

NIGERIA CEMENT MARKET, PRICING & POLICY REFORM STUDY

FROM PROTECTED SUPPLY TO COMPETITIVE ABUNDANCE

An Evidence-Based Study of Cement Pricing,
Market Structure, Industrial Protection,
Competition and Policy Reform in Nigeria

Olusegun Famakin



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This publication is an independent policy research study of Nigeria's cement market, pricing structure, industrial capacity, competition environment and policy framework.

PURPOSE AND POLICY RELEVANCE OF THE STUDY

This study is published at an important moment in Nigeria's continuing examination of cement pricing, market structure, industrial capacity and competition. Its purpose is to stimulate informed policy action, contribute independent evidence to the national policy process and support timely consideration of the structural issues affecting the cement market.

The study examines the relationship among Nigeria's substantial limestone resources, installed production capacity, actual production and capacity utilisation, market concentration, production and logistics costs, process efficiency, clinker and cement exports, import restrictions, regional price relationships and the conditions under which new competitors can enter the market.

A central contribution of the study is the identification of the Ghost Subsidy: the implicit economic value of protection created where tariff and non-tariff barriers restrict normal external competition in a mature domestic industry while the resulting economic burden remains outside conventional fiscal subsidy accounting.

The study proposes that the economic value of the Ghost Subsidy should be estimated periodically for as long as the underlying protective architecture remains materially in force. This allows policymakers to compare the cost and incidence of protection with measurable national benefits including domestic investment, production, employment, fiscal receipts, mineral royalties, net foreign-exchange conservation and export earnings.

The reform proposed in this study seeks a transition toward a more competitive, contestable and rules-based market that safeguards efficient local manufacturing and investment while progressively lowering unnecessary barriers to entry.

Cement is a strategic input into housing, roads, bridges, drainage, schools, hospitals, factories and public infrastructure. Nigeria's expanding infrastructure programme should therefore create an opportunity to raise productive utilisation of existing capacity, improve economies of scale, attract new investment and strengthen competition.

The policy objective is consequently not simply cheaper cement. It is the creation of a market structure capable of producing competitive prices sustainably through investment, efficiency, productive utilisation, transparency and contestability.

Nigeria has already demonstrated that it can build a large cement industry. The next policy challenge is to demonstrate that this industrial success can deliver competitively priced cement to Nigerians.

PREFACE

This study began with a question that appears simple but has significant implications for Nigerian industrial and economic policy:

Why should a country endowed with substantial limestone resources, large-scale integrated cement production, significant installed capacity and the ability to export clinker and cement continue to experience persistent concern over the domestic price of cement?

Nigeria's achievement in cement manufacturing should be recognised. The country has moved substantially away from dependence on imported finished cement and has developed major integrated manufacturing capacity. That transformation represents industrial investment, employment, technical capability, mineral development and an important foundation for regional trade.

The policy question has therefore changed. The issue is no longer principally whether Nigeria can manufacture cement. The evidence shows that it can. The question is whether the policy architecture developed to establish and protect domestic production remains appropriate for a mature industry with substantial capacity and regional export capability.

This distinction led the research beyond simple comparisons of cement prices. The study examines raw materials, installed capacity, actual production and utilisation, market concentration, entry barriers, process efficiency, production and distribution costs, producer financial performance, energy and foreign-exchange shocks, diesel and logistics costs, imports, exports, tariffs, international parity and the persistence of price movements after identifiable economic shocks.

It also asks what could reasonably occur under alternative policy conditions. Policymakers must consider what happens if barriers are changed, additional suppliers can enter, independent grinding becomes commercially viable, external competition becomes credible and existing producers face stronger incentives to compete for incremental demand.

This is particularly important as Nigeria expands public infrastructure. Greater construction demand should be an opportunity for the cement industry. Where substantial productive capability exists, additional demand can raise utilisation, spread fixed costs, improve economies of scale, attract investment and strengthen Nigeria's position as a regional cement and clinker producer.

The consumer and the domestic manufacturer need not occupy opposing sides of cement policy. A properly designed competitive framework can safeguard efficient Nigerian production while ensuring that industrial protection does not become protection from competition.

The study describes the unintended economic value that can arise from such protection as the Ghost Subsidy. Unlike a conventional subsidy paid from government accounts, its economic incidence can be dispersed through infrastructure expenditure, housing, private construction, rents and household purchasing power.

The study therefore proposes that the Ghost Subsidy should be capable of annual estimation, economic-dispersion analysis and comparison with measurable national benefits of domestic production. This converts industrial protection from an assumed public benefit into a testable and periodically reviewable policy proposition.

The appropriate response is not another permanent administrative price mechanism. Nigeria has experience with negotiated price interventions. The more sustainable question is how to establish market conditions in which competition itself disciplines price.

The proposals developed in this study therefore combine industrial development with market contestability. Efficient domestic producers should remain able to invest, expand and earn commercially sustainable returns. New Nigerian investors should have credible routes into

cement grinding, blending, distribution and, where commercially justified, integrated production. International supply should provide a competitive benchmark without becoming a substitute for domestic industrial development. Trade safeguards should remain available where objective evidence establishes dumping, abnormal disruption or another recognised market threat.

The resulting policy architecture should reward efficiency rather than insulation.

This study is offered to policymakers, regulators, legislators, infrastructure authorities, researchers, industry participants, investors, professional bodies and the Nigerian public as a contribution to that process.

RESEARCH APPROACH

The study adopts an evidence-led, comparative and counterfactual approach. Rather than attributing cement prices to a single variable, it examines the interaction among resource endowment, industrial capacity, actual production and utilisation, market concentration, entry conditions, process efficiency, manufacturing costs, energy, logistics, foreign exchange, distribution, trade protection and international competition.

The empirical architecture is organised around the H1-H7 research programme, followed by an integrated H8 convergence and residual-causation analysis.

H1 - Raw-Material Costs and Cement Price Formation.

H2 - Logistics and Distribution Cost Hypothesis.

H3 - Thermal and Electrical Energy Cost Hypothesis.

H4 - Process Efficiency, Energy Intensity, Cost Sensitivity and Capacity-Utilisation Efficiency.

H5 - Import Contestability, Border Protection and Cement Price Formation.

H6 - Domestic Competitive Discipline, Shock Pass-Through and Price Persistence.

H7 - Integrated Price Formation, Pass-Through and Residual-Causation Test.

H8 - H1-H7 Convergence and Residual-Causation Analysis.

The analytical principle throughout the study is convergence of evidence. No single statistic, benchmark or producer observation is treated as sufficient by itself to explain the Nigerian cement market.

Annexure GSE-1 develops the Ghost Subsidy into a measurable policy indicator, including the Competitive Parity Benchmark, low-central-high estimation scenarios, economic-dispersion framework, household purchasing-power and macroeconomic transmission, net foreign-exchange treatment and national net-benefit assessment.

HOW TO READ THIS STUDY

The report is organised progressively. The opening chapters establish the policy question, research methodology, resource base, production structure and market concentration. The middle chapters examine cost formation, process efficiency, macroeconomic shocks, price transmission, regional and international parity, trade protection and the Ghost Subsidy. The final chapters translate the findings into policy architecture, implementation measures and a transition framework designed to safeguard domestic production while strengthening competition.

Readers primarily concerned with policy outcomes may begin with the Executive Summary and proceed to Chapters 18 and 19. Readers concerned with the evidentiary foundation should read the relevant chapters together with H1-H8. Annexure GSE-1 provides the methodology for estimating the Ghost Subsidy and tracing its economic incidence.

ACKNOWLEDGEMENT OF DATA AND INSTITUTIONAL SOURCES

This study draws upon publicly available statistical, regulatory, trade, corporate, industry and government information. Particular evidentiary importance is attached to official Nigerian statistics and publications, competition and regulatory information, mineral-sector information, customs and international trade records, audited and published producer disclosures, and comparable international datasets.

The institutions and publications cited throughout the study remain the authoritative sources for their respective datasets and statements. Detailed source notes are retained within the relevant chapters and supporting research reports.

EXECUTIVE SUMMARY

Nigeria has already demonstrated that it can build a large cement industry. The next policy challenge is to demonstrate that this industrial success can deliver competitively priced cement to Nigerians.

Over the past two decades, Nigeria has moved from substantial dependence on imported cement to becoming one of Africa's major cement-producing countries. Large-scale investment in integrated plants, domestic limestone exploitation, clinker production and distribution infrastructure has created substantial industrial capacity. Nigerian clinker and cement also participate in regional West African markets, demonstrating important underlying advantages in raw materials, production scale and geographic market access.

Yet the domestic consumer has not consistently received the full benefit expected from this industrial transformation. Cement remains a major cost concern for households, builders, contractors, developers and government infrastructure programmes. The central policy question is therefore no longer whether Nigeria can produce cement locally, but whether it can translate that production success into reliable supply, sustainable investment, stronger competition and internationally defensible domestic prices.

ES.1 The Structural Problem

The study finds that the Nigerian cement market combines substantial domestic production capability with significant structural barriers to effective competition. Production is dominated by a small number of large integrated manufacturers; accordingly, CR3 and HHI are important policy -warning indicators.

High concentration does not by itself establish anti-competitive conduct. Cement production is capital-intensive and benefits from economies of scale. But where concentration exists alongside high entry barriers, restricted import competition, established distribution advantages and limited contestability, competitive pressure may be insufficient to discipline prices.

Nigeria therefore faces a central paradox: a country can possess a large cement industry and still possess an insufficiently competitive cement market.

ES.2 Costs, Efficiency and Capacity Utilisation

Nigerian cement manufacturers operate under genuine cost pressures. Energy and fuel, foreign exchange, transport, spare parts, financing, wages, quarry operations, security, taxation and general inflation all affect production costs. These pressures are material, but the evidence does not support a production-cost-only explanation of the observed price path.

The H4 analysis further finds that Nigeria's substantial unused cement-production capacity has an economic consequence beyond the existence of spare supply. Persistent under-utilisation can weaken unit-cost performance by spreading fixed and semi-fixed costs over fewer tonnes of output, although utilisation alone does not determine kiln thermal efficiency. Nigeria's thermal performance remains broadly within the range of modern dry-process production, with identifiable efficiency headroom.

The combined capacity and efficiency evidence strengthens the case for policies that increase productive utilisation, competitive dispatch, domestic demand and exports rather than continued capacity expansion without corresponding utilisation.

ES.3 The Entry Paradox

Nigeria is undertaking major infrastructure programmes while confronting a substantial housing deficit and continuing urbanisation. Expansion of cement-intensive infrastructure should ordinarily strengthen long-term demand expectations and attract new investment. Yet significant independent entry remains difficult.

If demand is large, raw materials are available, infrastructure requirements are expanding and the market remains commercially attractive, persistent difficulty in attracting additional effective competitors warrants attention to barriers beyond ordinary demand risk. These include capital intensity, access to mineral titles, infrastructure and logistics disadvantages, energy constraints, financing costs, lengthy project-development processes, established distribution networks, incumbent scale advantages and restrictions limiting external contestability.

The policy response should therefore address market contestability, not merely installed capacity.

ES.4 The Import Question

Domestic cement manufacturing is a strategic national asset supporting employment, mining, taxation, industrial capability, foreign-exchange conservation and regional trade. The study therefore does not propose a return to import dependence.

However, industrial protection should not become permanent insulation from competition. A carefully designed, rules-based external supply mechanism can operate as a competitive safety valve where domestic prices move materially outside transparent cost and regional benchmark ranges.

The critical distinction is between import dependence and import contestability. Nigeria should avoid the former while retaining the latter as a credible source of market discipline.

ES.5 Nigeria's Clinker Advantage and Regional Benchmark

Nigeria possesses substantial limestone resources and integrated clinker-production capacity, and Nigerian-origin clinker and cement participate in regional markets. This creates an important benchmark for domestic policy.

Where Nigerian industrial capacity contributes to competitively supplied cement elsewhere in the region, policymakers should continually examine the relationship between domestic prices and the country's underlying production advantages. Freight, taxation, exchange rates, energy costs, plant efficiency, logistics and country-specific conditions must be recognised, but the regional comparison remains relevant to systematic price monitoring.

ES.6 The Ghost Subsidy and Annual Measurement

The study introduces the term Ghost Subsidy to describe the implicit economic value that can arise where tariff and non-tariff protection restrict normal external competition in a mature domestic industry while the resulting economic burden remains outside conventional fiscal subsidy accounting.

Protection may have a defensible industrial-policy purpose where it produces investment, productive capacity, employment, technological capability and progressively competitive domestic prices. But once an industry is mature, concentrated and internationally capable, the continuing value and incidence of that protection should be measurable rather than assumed.

The study therefore proposes an Annual Ghost Subsidy Estimate (GSE), measured against a Competitive Parity Benchmark under low, central and high scenarios. The assessment should trace the estimated premium through public infrastructure and road contracts, government-supported housing, private development, household construction expenditure, housing and rent pressures and household purchasing power.

Where construction and housing costs absorb nominal wage gains, real purchasing power is weakened; at sufficient scale, this can contribute to further wage-adjustment demands, labour-cost pressures, public expenditure and wider inflationary effects.

The GSE must be assessed alongside measurable national benefits of domestic cement production, including net foreign-exchange conservation, domestic value added, employment,

taxes and mineral royalties, local procurement and investment, and cement and clinker export earnings. Foreign-exchange conservation should be measured net of the FX content embedded in domestic production.

The resulting policy test is straightforward: what is the annual economic value of the protection, where does its cost fall, what measurable national benefit does Nigeria receive in return, and could a more competitive policy architecture produce a superior outcome? The detailed methodology is provided in Annexure GSE-1.

ES.7 Why Administrative Price Control Is Not the Answer

Nigeria has repeatedly attempted to address commodity-price pressure through stakeholder meetings, negotiated pricing, moral persuasion and other forms of administrative price management. Such interventions can produce temporary price responses but do not remove the structural causes of pricing pressure.

The study therefore rejects permanent forced or negotiated pricing as the principal solution. The more durable approach is to establish the conditions under which competition can discover and discipline price.

ES.8 Raw-Material and Market Transparency

Nigeria's limestone and other cement-production minerals are central to its industrial advantage. The study recommends stronger reporting under the applicable solid-minerals framework to improve visibility over mineral titles, production volumes, reportable reserves, quarry utilisation, royalties, clinker production and relevant mineral movements.

This should be complemented by better reporting of capacity utilisation, domestic dispatch, exports and market-price stages. Improved data will strengthen competition policy, industrial planning, investment decisions and the annual GSE assessment.

ES.9 Recommended Reform Direction

The study recommends a transition from a predominantly protection-oriented cement policy toward a competition-oriented industrial policy.

The proposed framework preserves domestic manufacturing while progressively increasing market contestability through transparent entry rules, stronger competition monitoring, improved mineral-resource reporting, productive utilisation of existing capacity, regional price benchmarking, logistics reform and a rules-based mechanism for external supply where market conditions justify intervention.

Government's role should increasingly move from negotiating individual cement prices toward establishing and enforcing the conditions for effective competition. The framework seeks simultaneously to protect consumers through competitive prices, investors through predictable rules and the Nigerian economy through continued domestic industrial development.

ES.10 Policy End-State

The success of Nigeria's cement policy should not ultimately be measured only by the number or size of plants constructed. Installed capacity, production, clinker self-sufficiency and exports are important industrial achievements, but the final test of a mature policy is whether those achievements translate into adequate supply, high productive utilisation, sustained investment, stronger competition and competitively priced cement for Nigerians.

Nigeria has completed much of the difficult first transition from import dependence to large-scale domestic production. The next transition is from domestic production to competitive domestic production.

From protection to contestability; from recurring price intervention to competitive price

discovery; and from protected supply to competitive abundance.

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ABBREVIATIONS AND ACRONYMS

AGO – Automotive Gas Oil

ASP – Average Selling Price

BAT – Best Available Technology

CPB – Competitive Parity Benchmark

CR3 – Three-Firm Concentration Ratio

EBITDA – Earnings Before Interest, Taxes, Depreciation and Amortisation

FCCPC – Federal Competition and Consumer Protection Commission

FGN – Federal Government of Nigeria

FX – Foreign Exchange

GSE – Ghost Subsidy Estimate

HHI – Herfindahl-Hirschman Index

NBS – National Bureau of Statistics

RCC – Rigid Concrete Pavement

WHR – Waste-Heat Recovery

WTO – World Trade Organization

MODULE I – THE POLICY QUESTION

Chapters 1–2 | Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 1 – Nigeria’s Cement Price Paradox

Nigeria enters the cement-policy debate from a position that should ordinarily favour affordable domestic supply. The country has extensive limestone resources, large integrated plants, significant clinker capability, a domestic market large enough to support scale, and an installed production base materially above current domestic consumption. It also exports cement and clinker into neighbouring and overseas markets. Yet the Nigerian consumer has repeatedly faced sharp and persistent increases in the retail price of a basic construction material.

This is not simply a question of whether cement producers face higher costs. They do. Foreign-exchange reform, energy costs, imported spares, finance, road haulage and the 2026 AGO shock are real. The policy problem is whether those costs, after being measured at their proper weight in the cement cost stack, adequately explain the level, persistence and regional spread of Nigerian cement prices.

1.1 Why the Price Matters Beyond the Cement Industry

Cement is embedded in housing, roads, bridges, drainage, schools, hospitals, factories and commercial development. A sustained increase in cement price therefore moves through construction estimates, contract variations, housing affordability and public capital expenditure. The current expansion of concrete-pavement road construction makes the question particularly important: higher public demand should improve plant utilisation where spare capacity exists, yet the fiscal benefit of scale is lost if the additional demand is accompanied by persistent price escalation.

1.2 Capacity, Demand and the Missing Scale Response

FCCPC's 2026 preliminary work placed Nigerian installed cement capacity at roughly 60–65 million tonnes per year against domestic consumption of about 25–30 million tonnes. On those estimates, the industry's installed capacity is approximately twice the size of the domestic market. A high fixed-cost industry would normally be expected to compete for incremental demand by raising throughput, spreading fixed cost over more tonnes and improving the production-to-installed-capacity ratio.

The study therefore asks a direct question: why has the incremental portion of installed capacity not translated more visibly into an incremental production and dispatch response capable of moderating unit price? If the answer lies in downtime, fuel constraints, logistics, working capital, maintenance or regional bottlenecks, those constraints should be observable. If not, the interaction of concentration, capacity utilisation, entry barriers, distribution and trade protection requires closer examination.

1.3 Concentration Changes the Meaning of Spare Capacity

Spare capacity in a fragmented market and spare capacity in a concentrated market do not carry the same competitive implication. When a small number of firms control most productive capacity, the existence of unused capacity does not by itself guarantee aggressive volume competition. The relevant tests therefore include CR3, the Herfindahl–Hirschman Index where reliable shares are available, plant utilisation, domestic dispatch, exports, price parallelism, profitability and the likelihood that a new entrant can discipline the market.

High CR3 or HHI values are not evidence of unlawful conduct. They are measures of market structure. Their policy importance arises when concentration coincides with high entry barriers, persistent residual pricing, unused productive capability and limited external competition.

1.4 The Regional Trade Contradiction

Nigeria's export capability creates a second test. Nigerian-origin Portland cement has been shipped to neighbouring markets, including Togo. Where Nigerian clinker or finished cement supports supply in a

neighbouring market at trade values and retail outcomes below high Nigerian retail observations, the comparison becomes more than a general international benchmark. It becomes a revealed-trade question: how can the same production base participate competitively outside Nigeria while the domestic consumer faces a substantially higher final-market equivalent?

1.5 The Central Policy Question

The study therefore investigates: what combination of legitimate cost pressure, market concentration, capacity utilisation, distribution, trade protection and entry barriers explains Nigerian cement pricing; and what free-market reforms can sustainably restore ordinary Portland cement toward a competitive retail corridor of approximately ₦100–₦130 per kilogram without administrative price fixing or consumer subsidy?

Detailed statistical tests supporting this framing are developed in Appendices H1–H7.

Chapter 2 – Purpose, Objectives and Research Questions

2.1 Purpose of the Study

The purpose of this study is to establish an evidence-based policy framework for a competitive Nigerian cement market. It examines whether prevailing prices are adequately explained by measurable costs and supply conditions, identifies structural factors that may weaken price discipline, and tests alternative policy regimes capable of increasing supply contestability while preserving efficient domestic production.

2.2 Principal Policy Objective

The principal objective is to determine the conditions under which Nigeria can sustain ordinary Portland cement within an indicative competitive retail corridor of ₦100–₦130/kg (₦5,000–₦6,500 per 50 kg bag in major markets), subject to transparent geographic logistics differentials.

2.3 Specific Objectives

Measure the relationship between raw-material, manufacturing, energy, logistics and macroeconomic costs and cement prices.

Evaluate installed capacity, production, utilisation, domestic demand and export behaviour.

Measure market concentration and assess its interaction with entry barriers and unused capacity.

Examine profitability and price-cost behaviour through producer disclosures.

Test the effect of import prohibition, tariff protection and alternative import regimes on market contestability.

Separate temporary shock effects from persistent post-shock price movement.

Estimate the residual price movement remaining after validated cost factors are considered.

Test free-market counterfactuals capable of disciplining price through entry rather than administrative price control.

2.4 Research Questions

No.	Research question
RQ1	To what extent do raw-material and manufacturing costs explain Nigerian cement-price levels and movements?
RQ2	Is domestic installed capacity sufficient relative to consumption, and how effectively is that capacity utilised?
RQ3	What is the degree of market concentration, and how does it affect the likelihood and cost of new entry?
RQ4	Do producer cost, revenue and margin movements support full cost-pass-through explanations?
RQ5	How materially do import restrictions and tariffs alter import parity and competitive pressure?

RQ6	What proportion of recent price movements is attributable to FX, energy, AGO and logistics shocks?
RQ7	Does a statistically and economically meaningful residual remain after validated cost factors are considered?
RQ8	Can alternative trade and competition policies sustain a ₦100–₦130/kg retail corridor without price fixing?

2.5 Hypothesis Architecture

Test	Main metric family	Detailed evidence
H1	Raw-material quantities, costs and comparative input economics	Appendix H1
H2	Logistics and distribution cost, freight intensity and delivered-cost burden	Appendix H2
H3	Thermal/electrical energy cost, fuel intensity and energy-price exposure	Appendix H3
H4	Process efficiency, thermal intensity, utilisation and cost sensitivity	Appendix H4
H5	Import parity, border protection, tariffs and contestability	Appendix H5
H6	Domestic competitive discipline, shock pass-through and price persistence	Appendix H6
H7	Integrated price formation, weighted pass-through and residual-causation tests	Appendix H7

2.6 Scope of Policy Interpretation

The study distinguishes market structure from prohibited conduct. Concentration, parallel pricing or high margins do not by themselves establish collusion. They determine the intensity of competition-policy scrutiny and the value of removing entry barriers. Any finding of unlawful coordination requires the statutory evidentiary process of the FCCPC or another competent authority.

MODULE II – RESEARCH DESIGN & RESOURCE BASE

Chapters 3–4 | Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 3 – Research Methodology and Evidence Architecture

3.1 Research Design

The study adopts a comparative, longitudinal and counterfactual policy design. It combines cross-country benchmarking, producer-level financial and operating data, time-series price and shock analysis, market-structure metrics and trade-parity modelling. No single indicator is treated as determinative; conclusions are based on convergence across independent evidence streams.

3.2 Expanded Research Population

The research population extends beyond Nigeria so that domestic outcomes can be tested against different industrial structures. The country universe includes large integrated producers, African integrated markets, clinker and cement exporters, import-dependent grinding markets and mature reference markets. Countries are retained according to relevance and data quality rather than treated as mechanically identical comparators.

Comparator stratum	Analytical purpose	Illustrative countries in study universe
Country of interest	Full structural, cost, price and policy diagnosis	Nigeria
Surplus / net-exporting producers	Test price behaviour where domestic capacity exceeds demand	Türkiye, Vietnam, Tanzania, Egypt
African integrated markets	Regional production, energy and price comparison	Kenya, South Africa, Morocco, Algeria
Import / grinding markets	Test whether open clinker/finished-cement entry disciplines price	Togo, Sierra Leone, Singapore
Large integrated reference markets	Capacity, disclosure and efficiency benchmarks	India, China, United States, Germany

3.3 Evidence Hierarchy and Data Registry

Primary audited company reports, regulatory filings, official national statistics, customs/trade records and government publications receive the highest evidential weight. Industry associations and credible market observations are used where primary data do not report retail or location-specific variables. Raw observations are preserved in a master registry separately from analysed datasets so that calculations can be retracted, checked and updated.

3.4 Variables and Metrics

Domain	Metrics
Resources / inputs	Limestone and other raw-material quantities; raw-material monetary cost; captive/purchased status; clinker input
Industrial capacity	Installed cement capacity; clinker capacity; production; utilisation; idle/new capacity; dispatch
Market size	Domestic consumption; sales; imports; exports; per-capita indicators where useful
Competition	Market shares; CR3; HHI; number and type of viable competitors; entry conditions

Costs	Cost of sales; fuel/power; AGO; logistics; FX; imported-input exposure; finance/tax where observable
Price / profitability	ASP; ex-factory/depot/retail price; EBITDA; margins; price per kg and per tonne
Trade contestability	Import prohibition; tariff; landed cement/clinker; export unit value; import parity
Time series	Shock dates; price changes; correction; persistence; lagged pass-through and residual

3.5 Statistical and Econometric Methods

Descriptive statistics establish central tendency, spread and outliers. Pearson correlation (r) measures linear co-movement; Spearman's rho measures monotonic association and is less dependent on linearity; R^2 indicates the share of variation accounted for by a fitted relationship, subject to model validity. Trend and event-window analysis distinguish pre-shock, shock, correction and post-shock periods. Counterfactual analysis estimates the price outcome under alternative tariff, entry, freight, FX and logistics assumptions.

Statistic	Plain-language interpretation used in this study
$ r $ or $ \rho < 0.30$	Weak association
0.30–0.49	Moderate association
0.50–0.69	Substantial association requiring context
≥ 0.70	Strong association; not proof of causation
R^2	Proportion of observed variation fitted by the stated model; a high R^2 does not establish unlawful conduct or causality.

3.6 Limitations and Controls

Cross-country accounting definitions differ; some firms report sales rather than physical production; retail observations vary by location; and Nigerian raw-material disclosures frequently lack a matched physical quantity and monetary denominator. Accordingly, the study preserves source definitions, avoids converting sales into production, distinguishes national from local prices, uses sensitivity ranges where direct values are unavailable and records unresolved conflicts rather than filling gaps by speculation.

Chapter 4 – Raw Materials, Production and Industrial Structure

4.1 Resource Endowment and the Cost Question

Nigeria's limestone endowment is a structural advantage, but resource abundance alone does not determine cement price. The relevant economic chain is extraction quantity, quarry cost, royalty, crushing, internal haulage, corrective materials, gypsum, clinker conversion and grinding. The H1 investigation found that public producer reporting often does not disclose the physical raw-material numerator and corresponding monetary denominator at a level that permits a complete independent ₦/t or US\$/t reconstruction.

Appendix H1 contains the detailed raw-material search, comparative observations and statistical tests.

4.2 A Raw-Material Reporting Reform

The Nigerian Minerals and Mining Act already provides a legal foundation for stronger mineral reporting. It requires holders engaged in exploitation to keep correct plans and records of minerals and ore reserves, permits the Mining Cadastre Office to demand copies, requires mining-lease holders to submit prescribed periodic reports and maintain sufficient books of account, and expressly treats limestone and gypsum as quarriable minerals. The reform need not create a new disclosure system from nothing; it should standardise and publish an appropriate aggregated cement-mineral return.

The study recommends a Cement Mineral Production Return under the existing solid-minerals framework, coordinated among the Ministry of Solid Minerals Development, Mines Inspectorate, Mining Cadastre Office, NGSA, NEITI and NBS. For each quarry or consolidated producer operation it should capture tonnes extracted, tonnes transferred to cement production, royalty basis, principal quarry operating cost categories and opening/closing stock. Commercially sensitive individual returns may remain protected where law requires, while NBS/NEITI publish standardised producer or industry aggregates sufficient for public cost and productivity analysis.

NEITI's statutory framework is also relevant because it provides for transparency in extractive-industry revenue and allows the initiative to obtain accurate records of production cost and volume of sale for minerals. This provides an additional institutional route for reconciling mineral extraction, royalties, production volumes and cost reporting.

4.3 Installed Capacity, Production and Domestic Demand

The central capacity finding is not simply that Nigeria has large plants. It is the relationship between installed capability and the size of the domestic market. FCCPC's preliminary 2026 figures of approximately 60–65 Mt/year installed capacity against 25–30 Mt domestic consumption imply considerable headroom. The H2 analysis therefore focuses on the production-to-capacity ratio, actual dispatch, plant downtime, new capacity and exports rather than treating nameplate capacity as equivalent to available supply.

4.4 Why Higher Demand Should Improve Scale

In a fixed-cost-intensive process, incremental output from an existing efficient line can spread depreciation, supervision and other fixed or semi-fixed costs over more tonnes. Where infrastructure and housing demand rise while spare capability remains, the competitive expectation is that producers seek volume and market share. The study therefore treats persistent price escalation alongside low production/installed-capacity ratios as an empirical question requiring explanation, not as proof of a particular conduct.

Detailed capacity, production, utilisation and demand tests are presented in Appendix H2.

MODULE III – MARKET POWER, ENTRY & PRICE FORMATION

Chapters 5–6 / Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 5 – Market Concentration, Competition and Entry Barriers

5.1 Why Market Structure Matters

Nigeria's cement market must be assessed as an industrial organisation problem as well as a production-cost problem. A market may possess ample national capacity and still deliver weak price competition where productive capacity, distribution reach and access to the market are concentrated among a small number of firms. The relevant question is therefore not simply how many cement brands are visible at retail, but how much clinker and cement capacity each economically independent producer controls, how much it actually dispatches, and how readily a new supplier can enter.

Dangote Cement alone reports 32.25 Mt/year of Nigerian capacity. FCCPC's preliminary 2026 market assessment places total national capacity at about 60–65 Mt/year and indicates that three major producers control more than 90% of installed capacity. On that basis, the market is structurally concentrated even before firm-level conduct is considered.

5.2 CR3 and HHI as Structural Tests

The three-firm concentration ratio (CR3) measures the combined share of the three largest firms. The Herfindahl–Hirschman Index (HHI) squares and sums individual market shares, giving greater weight to very large firms. CR3 is useful for communicating dominance in simple terms; HHI is more sensitive to asymmetry among the leading firms. Both are structural indicators rather than findings of collusion.

