

# **State of the Postal Sector 2023**

A Hyper-Collaborative Path to Postal Development

Berne, October 2023



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**List of abbreviations**

2IPD	Integrated Index for Postal Development
AI	Artificial intelligence
CIS	Commonwealth of Independent States
DO	Designated (postal) operator of a UPU member country
EAD	Electronic advance data
EMS	Express Mail Service
GDP	Gross domestic product
IATA	International Air Transport Association
ICs	Industrialized countries
PDL	Postal development level
PPP	Purchasing power parity
SDG	UN Sustainable Development Goals
SDR	Special Drawing Rights
UPU	Universal Postal Union
WHO	World Health Organization



## Executive Summary

The postal sector remains a critical element in the global ecosystem, transcending borders to connect people, businesses and governments. It not only facilitates communication, but also serves as the backbone of digital trade, logistics, and even economic resilience. However, the sector is grappling with a multitude of challenges, from the lasting disruptions induced by global crises, such as the COVID-19 pandemic, to the transformative shifts in consumer behaviour ushered in by the digital age. This report provides an exhaustive examination of the postal sector's existing landscape, challenges, innovations, and the potential avenues for future growth and resilience.

### *Integrated Index for Postal Development (2IPD): key findings and insights*

Our study begins with an in-depth analysis using the 2IPD, which serves as an indispensable tool for understanding the intricacies of global postal development. In 2023, we find that the world median postal development score has increased, highlighting significant postal development progress in 49 countries out of the 172 covered in our research.

We find a significant positive correlation between higher postal development scores and stronger economic resilience. Countries with robust postal services demonstrated greater capacity to absorb the shocks of recent disruptive events like the COVID-19 pandemic, and showed signs of quicker economic recovery. This highlights the compelling case for governments to not only continue investing in the postal sector, but also create an enabling environment that can amplify its benefits, given its demonstrated role in enhancing economic resilience during turbulent times.

We also find that – in the hypothetical case of the complete absence of postal infrastructure – there would be a median reduction of 6.96% in a country's annual GDP. This figure dramatically eclipses the traditionally cited direct contributions of postal services to GDP, which range from 0.5% to 1.0%.

Given their network effects, postal services amplify their direct economic impact by a factor of at least seven. This significantly underscores the vital role played by Posts in their respective economies.

This is a ground-breaking revelation which highlights the potential for targeted investments in the postal sector to catalyze economic growth and recovery. It elevates the discussion from one of mere association to one of direct influence, thereby emphasizing the critical role the postal system plays in the socio-economic landscape of a nation.

The 2IPD analysis, however, reveals worrisome postal development disparities between nations. These are not merely service gaps; they manifest as concrete economic disadvantages and overlooked chances for inclusive growth. Such disparities hinder many developing nations from elevating the living standards of their most vulnerable citizens, emphasizing the immediate necessity for global policy interventions.

### *Postal economic sustainability outlook*

**Letter post income – a waning source:** Our research points to a significant drop in the percentage of Posts' revenue generated from letter-post services – from over 50% in 2005 to 34% in 2021. Forecasts suggest a further decline, reaching approximately 29% by 2025. With the acceleration of digitalization and shifts in communication methods, the declining trend of letter-post volumes is undeniable, albeit showing signs of stabilization in the near future.

**Parcels and logistics – the new frontier:** In stark contrast, income from parcels and logistics has been on the rise, surging from 11% in 2005 to over 32% in 2021. Predictions indicate an even higher ascent, nearing 36% by 2025, potentially overtaking letter-post revenues. The catalysts for this shift appear to be the increasing reliance on e-commerce and online shopping, although this sector also faces stiff competition from alternative delivery services.

**Postal financial services – a steady contributor:** Income from postal financial services has remained fairly stable, hovering around the 17% mark over the years. In countries with integrated postal financial networks,

this share is even higher. The stability of this income source suggests that postal financial services continue to be a revenue-generating stronghold for the industry.

**Other products – declining yet promising:** Revenue from other miscellaneous products and services has declined, and is expected to reach about 17% by 2025. However, this dip could be offset if the industry manages to focus on innovative digital postal services, which are currently emerging as a lucrative market.

**Global postal real operating revenues – a challenging dynamic:** We have observed a fluctuating trend in the annual growth rates of real operating revenues, peaking in 2020 due to the COVID-19 pandemic. Although projections suggest a slight decline, the rate is expected to stabilize at around 2.94% by 2025.

Given these dynamics, the postal industry faces an unprecedented challenge in ensuring economic sustainability amid varying revenue streams, heightened competition, and inflationary pressures. The diversification of revenue alone may not suffice; rather, a systemic integration of services is essential. E-commerce presents an exciting avenue, but it requires the postal sector to innovate, potentially through strategic collaborations with digital platforms, and enhancing logistics capabilities.

While traditional revenue streams like letter posts are dwindling, new avenues such as parcel deliveries and digital services offer a promising future. Amidst these shifts, economic and environmental sustainability hinges on the postal sector's ability to adapt, innovate and collaborate. Despite uncertainties, the overarching trajectory appears promising, especially if the industry capitalizes on emerging trends and adopts a multifaceted approach to service delivery.

*International postal exchanges: volume evolution, pricing dynamics, regulatory changes and service predictability*

**No significant rebound in international postal volumes after the pandemic:** Data up to end of June 2023 shows that international postal tonnage remains 44.5% lower compared to pre-pandemic levels, with no signs of strong recovery.

**New terminal dues and other policy regimes have far-reaching implications:** Our analysis dives deep into the complex world of terminal dues and postal pricing. For instance, changes in terminal dues regimes, as seen in July 2021, have far-reaching implications for international postage rates, affecting both consumers and international digital trade dynamics. Altering terminal dues for a specific destination can influence other destinations through elevated international postal rates, even if those flows were not the target in the initial terminal dues changes. Terminal dues and international postal rates must be seen as an ecosystem.

Furthermore, the combined impact of new U.S. and European regulations on electronic advance data (EAD) and tax regimes has had significant effects on various international mail classes. It is clear that regulations now have a global impact which needs to be managed coherently.

**Service times have improved; reliability has not:** While the end-to-end delivery times for international postal services have returned to pre-pandemic levels, the predictability of these services has not, showing increased variances in delivery times. This unpredictability in service delivery times has the potential to erode consumer trust, emphasizing the need for improving reliability through better international postal logistics and data analytics.

These disruptions and policy regime changes underscore the necessity of a resilient supply chain capable of adapting to unforeseen challenges.

*Technological innovations and hyper-collaboration: a new path for the UPU*

**Role of AI and collaborative intelligence:** Artificial intelligence (AI) offers transformative capabilities for the postal sector. The potential is even greater when AI systems are integrated in a hyper-collaborative framework involving multiple, ecosystemic stakeholders. This kind of partnership could facilitate optimized routing, real-time tracking, and personalized services, significantly enhancing operational efficiency and boosting the decarbonization of postal exchanges.



**Data analytics and shared insights:** Advanced data analytics provide the postal sector with the tools for price optimization, route planning, and consumer behaviour prediction. Through hyper-collaboration, these data analytics capabilities can be extended to cross-industry partners, thus amplifying their impact and leading to more effective strategies, particularly for delivering green international postal growth.

**Hyper-collaborative global policy alignment:** More than ever, there is a need for global cooperation to standardize regulations and operational interfaces. We recommend adopting a hyper-collaborative approach which involves not just governments and designated operators but also wider postal sector stakeholders, to create a more equitable postal ecosystem grounded on freer data exchanges.

**Investment in collaborative technologies:** Alongside the adoption of AI and data analytics, a focus on technologies that enable better collaboration will make the postal sector more adaptive to future challenges. Our analysis shows that enhancing service quality is not just a technical issue, but also a collaborative one. Investments should be channelled into creating hyper-collaborative networks which can provide more reliable, higher-quality postal services.

**Bridging the development gap through collaboration:** Targeted efforts should include forming partnerships to uplift the postal infrastructures of countries lagging in the sector, thus providing them with the tools to catch up with their global peers rapidly and sustainably.

### *Conclusion and forward-look*

In the face of numerous challenges, the postal sector stands at a pivotal juncture teeming with opportunities for transformation and growth.

Emerging from a series of unprecedented global challenges, the postal sector demonstrates both vulnerability and resilience. Hyper-collaboration will likely emerge as a critical factor in navigating these complexities and global uncertainties. By embracing technological advances within a framework of enhanced collaboration and global unity, the sector has the potential to weave a postal tapestry that is stronger, more equitable, and future-ready.

However, the overarching sentiment from our findings is one of hope and opportunity.

In a spirit of global unity and hyper-collaboration, the postal system can remain a vital, resilient force for good, paving the way for a brighter, more connected future for us all.

## **I. Introduction: the postal mosaic – a global nexus under pressure**

In a rapidly changing world, few sectors encapsulate the essence of societal interconnectedness like the global postal sector. Serving as the circulatory system for personal communications and digital trade alike, it bridges distances not just within and between nations, but between economies, cultures, and people around the world.

Yet, the once steadfast postal tapestry now finds itself at a crossroads, woven with challenges, from pandemic disruptions to the evolving market dynamics of the digital economy.

The 2023 State of the Postal Sector report delves into the intricate designs of the postal sector, examines the challenges, transformations, and the potential pathways forward, emphasizing in particular the profound impact of postal development on economic resilience and the promise of AI-led hyper-collaboration to drive its renaissance.

Over the centuries, the postal sector has displayed an extraordinary capacity for evolution, transitioning from a service that once merely distributed physical letters to one that now handles complex logistics for e-commerce, big data analytics, and even digital financial services. In an era marked by digital transformation, the sector has repositioned itself to be not just a carrier of goods, but also a provider of value-added services in the global digital marketplace.

The challenges faced by the postal sector during the COVID-19 pandemic have thrown into sharp relief the sector's critical role as a socio-economic stabilizer. In times of crisis, the postal service becomes even more essential, serving as a lifeline for communities to access goods, services and vital information.

In chapters 2, 3, and 4, our in-depth examination of the sector's performance during the pandemic – particularly through our Integrated Index for Postal Development (2IPD) analysis, which ranks member countries at one of 10 postal development levels (PDLs) – provides a nuanced understanding of how postal systems contributed to economic resilience in different countries.

Chapter 5 offers a unique analysis of the recent trends in the global postal volumes, to show that, unsurprisingly, letter-post volumes are declining starkly, while parcel-post volumes are in an upward trend. It also shows the market share held by designated operators (DOs) of UPU member countries for letter, parcel, and express postal services.

Our analysis reveals a direct and positive correlation between the postal system maturity of a member country and its economic resilience. Chapter 6 clearly shows that, without postal infrastructure, the median country in the world would experience a nearly 7% reduction in its annual GDP.

In chapter 7, we analyze and assess the trends and forecasts of postal revenue and income growth. Parcels and logistics represent a promising future for the sector, and postal financial services remain a steadfast contributor to the DOs.

The international postal sector is also no stranger to regulatory and market pressures. The introduction of new terminal dues regimes, electronic advance data (EAD) requirements, and international shipping rates is constantly altering the landscape. As assessed in chapter 8, these changes can have far-reaching effects on international trade dynamics, consumer behaviours, and even the economic equilibrium between nations. Our report scrutinizes these transitions to comprehend their long-term impact on both the global postal sector and commerce at large.

Through chapters 9 and 10, this report uniquely addresses the promise of technology in rejuvenating postal services, with a particular focus on artificial intelligence (AI). We believe that the adoption of this cutting-edge tool can be a game-changer for the postal sector. Our analyses delve into technological transformations that the sector has already embraced, painting a future where AI-led hyper-collaboration can significantly elevate efficiency, service quality and environmental sustainability of both international and national postal services.

In an increasingly fragmented world, the postal sector remains one of the few truly global networks that touch almost every aspect of human life. Whether it is a letter that carries emotions across continents or a package that bridges the gap between a small retailer in a developing nation and a customer in a bustling city, the postal sector is a testament to our inherent need for connection.

This report aims to offer pathways to ensure that this global nexus remains robust, equitable, and prepared for the challenges and opportunities of the future.

We hope that our insights serve as a valuable resource for policymakers, industry stakeholders, and anyone interested in the complexities and potentials of this truly global service network, especially at a time when it is under unprecedented pressures and facing transformative opportunities.

## II. Measuring postal development and its impact on national economic growth

### A. *How essential are postal services for economic development?*

Assessing the economic impact of the postal sector presents a complex challenge. While studies indicate that in advanced economies, postal services contribute between 0.5% and 1% to the national gross domestic product (GDP) (Toledano, 2004; Ansón and Toledano, 2008), the UPU estimates, **when adjusted for purchasing power parity (PPP), a 0.6% contribution by DOs to GDP in high-income countries for the year 2021** (UPU, 2023). Including developing countries, this contribution is estimated to be 0.4% of global GDP.

However, the postal networks' broader role in enabling various economic activities suggests that **the Post's actual impact likely exceeds these postal output-to-GDP figures**. Unfortunately, the lack of a standardized global method for evaluating postal development has long made quantifying this impact almost impossible.

Relying on isolated indicators like the number of post offices per 10,000 inhabitants, or annual letter or parcel deliveries, captures only a fraction of the postal sector's full impact on economic development. Additionally, these standalone metrics could be subject to various biases, especially since postal business models differ around the world. Such partial indicators fall short in offering a comprehensive view of postal services' contribution to economic well-being across countries.

Indeed, single-variable metrics like the density of post offices or traditional postal volumes can overlook crucial aspects of the postal sector's role, such as digital integration, speed and reliability of service, or the Post being an important employer in most countries around the world.

Narrower indicators can miss the broader picture that encompasses other essential elements like parcel deliveries in today's booming e-commerce market; financial services made available to the most vulnerable parts of a country's population; or even community engagement and social services facilitated by the Post.

Furthermore, a focus on limited indicators might not account for the inherent disparities between developed and developing nations. For instance, while a high number of post offices could indicate advanced infrastructure in one country, it might signify inefficiency or underutilization in another. This makes it crucial to employ a more nuanced, composite metric that can adjust for such variations and offer a balanced perspective on a country's postal development level.

In short, while certain indicators may provide some insights, they are often insufficient for understanding the multi-dimensional nature of postal services and their impact on broader economic well-being. To avoid the pitfalls of a fragmented or biased view, it is essential to employ a more comprehensive approach, like the Integrated Index for Postal Development, which captures the complex interplay between various facets of postal services and their economic implications (Ansón, Khan and Somasundram, 2022).

The 2IPD **offers a standardized method for assessing postal development in individual countries**. It provides a valuable metric for research into the postal sector's contribution to overall economic growth. More particularly, this composite index is especially useful for evaluating how postal services have bolstered countries' economic resilience. The index effectively highlights the key drivers of postal development that are crucial for achieving sustainable economic growth.

### B. *Using 2IPD to measure the postal contribution to economic development*

The primary objective of the 2IPD methodology is to assess the postal development level for each country that consistently contributes data to the UPU's statistical and big data systems. In 2021 and 2022, 172 countries were covered by this 2IPD performance measurement exercise.

Each new data point added to the UPU's systems enhances our collective understanding of global postal development, particularly benefiting less-developed postal services. The information collected serves as an invaluable asset for advancing the sector worldwide.

Leveraging this extensive data pool, the UPU has devised a classification system featuring 10 postal development levels as outlined in Table 1. The PDL classification breaks down countries into 10 different categories of postal development, from level 1 to 10. These tiers represent statistically identified clusters of development, as determined through an analysis of the respective 2IPD scores.

PDLs are calculated using the 2IPD scoring method, which quantitatively assesses key postal development components like reliability, reach, relevance and resilience. Ensuring data integrity is crucial; inconsistencies are identified and mitigated to ensure accurate scoring.

*Table 1: UPU postal development levels and their relation to socio-economic development*

<i>Postal development level and economic growth impact</i>	<i>Cohort characteristics from a postal and economic development perspective</i>	
Increasing postal maturity and postal development impact on economic growth	10	PDL 10 represents the pinnacle of postal development, comprising top-performing DOs that are most likely to boost their countries' economic growth and social inclusion. Here, we expect that the impact of postal excellence on sustainable economic development and eco-systemic value creation is at its peak.
	9	DOs of countries in this group are close to achieving their maximum potential. They positively impact economic development, leveraging their strengths while mitigating the effects of possible remaining weaknesses. Their eco-systemic value proposition could be strengthened.
	8	With an additional step towards reaching excellence, DOs of countries at this level typically provide their citizens with a strong value proposition through their postal services portfolio, decisively contributing to higher economic growth. There is potential to achieve greater eco-systemic value creation.
	7	DOs of countries at this level have probably achieved new milestones in their postal development journey. They play a prominent role in their respective markets and are likely to do so from a general economic development perspective as well. Eco-systemic value creation should be considered.
	6	DOs of countries at PDL 6 are taking steps to accelerate their development. They work intensively on improving performance in critical areas to ensure consistent performance. Their economy will reap the benefits of these investments, achieving higher growth and reducing inequalities.
	5	The core requirements for postal success are in play and a brighter postal future seems possible, in turn enabling positive impacts on the country's economic growth and poverty reduction in the coming years, if the current postal development efforts are maintained.
	4	DOs of countries in PDLs 4 and 3 are approaching, at different speeds, the conditions that are necessary to better serve their current and potential customers, with PDL 3 signalling some postal difficulties. Their contribution to economic development could become larger if sufficient investments are made.
	3	
	2	DOs in this group primarily focus on operations and must significantly improve services and business models in order to be better positioned to seize future opportunities. Only then can they begin to contribute to inclusive economic growth and development in their country.
	1	PDL 1 country DOs are either just starting out or underachieving in terms of postal development. They urgently need to address critical structural issues for their survival, and quickly update their basic postal infrastructure to aid national development.

