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MEDIATOR OR MODERATOR? REASSESSING THE ROLE OF ECONOMIC DIVERSIFICATION IN THE SECTORAL GROWTH-AGGREGATE GROWTH NEXUS IN NIGERIA

ROTIMI OLASUPO OBISANYA; OLUWATOSIN OLUSOLA ADESINA; & TALIAT OLAYINKA EMIOLA

Department of Economics and Development Studies, Lead City University, Ibadan, Nigeria

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Abstract

How does economic diversification shape the relationship between sectoral growth and aggregate growth in a resource-dependent economy? The prevailing hypothesis in Nigerian policy debates treats diversification as a mediator, a channel through which sectoral performance must pass to reach the aggregate. Using a verified quarterly dataset for 2010Q1-2020Q4, this paper tests that hypothesis against the alternative that diversification is a moderator, conditioning the strength with which sectoral shocks transmit to the aggregate. A three-path mediation analysis with Sobel tests and moving-block bootstrap confidence intervals (1,000 replications) rejects mediation: the indirect effect of sectoral growth on aggregate growth through the diversification index is statistically indistinguishable from zero for every sector, with bootstrap intervals spanning zero (for services, -0.033 to 0.054; for oil, -0.010 to 0.024). Moderation, by contrast, is strongly supported: interacting sectoral growth with a centred normalised-entropy diversification index yields significant interaction coefficients for industry (-5.66, $p = 0.0003$) and services (-8.39, $p < 0.001$), and the mirror specification in concentration confirms the result (coefficients +5.43 and +7.34, $p < 0.01$). The marginal growth payoff of a services expansion falls from 0.92 points at the tenth percentile of diversification to 0.52 at the ninetieth, consistent with diversification functioning as shock insurance that buffers aggregate growth against sector-specific fluctuations rather than as a sequential conduit for them. Oil transmission is exempt from this conditioning, consistent with the enclave structure of petroleum.

Keywords: mediation; moderation; economic diversification; sectoral growth; interaction effects; Nigeria

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Introduction

Structural transformation narratives assign economic diversification a central role in the growth process of resource-dependent economies. In the Nigerian case the assignment is explicit: national development plans, central bank programmes, and fiscal strategy documents all present diversification as the mechanism through which the productive sectors, agriculture, manufacturing, and services, are expected to convert their expansion into sustained aggregate growth. The academic literature has largely followed this framing, estimating direct effects of sectoral output on growth and separate effects of diversification indices, and concluding that diversification is good for growth (Kromtit et al., 2017; Olayungbo & Olayemi, 2018; Ideh et al., 2021; Salaudeen, 2023). But the framing itself embeds a causal architecture that has rarely been tested: it treats diversification as a mediator, a variable lying on the path from sectoral performance to aggregate performance, such that sectoral growth raises diversification, and diversification in turn raises aggregate growth.

There is an equally plausible alternative that the literature overlooks. Diversification may operate as a moderator: a property of the economic structure that determines how strongly any given sectoral shock transmits to the aggregate. This is the classic portfolio logic of Acemoglu and Zilibotti (1997) and Koren and Tenreyro (2007): in a concentrated economy, the dominant sector is the economy, so its shocks pass through almost one-for-one; as the base broadens, idiosyncratic sectoral fluctuations are offset by countervailing movements elsewhere, and aggregate growth becomes less sensitive to any single sector. Under this architecture, diversification does not sit between sectoral growth and aggregate growth; it surrounds the relationship, altering its slope. The distinction is not semantic. A mediator points to policies that raise diversification in order to enlarge a transmission channel; a moderator points to diversification as insurance whose value is realised precisely when shocks hit, and whose cost is a smaller marginal payoff to any one sector's expansion.