Metric	Interpretation in this study	Policy significance
CR3	Combined share of the three largest economically independent producers	A CR3 above 90% means competitive outcomes depend heavily on the behaviour and capacity response of very few firms.
HHI	Sum of squared market shares; higher values indicate greater concentration	Used where sufficiently reliable producer shares exist; sensitivity ranges are preferable to false precision.
Capacity share	Share of installed clinker/cement capability	Shows control of potential supply.
Dispatch/sales share	Share of actual domestic tonnes supplied	Shows realised market power more directly than nameplate capacity.
Entry elasticity	How quickly credible new supply can enter when domestic prices rise	Determines whether high concentration is disciplined by potential competition.

Appendix H3 contains the detailed concentration calculations and sensitivity tests. The main report will use the most defensible share basis available and will distinguish capacity-based HHI from sales – or dispatch-based HHI.

5.3 Concentration Must Be Read Together with Utilisation

Concentration becomes more consequential when it coexists with a low production-to-installed-capacity ratio. If national demand is only about 25–30 Mt against 60–65 Mt of installed capacity, the central competitive expectation is that rising demand should be met substantially through higher utilisation of existing plants before the market experiences a genuine capacity scarcity.

A low utilisation ratio can arise for legitimate reasons: planned maintenance, gas or power constraints, kiln outages, quarry problems, logistics, working-capital constraints, product mix or regional mismatch between plants and demand. The policy concern begins where high prices persist while substantial capacity remains unused and the available evidence does not show a commensurate physical constraint.

5.4 Entry Barriers: Why Spare Capacity May Not Be Enough

Barrier	How it operates	Competitive consequence
Integrated-plant capital intensity	A new entrant must finance quarry development, kiln, grinding, power, environmental systems and logistics	Raises the cost and time required to challenge incumbents.
Limestone/mineral access	Secure reserves and mining titles are essential for integrated production	Limits the pool of feasible integrated entrants.
Clinker and cement import protection	2024 nominal tariff protection was about 50% for clinker and most non-white cement; bagged cement was listed as prohibited	Weakens the fastest external arbitrage response when domestic prices rise.
Distribution/depot networks	Large incumbent networks lower delivered cost and secure dealer reach	Raises customer-acquisition and logistics costs for entrants.
Scale economies	Large plants can have lower unit fixed costs at high utilisation	Creates a cost disadvantage for small greenfield entrants.
Finance and FX exposure	Large capital requirements and imported equipment increase financing risk	Raises required return and slows entry.
Standards/port/terminal access	Necessary regulation can become a barrier if approvals or infrastructure access are discretionary	Potential competition becomes less credible.

The policy implication is important: reducing concentration does not require breaking efficient plants into smaller units. It requires lowering the cost of contesting the market. Independent clinker grinding, bulk terminals, jumbo-bag supply, transparent standards-based import access and open distribution can create competitive entry at a fraction of the capital and time required for a new integrated kiln.

5.5 Nigeria's Export Capability as Evidence of Contestability

Customs trade data show that Nigeria exported approximately 1.169 million tonnes of cement and clinker products in 2024. This included about 315,432 tonnes of ordinary Portland cement and about 853,329 tonnes of clinker. Togo received approximately 282,878 tonnes of Nigerian Portland cement on Nigeria's exporter records, while Togo's importer records report about 302,800 tonnes from Nigeria.

This matters for entry analysis because it demonstrates that Nigerian production is not confined to a protected domestic market. Nigerian clinker and cement can support supply chains outside Nigeria. The existence of viable outward trade strengthens the case for reciprocal contestability: when domestic prices materially exceed a defensible import-parity benchmark, qualified external supply should also be capable of entering Nigeria.

5.6 Structural Finding

The combined evidence points to a market in which substantial installed capacity coexists with high concentration and significant barriers to rapid entry. This structure can weaken the normal disciplining effect of spare capacity. The policy response should therefore focus on making the market continuously contestable rather than treating installed capacity alone as proof that competition is sufficient.

Detailed market-share, CR3, HHI and entry-barrier evidence is presented in Appendix H3.

5.7 Infrastructure Demand as an Entry and Contestability Test

The Federal Government's expanding use of rigid and continuously reinforced concrete pavement materially increases the visibility and durability of cement demand. In a freely contestable market, a sustained demand programme of this scale should attract supply responses through higher utilisation of existing plants, new integrated capacity, independent clinker grinding, bulk and jumbo-bag terminals, distribution investment and, where domestic prices exceed landed parity, imports.

The observed policy regime constrains several of these responses. Bagged cement is prohibited from import, while clinker and most non-white cement have carried substantial nominal border protection. The study therefore treats the national concrete-road programme as a natural contestability test: if a large, predictable increase in demand does not induce sufficient new entry or incremental dispatch to moderate prices, the barriers preventing that response require policy attention.

The counterfactual expectation is straightforward: rising infrastructure demand should increase expected returns, attract entry and investment, improve incumbent utilisation, expand supply and intensify competition for market share. Where entry is restricted, the same demand expansion can instead increase the volume of business available to a small number of incumbent suppliers without creating an equivalent competitive supply response.

5.8 Limits of Negotiated or Administratively Induced Pricing

Nigeria has already tested negotiated price moderation. In February 2024, the Federal Government and the major cement manufacturers agreed on an indicative retail range of ₦7,000–~~₦8,000~~ per 50 kg bag, accompanied by monitoring commitments and expectations of further moderation as identified cost constraints were addressed. Market prices subsequently declined materially, although contemporary evidence indicates that compliance was not immediate and that weaker demand also contributed to the correction.

The episode is therefore not treated as evidence that negotiated intervention can never influence price. Its more important policy lesson is that negotiated pricing did not create a durable mechanism for keeping prices aligned with costs, capacity and competitive market conditions. By 2026, severe price escalation had returned and the Federal Government was again publicly seeking price reductions because cement costs were placing pressure on infrastructure projects and generating demands for contract variation.

A recurring cycle of price escalation, government negotiation, temporary moderation and renewed escalation is not an adequate long-term market architecture. The alternative developed in this study is structural rather than administrative: remove unnecessary entry restrictions, lower the cost of contesting the market, permit import and independent-grinding arbitrage, improve price and capacity transparency, and allow competition to discipline the price.

The policy objective is therefore not to impose ~~₦100–₦130~~/kg as a statutory price. It is to establish market conditions under which suppliers must compete for Nigerian demand at economically sustainable prices, with automatic external contestability when domestic prices move materially

above validated cost and import-parity benchmarks.

Chapter 6 – Cost Structure, Capacity Utilisation and Price Formation

6.1 From Production Cost to Retail Price

The retail price of cement is the outcome of a chain rather than a single cost line. The relevant sequence is quarrying and raw-material preparation, clinker production, grinding and blending, energy, bagging, plant overhead, finance and tax effects, factory-gate margin, haulage, depot costs, wholesale/dealer margin and final retail distribution.

A rigorous price study must therefore avoid two opposite errors: assuming that every increase in an input should pass one-for-one into the retail price, or assuming that high profitability proves that cost shocks are irrelevant. The H1, H4, H6 and H7 tests instead measure the weight, timing and persistence of each cost component.

6.2 The Interaction of Concentration, Low Utilisation and Rising Price

The most important finding is the interaction among variables. High concentration alone does not establish excessive pricing. Low capacity utilisation alone may reflect operational constraints. Rising cost alone may justify some price increase. But when a highly concentrated market also displays substantial unused installed capacity, persistent price escalation and restricted external entry, the variables must be tested jointly.

Observed condition	Normal competitive expectation	Question raised
Installed capacity materially exceeds domestic demand	Firms compete for incremental tonnes and improve utilisation	Why is spare capability not exerting stronger downward price pressure?
Demand rises through housing and major infrastructure	Higher throughput spreads fixed costs and supports scale economies	Why does higher demand not improve production/capacity ratio sufficiently to moderate unit cost?
Costs rise temporarily	Price rises in proportion to weighted exposure, then stabilises as shock fades	Why does price persistence sometimes outlast the measured shock?
High concentration	Potential entry or imports discipline incumbents	Are current trade and capital barriers weakening that discipline?
Exports remain viable	Domestic supply has tradable external value	Why can Nigerian clinker/cement support cheaper regional supply while domestic retail observations remain much higher?

6.3 Economies of Scale and the Incremental-Capacity Question

Dangote Cement's own 2024 strategic reporting states that maximising plant utilisation is intended to drive economies of scale, reduce production costs and enhance profitability. This industrial logic is central to the study. Where a producer has available efficient capacity, an incremental tonne normally carries less fixed cost than the average tonne because much of the plant, management and infrastructure already exists.

The report therefore tests whether the industry is capturing the available scale dividend. Rising nationwide construction demand should improve the ratio of actual production to installed capacity. If utilisation remains comparatively low, the study requires evidence of the constraints preventing

additional dispatch. If utilisation improves materially while price nevertheless rises faster than validated unit costs, the explanation must be sought elsewhere in the price chain.

6.4 Cost Transparency and the Limits of Public Reporting

Producer financial statements provide important evidence on revenue, cost of sales, fuel and power, distribution expenses and profitability, but they do not consistently provide the physical denominators needed to reconstruct every component on a per-tonne basis. Raw-material disclosure is particularly incomplete. This limitation does not justify assuming a missing cost; it justifies stronger reporting.

Chapter 4 therefore recommends a standardised Cement Mineral Production Return under the solid-minerals reporting framework, while later policy chapters extend transparency to ex-factory prices, plant utilisation, domestic dispatch, exports and major distribution spreads.

6.5 Regional Clinker and Cement Trade as a Price-Formation Test

In 2024 Nigeria exported approximately 853,329 tonnes of clinker, including about 638,850 tonnes to Cameroon and 179,467 tonnes to Ghana, in addition to finished cement exports. These flows demonstrate that Nigerian clinker is capable of supporting cement production beyond the domestic market.

The policy relevance is not that export unit value should equal Nigerian retail price; they sit at different points in the value chain. The relevance is that Nigerian-origin clinker and cement can enter external competitive supply chains at observable trade values. Those values provide a lower-chain benchmark against which domestic factory-gate and retail outcomes can be decomposed into production value, freight, taxes, distribution and margin.

6.6 Price Formation Under a Concentrated and Protected Market

In an open market, a persistent domestic price premium invites entry. Importers, independent grinders and distributors arbitrage the difference until the premium narrows toward the cost of freight, taxes, quality compliance and normal commercial return. Where bagged imports are prohibited and clinker and most non-white cement face nominal protection of about 50%, that arbitrage mechanism is materially weakened.

The result is not automatically an unlawful price. It is a market in which the domestic price can be less tightly anchored to international contestable supply. This is the bridge from the structural findings of H3 to the trade-policy tests of H5.

6.7 Integrated Diagnostic

The evidence developed to this point supports an integrated diagnosis rather than a single-cause explanation. Nigeria combines abundant mineral resources, substantial installed capacity, a large and growing demand base, demonstrated clinker and cement exports, high producer concentration and significant barriers to external entry. At the same time, recent cost shocks are real and must be weighted properly.

The decisive question for subsequent chapters is therefore the size of the price movement that remains after legitimate cost, energy, logistics and macroeconomic pressures are accounted for, and whether a credible free-entry counterfactual would discipline that residual. Appendices H1–H4 provide the detailed empirical foundation; Appendices H5–H7 test trade protection, shock transmission and residual causation.

Source Notes for Module III

Dangote Cement Plc, corporate and 2024 annual-report disclosures: Nigerian capacity 32.25 Mt/year; stated strategy to maximise plant utilisation to drive economies of scale and reduce production costs.

WTO, Trade Policy Review – Nigeria (2024): clinker nominal tariff 50%; other non-white cement 50%; bagged cement listed as prohibited for import; VAT 7.5%.

World Integrated Trade Solution / UN Comtrade, Nigeria 2024: Portland cement exports 315,432 tonnes; clinker exports 853,329 tonnes; total HS2523 exports about 1.169 million tonnes.

WITS / UN Comtrade mirror data: Togo reported 302,800 tonnes of Portland cement imports from Nigeria in 2024; Nigeria reported 282,878 tonnes exported to Togo. Mirror-statistics differences are retained rather than reconciled by assumption.

FCCPC 2026 preliminary market investigation figures referenced in the study: estimated Nigerian installed capacity 60–65 Mt/year, domestic consumption 25–30 Mt/year, and more than 90% of capacity held by three major producers.

Federal Ministry of Works, February 2024: government/manufacturer meeting recorded an agreed retail expectation of ~~₦7,000~~–~~₦8,000~~ per 50 kg bag and monitoring arrangements.

Federal Ministry of Works, 2026: renewed official concern that high cement prices were pressuring ongoing infrastructure projects and generating contract-variation demands; federal road policy includes expanded concrete/CRCP construction.

MODULE IV – SHOCKS, PASS-THROUGH & RESIDUAL PRICE

Chapters 7–8 | Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 7 – Macroeconomic Shocks and Cement Price Transmission

7.1 The Shock Question

From 2023 onward, Nigerian cement producers operated through an unusually difficult macroeconomic adjustment. Foreign-exchange depreciation raised the naira cost of imported spares, equipment and other foreign-currency obligations; inflation increased domestic operating costs; gas and power constraints remained relevant; and road logistics were exposed to changing diesel prices. The study therefore does not begin from the proposition that cement prices should have remained unchanged. It asks whether the magnitude, timing and persistence of observed price movements correspond to the measurable shocks.

Appendix H6 contains the detailed time-series hypothesis test and source series.

7.2 Distinguishing PMS from Industrial Fuel Exposure

The removal of PMS subsidy was a major national inflation event, but PMS is not the principal direct fuel used in cement kilns or heavy long-haul cement distribution. Its relevance is primarily indirect through economy-wide transport, labour, services and inflation. Automotive Gas Oil (AGO/diesel), gas, coal, alternative fuels and electricity are more directly relevant to the cement production and delivery chain.

This distinction prevents a common analytical error: attributing the full economy-wide PMS shock directly to cement manufacturing. The study instead weights each energy and logistics variable according to its actual exposure in production and distribution.

7.3 The 2024 Price Shock and Negotiated Correction

The sharp 2024 escalation produced an official intervention in February 2024. The Federal Government and the major manufacturers identified gas cost, import duty on spare parts, road conditions and foreign exchange among the principal pressures, and agreed that retail cement should be within approximately ₦7,000–₦8,000 per 50 kg bag depending on location.

The subsequent correction is analytically important. It shows that a high market price can fall materially even while several underlying macroeconomic pressures remain elevated. Accordingly, the peak price cannot be treated mechanically as the permanent cost-reflective equilibrium generated by the shock. Part of the movement represented an overshoot, distribution response, scarcity expectation, margin adjustment or another market component that was capable of reversing before all shocks had reversed.

The 2024 episode also demonstrates the limitation of negotiated pricing. Temporary moderation can occur, but a negotiated range does not create a self-enforcing competitive mechanism. The re-emergence of severe price pressure by 2026 makes structural contestability more important than repeated administrative negotiation.

7.4 Shock, Correction and Persistence

Phase	Economic reading	Test applied
Pre-shock	Establish normal price/cost relationship	Baseline trend and dispersion
Shock	FX, energy and logistics pressures rise	Direction, magnitude and timing of pass-through

Overshoot / peak	Price may move faster than weighted costs	Price-to-cost divergence
Correction	Price falls while some shocks remain elevated	Tests whether peak was fully cost-justified
Post-shock persistence	Price stabilises or rises again after initial shock effect fades	Residual and structural explanation

The central distinction is between shock transmission and price persistence. A genuine shock may explain the direction of an initial price increase without explaining the full size of the peak or a later re-escalation. The study therefore treats the post-correction period as a separate empirical window.

7.5 The 2026 AGO Shock

NBS data show a severe diesel shock in 2026. National average AGO prices rose from about ₦1,420/litre in February to ₦1,648 in March, ₦2,475 in April and ₦3,277 in May. The February-to-May increase was approximately 131%. This was a real logistics and operating-cost shock and must be recognised in any fair assessment of 2026 cement pricing.

However, a 131% increase in AGO does not imply a 131% increase in the economically justified cement price. Diesel is one component of the delivered cost stack. The correct test is the percentage movement in AGO multiplied by the share of diesel-sensitive activity in the cost of producing and delivering one tonne or one bag of cement.

7.6 What the Shock Evidence Establishes

The time-series evidence supports three propositions. First, Nigerian cement producers experienced genuine and material macroeconomic and energy shocks. Second, the relationship between shocks and retail prices is not one-for-one: prices can overshoot and correct while underlying cost pressures remain. Third, subsequent price persistence or re-escalation must be tested against the weighted cost stack rather than attributed automatically to the original shock.

Chapter 8 – AGO-Weighted Pass-Through and Residual Price Analysis

8.1 Why AGO Must Be Weighted

AGO affects quarry equipment, internal movements, backup generation in some operations and, most visibly, road haulage and distribution. Yet modern cement plants use multiple fuels and energy sources, and the share of delivered cement cost attributable to diesel varies by plant, route, fleet technology and distance to market. A national diesel price series is therefore an explanatory variable, not a direct cement-price index.

8.2 Pass-Through Framework

The study applies the following decomposition:

Observed delivered cement price movement = manufacturing-cost movement + weighted energy effect + weighted AGO/logistics effect + FX/imported-input effect + tax/regulatory/finance effect + distribution effect + normal commercial return + residual.

The residual is not defined as an unlawful premium. It is the portion of observed price behaviour that remains insufficiently explained after validated cost and normal commercial components have been accounted for.

8.3 Illustrative AGO Weighting

Illustrative AGO-sensitive share of delivered cost	AGO increase	Mechanical delivered-cost pressure if all else constant
5%	131%	≈ 6.6%
10%	131%	≈ 13.1%
15%	131%	≈ 19.7%
20%	131%	≈ 26.2%

This table is deliberately illustrative rather than an estimate of the industry's actual diesel share. It demonstrates why pass-through must be weighted. Even an extreme movement in one input produces a much smaller total-cost effect when that input represents only a fraction of delivered cost. Appendix H7 tests the range against available producer and logistics evidence.

8.4 Timing Test: Did Cement Move Before or After AGO?

The timing of the 2026 movement is as important as its magnitude. The H7 time series examines whether cement-price re-escalation had already begun before the acute April–May AGO surge, whether the rate of cement increase accelerated when diesel spiked, and whether cement subsequently adjusted when the fuel shock moderated.

If a material part of the cement increase precedes the diesel shock, AGO cannot be the originating explanation for that portion. If the cement increase exceeds the weighted AGO contribution, the difference remains available for other validated costs, distribution effects, margins or structural factors.

8.5 Residual Causation: What Remains to Be Explained

Candidate explanation	Evidence required	Interpretive rule
Manufacturing cost	Cost of sales/tonne; fuel and power; raw-material and maintenance costs	Credit only the measured or defensibly estimated contribution.
AGO / logistics	Litres/tonne-km, average haul distance, fleet mix, CNG substitution, haulage expense	Apply weighted exposure, not 1:1 diesel pass-through.
FX / imported inputs	Foreign-currency cost share and lag	Separate current FX movement from legacy replacement-cost effects.
Distribution	Ex-factory/depot/retail spreads, rebates, credit terms	Locate residual between producer gate and consumer.
Capacity / dispatch	Utilisation, downtime, domestic dispatch and export allocation	Test whether physical supply response matches demand.
Market structure	CR3, HHI, entry barriers and import contestability	Test whether structural conditions permit persistent premium.
Commercial return	EBITDA/margins and capital requirements	Allow normal return; investigate persistent divergence rather than profit itself.

8.6 A Critical Post-Shock Observation

The 2024 correction provides an important control for the residual analysis. Prices were capable of moving downward after the initial escalation even though foreign exchange and other cost pressures had not returned to their earlier levels. This establishes that the peak price contained a reversible component beyond a simple permanent pass-through of the original shocks.

The policy significance arises when prices later rise again without a new cost shock of comparable breadth or magnitude. That does not by itself identify the cause, but it increases the value of capacity, margin, distribution, concentration and import-contestability evidence in explaining the residual.

8.7 From Residual Analysis to Policy

A residual-price finding does not require government to determine the 'correct' cement price. It provides a reason to strengthen the mechanisms that discover the price competitively. If a domestic premium is cost-justified, qualified importers and independent grinders will be unable to undercut it after freight, tariff, standards compliance and normal return. If the premium is not cost-justified, open entry provides the market test.

This is the bridge to the trade and counterfactual chapters. The policy study therefore moves from asking whether shocks explain the observed price to asking whether a freely contestable market would sustain that price.

Detailed H6 and H7/H7A statistical results, including correlation, rank association, R^2 , event windows and sensitivity tests, are retained in Appendices H6 and H7.

Source Notes for Module IV

National Bureau of Statistics, Automotive Gas Oil (Diesel) Price Watch, 2026 monthly series. The NBS programme covers outlets across all 774 LGAs, 36 states and the FCT and publishes state and national average AGO prices.

Federal Ministry of Works, 19–20 February 2024: government and major cement manufacturers identified gas, spare-parts import duty, roads and foreign exchange among cost pressures and agreed an indicative ~~₦7,000–~~₦8,000 retail range per 50 kg bag.

Appendix H6 – Macroeconomic Shock and Price-Transmission Hypothesis Test.

Appendix H7 – Residual Price, Persistence and Structural Explanation Hypothesis Test, including the revised AGO-weighted H7A analysis.

MODULE V – INTERNATIONAL PARITY, TRADE PROTECTION & THE GHOST SUBSIDY

Chapters 9–10 | Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 9 – Nigeria in the International Cement Market

9.1 Why International Comparison Must Be Structured

International retail-price comparisons are useful only when the underlying markets are understood. Population, market size, installed capacity, utilisation, raw-material endowment, energy, logistics, tax, import dependence, export capability and concentration all influence the observed price. This study therefore improves on simple country-price tables by stratifying comparators according to industrial structure and by giving particular weight to revealed trade involving Nigerian cement and clinker.

The FCCPC's 2026 comparative review usefully raised the question of why Nigerian prices exceed several African observations despite substantial limestone resources and installed capacity. The present study takes that question further: it asks whether the comparator is a surplus producer, importer, grinder or exporter, and whether its capacity-to-demand ratio, market size and entry regime are sufficiently comparable to support a policy inference.

9.2 Comparator Framework

Comparator class	What it tests	Policy use
Surplus / net-exporting producers	Whether excess productive capability produces export competition and lower domestic prices	Strongest structural comparison with Nigeria
African integrated producers	Regional cost, energy, logistics and market-size differences	Tests whether Nigerian premium survives regional adjustment
Import / grinding markets	Whether clinker and finished-cement entry can support lower retail prices	Tests contestability mechanism
Large international producers	Scale, disclosure and efficient production benchmarks	Supports cost and productivity interpretation
Revealed Nigerian trade partners	Actual Nigerian cement/clinker transaction values abroad	Strongest direct test of domestic versus external value chain

9.3 Nigeria as a Regional Cement and Clinker Exporter

UN Comtrade/WITS data show that Nigeria exported about 1.169 million tonnes of HS 2523 cement and clinker products in 2024 with a reported value of about US\$57.0 million. Within this total, clinker exports were approximately 853,329 tonnes valued at US\$38.9 million, while ordinary Portland cement exports were approximately 315,432 tonnes valued at US\$18.1 million.

2024 Nigerian export	Quantity	Value	Approx. unit value
Clinker – world	853,329 t	US\$38.91m	US\$45.59/t
Clinker – Cameroon	638,850 t	US\$29.51m	US\$46.19/t
Clinker – Ghana	179,467 t	US\$7.62m	US\$42.44/t
Portland cement – world	315,432 t	US\$18.10m	US\$57.37/t
Portland cement – Togo	282,878 t	US\$16.65m	US\$58.85/t

These are customs unit values, not producer price lists and not retail prices. Their significance is nevertheless substantial: Nigerian clinker and finished Portland cement are demonstrably tradable at values that support commercial supply chains outside Nigeria.

9.4 The Nigeria–Togo Revealed-Trade Case

Togo is especially useful because the comparison does not rely on an unrelated foreign producer. Nigeria was the dominant reported supplier of ordinary Portland cement to Togo in 2024. Nigeria's exporter records show approximately 282,878 tonnes shipped to Togo at about US\$58.85/t. Togo's importer-side records report a somewhat larger Nigerian quantity; the mirror-statistics difference is retained rather than forced into artificial agreement.

The analytical question is therefore direct: if Nigerian-origin cement can leave the country and participate in a neighbouring market at a commercially viable customs value, what elements of the Nigerian domestic chain account for the much higher retail equivalent observed at home? The answer may include freight direction, taxes, distribution, location, timing and margin. The purpose of the comparison is to quantify those bridges rather than assume them.

9.5 Clinker Trade Gives an Even Stronger Entry Benchmark

Nigeria exported approximately 638,850 tonnes of clinker to Cameroon and 179,467 tonnes to Ghana in 2024. Ghana simultaneously sourced clinker from Egypt, Algeria, Pakistan, Togo, Saudi Arabia, Morocco, Türkiye, Angola and other suppliers. This is a functioning international clinker market in which Nigerian material competes against multiple origins.

The implication for Nigerian policy is important. A domestic entrant need not replicate the full integrated production chain on day one. Where clinker can be sourced competitively, an independent grinding, blending and bagging operation can enter with substantially lower capital requirements than a new integrated kiln. High clinker import protection therefore affects not merely import volume; it affects the feasibility of a different class of domestic competitor.

9.6 International Parity as a Market Test, Not a Price Order

Import parity is the price at which a qualified external supplier can deliver compliant cement or clinker into the Nigerian market after product cost, freight, insurance, port charges, tariffs, inland logistics and normal commercial margin. If Nigerian domestic price is below that level, imports should normally be uncompetitive. If the domestic price remains materially above it, the differential creates an economic invitation to entry.

A market that prevents the invited entry loses this self-correcting mechanism. This is why international parity is used in the study as a contestability test rather than as an administratively determined Nigerian selling price.

Detailed country datasets and H5 statistical tests are presented in Appendix H5.

Chapter 10 – Import Restrictions, the Ghost Subsidy and the Cost of Protection

10.1 The Existing Protection Architecture

Nigeria's cement trade regime is unusually restrictive. The WTO's 2024 Trade Policy Review records a nominal tariff of 50% on clinker, comprising 10% customs duty and 40% Import Adjustment Tax. Other non-white cement is also subject to 50% nominal tariff protection, comprising 20% customs duty and 30% Import Adjustment Tax, in addition to VAT. Bagged cement is listed as prohibited for import. The Nigeria Trade Portal independently lists bagged cement under the import-prohibition schedule.

Product / route	2024 regime	Contestability implication
Clinker	50% nominal tariff	Raises input cost for independent grinders and protects integrated clinker production.
Other non-white cement	50% nominal tariff	Raises landed external benchmark materially.
Bagged cement	Prohibited for import	Closes the most direct finished-product arbitrage route.
VAT	7.5%	Applies as part of the broader tax environment; should not be confused with protective tariff.

10.2 The Ghost Subsidy

This study coins the term “Ghost Subsidy” to describe the economic benefit created when tariff and non-tariff protection allows incumbent domestic supply to operate behind a market barrier whose cost is not recorded as a direct budgetary subsidy. The transfer is largely invisible in the public accounts, but it is economically real whenever consumers, builders or government projects pay more than they would under a reasonably contestable market.

The Ghost Subsidy is therefore an implicit protection transfer, not an allegation that government makes a secret cash payment to cement companies. Its size at any point is the portion of the domestic price premium attributable to policy-created protection after legitimate freight, standards, tax, logistics and normal commercial return have been allowed.

The terminology is intentionally provocative because the policy inconsistency deserves attention. Nigeria has required households and businesses to absorb the removal of the visible PMS subsidy and has moved foreign exchange toward market pricing. It is difficult to reconcile those reforms with a basic construction input remaining insulated from normal external competition through prohibition and high border protection.

10.3 Why the Ghost Subsidy Matters More During an Infrastructure Boom

The effect of protection becomes more consequential when government itself expands cement-intensive demand. Nigeria's transition toward large-scale rigid and continuously reinforced concrete pavement increases the quantity of cement purchased directly or indirectly through public contracts. If supply is freely contestable, that demand should attract new capacity, grinding, terminals, imports and distribution investment. If entry remains constrained, the same expenditure can enlarge the revenue pool available to protected incumbents.

The fiscal consequence is circular: government creates incremental demand through roads and other infrastructure, high cement prices increase project cost and contract-variation pressure, and the same government then seeks negotiated price reductions from the limited supplier base. A structural competition reform breaks that cycle by allowing supply to respond automatically to the demand signal.

10.4 Quantifying the Protection Wedge

The policy counterfactual model measures the direct tariff component separately from the additional scarcity or market-power premium that may arise when entry is prohibited. At the study's base assumptions, reducing finished-cement protection from 50% to a normal competitive tariff of 10% removes an indicative border wedge of roughly ₦38/kg, or about ₦1,890 per 50 kg bag. Reducing clinker protection from 50% to 5% removes an indicative cement-basis wedge of roughly ₦25/kg, or about ₦1,260 per bag.

These values are scenario results, not observed producer margins. They show the order of magnitude by which policy can change the cost of competitive entry before any incumbent response is considered. The full economic value of contestability can be larger because the credible threat of entry may cause domestic suppliers to reduce price without large import volumes actually occurring.

10.5 Protection Can Become an Entry Barrier Rather Than an Industrial Policy

Temporary protection can support infant-industry development where domestic capability is not yet established. Nigeria's present cement industry is different: it possesses large integrated plants, substantial clinker capability, significant installed capacity and demonstrated exports. The industrial-policy question is therefore whether continued extraordinary protection is still required at the same intensity.

When mature domestic producers export clinker and cement competitively while potential Nigerian grinders face a 50% tariff on imported clinker and consumers cannot freely import bagged cement, protection can shift from building capacity to protecting market position. The appropriate policy test is no longer whether Nigeria can produce cement. It clearly can. The test is whether domestic producers can compete efficiently when the market is contestable.

10.6 From Protection to Competitive Safeguard

The study does not recommend replacing protection with permanent dependence on imported bagged cement. It recommends replacing prohibition with a rules-based competitive safeguard. Under normal market conditions, modest tariffs can preserve local value-add incentives. When domestic prices materially exceed a validated cost and import-parity corridor, tariffs should fall automatically and compliant entry should open until competition restores the market.