The adoption of the 2IPD methodology and its associated PDLs revolutionizes the way we understand the contribution of postal services to economic development. The 2IPD methodology employs a multifaceted approach to measurement, considering factors such as infrastructure, service reliability, resilience to shocks, and international postal connectivity. Each of these dimensions is potentially crucial for strengthening a country's economy, creating a more comprehensive and nuanced framework for assessing postal services' contribution to economic growth.

Furthermore, the 2IPD's multi-faceted approach is vital for adapting to the differing economic realities between countries. For instance, in developed economies, where digital services may be more prevalent, the postal service's role in facilitating e-commerce might be a significant contributor to economic health. On the other hand, in developing nations, the postal network could serve as a crucial channel for basic communication and financial services, affecting economic well-being at a different but equally important level. The PDL framework allows for this level of differentiated understanding, helping policymakers tailor their strategies accordingly.

Finally, the 2IPD methodology's standardized approach provides a common language for international comparison. In a globalized world, understanding how one country's postal services compare to another's can offer valuable insights into competitive advantages or areas for improvement. This global benchmarking is essential for driving data-based policy decisions aimed at optimizing the postal sector's contribution to economic development.

This framework provides nations with a valuable benchmarking tool, allowing policymakers to set targeted goals for postal development. By doing so, they will increase the likelihood of making a positive impact on their own economic growth and population welfare.

However, limited data availability for some operators is a challenge, warranting caution in interpreting some 2IPD results. Accurate measurement is vital for understanding how postal services contribute to economic growth. It helps identify areas for improvement, informs policy decisions, and allows for international benchmarking, ultimately driving more effective and inclusive economic development.

### C. *A transparent, equitable and inclusive index*

The 2IPD scoring system itself is built around the four key dimensions of postal development: postal reliability; reach; relevance; and resilience, also referred to as the “four Rs” of postal development, as outlined in Table 2. Each component has a scoring range from 0 to 100, based on relative performance in 2022.

*Table 2: The four Rs of the 2IPD*

<i>Integrated Index for Postal Development score =</i>	<i>Reliability (R1)</i>	<i>+ reach (R2)</i>	<i>+ relevance (R3)</i>	<i>+ resilience (R4)</i>
	Assesses the development of quality of service from a speed and predictability perspective	Evaluates the level of postal connectivity of the country with the rest of the world from an outbound perspective	Measures the relative success of different postal business models and activities from a demand perspective	Estimates the postal capacity to overcome economic, social, technology and environmental shocks in a sustainable way

These scores serve as indicators for areas requiring improvement or showcasing success, thereby influencing policy decisions that contribute to sustainable economic growth. Countries are grouped with similar-performing peers and then categorized into one of these 10 development tiers based on their 2IPD scores.

For an in-depth understanding of the 2IPD methodology, we invite readers to consult the 2021 and 2022 Postal Development Reports (Ansón, Khan and Somasundram, 2022; Boffa, De Borba and Piotrowski, 2021).

Briefly, the 2IPD scoring components are:

- i **Postal reliability:** Derived from an extensive analysis of track-and-trace data points related to international postal shipments, this score evaluates the speed and consistency of inbound postal deliveries, serving as a reliable proxy for the quality of domestic delivery service and the customer experience. A relatively high score in this category (above 70) signifies excellent service reliability and also fosters consumer trust. By reducing transaction costs, it aids in the expansion of e-commerce and facilitates the broader digital economy.
- ii **Postal reach:** Using electronic messages about international postal dispatches, this metric assesses the extent and effectiveness of a country's international postal network in connecting to the rest of the world. A relatively high score (above 50) indicates robust global postal connectivity that is vital for cross-border e-commerce and to support international trade development for micro, small and medium-sized enterprises.
- iii **Postal relevance:** This component amalgamates customer demand data across various postal services – from domestic to international deliveries, and financial services – as well as the density of post offices in a country. It identifies strong and weak points in a country's postal business model, assigning scores accordingly. Strong demand for postal services, including counter services, can facilitate economic transactions in a very wide range of sectors and industries, as typically reflected by relevance scores above 20.
- iv **Postal resilience:** This facet evaluates the postal system's ability to adapt to economic and technological disruptions, while also highlighting its role in advancing a country's social inclusion initiatives. For scores above 60, it underscores the broader societal advantages of sustaining a resilient postal network.

After consistency treatments on UPU big data and computing via a number of robust algorithms, a country's final 2IPD score is obtained by aggregating the four R component scores. Equal weight is given to each of the four Rs, and finally scores are normalized with the highest value rescaled to 100 and the lowest to 0.

In order to determine each country's postal development level, critical values separating the different groups were identified through statistical analysis. The 2022 conversion table between the PDLs and 2IPD scores is shown in Table 3.

*Table 3: Postal development levels and their corresponding 2IPD scores in 2022*

PDL	1	2	3	4	5	6	7	8	9	10
2IPD score	0.00– 6.50	6.51– 16.50	16.51– 26.50	26.51– 36.50	36.51– 46.50	46.51– 56.50	56.51– 66.50	66.51– 76.50	76.51– 86.50	86.51– 100

A 2IPD score of 36.5 or higher places countries in categories ranging from PDLs 5 to 10, which are indicative of upper-middle to high levels of postal development. As outlined in Table 1, this means that postal services are highly likely to have a positive impact on overall economic growth.

Conversely, countries with scores below 36.5 fall into PDLs 1 to 4, indicating low to lower-middle performance. Within these levels, PDLs 3, 2, and 1 signal progressively more significant challenges in postal development.

Member countries can leverage their PDL and 2IPD component scores to conduct a comprehensive gap analysis, which could serve **as a roadmap not only for postal improvements but also for broader national development.**

Armed with the appropriate investment, technical support, and resources, countries can aim to advance both within and beyond their current PDL.

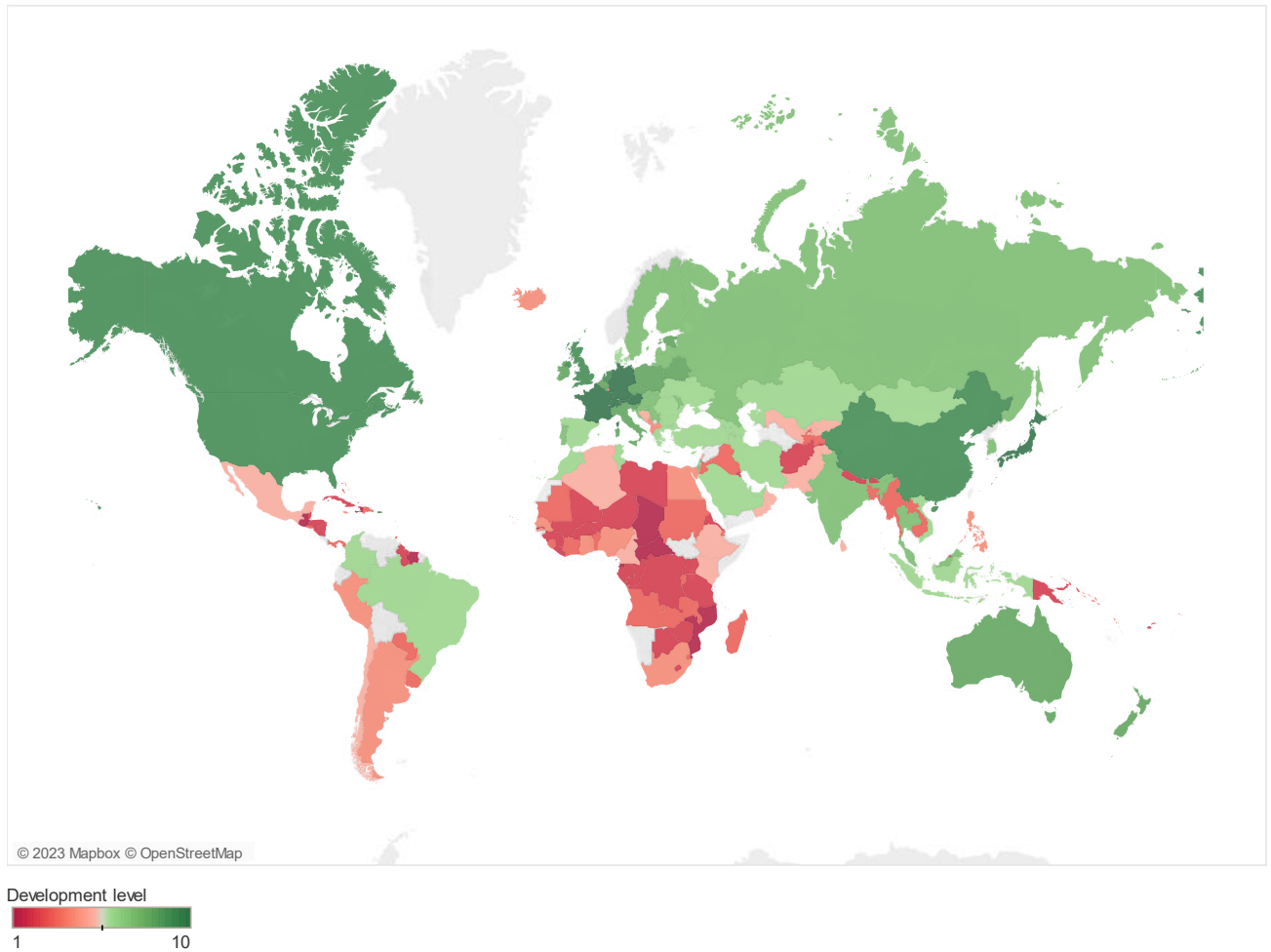
This strategy enables them to become **increasingly valuable players in the global postal network**, thereby amplifying their potential for driving positive economic and developmental outcomes.

### III. Postal development levels across the world

Before exploring the link between postal and economic development, it is crucial to offer a thorough global snapshot of postal development. The 2022 2IPD scores reveal a pronounced disparity in postal development between advanced and developing nations, highlighting particularly stark contrasts between Africa, Latin America and the Caribbean when compared to the rest of the world, as illustrated in Figure 1.

*Figure 1: 2022 postal development level map*

#### 2022 postal development level map



Source: Universal Postal Union, 2023.

In official UPU terminology, developed countries are classified as **industrialized countries (ICs)**. The **Europe and CIS** region is made up of developing nations from Eastern Europe and the Commonwealth of Independent States (CIS). The **Arab countries** region comprises nations from North Africa and the Middle East. The **Africa** region spans the countries of Sub-Saharan Africa. The **Asia-Pacific** region covers countries of Southern and South-East Asia as well as the Pacific islands. Finally, the **Latin America and Caribbean** region encompasses South and Central America, Mexico and the Caribbean.<sup>1</sup>

#### A. 2022 – a global upsurge in postal development

**The year 2022 saw a global upswing in postal service capabilities:** The global median 2IPD score rose to 31.8, marking a significant improvement from the previous year's 30.0. This enhanced infrastructure better positions countries around the world to contribute to future domestic and global economic growth.

However, the development of postal services continues to exhibit disparities across regions. In fact, nearly half of the UPU's member countries fall into lower postal development groups (PDLs 1, 2, and 3).

As illustrated in Table 4, high-income economies – categorized under the ICs group – were at the forefront of global postal development. However, their median 2IPD score dipped slightly to 69.3 in 2022 from 70.2 in 2021. Our analysis shows that this group faced challenges in transitioning out of the COVID-19 pandemic, experiencing a deceleration in e-commerce activity and, consequently, a decrease in parcel volumes.

*Table 4: Key regional and global postal development statistics*

	Region						
	Africa	Arab countries	Asia-Pacific	Europe and CIS	Latin America and Caribbean	Industrialized countries	World
Average 2IPD score	19.1	31.9	34.0	52.7	19.6	68.9	36.0
Average 2IPD score change (2021–2022)	-0.3	2.7	2.7	1.1	-0.1	-1.5	0.6
Median 2IPD score	15.7	31.0	30.6	53.9	18.2	69.3	31.8
Median reliability score	4.8	44.8	37.3	79.9	11.7	86.6	32.2
Median reach score	4.7	26.0	23.1	43.5	11.4	68.2	25.1
Median relevance score	0.3	1.0	5.0	12.2	2.3	27.7	3.0
Median resilience score	52.9	52.8	49.5	73.8	43.5	84.7	56.6
Median PDL	2	4	4	6	3	8	4
Percentage of countries in PDL 1, 2 or 3	77.5%	50.0%	46.7%	3.3%	76.7%	0.0%	45.3%
Highest PDL	5	6	9	8	6	10	10

Source: Universal Postal Union, 2023.

In contrast, the Europe and CIS region not only exceeded the global median but also improved its median 2IPD score, from 53.4 in 2021 to 53.9 in 2022. Similarly, the Arab countries elevated their median score from 29.5 to 31.0 over the same period, while Latin America and the Caribbean saw a year-on-year improvement from 16.1 to 18.2. Most strikingly, the Asia-Pacific region boosted its median score by over seven points, reaching 30.6 in 2022.

The Africa region lagged notably behind, recording a median 2IPD score of 15.7, which represents a decline from its previous score of 16.1 in 2021. This places it well below the global median and, unlike other developing regions, indicates a divergence from more advanced postal economies. Almost 80% of countries in the Africa region remain at PDL 1, 2 or 3. This gap undermines the region's vast potential to leverage its postal infrastructure and contribute positively to broader economic prosperity of the continent.

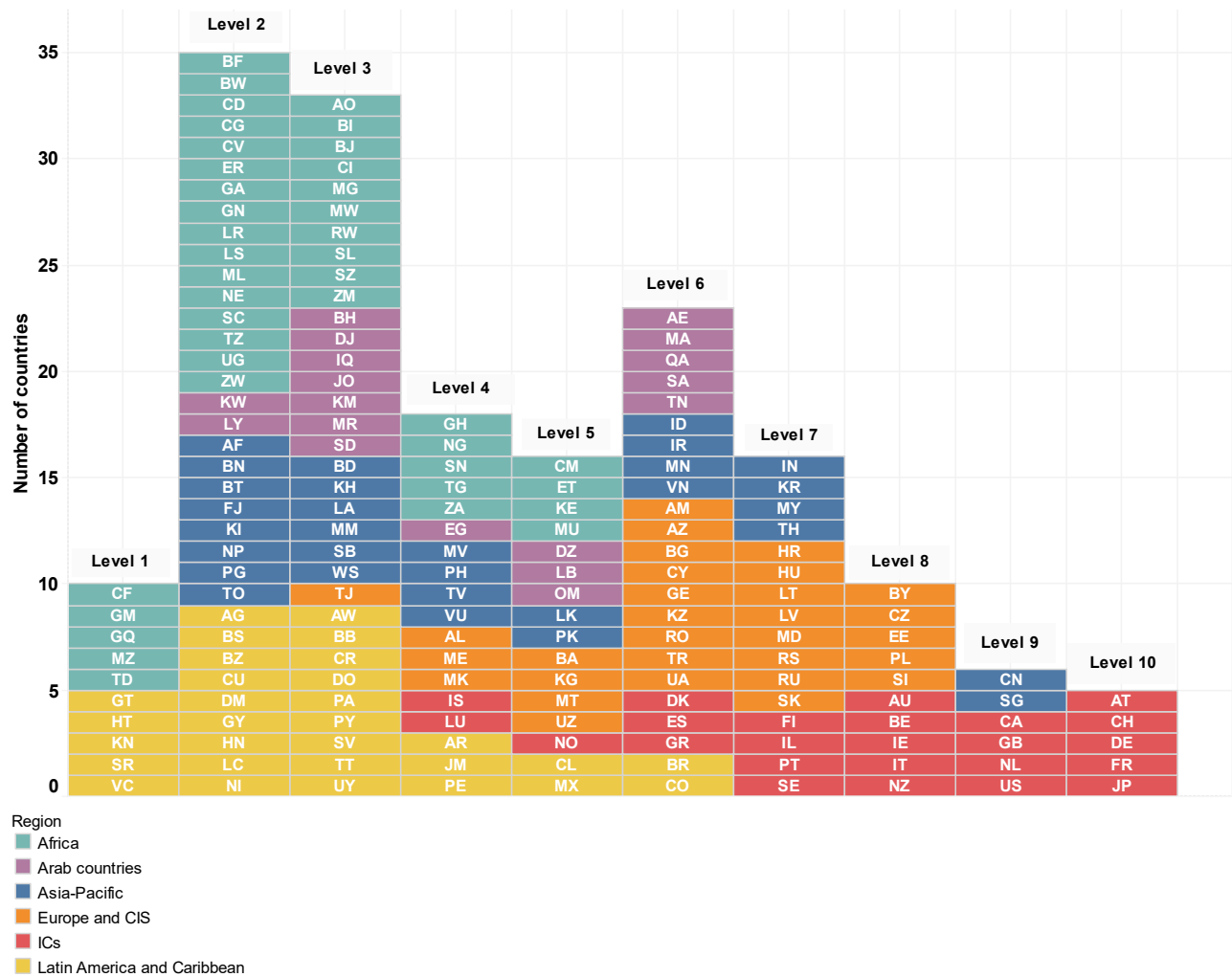
The distribution of 2IPD scores is vividly depicted through the regional clustering within PDLs, as shown in Figure 2.

