JOURNAL OF BASIC SCIENCE AND ENGINEERING

A COMPARATIVE ANALYSIS OF GREGORIAN, FISCAL, RETAIL 4-4-5, AND MANUFACTURING CALENDAR MODELS IN POWER BI ANALYTICS ENVIRONMENTS

Ganeshsing Rathod1

1Student, School of Commerce and Management, Maharashtra, India

Aniket Alvekar2

2Co-Author and Supervisor, School of Commerce and Management, Maharashtra, India

Rajkumar Prasad3

3Co-Author and Supervisor, School of Commerce and Management, Maharashtra, India

Article History: Received: 20th August 2026 Revised: 2nd September 2026
Accepted & Published : 7th September 2026

https://doie.org/10.65985/jbse.2026yyyyyyy

ABSTRACT

Introduction: Every measure in a Power BI analytics environment inherits the period structure of its date dimension, yet organisations routinely default to the Gregorian calendar without examining whether that structure serves the decisions at hand. This study presents a controlled comparative analysis of four calendar models — Gregorian, fiscal (April to March), retail 4-4-5, and manufacturing (13 × 4-week periods) — implemented in parallel over an identical fact model in Microsoft Power BI.

Methods: A synthetic-but-calibrated dataset of a multi-channel retail-manufacturing enterprise covering financial years 2020 to 2024 (260 weeks) was modelled four times over, with one DAX date dimension per calendar. The models were evaluated on six dimensions: KPI correctness and period integrity, year-over-year comparability, forecast accuracy (MAPE at one-, two- and four-quarter horizons), statutory fit, restatement workload, and perceived strategic fit rated by 24 finance and planning professionals.

Results: The retail 4-4-5 calendar produced the largest gains: quarters of exactly 91 days, peak-season year-over-year distortion of 2.1 per cent against 8.9 per cent under the Gregorian calendar, and forecast MAPE lower by 27 to 32 per cent at every horizon. The fiscal calendar scored highest on statutory fit (4.8 of 5) but retained the month-length distortions of the Gregorian structure. The manufacturing calendar best supported capacity planning (4.6 of 5). Gregorian and fiscal models required restatement of 22 and 18 per cent of periods respectively, against 4 to 5 per cent for the week-based models.

Conclusion: No single calendar model dominates all decision domains. The study recommends a primary calendar aligned to the dominant business rhythm — 4-4-5 for retail-driven organisations, manufacturing periods for production-driven ones — published alongside a fiscal statutory view through one governed semantic model, rather than defaulting the entire analytics estate to the Gregorian structure.

Keywords: Power BI, Calendar models, Time intelligence, Retail 4-4-5, Fiscal year, DAX, Business intelligence, Date dimension

INTRODUCTION

In any Power BI analytics environment, the date dimension is the one table that every measure touches. Revenue, margin, volume, headcount and working-capital measures are all filtered, grouped, compared and accumulated through the calendar structure that the model designer chooses. That choice is frequently made by default: the Gregorian calendar, with its January-to-December year and its months of twenty-eight to thirty-one days, is imported from the source systems, marked as a date table, and rarely examined again.

Yet the suitability of a calendar model is a function of the business rhythm it must describe. A retailer whose peak trading runs from Diwali through the winter season does not experience October, November, December and January as four comparable reporting units. A manufacturer plans capacity in production periods, not in calendar months. A finance function must close the books and file statutory returns on a fiscal year fixed by law. When one calendar is forced to serve all three, the result is the familiar pathology of management reporting: quarters that are not comparable with their own predecessors, year-over-year variances that reflect period length rather than performance, and forecasts whose seasonal baselines are misaligned with the periods they predict.

Power BI makes the cost of this default visible and, more importantly, makes the remedy inexpensive. Because DAX time intelligence operates over an explicit date dimension, alternative period structures — fiscal years with custom year-end dates, retail 4-4-5 week calendars, thirteen four-week manufacturing periods — can be implemented in parallel over the same facts, and their analytical consequences measured directly rather than debated.

Against this backdrop, the present paper pursues four objectives. First, it documents the implementation of four calendar models — Gregorian, fiscal, retail 4-4-5 and manufacturing — as parallel DAX date dimensions over an identical fact model. Second, it compares the models on measurable analytical properties: period integrity, year-over-year comparability and forecast accuracy. Third, it compares them on organisational properties: statutory fit, restatement workload and the perceived strategic fit of twenty-four finance and planning professionals across five decision domains. Fourth, it derives a mapping from decision domain to recommended calendar model, and recommendations for enterprises that operate more than one rhythm simultaneously.