Policy state	Trade setting	Market purpose
Normal competitive market	Low clinker tariff; moderate finished-cement tariff; no prohibition	Preserve local production while maintaining credible entry.
Price-warning state	Automatic tariff reduction	Increase threat of entry before a severe premium develops.
Price-red state	Temporary 0–5% finished cement and 0% clinker/bulk entry	Provide a hard competitive ceiling through supply, not price control.
Return to normal	Tariffs normalise only after sustained competitive pricing and adequate supply	Avoid permanent emergency import dependence.

10.7 Policy Finding

The evidence supports a transition from protected supply to contestable supply. Nigeria's mature cement industry should compete on resource advantage, plant efficiency, scale, logistics, quality and customer service rather than depend on a prohibition that prevents the consumer from testing the domestic price against an external alternative.

The Ghost Subsidy concept captures the central policy contradiction: a market reform programme that removes explicit subsidies from consumers should not preserve an implicit protection transfer in a highly concentrated, strategically important construction input. The next stage of the study therefore tests alternative trade and entry regimes quantitatively to determine which combination can sustain the target ₦100–₦130/kg competitive corridor.

Source Notes for Module V

WTO, Trade Policy Review – Nigeria (2024), para. 4.111: clinker nominal tariff 50%; other non-white cement 50%; 7.5% VAT; bagged cement listed as prohibited for import.

Nigeria Trade Portal: Bagged Cement, HS 2523.2900.00, listed among prohibited items during import.

WITS / UN Comtrade, Nigeria 2024: total HS2523 exports about 1.169 Mt; clinker exports 853,329 t; Portland cement exports 315,432 t.

WITS / UN Comtrade, Nigeria 2024 Portland cement: 282,878 t exported to Togo at US\$16.648m.

WITS / UN Comtrade, Nigeria 2024 clinker: 638,850 t to Cameroon; 179,467 t to Ghana.

WITS / UN Comtrade, Ghana 2024 clinker supplier table: multiple competing origins including Egypt, Algeria, Pakistan, Togo, Saudi Arabia, Nigeria, Morocco, Türkiye and Angola.

Appendix H5 – Trade Protection, Import Parity and Contestability Hypothesis Test.

MODULE VI – REVEALED TRADE, COUNTERFACTUALS & THE AFFORDABLE PRICE CORRIDOR

Chapters 11–13 | Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 11 – The Nigeria–Togo Revealed-Trade Case

11.1 Why Revealed Trade Is Stronger Than a Simple Foreign Price Comparison

A comparison between Nigerian retail cement and the retail price in another country can be distorted by taxes, subsidies, distance, product specification, market size and exchange-rate conventions. The Nigeria–Togo trade relationship provides a stronger test because the product originates from Nigeria itself. The question is not whether a foreign cement producer can manufacture more cheaply; it is whether Nigerian-origin Portland cement can enter a neighbouring market at a value materially below high Nigerian retail observations.

11.2 What the Customs Data Show

In 2024 Nigeria reported exports of 315,432 tonnes of ordinary Portland cement with a customs value of US\$18.10 million. Of this, 282,878 tonnes—almost nine-tenths of the reported quantity—went to Togo at US\$16.65 million. The implied exporter-side unit value was about US\$58.85/t. Togo's importer-side record reported 302,800 tonnes from Nigeria valued at US\$16.25 million, implying about US\$53.68/t. The mirror difference is retained as a data-quality range rather than reconciled by assumption.

2024 measure	Nigeria exporter record	Togo importer record
Nigerian Portland cement quantity to Togo	282,878 t	302,800 t
Reported trade value	US\$16.65m	US\$16.25m
Implied customs unit value	≈ US\$58.85/t	≈ US\$53.68/t
Interpretation	FOB/export-side customs value	Importer-side customs value; valuation/timing can differ

Customs unit value is not equivalent to a Nigerian ex-factory price and cannot be compared directly with retail without adding the missing value-chain components. Nevertheless, the range is a powerful anchor: it is an observed commercial value at which Nigerian-origin cement crosses a border.

11.3 Continuity of the Togo Route

The Togo relationship is not a single-year anomaly. In 2023 Nigeria reported 206,106 tonnes of Portland cement exports to Togo valued at US\$16.23 million. In 2024 the reported Nigerian quantity rose to 282,878 tonnes. This continuity strengthens the interpretation of Togo as an established commercial outlet rather than an isolated clearance transaction.

11.4 Reconstructing the Domestic Bridge

The correct analytical exercise is to bridge the export unit value to the Nigerian consumer price. The bridge should include export versus domestic product terms, bagging, taxes, inland haulage, depot handling, dealer/retailer margin, financing and location. Any remaining gap is then tested against market structure and contestability rather than simply labelled excessive.

Value-chain layer	Question for the Nigerian comparison
Production / export value	What value is Nigerian cement demonstrably tradable at before the final domestic chain?
Bagging / packaging	What additional cost is attributable to 50 kg retail packaging?

Tax / regulatory charges	Which charges legitimately differ between export and domestic sale?
Inland logistics	What distance-appropriate haulage cost should be added?
Depot / wholesale / retail	What normal distribution margin is observable?
Residual domestic premium	What remains after defensible additions, and is it contestable by entry?

11.5 What Togo Does—and Does Not—Prove

The Togo evidence does not prove that every Nigerian consumer should buy cement at the customs unit value. It proves something narrower and more useful: Nigerian-origin cement has an observable international transaction value that can be used to challenge unsupported assumptions about the minimum viable domestic price.

It also demonstrates that Nigerian production participates in regional competition. A policy regime that permits outward competition while materially restricting inward competition is asymmetric. The reform question is whether that asymmetry remains justified for a mature industry with large installed capacity.

Chapter 12 – Counterfactual Policy Scenarios

12.1 Purpose of the Counterfactual

Counterfactual analysis asks what the Nigerian cement market would plausibly look like if one or more policy constraints were changed while other assumptions were held within realistic ranges. It does not predict a single future price. It establishes whether the present price is robust to competition and identifies which policy levers most materially affect the landed competitive benchmark.

The model is anchored to the H5 import-parity work and is stress-tested for exchange rate, ocean freight, port and inland charges, tariff, bagging/grinding cost and commercial margin. All outputs are therefore policy-screening values rather than supplier quotations.

12.2 Policy Scenarios

Scenario	Trade / entry regime	Economic purpose
A – Current restrictive regime	Bagged cement prohibited; high clinker and finished-cement protection	Observed baseline; external arbitrage weak.
B – 50% reduction in protection	Prohibition removed; protective rates approximately halved	Tests whether partial reform materially changes contestability.
C – Bulk/jumbo entry	Bagged prohibition removed for bulk and 1,000 kg/jumbo routes; lower input protection	Supports terminals, bagging and large-project procurement.
D – Competitive normal regime	Clinker 0–5%; bulk/jumbo ≈5%; finished bagged cement ≈10%; automatic standards-based entry	Tests a durable free-market architecture.
E – Temporary open-market safeguard	0% clinker/bulk and 0–5% finished cement for a defined period when price trigger is breached	Tests hard external contestability during abnormal domestic premium.

12.3 Why the Clinker Route Matters

Finished-cement import is not the only competitive route. Imported or regionally sourced clinker can be ground, blended and bagged in Nigeria, preserving local employment and value addition while reducing the capital barrier to entry. Because Nigeria itself exports large quantities of clinker, the economic logic of allowing qualified independent Nigerian grinders access to competitively priced clinker is particularly strong.

Under the study's base counterfactual assumptions, a locally ground imported-clinker route at a 5% tariff produces an indicative retail-equivalent cost close to ₦102/kg, while the temporary zero-tariff version is close to ₦99/kg. These values are sensitivity outputs and should be read with the model assumptions in Appendix H5 and the counterfactual workbook.

12.4 Finished-Cement Contestability

At the same base assumptions, finished cement under a 10% competitive tariff produces an indicative retail-equivalent value around ₦128/kg. A temporary zero-tariff window lowers the screening value to roughly ₦118/kg. The significance is not that imports should permanently supply Nigeria at those values; it is that credible entry at those levels can discipline a domestic price materially above them.

Illustrative counterfactual route	Indicative result	Reading
Finished cement, 10% tariff	≈ ₦128/kg	Within target corridor under base assumptions.
Finished cement, temporary 0% tariff	≈ ₦118/kg	Strong emergency contestability.
Imported clinker + Nigerian grinding, 5% tariff	≈ ₦102/kg	Local-value-add route near lower target range.
Imported clinker + Nigerian grinding, 0% temporary tariff	≈ ₦99/kg	Emergency lower-bound screening case.

12.5 Infrastructure Demand as a Counterfactual Entry Test

Nigeria's expanding concrete-road programme strengthens the counterfactual. A large, visible and multi-year increase in cement demand raises the expected return to new supply. In an open regime, that signal should attract independent grinding, terminals, distribution capacity, imports where economical and additional incumbent dispatch. The absence of a sufficiently strong entry response under elevated prices is therefore consistent with the study's finding that barriers to contestability matter.

12.6 Counterfactual Interpretation

The scenarios do not require Nigeria to choose between domestic industry and consumers. The competitive-normal scenario is designed to preserve a tariff preference for local production while removing prohibition and extreme input protection. If Nigerian plants are genuinely lower-cost because of local limestone, scale and sunk capital, they should retain most of the market. Imports become a credible ceiling rather than the default source of supply.

Chapter 13 – Can Nigeria Sustain ₦100–₦130 per Kilogram?

13.1 The Target Is a Competitive Corridor, Not a Controlled Price

The ₦100–₦130/kg range is used as a policy performance corridor. It is not proposed as a statutory maximum price. Regional haulage, product type and temporary shocks will create legitimate deviations. The question is whether a well-functioning market can normally deliver ordinary Portland cement within this range in major demand centres under the study's cost and trade assumptions.

13.2 Corridor Test

Retail-equivalent level	50 kg bag	Policy interpretation
₦100/kg	₦5,000	Lower edge; requires very efficient domestic supply or low-tariff clinker/grinding route and favourable logistics.
₦110/kg	₦5,500	Plausible competitive outcome under efficient grinding/domestic utilisation and moderate logistics.
₦120/kg	₦6,000	Strong central target under contestable finished-cement and domestic-production scenarios.
₦130/kg	₦6,500	Upper normal corridor under base counterfactual; above this, cost and location explanation becomes increasingly important.
₦150/kg	₦7,500	Warning level requiring comparison with current validated cost/import parity.
₦200–₦300/kg	₦10,000–₦15,000	Requires major documented shock/location premium or indicates a large contestability gap.

13.3 Conditions Required to Sustain the Corridor

Condition	Why it matters
Higher utilisation of existing capacity	Spreads fixed cost and converts installed capacity into actual competitive supply.
Open clinker access	Enables lower-capital independent grinding entry.
No bagged-cement prohibition	Restores the ultimate external arbitrage mechanism.
Low, predictable tariffs	Allows domestic producers a modest preference without insulating the market.
Transparent ex-factory/depot reporting	Separates producer price from distribution premium.
Raw-material production reporting	Allows independent verification of Nigeria's resource-cost advantage.
Competitive logistics / terminals	Reduces regional scarcity premiums.

Automatic contestability trigger	Makes market correction self-enforcing rather than dependent on ministerial negotiation.
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13.4 Raw-Material Transparency as Part of Price Reform

Affordable-price policy cannot rest indefinitely on the assertion that Nigeria possesses abundant limestone while the physical and monetary raw-material denominator remains difficult to reconstruct from public producer reporting. The Cement Mineral Production Return proposed in Chapter 4 should therefore become part of the reform architecture.

Under the Nigerian Minerals and Mining Act and related solid-minerals reporting framework, government already has statutory channels for mineral records and periodic reporting. The policy recommendation is to standardise cement-sector reporting of limestone and other principal quarriable inputs—tonnes extracted, tonnes transferred to production, royalty basis and appropriately aggregated quarry operating cost—while protecting genuinely confidential commercial information.

This improves both regulation and industry credibility. If local raw-material abundance is a genuine cost advantage, better reporting will demonstrate it. If quarry, royalty or corrective-material costs have become material constraints, the same reporting will identify them.

13.5 Why Negotiated Pricing Is Not the Corridor Mechanism

The 2024 experience showed that negotiated intervention can coincide with short-term price moderation, but it did not establish a durable mechanism. A sustainable corridor requires suppliers to face an economic consequence when domestic price departs materially from contestable cost: customers and new entrants must be able to switch supply.

The policy mechanism is therefore entry, not decree. Government sets transparent trade, standards and competition rules; the market determines the transaction price within those rules.

13.6 Policy Finding

The counterfactual evidence supports the economic plausibility of a ₦100–₦130/kg Nigerian cement corridor, with ₦110–₦130/kg representing the more robust normal-market range under the present modelling assumptions. The lower edge becomes plausible through efficient local production or clinker-based grinding under favourable logistics, while the upper edge is supported by a competitively tariffed finished-cement route.

This finding should not be interpreted as a forecast that liberalisation will immediately produce one national price. It establishes that prevailing high-price observations are not the only economically plausible equilibrium. A credible alternative supply route exists within or near the target corridor, and policy can make that route contestable.

Source Notes for Module VI

WITS / UN Comtrade, Nigeria 2024 Portland cement exports: 315,432 t worldwide; 282,878 t to Togo valued at US\$16.648m. WITS / UN Comtrade mirror data, Togo 2024 imports from Nigeria: 302,800 t valued at US\$16.254m. Mirror-statistics differences are retained as a range.

WITS / UN Comtrade, Nigeria 2023: 206,106 t of Portland cement exported to Togo valued at US\$16.233m.

WTO Trade Policy Review – Nigeria (2024): clinker 50% nominal tariff; other non-white cement 50%; bagged cement prohibited for import.

Nigeria Trade Portal: bagged cement listed among prohibited import items.

FCCPC 2026 preliminary market review: Nigerian installed capacity about 60–65 Mt/year, domestic consumption about 25–30 Mt/year, with retail observations reaching ₦13,000–₦15,000 per 50 kg bag in some locations by July.

Appendix H5 and the Counterfactual Policy Model contain the assumptions and sensitivity calculations underlying the scenario values.

MODULE VII – CEMENT MARKET REFORM & AUTOMATIC COMPETITIVE SAFEGUARDS

Chapters 14–15 | Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 14 – Cement Market Reform Programme

14.1 Reform Objective

The reform objective is to replace episodic price intervention with a durable market architecture in which domestic producers, new Nigerian entrants and qualified external suppliers can contest demand under transparent rules. The programme is designed to preserve Nigeria's integrated cement industry while ensuring that resource abundance, installed capacity and scale translate into competitive consumer and infrastructure prices.

The case for reform is reinforced by the recurrence of price intervention. In February 2024 government and the major manufacturers agreed an indicative ₦7,000–~~₦8,000~~ per 50 kg retail range and a monitoring mechanism. By August 2026, the FCCPC's preliminary investigation was again examining unusually high prices in a market with estimated installed capacity of 60–65 Mt/year against consumption of about 25–30 Mt/year. This recurrence supports a shift from negotiated outcomes to structural competition.

14.2 Reform Pillar I – Restore External Contestability

Bagged cement should cease to be subject to a general import prohibition. The current prohibition closes the most direct market response when domestic prices move materially above international landed parity. Clinker and other non-white cement should also move away from the present 50% nominal protection recorded in the WTO's 2024 review.

Instrument	Recommended normal regime	Purpose
Clinker	0–5% tariff	Enable independent Nigerian grinding and lower-capital entry.
Bulk / jumbo cement	≈5% tariff	Support terminals, infrastructure procurement and local bagging.
Finished bagged cement	≈10% tariff	Retain a modest local-industry preference while preserving credible external entry.
Import prohibition	Remove	Replace administrative exclusion with standards-based competition.
Licensing	Automatic where objective conditions are met	Prevent discretionary scarcity and unequal market access.

14.3 Reform Pillar II – Create a Second Route into Cement Manufacturing

Competition policy should not assume that every entrant must build an integrated quarry-to-kiln complex. Independent grinding, blending and bagging creates a second industrial route. Such entrants can source clinker domestically or internationally, add gypsum and permitted supplementary materials, grind and bag locally, and develop regional distribution.

This route preserves Nigerian employment and value addition while lowering entry capital and construction time. It also creates a buyer for surplus domestic clinker. An incumbent integrated producer therefore gains an additional commercial choice: compete in finished cement, sell clinker to independent grinders, or do both.

14.4 Reform Pillar III – Convert Infrastructure Demand into a Competition Signal

The expanding use of rigid and continuously reinforced concrete pavement should be treated as a market-development opportunity. Large public works provide visible multi-year demand that can support new terminals, grinding capacity, dedicated bulk supply and logistics investment.

Major federal cement procurement should therefore be structured to encourage multiple qualified supply routes. Procurement documents can permit compliant domestic cement, locally ground clinker-based cement and qualified imported bulk supply where economically advantageous. The objective is not to displace Nigerian production but to ensure that public infrastructure demand attracts new supply rather than merely increasing demand on an already concentrated supplier base.

14.5 Reform Pillar IV – Radical Improvement in Market Transparency

Disclosure	Minimum frequency	Policy use
Installed and available capacity by plant	Quarterly	Separate nameplate capacity from actually available supply.
Production and domestic dispatch	Monthly/quarterly aggregate	Track utilisation and supply response.
Exports of clinker and cement	Monthly aggregate	Reconcile domestic availability with external allocation.
Ex-factory and principal depot price bands	Monthly	Separate producer pricing from distribution spread.
Raw-material extraction and transfer	Quarterly/annual	Verify resource use and raw-material cost basis.
Major planned kiln shutdowns	Event-based / aggregate	Distinguish genuine temporary scarcity.
Retail market sample	Monthly	Identify geographic distribution premiums.

Raw-material transparency should be anchored in the existing solid-minerals reporting framework through the Cement Mineral Production Return proposed earlier in the study. The objective is sufficient public aggregation for productivity and cost analysis without requiring publication of legitimate trade secrets.

14.6 Reform Pillar V – Strengthen Competition Oversight Without Price Fixing

The FCCPC should move from episodic investigation toward a standing cement-market observatory using concentration, capacity utilisation, ex-factory/retail spreads, trade parity, abnormal parallel movements and entry conditions as screening indicators. High concentration or parallel price movement should trigger examination, not automatic liability.

The August 2026 preliminary FCCPC work is particularly relevant because it reportedly found sufficient indications to continue examining possible manipulation while noting more than 90% of installed capacity in three major undertakings. The statutory investigation should determine conduct; this policy study addresses the market structure that can make such concerns recurrent.

14.7 Reform Pillar VI – Replace Negotiated Prices with Rules

The February 2024 agreement illustrates the weakness of voluntary price negotiation as a permanent

instrument. Government, manufacturers and the producers' association agreed a ~~₦7,000–₦8,000~~ range, monitoring and a 30-day review. The mechanism depended on continued cooperation, distribution enforcement and subsequent government interventions in gas, duties, roads and smuggling.

A competitive rule is more durable: when domestic price remains within a defensible parity corridor, domestic suppliers retain the market. When the premium becomes abnormal, entry conditions automatically become more competitive. No minister needs to determine the price, and no manufacturer is required to accept an administratively negotiated margin.

14.8 Reform Pillar VII – Protect Consumers Without Weakening Domestic Industry

Trade liberalisation should be accompanied by SON quality compliance, anti-dumping and safeguard instruments where statutory conditions are met, port-quality verification and product traceability. These instruments address genuine unfair trade or unsafe product without using a blanket prohibition to exclude all competition.

The reform is therefore pro-industry as well as pro-consumer: efficient Nigerian plants retain their limestone, sunk-capital, logistics and market-knowledge advantages, but those advantages must be demonstrated in competition.

14.9 Institutional Responsibility

Institution	Principal reform role
Federal Executive Council / Presidency	Approve coherent trade and competition reform direction.
Federal Ministry of Industry, Trade & Investment	Lead cement-market and industrial-policy reform.
Federal Ministry of Finance / Customs	Implement tariff bands and automatic trigger adjustments.
FCCPC	Competition surveillance, investigation and market studies.
SON	Objective quality and conformity controls for all supply routes.
Solid Minerals institutions / NEITI / NBS	Mineral production, royalty, cost and statistical transparency.
Federal Ministry of Works / BPP	Use competitive parity in public infrastructure procurement.
Ports / terminal authorities	Facilitate transparent bulk and clinker terminal access.

Chapter 15 – Automatic Competitive Safeguard Framework

15.1 Why an Automatic Framework Is Necessary

A liberalised market still requires a rule for responding to abnormal domestic premiums. The proposed safeguard does not fix the cement price. It changes the degree of external contestability according to observable market conditions.

The mechanism is designed to avoid two policy failures: permanent high protection that insulates the market, and permanent zero-tariff import dependence that may unnecessarily weaken efficient domestic investment. It uses a normal regime, warning regime and temporary open-market regime.

15.2 Market Monitoring Bands

Band	Indicative retail-equivalent condition	Policy meaning
GREEN	≤ ₦130/kg in principal markets, subject to location adjustment	Normal competitive regime.
AMBER	> ₦130/kg to ₦150/kg for a sustained observation period	Investigate cost justification; reduce protective tariff automatically if parity gap persists.
RED	> ₦150/kg or materially above validated import/cost parity	Temporary open-market safeguard activates.
REGIONAL RED	A state/zone exhibits an abnormal premium despite adequate national supply	Target logistics, terminal or temporary regional supply response.

The numerical bands are monitoring thresholds derived from the study's current counterfactual results. They should be periodically recalibrated for exchange rate, global cement/clinker values, freight and domestic logistics. They are not statutory retail ceilings.

15.3 Trigger Formula

A trigger should not rely on retail price alone. The decision rule should compare the observed representative price with a rolling Competitive Parity Benchmark (CPB):

CPB = min(Validated Efficient Domestic Cost Benchmark, Landed Finished-Cement Parity, Local Grinding from Competitive Clinker) + Normal Distribution Allowance

Where the representative market price exceeds the CPB by a prescribed tolerance for two consecutive observation periods, the tariff response activates. A material one-month emergency spike may justify accelerated action where physical scarcity is independently verified.

15.4 Automatic Response Ladder

Trigger stage	Automatic response	Duration / exit
Green	Clinker 0–5%; bulk ≈5%; finished cement ≈10%; no prohibition	Normal regime.
Amber	Reduce finished-cement tariff; publish diagnostic notice; verify capacity/dispatch	Remain until premium closes or escalates.

Red	Clinker/bulk 0%; finished cement 0–5%; open compliant entry	Normally up to 180 days, reviewable.
Persistent Red	Competition investigation plus procurement and logistics intervention	Until structural cause is addressed.
Return to Green	Restore normal modest tariffs after sustained competitive pricing and adequate supply	Avoid abrupt reversal; use a defined observation period.

15.5 The Safeguard Should Work Before Large Imports Arrive

The strongest effect of contestability may occur without substantial import volumes. Once domestic producers and distributors know that an abnormal premium automatically lowers the border barrier, the expected arrival of competing supply changes pricing incentives. The credible threat of entry can therefore discipline the market before ships are chartered or terminals are fully utilised.

15.6 Public Procurement as an Independent Discipline

Government should not wait for retail distress before protecting public infrastructure budgets. Large federal concrete works should benchmark cement procurement against the rolling CPB and permit bulk or clinker-based alternatives where domestic quotations exceed the benchmark beyond a defined tolerance.

This is especially important because government demand can be large enough to influence the market. Public procurement should create a competitive supply signal rather than become captive demand within a protected structure.

15.7 Safeguards Against Dumping and Quality Failure

Open entry does not mean uncontrolled entry. SON conformity, traceability, product testing and port inspection remain mandatory. Where evidence establishes dumping or injurious import surges, Nigeria can apply its lawful trade-remedy instruments. The distinction is fundamental: competition should be the default, while restrictions should respond to demonstrated harm rather than operate as a permanent presumption.

15.8 Monitoring Dashboard

Indicator	Why it is monitored
Retail ₦/kg and ₦/50kg by zone	Detect consumer price stress.
Ex-factory/depot spread	Locate producer versus distribution premium.
Capacity utilisation	Test physical supply response.
Domestic dispatch growth	Determine whether rising demand is being met.
Clinker/cement exports	Monitor allocation between domestic and external markets.
AGO, gas, FX and freight indices	Validate cost shocks.
Import-parity benchmark	Measure credible external alternative.
CR3 / HHI	Track structural concentration.

New entrants / grinding capacity	Measure whether reform is increasing contestability.
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15.9 Reform Principle

The proposed framework replaces the question “What price should government tell cement producers to charge?” with a more durable question: “At what point should government stop preventing competitors from challenging that price?”

That shift is the essence of the reform. Price discovery remains with the market; government protects the conditions under which price discovery is competitive.

Source Notes for Module VII

Federal Ministry of Works, 20 February 2024: government and major cement manufacturers agreed an indicative ₦7,000–₦8,000/50 kg range, producer monitoring and a 30-day review.

WTO Trade Policy Review – Nigeria (2024), para. 4.111: clinker nominal tariff 50%; other non-white cement 50%; bagged cement prohibited for import; VAT 7.5%.

Nigeria Trade Portal: Bagged Cement (HS 2523.2900.00) appears on the prohibited import list.

FCCPC preliminary cement-market investigation reported in August 2026: estimated installed capacity 60–65 Mt/year, domestic consumption 25–30 Mt/year and more than 90% of capacity held by three major undertakings; the Commission's statutory investigation remains the appropriate forum for any conduct finding.

Appendices H3, H5, H6 and H7 provide the concentration, import-parity, shock-transmission and residual-price evidence supporting the reform framework.

MODULE VIII – ECONOMIC DIVIDEND, INDUSTRIAL TRANSITION & RISK

Chapters 16–17 | Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 16 – Housing, Infrastructure and Fiscal Dividend

16.1 Cement Price as a National Development Variable

Cement pricing is not a narrow consumer-goods issue. Cement is embedded repeatedly in foundations, reinforced concrete, blockwork, mortar, plastering, screed, drainage, bridges and rigid road pavement. A persistent premium therefore propagates through private housing, commercial construction and public capital expenditure.

Recent housing-sector evidence illustrates the pressure. In March 2026, REDAN and the Centre for Housing and Sustainable Development reported cement prices of approximately ₦11,500–₦15,000 per 50 kg bag in several parts of Nigeria, compared with about ₦7,500 in the last quarter of 2025. Developers reported project disruption and worsening affordability. The reform dividend should therefore be assessed not only as a lower bag price but as avoided construction inflation and released investment capacity.

16.2 Direct Consumer Saving at the Study Corridor

Reference market price	Target price	Saving per 50 kg bag	Saving per tonne (20 bags)
₦10,000	₦6,500	₦3,500	₦70,000
₦11,500	₦6,500	₦5,000	₦100,000
₦13,000	₦6,500	₦6,500	₦130,000
₦15,000	₦6,500	₦8,500	₦170,000
₦15,000	₦5,000	₦10,000	₦200,000

These are arithmetic savings per physical quantity, not estimates of total building-cost reduction. The latter depends on the cement intensity of the particular structure and movements in steel, sand, labour and other inputs.

16.3 Household and Small-Builder Illustration

A commonly cited planning range for a standard three-bedroom bungalow is roughly 300–500 bags of cement, depending on design, soil conditions, block production, finishes and structural specification. At 400 bags, a movement from ₦13,000 to ₦6,500 releases about ₦2.6 million from the cement budget alone; from ₦15,000 to ₦6,500 releases about ₦3.4 million.

Illustrative cement requirement	Saving at ₦13,000 → ₦6,500	Saving at ₦15,000 → ₦6,500
300 bags	₦1.95m	₦2.55m
400 bags	₦2.60m	₦3.40m
500 bags	₦3.25m	₦4.25m

The policy importance is multiplicative. Lower cement cost can convert stalled projects into active sites, reduce the amount of household capital tied up in incomplete buildings, improve developer feasibility and moderate the rent or sale-price pressure associated with replacement construction cost.

16.4 The Concrete-Road Fiscal Exposure

The Federal Government's road programme makes the fiscal effect unusually important. In May 2026 four road contracts with a combined value of approximately ₦690.8 billion and a combined single-carriageway-equivalent length of about 379.5 km were announced for execution using Continuously Reinforced Concrete Pavement (CRCP). These projects alone demonstrate the scale at which cement pricing can affect public expenditure.

CRCP contract announced May 2026	Contract value
Mando–Birnin Gwari Road	₦178.12bn
Ibadan–Ijebu Ode Road	₦296.00bn
Osogbo–Ikirun–Akoda Road	₦101.81bn
Osogbo–Iwo–Ibadan Road	₦114.85bn
Combined	≈ ₦690.77bn

The Ministry of Works has separately acknowledged that high cement prices are placing pressure on infrastructure projects and generating demands for contract variations. This converts cement-market reform into a fiscal-management issue: every avoidable premium embedded in concrete works competes with kilometres of road, bridges, drainage and other public investments.

16.5 Demand Expansion Should Produce a Scale Dividend

An infrastructure boom should not be analysed only as inflationary demand. In a contestable market it is also an investment signal. Large, predictable CRCP requirements should support higher utilisation of existing kilns, new grinding capacity, bulk terminals, dedicated logistics and new market entry.

The expected sequence is therefore: predictable infrastructure demand → higher expected throughput → investment and entry → improved utilisation → fixed-cost dilution → larger supply → competition for contracts and retail demand. If the sequence stops at higher demand and higher price, the missing entry and supply response becomes a policy concern.

16.6 Public Procurement Dividend

Government can capture part of the reform dividend immediately through procurement design. Large cement-intensive projects should benchmark quotations against the Competitive Parity Benchmark developed in Chapter 15 and permit compliant bulk, locally ground clinker-based and domestic integrated supply to compete on equal technical terms.

Competitive procurement would also generate better price data. Awarded bulk prices, delivery zones and quantities can become anonymised benchmark observations for the market observatory, improving the quality of future parity calculations.

16.7 Wider Macroeconomic Channels

Channel	Expected direction if cement premium falls
Housing delivery	More projects become financially feasible; fewer completions are deferred.
Public works	Lower material escalation and contract-variation pressure.

Private construction	Lower working-capital requirement and improved project IRR.
Inflation	Moderates one important construction-material component.
Employment	Higher construction activity can offset adjustment within protected distribution channels.
Tax base	More completed projects and higher activity can broaden VAT, corporate and employment-related receipts.
Urban development	Lower replacement cost can support formal housing and infrastructure provision.