<sup>1</sup> A full list of UPU regional classifications can be found in UPU Postal Statistics 2021 (UPU, 2022).



Figure 2: Global postal development level distribution by region

## Global postal development level distribution by region



Source: Universal Postal Union, 2023.

A substantial number of countries fall into PDL categories 2 and 3, as well as the upper-tier categories of PDLs 6 and 7, indicating varying degrees of postal development. Conversely, only a minimal number of countries are situated at the extremes: PDL 1 represents those with exceedingly low levels of postal development, while PDLs 9 and 10 encompass countries with high or exceptionally high levels of postal infrastructure.

Annex 1 provides an exhaustive list of UPU member countries, sorted by their 2IPD scores and PDLs, as well as by their individual R4 scores. This annex represents the most comprehensive and detailed resource available today for assessing the state of postal development across the globe.

### B. Global reliability score distribution (R1)

The 2022 examination of global and regional patterns in postal reliability revealed considerable disparities in the service quality achieved by DOs worldwide.

While numerous customers are benefiting from accelerated delivery speeds and greater predictability thanks to enhancements in various national postal systems, a sizable segment of the global population still grapples with suboptimal postal services, which in turn hampers the growth of their respective economies.

The global median reliability score remained at a modest 32.2 out of 100, as indicated in Table 4. However, this still represents an improvement over the score of 28.4 in 2021. It is worth noting that only the ICs group and the Europe and CIS region have consistently maintained high median levels of postal reliability.

The encouraging development is that most emerging economies, with the exception of those in continental Africa, exhibited steady improvement in their levels of postal reliability between 2021 and 2022.

Specifically, the Europe and CIS region's median score rose from 76.8 to 79.9, the Arab countries progressed from 36.1 to 44.8, Asia-Pacific advanced from 22.3 to 37.3, and Latin America and the Caribbean made modest gains, from 10.4 to 11.7.

Unfortunately, DOs in the Africa region experienced a decline in the reliability indicator, with the score deteriorating from 6.7 to 4.8.

### *C. Global reach score distribution (R2)*

The 2022 global median reach score of 25.1 marks a significant advancement in international postal connectivity when compared to the previous year's score of 20.5. This improvement came despite residual challenges in the international transport network that persisted through 2022.

The easing of COVID-19 pandemic-related disruptions facilitated smoother processing of outbound postal flows. However, substantial challenges still exist, which we examine in detail in subsequent chapters.

From a regional standpoint, the ICs group leads with the highest median score, registering 68.2 in 2022, a slight uptick from 67.6 in 2021. This was followed by the Europe and CIS region, which, despite a significantly lower score of 43.5, still showed a marked improvement over its 2021 figure of 36.4.

The Arab countries achieved a median reach score of 26.0, up from 23.3 in the prior year, placing that region above the global median. Asia-Pacific experienced a significant boost in connectivity, with its median reach score surging to 23.1 from a mere 13.1 in 2021.

Furthermore, the developing regions of Latin America and the Caribbean, and Africa, both showed improvements; their median reach scores climbed to 11.4 and 4.7, respectively, from their earlier scores of 8.1 and 4.5.

### *D. Global relevance score distribution (R3)*

Regional disparities are particularly pronounced in the area of postal relevance scores.

The gap between the top global performers and their counterparts in other regions was stark, largely due to the often exponential success achieved in network and platform business development. This divergence was further accentuated in the wake of the COVID-19 pandemic, as leading market players seized the opportunity to solidify their already leading positions.

Although the global median relevance score stagnated at an alarmingly low 3.0 out of 100 in 2021, there was no discernible improvement in the overall relevance of postal services throughout 2022.

Remarkably, the median relevance score for the ICs group stood at 27.7, which is nearly 10 times higher than the scores recorded by the rest of the world. This stark difference highlights the substantial disparities in the effectiveness and relevance of postal systems globally as a provider of customer-centric solutions.

Apart from the Europe and CIS region, which boasted a median relevance score of 12.2, all other developing regions exhibited alarmingly low levels of postal relevance. These varied dramatically, ranging from 0.3 in the Africa region to a slightly better, but still low, 5.0 in the Asia-Pacific region.

Our findings serve as an urgent call to action for developing countries worldwide to re-evaluate and modernize their postal business models. This should be done with the aim of making substantial and meaningful contributions to their respective, increasingly digitalized, economies.

#### *E. Global resilience score distribution (R4)*

Regional disparities were less pronounced for resilience scores, as compared to the other dimensions. This indicates the remarkable ability, and potential, of the global postal networks to adapt to and maintain their activities through various economic and societal challenges.

The ability of postal networks to consistently adapt and preserve their activities through successive shocks and crises appears to be an inherent strength of the global postal system. The COVID-19 pandemic provided yet another platform for postal services to showcase their unique value proposition.

Through various initiatives and a systemic role as providers of essential services, Posts helped bolster societal resilience during challenging times. Moreover, these services are poised to play a significant role in driving economic recovery in the aftermath of such crises.

With a value of 56.5 out of 100, the global median postal resilience score ranked as the highest among the four key 2IPD components in the 2022 assessment. This score experienced a notable increase of 2.6 points between 2021 and 2022, further underscoring the indispensable value of a robust postal system to national socio-economic development.

Leading the pack in median resilience scores was the ICs group with a value of 84.7, up from 81.8 in 2021. Not far behind was the Europe and CIS region, with 73.8, a significant improvement from 69.3 the previous year. The Arab and Asia-Pacific regions also showed gains, registering 52.8 and 49.5, up from 50.8 and 47.1 in 2021, respectively.

Both Africa and the Latin America and Caribbean regions notched their highest scores across all 2IPD components, with 52.9 (up from 47.9 in 2021) and 43.5 (up from 42.3 in 2021) respectively.

These upward trends reflect a renewed focus by postal services worldwide on positioning themselves as pivotal hubs for development within their respective countries.

#### *F. Assessing global postal development gaps*

We conducted a comprehensive analysis of the 2IPD score distribution to gain deeper insights into the developmental disparities between regions and countries. While the median R scores discussed offer valuable benchmarks, they capture only a fraction of the complex landscape of global postal development.

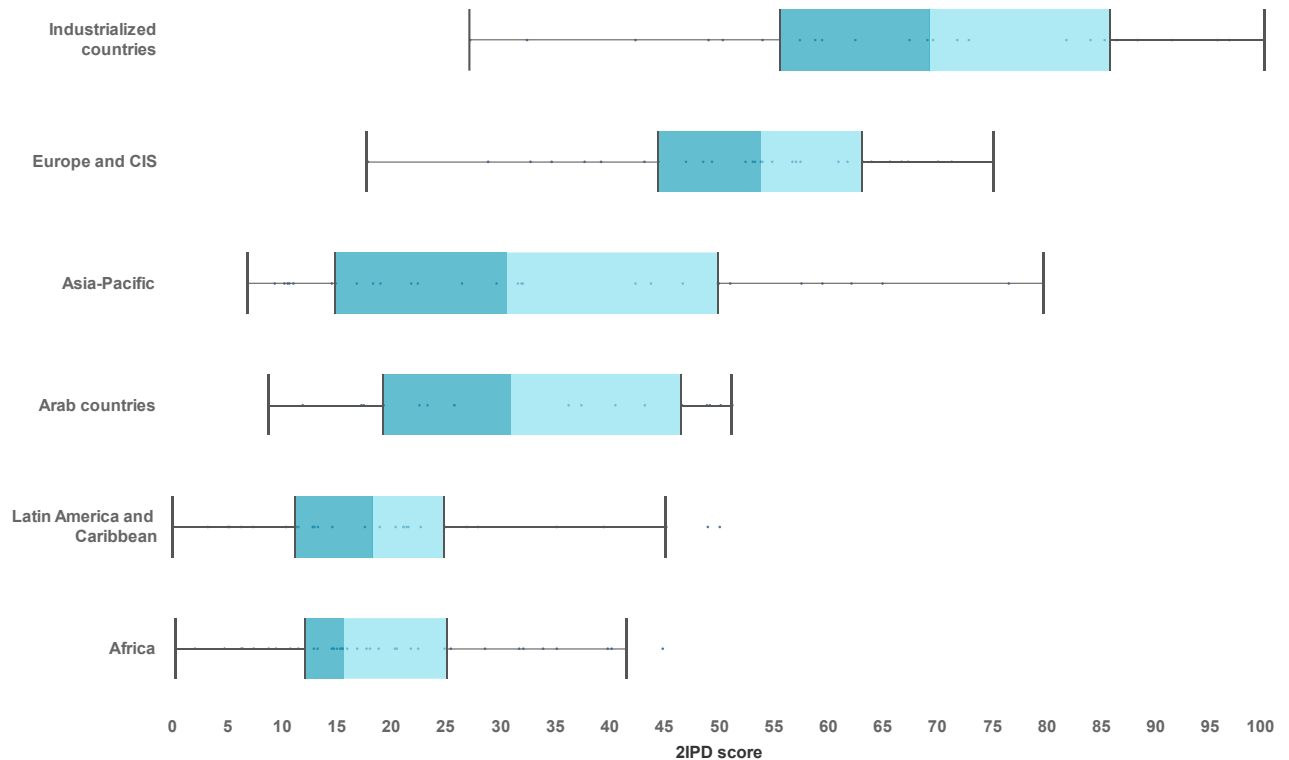
Examining the range of variation in 2IPD component scores across regions is equally illuminating. Greater variability in development scores *poses challenges in offering a uniform array of international postal services across the UPU network and complicates efforts to harmonize regulations for cross-border postal exchanges.*

In the same vein, significant gaps in postal development between countries add layers of complexity to the task of designing future international postal exchange platforms. These platforms must accommodate stakeholders at varying levels of postal maturity, amplifying the challenges of inclusive, global platforms.

The box-plot analysis in Figure 3 visually depicts the dispersion of 2IPD scores for 2022, centring on the most indicative regional scores. In each regional context, the majority of country scores fall within the range defined by the two blue boxes, with outliers – exceptionally high or low values – plotted as individual dots outside these boxes.

*Figure 3: Distribution of 2022 2IPD scores by region*

**Distribution of 2022 2IPD scores by region**



Source: Universal Postal Union, 2023.

Our findings show that even within the ICs group, despite its generally advanced postal development status, achieving uniformity in development is still a goal on the horizon.

The Asia-Pacific region is particularly noteworthy for its extensive range, making it unique on the global stage with nations spanning almost the full gamut of postal maturity levels. The Arab countries exhibit a similar pattern, albeit with less overall variation in scores.

In the Europe and CIS region, there is a marked level of internal consistency in postal development. However, in spite of this relative homogeneity, a substantial chasm remains between the region's top scorers and the rest. On the other hand, the Latin America and the Caribbean and Africa regions show greater uniformity in their scores, albeit consistently lower, indicating less developed postal services.

In an ideal scenario, global postal development would follow a "postal bell curve" once each nation is categorized into one of the 10 PDL groups. Such a curve should have a small number of exceptionally high-performing outliers at one end, and a similarly small set of underperforming countries at the other.

However, data for 2022 reveals a PDL distribution that is heavily skewed towards the lower developmental tiers, particularly in PDL groups 2 and 3, as illustrated in Figure 2. This clearly signals substantial imbalances in postal development across different countries.

The ripple effects of these imbalances have been clear to see in various past UPU initiatives and projects, which were hampered either by delays in implementation or by modest improvements in the global postal network, with severe costs for the growth and development of the international postal network.

#### **IV. 2022 postal sector leaders**






As outlined in the previous chapter, the UPU classified 172 member countries across 10 postal development levels. The importance of having such an exhaustive list lies in its utility for cross-country and inter-regional analysis. This information also serves as a critical reference point for policymakers, DOs, and other sector

stakeholders, enabling them to benchmark performance, identify areas for improvement, and make informed decisions for advancing the global postal network.

#### A. Leaders in postal excellence

Countries that attain a ranking in PDL 10 are indisputably in the vanguard of postal excellence, offering what can be considered the world's pinnacle of postal services. In 2022, **Austria, France, Germany, Japan** and **Switzerland** were classified in PDL 10, according to their 2IPD scores.

*Table 5: Member countries attaining PDL 10 in 2022*

Countries in the postal excellence group PDL 10		2022 2IPD score
	Austria	96.7
	France	88.3
	Germany	95.7
	Japan	91.5
	Switzerland	100.0

Among these elite performers, Switzerland stands out in a league of its own, having achieved the maximum 2IPD score of 100 for an unparalleled seventh consecutive year.

#### B. Regional champions

Identified as regional champions, these six member countries embody the gold standard within their respective regional postal ecosystems. Although they may occupy different tiers in the overarching PDL classification, each stands out as the undisputed leader in its own geographic arena.

*Table 6: 2022 regional champions by 2IPD score and PDL*

UPU region	Country	2022 2IPD score	PDL classification
Africa	Ethiopia	44.9	PDL 5
Arab countries	Morocco	51.2	PDL 6
Asia-Pacific	China (People's Rep.)	79.7	PDL 9
Europe and CIS	Estonia	75.1	PDL 8
Latin America and Caribbean	Brazil	50.1	PDL 6
Industrialized countries	Switzerland	100.0	PDL 10

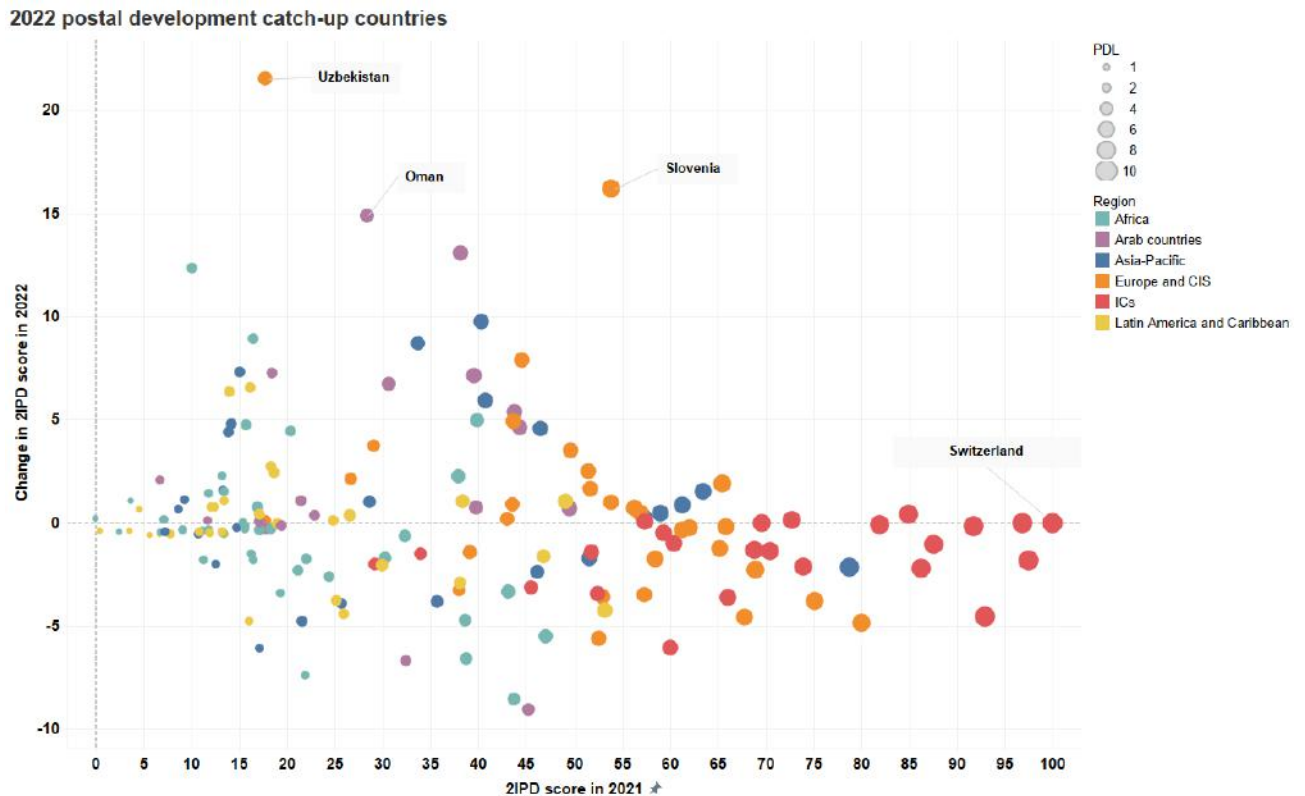
#### C. Postal development convergence worldwide: a catch-up assessment

In the light of the varied stages of postal development worldwide and the disparities between DO accomplishments, we take a closer look at the “catch-up” mechanisms between nations – a measure of how rapidly a member country rose in its 2IPD score (individual components as well as composite score).

