while India and Singapore are added. This signals a diversification of trade destinations shaped by changes in competitiveness as well as methodology changes in the attribution of copper exports from Zambia to final destination countries.

The revised trading partner data reported by Switzerland point to a lack of copper imports into that country from Zambia. The major imports from India are pharmaceutical products, nuclear reactors, boilers, machinery parts and plastics and articles thereof while exports are natural/cultured pearls and precious stones, lead and articles thereof and aluminum and articles thereof. The major imports from Singapore are fertilizers, natural/ cultured pearls and precious stones and electrical machinery equipment and parts while the exports are copper and articles thereof, natural/cultured pearls and precious stones and cotton.

Table 5 shows the composition of the REER basket and the trade weights for the 2005 and 2019 base years.

Table 5: 2005 and 2019 REER Weights

2005 REER Weights		2019 REER Weights	
Country	Weights	Country	Weights
South Africa	0.43	China	0.43
Switzerland	0.32	South Africa	0.27
Euro Area	0.09	India	0.12
China	0.08	Euro Area	0.07
United Kingdom	0.07	Singapore	0.06
United States	0.02	United Kingdom	0.03
		United States	0.02

Source: Author Computations

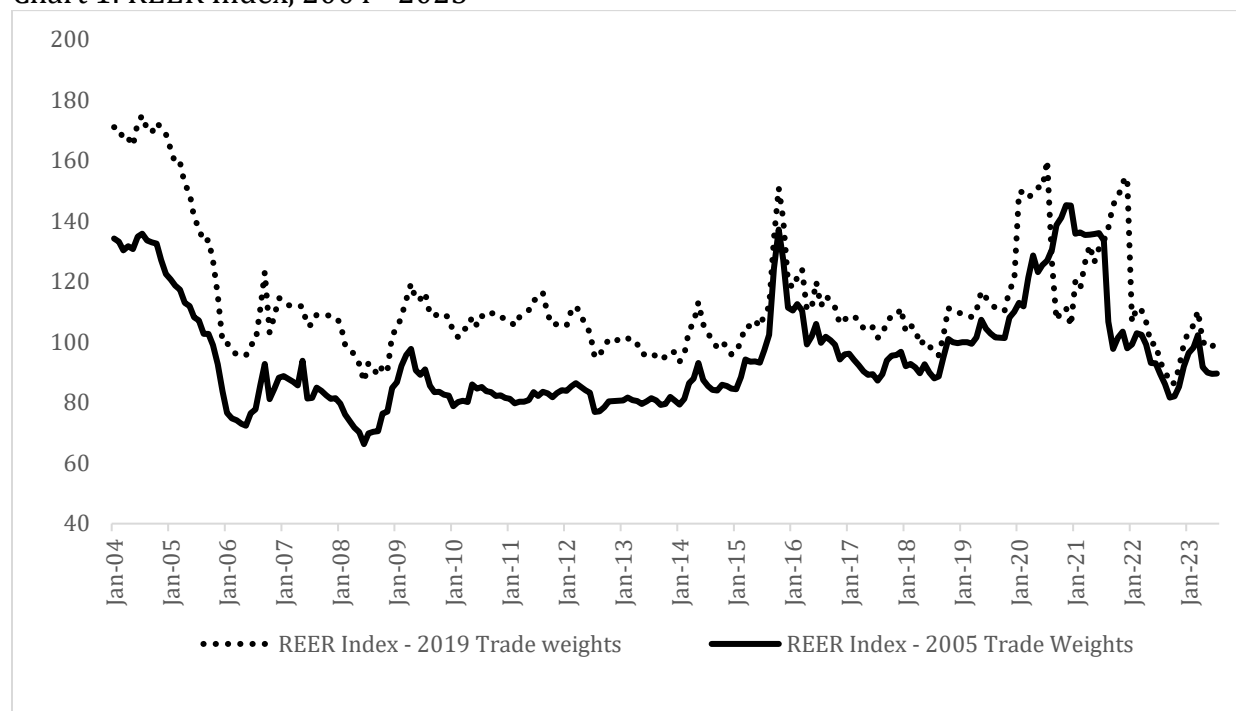
In the basket with the 2019 base year, China replaces South Africa as the major trading partner. This is explained by two factors: (a) attribution of the majority of copper exports to China that were previously considered destined for Switzerland; and (b) increase in imports to Zambia from China. The inclusion of the USA in the basket, despite its lower weight, is meant to capture the residual impact on Zambia's competitiveness from other countries besides the seven included in the basket. It also captures the influence of the US dollar as a dominant vehicle currency.