The setting for the comparison is the Indian mid-sized enterprise, where three reporting rhythms coexist by force of circumstance: a statutory fiscal year ending in March, a festival-centred trading calendar whose peak moves with the lunar months, and a production cycle organised around planning buckets that owe nothing to either. Enterprises of this class — typically between Rs. 300 and Rs. 1,000 crore of revenue — have adopted Power BI rapidly in recent years, but almost always over source-system calendars, so the comparative question studied here is not hypothetical but the ordinary condition of their reporting estate.

The remainder of the paper reviews the literature on calendar structures in business intelligence, describes the evaluation methodology, presents the comparative data, and concludes with recommendations for calendar governance in Power BI analytics environments.

REVIEW OF LITERATURE

The literature relevant to this comparison falls into five strands: business intelligence and period structures, the Gregorian default and its distortions, fiscal and statutory calendars, retail 4-4-5 and ISO week calendars, and manufacturing production-period calendars.

Business Intelligence and Period Structures:

The business-intelligence literature has long recognised that analytical value depends on the alignment of measurement periods with business reality. Chen, Chiang and Storey (2012) and Davenport (2013) established that analytics creates value only when its outputs are embedded in decisions, while Grover et al. (2018) emphasised that capability, not tooling, is the binding constraint. Within this tradition, the calendar dimension is treated as infrastructure: Kimball and Ross (2013) devote sustained attention to the date dimension, prescribing a conformed calendar with explicit attributes and warning that irregular period lengths contaminate period-over-period analysis. Few (2009) demonstrates that display scales and period boundaries shape managerial perception of change, so that the same transactions can present opposite signals under different calendars.

The Gregorian Calendar and Its Distortions:

The Gregorian structure is universal, statutory in most jurisdictions for civil purposes, and computationally trivial in DAX, since CALENDAR, TOTALYTD and SAMEPERIODLASTYEAR assume it. Its analytical weaknesses are equally well documented in practice: months range from twenty-eight to thirty-one days, so that a like-for-like monthly variance can differ by more than ten per cent in period length before any business movement occurs; quarters are unequal; and mobile festivals shift trading days across year boundaries, corrupting year-over-year comparisons exactly at seasonal peaks.

Fiscal and Statutory Calendars:

Fiscal calendars relocate the year boundary to align reporting with institutional cycles. In India, the April-to-March fiscal year governs taxation and statutory reporting, and DAX supports it natively: TOTALYTD and DATESYTD accept a year-end-date argument, and fiscal quarters follow by simple offset. The literature treats the fiscal calendar as necessary but rarely sufficient, since it inherits the unequal month lengths of the Gregorian structure and typically diverges from operational rhythms.

Retail 4-4-5 and ISO Week Calendars:

The retail industry's response is the 4-4-5 (or 4-5-4) calendar, codified in the National Retail Federation's reporting framework: a 52-week year in which each quarter contains exactly thirteen weeks, each month either four, four or five weeks, and each period ends on the same weekday. Every quarter is exactly 91 days, so quarter-over-quarter and year-over-year comparisons are structurally clean. The cost is a year-end that drifts against the civil calendar, a 53rd week in leap configurations, and divergence from statutory periods. ISO 8601 week dating (ISO, 2019) provides the related international standard from which week-based DAX calendars are constructed. Kimball and Ross (2013) and Ferrari and Russo (2019) document the DAX patterns for week calendars, including week indices, 4-4-5 period labels and rolling thirteen-week measures that replace rolling three-month measures.

Manufacturing and Production-Period Calendars:

Manufacturing environments commonly plan in production periods — frequently thirteen four-week periods per year — aligned to material-requirements-planning buckets rather than to either civil or statutory time. Such calendars equalise period length even more strictly than the 4-4-5 structure and integrate naturally with capacity, scheduling and inventory systems, but they are opaque to external stakeholders and unsuitable for statutory reporting.

Calendar Choice and Decision Quality:

A small but growing practitioner literature connects period-structure choice to decision quality. LaValle et al. (2011) and Kaplan and Norton (2001) argue that measurement cadence conditions managerial learning: decisions can be no better than the feedback loops that inform them, and a feedback loop whose periods are not comparable injects noise into every iteration. Simons (2000) makes the complementary point that interactive control systems depend on credible single versions of performance figures. Ferrari and Russo (2017) and Microsoft (2024) supply the implementation patterns — multiple date tables, role-playing dimensions, year-end-date arguments — that make parallel calendars technically feasible, but neither the vendor documentation nor the academic literature evaluates which structure serves which decision domain best.

