



UPU Think Tank Brief

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Trends and drivers of international postal exchanges: a regional corridor analysis

Introduction

The landscape of international postal services has undergone a profound transformation in the wake of the COVID-19 pandemic.

This unprecedented global crisis disrupted supply chains, shifted consumer behaviours, and accelerated the digital transformation, collectively exerting a significant impact on both the volume and nature of international postal traffic.

These changes were further compounded by other major disruptions, including modifications to the international postal remuneration system (commonly known as terminal dues), and the implementation of new border security and customs regulations.

As a result, the decline in international postal volumes has been substantial, as has been highlighted in several recent publications from the UPU.

These combined factors have not only reshaped the operational dynamics of the sector, but also posed critical challenges to its recovery and future growth. Despite some recovery in global trade and logistics networks, **international postal exchanges have yet to fully rebound.**

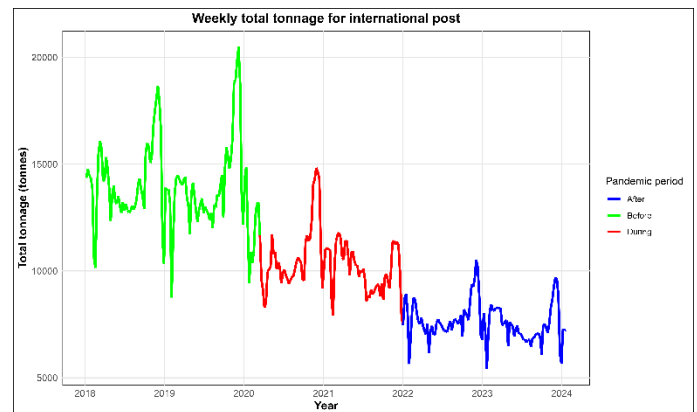
The challenges facing this sector are not simply residual effects of the pandemic, but are deeply entrenched structural issues that have been particularly exacerbated by the COVID-19 crisis in certain segments of international postal services.

This policy brief delves into these challenges, offering a comprehensive analysis of the drivers that are shaping both the current and future state of international postal volumes.

By combining regional analyses with econometric modelling, we provide nuanced insights into the complex dynamics at play and propose strategic responses to help navigate this evolving landscape.

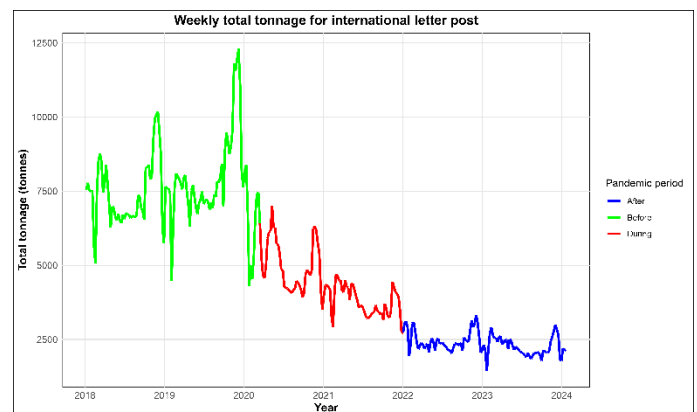
The post-pandemic non-recovery of international postal services

The COVID-19 pandemic triggered a substantial and sustained decline in international postal tonnage, with the fourth quarter of 2023 showing a nearly 50% decrease compared to the same period in 2019 (see below).

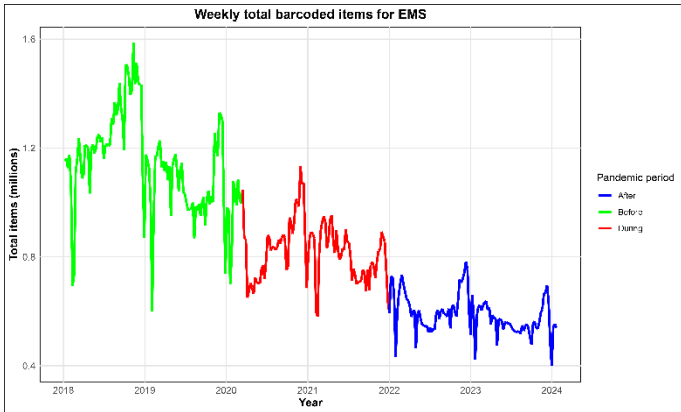


This sharp contraction is not uniform across all segments of the postal industry, but is especially pronounced in certain key areas.

Specifically, two key segments – small packets in international letter post and shipments under the Express Mail Service (EMS) – have been disproportionately affected, highlighting deeper structural vulnerabilities within these services.