The study does not claim that cement reform alone will solve Nigeria's housing deficit or construction inflation. Land, finance, steel, labour, planning approvals and infrastructure remain material. The narrower finding is that an avoidable cement premium imposes a recurring cost across almost every construction programme, making its removal unusually high-leverage.

Chapter 17 – Industrial Impact, Transition Risks and Safeguards for Nigerian Manufacturing

17.1 Reform Is Not De-industrialisation

Nigeria has invested heavily in integrated cement manufacturing and has achieved substantial domestic clinker and cement capability. A reform that destroyed efficient Nigerian production would replace one policy failure with another. The objective is to expose mature producers to credible competition while preserving the advantages created by local limestone, sunk capital, established logistics, technical capability and proximity to demand.

The sector remains commercially significant. Dangote Cement reports 32.25 Mt/year of Nigerian capacity and 55 Mt/year across Africa, while its 2025 group results reported ₦4.31 trillion revenue and ₦1.98 trillion EBITDA. BUA Cement's July 2026 half-year release reported strong profit growth and continuing investment. These indicators describe a mature industry capable of competing; they do not by themselves determine whether any particular domestic price is appropriate.

17.2 Principal Transition Risks

Risk	Potential consequence	Mitigation
Import surge	Temporary displacement of domestic output	Use modest normal tariffs and time-limited Red-state tariff relief rather than permanent zero duty.
Dumping	Imports priced unfairly below normal value may injure efficient local production	Apply evidence-based anti-dumping remedies under applicable law.
Substandard cement	Structural and safety risk	Mandatory SON conformity, testing, traceability and border controls.
FX exposure	Large imports can increase foreign-exchange demand	Prioritise clinker/grinding and domestic competitive response; allow imports primarily as contestability mechanism.
Port congestion	Higher landed cost and supply delays	Develop dedicated bulk terminals and transparent access rules.
Domestic job loss	Adjustment at inefficient facilities or distribution channels	Phase reform, encourage local grinding/bagging/logistics and expansion into regional exports.
Investment uncertainty	Abrupt policy reversals may deter capacity investment	Publish tariff bands, trigger formula and review cycle in advance.
Regional supply imbalance	Coastal imports may not discipline inland markets	Use inland terminals, rail/road logistics and regional-red mechanisms.

17.3 Why Efficient Domestic Plants Should Survive Liberalisation

An integrated Nigerian plant has several structural advantages over imported finished cement: local limestone, avoidance of ocean freight on the finished product, existing quarry and kiln assets, domestic brand recognition, established depots and the ability to respond rapidly to local demand. If

those advantages are efficiently converted into output, a modest tariff preference should be sufficient under normal conditions.

The reform therefore changes the burden of proof. Protection is no longer justified simply because domestic plants exist. Extraordinary protection must be justified by a demonstrated market failure, unfair trade or strategic risk. Normal competition becomes the baseline.

17.4 Clinker Competition Can Strengthen, Not Weaken, the Domestic Value Chain

Lower clinker protection creates a competitive market between domestic clinker producers and international suppliers. This can encourage Nigerian integrated plants to monetise surplus clinker by selling to independent grinders rather than relying exclusively on their own finished-cement channels.

Independent grinders add domestic value through grinding, blending, laboratory control, bagging, warehousing and distribution. The model therefore creates an intermediate industrial layer rather than reducing the market to a binary choice between integrated Nigerian cement and imported bags.

17.5 Safeguarding Investment Through Predictable Rules

Investors can accommodate competition more readily than arbitrary policy. The normal tariff, Amber adjustment and Red safeguard should therefore be published with objective triggers, observation periods and exit rules. A producer considering a new kiln or grinding line can then model the competitive environment rather than price an uncertain risk of sudden prohibition or sudden unrestricted importation.

17.6 Competition Should Encourage Export-Led Scale

Nigeria's existing exports show that the industry already possesses regional reach. A more competitive domestic market need not shrink the sector; it can redirect strategy toward higher utilisation, lower unit cost and greater regional export volume. Plants that achieve efficient scale can serve both Nigerian infrastructure and neighbouring markets.

This is a more durable industrial policy than maintaining high domestic prices. Scale earned through competitiveness creates an export industry; scale protected by restricted entry risks transferring cost to Nigerian housing and infrastructure.

17.7 Transition Principle

The reform should protect production, not protect a particular price. Efficient Nigerian manufacturing, employment and investment are strategic assets. The policy objective is to preserve those assets while removing the barriers that prevent consumers and public projects from testing whether the domestic price is competitive.

Source Notes for Module VIII

REDAN / Centre for Housing and Sustainable Development market observations reported March 2026: 50 kg cement prices approximately ₦11,500–₦15,000 in several locations, with significant pressure on housing delivery.

Federal Ministry of Information and National Orientation, 14 May 2026: four CRCP road contracts—Mando–Birnin Gwari, Ibadan–Ijebu Ode, Osogbo–Ikirun–Akoda and Osogbo–Iwo–Ibadan—combined contract value approximately ₦690.77bn.

Federal Government / Works Minister, June 2026: public call for cement-price reduction citing pressure on ongoing infrastructure projects and contractor demands for contract variation.

Dangote Cement investor disclosures: 55.0 Mt/year group capacity, 32.25 Mt/year Nigerian capacity; FY2025 group revenue ₦4.3067tn and EBITDA ₦1.9813tn.

BUA Cement, H1 2026 release: profit growth, improved finance-cost position and continuing capacity investment.

Appendices H2–H7 provide the capacity, market-structure, cost, trade, shock and residual-price evidence underlying the impact and transition analysis.

MODULE IX – IMPLEMENTATION ROADMAP & CONCLUSION

Chapters 18–19 | Nigeria Cement Market, Pricing & Policy Reform Study

Chapter 18 – Implementation Roadmap

18.1 Reform Must Be Sequenced

The study does not recommend an overnight switch from a highly protected market to an unmanaged import regime. The recommended transition is rules-based, time-bound and measurable. The first task is to create transparency and credible entry; the second is to allow market response; the third is to institutionalise an automatic safeguard so that extraordinary protection does not quietly return.

18.2 First 90 Days – Establish the Competitive Baseline

Action	Lead / supporting institutions	Required output
Publish reform policy direction	Presidency/FEC; Industry, Trade & Investment	Formal statement replacing blanket protection with contestability.
Remove general bagged-cement prohibition or create immediate rules-based open licence pending tariff reform	Finance/Customs; Trade Ministry	Legally operable import route for SON-compliant supply.
Publish plant capacity, available capacity, production and dispatch template	FCCPC; NBS; Industry Ministry	Common national cement-market dataset.
Launch Cement Mineral Production Return	Solid Minerals institutions; NBS/NEITI	Limestone/corrective mineral physical denominator and reporting standard.
Establish Competitive Parity Benchmark methodology	FCCPC; NBS; Customs; Works	Published CPB methodology and data calendar.
Map ports, bulk terminals and grinding capacity	Ports; Trade Ministry; private operators	Entry-capacity map and infrastructure bottleneck register.
Public-works cement procurement review	Works; BPP	Bulk/competitive procurement protocol for cement-intensive projects.

18.3 Months 4–6 – Open the Market to Credible Entry

Once the baseline is published, the normal tariff architecture should commence: low clinker protection, modest bulk/jumbo protection and a moderate finished-cement tariff, with no general prohibition. SON conformity and traceability should apply equally to domestic and imported products.

Measure	Indicative reform setting	Reason
Clinker	0–5%	Encourage independent grinding and domestic value addition.
Bulk/jumbo cement	≈5%	Support infrastructure supply, terminals and local bagging.
Finished bagged cement	≈10%	Maintain a modest domestic preference while preserving contestability.
Import access	Automatic subject to objective compliance	Remove discretionary scarcity.
Quality control	Mandatory SON conformity/testing	Competition without safety compromise.

18.4 Months 6–12 – Build New Domestic Competition

The most important success indicator is not import tonnage. It is whether reform induces new Nigerian supply capability. Government should therefore facilitate independent grinding plants, bulk terminals, regional depots and common-user logistics rather than treat imported finished cement as the permanent reform instrument.

New entrants should have transparent access to clinker from domestic or external sources, subject to normal commercial negotiation and competition law. Public infrastructure demand can provide bankable anchor volumes for qualified new supply without guaranteeing any producer a protected price.

18.5 Year 1–2 – Institutionalise the Automatic Safeguard

After sufficient data have been collected, the Green–Amber–Red framework in Chapter 15 should become the standing response to abnormal domestic premiums. Thresholds must be periodically recalibrated rather than frozen in nominal naira terms.

Indicator	12-month success test
Retail price	Major markets substantially converge toward the competitive corridor after location adjustment.
Capacity utilisation	Improves as domestic demand and infrastructure programmes expand.
New entry	At least credible grinding, terminal, import or integrated projects enter/advance.
Ex-factory/retail spread	Becomes observable and explainable.
Import dependence	Imports remain a competitive discipline rather than becoming structurally dominant.
Exports	Efficient Nigerian producers retain or expand regional trade.
Public procurement	Government cement purchases demonstrate measurable parity savings.
Transparency	Capacity, dispatch, trade and mineral returns are published on schedule.

18.6 Institutionalise an Annual Ghost Subsidy Estimate and Economic Impact Account

The Government should institutionalise an Annual Ghost Subsidy Estimate (GSE) and Economic Impact Account as part of the continuing assessment of Nigeria's cement-market policy.

The mechanism should measure the estimated economic value of protection-related domestic cement-price premiums against a Competitive Parity Benchmark (CPB) and track their incidence through the wider economy. The purpose is to enable industrial protection to be evaluated periodically against measurable national outcomes rather than treated as an indefinite policy condition.

The annual assessment should report Low, Central and High GSE scenarios and examine the dispersion of the estimated premium through public infrastructure, road and concrete-pavement programmes, government-supported housing, private residential and commercial development, household construction expenditure and housing-cost pressures.

Particular attention should be given to the fiscal consequences of cement-price escalation for public works. Where higher cement costs contribute to contract variations, revised project budgets or reduced physical outputs from approved appropriations, the attributable GSE exposure should be separately estimated. Similar assessment should be undertaken for major public housing programmes to determine the effect on cost per unit, affordability and the

number of housing units deliverable from available public resources.

The monitoring framework should extend from household purchasing-power effects to their wider macroeconomic transmission. Higher building and replacement costs can contribute to housing and rent pressures and thereby reduce household purchasing power. Where essential living costs repeatedly absorb nominal wage increases, the intended improvement in real household welfare is weakened and further wage-adjustment pressures may emerge.

A sustainable economic policy should therefore seek not only periodic adjustment of nominal wages but also preservation of their real purchasing value through productivity, competitive markets and disciplined costs of essential goods and services. Where cost-of-living pressures become widespread, the transmission can extend into organised wage demands, employer and public payroll costs, production costs and wider inflationary pressure.

The cost side of the GSE account should be assessed alongside the measurable benefits arising from domestic cement production. These should include net foreign-exchange conservation, domestic value added, employment, taxes and mineral royalties, local procurement, capital investment and cement and clinker export earnings.

Foreign-exchange benefits should be calculated on a net basis. The counterfactual FX requirement for alternative imported supply should be adjusted for the foreign-exchange content already embedded in domestic production, including imported machinery, spares, technical services and other imported inputs. Export earnings should be reported separately to avoid double counting.

Gross GSE -> Economic Dispersion -> Quantifiable Domestic Benefits -> Net National Policy Position

The individual components should remain separately reported even where an aggregate net-benefit estimate is produced. Infrastructure expenditure, housing affordability, household purchasing power, foreign-exchange conservation, employment and fiscal receipts have different economic and distributional consequences and should not be obscured within a single net figure.

The GSE should operate as a policy-monitoring and review mechanism, not as an automatic import trigger. A persistent material GSE, adequate domestic productive capacity and an absence of corresponding cost justification would strengthen the case for progressively greater market contestability. Conversely, a low or zero GSE and competitive domestic supply would provide evidence supporting the prevailing market arrangement.

The detailed definitions, equations, sensitivity cases, economic-dispersion framework, safeguards against double counting and annual reporting template are provided in Annexure GSE-1 - Ghost Subsidy Estimation, Economic Dispersion and Net-Benefit Methodology.

This recommendation converts industrial protection into a measurable, transparent and periodically reviewable policy instrument, allowing Government to determine whether the prevailing level of protection continues to provide a positive national economic return.

18.7 Legislative and Regulatory Workstream

Most immediate measures can be pursued through tariff, customs, competition, standards, procurement and existing mineral-reporting instruments. Where secondary legislation or amendments are required, reform should codify transparency, automatic triggers and objective licensing rather than embed a fixed retail price.

The WTO's 2024 review confirms the present 50% nominal tariff on clinker and most non-white cement and the listing of bagged cement as prohibited for import. That provides a clearly identifiable policy baseline against which reform can be measured.

18.8 Competition-Law Workstream

The ongoing FCCPC investigation should remain institutionally separate from the policy reform. The Commission's August 2026 preliminary work reports possible price manipulation concerns, more than 90% of installed capacity held by three major producers, and national capacity of about 60–65 Mt/year against consumption of roughly 25–30 Mt/year. Those facts justify scrutiny, but any finding of prohibited conduct must follow the Commission's statutory evidentiary process.

Structural reform need not wait for a misconduct finding. A market can benefit from greater contestability even where every firm is acting lawfully. Conversely, liberalisation does not replace enforcement where evidence eventually establishes anti-competitive conduct.

18.9 Transition Governance

Governance body	Function
Cement Market Reform Steering Group	Coordinate trade, competition, minerals, works, customs and standards implementation.
Technical Market Observatory	Maintain CPB, capacity/utilisation, trade, fuel and retail datasets.
Independent annual review	Test whether tariff settings remain necessary and proportionate.
Public dashboard	Publish key indicators without disclosing protected firm-level commercial secrets.
Parliamentary / executive review	Assess consumer, industrial and fiscal outcomes after 12 and 24 months.

18.10 What Government Should Not Do

Government should not replace the present regime with permanent price control; negotiate a national cement price each time the market becomes distressed; grant import privileges to a small discretionary group; use quality regulation as a disguised barrier to competition; or maintain emergency protection after the conditions that justified it have passed.

The June 2026 return to official calls for manufacturers to reduce prices—after the February 2024 negotiated price arrangement—illustrates why a recurring negotiation cycle is not a durable market institution.

Chapter 19 – Conclusion: From Protected Supply to Competitive Abundance

19.1 What the Study Set Out to Test

This study began with a simple national paradox. Nigeria possesses large limestone deposits, substantial installed cement capacity, established integrated manufacturers and a demonstrated ability to export clinker and finished cement. Yet Nigerian households, builders and government infrastructure programmes have repeatedly faced cement prices that appear difficult to reconcile with those advantages.

The research therefore tested raw-material disclosure, production and capacity, concentration, cost structure, regional and international parity, import restrictions, macroeconomic shocks, fuel pass-through, price persistence and residual explanations through the H1–H7 programme.

19.2 What the Evidence Does Establish

Evidence stream	Principal finding
H1 – Raw materials / cost transparency	Public reporting does not consistently provide the physical and monetary denominators needed for robust per-tonne raw-material comparison; transparency reform is justified.
Capacity and utilisation	Installed capacity materially exceeds estimated domestic consumption; the supply response must therefore be assessed through actual utilisation and dispatch, not nameplate capacity alone.
H3 – Market structure	A very small number of producers control most installed capacity; concentration increases the importance of credible entry.
H4 – Cost structure	Real production, energy, FX and logistics costs matter, but each must be weighted within the delivered cost stack.
H5 – Trade / parity	Nigeria exports clinker and cement while maintaining high barriers to inward competition; revealed trade provides a strong contestability benchmark.
H6 – Shock transmission	Recent macroeconomic shocks explain part of price escalation, but price behaviour is not a simple one-for-one function of those shocks.
H7 – Residual / persistence	Post-shock price persistence requires additional explanation through distribution, utilisation, margins, structure and entry conditions.

19.3 What the Evidence Does Not Establish

The study does not determine that any named manufacturer has unlawfully fixed prices, restricted supply or abused dominance. Those are legal and evidentiary questions for the FCCPC and, where appropriate, the courts. The August 2026 FCCPC investigation is therefore relevant corroborating context, not a substitute for the study's own statistical tests and not a final finding of liability.

Nor does the study assume that every international price can be reproduced in Nigeria. Freight, taxes, standards, exchange rate, energy, financing and geography are real. The analysis instead asks whether these factors fully explain the observed Nigerian premium.

19.4 The Central Finding

Nigeria's cement problem is best understood as a contestability problem layered on top of genuine cost pressures. High concentration is not by itself proof of misconduct; spare capacity is not by itself proof that supply can be expanded without constraint; and a high price is not by itself evidence of excessive margin. But the combination of high concentration, substantial apparent spare capacity, strong infrastructure demand, demonstrated exports, high inward trade barriers and recurrent price intervention is sufficient to justify structural reform.

19.5 Capacity Utilisation and Production Efficiency

The H4 analysis adds an important qualification to the capacity findings of this study. Nigeria's substantial unused cement-production capacity is relevant not only to the question of whether domestic physical capacity is adequate; persistent under-utilisation can also weaken unit-cost performance by spreading fixed and semi-fixed production costs over fewer tonnes of output.

The cross-country capacity-utilisation and efficiency assessment further indicates that utilisation should not be treated as the sole determinant of kiln thermal efficiency. Thermal performance also reflects kiln technology, plant configuration, fuel mix, process optimisation and energy-management practices. Nigeria's measured thermal performance remains within the broad operating range of modern dry-process cement production, although identifiable efficiency headroom remains.

The combined H2 and H4 evidence therefore distinguishes installed capacity from economically efficient utilisation of that capacity. Where substantial installed capacity remains under-utilised, policy should seek to expand competitive dispatch, domestic demand, exports and productive utilisation rather than regard the addition of further protected capacity as the principal response to market requirements.

Detailed methodology, international comparisons and the capacity-utilisation-efficiency assessment are presented in H4.

19.6 The Ghost Subsidy Revisited

The study's term "Ghost Subsidy" describes the implicit transfer created when policy shields a mature concentrated industry from normal external competition without recording the resulting consumer burden as a fiscal subsidy. It is not a claim of a secret budget payment.

The contradiction is sharper after broad economic reforms have required Nigerians to absorb market-based PMS and foreign-exchange adjustments. A policy framework cannot consistently insist that consumers face market prices for energy and currency while preventing those same consumers and public projects from testing a strategic construction input against a competitive market.

19.7 Annual Measurement of the Ghost Subsidy and National Economic Incidence

The identification of the Ghost Subsidy in this study carries a further policy implication: its estimated value should be measured periodically for as long as the underlying protection architecture remains materially in force.

Annual measurement would allow the policy debate to move beyond the existence of protection to the economic value of that protection, the distribution of its costs and the measurable national benefits received in return. The resulting assessment should compare the observed domestic cement-price position with a Competitive Parity Benchmark and report Low, Central and High estimates rather than rely on a single falsely precise figure.

The economic incidence should be traced beyond the initial cement transaction. A material protection-related premium can disperse through road and infrastructure contracts, contract variations, public housing delivery, private development costs, household construction expenditure and, over time, housing and rent pressures. At household level, these pressures can erode the purchasing value of wages; when sufficiently widespread, cost-of-living pressures can contribute to further wage-adjustment demands, labour-cost escalation and wider inflationary feedback.

The policy objective should therefore include preservation of real purchasing power. Sustainable improvement in living standards depends not only on periodic increases in nominal wages but also on productivity, competitive markets and containment of avoidable structural costs that otherwise absorb those gains.

The annual account must equally recognise the benefits of domestic cement production. Net foreign-exchange conservation, domestic value added, employment, fiscal receipts, mineral royalties, local procurement, capital investment and export earnings should be reported alongside the GSE. Foreign-exchange savings should be stated net of the FX content of domestic production, while export earnings should remain separately identified.

The resulting framework does not reduce the policy question to a single accounting balance. It establishes a transparent national test: what is the annual economic value of the protection, where does its cost fall, what measurable benefit does Nigeria receive in return, and could a more contestable market architecture produce a superior national outcome?

The methodology for this annual assessment, including the Competitive Parity Benchmark, Gross GSE calculation, economic-dispersion account, purchasing-power and macroeconomic transmission, net FX treatment, domestic-benefit account, sensitivity cases and safeguards against double counting, is set out in Annexure GSE-1 - Ghost Subsidy Estimation, Economic Dispersion and Net-Benefit Methodology.

Accordingly, the transition from protected supply to competitive abundance should be accompanied by measurable policy review. As the domestic industry matures, protection should become increasingly transparent, proportionate and reviewable, with competitiveness progressively replacing insulation as the principal safeguard of Nigerian cement manufacturing.

19.8 Final Policy Statement

Nigeria has already demonstrated that it can build a large cement industry. The next policy challenge is to demonstrate that this industrial success can deliver competitively priced cement to Nigerians.

Abundant limestone, large installed capacity and expanding infrastructure demand should be advantages. They should attract production, entry, investment and scale. They should not require a permanent architecture of import prohibition, exceptional tariff protection and recurring price negotiation.

The reform proposed by this study is therefore neither anti-industry nor pro-import. It is pro-competition: protect quality, protect lawful investment, protect against proven unfair trade—and allow efficient supply to compete.

The transition required is from protected supply to competitive abundance.

19.9 Why Another Negotiated Price Is Not the Answer

In February 2024 government and the three major manufacturers agreed that cement should generally retail within ₦7,000–₦8,000 per 50 kg bag depending on location, supported by monitoring and a planned review. By June 2026 the Minister of Works was again calling for lower

prices because contractors were pressing for contract variations. By August 2026 the FCCPC was investigating possible price manipulation after reported prices reached ~~₦13,000–₦15,000~~ in some locations.

The lesson is not that dialogue is useless. The lesson is that dialogue cannot substitute for a market mechanism. A competitive system should correct an abnormal premium because entry becomes profitable, not because another meeting has been convened.

19.10 The Reform Proposition

The proposed reform removes the general prohibition on bagged cement, reduces extraordinary clinker and finished-cement protection, enables independent grinding and bulk entry, strengthens SON quality control, standardises mineral and capacity reporting, introduces transparent ex-factory/depot monitoring, and establishes an automatic Competitive Parity Benchmark safeguard.

The desired result is not large permanent imports. The desired result is a market in which the possibility of entry is credible enough that imports often need not occur. Efficient Nigerian producers should be able to win the market on limestone advantage, scale, sunk capital, logistics, quality and proximity.

19.11 The ~~₦100–₦130/kg~~ Proposition

The counterfactual work supports the economic plausibility of ordinary Portland cement within a ~~₦100–₦130/kg~~ competitive corridor under the study's base assumptions, with ~~₦110–₦130/kg~~ representing the more robust normal-market range. This is a performance corridor, not a statutory price.

If future FX, freight, energy or other validated costs materially change, the Competitive Parity Benchmark must change with them. The reform therefore protects economic realism while preventing temporary or structural premiums from becoming insulated by policy.

Source Notes for Module IX

WTO, Trade Policy Review – Nigeria (2024), para. 4.111: 50% nominal tariff on clinker; 50% on other non-white cement; bagged cement listed as prohibited for import.

Nigeria Trade Portal: Bagged Cement (HS 2523.2900.00) remains on the prohibited import list.

Federal Ministry of Works, February 2024: government/manufacturer meeting recorded an indicative ~~₦7,000–₦8,000~~ per 50 kg retail range, monitoring mechanism and planned 30-day review.

Federal Ministry of Works, June 2026: Minister called for cement-price reduction, citing pressure on infrastructure projects and demands for contract variation.

FCCPC preliminary investigation reported August 2026: installed capacity estimated at 60–65 Mt/year, domestic consumption 25–30 Mt/year, more than 90% of installed capacity controlled by three major producers, and possible price-manipulation concerns under further investigation.

Appendices H1–H7 constitute the statistical and evidentiary research papers supporting the principal findings and reform recommendations.

SUPPORTING RESEARCH REPORTS AND ANNEXURES

H1 REPORT

Raw-Material Costs and Cement Price Formation

Industry, within-country and material-specific statistical assessment with application to Nigeria

Research status: H1 analytical stage completed

Reference period: principally FY2023-FY2024

Prepared: August 2026

Executive Finding

H1 tests whether raw-material costs are a material and systematic explanation of cement-price differences. The evidence supports a positive association in parts of the dataset, but it does not support raw-material cost as a strong, universal or sufficient explanation of cement price formation.

At the pooled producer level (7 producer-year observations across China, India, Bangladesh and Pakistan), Pearson r is 0.227 and R^2 is 0.052. In plain language, the straight-line relationship is weak: only about 5% of the observed variation in cement price is associated with variation in the measured aggregate raw-material-cost variable in this small heterogeneous sample. Spearman ρ is higher at 0.643, indicating a moderate-to-strong tendency for higher-cost observations to rank with higher cement prices, but the small sample means this is directional evidence rather than a definitive industry law.

Material-specific evidence is also mixed. In a within-country Bangladesh panel (3 producers $\times$ 2 years; $N=6$), clinker has almost no rank relationship with cement ASP ($\rho=0.029$; $R^2=0.055$), while limestone ($\rho=0.657$; $R^2=0.367$) and fly ash ($\rho=0.771$; $R^2=0.549$) show materially stronger relationships. This demonstrates that cost transmission differs by material and production route.

For Nigeria, the public-company evidence is sufficient to establish revenue, production/sales volumes, installed capacity and substantial cost categories, but generally insufficient to reconstruct a consistent material-by-material quantity $\times$ price raw-material cost per tonne for Dangote, BUA and Lafarge on the same basis. This is an analytical disclosure-granularity gap, not proof of concealment or collusion. Nigeria is therefore assessed through observable cost structure, utilisation, ASP and deviations from reference distributions; any unexplained residual is reserved for later hypotheses on energy, logistics, utilisation, policy and market structure.

Overall H1 determination: PARTIALLY SUPPORTED. Raw-material costs matter, but the evidence does not justify treating them as the dominant standalone explanation of cement prices or Nigeria's price differential.

1. Hypothesis and Analytical Question

H1: Differences in raw-material costs are positively associated with differences in cement prices, and materially explain observed price variation.

The hypothesis is tested at four levels: (i) pooled producer-level industry comparison; (ii) within-country competitive comparison; (iii) individual raw-material comparison; and (iv) Nigeria-specific application using observable cost and utilisation ratios where exact material-level denominators are unavailable.

2. Data Architecture and Evidence Rules

The analysis uses producer-year observations rather than forcing one observation per country. Multiple producers in the same country are deliberately retained because they provide a competitive scenario under broadly common exchange-rate, policy and macroeconomic conditions.

Level	Observation	Primary use	Treatment when N is small
H1-A Industry	Producer-year	Aggregate RM cost versus cement ASP	Exploratory correlation/regression; archetype sensitivity
H1-B Country	Producer-year within country	Competitive dispersion	Mean, median, range, CV; correlation only where defensible

H1-C Individual RM	Producer-material-year	Clinker, gypsum, slag, limestone, fly ash	Separate material curves; N>=6 preferred
H1-D Nigeria	Manufacturer/year	Cost structure, ASP, utilisation and benchmark deviation	Descriptive where physical RM denominator is unavailable

3. How to Read the Statistics

The statistics below are aids to interpretation, not automatic proof of causation. The ranges are practical descriptive guides, not universal legal thresholds.

Statistic	Range / guide	Lay interpretation	Important caution
Pearson r	0 to ± 0.19	Very weak linear relationship	Sensitive to outliers and assumes a roughly straight-line relationship.
Pearson r	± 0.20 to ± 0.39	Weak	Direction exists but observations remain widely dispersed.
Pearson r	± 0.40 to ± 0.59	Moderate	A visible linear tendency may exist.
Pearson r	± 0.60 to ± 0.79	Strong	Observations generally move together linearly.
Pearson r	± 0.80 to ± 1.00	Very strong	Close linear co-movement; still not proof that one variable causes the other.
Spearman rho	Same absolute-value guide	Measures whether ranks move together, even if the relationship is not a straight line.	Useful for small/non-normal datasets, but N still matters.
R ²	0.00 to 0.10	Very low explanatory fit	The fitted line accounts for little of the observed variation.
R ²	0.10 to 0.30	Low	Some variation is associated with X, but most remains elsewhere.
R ²	0.30 to 0.50	Moderate	A meaningful share is associated with X.
R ²	0.50 to 0.70	Substantial	More than half of sample variation is represented by the fitted relationship.
R ²	0.70 to 1.00	High to very high	The line closely fits the sample; causation still requires economic evidence.

p-value	<0.05 conventionally	The observed relationship would be relatively unusual under a zero-association model.	With very small N, failure to reach 0.05 does not prove 'no relationship'; power is low.
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Example: $R^2=0.05$ does not mean raw materials contribute only 5% of the physical cost of cement. It means that, in that particular regression sample, only about 5% of the variation in observed cement prices is represented by the fitted variation in the selected raw-material-cost measure.

4. H1-A: Industry Producer-Level Results

Country / producer	RM cost USD/kg cement	Cement price / ASP USD/kg	Production route
China - West China Cement	0.00945	0.04697	Integrated
India - India Cements	0.01042	0.09284	Integrated; price comparator
India - Nuvoco	0.00715	0.06211	Integrated + grinding
India - Ambuja	0.01139	0.06833	Integrated + grinding
Bangladesh - Heidelberg Materials	0.04767	0.07021	Clinker-import grinding
Bangladesh - Crown Cement	0.04831	0.06935	Clinker-import grinding
Pakistan - Pioneer Cement	0.00312	0.05398	Integrated

Pooled results: $N=7$; Pearson $r=0.227$ (weak positive); Spearman $\rho=0.643$ (stronger positive rank tendency); $R^2=0.052$ (very low linear explanatory fit). The Pearson p-value is approximately 0.624 and the Spearman p-value approximately 0.119. Given $N=7$ and mixed production archetypes, neither should be read as a definitive population estimate.