Understanding these dynamics is critical for crafting a roadmap aimed at levelling the playing field and elevating the global postal network to new heights of excellence. Addressing these developmental imbalances necessitates an ambitious plan for convergence, which becomes even more relevant as we transition into a post-COVID era.

In this dynamic environment, the trajectory towards achieving postal development convergence shows a complex picture. As illustrated in Figure 4, 49 countries have accelerated their progress, registering year-on-year improvements in their 2IPD scores exceeding one point, thus narrowing the gap with the global leaders in postal excellence.

*Figure 4: 2022 postal development catch-up countries*



Source: Universal Postal Union, 2023.

Meanwhile, 65 countries have sustained a steady trajectory in their postal development, experiencing minimal fluctuations – either an increase or decrease – of up to one point in their 2IPD scores.

In contrast, 58 countries have seen a more pronounced decline, with reductions of their 2IPD scores exceeding one point, causing them to further lag behind best-in-class benchmarks. This mixed momentum underscores the need for a concerted effort to accelerate convergence and minimize disparities.

Yet our analysis unveils a noteworthy trend: the phenomenon of catch-up and convergence is primarily focused on countries in PDL groups 2 to 6.

This range includes most developing nations worldwide, suggesting that significant strides are not just possible but also potentially transformative for these countries in terms of socio-economic development.

In stark contrast, most countries in the ICs group faced a turbulent 2022. Nearly all of these nations regressed in their 2IPD score when compared to their benchmark – Switzerland – which has consistently set the standard for postal excellence.

Expanding on this observation, the concentration of progress among developing nations can be seen as a promising indicator of their readiness to integrate more fully into the global postal network. Their advancement has the potential to bring numerous socio-economic benefits, such as enhanced trade opportunities and greater access to essential services. It also opens doors for these countries to take a more active role in shaping international postal policies and innovations.

For developed nations, this comparative regression could serve as a wakeup call, emphasizing the need to continually innovate and adapt. While these countries are usually at an advanced stage of postal development, the shifting dynamics demonstrated in 2022 make it clear that resting on one's laurels is not an option.

Revisiting business models, leveraging new technologies, and adapting to changing consumer behaviours may be key to regaining momentum and staying competitive in a rapidly evolving landscape.

#### *D. Outstanding 2IPD performers in 2022*

As vividly depicted in Figure 4, it is highly encouraging for postal sector peers to witness the remarkable strides made in postal development by **Uzbekistan, Slovenia** and **Oman** in 2022.

These nations have not only enhanced their postal systems, but have also set an inspiring standard for other countries to emulate. Their progress serves as a testament to the transformative power of innovation and dedication in the postal sector.

Several other nations are also making noteworthy progress and are aligning with at least one of the top four countries that excel in specific 2IPD components. The standout performers in each of the 4R component scores are:

- Reliability: **Thailand**
- Reach: **United States of America**
- Relevance: **Austria**
- Resilience: **Switzerland**

We categorize countries that are catching up fast with their peers on a specific 2IPD component as “catch-up stars”. Postal services from these countries were usually able to combine their improvements in quality of service, international connectivity, business models and resilience levels to move up the postal development ladder.

It is particularly noteworthy that the most significant strides have been made in the area of postal reliability and reach, as evidenced by the expansive roster of countries that have made the list in these two categories. These achievements serve not only as a benchmark for excellence, but also as an inspirational milestone for others striving to elevate their own postal services.

In Annex 1, we present detailed tables of countries that have excelled in postal catch-up and convergence across various 2IPD components – namely, reliability, reach, relevance, and resilience – for the year 2022.

## **V. Global postal market landscape**

Before delving into market share assessments for various postal market participants, we offer a succinct overview of recent trends in letter-post and parcel-post volumes managed by designated operators as per official UPU Postal Statistics.

### *A. Postal traffic – letter post*

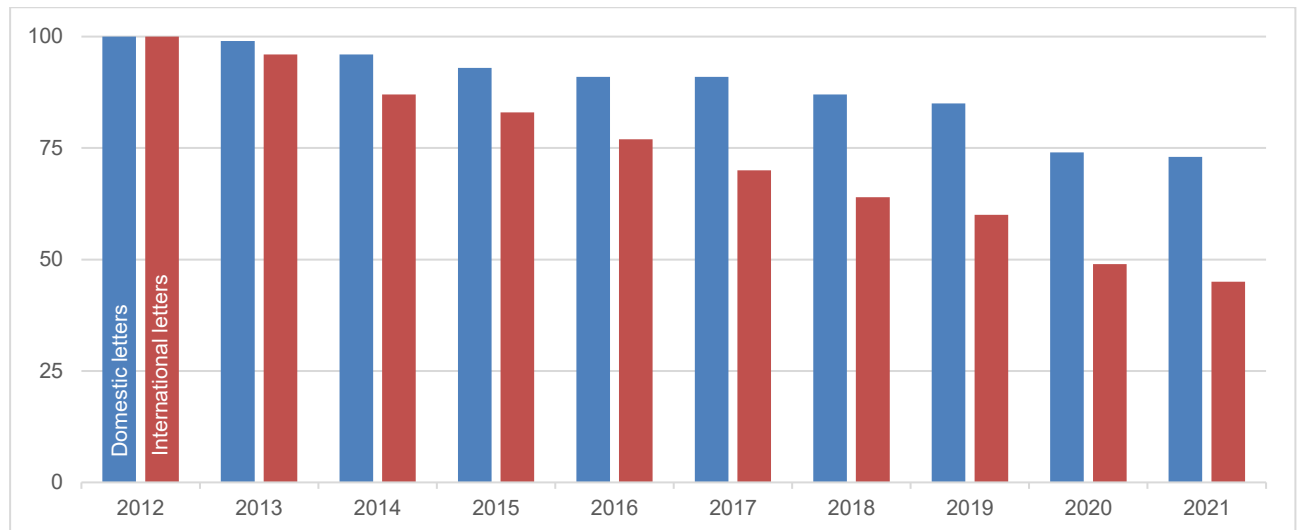
Figure 5 shows the evolution of letter-post volumes between 2012 and 2021, based on the latest information available. Following the pandemic year of 2020, during which volumes fell by almost 14% year on year, the rate of decline has slowed. However, volumes have not recovered as expected.

The total number of *domestic items* for 2021 was estimated at *257 billion*, which represents around 73% of the 2012 value.

*International items* show a different dynamic. The rate of decline was steeper, and decelerated only slightly after the pandemic year.

The total volume of international letters for 2021, estimated at *1.8 billion* items, was less than half the 2012 figure, and represents less than 1% of the total letter-post volume.

Figure 5: Evolution of letter-post volumes (2012–2021)



Source: UPU Postal Statistics, 2022.

Regional differences are also apparent. The best “defenders” of the traditional letter-post segment are the ICs group, where the decline came to a halt in 2021. On the other hand, in the Africa and Latin America regions, the gradual decline in volumes continues, with figures currently standing at 30–40% of the 2012 volume.

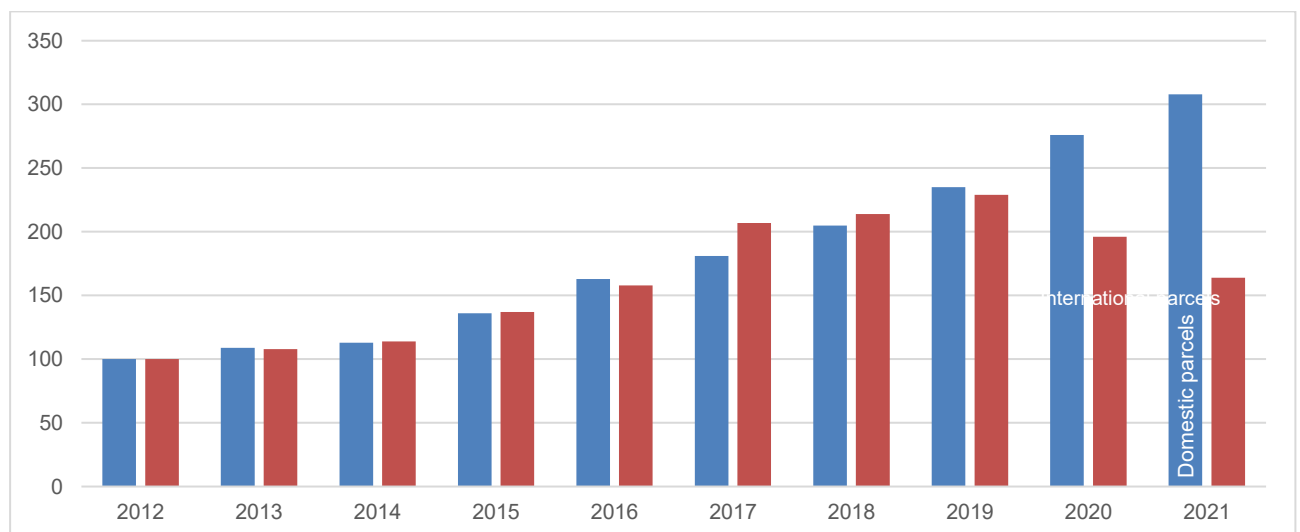
#### B. Postal traffic – parcel post

*Domestic parcels* are the only growing segment, as depicted in Figure 6. Compared to 2020, volumes increased by 11.5% in 2021, amounting to 27.7 billion items. This is three times more than in 2012.

In 2021, the volume of *international parcels* dropped sharply by 16.5% for the second consecutive year, totaling approximately 138 million items. We will delve deeper into the factors affecting the decline in international postal exchanges in subsequent chapters.

However, we believe it is important to exercise caution when interpreting these official statistics, as the data may be incomplete due to insufficient reporting from numerous respondents, obliging us to produce the closest estimates possible.

Figure 6: Evolution of parcel-post volumes (2012–2021)



Source: UPU Postal Statistics, 2022.



The growth of domestic parcels was universal, with the exception of the Africa region. In the Asia-Pacific region, parcel volumes have soared over the last decade, standing at 30 times higher than in 2012.

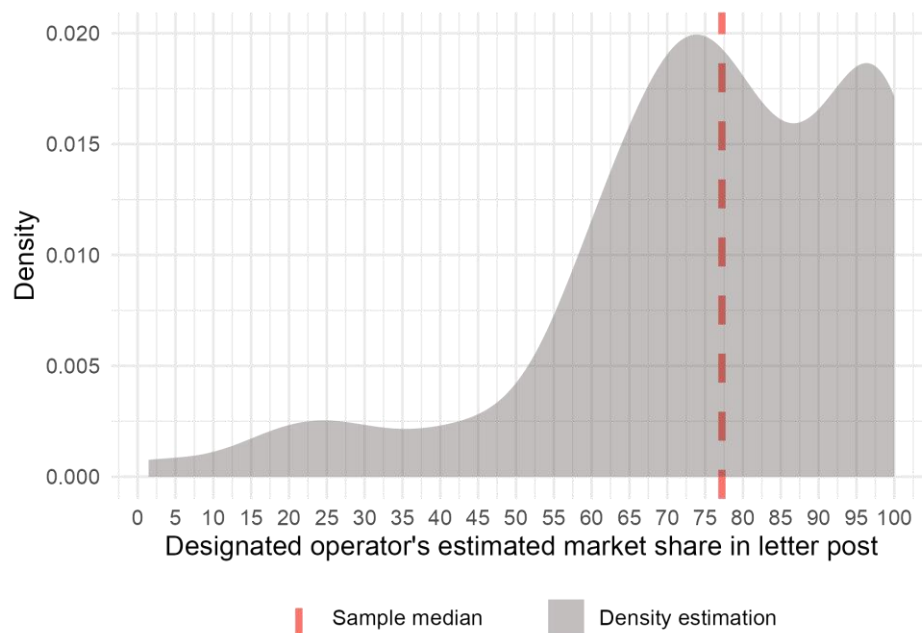
What, then, is the extent of involvement for these historical postal operators in the broader letter, parcel and express markets, commonly referred to as the courier, express and parcel industry?

### C. *Estimated DO market shares of letter, express and parcel post*

Utilizing regulatory information provided to the UPU's Postal Statistics, we applied the "multiplier method" (Boffa, De Borja and Piotrowski, 2021) for estimating market share. This allows us to offer insights into the involvement of DOs in the comprehensive letter-post, parcel-post and express markets. Similarly, this methodology enables us to furnish a global estimation of volumes for the letter-post and parcel-post categories.

Figure 7 presents the most up-to-date data available for 2021, illustrating the market share distribution among DOs, across various product categories. In the letter-post segment, **DOs maintain a commanding presence, with a median market share of 77.2%.**

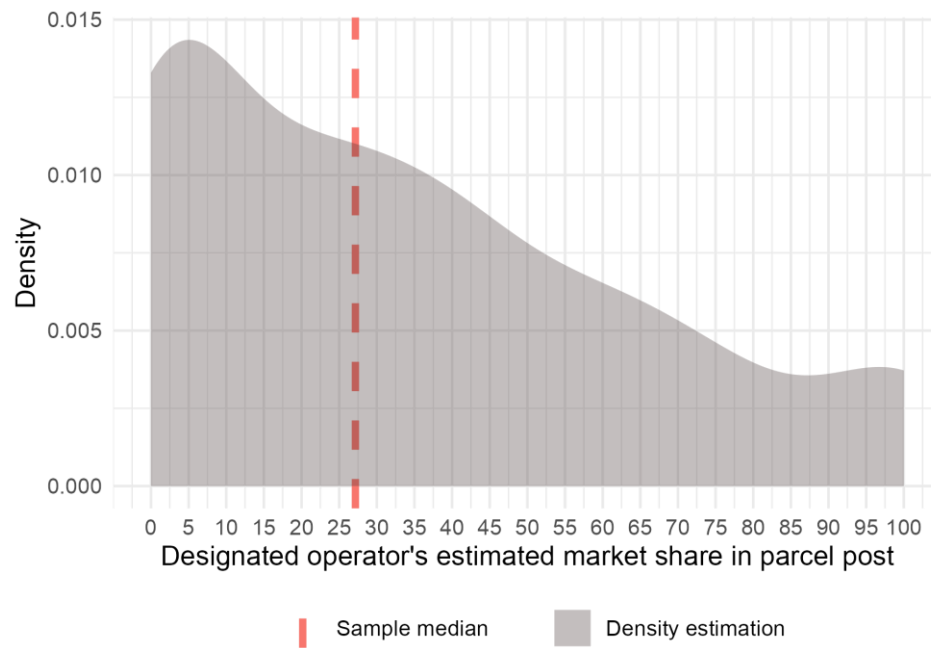
*Figure 7: Letter post – market estimates for DOs*



Source: Global estimates based on official UPU statistics.  
Note: Kernel density estimate.

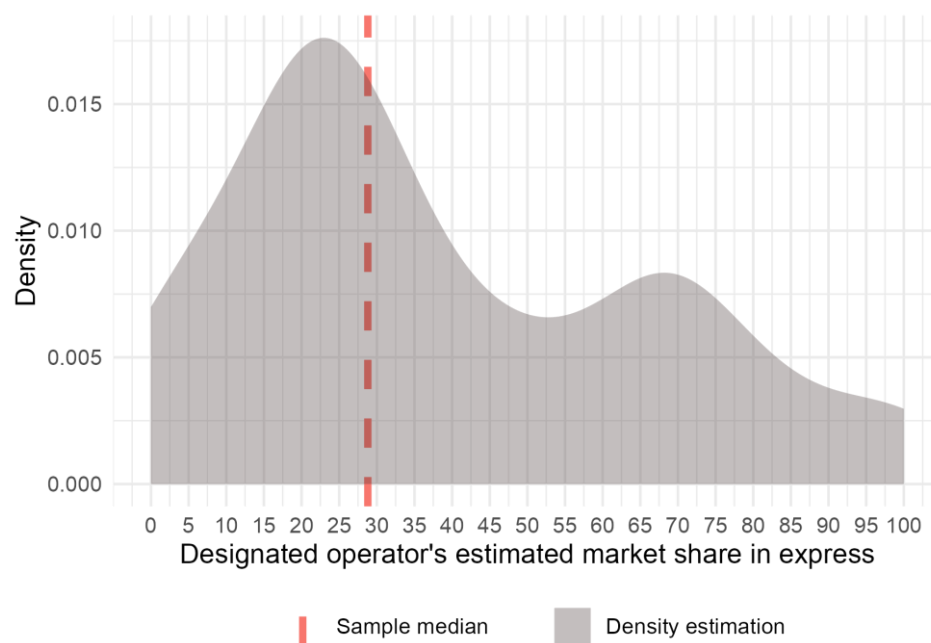
Conversely, the parcel and express delivery segments exhibit a more equitable distribution of market share between DOs and other participants. Specifically, DOs hold a median market share of **27.2% in the parcel-post category** (Figure 8) and **28.8% in the express segment** (Figure 9).

*Figure 8: Parcel post – market estimates for DOs*



Source: Global estimates based on official UPU statistics.  
Note: Kernel density estimate.

*Figure 9: Express post – market estimates for DOs*



Source: Global estimates based on official UPU statistics.  
Note: Kernel density estimate.