The stark decline in small packets (see graph above), often associated with e-commerce and cross-border digital trade, underscores the significant disruption to global supply chains and the evolving preferences of consumers and global e-commerce platforms, who have increasingly turned to alternative B2B2C delivery solutions.



Similarly, the EMS segment (see graph above), which typically handles urgent and high-value items, has seen a pronounced drop, reflecting broader challenges in maintaining reliable and timely international service during the pandemic and in the subsequent recovery period.

The limited recovery observed in these segments suggests that the challenges they face are not merely temporary disruptions, but are, rather, symptomatic of more profound and enduring shifts within the global postal ecosystem.

These shifts likely include significant changes in cross-border e-commerce operational models, regulatory adjustments that may complicate international shipping, and intensified competition from e-commerce platforms that have developed their own delivery systems.

As a result, a more nuanced and strategic approach is required to not only address these evolving challenges but also stabilize and eventually revitalize these critical segments of the postal industry.

A deep understanding of the complex factors at play will be crucial for designing and implementing effective interventions that can restore confidence in international postal services, while

also adapting to the rapidly changing landscape of global logistics.

Granular traffic analysis by regional corridor

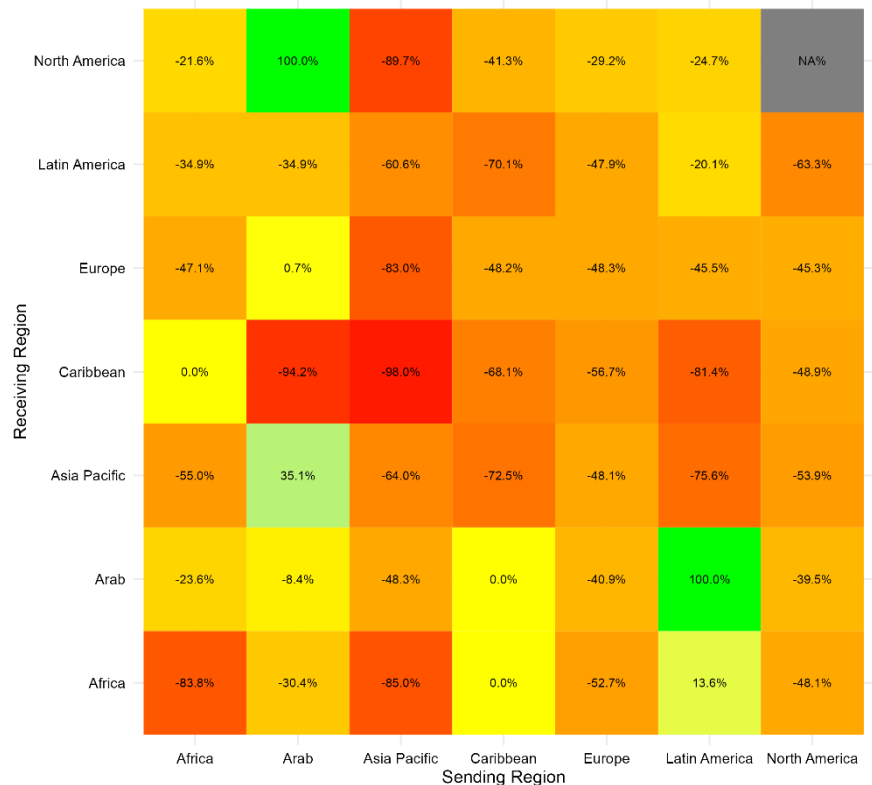
The heatmap below provides a detailed visual representation of the estimated percentage variation in both postal tonnage and the number of items exchanged between 2019 and 2023 across various regional trade lanes for the international letter-post category, whose volume evolution is heavily influenced by the changes in small packets, both in weight and quantity.

In this heatmap, the x-axis represents the sending regions, while the y-axis denotes the receiving regions, both organized according to EMS geographical groupings.

It is important to note that the regions used in this analysis are purely geographical and correspond directly to these EMS groupings, which maintains consistency in comparing international postal flows across different parts of the world.

The colour gradient indicates growth rates, with increases in traffic shown in shades of green and declines in shades of orange to red. Notably, growth rates exceeding 100% are capped at 100% for visualization purposes, allowing for easier comparison across regions.

Heatmap of Growth Rates by Sending and Receiving Regions



The heatmap analysis above reveals that, out of the 48 regional corridors for which tonnage data is available, **40 corridors experienced declines**.

These declines range from moderate reductions of -8.4% to severe drops of up to -98.0%, highlighting the widespread impact on international postal traffic in the post-pandemic era.

This pattern reflects a relative homogeneity in the low traffic development performance across most regional corridors, where decreases in tonnage are the dominant trend.