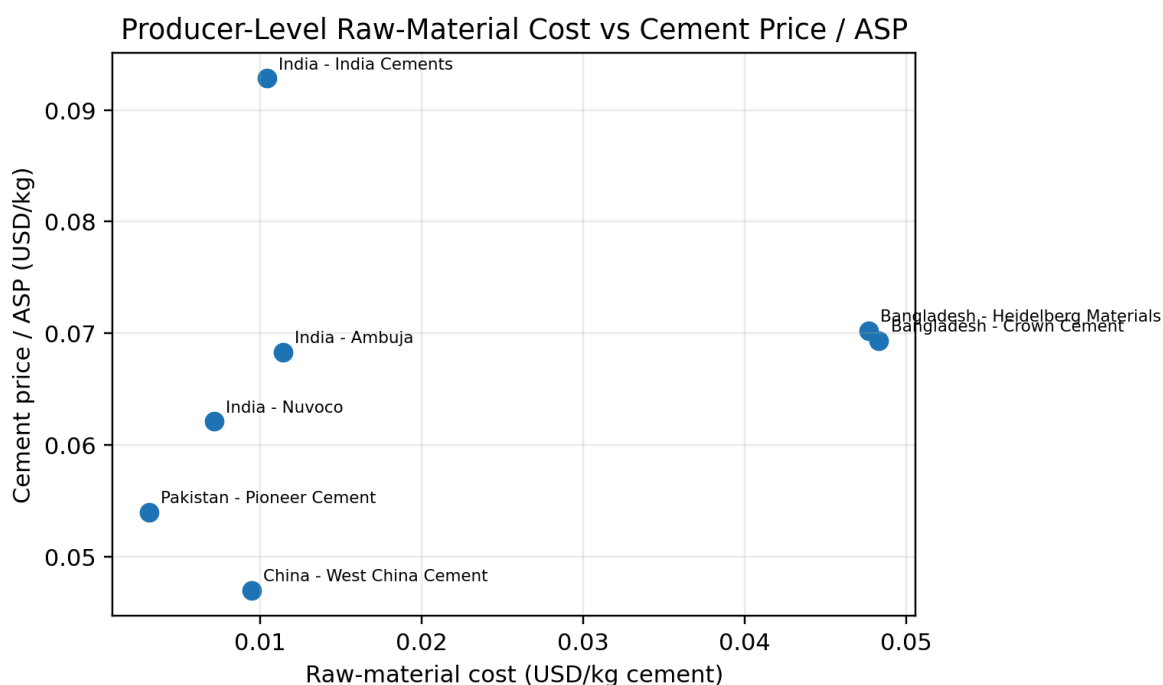


Figure H1-1. Producer-level aggregate raw-material cost versus cement price/ASP. The two Bangladesh grinding observations have much higher raw-material-cost intensity because purchased clinker embodies upstream kiln processing.

5. H1-B: Within-Country Competitive Interpretation

Country	N	Mean RM cost USD/kg	Median RM cost	Mean price USD/kg	Interpretation
China	1	0.00945	0.00945	0.04697	Descriptive only.
India	3	0.00965	0.01042	0.07443	Competitive descriptive sample; within-country Pearson $r \approx 0.478$, but $N=3$ is too small for inference.
Bangladesh	2	0.04799	0.04799	0.06978	Two clinker-import grinders; useful for spread, not regression.
Pakistan	1	0.00312	0.00312	0.05398	Descriptive only.

The country layer is important because duplicate-country observations are not statistical waste. They show how firms facing the same currency and broad national environment can have different cost and price positions. India, for example, has similar aggregate RM-cost intensity across the three observations but materially different realised/comparator prices. This is consistent with the view that raw materials are only one component of price formation.

6. H1-C: Individual Raw-Material Results

Material	N	Mean cost BDT/t	CV	Pearson r	Spearman rho	R ²	Plain- English reading
Clinker	6	6,858	1.8%	0.234	0.029	0.055	Very weak relationship in this panel despite clinker being the dominant input.
Gypsum	6	4,040	8.1%	0.454	0.600	0.206	Moderate rank relationship; low linear explanatory fit.
Slag	6	3,853	7.1%	0.327	0.543	0.107	Weak-to-moderate relationship.
Limestone	6	3,596	20.4%	0.606	0.657	0.367	Strong positive association; moderate explanatory fit.
Fly ash	6	3,190	13.4%	0.741	0.771	0.549	Strongest observed relationship; substantial sample fit.

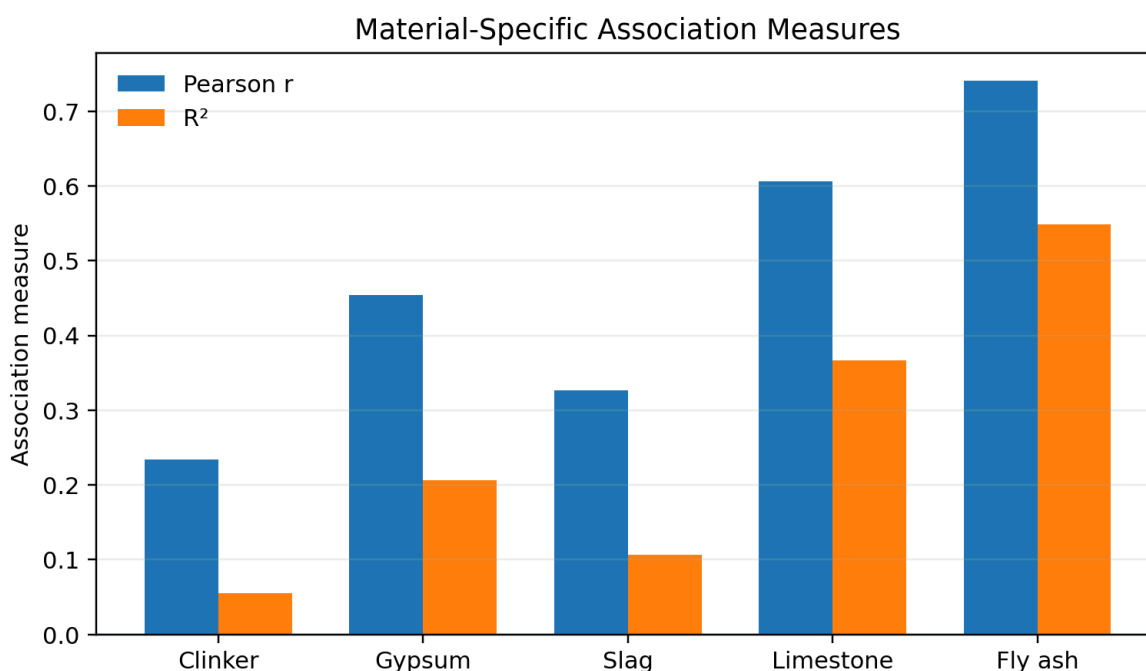


Figure H1-2. Material-specific association measures. These six observations are all Bangladesh producer-years and therefore describe a grinding-market competitive panel, not the global cement industry.

The material results reject a simplistic assumption that the material with the largest physical share must have the strongest observed price relationship. In this small panel, clinker unit cost varies little ($CV \approx 1.8\%$), so it cannot explain much of the variation in cement ASP. Limestone and fly ash vary much more and show stronger associations. This is an important distinction between cost share and price-variation explanatory power.

7. Nigeria: Observable Cost, Capacity and Price Framework

Nigeria cannot honestly be forced into the material-specific regression where the public disclosures do not provide a comparable material quantity-and-value denominator. Instead, the Nigerian manufacturers are assessed using ratios that can be reconstructed without inventing data.

Ratio	Formula	Use
Manufacturing cost intensity	Production cost of sales / actual tonnes produced	Cost of manufacturing one tonne; preferred production denominator.
Full observable delivered cost	Production + selling/distribution + attributable operating charges / tonnes sold	Observable cost to manufacture and commercially deliver one tonne.
ASP / revenue intensity	Cement revenue / tonnes sold	Realised revenue per tonne.
Observable cost-to-price ratio	Full observable cost per tonne / ASP per tonne	Share of realised price represented by observable costs.
Production utilisation	Actual tonnes produced / effective installed capacity	Tests whether low utilisation may raise fixed cost per tonne.

Sales-to-capacity ratio	Tonnes sold / installed capacity	Commercial throughput indicator; not a substitute for production utilisation.
Unallocated price component	ASP - observable cost per tonne	Residual for later hypotheses; not automatically profit or cartel premium.

7.1 Dangote Cement Nigeria: directly reconstructable indicators

Dangote Cement's 2024 annual report reports company cement production and bagging capacity of 29.25 Mt, production volume of 13.228 Mt, trade cement purchases of 3.495 Mt, sales volume of 17.683 Mt, and company revenue of about N2.193 trillion. These data imply an approximate revenue intensity of N124,000 per tonne sold, production utilisation of 45.2%, and sales-to-capacity of 60.5%. Because sales include purchased/traded cement and inventory movements, sales tonnes must not be used as the denominator for manufacturing cost without reconciliation.

Dangote Nigeria/company FY2024	Value
Installed cement production/bagging capacity	29.25 Mt
Production volume	13.228 Mt
Sales volume	17.683 Mt
Trade cement purchase	3.495 Mt
Revenue	~N2.193 trillion
Revenue / sales tonne	~N124,000/t
Production utilisation	~45.2%
Sales / stated capacity	~60.5%

7.2 Lafarge Africa: cost-structure transparency

Lafarge's public financial reporting demonstrates why the Nigerian situation should be described as a granularity gap rather than general opacity. Its 2024 reporting provides substantial production-cost categories, including fuel/power, raw materials/consumables, production fixed costs, maintenance and depreciation. The limitation for H1 is that the raw-material line is aggregated rather than matched to physical tonnes of limestone, gypsum, clay and other inputs. This is adequate financial disclosure but insufficient for a material-by-material pass-through reconstruction.

Lafarge reported FY2024 revenue of about N696.76 billion and operating profit of about N193 billion. Its current corporate disclosures state installed cement capacity of 10.5 Mtpa. These figures are useful for later cost/margin and utilisation analysis, but H1 does not manufacture an RM N/t observation where the matching physical denominator is absent.

7.3 BUA Cement: treatment in H1

BUA Cement reported FY2024 revenue of about N876.5 billion and profit before tax of about N99.6 billion. Its investor portal provides audited FY2024 financial statements. The H1 registry contains partial raw-material/quarry cost observations, but the cost boundary and same-scope physical output denominator are not sufficiently clean to create a directly comparable RM cost per tonne. BUA is therefore retained in the Nigeria descriptive framework and not inserted into the international RM regression using an artificial denominator.

8. Transparency and Competition Interpretation

The evidence does not justify the statement that Nigerian listed cement companies are generally financially opaque. Dangote, BUA and Lafarge publish audited financial reports and significant operating information. The narrower finding is that public disclosures generally do not provide the material-level physical quantity × monetary cost detail required to independently reconstruct a common raw-material cost per tonne of cement for all three producers.

This creates a cost-formation transparency gap for competition-policy analysis. It does not establish cartelisation. A cartel inference would require separate evidence of coordination or an authoritative competition finding. The correct research sequence is to explain price through raw materials, energy, logistics, capacity utilisation, taxes/policy and other observable factors first; only the remaining unexplained residual should pass to the later market-structure hypothesis.

9. Interpretation Against H1 Sub-Questions

Sub-question	Finding	Determination
H1(a): Are RM costs positively associated with cement prices?	Generally positive in the pooled and several material-specific comparisons, but strength varies widely.	SUPPORTED DIRECTIONALLY
H1(b): Do RM costs materially explain price variation?	Pooled $R^2 \approx 0.052$ is very low; material R^2 ranges from ≈ 0.055 to ≈ 0.549 .	PARTIALLY SUPPORTED
H1(c): Are Nigerian prices demonstrably explained by RM costs?	Not established from public material -level data. Observable Nigerian cost, ASP and utilisation indicators must be combined with H2-H6.	NOT ESTABLISHED BY H1 ALONE
H1(d): Do Nigerian producer differences track RM-cost differences?	Comparable RM N/t cannot yet be reconstructed consistently for all three majors.	DESCRIPTIVE / INCONCLUSIVE

10. Final H1 Determination

H1 is PARTIALLY SUPPORTED.

The evidence shows that raw-material costs can be positively associated with cement prices, but the relationship is neither uniform across materials nor sufficiently strong in the pooled producer sample to treat raw-material cost as the dominant standalone explanation of price variation. The pooled linear model has low explanatory power, while rank relationships and some individual materials show stronger associations.

For Nigeria, the more defensible finding is that the public disclosures permit reconstruction of important revenue, production, capacity and broad cost indicators, but not a harmonised material-by-material raw-material cost per tonne for all major producers. Consequently, H1 does not attribute Nigeria's cement-price level to raw materials alone and does not interpret the disclosure gap as evidence of collusion.

The unresolved portion of Nigeria's price differential must therefore be carried forward sequentially to the remaining hypotheses: energy and power, logistics/distribution, capacity utilisation and production efficiency, trade/policy barriers, and finally market structure/competition. Only the residual remaining after those observable explanations have been tested can validly inform the competition

analysis.

11. Limitations and Robustness

The principal limitations are the small pooled producer sample; mixed integrated and clinker-grinding production routes; different accounting definitions of raw materials; some use of revenue-derived ASP rather than directly quoted ex-factory price; and incomplete Nigerian material-level physical denominators. These limitations are explicitly retained rather than concealed.

The strongest robustness feature is triangulation: the conclusion is not based on one coefficient. It combines pooled Pearson correlation, rank correlation, R^2 , within-country descriptive comparisons, individual-material analysis, cost dispersion and Nigeria-specific observable ratios. The H1 conclusion should therefore be read as a bounded empirical finding rather than a universal causal law.

Appendix H1-A. Source and Evidence Notes

Principal evidence sources include audited/official producer reports and investor disclosures for West China Cement, India Cements, Nuvoco, Ambuja, Heidelberg Materials Bangladesh, Crown Cement, Premier Cement, Pioneer Cement, Dangote Cement, BUA Cement and Lafarge Africa. The underlying calculation registry is retained in the H1 analytical workbook for retraceability.

Nigeria source	Evidence used
Dangote Cement Annual Report 2024	Capacity, production, trade cement purchase, sales volume, revenue.
BUA Cement FY2024 audited reporting / official results	Revenue, profit and audited-report availability; partial RM cost registry.
Lafarge Africa FY2024 reporting	Revenue, operating performance, production-cost categories and installed capacity.
H1 master analytical workbook	International producer panel, Bangladesh material panel, descriptive statistics and fitted relationships.

Official source access:

Dangote Cement 2024 Annual Report and results: dangotecement.com/results-and-presentation-for-shares/

BUA Cement financial reports: buacement.com/financialreport/

Lafarge Africa financial reports: lafarge.com.ng/financial-reports

GLOBAL CEMENT PRICING POLICY STUDY

FINAL H2 REPORT

Logistics and Distribution Cost Hypothesis

H2: Differences in cement prices are associated with differences in logistics and distribution costs.

Executive Finding

H2 is PARTIALLY SUPPORTED. The evidence establishes that logistics and distribution are economically material components of cement pricing, but the current producer-level statistical sample does not show that higher freight cost per tonne, by itself, produces a correspondingly higher cement selling price. In the clean India pilot, freight and forwarding represented roughly one-fifth to almost one-third of realised cement price, yet the linear relationship between freight cost/t and ASP/t was effectively absent. This indicates that logistics matters strongly as a cost burden, but price formation also reflects product mix, regional market conditions, route structure, plant location, pricing strategy, energy cost, utilisation and other factors.

For Nigeria, the public accounts confirm that distribution and haulage are significant commercial costs, but the available disclosures are not yet uniform enough to calculate a directly comparable pure freight cost per tonne for Dangote, BUA and Lafarge. Nigeria is therefore interpreted descriptively in H2, while the later integrated model will combine logistics with energy, utilisation, import barriers and market structure.

1. H2 Research Question

H2 asks whether the relatively high price of cement in Nigeria can be explained, wholly or materially, by logistics and distribution costs. The hypothesis covers road haulage, rail and water transport where relevant, fuel exposure, lead distance, tolls and road charges, port/terminal costs, and producer distribution expenditure.

2. Analytical Variables and Ratios

Freight Cost Intensity = Freight and forwarding cost / tonnes sold.

Distribution Cost Intensity = Selling and distribution cost / tonnes sold.

Logistics Share of ASP = Freight or distribution cost per tonne / ASP per tonne x 100.

Distance-adjusted Freight Cost = Freight cost per tonne / average haul distance.

Fuel Exposure = transport fuel price x fuel intensity of the haulage system.

Capacity and logistics are kept separate: installed capacity is not used as the denominator for freight cost.

3. Statistical Interpretation Guide for Lay Readers

Measure	Practical Range	Plain-English Meaning	Use in H2
Pearson r	-1 to +1	Shows the strength and direction of a straight-line relationship. Values near +1 or -1 are strong; values near 0 indicate little linear relationship.	Tests whether higher freight cost/t is associated with higher or lower ASP/t.
Spearman rho (rho)	-1 to +1	Compares the ranking of observations rather than requiring a straight-line relationship. Near +1 means the rankings rise together; near -1 means they move oppositely; near 0 means little consistent ranked movement.	Useful for small samples and non-linear or irregular relationships.
R-squared (R2)	0 to 1	Shows how much of the observed variation in price is described by the fitted line. R2 = 0.50 means about half of the observed variation is described by that model; it does not prove causation.	Measures explanatory power of the freight-cost regression.
Mean	Any value	The arithmetic average. It can be influenced by unusually high or low observations.	Shows average freight burden.
Median	Any value	The middle observation after ranking. It is less affected by extreme values.	Useful benchmark for a typical producer.
CV	0% upward	Standard deviation divided by the mean. It shows relative dispersion. Higher CV means the observations vary more widely relative to their average.	Used to compare variability in cost burdens.

For interpretation in this report, absolute correlation values below about 0.30 are treated as weak, 0.30-0.50 as modest, 0.50-0.70 as moderate to strong, and above 0.70 as strong. These are practical interpretation bands rather than universal laws. With small N, the report gives greater weight to economic magnitude, consistency, data quality and robustness than to a single coefficient.

4. Clean Producer-Level Pilot Dataset

Producer	Freight cost INR/t	ASP INR/t	Freight share of ASP	Evidence
Ambuja Cements	1,379	5,717	24.1%	Tier A / same-year producer data

Nuvoco Vistas	1,514	5,197	29.1%	Tier A / same-year producer data
Shree Cement	1,169	5,781	20.2%	Tier A / same-year producer data
Dalmia Bharat	1,113	5,101	21.8%	Tier A / same-year producer data

The four-producer India panel gives a mean freight share of 23.8% and a median of 23.0% of ASP. This is economically large: even where freight does not explain the ranking of final prices, it consumes a substantial share of the realised selling price.

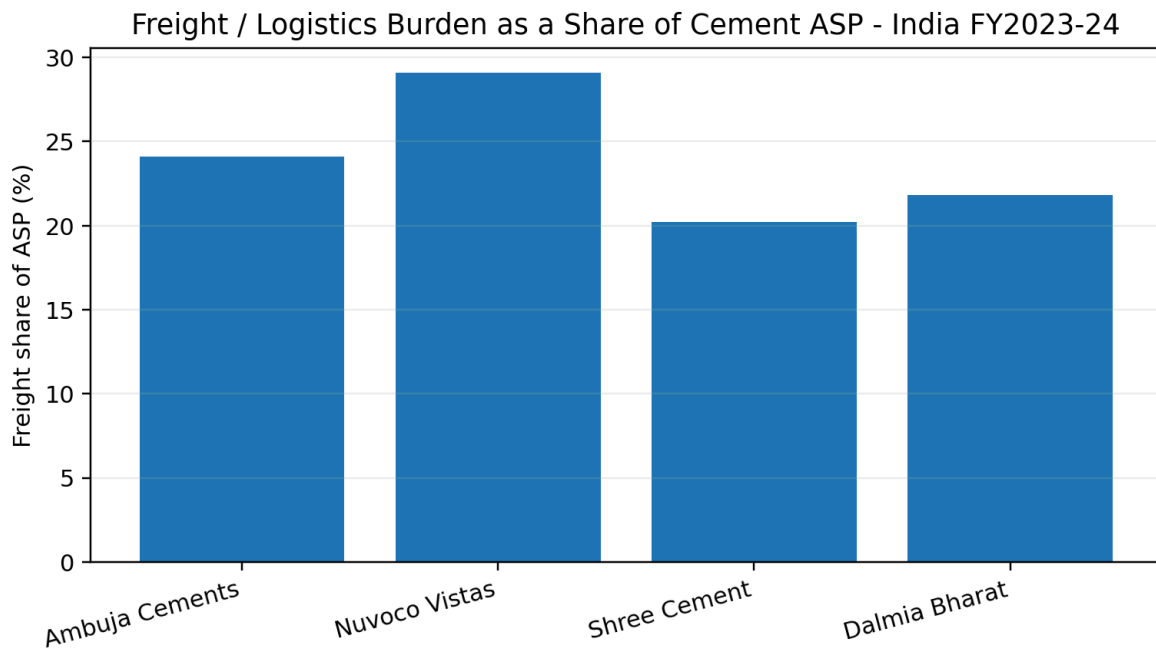


Figure H2-1. Freight / logistics burden as a share of cement ASP - India FY2023-24.

5. H2 Statistical Results

Statistic	Result	Interpretation
N	4 producer observations	A small within-country pilot. Results are exploratory, not definitive.
Pearson r	-0.056	Essentially no linear relationship between freight cost/t and ASP/t in this sample.
Spearman rho	0.200	Very weak positive rank relationship. Producers with higher freight cost are not consistently the highest-price producers.
R-squared	0.003	The fitted freight-cost line describes only about 0.3% of the observed ASP variation. Freight cost alone therefore explains virtually none of the cross-producer price dispersion in this four-firm sample.
Mean freight share	23.8%	Despite weak correlation, logistics is a large cost component.
Median freight share	23.0%	The typical producer in this sample devotes about 23% of ASP to freight/logistics.

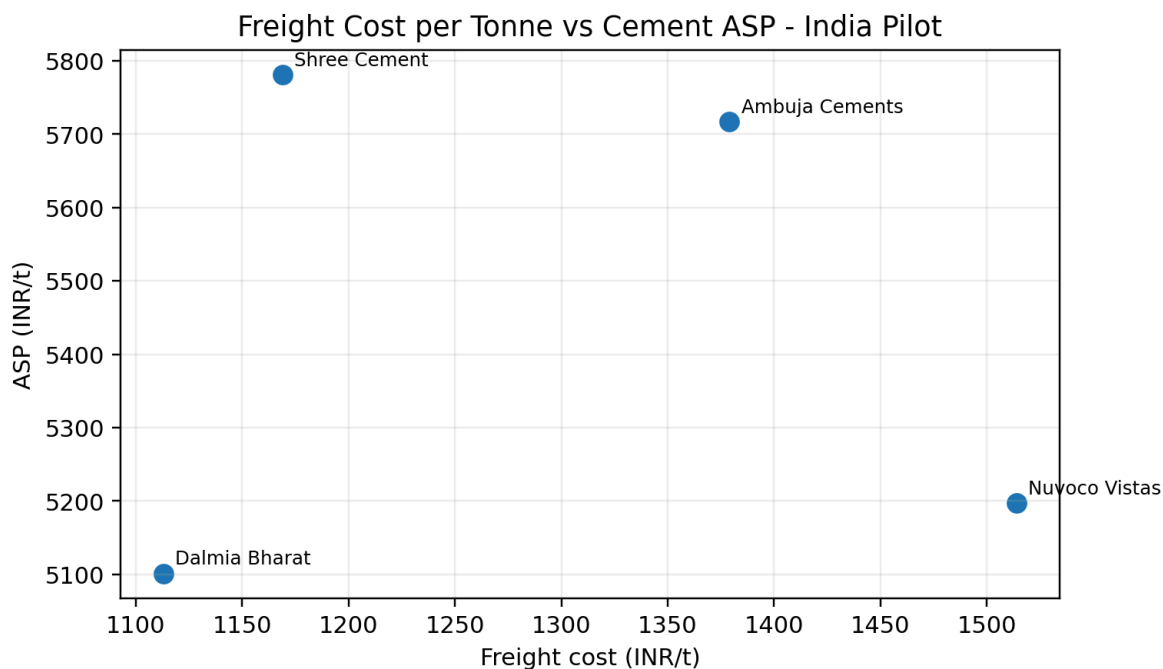


Figure H2-2. Freight cost per tonne versus cement ASP - India pilot.

6. Why a Weak R2 Does Not Mean Logistics Is Irrelevant

The result needs careful interpretation. A low R2 does not say that freight is cheap or unimportant. It says that differences in freight cost across these four producers do not explain differences in their selling prices very well. The freight burden itself remains large. Price may be set by a combination of raw materials, energy, product grade, regional demand, plant utilisation, commercial strategy, taxation, import discipline and market structure. The correct policy inference is therefore that logistics is a major cost component but not, on the present evidence, a sufficient standalone explanation of price dispersion.

7. Nigeria Application

Producer	Period	Publicly reported cost item	Reported amount	Comparable ratio	Interpretation boundary
Lafarge Africa Plc	FY2024	Selling & distribution cost	NGN 120.42bn	17.3% of revenue	Broader than pure freight; pure cement tonnes denominator not yet clean.
Dangote Cement Plc	FY2024	Selling & administration / haulage evidence	NGN 839.20bn selling & admin	Haulage expense rose 73.1%	Group-wide expense includes non-logistics items; no clean Nigeria freight cost/t.
BUA Cement Plc	FY2024	Selling, distribution & administration	NGN 31.6bn	3.6% of revenue	Combined SD&A; not pure distribution/freight.

The Nigerian disclosures demonstrate that logistics is not an incidental cost. Lafarge's selling and distribution line is large relative to revenue, Dangote specifically attributes a sharp increase in haulage expense to AGO costs, and BUA identifies distribution and fleet-related commercial costs. However, the accounting boundaries differ materially. A selling-and-administration line cannot be treated as pure freight, and a group-wide cost cannot be divided by Nigeria-only sales tonnes.

Accordingly, the report does not manufacture a Nigeria freight cost/t from incompatible disclosures. Nigeria's H2 position is presently descriptive: distribution costs are demonstrably material, fuel prices and road dependence plausibly intensify the burden, but the magnitude of the Nigerian price premium cannot yet be attributed quantitatively to freight alone.

8. Road Fuel, Distance and Modal Structure

Stage 7 provides verified Nigerian PMS and AGO observations and comparative fuel-price data for several countries. For cement logistics, AGO/diesel is more relevant than PMS for heavy road haulage. Fuel price must nevertheless be combined with truck fuel intensity, haul distance and backhaul/loading conditions before converting it to a freight cost per tonne.

Road, rail and water transport are not interchangeable. A country with long haul distances but significant rail or waterborne distribution may have a lower delivered cost than a road-dominated market. This is why H2 retains modal share and lead distance as separate variables rather than treating diesel price alone as the logistics explanation.

9. Comparative Interpretation

The clean India panel provides a useful competitive benchmark because the firms operate under the same national currency and broadly similar macroeconomic conditions. The observed freight burden of roughly 20-29% of ASP establishes that logistics can consume a large portion of cement selling value. Yet the very low R2 means higher freight burden is not mirrored one-for-one in higher ASP.

For Nigeria, this distinction is central. High diesel prices, road dependence, long plant-to-market distances and distribution-chain costs can all increase delivered cement cost. But H2 should not be used as a catch-all explanation for a high retail price. The subsequent hypotheses must test energy cost, process efficiency, import barriers, utilisation/scarcity and market structure.

10. H2 Determination

H2(a) Logistics and distribution are economically material in cement pricing: SUPPORTED.

H2(b) Higher freight cost per tonne is strongly associated with higher cement ASP across the current clean producer sample: NOT SUPPORTED by the pilot.

H2(c) Nigeria's high cement price can presently be explained primarily by logistics: NOT ESTABLISHED.

H2(d) Nigeria faces a potentially significant logistics burden that should remain in the integrated price model: SUPPORTED DESCRIPTIVELY.

Overall H2 determination: PARTIALLY SUPPORTED. Logistics is a major cost block, but current statistical evidence does not support treating freight cost alone as the principal explanation of cement-price variation.

11. Limitations and Controls

The clean statistical pilot has N=4 and is confined to India.

Selling/distribution expenses can include non-freight items and are not automatically comparable with direct freight-and-forwarding costs.

Company revenue per tonne is used as an ASP proxy where direct ASP is unavailable.

Lead distance and modal share are incomplete for several producers.

Fuel price must not be converted directly into freight cost without truck efficiency and route information.

Nigeria producer disclosures are substantial but not uniform enough to derive a clean pure freight cost/t for all three major firms.

Correlation measures association, not causation.

12. Policy Relevance and Carry-Forward to H3-H7

H2 establishes that logistics belongs in the legitimate-cost side of the final cement-price model. It also shows why a high logistics burden should not automatically be equated with a high final price:

firms can have similar freight burdens but materially different ASPs. The unexplained portion of price must therefore be passed to the subsequent hypotheses rather than attributed prematurely to logistics or market power.

The integrated model will ultimately compare Nigeria with international mean and median cost structures and estimate the residual price component only after raw materials, logistics, energy, efficiency, import barriers and utilisation are accounted for.

13. Source Note

Ambuja Cements - FY2023-24 investor/annual reporting.

Nuvoco Vistas Corp Ltd - FY2023-24 Management Discussion and Analysis.

Shree Cement - Annual Report 2023-24.

Dalmia Bharat - FY2024 comparative logistics disclosures.

Lafarge Africa Plc - FY2024 Annual Report and Accounts.

Dangote Cement Plc - FY2024 Annual Report.

BUA Cement Plc - FY2024/FY2025 investor reporting with FY2024 comparatives.

Stage 7 Clean Registry - fuel and logistics evidence.

GLOBAL CEMENT PRICING POLICY STUDY

FINAL H3 REPORT

Energy Cost Hypothesis

Executive Finding

H3 is SUPPORTED, but energy cost is not a sufficient standalone explanation of cement price. In a clean same-quarter Q4 FY2024 India producer panel (N=6), power-and-fuel cost per tonne has a moderate positive relationship with cement ASP: Pearson $r = 0.564$, Spearman $\rho = 0.543$, and $R\text{-squared} = 0.318$. The simple one-variable model therefore describes about 31.8% of observed price dispersion. Energy itself is economically material: power and fuel averaged 24.9% of ASP, with a median of 25.3%.

For Nigeria, audited producer disclosures confirm substantial energy exposure. Dangote's Nigeria-company fuel and power cost is about 15.5% of Nigeria-segment revenue; Lafarge's disclosed fuel, power and electrical expenses are about 24.2% of revenue; and BUA's 9M 2024 energy cost is about 33.7% of revenue. These ratios have different accounting and period boundaries and are therefore descriptive, not a pooled regression.