This substantially lower market share in the fast-growing parcel and express delivery markets could raise concerns about DOs' long-term economic sustainability.

These segments, heavily influenced by the rise of e-commerce and real-time tracking technologies, have the highest potential as future sources of revenue growth. A failure to secure a stronger footing in these areas could potentially limit revenue diversification for DOs, making them vulnerable to shifts in consumer behaviour and changes in market dynamics.

Moreover, the divided market share in the parcel and express segments suggests that DOs face stiff competition from other market players, including specialized courier companies and third-party logistics providers (Accenture, 2023).

With relatively thin profit margins, particularly in a globally interconnected postal network, DOs must invest in innovation, operational efficiency and customer-centric services to remain economically viable in the long term. Their adaptability to market dynamics and agility in responding to consumer needs will be critical factors in determining their future economic sustainability.

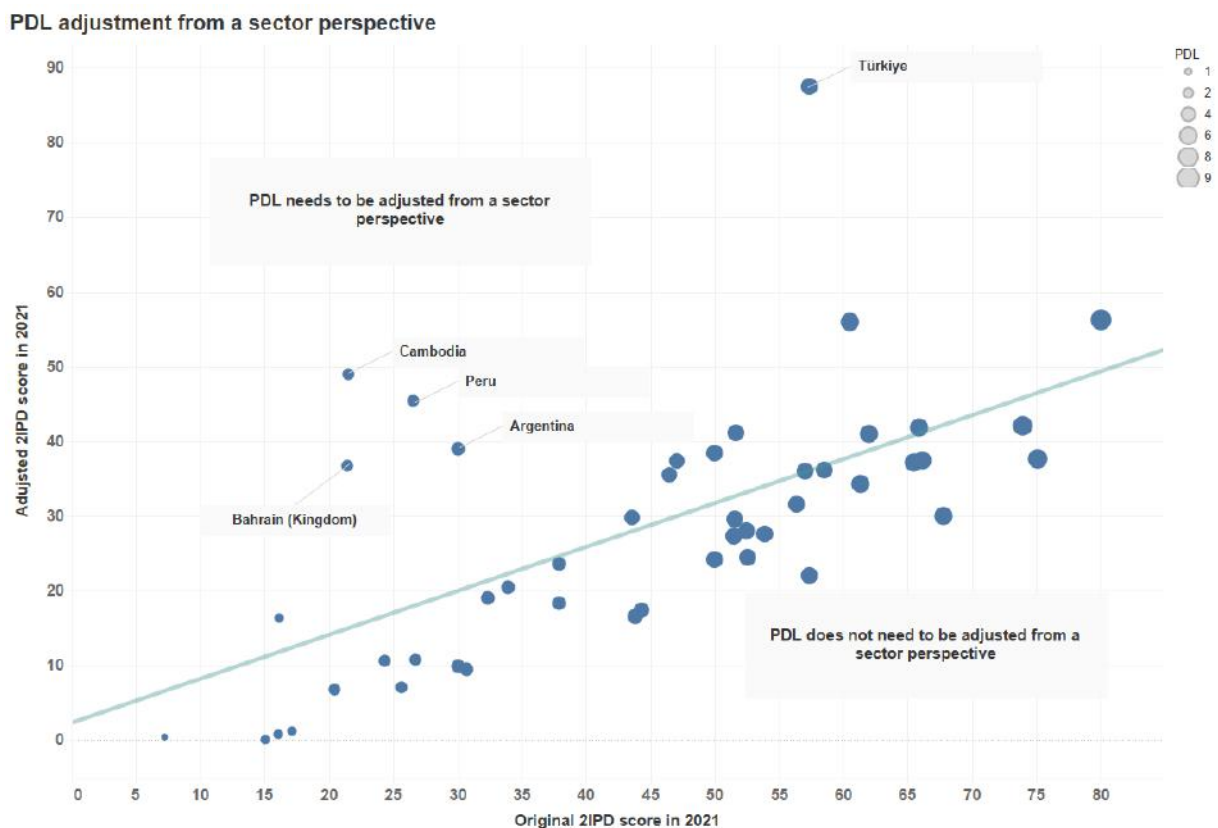
From a regional standpoint, the market positioning of DOs appears to be more robust in industrialized countries, as underscored by the higher levels of postal development.

This variability in market participation by DOs raises an important issue: how should we evaluate global postal development using 2IPD scores that are solely reflective of DOs' performance?

To address this, we constructed an econometric model which compares 2021 2IPD scores with an adjusted version that incorporates the relative performance of non-DOs. This adjusted score is gauged against the most advanced overall postal market, which includes performance metrics for both DOs and non-DOs.

Figure 10 presents the results, which strongly suggest that the **incorporation of non-DO data would not significantly alter the 2IPD performance assessments for estimating postal sector development scores.**

*Figure 10: PDL adjustment from a sector perspective*



Source: Universal Postal Union, 2023.

In this adjusted model, only five countries – Argentina, Bahrain (Kingdom), Cambodia, Peru, and Türkiye – would see an upgrade to a higher PDL category if we were to include this supplementary regulatory information.

#### *D. Estimating the global postal market for 2022*

In the ICs group, DOs capture an estimated market share of 82.4% in the letter-post segment, 50.1% in the parcel-post category, and 34.3% in express services.

Utilizing the “multiplier method” for gauging the market share of DOs in the letter-post and parcel-post segments, **we estimate a global letter-post market comprising 326 billion items and a global parcel-post market of 104 billion items** for the year 2022.

Interestingly, the Europe and CIS region boasts the highest market share in the letter-post sector, at 92.8%. When it comes to parcel-post and express deliveries, the ICs again lead the way, commanding the highest market shares across all UPU regions at 50.1% and 34.3%, respectively.

The significant market share maintained by DOs in the letter-post segment indicates a level of economic stability and competitive advantage in this traditional service area.

Unfortunately, owing to limitations in the currently available data, we are unable to provide an estimate for the total number of express items.

## **VI. Using 2IPD to assess the impact of postal development on economic growth**

### *A. Delivering economic resilience*

The symbiotic relationship between postal development and national economic growth cannot be overlooked.

A well-developed and functioning postal sector serves as a critical factor in bolstering a country’s resilience and economic growth in both prosperous and challenging times. As a vital part of the global supply chain and driver for e-commerce, a robust postal service not only facilitates trade but also empowers small and medium-sized enterprises to reach broader markets. In this networked age, the role of postal services extends far beyond mail delivery, becoming a multifaceted enabler of economic activities ranging from financial services to last-mile logistics.

Moreover, postal services often serve as a vital lifeline for rural and remote communities, providing them with access to essential goods, services, and economic opportunities that they might otherwise lack. This inclusive and universal approach in access to postal services is instrumental in ensuring that growth is not just concentrated in urban centres but is shared more broadly across a nation (Ansón and Bosch Gual (2008), Ansón and Caron (2008)). As such, the strength and reach of a country’s postal system can be viewed as a barometer for its overall economic health and social equity.

In the wake of the COVID-19 pandemic, the resilience of postal services has come into sharp focus. The crisis underscored their role as an essential service, aiding societies in crisis management through the distribution of healthcare supplies, ensuring continuity in communication, and supporting the surge in online retail that became a new normal for consumers. These factors contribute to a nation’s ability to adapt and recover from shocks, thereby highlighting the inseparable link between postal development and economic resilience.

### *B. Econometric estimations*

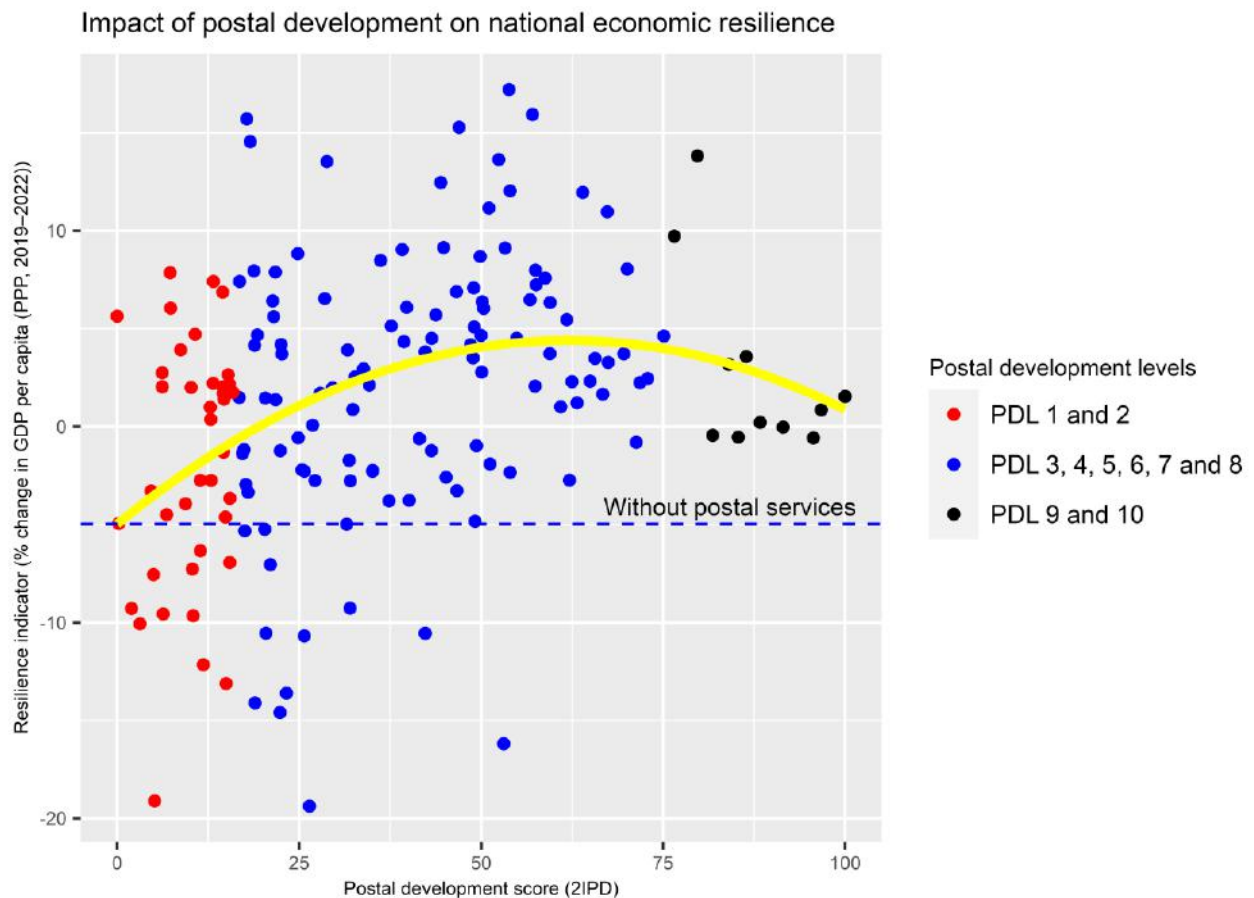
As countries emerge from the most devastating global pandemic in a century, it is crucial to examine the role postal development has played in their economic recovery. To explore this, we constructed an econometric model which correlates postal development with economic rebound, while accounting for various control variables such as a country’s pre-pandemic GDP and level of economic development. This allows us to assess causality between these two variables.

We used countries' 2IPD postal development scores and measured the change in GDP per capita before and after the pandemic. We then performed a robust cross-sectional econometric analysis, addressing data variability across countries – also known as heteroskedasticity – to ensure the validity of our findings.

After accounting for numerous underlying factors and isolating the statistical correlation between postal development and economic recovery, our analysis reveals a tangible impact of postal development on economic resilience. This is gauged by the rate of economic bounce-back from 2019 to 2022, specifically quantified as the percentage change in GDP per capita in terms of purchasing power parity for this period.

The yellow curve in Figure 11 represents the fitted regression results, demonstrating how a higher 2IPD postal development score contributes to bolstering a country's economic resilience.

*Figure 11: Impact of postal development on national economic resilience*



Source: Universal Postal Union, 2023.

When contrasted against a hypothetical counterfactual scenario of a complete absence of postal services – depicted by the dotted blue line – it becomes clear that postal infrastructure plays a meaningful role in post-pandemic recovery. However, this contribution is not uniform; it tends to increase with higher levels of postal development, but eventually plateaus or even decreases for some advanced economies.

For countries in PDLs 1 and 2, the influence of postal services on economic resilience is relatively modest. In these nations, economies are expected to achieve only a partial recovery from the pandemic, **leaving them with a lower GDP compared to pre-pandemic levels**.

The values represented by the yellow curve, which predict the influence of postal development on economic recovery, remain in negative territory. However, they are less dire than what would be expected in the complete absence of postal services. Such economies are unable to fully leverage the benefits of well-functioning postal services to return to their pre-crisis income per capita.

For the majority of countries in PDL groups 3 to 8, postal services played a significant role in restoring real GDP per capita, adjusted for purchasing power parity, to its pre-pandemic levels. Our econometric model indicates that, due to the critical involvement of postal services in essential economic activities, **these countries are more apt to bounce back to their pre-pandemic economic performance.**

This beneficial impact is most pronounced for countries in the PDL 6 and 7 categories, as evident in the graph. Furthermore, **virtually no country falls below the economic recovery level that would have been expected in a hypothetical scenario lacking postal services.**

In countries categorized under postal development levels 9 and 10, the **role of exceptional postal services in bolstering national economic resilience remains unmistakably positive.** Yet, the impact is somewhat less pronounced compared to the countries in PDL groups 7 and 8.

This nuanced difference may be attributable to the law of diminishing returns, where the incremental benefits of advanced postal systems may level off after reaching a certain threshold of efficiency and effectiveness. It is also worth considering that countries classified in the PDL 9 and 10 categories may already have diverse, resilient economies with various other sectors contributing significantly to their robustness.

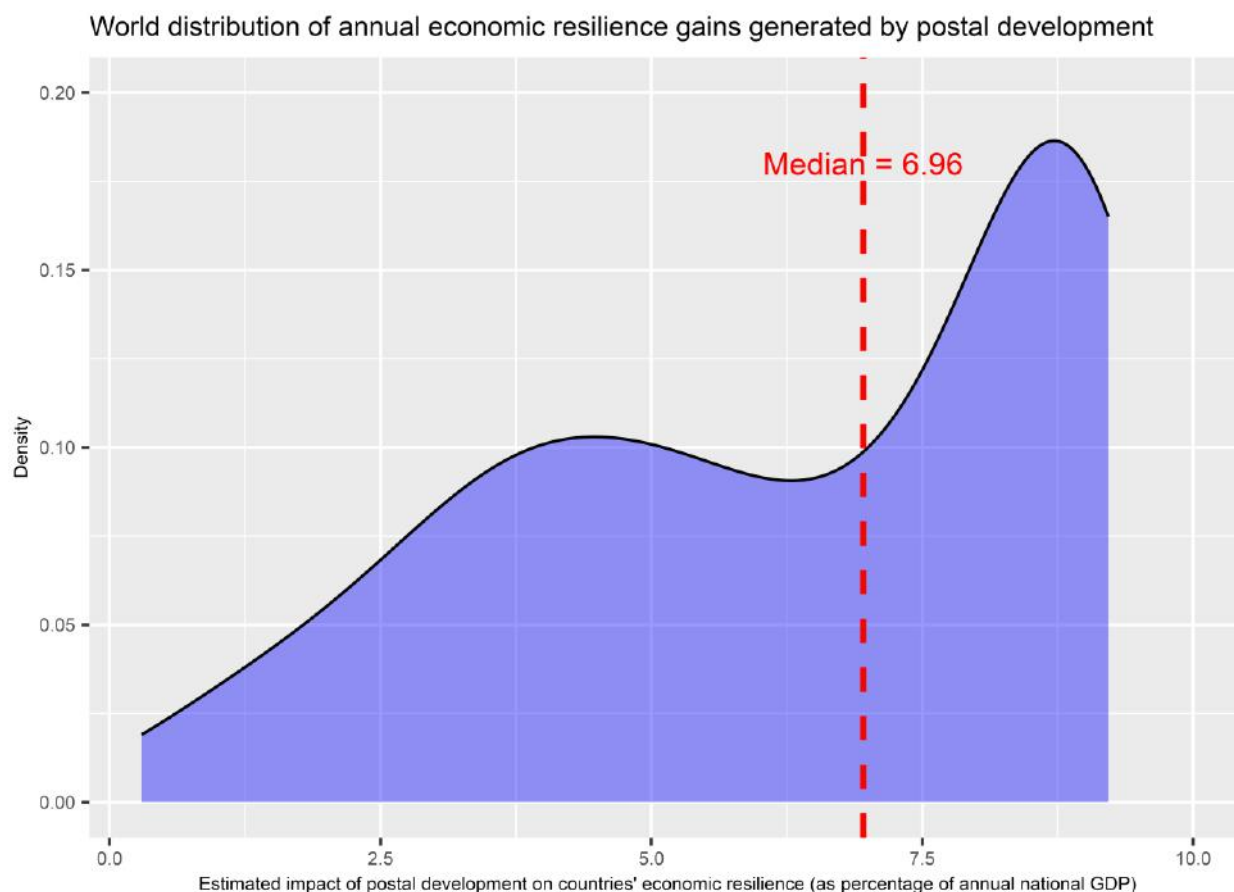
Therefore, while excellent postal services continue to be a vital asset, their relative contribution to economic resilience becomes diluted in the context of a multifaceted, advanced economy. In essence, these countries have potentially maximized the utility derived from postal services, leaving less room for additional gains in terms of economic resilience.