Despite the overall negative trend, four corridors demonstrated positive growth rates, with increases ranging from 13.6% to more than 100%.

These exceptions are crucial for identifying areas of relative success amid the broader decline, providing insights into how certain regions have managed to navigate the challenges more effectively than others.

Africa & Arab countries

These two regions present some of the most **varied outcomes in our analysis**. The Arab region, for example, recorded a notable 100% growth in inbound volumes from Latin America and a significant increase in outbound volumes to Asia-Pacific.

These positive results suggest that targeted strategies, such as **strategic pricing adjustments or improved service reliability**, have enabled certain trade lanes to thrive despite the broader challenges.

Africa faces **significant hurdles in its postal sector**, evidenced by sharp declines in both international and intra-regional mail volumes. Inbound traffic from Europe plummeted by 85%, while intra-regional flows within Africa itself saw a staggering 83.8% reduction.

These dramatic decreases underscore the multifaceted challenges confronting African postal operators.

The region is grappling with **maintaining robust international connections, particularly with major trading partners like Europe**, while simultaneously struggling to preserve vital intra-regional postal networks.

These difficulties stem from a complex interplay of factors, including economic volatility,

inadequate infrastructure, regulatory hurdles, and logistical constraints. The severity of these declines highlights the **urgent need for targeted interventions and strategic investments to revitalize Africa's postal services**, at both the continental and international levels.

Asia-Pacific

This region stands out as facing **some of the greatest challenges in the post-pandemic period**. Outbound traffic from Asia-Pacific has been particularly hard-hit, with declines ranging from -48.1% to -85.0% in various trade lanes, such as those with Europe and Africa. These sharp reductions indicate **severe disruptions in the region's postal network**.

However, there is a notable outlier within this region: a 35.1% growth in traffic from the Arab region to Asia-Pacific, suggesting that certain trade lanes may have benefited from specific regional or bilateral agreements, or from shifts in global trade patterns that favour this particular corridor beyond postal operational and business model improvements.

Caribbean & Latin America

These two regions are among those that have faced significant declines, particularly in inbound traffic.

The Caribbean, for instance, recorded **some of the most severe decreases**, with inbound traffic from Asia-Pacific plummeting by as much as 98.0%, and similarly sharp declines observed in traffic from the Arab countries and Latin America.

These reductions highlight the region's **struggles with high shipping costs, extended delivery times, and the impact of economic instability**, which has **discouraged both consumers and businesses from utilizing international postal services**.

Latin America also experienced substantial declines, with a 75.6% reduction in inbound traffic from Asia-Pacific and significant decreases from other regions as well.

These challenges likely stem from similar economic and logistical difficulties to those faced by the Caribbean, compounded by **competitive pressures from more agile alternative international delivery service providers** that have capitalized on the region's postal services' vulnerabilities.

Europe

This region displays a mixed performance, although it **generally exhibits resilience compared to other regions**.

For example, Europe faced considerable decline in inbound traffic from Asia-Pacific, with drops of up 83.0%. This indicates ongoing **challenges in maintaining strong international postal links**, potentially due to **new trade and customs regulations** that complicate cross-border shipping.

North America

This region presents a nuanced picture of postal traffic trends, with both **notable growth and significant declines across different corridors**. The region experienced a remarkable 100% increase in inbound traffic from the Arab region, suggesting **successful exploitation of specific opportunities or strategic adaptations** that have bolstered postal volumes in this corridor.

However, this achievement stands in stark contrast to the **precipitous 89.7% drop in inbound traffic from Asia-Pacific**.

This sharp decline likely reflects a strong correction from previous patterns, potentially resulting from the implementation of more **restrictive digital trade policies**. These contrasting trends underscore the complex and dynamic nature of international postal flows in North America, where regional successes coexist with substantial challenges in other areas.

Impact of delivery times and pricing on traffic performance

The stark disparities in traffic performance among international letter-post corridors, measured in tonnage, highlight the complex and uneven nature of the lack of post-pandemic recovery in this segment, which is closely tied to small packet traffic.

These disparities reflect a complex interplay of factors, including regional economic resilience, adaptability of postal operators, and shifts in consumer behaviour.

To gain a more comprehensive understanding of these divergent trends, it is crucial to examine the key drivers influencing these patterns.

Particularly significant are the changes in **international postal delivery times and pricing**

structures, which have played pivotal roles in shaping the recovery landscape.

These factors not only impact the operational efficiency of postal services but also directly affect consumer preferences and business strategies in the evolving e-commerce ecosystem.

We delve deeper into these critical elements, to offer a nuanced analysis of how delivery times and pricing mechanisms have become central to the reshaping of international postal flows in the wake of the pandemic.