This paper tests the two architectures head-to-head on an audited quarterly dataset for Nigeria spanning 2010Q1 to 2020Q4, a window that includes the 2014-2016 oil price collapse, the 2016 recession, and the COVID-19 recession, and therefore offers exactly the shock variation that distinguishes transmission from mediation. The diversification measure is normalised entropy over four-sector output shares, recomputed from verified real output levels; the concentration index, the Herfindahl-Hirschman measure, provides the mirror-image robustness check. The mediation hypothesis is evaluated with the classical three-path approach of Baron and Kenny (1986), Sobel (1982) asymptotic tests, and moving-block bootstrap confidence intervals that respect the serial dependence of time-series data (Kunsch, 1989). The moderation hypothesis is evaluated with interaction models in which centred sectoral growth is interacted with centred diversification, with heteroskedasticity- and autocorrelation-consistent inference throughout (Newey & West, 1987).

The results are unambiguous and, to the author's knowledge, novel for Nigeria. Mediation is rejected in every specification: sectoral growth has essentially no contemporaneous effect on the diversification index (path a), and the product of paths, the indirect effect, is statistically zero for all four sectors under both Sobel and bootstrap inference. Moderation is strong and economically meaningful: the interaction between sectoral growth and diversification is significant for industry (coefficient minus 5.66, $p = 0.0003$) and services (minus 8.39, $p < 0.001$), and the mirror

concentration specification confirms both signs and magnitudes. The transmission of a services shock to aggregate growth falls from 0.92 points at the tenth percentile of the diversification distribution to 0.52 at the ninetieth; for industry, from 0.35 to 0.08. Oil transmission, at 0.04 to 0.10, is small, positive, and statistically independent of the diversification state, consistent with an enclave sector whose shocks pass through fiscal and exchange rate channels regardless of domestic structure.

The paper makes three contributions. It provides, first, a direct test of mediation versus moderation in a macroeconomic application where the distinction has first-order policy content, together with the bootstrap machinery appropriate to time series. Second, it documents conditional transmission coefficients for the four main sectors of the Nigerian economy, quantifying the insurance value of diversification in units that policymakers can read: the attenuation of sectoral shock pass-through as the structure broadens. Third, it corrects a framing error: the evidence does not support treating diversification as a channel through which sectors must pass, but as a property that determines how hard sectoral shocks hit, which reframes the evaluation of diversification programmes away from growth dividends within single years and toward resilience over shock episodes. Section 2 develops the framework; Section 3 presents data and methods; Section 4 the results; Section 5 the discussion; Section 6 policy implications and conclusion.

Two causal architectures

In the mediation architecture, the causal chain runs from sectoral growth X to diversification M to aggregate growth Y. The chain has an economic story: sectoral expansions, particularly in non-oil activities, broaden the production base, which raises measured diversification, and the broadened base raises aggregate growth through the risk-pooling, linkage, and learning mechanisms of the diversification literature. Three conditions define the architecture: sectoral growth must move the index (path a), the index must move aggregate growth conditional on the sector (path b), and the direct path from sectoral growth to aggregate growth must shrink when the index is admitted, since the index then carries part of the total effect. The classical estimation sequence regresses Y on X for the total effect, M on X for path a, and Y on both X and M for the direct effect and path b, with the indirect effect given by the product a times b and its significance assessed by the Sobel delta-method test or, preferably, by bootstrapping the product directly, since the sampling distribution of a product of coefficients is asymmetric in small samples (MacKinnon, Warsi & Dwyer, 1995; Preacher & Hayes, 2004; Hayes, 2018).

In the moderation architecture, diversification enters as a conditioning variable in the X-to-Y mapping. The estimating equation includes X, M, and their interaction, with the marginal effect of X given by the sum of its coefficient and the interaction coefficient evaluated at the relevant level of M. The economic prediction is directional: if diversification is insurance, the marginal transmission of any single sector's growth to the aggregate should be larger in concentrated states, where that sector commands a large weight and few offsetting movements exist, and smaller in diversified states, where the portfolio effect absorbs idiosyncratic fluctuations. The prediction is therefore a positive interaction between sectoral growth and concentration, equivalently a negative interaction between sectoral growth and diversification, for sectors whose

shocks are idiosyncratic to the domestic economy. For sectors whose shocks are externally generated and economy-wide, such as crude petroleum prices translated into output, no such conditioning is predicted.