Having established the pivotal role that postal development plays in bolstering global economic resilience post-pandemic, we refined our econometric model to quantify these effects in terms of GDP percentage points. Specifically, we aim to address a central question: *what percentage of a country's GDP can be attributed to the efficacy of its postal services, and how does this contribution vary from one nation to another?*

This approach allows us to provide a more nuanced understanding of the economic value generated by well-functioning postal systems across different countries and development levels.

Figure 12 displays the distribution of GDP percentage points attributable to the postal systems of the 172 countries evaluated through the 2IPD. Our analysis reveals **a median positive impact of 6.96 percentage points of GDP due to the role of postal services in national economic output.**

Figure 12: Global distribution of annual economic resilience gains generated by postal development



Source: Universal Postal Union, 2023.

**This implies that, without postal infrastructure, the median country would experience a 6.96% reduction in its annual GDP.**

This is a substantially larger impact than the historically cited direct contributions of postal services, which range between 0.5% and 1.0% of GDP.

Postal networks play a critical role as facilitators in the production and distribution of a wide array of goods and services. Several economic sectors would be severely hampered, if not entirely incapacitated, in the absence of these services.

Therefore, **it is a conservative estimate to say that the direct contribution of postal services is amplified sevenfold, at the median level, when accounting for both the direct and indirect impacts of a country's postal infrastructure on its economy.**

This underscores the indispensable role that postal services play in supporting a resilient and vibrant national economy.

When examining the nation at the pinnacle of postal excellence – Switzerland – the impact of its postal services on GDP is astonishing. The additional income per capita generated by the Swiss postal system equates to the cost of premium medical insurance coverage for an individual.

This vividly illustrates the profound influence that a well-functioning postal service can have on both national prosperity and individual well-being. **Far from being a mere service, postal networks act as multipliers of income for every citizen.** While the effects may be subtle and often taken for granted, they are nonetheless integral to the economic fabric of a society.

The role of postal services extends far beyond the delivery of mail and packages; they are foundational pillars that help elevate living standards.

### C. *An evidence base for policy decisions*

The importance of the postal sector – not just as a facilitator of communication but also as a cornerstone of economic resilience and recovery – is unmistakable.

We have navigated through the complexities of 2IPD, emphasizing not only the stark differences across nations but also the substantial impact that a robust postal system can have on a country's economic well-being. Our econometric modelling bolsters this argument by establishing not just a correlation but a causative relationship between high postal development scores and stronger economic resilience.

This is **a ground-breaking revelation which underscores the potential for targeted investments in the postal sector to catalyze economic growth and recovery**. It elevates the discussion **from one of mere association to one of direct influence**, thereby emphasizing the critical role the postal system plays in the socio-economic landscape of a nation.

As countries confront a myriad of challenges – from economic disruptions to rapid technological changes, to changes in market dynamics – the significance of the postal sector as a stabilizing and enabling force becomes even more salient.

Our findings thus serve as **an empirical foundation upon which policymakers, scholars and industry experts can build**. They not only open the door for more in-depth research, but also provide compelling evidence for the urgent need to prioritize postal development as a strategy for economic and societal advancement.

Building on the recognition of the postal sector's immense contributions to economic resilience, our focus naturally shifts to the sector's own evolution.

But how are postal systems at varying stages of development adapting to meet the multifaceted challenges and demands of our times? How are they transforming to meet contemporary challenges and demands? In the sections below, we delve deeper into these critical dimensions of postal development, offering insights that are indispensable for shaping future strategies and policies.

## VII. **Postal economic viability – trends and forecasts**

We begin our analysis on this topic by asking: *How are postal networks, which are at different stages of development and maturity, adapting their business models to address current and emerging challenges and needs?*

An answer to this question is provided through our postal economic sustainability outlook. In the dynamic landscape of the 21st century, mere existence is not enough; evolution is essential. As postal services adapt and reorient their business and economic models, a dual challenge emerges: achieving economic sustainability while upholding environmental responsibility.

While some postal giants have successfully evolved, leveraging eco-systemic value creation, vast disparities remain, and different business trajectories and achievements can be observed in spite of some common key evolutionary patterns.

This evolution, as evidenced by the main UPU Postal Statistics indicators, is analyzed by postal development clusters, shedding some new light on how postal services have evolved according to their postal development cohort.

Overarchingly, we find that **more advanced postal companies are already striving to find an equilibrium between sustaining their economic models and reducing their environmental footprints**, while many others have yet to anchor their foundational economic sustainability.



Many postal services – especially in countries with lower postal development scores – have yet to design business models that will ensure economic sustainability in the first place.

However, they too cannot ignore future negative environmental impacts, and they should dramatically increase their readiness to effectively mitigate them in the near future. As underscored by recent research from Borsenberger and Ansón (2023), there is an urgent need for all postal sector stakeholders to significantly enhance their preparedness for mitigating environmental impacts in the near term.

While their study delves into the nuances of environmental sustainability, *our focus in this section remains squarely on **economic** sustainability.*

#### A. *Main global postal industry trends and predictions*

To assess the current economic sustainability path of postal services, we leverage extensive datasets and statistical models from the UPU to construct a robust framework of indicators and predictive analytics aimed at shedding light on the evolving landscape of the global postal industry.

This comprehensive approach enables us to offer insights that are not only reflective of past and current trends but are also indicative of future developments. **Our goal is to equip policymakers, industry experts and scholars with actionable intelligence to make informed decisions that will steer the postal industry toward greater efficacy and resilience.**

We delve into the analysis of two sets of charts (Figure 13 and Figure 14) that provide a nuanced understanding of the sector's financial performance. The first set, Figure 13, focuses on the various revenue streams of the postal industry, such as income generated from letter post, parcels and logistics, postal financial services, and other products.

The second set of charts, Figure 14, examines the real operating revenues, calculated through multiple metrics, providing a holistic view of the industry's economic health. Through this data-driven approach, we aim to offer a multi-faceted picture of an industry in transition, dealing with the pressures of digitalization, changing consumer preferences, and global economic uncertainties.

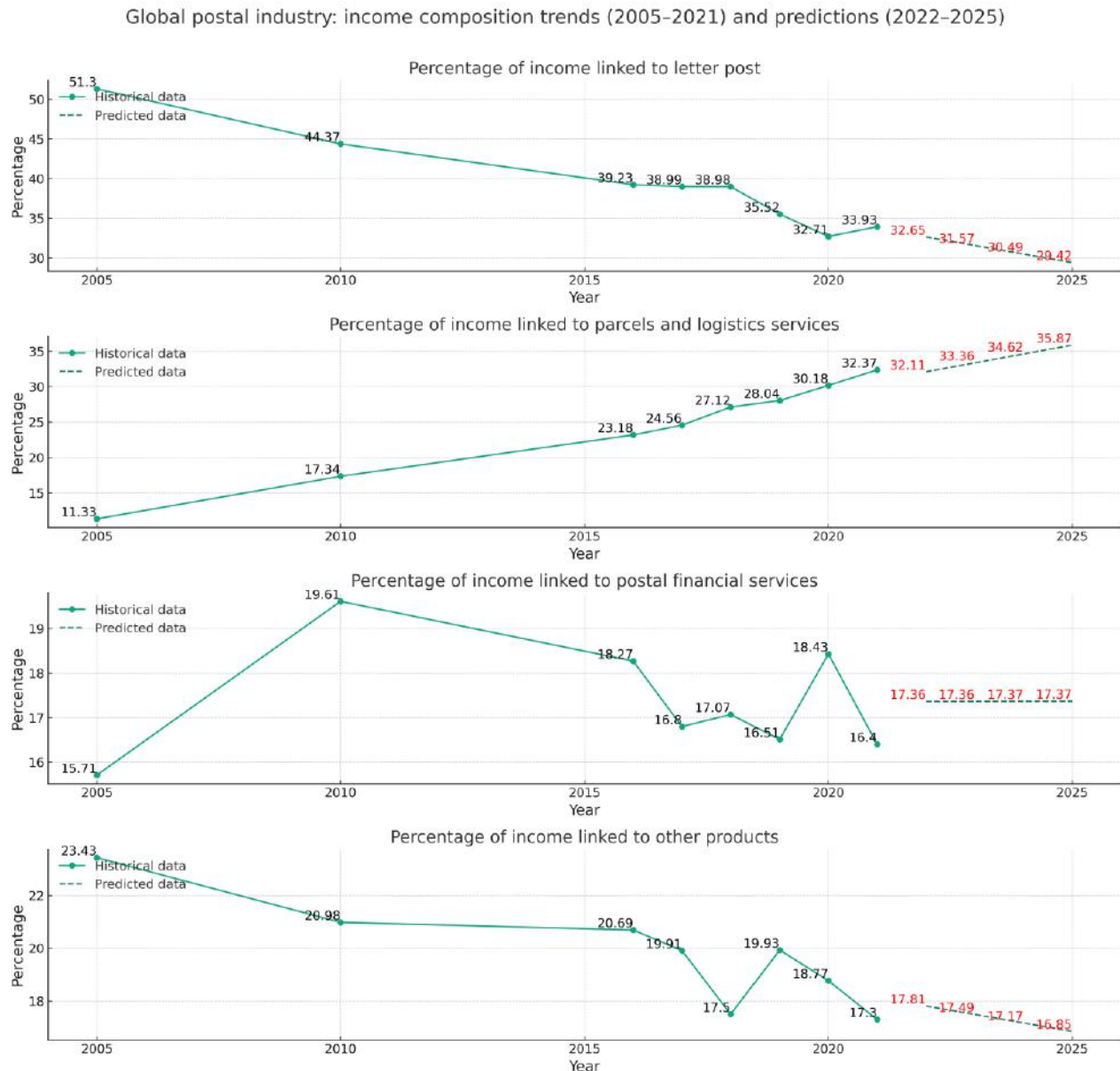
By conducting this analysis, we aspire to provide a reliable basis for shaping future strategies and policies that will benefit the postal sector and, by extension, the broader global economy.

#### B. *Global evolution of the postal income and revenues*

The most compelling evidence of the transformation in postal services over the past two decades can be gleaned from the UPU Postal Statistics' definition of postal income (UPU, 2022). According to this specialized UPU framework, "postal income by product" captures the breakdown of overall revenue across various business lines. In this context, "postal income" specifically refers to the revenue generated from the sale of services by the DO.

In the charts below, we average postal income by product indicators across countries to illustrate global trends in diverse revenue streams within the postal sector from 2005 to 2021, extending our projections through to 2025. It is important to note that **these forecasts aim to outline general trends rather than pinpointing precise values.** This caution is particularly warranted given the complexities of predictive modelling in the wake of unprecedented disruptions, such as the far-reaching impact of the COVID-19 pandemic.

Figure 13: Global postal industry: income trends (2005–2021) and predictions (2022–2025)



Source: Universal Postal Union, 2023.

The following trends merit particular attention and encapsulate our key findings:

- i **Percentage of income linked to letter post:** The declining trend over the years is evident, falling from above 50% in 2005 to just below 34% in 2021. Our econometric model predicts that **this decline will continue, reaching approximately 29% by 2025**. This suggests that letter-post services are losing their revenue-generating capabilities, likely due to changes in customer preferences. The pressing question that remains is “*what is the lower limit for the decline in letter-post volumes?*”. The 2022 Postal Development Report (UPU, 2022) indicated a nascent deceleration in the downward trend of letter-post volumes, signalling a possible stabilization or bottoming out in the near future.
- ii **Percentage of income linked to parcels and logistics services:** In contrast to letter post, the income from parcels and logistics has shown a steady increase, rising from about 11% in 2005 to over 32% in 2021. The prediction is that **this rise will continue, nearing 36% by 2025, and potentially overtaking the income from letter post**. The increasing reliance on e-commerce and online shopping may be the driving factors behind this trend. Nonetheless, as we were highlighting in chapter 5, this growing business segment faces significant competition from alternative delivery services, making it a highly competitive segment for DOs.

- iii **Percentage of income linked to postal financial services:** The percentage of income from financial services has remained relatively stable over the years, fluctuating around 17%. The model **predicts a slight increase, but essentially it remains constant**. This indicates that postal financial services continue to be a stable source of revenue for the global postal industry. In countries where financial services are integrated into postal networks, this income share is typically even higher (UPU, forthcoming).
- iv **Percentage of income linked to other products:** The income from other products and services has seen a general decline, with some fluctuations. The prediction model suggests that **this decline will continue, falling to about 17% by 2025**. This may be due to the postal industry focusing more on core competencies like parcels and logistics. It remains to be seen whether the introduction of innovative digital postal services can boost this revenue category in the future.

However, the question remains *how have these structural shifts in postal operations influenced the overall trajectory of postal revenue over time?* Our analysis (Figure 14) captures the global evolution of postal revenues in real terms, with each country's figures adjusted for purchasing power parity.<sup>2</sup>

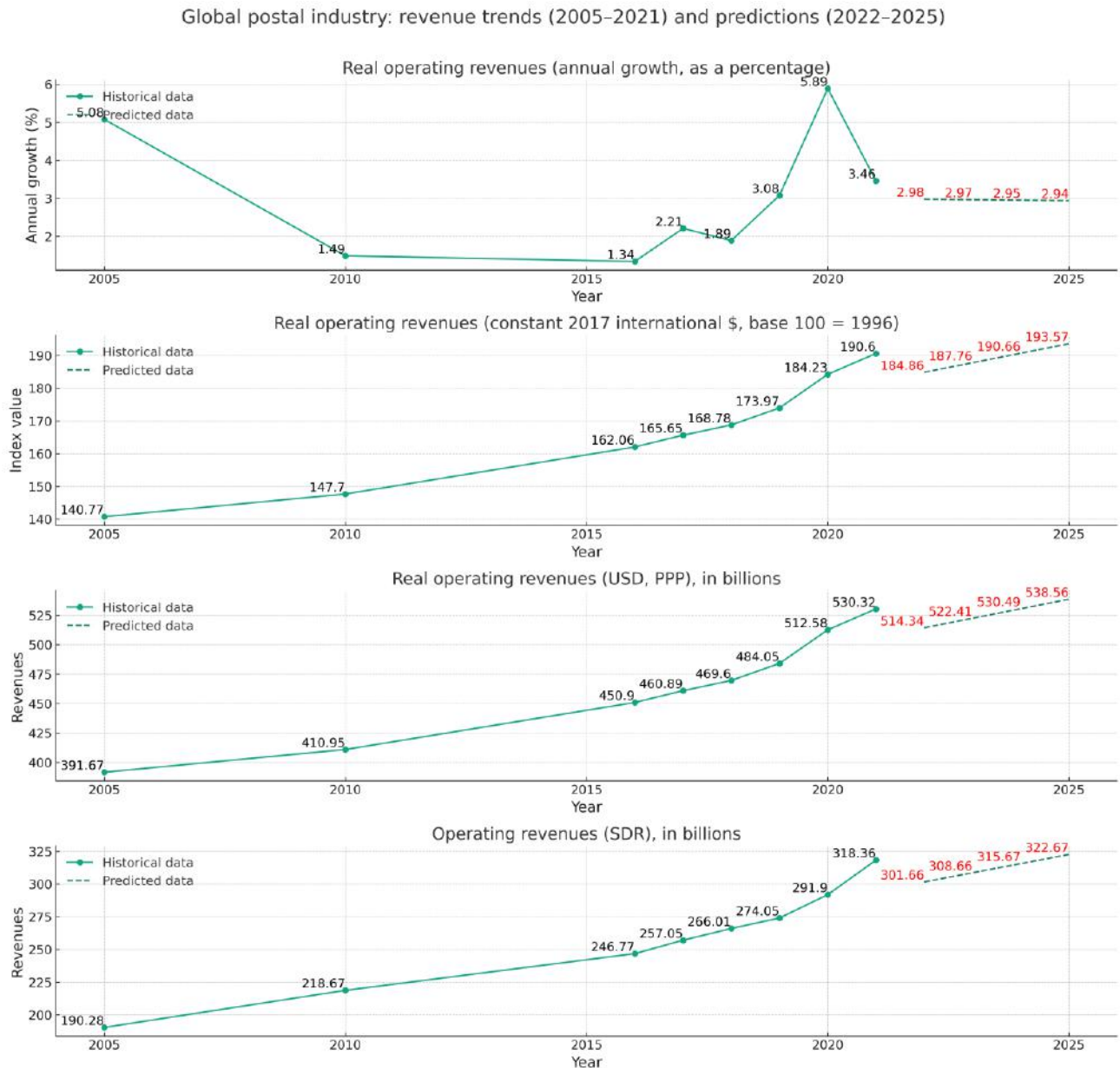
In the light of the evolving landscape of the postal industry, marked by fluctuating real operating revenues, increasing competition, and a persistent inflationary context, ensuring the economic sustainability of postal services in the coming years requires a multifaceted approach.