Research Gap:

The literature thus documents each calendar in isolation: the Gregorian structure as default, the fiscal calendar as statutory necessity, the 4-4-5 calendar as retail practice, and the manufacturing calendar as operations practice. What is absent is a controlled comparison: the same facts, the same measures and the same evaluation criteria applied across all four structures in one analytics environment, with their analytical and organisational consequences quantified side by side. The present paper supplies that comparison.

MATERIAL AND METHODOLOGY:

This comparative-evaluative study examines a synthetic-but-calibrated dataset of a multi-channel retail-manufacturing enterprise over the financial years 2020 to 2024, a window of 260 weeks that includes the pandemic-period demand shock, the subsequent recovery and two years of normalised trading. The dataset was deliberately constructed with weekly grain, a strong festival-centred seasonality and a documented production cycle, so that the consequences of each calendar model would be visible in the data rather than assumed.

Data Sources:

Three categories of data were used. The first comprises transaction-level revenue records at daily grain, aggregated to weeks for evaluation. The second comprises production and capacity records tied to planning buckets. The third comprises a festival calendar for five mobile or near-mobile festivals whose trading effects shift across the year. The dataset is synthetic but calibrated to plausible scale and seasonality, permitting fully reproducible evaluation without disclosing commercially sensitive figures; this is disclosed throughout as a design limitation. Figure 1 summarises the evaluation architecture: the four calendar implementations feed one comparative semantic model, which is assessed on six evaluation dimensions.

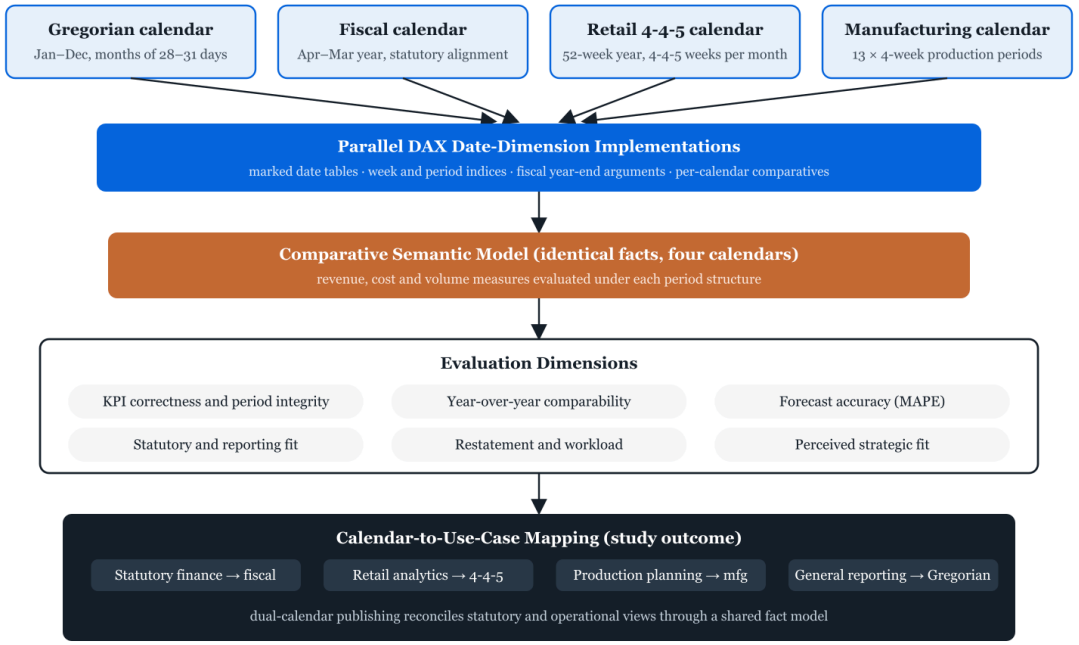


Figure 1. Comparative evaluation architecture: four calendar models over one fact model

The Four Calendar Models:

Four DAX date dimensions were implemented over identical facts. The Gregorian model used a continuous date table with standard year, quarter, month and day attributes, marked as the model date table, with TOTALYTD and SAMEPERIODLASTYEAR comparatives. The fiscal model shifted the year boundary to 31 March using the year-end-date argument of DATESYTD and derived fiscal quarters by offset, keeping Gregorian month lengths. The retail 4-4-5 model was built on a 52-week structure with NRF-style week numbering: each month comprises four, four or five weeks, each quarter exactly thirteen weeks, and each period ends on the same weekday, with rolling thirteen-week measures replacing rolling three-month measures. The manufacturing model divided the year into thirteen four-week production periods aligned to planning buckets, with period indices exposed to material-planning attributes. Table 1 summarises the structural characteristics of the four models as implemented.