The two architectures are nested in the data through the timing convention. Mediation as usually implemented is contemporaneous: sectoral growth this quarter moves the index this quarter, which moves aggregate growth this quarter. Given that shares evolve slowly, a contemporaneous path a is necessarily tiny, and this is itself informative: the mediation story, told in flow terms within quarters, is implausible on its face. Moderation, by contrast, requires only that the state of the structure at time t condition contemporaneous transmission, which is exactly the portfolio proposition. The empirical design accordingly tests the mediation architecture fairly, with all three paths estimated and bootstrapped, but anticipates rejection; and it gives the moderation architecture the specification it requires.

Hypotheses

Two null hypotheses organise the analysis. The first, the mediation null in its policy form, is that diversification plays no mediating role: the indirect effect of sectoral growth on aggregate growth through diversification is zero. Rejection would require a significant path a, a significant path b, and a bootstrap interval on the indirect effect excluding zero. The second, the moderation null, is that the transmission of sectoral growth to aggregate growth does not depend on the diversification state: all interaction coefficients are zero. Rejection for any sector, with the sign pattern predicted by insurance theory, would establish contingency. The two hypotheses are independent: the data can, in principle, support neither, either, or both architectures, and the design reports all combinations.

Applying this machinery to macroeconomic time series requires three adaptations that the design makes explicit. First, stationarity: the mediating variable must not be a near-integrated level, or the three-path regressions inherit the spurious-regression problem; the normalised-entropy index drifts slowly, so the design tests mediation on the levels of stationary growth rates with the index entering as a bounded ratio, and verifies that every path regression passes KPSS and ADF screens before interpretation. Second, serial dependence: quarterly growth data exhibit overlap-induced autocorrelation, so all standard errors are heteroskedasticity- and autocorrelation-consistent, and the bootstrap resamples blocks of quarters rather than individual observations, preserving the short-run dependence structure that case resampling would destroy. Third, power honesty: with forty observations per path regression, the design reports effect sizes and intervals, not just significance stars, because a mediation claim that survives only through wide intervals is not a finding but an absence of information.

From architecture to policy

The two architectures carry different policy grammars, and mistaking one for the other produces predictable evaluation errors. If diversification mediates, then the growth dividend arrives through the channel: policies should raise the index, and evaluations should expect aggregate growth to rise in proportion to the index movement, with the mediated share equal to the indirect effect's share of the total. If diversification moderates, then the dividend arrives through insulation:

policies should broaden the base of shock-offsetting sectors, and evaluations should expect the aggregate growth cost of sectoral shocks to fall as the structure diversifies, with little change in growth during calm periods. A moderator story predicts that the same diversification programme will look ineffective in tranquil samples and valuable in turbulent ones; a mediator story predicts the opposite pattern. The Nigerian window under study is rich in turbulence, which makes it a discriminating testing ground, and the results below exploit that variation.

Data and verified measures

The dataset contains 44 quarterly observations from 2010Q1 to 2020Q4 on real sectoral output for oil, agriculture, industry excluding manufacturing, and services, aggregate real GDP and its year-on-year growth rate, the consumer price index, and trade openness, compiled from Central Bank of Nigeria Statistical Bulletin vintages. An integrity audit verified the internal consistency of every series: the sectoral levels sum exactly to their aggregates in all 44 quarters, the reported growth rate equals the year-on-year rate implied by the levels in every usable observation, and the real exchange rate reproduces its formula exactly. Sectoral growth rates are year-on-year changes computed from the verified levels, which removes the pronounced within-year seasonality of quarter-on-quarter rates and concentrates the analysis on the frequencies at which structural statements are meaningful. Diversification is measured by normalised entropy over the four sectoral shares, bounded between zero and one and increasing in diversification, with a sample mean of 0.852; the concentration measure is the Herfindahl-Hirschman index of the same shares, with mean 0.361 and correlation minus 0.957 with entropy. The window ends in 2020Q4 because later vintages of the source workbook could not be independently re-verified; all conclusions are scoped to the 2010s.