By exploring these dynamics, we can better comprehend the **forces propelling some corridors to thrive while others struggle to regain their footing** in the new global postal paradigm.

The interplay between delivery times, pricing and traffic performance in the international postal sector is intricate and exhibits significant regional and mail class variations.

Nevertheless, a pronounced trend emerges from the data: **extended delivery times and increased prices have demonstrably negative impacts on international postal volumes**, with small packets and EMS being particularly affected.

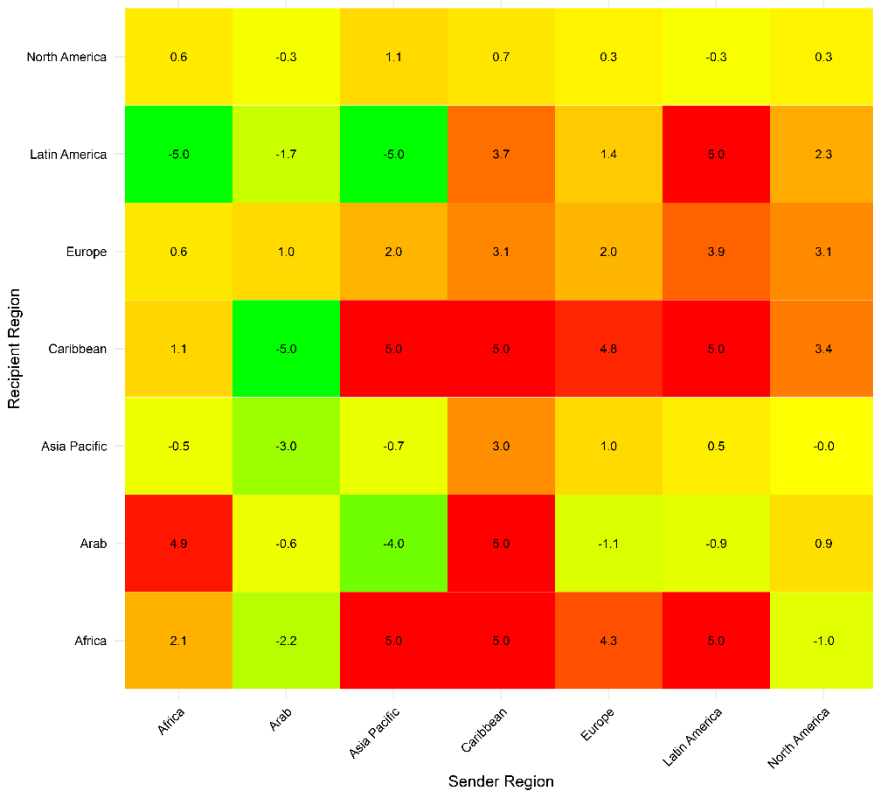
This causal relationship is substantiated by the econometric analysis, which reveals that regions experiencing prolonged end-to-end cross-border delivery times in the post-pandemic era have generally suffered more severe declines in international postal volumes.

To elucidate this correlation between international traffic performance and delivery speed and predictability, we conducted the comprehensive regional corridor analysis set out in the previous section. This examination focused on the changes in international end-to-end delivery times and their predictability, comparing data from 2019 (pre-pandemic) to 2023 (post-pandemic).

Two heatmaps below illustrate these findings for international letter post, with a specific emphasis on barcoded items, which predominantly represent small packets. This visual representation provides a clear depiction of how delivery times and predictability have evolved across different regional corridors and their subsequent impact on postal traffic volumes.

The heatmaps also offer a comprehensive visualization of the changes in international

Heatmap of Changes in Median Delivery Days



postal delivery times and their predictability across various global regions between 2019 and 2023.

This period, encompassing the COVID-19 pandemic and its aftermath, reveals significant shifts in postal performance worldwide, providing crucial insights into the relationship between traffic performance and delivery metrics.

The variations in delivery times and predictability depicted in these heatmaps are intimately connected to the fluctuations in postal traffic volumes discussed earlier.

As can be seen from the first heatmap, above, regions experiencing more substantial increases in delivery times or decreased predictability generally correlate with those showing steeper declines in postal volumes.

For instance, the Caribbean region, which displays some of the most significant increases in delivery times across multiple trade lanes, has also seen notable reductions in postal traffic.

This pattern underscores the

intricate relationship between service quality and volume: as delivery times extend and become less reliable, customers are more likely to seek alternative shipping methods, leading to decreased postal volumes.