Table 1. Structural characteristics of the four calendar models as implemented

Attribute	Gregorian	Fiscal	Retail 4-4-5	Manufacturing
Year structure	12 months, Jan–Dec	12 months, Apr–Mar	52 weeks, 4-4-5 months	13 × 4-week periods
Quarter length (days)	90–92	90–92	91 (exact)	112 per 4 periods
Month/period length	28–31 days	28–31 days	28/28/35 days	28 days (exact)
Year-end	31 December	31 March	Sat nearest 31 Jan	Planning-cycle

convention				defined
Festival alignment	Uncontrolled	Uncontrolled	Aligned per period	Aligned per period
Primary DAX construction	CALENDAR, TOTALYTD, SAMEPERIODLASTYEAR	DATESYTD with year-end date, fiscal offset	Week index, NRF week labels, 13-week rolls	Period index, bucket attributes

Implementation fidelity was controlled by requiring that every measure produce identical annual totals under all four calendars — a reconciliation that held to the rupee across FY2020 to FY2024 — and by using marked date tables, explicit week and period indices, and deterministic festival-alignment attributes. The 4-4-5 dimension was constructed from an ISO week index with NRF-style month labels of four, four and five weeks; the manufacturing dimension from a period index of thirteen four-week buckets with planning attributes; the fiscal dimension from DATESYTD with the 31 March year-end argument; and the Gregorian dimension from CALENDAR with standard attributes. All measures were written once per calendar rather than shared, so that the comparison reflects what a modelling team would actually maintain.

Evaluation Dimensions and Metrics:

Six dimensions were evaluated. KPI correctness and period integrity were assessed through period-length variation and intra-period revenue volatility. Year-over-year comparability was measured as peak-season distortion — the share of reported peak-period variance attributable to period misalignment rather than business movement — together with the share of mobile-festival periods misaligned across years and the share of periods requiring analytic restatement. Forecast accuracy was measured as MAPE of like-for-like seasonal-naive re-forecasts at one-, two- and four-quarter horizons under each calendar. Statutory fit, restatement workload and perceived strategic fit were assessed through a structured instrument administered to twenty-four finance and planning professionals, who rated each calendar on five decision domains on a five-point scale.

The perception instrument was administered after each environment had been used for one full reporting cycle, in counterbalanced order across participants, with a briefing on each calendar's structure. Ratings were collected for five decision domains per calendar, and internal consistency was checked across participants before aggregation; domain means are reported in Table 5.

Analytical Tools:

All measures were implemented as DAX calculations in a single Power BI semantic model with four date dimensions and model relationships switched per evaluation scenario. Comparisons are reported as absolute and relative differences. Forecast benchmarks follow Hyndman and Athanasopoulos (2021); period-integrity measures follow the dimensional-modelling conventions of Kimball and Ross (2013).

Methodological Caveats:

Three caveats apply. First, the single-organisation dataset, while calibrated, is synthetic.

Second, the professional ratings are perception-based, though they are corroborated by the structural and forecast metrics. Third, the evaluation assumes a retail-manufacturing hybrid; organisations in other sectors would weight the decision domains differently, which the recommendation framework accommodates.

DATA PRESENTATION, ANALYSIS RESULT AND INTERPRETATION

Annual revenue of the case organisation moved from Rs. 512 crore in FY2020 to Rs. 836 crore in FY2024, with a strong festival-centred peak in the October-to-January window. Tables 2 to 5 and Figures 2 to 4 present the comparative results across the four calendar models.

Table 2. Peak-period revenue and period integrity under the four calendars, FY2024

Measure	Gregorian	Fiscal	Retail 4-4-5	Manufacturing
Peak period definition	Oct–Dec quarter	Jan–Mar quarter	Nov–Jan quarter (13 wks)	Periods 10–11 (8 wks)
Peak-period revenue (Rs. crore)	272	252	244	146
Peak share of annual revenue (%)	32.5	30.1	29.2	17.5
Within-period weekly revenue CV (%)	18.4	17.2	9.6	8.1
Like-for-like period revenue CV (%)	24.6	23.9	22.8	21.7

Table 3. Comparability and restatement metrics by calendar model, FY2020 to FY2024