Mediation estimation with time-series bootstrap

The mediation analysis follows the three-path sequence with two macroeconomic controls, year-on-year CPI inflation and trade openness, in every equation. Path a regresses diversification on sectoral growth and controls; path b regresses aggregate growth on diversification and controls; the total-effect equation regresses aggregate growth on sectoral growth and controls; and the direct-effect equation adds diversification. Standard errors are Newey-West with four lags. The indirect effect, the product of the path a and path b coefficients, is tested with the Sobel delta method and with a moving-block bootstrap that resamples contiguous blocks of four quarters with replacement, preserving the short-run dependence structure of quarterly macroeconomic series (Kunsch, 1989); 1,000 replications are drawn with a fixed seed for reproducibility, and percentile intervals and two-sided bootstrap p-values are reported. Block bootstrapping is the appropriate resampling design here because ordinary case resampling destroys the serial correlation that quarterly growth data exhibit, yielding invalid intervals; the moving-block variant is the standard remedy in the time-series mediation literature.

Moderation estimation

The moderation models interact centred sectoral growth with centred diversification. Centering uses sample means (for example, 0.8517 for normalised entropy), so the main effects remain

interpretable at the average structure, and the interaction coefficient is invariant to the units of the index. Four sectoral models are estimated, one for each sector's year-on-year growth, each including the sector's centred growth, centred diversification, their interaction, and the two controls, estimated by HAC inference. The marginal effect of sectoral growth is computed at the tenth percentile (0.826), median (0.852), and ninetieth percentile (0.874) of the diversification distribution. A mirror specification replaces entropy with the concentration index, where insurance theory predicts interaction signs opposite to the entropy version; agreement between the two framings, which are nearly but not exactly collinear (correlation minus 0.957), constitutes a demanding robustness check on the interaction evidence.

Mediation is rejected

Table 1 reports the three paths for each sector. Path a is economically negligible throughout: the contemporaneous elasticity of the diversification index with respect to sectoral year-on-year growth is 0.0002 for oil (p = 0.34), 0.0006 for agriculture (p = 0.53), 0.0007 for industry (t = 2.66, p = 0.008, but tiny in magnitude), and effectively zero for services (p = 0.98). A sector would have to grow for centuries to move the index by one point through this channel. Path b is positive but imprecise: conditional on controls and sectoral growth, a one-point rise in normalised entropy is associated with 15 to 21 additional basis points of quarterly growth, with t-statistics between 0.9 and 2.0. The total effects reproduce the known direct associations, with services transmitting strongly (0.68, t = 9.34) and oil modestly (0.08, t = 3.87), and the direct effects are essentially unchanged when the index is admitted, which is the visual signature of zero mediation.

Table 1. Three-path mediation estimates by sector

Path	Oil	Agriculture	Industry	Services
Path a: sector growth to diversification	0.0002 (0.0002)	0.0006 (0.0010)	0.0007*** (0.0003)	-0.0000 (0.0007)
Path b: diversification to GDP growth	21.17 (16.49)	19.90 (16.91)	-5.91 (17.24)	21.45 (10.87)
Total effect c	0.0771*** (0.0199)	0.2131 (0.2529)	0.1789*** (0.0522)	0.6812*** (0.0729)
Direct effect c-prime	0.0740*** (0.0201)	0.2005 (0.2586)	0.1831*** (0.0610)	0.6816*** (0.0800)

Notes: Each cell reports the HAC (Newey-West, 4 lags) coefficient with standard error in parentheses. Path b is estimated jointly with the sector's growth and controls, hence varies by column. , , ** denote 10, 5, and 1 percent. All equations include year-on-year CPI inflation and trade openness. n = 40.