Our analysis reveals the following:

- i **Real operating revenues** (annual growth, as a percentage): the annual growth rate of real operating revenues has fluctuated over the years. There was a peak in 2020, due to the increase in online shopping during the COVID-19 pandemic. Our econometric model predicts **a slight decline in the real growth rate, stabilizing at around 2.94% by 2025**.
- ii **Real operating revenues index** (constant 2017 international \$, base 100 = 1996): the real operating revenues, after adjusting for inflation, have shown a general increase over the years. The model predicts that this trend will continue, **reaching a real revenue index value of about 194 by 2025**. This would correspond to a compounded annual growth rate of 1.6% over a 20-year period, showing that the projected growth is expected to exceed the performance observed in the past two decades.
- iii **Real operating revenues** (USD, PPP), in billions: there has been a steady increase in real operating revenues when measured in billions of USD (PPP). The model predicts that **this will continue, reaching approximately 539 billion USD by 2025**.
- iv **Operating revenues** (SDR, nominal terms), in billions: similar to the real operating revenues in USD, the operating revenues in SDR have also shown a steady increase. The model predicts **a value of about 323 billion SDR by 2025**.

<sup>2</sup> Except in the chart that outlines the trend of total postal revenue denominated in Special Drawing Rights (SDR).

Figure 14: Global postal industry: revenue trends (2005–2021) and predictions (2022–2025)



Source: Universal Postal Union, 2023.

From our analysis and projections, we observe, firstly, that simply diversifying revenue streams may fall short if postal services across various product categories are not **synergistically integrated to form an eco-systemic service offering, rather than isolated, siloed services**.

Our data reveals a **diminishing trend in traditional letter-post revenues, offset by a surge in parcels and logistics, largely driven by e-commerce growth**. To achieve greater economic sustainability through e-commerce, postal services need to evolve **not just in scope but also in approach**. This could entail forging new collaborations, potentially through **strategic partnerships with digital platforms or by enhancing logistics services** to improve their attractiveness in the post-pandemic customers' eye.

Second, a **focus on efficiency gains is essential**, especially in a persistent inflationary environment. Cost management strategies that range from process automation to strategic sourcing can counteract the impact of inflation and enhance profitability. The more efficient the postal service, the more relevant it can become, especially when consumers are looking for both reliability and cost-effectiveness.

Third, there is the issue of capital investment. The prediction for real operating revenues, after adjusting for inflation, is optimistic, showing general growth over the years. With the implementation of new postal business models, this could provide the financial backing for capital expenditures aimed at service quality and expansion. However, these investments **must be carefully planned and executed to ensure they yield an optimal return on investment over the long term.**

Fourth, the stabilizing role of postal financial services should not be overlooked. Given that income from these services has remained relatively stable, **they could serve as a financial cushion that allows postal operators more leeway in experimenting with new business models and revenue streams.** Furthermore, the potential of utilizing 681,000 post offices worldwide to expand the access to a wider range of financial services represents a significant opportunity not only to diversify revenue streams but also to meaningfully contribute to a nation's financial inclusion initiatives.

And finally, digital transformation and sustainability initiatives can not only result in improvement of operational efficiencies, but also attract a socially conscious consumer base. Technological upgrades can speed up processing times, while sustainability efforts can manifest in eco-friendly delivery options or recyclable packaging.

In summary, to remain economically sustainable, postal services must **adapt to changing consumer behaviours, compete effectively** in burgeoning sectors like e-commerce, **manage costs** judiciously, make **smart capital investments**, and **embrace technological and sustainable innovations.**

The strategies for achieving these goals will likely vary by country and development level; however, we believe the overarching themes remain universally relevant. To shed more light on these nuances, the next section offers a regional analysis, aligning our findings with the categorization of countries based on their postal development levels.

### *C. Regional evolution of postal income and revenue structures*

As underscored in the previous sections, the relevance of postal services to national economic development is a characteristic that transcends all levels of postal development.

However, this potential to contribute to national economic prosperity is intrinsically **linked to the selection of a postal business model.** While diversifying income streams undoubtedly enhances resilience within the postal sector, **an ill-conceived product mix can significantly erode a country's postal relevance.**

Our regional analyses, **as illustrated by the graphs in Annex 2,** demonstrate that developing regions have charted divergent paths in the evolution of their postal business models as compared to their counterparts in advanced economies.

By 2025, specific economic regions, including countries in the African and Arab regions, are projected to witness a considerably lower share of income from letter-post services compared to those in advanced economies. In contrast, regions like Europe and the CIS, along with Latin America, are expected to maintain a higher proportion of letter-post income relative to industrialized nations.

Remarkably, with the exception of the Europe and CIS region, the share of revenue derived from parcel and logistics services is anticipated **to eclipse that of letter post across all 2IPD PDLs.**

This observation is critical for several reasons. First, it signals **a global shift in consumer preferences and business needs,** emphasizing the increasing role of e-commerce and logistics over traditional letter-post services. Second, the data indicates that for developing regions, there exists **a unique opportunity to bypass, or leapfrog, traditional stages of postal development** by honing in on rapidly expanding sectors such as parcels and logistics.

This strategic focus could fast-track these regions' ascent within the postal value chain. Importantly, the faster convergence and more rapid catch-up trends identified among these developing nations corroborate the idea that a significant number of such countries are already making headway in this direction. Additionally, integrating financial services more closely with parcel and logistics operations could offer a synergistic boost to revenue streams from financial services (UPU, forthcoming).

Lastly, the contrasting income structures across different regions underscore the need for tailored, region-specific strategies to bolster the postal sector. This diversity in income streams and consumer demands calls for nuanced, localized approaches rather than a one-size-fits-all strategy, making granular, region-specific analyses indispensable for policymakers and industry leaders aiming to ensure the sector's long-term sustainability.

After analyzing the structure of postal income in developing regions and comparing it with those in developed economies (presented in Annex 2), we delve into regional variations in real postal revenue.

The most notable finding lies in the trajectory of aggregated real postal income for advanced economies. Following a significant surge in real revenue growth in 2020 and 2021, with annual rates of 5.7% and 5.8%, **the year 2022 saw a marked downturn.**

Our analysis shows that, for advanced economies, in 2022, **real postal revenue, adjusted for purchasing power parity and inflation, has plummeted by an estimated -8.4%.** This decline was fuelled by a confluence of factors: a partial reversion to pre-pandemic online shopping habits, coupled with escalating inflation rates exacerbated by the energy crisis stemming from the Ukrainian–Russian conflict in 2022.

Our forecasts indicate a relatively stagnant trajectory for real postal revenues in industrialized countries through to 2025, signalling mounting challenges in charting a new growth path for the postal sector in these economies. These difficulties are in line with the negative shifts observed in most industrialized countries' 2IPD scores for the year 2022.

The narrative *diverges significantly* when it comes to developing regions like Asia-Pacific, Europe and CIS, and the Arab countries. Our forecasts for **real postal income in these regions indicate a generally upward trajectory**, although growth in Asia-Pacific is expected to moderate relative to prior periods. These regions either meet or exceed the global median for PDL 4.

Conversely, **regions that fall below this median PDL 4** – such as Africa, Latin America and the Caribbean – **are projected to experience a decline in postal revenues.**

Our global analysis suggests that PDLs serve as a reliable indicator for future revenue trends, spotlighting a key area of focus for policymakers aiming to bolster their postal sectors.

Eventually, the question of **whether a 2–3% real annual growth rate is sufficient for the economic sustainability of DOs cannot be answered in isolation**; it requires contextualization within both the broader logistics and transportation industry and regional trends.

In this case, the broader industry is known to be mature and capital-intensive, often operating on thin margins and influenced by economic cycles. In such an industry, a 2–3% growth rate is generally seen as stable, particularly if it coincides with stable or increasing profit margins.

However, this stable growth rate takes on different implications when we factor in the regional dynamics.

For industrialized nations grappling with stagnant or even negative growth, maintaining a **2–3% growth rate can be a testament to resilience and efficient management.** On the flip side, for regions with a large number of emerging economies that are witnessing upward revenue trends in the broader logistics industry, **a 2–3% growth rate for postal revenues may suggest lost opportunities.**

Effective cost management becomes even more critical when viewed through the regional lens. For example, if a developing region is experiencing rapid growth in parcels and logistics, then keeping costs in check while capitalizing on this trend would indicate competent management. Similarly, in mature markets with low growth, effective cost control can make the difference between survival and decline.

Investor priorities also vary regionally. In mature economies where stability is prized, a consistent 2–3% growth rate, accompanied by robust dividends, could attract investors seeking long-term security. In developing regions, however, investors might seek higher growth rates, driven by the opportunities for greater market expansion and revenue diversification.

In summary, while a 2–3% real annual growth rate might be seen as reasonable within the broader logistics and transportation industry, its adequacy and implications for long-term postal economic sustainability must be assessed in the context of regional postal revenue trends and local market conditions.

Beyond this consideration, **safeguarding the economic viability of postal services worldwide is crucial, especially given that they provide employment for a global workforce of 4.9 million people**, as reported by UPU Postal Statistics in 2021.

While providing a comprehensive outlook, this chapter has delved into the nuances of this evolutionary journey towards a more economically sustainable postal ecosystem, showcasing the strides made and the challenges that lie ahead. It illuminates this delicate dance and the road ahead. Yet, as the postal sector contends with these internal metamorphoses, a broader, global challenge looms large. In a world increasingly defined by interconnectivity, how does the postal sector navigate the intricacies of international exchanges?

## VIII. International postal exchanges – the global connectivity conundrum

### A. *Introduction*

The world is, more than ever, woven together through intricate webs of communication and commerce. This global tapestry has historically depended on, and continues to depend heavily on, the arteries of international postal services.

However, the last few years have severely tested the resilience of this connectivity, as international postal exchanges faced multifaceted challenges – a culmination of several external shocks including COVID-19, volatile and increasing international postal rates, unpredictable delivery times, wavering reliability, new customs and tax regimes, geopolitical tensions, and the conflict between Russia and Ukraine.

These disruptions have threatened the very fabric of global postal connectedness, with consequences reverberating far beyond missed letters or parcels. Many economic ties, cultural exchanges and crucial supply chains all hinge on this connectivity.

As such, the challenge is not just about getting mail from point A to point B, but ensuring the continued flow of information, goods and value across borders. We unpack the depth and breadth of these challenges thanks to advanced econometric modelling of international postal exchanges, underscoring the significance of preserving and fortifying international postal connections in an era of unprecedented change drawing parallels to the epoch before the Universal Postal Union's inception in 1874.

### B. *Post-COVID-19 pandemic: a new era for global postal exchanges*

The COVID-19 pandemic has had a multifaceted impact on international postal exchanges, creating both challenges and opportunities.

The pandemic led to a surge in online shopping and a consequent rise in demand for parcel delivery services. But this uptick was counterbalanced by logistical challenges including international transport restrictions, border closures, and staffing shortages. The abrupt and prolonged nature of these disruptions placed significant stress on existing international postal infrastructures, leading to delays and increased operational costs.

This unprecedented pandemic also exposed inherent and systemic vulnerabilities in the international postal network, such as a heavy reliance on passenger flights for mail and parcel transport, which were severely curtailed during the outbreak.

Traditional letter-post volumes experienced a decline as digital communications took precedence, exacerbating the financial strain on postal operators already grappling with a shifting communications landscape. Many postal services had to adapt rapidly, investing in technological solutions for contactless deliveries, tracking and sorting to both adhere to public health protocols and meet customer expectations for reliability. And, as if this was not enough, the international postal business accelerated its model transformation.

Much like the transformation observed in international trade, cross-border e-commerce supply chains have undergone significant restructuring to embrace innovative international delivery channels. This shift has moved away from the traditional B2C<sup>3</sup> model facilitated by international postal networks, towards a more efficient B2B2C<sup>3</sup> model. In this new arrangement, goods are transported closer to the end consumer via cargo and then dispatched through various last-mile delivery options, such as postal services or alternative delivery networks.

Concurrently, global digital platforms have begun managing their own cross-border operations to meet the heightened delivery expectations of online shoppers. As a result, traditional international postal channels now face increasing competition from a diverse range of delivery alternatives.

Based on data from the UPU's big data platform we can monitor the weekly evolution of international postal tonnage and item counts from 1 January 2018 to 30 June 2023.

According to data exchanged by DOs via the POST\*Net system, **international postal tonnage reached its peak at 20,495 tonnes during the holiday season of 2019.** However, by the end of June 2023, **these exchanges had dwindled to just 7,034 tonnes.**

A comparison between the pre-pandemic Q2 2019 and Q2 2023 **reveals a stark decline of 44.5% in international postal tonnage.** Contrary to expectations, **there was still no observed rebound in volume even after the WHO declared the end of the pandemic.**

Next, we examine tonnage and item volume metrics across the primary categories of international mail: international letter post (U), international parcel post (C), and Express Mail Service (EMS, E).

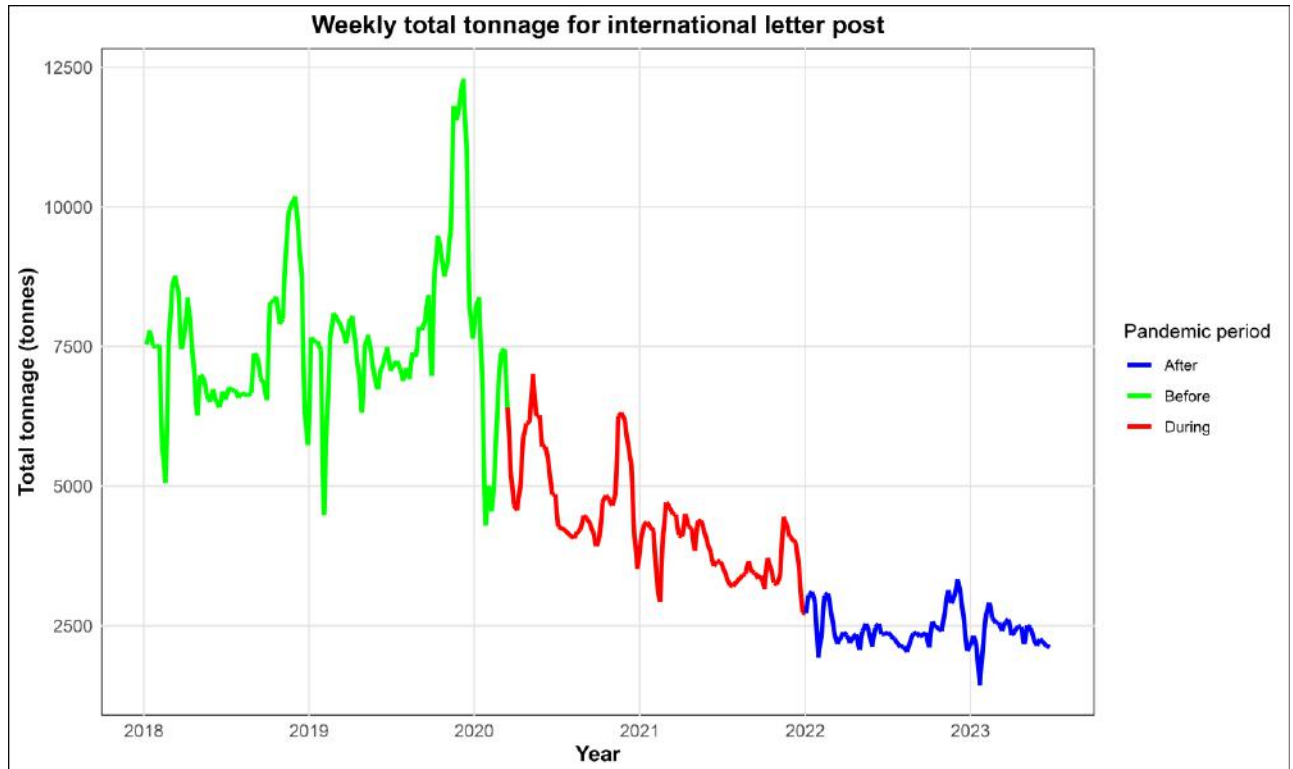
Unsurprisingly, as illustrated in Figure 15 and Figure 16, **the trajectory of international letter post closely mirrors that of total international postal exchanges.** This is largely because letter post constitutes the majority of traditional international postal shipments and includes small packets associated with cross-border e-commerce transactions.

**The drop in tonnage is especially stark, showing a 68.1% decrease between Q2 2019 and 2023.** Similarly, **the decline in barcoded items stands at 67.1% for this period.**

<sup>3</sup> B2C: Business to consumer. B2B2C: business to business to consumer.