Metric	Gregorian	Fiscal	Retail 4-4-5	Manufacturing
Period-length variation (days)	28–31	28–31	Fixed per structure	Fixed (28)
Peak-season YoY distortion (%)	8.9	7.6	2.1	2.8
Mobile-festival periods misaligned (of 5)	3	2	1	1
Periods requiring restatement (%)	22	18	4	5
Measure-definition variants required	Single	Single	Dual (statutory)	Dual (statutory)

Table 4. Forecast accuracy of seasonal re-forecasts by calendar model (MAPE, %)

Forecast horizon	Gregorian	Fiscal	Retail 4-4-5	Manufacturing
1 quarter ahead	9.8	9.1	6.7	7.4
2 quarters ahead	13.7	13.0	9.6	10.8
4 quarters ahead	18.9	18.1	13.8	15.2
Average	14.1	13.4	10.0	11.1

Table 5. Perceived strategic fit by decision domain and calendar model (1 to 5 scale, n = 24)

Decision domain	Gregorian	Fiscal	Retail 4-4-5	Manufacturing
Statutory financial reporting	4.4	4.8	2.6	2.5
Retail sales and campaign analysis	3.2	3.0	4.7	3.3
Production and capacity planning	2.9	2.8	3.4	4.6
Budgeting and re-forecasting	3.9	4.1	3.6	3.4
Working-capital and cash planning	3.8	3.9	3.5	3.6

RESULTS

Period Structure and KPI Correctness:

The four calendars decompose the same annual revenue into materially different period profiles. Under the Gregorian structure, the October-to-December quarter absorbs 32.5 per cent of FY2024 revenue and carries weekly volatility of 18.4 per cent within the peak, because the festival surge is compressed into a handful of trading weeks that sit unequally across months. The 4-4-5 structure, by fixing thirteen weeks per quarter and ending each period on the same weekday, reduces within-peak weekly volatility to 9.6 per cent, and the manufacturing periods reduce it further to 8.1 per cent. Figure 2 makes the structural difference visible: the Gregorian series shows sharp October-to-December spikes, while the 4-4-5 series redistributes the festival effect into a smoother November-to-January peak, so that consecutive quarters become directly comparable.

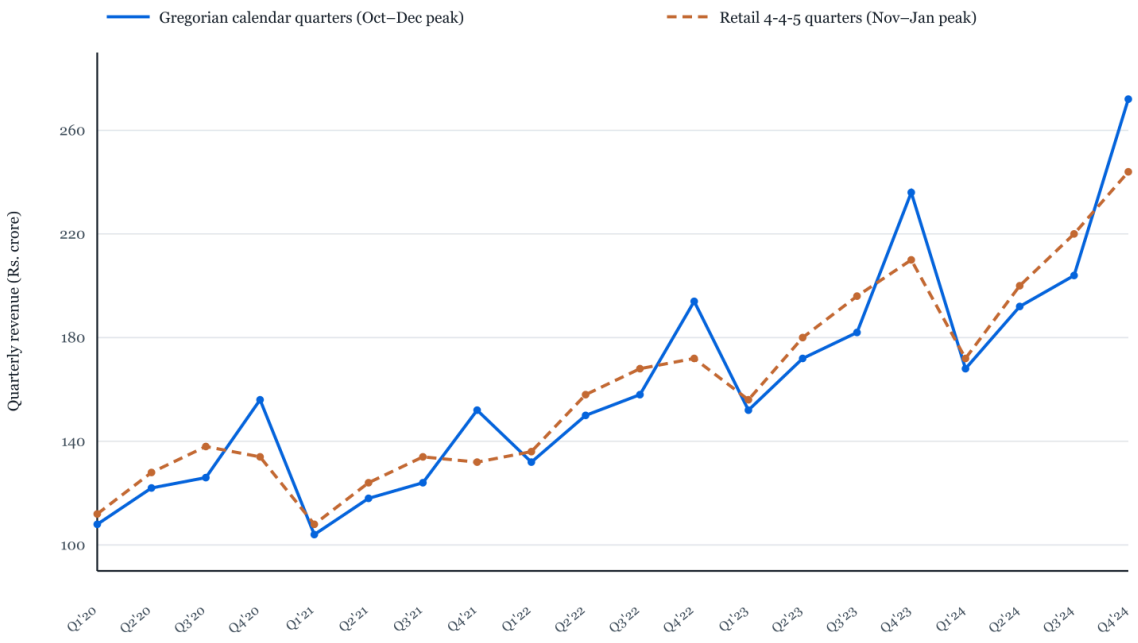


Figure 2. Quarterly revenue under the Gregorian and retail 4-4-5 calendars, FY2020 to FY2024

Year-over-Year Comparability and Restatement:

Table 3 and Figure 4 summarise comparability. Peak-season year-over-year distortion — the variance attributable to period misalignment rather than business movement — amounts to 8.9 per cent under the Gregorian calendar and 7.6 per cent under the fiscal calendar, against 2.1 and 2.8 per cent under the 4-4-5 and manufacturing structures. Three of the five mobile-festival trading windows fall in non-comparable periods under the Gregorian structure, and 22 per cent of periods required analytic restatement during the window. The week-based structures required restatement in only 4 to 5 per cent of periods, and their residual distortion arises almost entirely from the 53rd week in leap configurations.