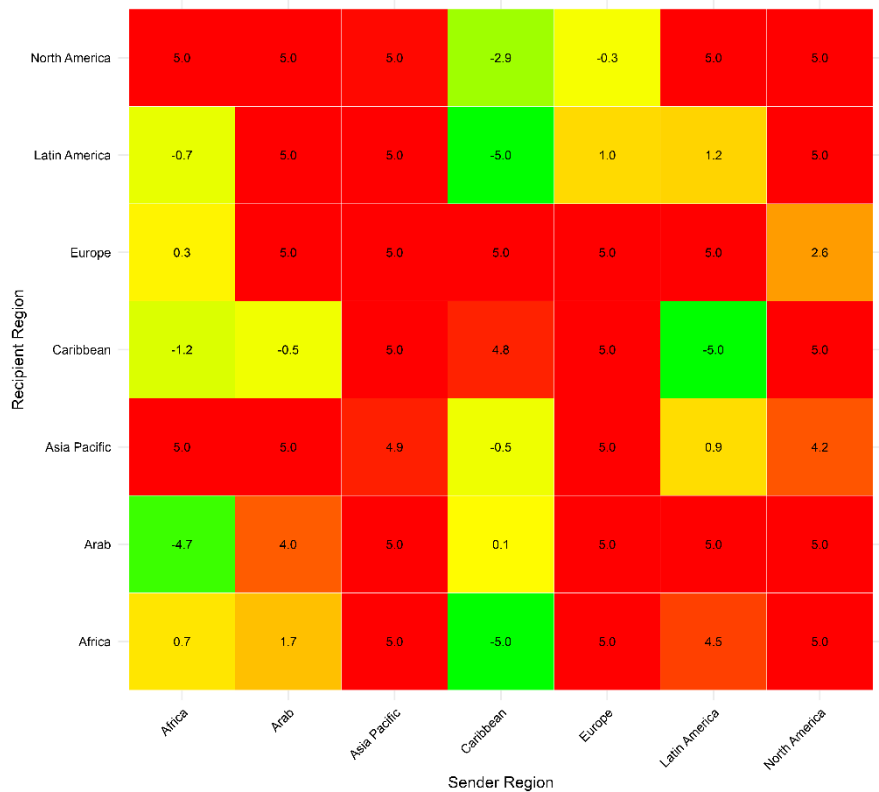
Conversely, areas that have managed to maintain or improve their delivery times and predictability have often fared better in terms of traffic retention.

The North American region, for example, shows relatively more stable end-to-end delivery times across most inbound trade lanes, with only minor fluctuations. This stability likely contributed to the region's ability to maintain postal volumes more effectively than some other areas.

The second heatmap, below, shows that the predictability of delivery times also plays an equally crucial role in shaping traffic patterns. Increased variability in delivery times can significantly impact customer confidence and, consequently, usage of postal services.

Europe's widespread decrease in predictability across most trade lanes, for instance, aligns with

Heatmap of Changes in Sigma Delivery Times



the region's struggles to maintain pre-pandemic postal volumes.

This decreased reliability likely contributed to shifts in consumer and cross-border e-commerce platform behaviours, potentially driving traffic towards alternative logistics solutions.

It is important to note that while these heatmaps provide a broad overview of global trends, they also reveal the complex and nuanced nature of postal performance across different regions and trade lanes.

We encourage you to explore the heatmaps in detail to gain a deeper understanding of specific regional performances and inter-regional dynamics. The colour-coding system allows for quick identification of areas of good performance (greens) versus those facing challenges (reds), offering insights into the varying degrees of post-pandemic recovery and ongoing difficulties in the global postal network.

To complete the analysis, a heatmap below illustrates the average annual percentage change in international postal rates across various global regions from 2019 to 2023. This visualization adds another crucial dimension to our understanding of the factors influencing postal traffic performance during and after the COVID-19 pandemic.

When analyzed in conjunction with the previous data on delivery times and predictability, a more comprehensive picture of the challenges and adaptations in the global postal sector emerges.

The heatmap reveals a diverse landscape of rate changes, **with some regions experiencing significant increases while others saw notable decreases.**