1. Hypothesis and Test

H3: Differences in cement prices are significantly associated with differences in thermal and electrical energy costs.

The principal producer test uses Power & Fuel Cost per tonne as the explanatory variable and cement realisation/ASP per tonne as the response variable. Q4 FY2024 India is used because six major producers can be placed on a common currency, common quarter and broadly comparable industry basis.

2. Validated Q4 FY2024 India Dataset

Producer	Power & fuel INR/t	ASP INR/t	Energy share of ASP
UltraTech	1,420	5,170	27.5%
Ambuja Cements	1,219	5,371	22.7%
Nuvoco Vistas	1,484	5,014	29.6%
Dalmia Bharat	898	4,894	18.3%
Shree Cement	1,520	5,353	28.4%
Ramco Cements	1,127	4,869	23.1%

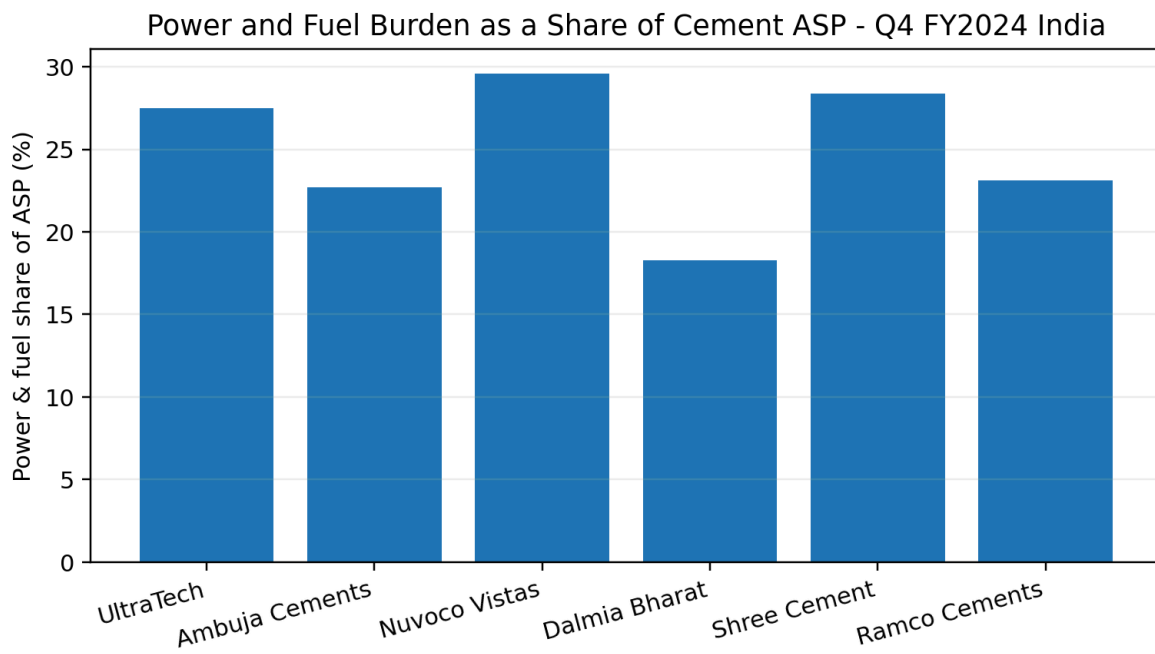


Figure H3-1. Power and fuel burden as a share of cement ASP - Q4 FY2024 India.

3. Statistical Results

Measure	Result	Plain-English interpretation
N	6	Six same-quarter producer observations. This meets the minimum N=6 screening threshold, but remains a small sample.
Pearson r	0.564	Moderate positive linear association: higher energy cost tends to occur with higher ASP, but the relationship is far from one-for-one.
Spearman rho	0.543	Moderate positive rank association: producers with higher energy cost generally, though not perfectly, rank toward higher prices.
R-squared	0.318	About 31.8% of observed ASP variation is described by energy cost alone; about 68.2% remains outside this one-variable model.
Mean energy share	24.9%	On average, about one-quarter of realised cement price is represented by power and fuel cost.
Median energy share	25.3%	The middle producer carries an energy burden of about one-quarter of ASP.

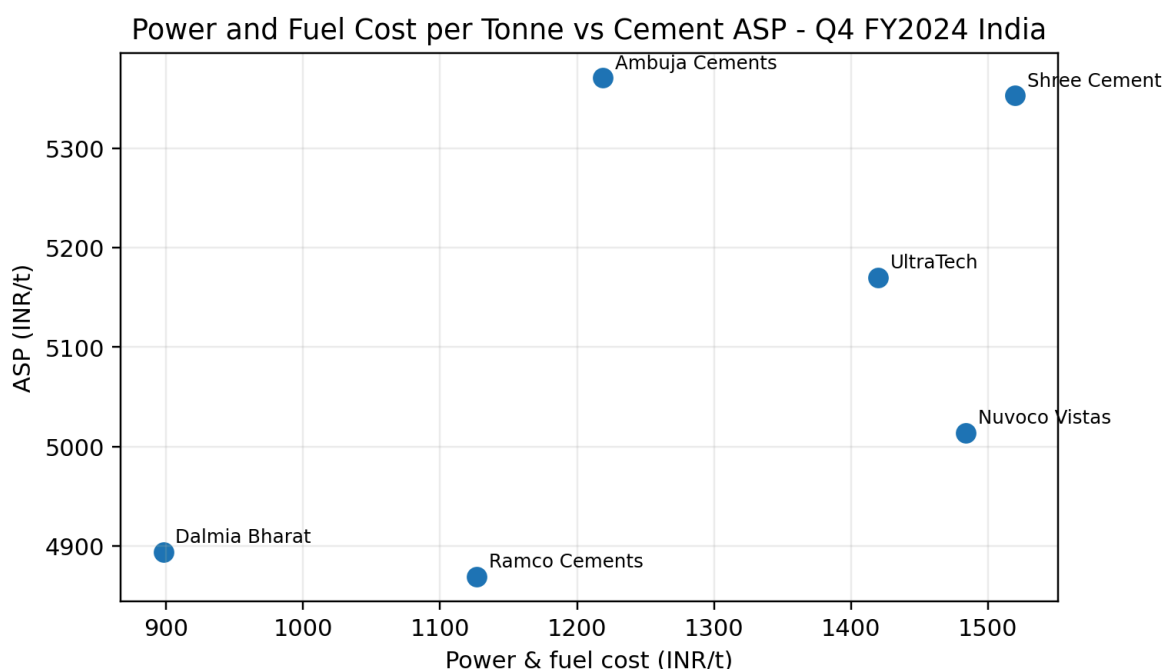


Figure H3-2. Power and fuel cost per tonne versus cement ASP - Q4 FY2024 India.

4. Nigeria Application

Producer	Period	Energy cost	Revenue	Energy cost / revenue
Dangote Cement (Nigeria company basis)	FY2024	N339.4bn	N2192.7bn	15.5%
Lafarge Africa	FY2024	N168.7bn	N696.8bn	24.2%
BUA Cement	9M 2024	N196.7bn	N583.4bn	33.7%

The Nigeria evidence is stronger than the earlier starter registry suggested. Dangote's 2024 annual report directly validates energy intensity at 784 kcal/kg and reports fuel and power consumed in the company accounts. Lafarge directly reports 110.7 kWh/t electrical consumption in 2024, a 6.6% improvement from 119.1 kWh/t, alongside a 2.2% improvement in thermal energy consumption. BUA's 2024 energy disclosure reports specific heat consumption of 3,362 MJ/t clinker, while IFC project documentation provides a 98 kWh/t cement design electricity benchmark for its expansion.

5. What the Statistics Mean for Nigeria

The international test establishes a credible cost-to-price transmission channel: energy cost is large enough and sufficiently correlated with ASP to be retained as a substantive explanation. Nigeria also displays substantial producer energy expenditure and exposure to gas, coal, LPFO, diesel, captive generation and grid electricity. Accordingly, it would be statistically and economically incorrect to treat Nigeria's cement price as independent of energy cost.

However, R-squared of about 0.318 is equally important. Energy cost alone does not explain most producer price differences. Approximately 68% of the observed cross-producer ASP variation in the India screening panel lies outside this single-variable regression. That residual is not automatically a cartel premium: it must be tested against raw materials, logistics, capacity utilisation, taxation/trade barriers, market concentration and other H4-H7 variables.

6. Efficiency Benchmark

Physical efficiency also matters independently of fuel price. UltraTech's Vikram Cement Works reports FY2024-25 thermal energy of 698 kcal/kg clinker (about 2.92 GJ/t clinker) and electrical energy of 72.34 kWh/t cement. Dangote reports 784 kcal/kg (about 3.28 GJ/t on the reported group basis), while BUA reports 3.362 GJ/t clinker for 2024. These figures indicate that the cost impact of energy is a function of both the price of energy and the amount of energy required per tonne.

7. H3 Determination

H3-A - Energy is a material component of cement production cost: SUPPORTED.

H3-B - Higher producer energy cost/t is positively associated with higher cement ASP: SUPPORTED at moderate strength in the N=6 Q4 FY2024 India panel.

H3-C - Energy cost alone explains cement price dispersion: NOT SUPPORTED.

H3-D - Nigeria has material energy-cost exposure capable of contributing significantly to cement price: SUPPORTED.

Overall H3: SUPPORTED, WITH QUALIFICATION. Energy is a genuine and quantitatively important price driver, but it is not sufficient to explain Nigeria's cement-price position by itself.

8. Data Controls and Limitations

The core regression uses a same-country, same-quarter N=6 panel to reduce currency and macroeconomic comparability problems.

Some India observations combine power and fuel rather than separating thermal and electrical components; this is appropriate for the principal total-energy-cost test.

Nigeria producer ratios are not pooled statistically because accounting boundaries and reporting periods differ.

BUA's 33.7% ratio is based on 9M 2024, while its physical thermal KPI is full-year 2024.

Grid tariffs are not assumed to equal cement-plant effective electricity cost where captive generation is used.

Correlation does not establish causation; H3 is interpreted jointly with cost magnitude, physical energy intensity and subsequent hypotheses.

9. Sources Validated for H3

Dangote Cement Plc, Annual Report and Accounts 2024.

Lafarge Africa Plc, Annual Report and Accounts 2024.

BUA Cement Plc, 2024 Annual Report; 9M 2024 financial statements.

IFC Environmental and Social Review Summary - BUA Cement P1.

UltraTech Cement - Q4 FY2024 results presentation and plant environmental disclosures.

Nuvoco Vistas - Q4 FY2024 investor presentation / annual report.

Shree Cement, Dalmia Bharat and Ramco Cements - Q4 FY2024 company-data research extracts used for same-quarter per-tonne comparison.

APPENDIX H4

PROCESS EFFICIENCY, ENERGY INTENSITY AND COST SENSITIVITY ANALYSIS

H4.1 Research Question

H4 examines whether differences in cement-process efficiency, particularly clinker thermal-energy intensity, provide a material explanation for the observed cement-price premium in Nigeria.

The analysis focuses on specific heat consumption in clinker production, comparison with a Best Available Technology (BAT) benchmark, selected international plant observations, waste-heat recovery and alternative-fuel evidence, and the implied thermal-cost consequences of observed efficiency gaps.

Are Nigerian cement plants sufficiently less thermally efficient than relevant modern-process benchmarks to explain a substantial part of the observed domestic cement-price premium?

H4.2 Analytical Basis and Benchmark

The analysis adopts 3,000 kJ/kg clinker as the BAT technical reference for modern dry-process clinker production, based on the VDZ technical model contained in the H4 evidence register.

Producer-reported thermal intensities stated in kcal/kg clinker were converted to kJ/kg clinker for comparison on a common basis.

Efficiency Gap (%) = (Observed Thermal Intensity - BAT Thermal Intensity) / BAT Thermal Intensity x 100

A positive result represents thermal-energy consumption above the BAT benchmark. A negative result represents reported performance below the selected benchmark.

The benchmark is a technical reference, not a market observation or an assumption that every plant should continuously operate at exactly 3,000 kJ/kg clinker.

H4.3 Nigerian Producer Evidence

Dangote Cement Group

Dangote Cement reported 2024 thermal intensity of 784 kcal/kg clinker = approximately 3,282 kJ/kg clinker.

Against the 3,000 kJ/kg BAT reference, this represents an efficiency gap of approximately 9.4% above BAT.

The evidence register also records a thermal-intensity improvement from 819 kcal/kg to 784 kcal/kg, equivalent to approximately 4.2% improvement.

The producer evidence refers to process optimisation, alternative-fuel utilisation and waste-heat -recovery measures within its efficiency strategy. Thermal substitution rate was reported at 9.8% in the underlying evidence.

The result indicates measurable remaining efficiency headroom, but the observed specific heat consumption remains within the broad order of magnitude associated with modern dry-process cement production.

BUA Cement Group

BUA's reported 2024 specific heat consumption was 3,362 kJ/kg clinker.

This represents approximately 12.1% above the 3,000 kJ/kg BAT reference.

The underlying evidence identifies modern dry-process lines, captive power and energy-management/recovery initiatives.

The reported fuel mix was approximately 60% gas, 36% coal, 2% LPFO and 2% diesel.

BUA therefore also demonstrates measurable thermal-efficiency headroom relative to the selected BAT reference, but the result does not indicate a fundamentally obsolete clinker-production process.

H4.4 International Comparator Evidence

Selected Indian integrated cement plants and producers provide useful operational comparators.

Producer / Plant	Period	Thermal Intensity	kJ/kg Clinker	Gap vs 3,000 kJ/kg BAT
Dangote Cement Group	2024	784 kcal/kg	3,282	+9.4%
BUA Cement Group	2024	3,362 kJ/kg	3,362	+12.1%
UltraTech Vikram Cement Works	FY2024-25	698 kcal/kg	2,922	-2.6%
Ambuja Cements	FY2023-24	752 kcal/kg	3,148	+4.9%
UltraTech Maihar Line 1	Apr-Sep FY2024-25	758.43 kcal/kg	3,175	+5.8%
UltraTech Maihar Line 2	Apr-Sep FY2024-25	757.45 kcal/kg	3,171	+5.7%
UltraTech Maihar Line 3	Apr-Sep FY2024-25	771.94 kcal/kg	3,232	+7.7%
VDZ BAT Reference	Technical benchmark	-	3,000	0.0%

The comparator evidence establishes a range rather than a single universal operating point.

UltraTech Vikram performs slightly better than the selected 3,000 kJ/kg reference, while Ambuja and the three Maihar lines operate approximately 5-8% above it. The Nigerian observations are higher, at approximately 9-12% above BAT.

The evidence therefore supports the existence of a thermal-efficiency differential, but also demonstrates that the Nigerian observations remain within the general range of modern dry-process operation rather than representing an exceptional order of thermal inefficiency.

H4.5 Efficiency-Gap Assessment

The observed excess thermal-energy requirement relative to the 3,000 kJ/kg benchmark is:

Dangote Cement: $3,282 - 3,000 =$ approximately 282 MJ/t clinker

BUA Cement: $3,362 - 3,000 =$ approximately 362 MJ/t clinker

Ambuja: approximately 148 MJ/t clinker above BAT

UltraTech Vikram: approximately 78 MJ/t clinker below the selected BAT reference

The Nigerian producer evidence therefore establishes technically meaningful scope for further efficiency improvement.

However, an energy-intensity difference must be converted into monetary cost before

determining whether it can materially explain cement-price differences.

H4.6 Thermal-Cost Sensitivity

Because actual plant fuel-contract prices are not uniformly established in the H4 evidence register, the analysis applies illustrative fuel-cost sensitivities of US\$3/GJ, US\$6/GJ, US\$9/GJ and US\$12/GJ. These are sensitivity assumptions and not reported plant contract prices.

Fuel Cost	Dangote: 282 MJ/t Gap	BUA: 362 MJ/t Gap	Ambuja: 148 MJ/t Gap
US\$3/GJ	US\$0.85/t	US\$1.09/t	US\$0.45/t
US\$6/GJ	US\$1.69/t	US\$2.17/t	US\$0.89/t
US\$9/GJ	US\$2.54/t	US\$3.26/t	US\$1.34/t
US\$12/GJ	US\$3.39/t	US\$4.34/t	US\$1.78/t

The sensitivity analysis is important to the H4 finding.

Even at an illustrative fuel cost of US\$12/GJ, the calculated excess thermal cost relative to BAT is approximately US\$3.39/t clinker for Dangote and US\$4.34/t clinker for BUA.

Thermal efficiency therefore has a genuine cost consequence, but the magnitude calculated from the available observations does not support thermal inefficiency alone as the principal explanation for the much broader cement-price question investigated in the study.

H4.7 Waste-Heat Recovery and Alternative Fuels

The evidence register identifies waste-heat recovery, process optimisation, renewable energy, alternative fuels and other energy-management measures among comparator and Nigerian producers.

Examples include process optimisation and alternative-fuel utilisation at Dangote; energy-management and recovery initiatives associated with BUA's modern dry-process operations; WHRS and renewable-power measures at Ambuja; WHRS and mill/drive optimisation at UltraTech Maihar; and plant-specific energy optimisation at UltraTech Vikram.

These technologies can reduce effective energy costs and improve overall plant efficiency.

However, the available Nigerian evidence does not provide sufficiently uniform, source-clean WHR capacity data across producers to support a reliable quantitative comparison of installed recovery MW, recovered energy per tonne or resulting unit-cost reduction.

Accordingly, the H4 finding on waste-heat recovery is: SUPPORTED DESCRIPTIVELY rather than quantitatively established across the Nigerian industry.

H4.8 Interpretation

Three conclusions emerge from the process-efficiency evidence.

First, Nigerian producers exhibit measurable efficiency headroom. The observed Dangote and BUA thermal intensities are approximately 9% and 12% above the selected BAT reference respectively.

Second, the comparator evidence demonstrates that modern integrated plants themselves operate across a range. Selected Indian observations extend from approximately 2.6% below the benchmark to approximately 7.7% above it.

Third, translating the Nigerian thermal gap into monetary terms materially changes its interpretation. Even under the upper illustrative fuel-cost sensitivity of US\$12/GJ, the calculated

excess thermal cost is approximately US\$3-US\$4/t clinker for the Nigerian observations.

The evidence therefore supports continued investment in process optimisation, heat recovery, alternative fuels and energy efficiency because these measures can improve competitiveness and margins.

It does not, however, establish a thermal-efficiency penalty of sufficient magnitude to explain the wider Nigerian cement-price premium by itself.

H4.9 Supplementary Capacity Utilisation–Efficiency Test

The preceding H4 analysis benchmarks Nigerian clinker thermal intensity against BAT and selected efficient plants. A supplementary test was undertaken to examine a separate question raised by H2: whether low utilisation of installed productive capacity is associated with weaker process-efficiency performance and higher unit-cost exposure.

The operating variable is capacity utilisation, defined as actual production divided by installed capacity. The efficiency variable is specific thermal energy consumption per tonne of clinker. Lower thermal intensity indicates better kiln thermal efficiency.

The preferred design is a same-year country-by-country comparison. Public reporting, however, is not uniform: many jurisdictions publish capacity and production but not national clinker thermal intensity, while some publish energy intensity without a directly comparable capacity-utilisation series. The test therefore uses only observations for which the definitions are sufficiently transparent and treats mixed-coverage observations as indicative rather than as a formal causal regression.

Country / observation	Period	Utilisation %	Thermal intensity GJ/t clinker	Coverage note
Nigeria*	2024	56.4	3.362	BUA Cement national-producer observation; modern Nigerian dry-process proxy
India	FY2024	~69	~3.06	National industry capacity/production; national average thermal SEC 731 kcal/kg clinker
Vietnam	2024	80	~3.14–3.35	National industry utilisation; industry thermal range 750–800 kcal/kg clinker
Indonesiat	2024	68.1	~3.34	SIG major-producer operating point; 798 kcal/kg clinker; not a national thermal average

* Nigeria is represented by BUA because its 2024 report discloses both utilisation and clinker thermal intensity on a common basis. Dangote provides a separate Nigerian thermal observation of about 3.282 GJ/t clinker, retained in H4.3, but a directly matched Nigeria-only utilisation figure on the same disclosed basis was not used to manufacture a national average.

† Indonesia is retained as a large-industry proxy observation from Semen Indonesia (SIG), which reports both 68.1% utilisation and 798 kcal/kg clinker for 2024. It is not presented as the Indonesian national thermal average.

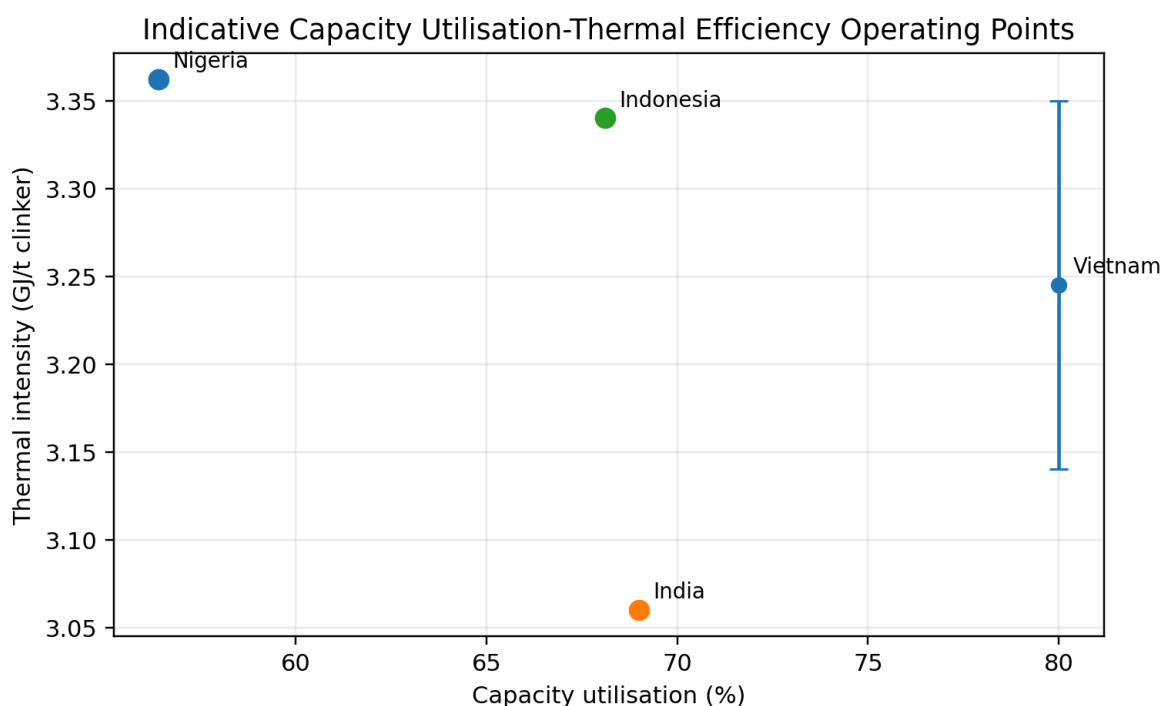


Figure H4-1 – Indicative Capacity Utilisation–Thermal Efficiency Operating Points

H4.10 Interpretation of the Utilisation Test

The indicative operating points do not support a simple proposition that higher utilisation automatically produces lower clinker thermal intensity. India combines relatively high utilisation with very strong thermal performance, which is consistent with a modern, highly optimised kiln fleet. Vietnam operates at still higher utilisation, but its reported thermal range overlaps Nigerian and Indonesian observations. Indonesia’s major-producer proxy operates near India’s utilisation level but at a materially higher thermal intensity.

The result is economically important because capacity utilisation and kiln thermal efficiency are related but distinct. Thermal intensity is strongly influenced by kiln technology, line age, raw-material characteristics, fuel mix, maintenance, process control, start-stop frequency, alternative -fuel substitution and waste-heat arrangements. Capacity utilisation can affect unit economics through operating stability and, more importantly, through the spreading of fixed costs over tonnes produced, but it should not be treated as the sole determinant of thermal efficiency.

For Nigeria, the stronger conclusion is therefore not that under-utilisation mechanically causes the observed thermal gap. Rather, substantial unused installed capacity creates a separate unit-cost disadvantage even where the kilns themselves remain within the broad modern dry-process efficiency range. Lower dispatch means depreciation, fixed labour, maintenance readiness, captive-power infrastructure, quarry development, administration and other fixed or semi-fixed costs are recovered over fewer tonnes.

This reinforces the H2 finding. Spare capacity is not merely evidence against a physical national cement shortage; persistent low utilisation can itself weaken cost efficiency at the enterprise and industry level. Policies that expand efficient dispatch, domestic demand, exports and competitive market access can therefore improve unit economics without requiring additional protective insulation.

H4.11 Scale, Utilisation and the Nigerian Efficiency Position

The supplementary evidence distinguishes three concepts that should not be conflated: production scale, capacity utilisation and process efficiency. Absolute national tonnage can create economies in procurement, logistics, engineering capability and technology diffusion; utilisation determines how intensively installed assets are employed; and thermal intensity measures the kiln energy required per tonne of clinker.

Nigeria possesses substantial installed capacity but comparatively low utilisation. The available Nigerian thermal observations—approximately 3.282 GJ/t clinker for Dangote and 3.362 GJ/t clinker for BUA—show measurable headroom against the 3.0 GJ/t BAT reference, but they do not indicate obsolete kiln technology. The larger economic concern is therefore the combination of modern productive assets with significant unused capacity.

On the evidence available, H4 does not assign a causal coefficient stating that each percentage-point increase in utilisation will reduce thermal intensity by a fixed amount. The cross-country public dataset is not sufficiently harmonised for such precision. The evidence does, however, support treating capacity utilisation as a distinct cost-efficiency variable in the integrated H2-H4 interpretation and as a relevant variable for the residual-causation agenda in H7/H8.

H4.12 Supplementary Finding

SUPPLEMENTARY UTILISATION FINDING: SUPPORTED WITH QUALIFICATION.

Low utilisation of installed capacity is economically relevant to Nigerian cement unit costs because fixed and semi-fixed production assets are spread over fewer tonnes. The available cross-country/major-producer operating points do not establish a simple one-variable thermal-efficiency curve in which utilisation alone determines clinker heat consumption. Technology and operating configuration remain material independent drivers.

The supplementary test therefore strengthens, rather than replaces, the existing H4 conclusion: Nigeria has measurable process-efficiency headroom, but kiln inefficiency alone is insufficient to explain the domestic cement-price premium. Under-utilisation adds a separate unit-cost and competitiveness penalty and strengthens the case for greater dispatch, market contestability and productive use of existing capacity.

H4.13 H4 Finding

H4 Process-Efficiency Finding: PARTIALLY SUPPORTED

The hypothesis that process efficiency contributes to differences in cement production cost is supported.

Nigeria shows measurable thermal-efficiency headroom relative to the selected BAT benchmark and to some international comparator observations.

However, the observed specific heat consumption remains within the broad order of magnitude of modern dry-process cement production.

Waste-Heat-Recovery Finding: SUPPORTED DESCRIPTIVELY

Waste-heat recovery and process-energy recovery can reduce effective energy cost, and relevant initiatives are identified in the evidence base.

Current Nigerian WHR capacity information is not sufficiently uniform and source-clean to support a complete quantitative producer comparison.

H4 Overall Finding: PARTIALLY SUPPORTED

Process efficiency explains part of observed energy-cost differences, but the available evidence does not support treating Nigerian kiln inefficiency as the principal cause of the domestic cement-price premium.

H4.14 Implication for the Main Policy Study

H4 narrows the range of plausible explanations for Nigeria's cement-price outcome.

Energy efficiency matters. Nigerian producers have identifiable scope to reduce thermal-energy intensity, expand heat recovery and improve fuel substitution. Such improvements should be encouraged because they strengthen domestic competitiveness and can reduce production cost.

But the evidence does not support a policy interpretation in which the Nigerian cement-price problem is principally attributed to inefficient kiln technology.

The H4 result must therefore be read together with the study's other evidence streams covering capacity and utilisation, market concentration and entry, producer cost and profitability, trade contestability, macroeconomic shock transmission and residual-price persistence.

The appropriate policy implication is consequently twofold: continue to encourage industrial efficiency improvements while separately addressing the structural and competitive conditions governing price formation in the Nigerian cement market.

H4 Supplementary Data Sources

BUA Cement Plc, Annual Report 2024: 56.4% capacity utilisation; 3,362 MJ/t clinker thermal intensity.

NITI Aayog, Roadmap for Cement Sector Decarbonisation (2026): India average thermal SEC about 731 kcal/kg clinker; FY2024 industry capacity/production evidence indicates about 69% utilisation.

Vietnam cement-industry reporting (2024/2025): 2024 overall utilisation about 80%; clinker thermal consumption about 750–800 kcal/kg clinker.

PT Semen Indonesia (SIG), Annual Report 2024: 68.1% utilisation; 798 kcal/kg clinker.

Dangote Cement Plc, Annual Report 2024: Nigerian/group thermal observation retained in H4.3 at about 784 kcal/kg clinker.

IEA Energy Efficiency 2017: international BAT reference and historical country thermal-intensity context.

H5 REPORT

Import Contestability, Border Protection and Cement Price Formation in Nigeria

Global Cement Pricing & Policy Study | Validated Evidence and Counterfactual Scenario Test

Executive Finding

H5 is supported in a qualified economic sense, but not as a claim that import liberalisation alone will automatically produce cheap retail cement. The evidence establishes a highly protected external-competition regime: ordinary bagged cement is prohibited for import; 2024 nominal protection on clinker was 50% and on other non-white cement 50%; and Nigeria simultaneously exported substantial clinker and finished cement. Counterfactual import-parity tests show that direct finished-cement imports are generally not competitive with the Nigerian producer ASP once freight, border charges and downstream costs are included. The more credible competitive route is imported clinker followed by Nigerian grinding and bagging, especially when border protection is reduced.

1. H5 Test Statement

Working H5: Nigeria's cement import restrictions and high border protection materially reduce external market contestability and can sustain domestic prices above the level that would prevail under a more open, managed-import regime.

Null interpretation (H0): changing the import-access regime and border protection would not materially alter the competitive price benchmark available to Nigerian buyers. Alternative interpretation (H5): the current regime raises or removes the external competitive benchmark sufficiently to weaken price discipline on domestic producers.