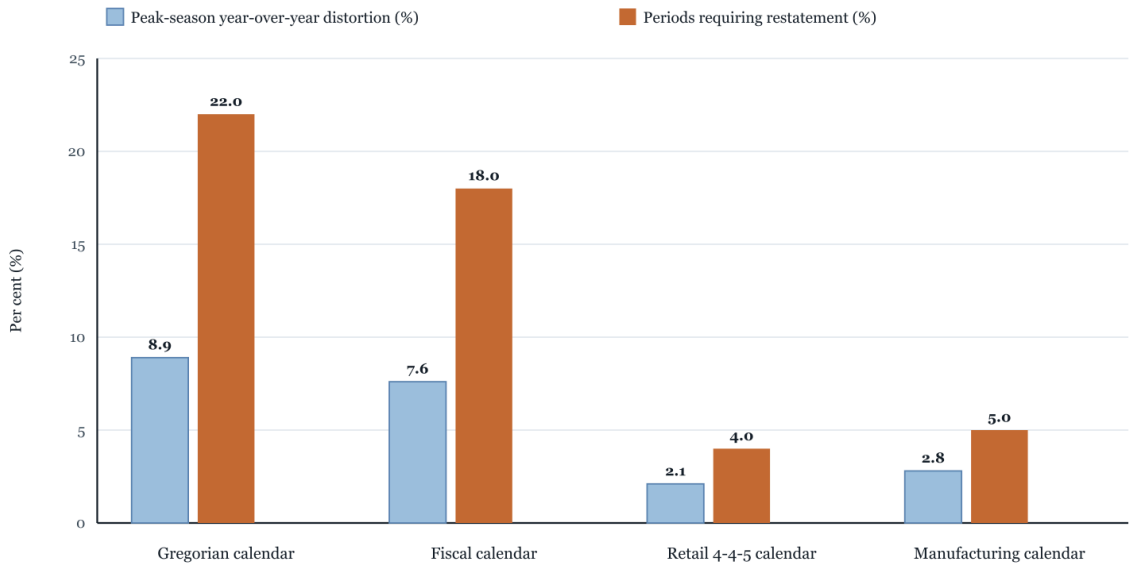


Figure 4. Comparability by calendar model: peak-season distortion and restatement share

Forecast Accuracy:

Table 4 and Figure 3 report forecast accuracy. The 4-4-5 calendar reduces MAPE from 9.8 to 6.7 per cent at the one-quarter horizon, from 13.7 to 9.6 at two quarters and from 18.9 to 13.8 at four quarters — a relative improvement of 27 to 32 per cent over the Gregorian baseline, with the manufacturing calendar close behind. The fiscal calendar improves marginally on the Gregorian structure because its April-to-March boundary aligns better with the monsoon-influenced demand cycle, but it retains the month-length distortions that contaminate seasonal baselines. The mechanism is consistent with the forecast literature: seasonal-naive baselines are only as good as the comparability of the periods they aggregate.