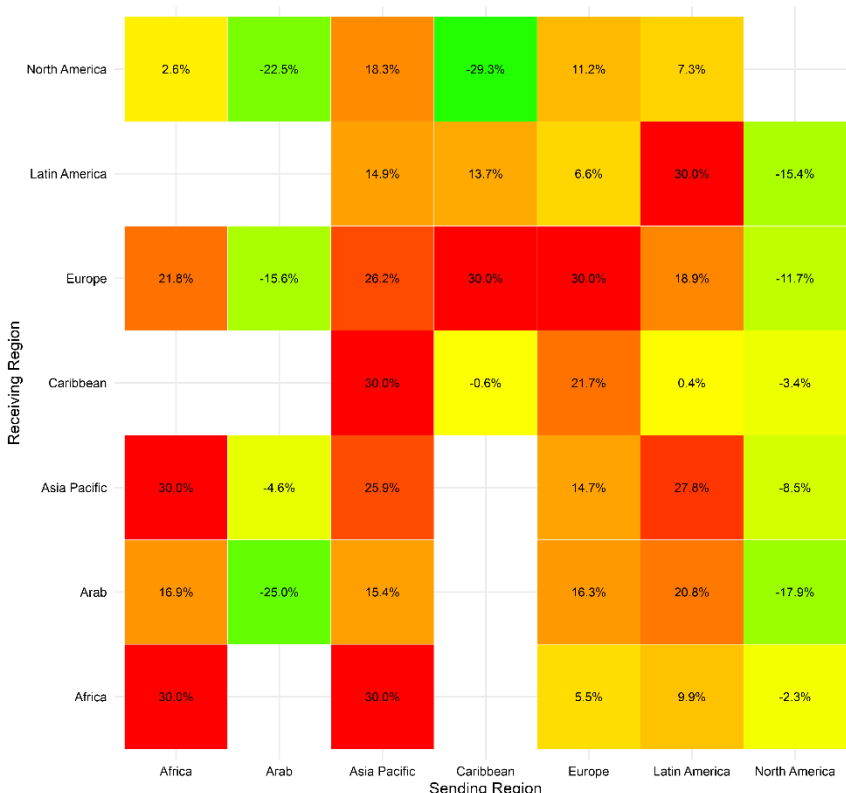
For instance, Africa stands out with substantial rate increases of at least 30% for deliveries to both Africa itself and Asia-Pacific, **suggesting a strategic response to rising operational costs or an attempt to offset declining volumes.**

Conversely, the **Arab region implemented considerable rate reductions**, particularly for deliveries to the Arab region itself (25%) and from North America to the Arab region (-17.9%), possibly as a measure to stimulate postal traffic in these corridors.

These pricing strategies appear to be closely intertwined with the changes in delivery times and predictability discussed earlier.

Regions that faced challenges in maintaining or improving their service quality, as evidenced by increased delivery times or reduced predictability, often resorted to rate adjustments as a compensatory measure.

Heatmap of Average Percent Change in Prices by Region



The European region, for example, which showed consistent increases in delivery times, also **implemented significant rate hikes across most trade lanes**, with increases ranging from 5.5% to more than 30% for several destinations.

Interestingly, North America's pricing strategy seems different, with substantial rate decreases. A significant rate reduction for deliveries from the Caribbean (-29.3%) to North America can also be observed and could be seen as an **effort to maintain competitiveness in this corridor**, especially given the relatively stable delivery times to this region observed in the previous analysis.

The interplay between rate changes, delivery performance and traffic volumes is particularly evident in regions like Latin America and Asia-Pacific.

Latin America's substantial rate increase for deliveries to Latin America itself (30%) aligns with the increased delivery times within the region, potentially exacerbating the challenges in maintaining postal volumes.

Similarly, Asia-Pacific's significant rate increases, especially for intra-regional deliveries (25.9%), coupled with the mixed performance in delivery times, may have contributed to the shifting patterns in postal traffic observed in this region.

These rate changes, when viewed alongside the variations in delivery times and predictability, underscore the **complex decision-making process postal operators face in balancing service quality, pricing and volume retention.**

The diverse strategies employed across different regions reflect local economic conditions, competitive pressures, and efforts to adapt to the evolving landscape of international postal services in the wake of the pandemic.

As stakeholders in the postal sector continue to navigate these challenges, the insights gained from this multi-faceted analysis – encompassing delivery performance, predictability and pricing strategies – will be invaluable in formulating robust, adaptive strategies for the future of international postal services.

Synthesis: price and delivery times

The figure below presents a compelling visualization that synthesizes the impacts of letter-post pricing and delivery times on traffic performance between 2019 and 2023.

This scatter plot, divided into four distinct quadrants, offers a nuanced perspective on how these key drivers interact to influence postal volumes.

The insights derived from this visual analysis are further corroborated by rigorous econometric analysis, lending additional weight to the observations.

The plot reveals a clear correlation between changes in delivery times and pricing strategies, and their combined effect on traffic volumes. Each data point represents a specific postal corridor, with its position indicating the changes in delivery time (x-axis) and pricing (y-axis), while the colour denotes the growth rate in tonnage.