Table 2 completes the test. The indirect effects are minuscule relative to the total effects: 0.0031 for oil against a total of 0.0771 (4.0 percent mediated), 0.0126 for agriculture (5.9 percent), minus 0.0042 for industry (negative, wrong-signed), and minus 0.0003 for services. The Sobel z-statistics range from minus 0.305 to 0.525 with p-values from 0.60 to 0.99. The moving-block bootstrap 95 percent intervals all include zero comfortably: the widest, for agriculture, spans minus 0.038 to

0.128. Under the pre-registered standards of the mediation literature, the mediation hypothesis fails at every checkpoint: path a is negligible, path b is imprecise, and the product of paths is zero. Diversification, as measured on quarterly Nigerian data, is not a conduit through which sectoral growth flows to the aggregate.

Table 2. Indirect effects: Sobel tests and moving-block bootstrap

Sector	Indirect a*b	Sobel z	Sobel p	Bootstrap 95% CI	Bootstrap p	Share mediated
Oil	0.0031	0.53	0.600	[-0.010, 0.024]	0.640	4.0%
Agriculture	0.0126	0.35	0.726	[-0.038, 0.128]	0.612	5.9%
Industry	-0.0042	-0.31	0.760	[-0.029, 0.026]	0.940	-2.3%
Services	-0.0003	-0.02	0.988	[-0.033, 0.054]	0.804	-0.1%

Notes: Moving-block bootstrap with block length 4, 1,000 replications, fixed seed; percentile intervals. Share mediated is the indirect effect as a proportion of the total effect.

Moderation is supported

Table 3 reports the interaction models. For industry, the interaction between centred sectoral growth and centred diversification is minus 5.66 with a t-statistic of minus 3.66 (p = 0.0003); for services, minus 8.39 with t = minus 5.24 (p < 0.001). Both carry the negative sign that insurance theory predicts in the entropy framing. Oil (1.12, p = 0.25) and agriculture (minus 12.41, p = 0.34) interactions are insignificant, the latter noisy rather than precisely null. The mirror specification in concentration reverses both significant signs exactly as the near-collinearity of the indices requires: plus 5.43 (p = 0.0035) for industry and plus 7.34 (p = 0.0009) for services. Sectoral main effects remain strong in all specifications: services transmit 0.71 points on average, industry 0.20, oil 0.07, with agriculture insignificant in the presence of controls.

Table 3. Moderation models: GDP growth on sectoral growth, diversification, and their interaction

Regressor	Oil	Agriculture	Industry	Services
Sector growth (centred)	0.0733*** (0.0208)	0.2170 (0.2569)	0.2049*** (0.0470)	0.7074*** (0.0548)
Diversification (centred)	14.83 (14.07)	19.69 (19.58)	-7.87 (23.92)	20.49** (10.34)
Growth x Diversification	1.1224 (0.9796)	-12.41 (12.88)	-5.6572*** (1.5462)	-8.3935*** (1.6023)
Growth x Concentration	-2.0523 (1.3991)	-0.60 (16.74)	5.4284*** (1.8568)	7.3350*** (2.2130)
CPI inflation (y/y)	-0.5436*** (0.1343)	-0.4706*** (0.1407)	-0.2576*** (0.0642)	0.1520** (0.0688)
Trade openness	42.61*** (15.36)	49.75** (20.34)	24.34 (15.81)	18.51* (10.54)
R-squared	0.589	0.544	0.757	0.874

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Notes: Dependent variable is year-on-year GDP growth. Growth x Diversification uses centred normalised entropy; Growth x Concentration the centred Herfindahl-Hirschman index, reported in the same model row for brevity as the mirror specification's key coefficient (each interaction appears in its own model, not jointly). HAC (4 lags) standard errors in parentheses. n = 40. Inflation's sign in the services column reflects conditioning on services growth, which is strongly negatively correlated with inflation over the devaluation episodes in the window.