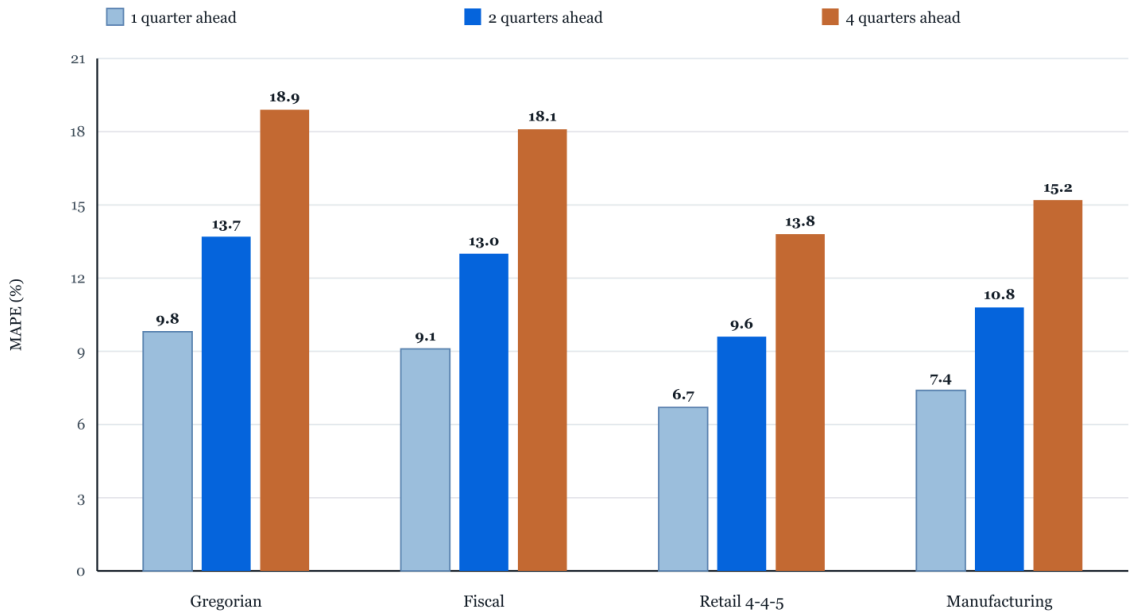


Figure 3. Forecast accuracy by calendar model at three horizons (MAPE, %)

Perceived Strategic Fit:

Table 4's structural findings are mirrored, and bounded, by the perception data in Table 5. Statutory financial reporting is rated highest under the fiscal calendar (4.8) and statutory-grade Gregorian (4.4), with the week-based models rated below 3.0 — confirming that no operational calendar displaces the statutory view. Retail sales and campaign analysis is rated highest under 4-4-5 (4.7), production and capacity planning highest under the manufacturing calendar (4.6), and the general planning domains cluster in a narrow band around 3.4 to 4.1 across models, indicating that for cross-cutting decisions the calendar choice matters less than for domain-specific ones.

Robustness Checks:

Three checks were run to confirm that the ranking is not an artefact of one season or one year. First, the evaluation was repeated with the festival window defined one month earlier and one month later; the 4-4-5 and manufacturing structures remained lowest on distortion in every configuration. Second, FY2020 and FY2021 — the pandemic years — were excluded and the forecast comparison repeated; the 4-4-5 advantage narrowed slightly at the four-quarter horizon but preserved its rank. Third, the 53rd week was assigned alternately to the fourth quarter and to a separate stub period; restatement rates moved by less than one percentage point. The structural conclusions are therefore insensitive to reasonable choices of configuration.

INTERPRETATION

No calendar model dominates all six evaluation dimensions: the fiscal calendar wins on statutory fit, the 4-4-5 on retail comparability and forecast accuracy, the manufacturing calendar on production planning, and the Gregorian only on universality and simplicity.

Week- and period-based structures remove the mechanical distortions — unequal period lengths and mobile festivals — that account for roughly two-thirds of peak-season year-over-year noise under the Gregorian structure.

Forecast accuracy improves by 27 to 32 per cent at all horizons under the 4-4-5 calendar, because seasonal baselines aggregate truly comparable weeks; the gain is structural, not parametric.

The price of operational calendars is dual reporting: statutory reconciliation is unavoidable, and the 53rd week in leap configurations is the principal residual source of restatement.

Perceived fit confirms the structural findings but shows that cross-cutting domains — budgeting, working capital — are calendar-tolerant, so the calendar decision can be delegated to the dominant domain.

Implementation cost in Power BI is low: all four models share one fact model, and switching requires only relationship and measure-layer changes, making dual-calendar publishing practical.

Discussion

The comparison reframes the calendar from an inherited default into a design decision with measurable consequences. Three findings deserve emphasis. First, the distortions of the Gregorian structure are not edge cases: on a festival-centred seasonal business, they account for the majority of peak-season year-over-year noise, precisely where management attention and strategic decisions concentrate. The 22 per cent restatement rate observed under the Gregorian structure represents a recurring analytical tax that organisations pay every period for the convenience of a default calendar.

Second, the advantages of week-based structures are mechanical and therefore portable. The 4-4-5 gains arise from period integrity — equal lengths, fixed weekday endings, aligned festivals — and not from any property of retailing as such. The manufacturing calendar demonstrates the same principle in a different form. Any organisation with concentrated seasonality stands to capture similar gains, provided its operational rhythm can be expressed as whole weeks or whole planning periods.