2. Validation of Core Evidence

Bagged cement import access	Nigeria Trade Portal lists bagged cement, HS 2523.2900.00, as prohibited for import.	Verified primary government source.
Clinker tariff	WTO Nigeria Trade Policy Review: 50% nominal tariff in 2024 = 10% customs duty + 40% IAT.	Verified.
Other non-white cement tariff	50% nominal tariff in 2024 = 20% customs duty + 30% IAT.	Verified.
VAT	7.5% applies to cement/clinker imports.	Verified; kept separate from the core tariff experiment.
Nigeria clinker exports, 2024	853,329 t; trade value US\$38.906m.	Verified WITS/UN Comtrade.
Nigeria clinker imports, 2024	Nigeria-reporter data: 37 kg; mirror exports to Nigeria: about 13.9 t from Türkiye/China.	Commercially negligible; source asymmetry recorded.
Nigeria Portland cement exports, 2024	315,432 t; US\$18.097m.	Verified.
Nigeria Portland cement imports, 2024	Nigeria-reporter data: 44,231 t, overwhelmingly from Niger; mirror data are higher (~81.9 kt).	Important correction: finished-cement imports are not zero. Reporter/mirror conflict must be retained.
Dangote Nigeria 2024 cement price	US\$73/t average cement price; Nigeria total volume 17.683 Mt.	Verified company investor presentation.
Port terminal charges	Josepdam 2024 tariff shows bulk direct delivery charges in the hundreds of naira/t, excluding VAT; storage escalates after free days.	Validated component only; full Nigerian port/logistics stack is broader.

3. Price-Stage Control

The study does not treat ASP, ex-factory price, export unit value, landed import parity and retail price as interchangeable. ASP means average selling price received by a producer across its reported sales mix. It may include different destinations, customers and delivery arrangements. An export unit value is trade value divided by physical quantity and is used here as a revealed cross-border benchmark, not as a retail quotation.

Dangote Nigeria average cement price	73.00	3.65	Producer ASP benchmark
Nigeria Portland cement export - world	57.37	2.87	Revealed Nigerian export unit value
Nigeria Portland cement export - Togo	58.85	2.94	Regional Nigerian export benchmark
Nigeria clinker export - Ghana	42.44	2.12	Revealed Nigerian clinker export benchmark
Türkiye cement export - Ghana	47.25	2.36	Low external finished-cement benchmark
Pakistan clinker export - Ghana	29.78	1.49	Low external clinker benchmark
Egypt clinker export - Ghana	66.56	3.33	Large-volume North African clinker benchmark

4. Scenario Design

A - Existing regime	Bagged cement prohibited; protected clinker/other cement	50%	Current high-protection benchmark.
B - 50% reform	Ban lifted for test; routes opened	25%	Half of current 50% nominal protection.
C - Managed competition	Bagged, jumbo, bulk and clinker opened	20%	Moderate protective tariff.
D1 - Open competition	All tested routes open	10%	Low protective tariff.
D2 - Free-entry benchmark	All tested routes open	0%	Analytical floor, not a policy recommendation.

The legal status of 1-tonne jumbo bags must be confirmed before treating them as a distinct permissible route. The prohibition wording is 'bagged cement'; the study therefore does not assume that a larger bag automatically escapes the restriction.

5. Counterfactual Import-Parity Test

Because a single authoritative 2024 freight quotation for every origin-to-Nigeria route is not publicly observable, H5 uses sensitivity analysis rather than presenting one freight assumption as fact. The base screen uses US\$25/t ocean freight, 0.5% marine insurance, a conservative US\$1.50/t all-in port/terminal allowance, US\$10/t inland movement and a 10% downstream margin. The freight input is stress-tested over US\$15-40/t. Local grinding/bagging allowances remain engineering assumptions and are identified as such.

Türkiye finished cement - A 50%	132.25	10,243	Not competitive with US\$73/t producer ASP; bagged route also prohibited.
Türkiye finished cement - B 25%	112.32	8,699	Near upper 2024 retail range, but above producer ASP.
Türkiye finished cement - C 20%	108.33	8,390	Could discipline retail at high-price periods; not producer-ASP competitive.
Türkiye finished cement - D1 10%	100.36	7,773	Potential retail contestability; still above US\$73/t ASP.
Türkiye finished cement - D2 0%	92.39	7,155	Requires very low protection and efficient logistics to approach retail benchmark.
Pakistan clinker + Nigerian grinding - A 50%	99.08	7,674	Potentially retail-contestable even at current tariff under base engineering assumptions.
Pakistan clinker + Nigerian grinding - B 25%	87.00	6,738	Strong retail contestability.
Pakistan clinker + Nigerian grinding - C 20%	84.58	6,551	Strong retail contestability.
Pakistan clinker + Nigerian grinding - D1 10%	79.75	6,176	Approaches domestic producer-price discipline after local conversion.
Pakistan clinker + Nigerian grinding - D2 0%	74.91	5,802	Approximately converges toward the US\$73/t producer ASP benchmark.

6. What the Numbers Mean for a Non-Technical Reader

The direct import of finished cement has to carry the full weight of ocean freight, Nigerian border charges, port costs, inland transport and dealer margins. That makes it difficult for imported finished cement to beat a US\$73/t producer ASP unless tariffs are very low and logistics are unusually efficient. Clinker is different: it is an intermediate product. A Nigerian grinder can import the lower-value clinker, add gypsum/additives, grind and bag locally, and therefore preserve Nigerian industrial activity while introducing an external price benchmark.

This is important for H5. The strongest reform case is not 'flood Nigeria with imported 50kg cement'. It is to create a credible contestable margin - particularly through clinker and controlled bulk routes - so that domestic producers know that excessive price-cost divergence can attract alternative supply.

7. Statistical and Economic Interpretation

Trade asymmetry	Clinker exports of 853 kt versus effectively zero commercial clinker imports.	Nigeria participates in the international clinker market mainly as a seller, not as a buyer.
Price-gap test	Compare domestic ASP/retail price with landed counterfactual under A-D.	If the alternative supply price falls below the domestic market price, external competition becomes credible.

Scenario elasticity	Direction and size of price change as protection moves 50% → 25% → 20% → 10% → 0%.	Shows how strongly border policy changes the competitive benchmark.
Robustness / sensitivity	Repeat with freight, inland haulage, conversion cost and margin at low/base/high values.	A result is stronger if it survives reasonable changes in assumptions.
R ² / rho	Not the principal H5 statistic.	H5 is a policy counterfactual with few regime observations; correlation coefficients would create false precision. R ² /rho remain appropriate elsewhere when repeated paired observations exist.

8. H5 Decision

Decision: SUPPORT H5, WITH QUALIFICATION. Nigeria's current cement trade regime demonstrably reduces external contestability through an outright bagged-cement prohibition and unusually high nominal protection on clinker and other cement. The observed export capability of Nigerian producers confirms that the industry is internationally connected; the near-absence of clinker imports is therefore not evidence that clinker is non-tradable. Regional markets such as Ghana import clinker at very large scale from multiple origins.

However, the analysis does not establish that the entire Nigerian retail-price premium is caused by import restrictions. Energy, FX, inland logistics, financing, taxes, plant utilisation, distribution structure and demand conditions also matter. H5 establishes a competition-channel result: the existing regime removes or raises the cost of the external benchmark that would otherwise constrain domestic pricing.

9. Policy Interpretation for the Study

The evidence favours a staged contestability reform rather than an immediate zero-tariff recommendation. A technically defensible option for subsequent policy modelling is: retain quality standards; remove the blanket barrier for controlled import channels; permit clinker and bulk/jumbo routes subject to transparent licensing and standards; reduce effective protection toward a 20% managed-competition band; and monitor domestic price, capacity utilisation, investment and employment before moving toward 10% or lower.

This formulation tests whether competition can discipline prices while preserving local grinding, bagging, distribution and manufacturing investment. It also provides a measurable trigger: if domestic producer/retail prices remain competitive with landed alternatives, imports need not occur in large volume; the possibility of entry itself supplies price discipline.

10. Limitations and Data Controls

WITS reporter and mirror trade statistics differ for Nigerian finished-cement imports. Both must remain in the master registry; neither should be silently substituted for the other.

Trade unit values are not contractual FOB quotations and may reflect product mix, timing, destination and customs valuation.

Ocean freight remains the largest unvalidated route-specific variable. Final policy simulation should obtain at least three contemporaneous charter/shipper quotations for Mediterranean/North Africa-to-Lagos and South Asia-to-Lagos routes. Local clinker grinding, gypsum/additive, bagging and inland haulage costs are engineering screening assumptions until Nigerian commercial quotations are obtained.

The 7.5% VAT is a fiscal layer and should be applied consistently in the final consumer-price model; recoverability depends on importer/business tax treatment and should not be confused with protective tariff.

Sources Used for Validation

Nigeria Trade Portal - Prohibited Items List: <https://trade.gov.ng/en/custom-pages/prohibited-items-list-during-import>

WTO Trade Policy Review: Nigeria, WT/TPR/S/462: https://www.wto.org/english/tratop_e/tpr_e/s462_e.pdf

WITS - Nigeria Portland cement exports, 2024:

<https://wits.worldbank.org/trade/comtrade/en/country/NGA/year/2024/tradeflow/Exports/partner/ALL/product/252329>

WITS - Nigeria Portland cement imports, 2024:

<https://wits.worldbank.org/trade/comtrade/en/country/NGA/year/2024/tradeflow/Imports/partner/ALL/product/252329>

WITS - Nigeria clinker exports, 2024:

<https://wits.worldbank.org/trade/comtrade/en/country/NGA/year/2024/tradeflow/Exports/partner/ALL/product/252310>

WITS - Nigeria clinker imports, 2024:

<https://wits.worldbank.org/trade/comtrade/en/country/NGA/year/2024/tradeflow/Imports/partner/ALL/product/252310>

WITS - clinker exports to Ghana, 2024:

<https://wits.worldbank.org/trade/comtrade/en/country/ALL/year/2024/tradeflow/Exports/partner/GHA/product/252310>

Dangote Cement FY2024 Investor Presentation: <https://dangotecement-webapp.azurewebsites.net/wp-content/uploads/2025/03/Dangote-Cement-Plc-Full-Year-2024-Presentation.pdf>

Josepdam Port Services Tariff Booklet 2024: <https://www.jps.ng/wp-content/uploads/2024/03/Josepdam-Port-ServicesTariff-Booklet-2024.pdf>

IFC CIMAF West Africa project disclosure - cement grinding electricity benchmark: <https://disclosures.ifc.org/project->

[detail/ESRS/42046/cimaf-west-africa](#)

H6 FINAL REPORT

Domestic Competitive Discipline, Shock Pass-Through and Price Persistence

Nigeria Cement Market | Restrictive-Regime Test with Export-Market Comparators

Executive Finding

H6 is supported, but the evidence does not prove an explicit cartel. Nigeria combines a highly protected import regime with a concentrated domestic producer structure. The 2023–2024 FX, energy and AGO shocks were real and large enough to explain a substantial part of the initial cement-price escalation. However, the price path was not a simple mechanical pass-through: the early-2024 retail spike partially reversed while AGO remained elevated, producer prices subsequently reconverged, and major producers retained substantial profitability. The evidence is therefore consistent with weak competitive price discipline and significant pricing power in a protected market, while remaining insufficient to infer unlawful coordination without direct or adjudicated evidence.

1. Hypothesis and Decision Rule

H6: High domestic concentration, restricted external contestability and limited price competition materially influence Nigerian cement-price behaviour, causing shocks to be transmitted and elevated price levels to persist more strongly than would be expected in a more contestable cement market.

H0₆: Nigerian cement prices are adequately explained by observable production/distribution shocks and ordinary competitive responses; market structure adds no material explanatory power.

2. Nigeria: Shock Chronology and Price Response

May–Aug 2023	FX reform begins; AGO rises; macro adjustment starts	Retail benchmark about ₦4,300/bag in May; delivered/factory observations around ₦4,000–₦5,300 by Aug	Initial transmission period.
Sep–Dec 2023	NAFEM average about ₦763/\$ → ₦896/\$; AGO about ₦891 → ₦1,127/l	Retail broadly around ₦5,300–₦5,600 in available observations	Costs rising; retail response still moderate.
Jan–Mar 2024	FX jumps to about ₦1,505–₦1,511/\$; AGO rises to ₦1,341/l	Retail reaches ₦9,000–₦14,000; common snapshots give ₦9,500–₦13,000	Acute shock/overshoot. Strong cost-shock explanation plausible.
Apr–Sep 2024	AGO remains roughly ₦1,379–₦1,463/l; FX remains weak/volatile	Retail falls back toward ₦7,000–₦8,200; September average about ₦7,500	Natural experiment: cement price reverses despite high diesel/FX levels.
Q1–Apr 2025	FX relatively more stable than early-2024 shock	Retail rises from ₦9,000–₦9,500 to about ₦10,000–₦10,400	Renewed price increase requires demand, energy, margin and competitive-structure explanation.
Sep 2025	Inflation had declined for several months	Cement still about ₦10,000/bag; Dangote reported around ₦10,200	Price persistence becomes relevant.

3. Magnitude of Nigeria Price Movements

₦4,300 May-2023 → ₦9,500 Feb-2024	120.9% increase	Retail price more than doubled.

₦4,300 May-2023 → ₦12,500 Feb-2024 snapshot	190.7% increase	Peak snapshot was almost three times the May-2023 benchmark.
₦12,500 Feb-2024 → ₦7,500 Sep-2024	-40.0% change	About 40% reversal from the February high.
₦4,300 May-2023 → ₦7,500 Sep-2024	74.4% increase retained	Even after reversal, price remained materially above the pre-shock benchmark.
₦7,500 Sep-2024 → ₦10,100 Apr-2025	34.7% increase	A second upward movement occurred after the acute early-2024 FX shock.

4. Producer Economics: Did the Shock Eliminate Pricing Power?

Dangote Nigeria EBITDA margin	50.1%	49.6%	Very high margin remained almost unchanged despite severe cost shock.
Dangote Nigeria volume	16.392 Mt	17.683 Mt	+7.9% volume growth.
Dangote Nigeria revenue	₦1.298tn	₦2.193tn	+69.0% revenue growth.
Dangote implied revenue / reported tonne	≈₦79,162,945/t	≈₦124,000,170/t	Approx. +56.6% (mix/exports included; not a retail-price measure).
BUA EBITDA margin	40.6%	30.6%	Margin compressed materially as capacity expanded and costs rose.
BUA capacity utilisation	61.25%	56.4%	Substantial spare capacity remained.
Lafarge operating margin	25.2%	27.7%	Operating margin increased despite the shock.

The producer evidence is heterogeneous. BUA experienced clear margin compression, so the data do not support a simplistic claim that every producer fully passed every cost increase to customers. Dangote Nigeria, however, maintained an EBITDA margin close to 50%, while Lafarge's operating margin improved. The proper inference is therefore persistence of sector pricing power, not identical producer behaviour.

5. Price Parallelism: r , ρ and R^2

Dangote-BUA	0.926	0.857	1.000	Very strong co-movement in the small sample.
Dangote-Lafarge	0.989	0.979	1.000	Exceptionally close co-movement in the small sample.

BUA-Lafarge	0.870	0.757	1.000	Strong co-movement in the small sample.
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For a non-technical reader: Pearson r near +1 means prices tend to rise and fall together. R^2 is the square of that linear relationship: an R^2 of 0.86 means roughly 86% of the variation in one observed price series is linearly associated with variation in the other within this sample. Spearman ρ near +1 means their rank/direction is almost perfectly aligned. These statistics are descriptive only because $N=4$ common brand snapshots is too small for causal inference. High co-movement can arise from common FX, energy and transport shocks and therefore cannot, by itself, establish collusion.

6. Comparative Case 1 – Nigeria: Restrictive Import Regime

Nigeria is the restrictive-regime case. WTO's 2024 review records 50% nominal protection on clinker and on other non-white cement, plus 7.5% VAT, while the Nigeria Trade Portal lists bagged cement as prohibited for import. This sharply limits the ability of an external supplier to discipline a domestic price spike.

The market therefore absorbs a common cost shock principally through three domestic producer groups and their distribution networks. When prices overshoot, the correction mechanism is domestic demand weakness, government pressure, producer strategy and dealer competition rather than immediate import arbitrage.

7. Comparative Case 2 – Vietnam: Tradable/Export-Contestable Cement Market

Vietnam provides a useful contrasting net-exporter case because cement and clinker are actively traded, the industry carries substantial excess capacity, and domestic producers face both domestic rivalry and export-market price competition. During the 2021–2022 global coal and fuel shock, official Vietnamese sources explicitly linked cement price increases to sharply higher coal and petroleum costs.

2021 cement price increases under rising input pressure	About 3–5% reported across cement types	Small pass-through relative to Nigeria's 2023–24 retail jump.
May/June 2022 price adjustments	About VND 40,000–80,000/t in May and VND 60,000–80,000/t by late June due largely to coal	Repeated increases occurred, but remained measured in a highly competitive/oversupplied market.
2022 housing & construction-material CPI	3.11% year-on-year	Broader construction-material inflation remained modest despite fuel shock.
2022 production input-material index	6.79% year-on-year	Input inflation exceeded the broad construction-material price increase.
Exports / competition	Exports weakened sharply in 2022; producers used discounts and sought domestic sales	Excess capacity and tradability created pressure to compete for volume.
2021–2024 structural position	Large production and export volumes; inventories and excess capacity persistent	Contestability provides an outlet and a price-discipline mechanism absent from Nigeria's bagged-import regime.

This is not a controlled laboratory comparison: Vietnam has different fuel mix, freight geography, taxes, currency behaviour and demand conditions. Its value is directional. A severe coal/fuel shock did not produce a Nigerian-scale retail-price multiplication; margins of Vietnamese producers were instead reported under pressure, while domestic prices were comparatively flat over several years.

8. Supplementary Exporter – Türkiye

Türkiye is useful as a supplementary exporter response rather than a perfect 'free-import' control. During the 2018–2019 demand contraction and currency/input-cost pressure, domestic consumption fell sharply and producers redirected spare capacity to exports. Portland-cement exports rose from about 7.26 Mt in 2018 to 10.48 Mt in 2019, approximately 44.4%. By 2020 the industry association described almost 40 Mt of excess capacity. The lesson is that a tradable market can respond to domestic weakness through export reallocation, which intensifies the need to compete for domestic and foreign volume. Türkiye's very small cement imports in 2018 mean it should not be treated as a pure import-contestability experiment.

9. Cross-Case Interpretation

Import discipline	Bagged cement prohibited; high clinker/cement protection	Cement/clinker actively traded	Nigeria has a weaker external ceiling on domestic price.
Shock pass-through	Retail price more than doubled in acute phase	Official price adjustments generally measured in low single-digit percentages / VND 40k-80k per tonne	Nigeria's retail response was much larger.
Post-shock correction	Large partial reversal, but elevated price persisted	Competition, discounting and weak exports pressured domestic producers	Contestability changes who bears the shock: consumer vs producer margin.
Capacity pressure	Spare capacity exists but domestic market remains concentrated	Persistent excess capacity plus export competition	Spare capacity disciplines price more strongly when alternative entry/trade is credible.
Profitability response	Mixed; Dangote Nigeria margin near 50%, Lafarge operating margin rose, BUA compressed	Producer gross margins reported under pressure during coal shock	Nigeria shows stronger ability for leading firms to preserve profitability.

10. H6 Statistical Interpretation and Limitations

The strongest H6 evidence is not any single R^2 . It is the joint pattern: (i) a protected import regime; (ii) concentrated domestic supply; (iii) genuine common cost shocks; (iv) a retail-price overshoot followed by partial reversal even while AGO remained high; (v) strong descriptive brand-price co-movement; (vi) persistent high producer profitability for important firms; and (vii) a contrasting tradable exporter market in which similar energy shocks were associated more with margin compression and modest domestic price adjustments.

The study must nevertheless avoid false precision. Nigeria lacks a sufficiently dense, homogeneous public monthly ex-factory price series for all three producers. Retail observations differ by city, dealer and delivery basis. Accordingly, the reported r , ρ and R^2 values are screening statistics, not a cartel test. A formal finding of explicit price fixing would require direct communications, adjudicated competition evidence, or a much denser event-study/residual-price dataset.

11. Final H6 Decision

DECISION – H6 SUPPORTED, WITH STRONG QUALIFICATION. Observable cost shocks explain a substantial part of Nigeria's 2023–2024 cement-price escalation, but they do not fully explain the market outcome. The restrictive import regime materially weakens external price discipline; price movements among the major brands are strongly parallel in the available common observations; and important producers preserved substantial margins through the shock. The comparative Vietnam case shows that in a more tradable, excess-capacity cement market, large fuel/input shocks can be absorbed to a greater degree through margin pressure, discounting and competition for domestic/export volume rather than through a comparable multiplication of consumer prices.

The defensible economic conclusion is therefore that Nigeria's market structure and trade restrictions amplify the ability of domestic supply chains to retain price increases after shocks. This is evidence of weak competitive discipline and pricing power. It is not, on the present evidence, proof of an explicit cartel.

12. Implication for the Overall H1–H7 Study

H6 converges with H5. H5 showed that external contestability is deliberately restricted and that clinker/bulk reform can create a credible alternative supply benchmark. H6 shows why that benchmark matters: without it, domestic cost shocks are transmitted through a concentrated supply structure with limited external arbitrage. The policy issue is therefore not whether Nigerian producers should earn a commercial return; it is whether the market contains sufficient competitive mechanisms to force cost reductions, spare capacity and efficiency gains to reach consumers.

Validation Sources

Nigeria WTO Trade Policy Review 2024: https://www.wto.org/english/tratop_e/tpr_e/s462_e.pdf

Nigeria Trade Portal – prohibited imports: <https://trade.gov.ng/en/custom-pages/prohibited-items-list-during-import>

CBN Monetary Policy Review – monthly FX July 2023–June 2024:

<https://www.cbn.gov.ng/Out/2025/CCD/MONETARY%20POLICY%20REVIEW%20August%202024.pdf>

NBS Diesel Price Watch – September 2024: <https://www.nigerianstat.gov.ng/download/1241572>

Dangote Cement FY2024 Annual Report: <https://cement.dangote.com/wp-content/uploads/2025/05/Dangote-Cement-FY-2024-Annual-Report.pdf>

BUA Cement FY2024 Annual Report:

<https://www.buacement.com/documents/BUA%20CEMENT%202024%20Annual%20Report%20Interactive%20PDF20250710012523.pdf>

Lafarge Africa FY2024 Annual Report: <https://www.lafarge.com.ng/sites/nigeria/files/docs/lafarge-2024-annual-report-accounts.pdf>

Vietnam Government – May 2022 cement price increase: <https://baochinhphu.vn/xi-mang-dong-loat-tang-gia-102220531100932162.htm>

Vietnam National Statistics Office – 2022 CPI/input prices: <https://www.nso.gov.vn/en/data-and-statistics/2022/12/consumer-price-index-gold-and-usd-price-indexes-december-2022/>

Vietnam Ministry of Industry & Trade – cement/clinker production and trade:

<https://www.dms.gov.vn/documents/d/guest/bc-ttnd2025-tieng-anh-pdf>

TürkÇimento – Turkish Cement Sector 2023:

https://www.turkcimento.org.tr/uploads/pdf/2023_sekt%C3%B6r_kitab%C4%B13.pdf

WITS – Türkiye Portland cement exports 2018:

<https://wits.worldbank.org/trade/comtrade/en/country/TUR/year/2018/tradeflow/Exports/partner/ALL/product/252329>

WITS – Türkiye Portland cement exports 2019:

<https://wits.worldbank.org/trade/comtrade/en/country/TUR/year/2019/tradeflow/Exports/partner/ALL/product/252329>

H7 FINAL REPORT

INTEGRATED PRICE FORMATION, CONTESTABILITY AND COMPETITIVE DISCIPLINE
Incorporating Post-Shock Time-Series and AGO-Weighted Pass-Through Findings

Bridge from H6 - Finding Retained

DECISION - H6 SUPPORTED, WITH STRONG QUALIFICATION. Observable cost shocks explain a substantial part of Nigeria's 2023-2024 cement-price escalation, but they do not fully explain the market outcome. The restrictive import regime materially weakens external price discipline; price movements among the major brands are strongly parallel in the available common observations; and important producers preserved substantial margins through the shock. The comparative Vietnam case shows that in a more tradable, excess-capacity cement market, large fuel/input shocks can be absorbed to a greater degree through margin pressure, discounting and competition for domestic/export volume rather than through a comparable multiplication of consumer prices.

H7 begins where H6 ends. It asks whether the complete price path - including the 2024 correction and the 2025-2026 re-escalation - can be reconciled with legitimate costs alone, or whether trade protection, concentration, distribution structure and weak competitive discipline materially add to the explanation.

1. Final H7 Hypothesis

H7: Nigeria's cement-price outcome is not adequately explained by legitimate production, energy, foreign-exchange, taxation, financing and distribution costs alone; market concentration, restricted import contestability, capacity utilisation, distribution arrangements and the strength of competitive price discipline materially contribute to the observed price level and persistence.

H0₇: Once legitimate costs and a reasonable commercial return are accounted for, no economically material residual remains that requires a market-structure or contestability explanation.

2. H1-H7 Convergence

Evidence stream	Finding carried into H7	Weight
H1 - Raw materials	Raw-material costs matter, but the available evidence does not support raw materials as a sufficient standalone explanation of price dispersion.	Supporting
H2 - Logistics	Freight/distribution is economically large, yet cross-producer freight cost alone had very weak explanatory power for ASP in the clean pilot.	Supporting
H3 - Energy	Energy is a genuine material price driver; the clean producer panel showed moderate positive association and R ² around 0.318.	Strong legitimate-cost explanation
H4 - Process efficiency	Nigeria has efficiency headroom, but modern kiln intensities are not so poor as to explain the full price differential.	Partial
H5 - Import contestability	Bagged imports are prohibited and clinker/other cement carried high protection; controlled clinker/bulk routes can create a lower external competitive benchmark.	Strong structural explanation
H6 - Domestic competitive discipline	Concentration, spare capacity, strong price co-movement, margin persistence and restricted external entry indicate weak competitive discipline, without proving explicit cartel conduct.	Strong structural explanation
H7A - Time series	2024 price overshoot reversed while shocks stayed adverse; later prices re-escalated. 2026 had a genuine new diesel shock, so proportionality rather than a shock-free claim is the valid test.	Strong temporal evidence

3. Post-Shock Time-Series Segmentation

Phase	Price evidence	Cost/shock evidence	Research reading
I. Pre-shock / early reform - May-Aug 2023	About NGN4,300 in May; delivered/factory observations around NGN4,000-5,300 by August	FX reform begins; AGO and inflation rise	Baseline before full transmission of the macro shock.
II. Acute shock / overshoot - Jan-Feb 2024	About NGN9,500 in Lagos; NGN10,000-15,000 in several markets	FX monthly average reaches NGN1,505/\$ in February; AGO about NGN1,257/litre	Large common shock exists, but observed price response overshoots subsequent sustainable market level.
III. Intervention/correction - Mar-Sep 2024	Falls to roughly NGN7,000-8,200; around NGN7,500 average by September	AGO continues upward to roughly NGN1,463/litre by June; FX remains weak/volatile	Critical natural experiment: cement falls despite adverse input levels.
IV. Re-escalation - 2025	Around NGN9,000-10,400 by Q1/April	FX around NGN1,595/\$ in April 2025; AGO around NGN1,722/litre in April	Second price increase; partly consistent with continuing cost pressure, but must be tested against margins and utilisation.
V. New energy/logistics shock and July-2026 peak	NGN12,500-15,000, with some locations above NGN15,000	FX strengthens to roughly NGN1,360-1,380/\$ and inflation falls to 15.43%, but diesel reaches NGN3,277/litre in May 2026	Mixed environment: not shock-free. Diesel/logistics sharply worsen while FX/inflation improve; net cost pass-through must be quantified rather than assumed.

4. The February 2024 Overshoot and Revealed Benchmark

Measure	Result	Interpretation
May-2023 NGN4,300 to Feb-2024 NGN12,000	179.1% increase	The central market price almost tripled during the acute shock.
May-2023 NGN4,300 to NGN15,000 upper observation	248.8% increase	The upper observed price exceeded three times the pre-shock benchmark.
Feb-2024 NGN12,000 to Apr-2024 NGN7,500	-37.5% correction	Roughly 37.5% of the central February price disappeared within weeks/months.
May-2023 NGN4,300 to corrected NGN7,500	74.4% retained increase	The corrected price still embodied a large genuine shock/cost increase.

The correction is economically revealing. Government intervention and weak demand were followed by a large reduction in the market price, while the exchange rate and diesel costs did not return to their pre-shock levels. Therefore the February peak cannot be treated as an unavoidable cost-derived floor. A sizeable portion was a reversible market-price overshoot.

The most useful empirical benchmark is therefore the market's own revealed behaviour in 2024. After the February spike, government and producers agreed a NGN7,000-8,000 corridor, and market prices subsequently moved into roughly that range while FX and diesel conditions remained materially worse than before the shock.

This does not mean NGN7,000-8,000 should remain the correct price forever. It means subsequent movement away from that revealed equilibrium should be explainable by measured changes in producer cost per tonne, distribution cost, taxes, demand conditions, finance and reasonable commercial return.

5. The 2025-2026 Re-Escalation and Proportionality Test

Comparison	Result	Interpretation
Sep-2024 NGN7,500 to Apr-2025 NGN10,100	34.7% increase	A second upward phase emerged after the 2024 correction.

Sep-2024 NGN7,500 to Jul-2026 midpoint NGN13,750	83.3% increase	The central July-2026 level was about 83% above the corrected 2024 benchmark.
Sep-2024 NGN7,500 to Jul-2026 upper NGN15,000	100.0% increase	The upper observed market price doubled.
Apr-2025 FX NGN1,595/\$ to Jul-2026 about NGN1,370/\$	-14.1% change	The naira strengthened materially rather than weakening over this comparison.
May-2025 AGO NGN1,758/l to May-2026 NGN3,277/l	86.4% increase	A major new heavy-haulage/energy shock occurred and must be allowed for.

The evidence does not support the statement that the July-2026 price rose in the absence of any new cost shock. Diesel had surged dramatically by May 2026. But the retail increase is not automatically cost-justified. The appropriate test is proportionality: how much did total cement-relevant cost per tonne rise after accounting for the stronger FX rate, lower general inflation, producer energy-mix improvements, higher diesel/logistics costs and other input changes?