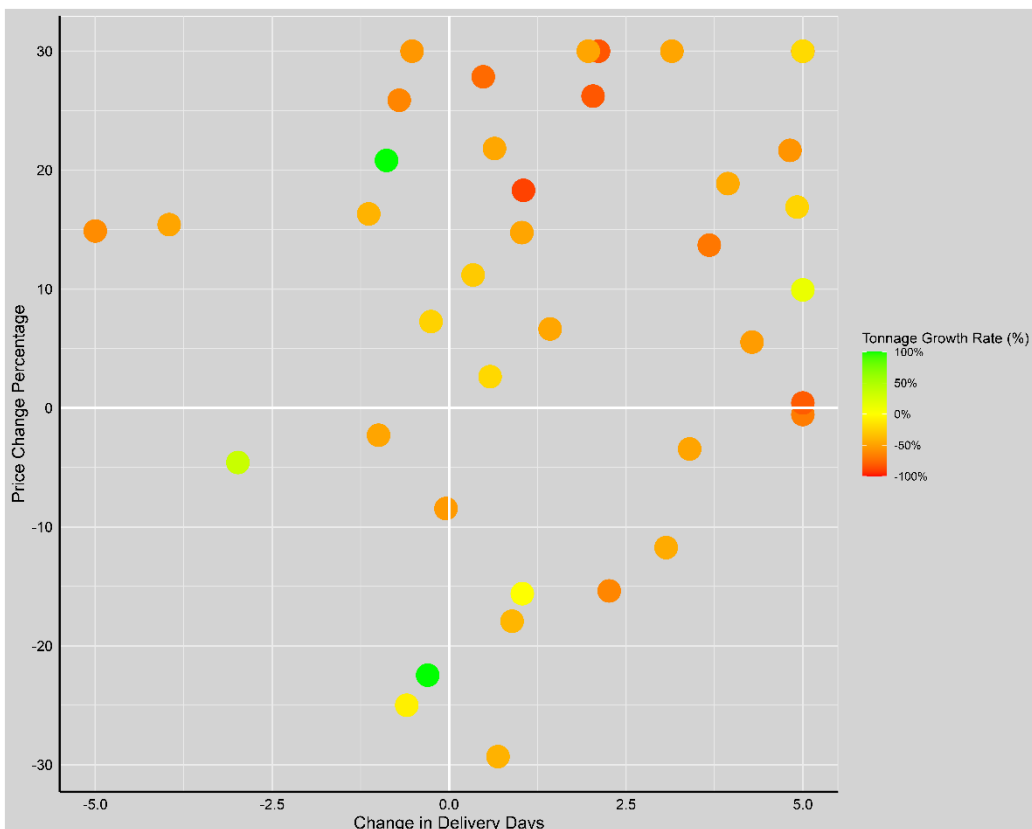
Quadrant I, characterized by faster delivery and higher prices, shows a mix of outcomes. Some corridors in this quadrant have managed to maintain or even grow their traffic volumes, as indicated by the lighter coloured dots.

This suggests that, for certain routes, customers are willing to pay premium prices for improved service speed. However, the presence of some

darker dots in this quadrant indicates that higher prices, even with faster delivery, can still lead to volume declines in some cases.

Quadrant II, representing slower delivery and higher prices, predominantly displays darker dots, signifying significant decreases in traffic volumes.

This quadrant encapsulates the most challenging scenario for postal operators, where deteriorating service quality combined with price increases has led to substantial customer attrition. The concentration of data points in this quadrant underscores the



widespread difficulties faced by many postal services in the wake of the pandemic.

Quadrant III, featuring faster delivery and lower prices, contains some of the brightest dots, indicating the highest growth rates in traffic volumes.

This outcome aligns with basic economic principles: improved service at lower costs naturally attracts more customers. The success of corridors in this quadrant suggests a potential strategic direction for postal operators looking to revitalize their services.

Quadrant IV, characterized by slower delivery and lower prices, shows mixed results. While some corridors in this quadrant have managed to maintain volumes (as shown by yellow dots), others have experienced declines despite price reductions.

This variability suggests that while price cuts can partially offset the negative impact of slower delivery times, they are not always sufficient to prevent volume losses.

The distribution of data points across these quadrants, coupled with the econometric analysis, provides several key insights:

- **Service quality, as measured by delivery speed, appears to be a more critical factor than pricing in determining traffic volumes in small packets.** This is evidenced by the generally better performance of corridors in Quadrants I and III compared to those in Quadrants II and IV.
- **The combination of faster delivery and lower prices (Quadrant III) consistently yields the best outcomes,** suggesting that investments in operational efficiency that enable both speed improvements and cost reductions can significantly boost traffic volumes.
- The prevalence of data points in Quadrant II highlights **the widespread challenges faced by postal operators during this period,** with many struggling to maintain service levels while also increasing prices to cover rising costs.
- The varied results in Quadrants I and IV **underscore the complex interplay between pricing and service quality,** indicating that customer responses to these changes can vary depending on specific market conditions and customer segments.