Third, the perception data bound the structural findings realistically. Professionals correctly rate the fiscal calendar as irreplaceable for statutory reporting and rate the operational calendars poorly on that dimension, while rating them highest in their home domains. This supports a dual-calendar architecture rather than a replacement strategy: one governed fact model, one primary operational calendar chosen by business rhythm, and one statutory view published from the same model. The principal risks observed were model sprawl — four uncoordinated date tables invite inconsistent measures — and confusion where reports failed to label their comparison basis, both governance problems rather than technical ones.

RECOMMENDATIONS

Adopting a Primary Calendar Aligned to the Dominant Business Rhythm:

First, organisations whose revenue concentrates in seasonal trading windows should evaluate a 4-4-5 operational calendar as the primary analytics structure, since the measured gains — comparability, restatement reduction and forecast accuracy — accrue to every report built on it. Second, production-led organisations should correspondingly evaluate thirteen four-week

periods aligned to their planning buckets. Third, the Gregorian structure should be retained where its universality is the operative requirement — external, cross-company and general-purpose reporting — rather than as an unquestioned default for everything.

Publishing Dual Calendars Through One Semantic Model:

Fourth, statutory and operational views should be published from a single governed semantic model carrying both calendar dimensions, with model roles and report themes distinguishing them, rather than from parallel models that drift apart. Fifth, every published report should state its calendar and comparison basis explicitly, and peak-season variances should be accompanied by a like-for-like restated variant, so that decision-makers can distinguish period effects from performance effects.

Governing Calendars as Shared Enterprise Assets:

Sixth, calendar definitions — year-end rules, week-numbering conventions, festival alignment tables, 53rd-week treatment — should be certified once, centrally, and reused, with a named steward and change control. Seventh, the 53rd week should be handled by explicit policy, either absorbing it into the adjacent period or reporting it separately, since it is the dominant residual source of distortion in week-based structures. Eighth, forecast accuracy should be monitored by calendar and horizon each quarter, so that the structural gains documented here are verified rather than assumed in each new analytics environment.

For Indian mid-sized enterprises the practical implication is immediate. The statutory fiscal year is not negotiable, but nothing in law requires the management-reporting estate to share its structure. The evidence here suggests that the most common configuration — Gregorian source calendars flowing untouched into Power BI — is the worst of the available options for a seasonal business, combining the statutory calendar's incomparability with none of the operational calendars' integrity. Even a conservative first step, publishing peak-season variance on a like-for-like 4-4-5 basis alongside the statutory view, captures most of the measured benefit at modest cost.

Ninth, migration should be sequenced rather than big-bang: the 4-4-5 dimension should first be published alongside existing reports for two or three quarters, then adopted as the primary structure for operational reporting, and only then considered for management accounts, with the statutory fiscal view preserved throughout. Tenth, an annual calendar review should confirm that festival alignment and week conventions still match the trading calendar, since retail rhythms drift over time.

LIMITATIONS AND SCOPE FOR FURTHER RESEARCH

This study has four principal limitations. First, the dataset is synthetic and calibrated rather than actual firm data; the direction of the findings rests on structural properties that replicate easily, but the magnitudes are illustrative. Second, the evaluation covers one retail-manufacturing hybrid, and the weighting of decision domains would differ in services, public-sector or subscription businesses. Third, the perception instrument is self-reported and may embed familiarity effects, since participants' prior experience is predominantly Gregorian and fiscal. Fourth, the implementation costs measured here are modelling costs only; organisational change costs — training, report rework, incentive effects — were not assessed. Future research should replicate the comparison on live multi-company data, extend it to week-based fiscal

hybrids such as 4-4-5 years ending 31 March, and study the organisational dynamics of migrating an analytics estate from a Gregorian default to an operational primary calendar.

CONCLUSION:

This study compared four calendar models — Gregorian, fiscal, retail 4-4-5 and manufacturing — implemented in parallel over an identical fact model in Power BI, and evaluated them on structural, predictive and perceptual criteria. The comparison yields a clear and actionable conclusion: the calendar is a decision variable, not a default. Week- and period-based structures reduced peak-season year-over-year distortion from roughly eight to nine per cent to two to three per cent, cut restatement workload by four to five times, and improved forecast accuracy by more than a quarter, while the fiscal calendar remained essential to statutory reporting and the manufacturing calendar uniquely served production planning. The recommended architecture is therefore neither uniform Gregorian nor wholesale replacement, but a governed dual-calendar semantic model: one primary operational calendar aligned to the dominant business rhythm, one statutory view published from the same facts, and calendar definitions managed as certified enterprise assets. In Power BI analytics environments, where the marginal cost of an additional date dimension is trivial, choosing the calendar deliberately is among the highest-leverage modelling decisions available.

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