6. AGO Timing Test

Period	AGO / diesel benchmark	Cement benchmark	Observed timing
Jan-Feb 2026	Feb national AGO about NGN1,420/l	Cement already about NGN10,000-11,000/bag in major-market observations	Cement re-escalation was already underway before the acute AGO surge.
Mar 2026	AGO about NGN1,648/l	Major-market cement about NGN10,800-11,500; higher local observations existed	Cement moved upward while AGO was still far below its May peak.
Apr 2026	AGO about NGN2,475/l	About NGN11,000-12,200 in several market reports	AGO shock intensified; cement response was materially smaller in percentage terms.
May 2026	AGO about NGN3,277/l (+32.4% MoM; +86.4% YoY)	Mainstream brand/dealer observations commonly about NGN10,500-11,500	AGO surged while mainstream cement prices were comparatively flat.
Jul-Aug 2026	May AGO shock may still affect haulage with a lag	Some July locations reported NGN12,500-15,000; Aug Lagos verified readings about NGN12,500-13,000	A lagged logistics effect is plausible, but NGN15,000 is a high-location observation, not a national uniform price.

The acute AGO shock does not explain the initiation of the 2026 cement-price rise because cement was already moving upward before diesel accelerated sharply. Nor is there a one-for-one contemporaneous relationship. From February to May AGO rose by roughly 131%, while mainstream cement observations increased far less. AGO is therefore a genuine cost shock, but also a high-volatility overlay on a lower underlying cement-price trend.

7. AGO-Weighted Pass-Through Test

The correct economic test is not AGO percentage change versus cement percentage change. AGO must first be weighted by the share of the delivered cement price actually exposed to diesel.

AGO-attributable price change = AGO-exposed cost share x percentage change in AGO, adjusted for substitution, efficiency and contractual lag.

Illustrative AGO-exposed share of delivered price	AGO rise: Feb-May 2026	Maximum first-round price effect if fully passed through
5%	about 131%	about 6.6%
10%	about 131%	about 13.1%
15%	about 131%	about 19.7%
20%	about 131%	about 26.2%

These are sensitivity bounds, not assumed actual cost shares. They show why a 131% diesel increase cannot rationally be mapped into a 131% cement increase. Even an aggressive 20% AGO exposure would imply about a 26% first-round effect

before allowing for CNG substitution, route efficiency, inventory timing, dealer absorption or other declining costs.

8. Producer-Accounts Cross-Check

Dangote group indicator	Q1 2025	Q1 2026	Change / implication
Total manufacturing cost	NGN407.3bn	NGN448.7bn	+10.2%
Fuel & power consumed	NGN177.2bn	NGN184.9bn	+4.3%
Nigeria revenue	NGN696.0bn	NGN861.8bn	+23.8%
Nigeria EBITDA	NGN394.8bn	NGN525.3bn	+33.1%
Nigeria EBITDA margin	56.7%	61.0%	+4.3 percentage points
Nigeria sales volume	4.396 Mt	4.903 Mt	+11.5%
Nigeria cement + clinker exports	-	549.6 kt	+71.6% YoY

This cross-check is important because fuel and power is broader than AGO alone. In Q1 2026, the entire fuel-and-power line increased only about 4.3% year-on-year, while Nigerian revenue and EBITDA increased much faster and the Nigerian EBITDA margin rose to 61.0%. This does not eliminate the later Q2 diesel shock, but it establishes that the underlying Q1 price/revenue momentum was not being driven by an equivalent increase in the broad fuel-and-power cost line.

9. Integrated Price-Residual Framework

Observed market price - justified production cost - logistics/distribution - taxes/regulatory cost - financing/FX effects - reasonable commercial return = residual price component

The residual is not automatically excess profit, monopoly rent, collusion or a criminal premium. Its meaning depends on whether it is small and random, or large, persistent and systematically associated with concentration, import restrictions, spare capacity, downstream margins and parallel pricing.

For the 2026 period, the correct residual is consequently the observed cement-price movement minus the weighted AGO contribution minus other validated cost movements. The remaining residual should then be tested against distribution margins, concentration, capacity utilisation, trade protection, demand, producer margins and price parallelism.

10. Contemporary 2026 Evidence

The 2026 evidence contains both adverse and favourable forces. NBS reports headline inflation at 15.43% in July 2026, below earlier levels, while the naira traded around the mid-NGN1,300s per US dollar in July. Conversely, NBS recorded a very large diesel shock: NGN3,277.47/litre in May 2026, 86.4% above May 2025. The market therefore cannot be described as having no new cost shock.

At the same time, Dangote's Q1 2026 Nigerian operations recorded 11.5% domestic volume growth, 23.8% revenue growth, 33.1% EBITDA growth and a 61.0% EBITDA margin, while exports rose 71.6%. The company reported cost containment and a favourable energy mix. These results pre-date the full May-2026 diesel spike, so they cannot settle the July price question, but they reinforce the need to test the retail increase against actual cost-per-tonne changes rather than infer cost necessity from the price itself.

11. Final H7 Determination

H7 - STRONGLY SUPPORTED, WITH A SPECIFIC RESIDUAL-VERIFICATION REQUIREMENT.

The accumulated evidence rejects a production-cost-only explanation of Nigeria's cement-price path. Legitimate cost shocks are material and sometimes severe; they explain an important share of price movements and must be fully allowed for. However, the 2024 overshoot-and-correction episode, restricted import contestability, high concentration, spare-capacity conditions, strong price parallelism, substantial producer profitability and later price persistence collectively show that market structure and competitive discipline are also material explanatory factors.

The 2026 AGO shock provides a legitimate partial explanation for higher delivered cement prices, especially through haulage and distribution. It does not, on the evidence presently available, justify treating the full cement-price escalation or the highest NGN15,000 local observations as a diesel-cost pass-through. The timing and weighted-pass-through tests indicate a pre-existing upward cement-price momentum plus a later AGO overlay.

The stronger and more defensible finding is that the observed price must pass a proportionality test. If audited producer cost per tonne, distribution cost and reasonable margin increases cannot account for the post-2024 re-escalation, the remaining residual becomes a targeted competition-market question.

12. What Can Be Investigated Further - and by Whom

Question	Independent research can do	Statutory investigation may be needed
Was the price rise cost-proportionate?	Reconstruct cost/t, ASP/t, margins, FX, energy, diesel and distribution spreads.	Not initially.
Did dealer/retail spreads widen?	Collect ex-factory/depot/retail observations and compute margins.	Needed if contracts/rebates are confidential.
Did producers maintain/expand margins while prices rose?	Use audited financials and quarterly results.	Only for transaction-level verification.

Were dispatch/capacity decisions restricting supply?	Partly - public capacity/sales data.	FCCPC can obtain plant dispatch, utilisation and allocation records.
Was price parallelism caused by common costs or coordinated conduct?	Partly - residual/event-study econometrics.	FCCPC needed for internal communications, agreements, dealer instructions and other non-public evidence.
Is EFCC the primary body?	No for the competition question.	EFCC becomes relevant only if evidence indicates fraud, corruption, money laundering or another economic/financial crime.

13. Final Bridge to Recommendations

The report should therefore recommend two tracks simultaneously: (1) an economic-policy response that restores contestability through calibrated H5 import/bulk/clinker reform and transparent price-stage monitoring; and (2) a targeted FCCPC market inquiry into the residual, focusing on producer cost-to-price transmission, capacity/dispatch decisions, dealer/distributor arrangements, rebates, price-setting chronology and any conduct that could explain persistent parallel pricing beyond common costs.

This recommendation does not downgrade the research finding. It follows from it. The study has narrowed the problem from a general complaint that cement is expensive to a specific empirical question: after measured costs and normal commercial returns are accounted for, what explains the remaining price divergence and persistence?

Validation Sources

Nairametrics - February 2024 NGN7,000-8,000 agreement
 BusinessDay - February 27, 2024 retail prices
 BusinessDay - April 2024 correction
 BusinessDay - September 2024 stability
 Guardian - July 2026 NGN12,500-15,000
 NBS - July 2026 CPI
 NBS - AGO price reports
 CBN - exchange-rate data
 Dangote Cement - Q1 2026 results

ANNEXURE H8

H1-H7 CONVERGENCE & RESIDUAL-CAUSATION ANALYSIS Nigeria Cement Pricing & Policy Study

1. Purpose

This chapter consolidates H1-H7 without rewriting the individual hypothesis reports. It asks whether the seven tests converge on a common explanation of Nigeria's cement-price outcome and identifies the remaining residual requiring verification.

2. H1-H7 Convergence Matrix

H1	Do input/raw-material economics adequately explain Nigerian cement pricing?	Cost transparency is incomplete; public disclosures do not provide a sufficiently complete physical-quantity × cost bridge for all principal raw materials. Cost evidence is therefore necessary but not independently sufficient.	FOUNDATIONAL
H2	Do production/capacity economics explain the outcome?	Installed capacity and domestic production capability are substantial; physical national scarcity is not an adequate standalone explanation.	STRONG
H3	Does concentration materially affect competitive conditions?	A small number of producers dominate installed capacity and domestic supply.	STRONG
H4	Do margins/cost structures indicate ability to absorb shocks?	Producer responses differ, but important Nigerian operations retained high profitability through major shocks.	STRONG
H5	Does restricted external contestability matter?	Bagged cement import is prohibited and clinker/other cement face high nominal protection. Import reform scenarios create an external competitive benchmark.	STRONGLY SUPPORTED

H6	Do shock transmission and post-shock behaviour reveal weak price discipline?	Initial FX/energy shock was genuine; price overshoot, corrected while shocks remained elevated, and later re-escalated. Available brand prices show strong parallelism but small N prevents cartel inference.	STRONGLY SUPPORTED
H7 / H7A	Does a material residual remain after legitimate costs are considered?	AGO is a genuine 2026 overlay but cannot be mapped 1:1 into cement. Timing and weighted pass-through leave a residual requiring structural/distribution investigation.	STRONGLY SUPPORTED

3. Controlling 2026 Time-Series Finding

The revised H7A controls this section. The 2026 diesel shock is retained as a legitimate explanatory variable, but it is weighted by its actual exposure to the delivered cement cost stack. Cement re-escalation began before the acute April–May diesel surge. NBS reported AGO at about ₦1,420/litre in February, ₦1,648 in March, ₦2,475 in April and ₦3,277 in May. The February-to-May AGO rise was therefore about 131%.

FCCPC market intelligence places a 50 kg bag at about ₦9,300–₦9,700 in January 2026, ₦10,500–₦13,000 by mid-year and ₦13,000–₦15,000 in some locations by July. The July upper value is not treated as a national average. The analytical question is proportionality: how much of the cement movement can a weighted diesel exposure actually explain?

4. Residual Price Decomposition

The final decomposition framework is:

Observed delivered cement price movement = validated production-cost movement + weighted AGO/logistics effect + FX/imported-input effect + tax/regulatory/finance effect + distribution effect + normal commercial return + residual.

The residual is not labelled an 'illegal premium'. It is the portion of observed price behaviour that remains insufficiently explained after validated cost and normal-return components are accounted for.

AGO / haulage	AGO share × AGO % change; haulage expense trend	Real and material, but much smaller than a 1:1 pass-through. Dangote H1 2026 selling/distribution expense rose 25.0%, driven by haulage.	Obtain producer/dealer tonne-km, fleet fuel intensity, CNG substitution and delivered-price schedules.

Broad production cost	Cost of sales / tonne and cost-index movement	Dangote H1 2026 production cost rose 8.29%; fuel & power broadly stable, while Nigerian EBITDA margin was about 60.1%.	Repeat producer-by-producer using H1/FY statements and physical tonnes.
FX/imported inputs	FX × imported-cost share	FX is material historically, but cannot explain every later price rise when naira stabilises/appreciates.	Estimate actual imported-input share and lag structure.
Distribution	Retail minus ex-factory/depot	2023 BUA episode demonstrates incomplete downward transmission can occur.	Mine invoices, depot prices, dealer margins, rebates and allocation practices.
Capacity / supply behaviour	Utilisation, dispatch, exports vs domestic price	FCCPC estimates 60–65 Mt installed capacity versus 25–30 Mt domestic consumption; Nigeria is also a net exporter.	Obtain plant dispatch, downtime and domestic/export allocation by month.
Market concentration	HHI/CR3 and residual-price persistence	Three major firms reportedly control >90% of installed capacity.	Test residual pricing against concentration and capacity-utilisation measures.
Trade protection	Domestic price minus credible landed alternative	Bagged imports prohibited; clinker and most non-white cement have 50% nominal tariff protection.	Apply H5 reform scenarios to measured residual.
Price parallelism	Residual correlation after common shocks removed	Pilot common-date $r/\rho/R^2$ are high but $N=4$ is insufficient.	Mine denser ex-factory/depot series and run residual correlation/event study.

5. Independent Regulatory Convergence

The FCCPC's August 2026 preliminary industry investigation independently identifies the same structural question: why prices continue rising despite substantial limestone resources, estimated installed capacity of 60–65 Mt/year, domestic consumption of only 25–30 Mt/year, net exports, and concentration of more than 90% of installed capacity in three major producers. The Commission has stated that these preliminary findings warrant deeper investigation; they do not themselves establish wrongdoing.

6. Integrated Finding

The seven hypotheses converge. Nigeria's cement-price outcome cannot be adequately reduced to a single raw-material, FX, energy or AGO explanation. Genuine cost shocks are present and quantitatively important, but the evidence also shows restricted external contestability, concentrated capacity, spare-capacity questions, heterogeneous but in important cases very high profitability, incomplete downstream transmission, post-shock price persistence and a residual that survives simple cost narratives.

7. Residual-Causation Verification Agenda

1	Monthly plant-level production, utilisation, downtime and dispatch 2023–2026	Was domestic supply withheld, constrained or simply underutilised?
2	Monthly ex-factory and depot invoices by producer/grade/location	What price was actually set at producer level?
3	Dealer/distributor purchase prices, rebates, credit terms and retail prices	How much residual originates downstream?
4	Domestic versus export dispatch by month	Did export allocation tighten domestic contestability during rising-price periods?
5	Fuel mix, AGO litres/tonne-km, CNG share, gas/coal/petcoke and electricity cost per tonne	What is the defensible energy/logistics pass-through?
6	Raw-material tonnes and monetary cost by principal material	Close H1 physical numerator/denominator transparency gap.
7	Contemporaneous price-setting records and competitor communications, if statutory threshold is met	Distinguish lawful independent pricing/price leadership from prohibited coordination.

8. Final Study Position Before Recommendations

The research has reached the point where further public-data analysis can refine the size and location of the residual, but cannot alone determine every behavioural cause. The appropriate next analytical output is therefore the policy and verification framework: measures that increase contestability and transparency immediately, alongside a targeted statutory investigation of the records required to resolve residual causation.

9. Source Validation Notes

WTO Trade Policy Review – Nigeria 2024: 50% nominal tariff on clinker and other non-white cement; bagged cement listed as prohibited for import.

NBS 2026 AGO series: February ₦1,420.17/l; March ₦1,648.08/l; April ₦2,474.69/l; May ₦3,277.47/l.

Dangote Cement Q1/H1 2026 disclosures: Nigerian volume, revenue, EBITDA, margin, production-cost and fuel/power trends.

FCCPC August 2026 preliminary investigation: 60–65 Mt installed capacity, 25–30 Mt domestic consumption, >90% capacity controlled by three major producers, net-export position and further competition inquiry.

ANNEXURE GSE-1

GHOST SUBSIDY ESTIMATION, ECONOMIC DISPERSION AND NET-BENEFIT METHODOLOGY

GSE-1.1 Purpose

This annexure establishes a methodology for converting the Ghost Subsidy identified in this study from a policy concept into a measurable economic indicator.

The principal purpose is to enable government and researchers to estimate periodically:

- the economic value of cement-market protection;
- the portion reflected in a domestic price premium;
- how that burden disperses through infrastructure, housing, private development and household expenditure;
- the measurable economic benefits associated with domestic cement production and protection; and
- whether the prevailing degree of protection continues to generate a positive net national economic benefit.

The methodology does not assume that the entire difference between Nigerian and foreign cement prices represents a Ghost Subsidy. Nigeria-specific costs must first be recognised and incorporated into a properly constructed competitive benchmark.

This distinction is essential to the integrity of the estimate.

GSE-1.2 Definition of the Ghost Subsidy

For purposes of this study, the Ghost Subsidy (GS) is the implicit economic value associated with extraordinary tariff and non-tariff protection that limits normal external contestability and permits a domestic market-price premium to persist beyond the price reasonably supportable by competitive parity conditions.

It is described as a ghost subsidy because, unlike a conventional fiscal subsidy:

- it is not ordinarily appropriated through the government budget;
- it does not appear as a direct government transfer;
- its economic incidence can be dispersed among millions of cement consumers and downstream users; and
- its ultimate cost can reappear indirectly in housing, infrastructure, rents, government expenditure and general living costs.

The Ghost Subsidy should therefore be treated as a measurable consequence of the prevailing protection architecture, rather than simply the nominal tariff rate itself.

GSE-1.3 Competitive Parity Benchmark

The starting point for GSE estimation is the Competitive Parity Benchmark (CPB).

The CPB estimates the price at which a credible alternative source of compliant cement could compete in the Nigerian market after recognising all legitimate costs of supplying that product.

CPB = International Competitive Supply Price + Freight + Insurance + Port/Handling Costs + Standards/Compliance Costs + Normal Import Duties/Taxes + Inland Logistics + Distribution Cost + Reasonable Commercial Return

The benchmark should not be based mechanically on the lowest cement price found internationally.

Comparator markets should be selected using the structured approach adopted by the study,

including surplus producers, African integrated producers, import/grinding markets and revealed Nigerian trading partners.

Particular evidentiary value should be attached to actual Nigerian clinker and cement export transactions because these demonstrate prices at which Nigerian-origin material participates in external markets.

GSE-1.4 Gross Annual Ghost Subsidy Estimate

Gross GSE = $\max [0, \text{Observed Nigerian Market Price} - \text{CPB}] \times \text{Relevant Domestic Cement Volume}$

Where:

Observed Nigerian Market Price = representative weighted Nigerian cement price for the measurement period.

CPB = Competitive Parity Benchmark calculated under GSE-1.3.

Relevant Domestic Cement Volume = estimated quantity of cement exposed to the identified protected-market premium during the period.

The $\max [0, \dots]$ condition prevents the methodology from recording a Ghost Subsidy where Nigerian market prices are at or below competitive parity.

The GSE is not: Nigerian price - cheapest foreign price.

Such a calculation would disregard freight, exchange rate, port charges, taxation, standards, logistics and other legitimate costs and would therefore exaggerate the protection-related premium.

The methodology instead seeks to isolate the portion remaining after economically justified supply costs have been recognised.

GSE-1.5 Estimation Range and Sensitivity Analysis

Case	Basis	Policy Use
Low GSE	Conservative CPB / narrow premium	Minimum defensible estimate
Central GSE	Best-estimate assumptions	Principal annual indicator
High GSE	Reasonable upper sensitivity	Potential maximum exposure

The CPB should be recalculated whenever material changes occur in foreign exchange, international cement or clinker prices, ocean freight, domestic transport, fuel and energy, tariffs, port costs or taxation.

GSE-1.6 Economic Dispersion

Gross GSE measures the estimated initial price premium. It does not measure every subsequent economic consequence.

A separate GSE Economic Dispersion Account should therefore trace where that burden is transmitted.

GSE = originating estimated premium

GSE dispersion = downstream economic incidence of that premium

Cement Price Premium -> Construction Input Cost -> Project/Property Cost -> Public Expenditure and Private Capital Cost -> Housing/Rent and Infrastructure Cost -> Household Purchasing-Power Effects -> Secondary Wage and Cost Pressures

GSE-1.7 Public Infrastructure Exposure

Cement is an important input into roads, bridges, drainage, public buildings and other infrastructure.

The annual GSE account should estimate the portion of the premium transmitted into Federal Government construction contracts; state and local-government projects; rigid/concrete road-pavement programmes; bridges and drainage; schools and hospitals; public housing; and other cement-intensive infrastructure.

Project GSE Exposure = Cement Quantity Consumed x Applicable GSE per Unit

Infrastructure GSE Exposure = Sum of Project GSE Exposure

This allows policymakers to distinguish ordinary construction-cost escalation from the component potentially associated with cement-market protection.

GSE-1.8 Government Housing Programmes

The same approach should be applied to Federal and State housing programmes, including large-scale affordable-housing initiatives.

Housing GSE Exposure = Cement Requirement per Unit x Number of Units x Applicable GSE per Unit

The resulting amount should be assessed against original construction budget, revised construction cost, cost per completed housing unit, number of units deliverable from the approved budget and final affordability to intended beneficiaries.

Housing Units Foregone Equivalent = Housing GSE Exposure / Benchmark Cost per Housing Unit

This expresses the premium not only in naira but, where appropriate, in the equivalent number of additional housing units that the same public expenditure could otherwise support.

GSE-1.9 Private Development and Construction

The burden also reaches private economic activity.

Annual GSE dispersion should estimate exposure across private residential development, commercial property, industrial construction, warehouses and logistics facilities, hospitality development, privately financed infrastructure and household self-build construction.

For developers, the premium can enter total development cost and subsequently affect selling prices, required project returns or rents.

The GSE framework should therefore distinguish direct cement-cost incidence from subsequent commercial pricing decisions.

This prevents the methodology from attributing the entire increase in property values or rents to cement alone.

GSE-1.10 Household Purchasing-Power and Macroeconomic Transmission

Higher construction and replacement costs can contribute to higher required rents over time, alongside land prices, finance costs, labour, other materials, taxes, utilities, location and general inflation.

GSE -> Higher Construction/Replacement Cost -> Housing Cost Pressure -> Rent and Cost-of-Living Pressure -> Household Purchasing-Power Erosion -> Wage-Adjustment Pressure -> Labour and Production Costs -> Wider Inflationary Pressure

The analysis should measure the incremental contribution attributable to cement rather than treating cement as the sole determinant of rent or the cost of living.

A nominal wage increase improves household welfare only to the extent that the purchasing value of the additional income is retained. The annual GSE account should therefore examine whether construction, housing and rent escalation is absorbing part of the gains achieved through wage adjustment.

Sustainable improvement in living standards requires not only adjustment of nominal incomes,

but protection of their purchasing value through productivity, competitive markets and disciplined costs of essential goods and services.

Where increases in housing and other essential costs materially erode purchasing power, workers and organised labour may seek compensating wage adjustments. At economy-wide scale, this transmission can move beyond household incidence into wage, production-cost, fiscal and inflationary pressures.

A stronger economic outcome is one in which real purchasing power grows through productivity and competitive prices, reducing dependence on recurrent nominal adjustments simply to recover lost purchasing value.

GSE-1.11 Foreign-Exchange Offset

The benefits of domestic cement manufacturing must be recognised in the policy account.

A major benefit is the foreign exchange that would otherwise be required if Nigeria imported substantially more cement or clinker.

However, the correct measure is net FX saving, not the gross hypothetical value of finished-cement imports.

Domestic cement production itself may require FX for machinery, spare parts, specialist maintenance, imported fuels or energy inputs where applicable, additives, financing, technical services and other imported production inputs.

Net FX Saving = FX Required for Counterfactual Imported Supply - FX Content of Equivalent Domestic Production

Export earnings should be reported separately to prevent double counting.

GSE-1.12 Domestic Economic Benefits Account

Benefit	Suggested Indicator
Net FX conservation	US\$/N equivalent saved
Domestic value added	N/year
Direct employment	Jobs
Indirect/induced employment	Jobs, where reliably estimable
Taxes	N/year
Mineral royalties	N/year
Local procurement	N/year
Capital investment	N/year
Cement exports	tonnes and US\$
Clinker exports	tonnes and US\$
Regional market development	tonnes/value

Nigeria's domestic manufacturing capability is an industrial asset that should be made more competitive rather than displaced.

GSE-1.13 Net National Economic Benefit Test

The ultimate policy question is whether the prevailing degree and form of protection continues to produce national benefits sufficient to justify its economic cost relative to a more contestable policy alternative.

Net Protection Benefit = Quantifiable Domestic Benefits - Gross GSE - Additional Quantifiable Policy Costs

Government should not rely exclusively on this single net figure. The accompanying dashboard

should retain the components separately because one naira of FX saving, one naira of additional road expenditure and one naira of household rent pressure have different fiscal, distributional and developmental implications.

GSE-1.14 Avoiding Double Counting

Particular care is required in estimating downstream effects. The initial cement premium incorporated into the cost of constructing a building should not subsequently be counted again in full as a separate rent cost.

Level 1 - Originating GSE: The protected-market cement-price premium.

Level 2 - Direct Incidence: Infrastructure, housing and other construction costs absorbing that premium.

Level 3 - Secondary Transmission: Rent, property prices, public expenditure, household purchasing power and wage pressure.

Level 4 - Macroeconomic Feedback: Potential inflation, fiscal and investment consequences.

Levels 2-4 explain dispersion and transmission. They should not simply be added to Level 1 to manufacture a larger Ghost Subsidy number.

GSE-1.15 Annual Ghost Subsidy and Economic Impact Account

Indicator	Annual Result
Domestic cement volume	Mt
Weighted observed price	N/kg
Competitive Parity Benchmark	N/kg
GSE premium - Low	N/kg
GSE premium - Central	N/kg
GSE premium - High	N/kg
Gross GSE - Low	Nbn
Gross GSE - Central	Nbn
Gross GSE - High	Nbn
Estimated public-infrastructure exposure	Nbn
Estimated public-housing exposure	Nbn
Estimated private-development exposure	Nbn
Net FX saving	US\$/N
Export FX earnings	US\$
Domestic value added	Nbn
Taxes and mineral royalties	Nbn
Employment supported	Jobs
Net national policy position	Range
Recommended protection status	Maintain / Adjust / Reduce / Safeguard

The report should show both annual results and a rolling historical series, enabling policymakers to determine whether the economic value and incidence of protection are rising or falling.

GSE-1.16 Policy Decision Rule

The GSE mechanism should not automatically trigger unrestricted imports. It should inform the rules-based market architecture proposed in the main study.

Where the GSE is low or zero and Nigerian supply remains internationally competitive, there may be little economic case for intervention.

Where a material GSE persists despite adequate domestic capacity and no corresponding cost justification, the evidence strengthens the case for increased contestability.

Normal competitive regime -> monitored adjustment -> increased clinker/market entry -> tariff adjustment -> controlled external contestability -> safeguard intervention where objectively justified.

Protection therefore becomes measurable, conditional and reviewable, rather than indefinite.

GSE-1.17 Institutional Responsibility

The GSE should ideally be produced through a multi-agency evidence framework rather than by a single market participant.

Relevant datasets would include information from competition authorities, NBS, customs and trade authorities, fiscal and tariff authorities, solid-minerals institutions, housing and infrastructure ministries, producer disclosures, international trade databases and independently verifiable market observations.

The Annual Ghost Subsidy and Economic Impact Account should become one of the principal outputs of the proposed market-monitoring framework.

GSE-1.18 Research Development and Baseline Year

The first implementation should establish a baseline GSE year using the most complete common period for which Nigerian cement price, domestic volume, international parity, freight, FX, tariff and production-cost information can be reconciled.

Subsequent annual estimates should preserve the same methodology wherever possible so that changes represent economic movement rather than methodological changes.

Where methodology must change, both the previous and revised series should be reported for an overlap period.

The longitudinal indicator should answer three questions: How large is the estimated protection-related premium? Where is its economic burden being transmitted? What measurable national economic benefits are being received in return?

GSE-1.19 Policy Significance

The Ghost Subsidy framework changes the way industrial protection is evaluated.

Protection should not be regarded as successful merely because domestic factories exist. Nor should it be regarded as unsuccessful merely because domestic prices exceed those in another country. The appropriate assessment is empirical.

Nigeria should be able to measure the economic value of the protection it provides, identify the benefits generated by domestic industrial capacity, trace material costs imposed elsewhere in the economy and determine periodically whether the existing balance remains in the national interest.

This is particularly important where cement affects both sides of national economic policy: industrialisation and foreign-exchange conservation on one side; and housing affordability, infrastructure expenditure, construction investment and household purchasing power on the other.

The objective is the transition toward measurable industrial policy - one in which protection is transparent, proportionate, reviewable and increasingly replaced by competitiveness as the domestic industry matures.

What is the annual economic value of the protection, where does its cost fall, what measurable

national benefit does Nigeria receive in return, and could a more competitive policy architecture produce a superior outcome?

That question should become part of the annual assessment of Nigeria's cement market.

Cross-reference: See Chapters 18 and 19 for the proposed implementation framework and transition from protected supply to competitive abundance.

ABOUT THE AUTHOR

Olusegun Famakin is a Statistician and Chemical Process Engineer whose professional and research interests span industrial processes, statistical analysis, engineering infrastructure development, project management, business development, public policy and applied economic research.

His early industrial exposure included his National Youth Service year in 1990/91 at Ashaka Cement Plc, then under the management of Blue Circle, United Kingdom, where he served as a Graduate Trainee with the Technical Research & Development Department at Nafada, in the then Bauchi State. The experience provided practical exposure to cement manufacturing, process operations, raw-material evaluation, quality and technical research within an operating cement plant.

He also undertook field statistical work with the then Federal Office of Statistics (FOS), Ikeja, Lagos, providing an additional foundation in data collection, statistical investigation and the interpretation of economic and field data.

He currently runs an MEP&P (Mechanical, Electrical, Plumbing & Protection) engineering firm in Lagos, providing engineering infrastructure development services and project management. His professional work combines engineering analysis with the practical development, planning, coordination and management of infrastructure projects.

His earlier technical research includes "Characterization of Nigerian Crude Oils", undertaken as a graduate research project. His subsequent writing has extended across taxation, business, entrepreneurship, artificial intelligence and Nigerian economic opportunities, including publications on the Nigerian tax system, AI applications for small businesses and leading export opportunities in Nigeria.

Alongside his technical and business publications, he is a prolific faith-based author. His Christian writings include the "Almost Persuaded" series and other works devoted to practical biblical exposition and Christian living.

In this policy study, he brings together his backgrounds in statistics, chemical process engineering, cement-industry technical research, engineering infrastructure development, project management and applied economic analysis to undertake an evidence-based investigation of the factors underlying cement pricing in Nigeria.