These findings, supported by econometric analysis, provide valuable guidance for postal operators and policymakers.

They suggest that strategies focused on improving operational efficiency to enable faster deliveries, even at the cost of short-term price increases, may be more effective in maintaining and growing traffic volumes than price-cutting measures alone.

Furthermore, the analysis underscores the importance of tailored approaches for different postal corridors, recognizing that the optimal balance between speed and price may vary based on specific market characteristics and customer preferences.

Strategic recommendations

Based on the comprehensive analysis of international postal traffic performance, including the intricate relationships between delivery times, pricing and volume across different mail classes and regions, we can present a set of strategic recommendation to postal operators and policy makers.

By implementing these strategic recommendations, postal operators can position themselves to navigate the complex post-pandemic landscape more effectively.

These strategies aim to leverage the insights gained from our analysis to enhance service quality, optimize pricing, and ultimately drive the recovery and growth of international postal traffic across diverse regional corridors and mail classes.

The key to success lies in the ability to adapt quickly, leverage data effectively, and maintain a relentless focus on meeting evolving customer needs in a rapidly changing global environment.

Implement differentiated strategies for small packets and EMS

The analyses reveal distinct dynamics between international small packet and EMS services, necessitating tailored approaches.

For small packets, postal operators should focus on optimizing the balance between service quality and pricing, with a particular emphasis on improving delivery times and reliability, even if it requires moderate price increases.

This approach aligns with the observed sensitivity of small packet volumes to service quality improvements.

In contrast, EMS strategies should prioritize service quality enhancements, as customers in this segment demonstrate a willingness to pay premium prices for faster and more reliable services.

This differentiated approach allows postal operators to align their strategies with the specific needs and expectations of each market segment, potentially leading to improved performance across both services.

Invest in improving operational efficiency and service quality

The strong correlation between improved delivery times and positive traffic performance underscores the critical importance of service quality. Postal operators should prioritize investments in infrastructure, technology and process optimization to reduce delivery times and enhance predictability across all services. Implementing real-time tracking and proactive communication systems can significantly improve the customer experience and build trust.

Additionally, focusing on reducing variability in end-to-end delivery times is crucial, as predictability appears to be a key factor in customer satisfaction and retention, especially for EMS services.

These investments in operational efficiency and service quality are likely to yield substantial benefits in terms of traffic volume and customer loyalty.

Adopt dynamic, corridor-specific prices

The varied impact of pricing changes across different corridors and services calls for more nuanced pricing approaches.

Postal operators should develop corridor-specific pricing models that account for local market conditions, competition and customer price sensitivity. Implementing dynamic pricing mechanisms that can quickly adapt to changes in demand, operational costs and service performance will allow for more responsive and effective pricing strategies.

For small packet services, operators should consider strategic price reductions in corridors where demand is highly elastic, while maintaining or moderately increasing prices in corridors where service quality improvements are being implemented.

In the EMS sector, the focus should be on value-based pricing strategies that emphasize the premium nature of the service and its reliability, particularly in corridors showing strong performance with faster delivery and higher prices.

Adopt enhanced data analytics and predictive modelling

The complex interplay of factors influencing postal traffic performance highlights the need for advanced analytics.

Postal operators should leverage the UPU postal big data platform and the UPU Knowledge Centre and Think Tank to develop more sophisticated predictive models for traffic performance.

Implementing machine-learning algorithms can help identify early indicators of shifts in market dynamics or customer behaviour.

Furthermore, utilizing data analytics to simulate the potential impacts of various strategic interventions will allow for more informed decision-making and risk management.

This data-driven approach can provide postal operators with a competitive edge in navigating the rapidly changing landscape of international mail services.

Foster international collaboration and standardization

Given the global nature of postal services and the varying recovery rates across regions, increased collaboration between postal operators is essential.

Efforts should be made to standardize processes, share best practices, and create more seamless international mail flows. Working towards establishing better global standards for data exchange and quality measurement will facilitate more effective cross-border operations and performance tracking.

Developing joint initiatives to address common challenges, such as last-mile delivery in challenging environments or the integration of new technologies like blockchain for enhanced security and traceability, can lead to industry-wide improvements and efficiencies.

Gain the ability to rapidly adapt to evolving customer expectations and market trends

The changing landscape of digital trade requires

postal services to evolve continuously. Investing in research to understand shifting customer needs, particularly in the e-commerce sector, is crucial for adapting services accordingly. Postal operators should explore partnerships with e-commerce platforms to create integrated shipping solutions that leverage the global reach of postal networks.

By staying attuned to market trends and customer expectations, postal services can position themselves as essential players in the global communication and logistics ecosystem.

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