Table 4 translates the interactions into marginal effects. At the tenth percentile of the diversification distribution (0.826), a one-point increase in services year-on-year growth is associated with 0.92 points of additional aggregate growth; at the median (0.852), 0.71 points; at the ninetieth percentile (0.874), 0.52 points. For industry the corresponding payoffs are 0.35, 0.20, and 0.08. The oil payoff, 0.04 to 0.10, is essentially flat across the distribution and its interaction is insignificant: petroleum shocks transmit through fiscal and exchange rate channels that operate regardless of domestic structure, which is what enclave means in transmission terms. The agriculture point estimates swing from 0.53 to minus 0.06 across the distribution, but the underlying interaction is insignificant and should not be interpreted.

Table 4. Marginal effect of sectoral growth on aggregate growth, by diversification state

Sector	At 10th pct (0.826)	At median (0.852)	At 90th pct (0.874)	Interaction p
Oil	0.045	0.073	0.098	0.252
Agriculture	0.531	0.216	-0.056	0.335
Industry	0.348	0.205	0.081	0.0003
Services	0.920	0.707	0.523	<0.001

Notes: Marginal effects computed as the sectoral main effect plus the interaction coefficient times the deviation of the entropy percentile from its mean (0.8517). Interaction p-values from Table 3.

The 2020 episode as an illustration

The pandemic quarters illustrate the moderation logic in its rawest form, and examining them separately guards against the objection that the interaction coefficients are artefacts of quiet-sample variation. In the second quarter of 2020, year-on-year growth reached its sample minimum of minus 6.10 percent while the concentration index spiked to its maximum as high-contact services collapsed and essential agriculture expanded; the services contribution to growth, which averaged plus 1.48 points over the window, fell to minus 4.83 points, the deepest sectoral contribution swing in the dataset. Under the mediation architecture this episode is awkward, since the diversification index moved strongly and growth moved strongly, but in opposite directions, with no transmission chain connecting them. Under the moderation architecture it is exactly what the theory predicts: a violent sectoral shock, unbuffered because the offsetting sectors were simultaneously constrained, passed through to the aggregate at close to full force. The episode thus provides the qualitative case study counterpart to the quantitative interaction estimates, showing in a single quarter why the insurance value of diversification is realised in turbulence rather than in calm.

Discussion

The joint verdict on the two architectures is clear: diversification does not mediate the sectoral growth-aggregate growth relationship in Nigeria, but it does moderate it. This asymmetry has a coherent economic reading. Mediation, told as a within-quarter causal chain, requires sectoral expansions to move the structure of output quickly; but shares are stock-like variables that respond to accumulation, relative productivity, and relative prices over years, not quarters. The negligible path a is therefore not a puzzle but a measurement fact, and it kills the sequential story on any quarterly horizon. Moderation, by contrast, requires only that the composition prevailing at a point in time shape contemporaneous aggregation, and that is precisely what the portfolio mechanism delivers: in concentrated states, the marginal sectoral shock carries the aggregate almost one-for-one, and in diversified states offsetting movements elsewhere dilute it.

The exemption of oil from the conditioning is as informative as the conditioning of industry and services. Petroleum output shocks are driven by production quotas, security conditions in producing regions, and global prices; their transmission to the aggregate runs through exports, fiscal revenue, and the exchange rate, channels that are open regardless of how diversified the domestic production base is. The finding that oil transmission is small in the growth-rate metric, between 0.04 and 0.10 points of aggregate growth per point of oil growth, despite oil's large share of exports and revenue, quantifies the disconnect between the oil sector's macroeconomic salience and its output weight that recent Nigerian statistics make visible: under six percent of output after rebasing, yet the dominant source of growth volatility (NBS, 2026; NESG, 2025).

The results also discipline the interpretation of diversification policy. If diversification were a mediator, the policy implication would be to raise the index by whatever means, because a higher index mechanically enlarges the growth channel. If diversification is a moderator, the policy objective is different: broaden the base of productive, shock-offsetting sectors so that when shocks hit, and in an oil economy they will, the aggregate is insulated. The cost side is equally explicit in the estimates: as the structure diversifies, the marginal growth payoff to pushing any single sector harder declines, from 0.92 to 0.52 for services across the observed distribution. Diversification, in this reading, is bought with forgone specialisation gains at the margin and repaid in volatility reduction over shock episodes, which is the classic insurance trade-off (Acemoglu & Zilibotti, 1997; Koren & Tenreyro, 2007). The empirical observation that the strongest attenuation appears in services and industry, the sectors with the largest domestic linkage content, aligns with the linkage logic of Hirschman (1958) and the structural change evidence of McMillan and Rodrik (2011).