From 2017 to 2019, several key trends influenced global trade dynamics and also asserted their impact on Zambia's external sector performance. China was a major player in international trade and global economic activity. Specifically, China was a major importer of copper, Zambia's major exportable (Global Data, 2022).

The real effective exchange rate series with the 2005 and 2019 base year weights are highly correlated (0.8) for the entire period (Chart 1). The new REER (REER Index – 2019 Trade

Weight) shows greater competitiveness compared to the current REER (REER Index – 2005 Trade Weight) one on account of mirror data that highlights China as Zambia’s primary trading partner (Chart 2). The 2019 series fell below the 2005 series in 2021 following the appreciation of the Kwacha against currencies of dominant trading partner countries. In the reconstructed series, the impact of the appreciation of the Kwacha on competitiveness is mostly transmitted through the Chinese yuan, Singaporean dollar and the South African rand¹⁰. While in the old series, the impact was mostly through the Swiss franc. Therefore, the reduction in competitiveness is more pronounced in the new series than the old series.

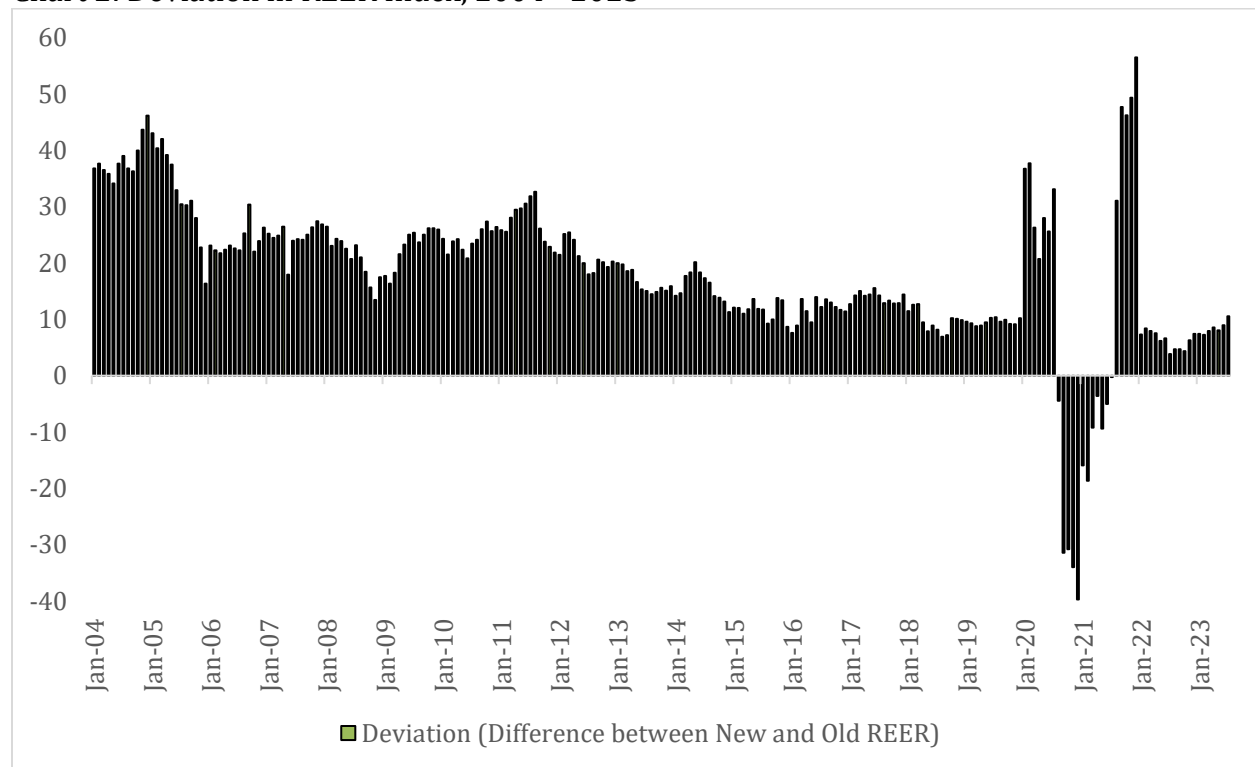
Chart 1: REER Index, 2004 - 2023



Source: Author Computation

¹⁰ In the new series, the influence of the appreciation of the Kwacha against the rand on competitiveness is relatively pronounced compared to the old series. This accounts for the observed dip (negative deviation) in 2021.

Chart 2: Deviation in REER Index, 2004 - 2023



Source: Author Computation

5.0 Conclusion

There is a clear indication that Zambia's trade pattern has undergone substantial shifts, underscoring the imperative for a corresponding adjustment in the selection of countries and their associated weights utilized in calculating the REER. The visible change in Zambia's direction of trade, coupled with the expanding disparity between the REER series computed with the base year weights of 2005 and 2019, emphasizes the need to continuously update trade weights to capture the underlying external competitiveness of the country and also align the measurement more accurately with the contemporary dynamics of the evolving trade landscape. As trade patterns evolve, a swift adoption of the re-calibrated REER series becomes essential. The revised REER shows that the economy was more competitive than previously reported as it reveals China to be Zambia's major trading partner country.

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Appendix

Table 6: Top Five Export Commodities to Major Trading Partner Countries in 2019

	China	South Africa	India	Singapore	United Kingdom	United States	Euro Area
1.	Copper and articles thereof	Natural/ cultured pearls and precious stones	Natural/ cultured pearls and precious stones	Copper and articles thereof	Copper and articles thereof	Natural/ Pearls and cultured and precious stones	Copper and article thereof
2.	Wood and Articles of wood	Other base metals, cermets, articles thereof	Lead and articles thereof	Natural/ cultured pearls and precious stones	Edible vegetables and certain roots and tubers	Works of art, collectors' pieces and antiques	Iron and steel
3.	Ores, slag, and ash	Nuclear reactors, boilers, machinery	Aluminum and articles thereof	Cotton	Live tree and other plant, bulb; cut flowers	Coffee, tea, mate and spices	Cut flowers
4.	Iron and steel	Copper and articles thereof Iron and steel	Art of Stone, Plaster, Cement	Raw hides and skins and leather	Dairy product; birds' eggs; natural honey	Art of Stone, Plaster, Cement	Tobacco and manufactured substitutes
5.	Article of Stone, Plaster, Cement	Iron and steel	Ores, slag, and ash	Art of Stone, Plaster, Cement	Preparation of vegetables, fruits, nuts, or other parts of plants	Nuclear reactors, boilers, machinery	Sugars and sugar confectionery

Source: Bank of Zambia, and ZamStats

Table 7: Top Five Import Commodities from Major Trading Partner Countries in 2019

	China	South Africa	India	Singapore	United Kingdom	United States	Euro Area
1.	Electrical machinery equipment parts thereof	Nuclear reactor, boilers, machinery, and parts	Pharmaceutical products	Fertilizers	Nuclear reactor, boilers, machinery, and parts	Nuclear reactors, boilers, machinery and parts	Nuclear reactors, boilers, machinery and parts
2.	Nuclear reactors, boilers, machinery parts	Vehicles and accessories	Nuclear reactors, boilers, machinery parts	Natural/ cultured pearls and precious stones	Vehicles and accessories	Articles of iron and steel	Miscellaneous chemical products
3.	Articles of Iron and Steel	Plastics and articles thereof	Plastics and articles thereof	Electrical machinery equipment and parts	Articles of Iron and Steel	Miscellaneous chemical products	Vehicles and accessories
4.	Vehicles and accessories	Salt, sulphur, and earth and stone	Vehicles and accessories	Mineral fuels, oils and products of their distillation	Electrical machinery equipment parts thereof	Rubber and articles thereof	Rubber and articles thereof
5.	Plastics and Articles thereof	Fertilizer	Electrical machinery equipment parts thereof	Salt, sulphur, earth and stone, plastering mat	Optical, photo, meas, cine, checking, precision	Electrical machinery equipment parts thereof	Electrical machinery equipment parts thereof

Source: Bank of Zambia, and ZamStats