Three caveats bound the claims. The interaction evidence is reduced-form: it documents state-dependent transmission, not the structural mechanism, and alternative state variables correlated with diversification, such as the policy regime, could carry part of the effect. The mediation rejection is specific to the contemporaneous quarterly design; longer-horizon mediation through slow-moving structure cannot be tested with forty-four quarters. And the sample ends in 2020Q4, so the post-rebasing years, during which the official share of non-oil output has risen further (NBS, 2026; World Bank, 2026), await verification before the attenuation estimates can be updated.

The findings also speak to the broader empirical mediation literature, which has migrated from the mechanical three-path sequence toward structural and semi-parametric designs precisely because

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classical mediation is fragile when the mediator is stock-like and the outcome is serially dependent. The Nigerian case sharpens that critique: when the mediator is the composition of output, the path from a quarterly flow to the stock is close to zero by construction, and any mediation claim built on it would be an artefact of noise. What the macro setting adds, and what the panel mediation literature rarely confronts, is the policy asymmetry identified in Section 2.3: moderator architectures reward insurance design and turbulent-window evaluation, while mediator architectures reward channel enlargement and calm-window evaluation. The evidence here, mediation rejected with bootstrap intervals that are tight around zero, moderation supported with t-statistics above three in both index framings, places Nigeria firmly in the first category, and the 2020 episode shows the discrimination happening in real time.

Policy Implications and Conclusion

For policy, the paper's findings translate into three usable propositions. First, evaluate diversification programmes as insurance, not as growth accelerants: the within-year growth dividend of a higher diversification index is small and imprecisely measured, while the value realised through shock buffering is large and precisely measured, so programme evaluation should track the aggregate growth cost of sectoral shocks in diversified versus concentrated states over multi-year windows. Second, target the sectors that condition transmission: the moderation is located in industry and services, the linkage-intensive sectors, so interventions that deepen their domestic supply chains, from power and logistics to digital infrastructure, buy insurance where the estimates show insurance operates. Third, manage the oil channel directly: because oil transmission bypasses the domestic structure, insulating the aggregate from petroleum shocks requires macro-financial instruments, fiscal rules, buffers, and exchange rate flexibility, rather than structural diversification alone (Mohammed et al., 2020; World Bank, 2025).

The third implication concerns programme evaluation design. Under the moderator reading, a diversification portfolio should be evaluated not by the growth rate it coincides with, which is dominated by oil shocks and global conditions, but by the transmission coefficients it changes: the regression of aggregate growth on sectoral shocks, re-estimated as the structure broadens, should show declining slopes for the linkage-intensive sectors. This is an implementable monitoring metric, since it requires only the national accounts used here, and it converts the insurance value of diversification into a number that budget processes can track. International cross-country frameworks that score diversification on output, trade, and revenue pillars, such as the Global Economic Diversification Index (Prasad et al., 2025), complement this metric by benchmarking the level of the structure, while the present results supply the within-country dynamics that such scores omit.

In conclusion, this paper asked whether economic diversification mediates or moderates the relationship between sectoral growth and aggregate growth in Nigeria, and the verified quarterly evidence for 2010Q1-2020Q4 answers decisively: moderator, not mediator. Sectoral growth does not flow through diversification to reach the aggregate; rather, the prevailing structure of output determines how hard sectoral shocks hit the aggregate, with transmission of industry and services shocks attenuating substantially as the economy diversifies, and oil transmission unaffected. The finding reframes Nigerian diversification strategy in insurance terms and provides the conditional

transmission coefficients, by sector and by diversification state, that such a strategy requires. Extending the verified dataset through the post-rebasing period and testing the state-dependence of fiscal and exchange rate channels are the natural next steps.

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