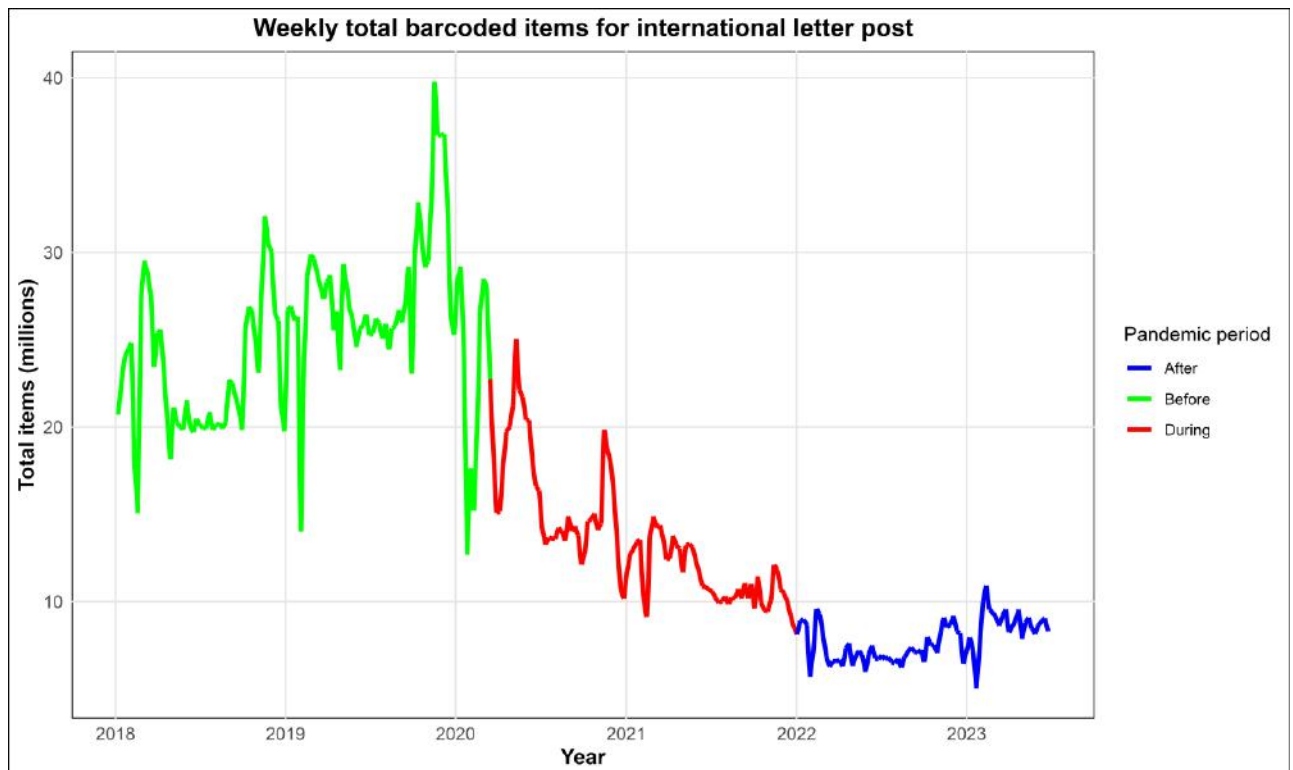


Figure 15: Weekly total tonnage analysis for international letter post (Q1 2018–Q2 2023)



Source: Universal Postal Union, 2023.

Figure 16: Weekly total barcoded items analysis for international letter post (Q1 2018–Q2 2023)

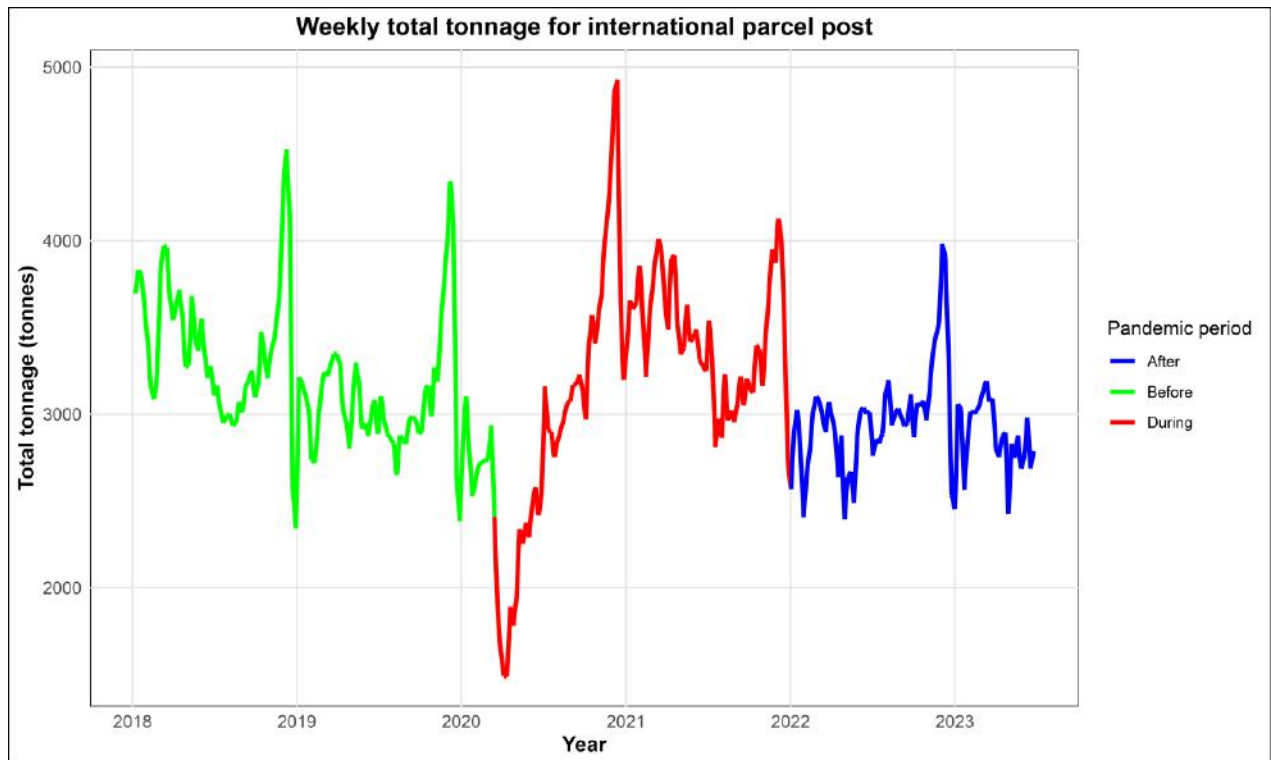


Source: Universal Postal Union, 2023.

The narrative shifts when we examine the trends in international parcel-post tonnage (Figure 17) and item volumes (Figure 18). In this segment, the downturn in overall tonnage between the **pre- and post-pandemic periods** is significantly milder, registering a decline of just 8.2%.

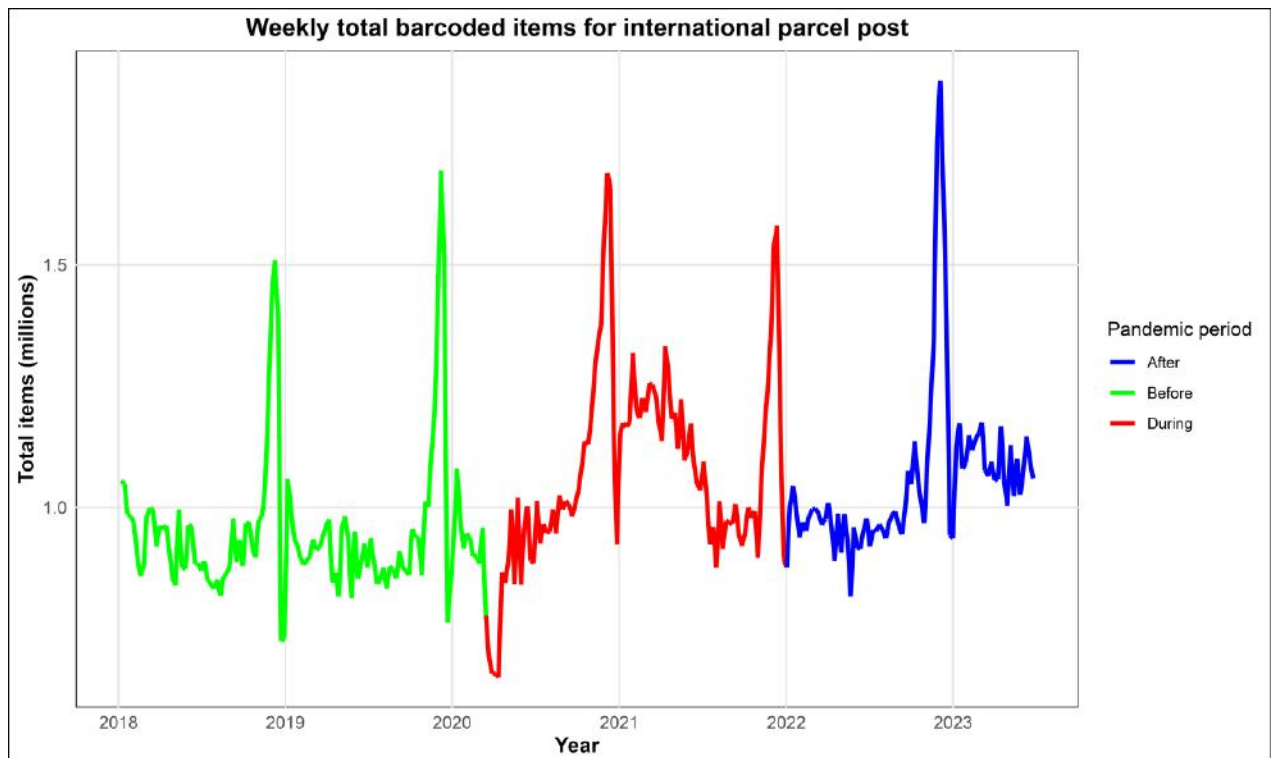
More encouragingly, the number of **international parcel items not only recovered, but also experienced a 19.9% increase**. However, this optimistic data is tempered by the reality that international parcel post still constitutes a relatively modest portion of traditional international postal transactions.

*Figure 17: Weekly tonnage analysis for international parcel post (Q1 2018–Q2 2023)*



Source: Universal Postal Union, 2023.

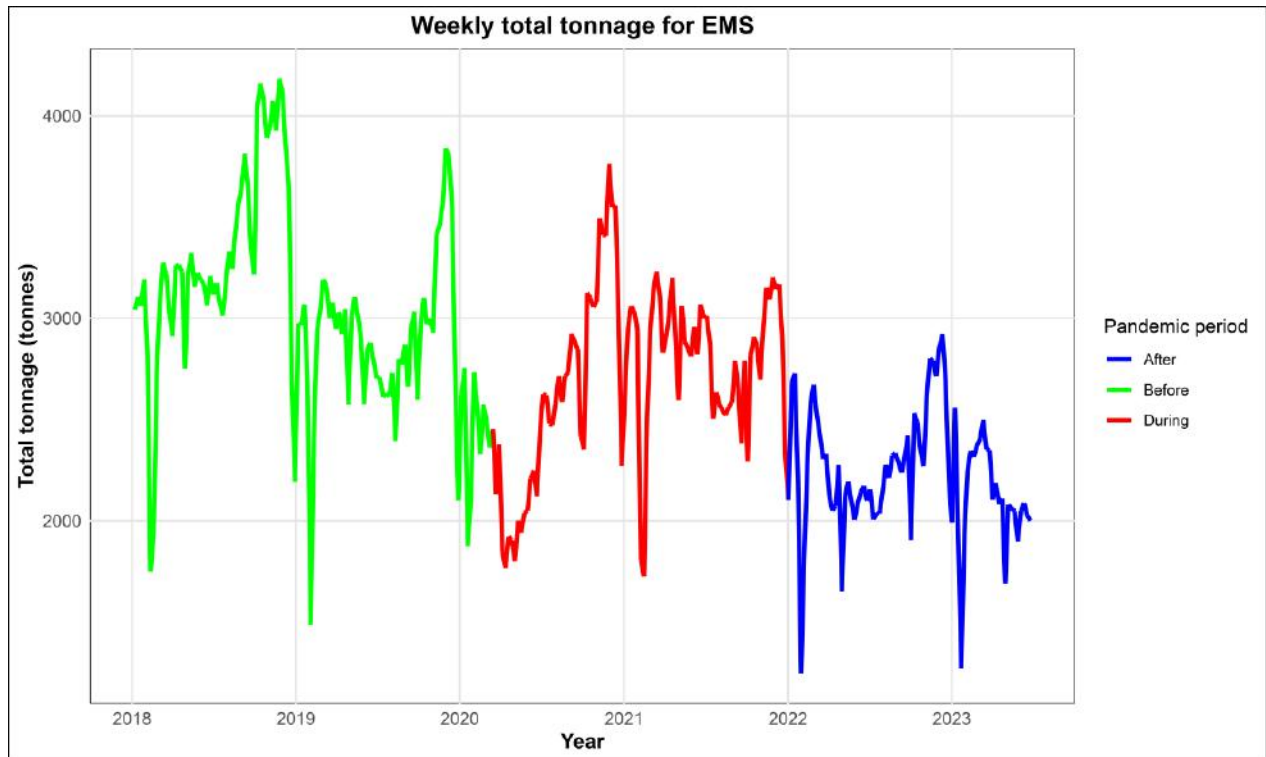
*Figure 18: Weekly total barcoded item analysis for international parcel post (Q1 2018–Q2 2023)*



Source: Universal Postal Union, 2023.

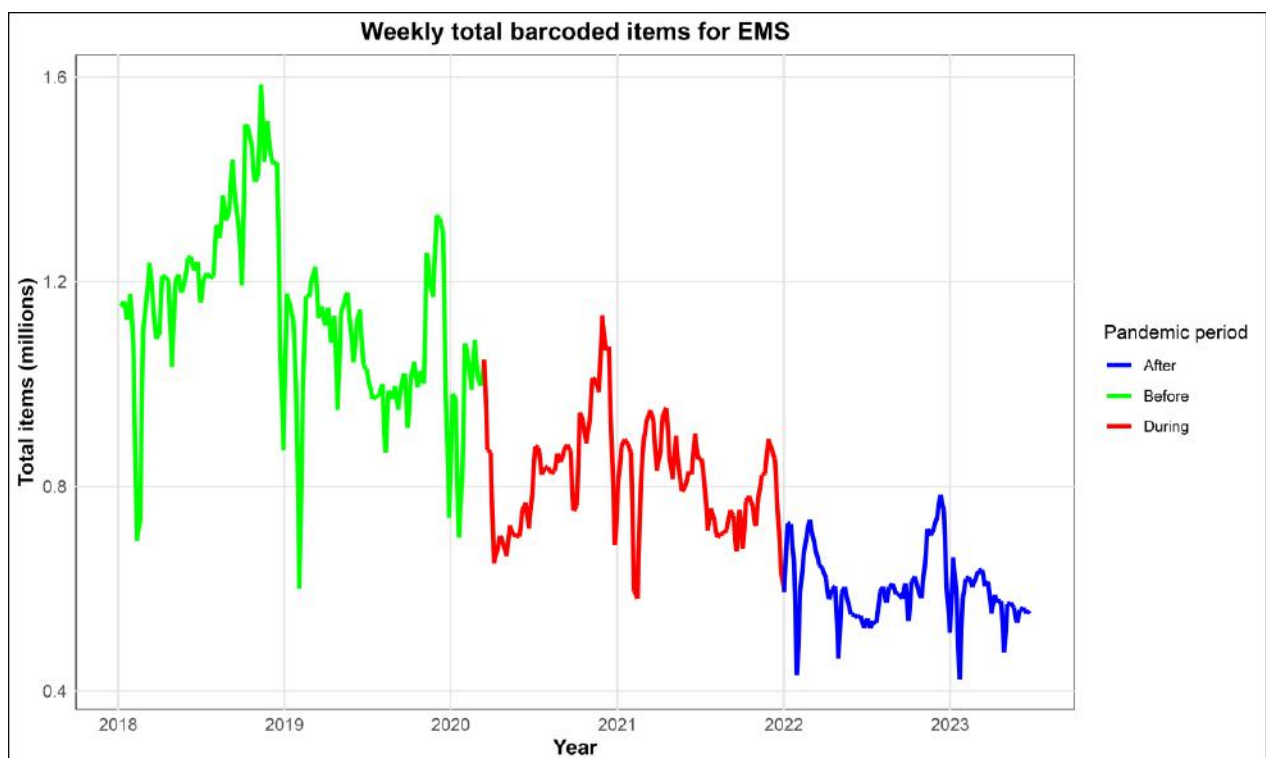
Upon examining the third primary category of international mail – EMS – it is evident that **this segment has not rebounded in the post-pandemic era**. Specifically, **EMS total tonnage experienced a decline of 29.3% between Q2 2019 and Q2 2023 (Figure 19), while the total number of shipments plummeted by 49.3% (Figure 20).**

*Figure 19: Weekly total tonnage analysis for EMS (Q1 2018–Q2 2023)*



Source: Universal Postal Union, 2023.

*Figure 20: Weekly total barcoded items analysis for international letter post (Q1 2018–Q2 2023)*



Source: Universal Postal Union, 2023.

The disparate trends observed across different categories of international postal services highlight several critical insights:

- i The pronounced decline in international letter-post tonnage and volume **underscores the heightened vulnerability of this segment**, which traditionally constitutes the bulk of international postal exchanges. The plunge in this category suggests that cross-border e-commerce transactions, often carried in small packets as part of the international letter post, may have suffered as well, **possibly due to shipping delays, increased customs scrutiny, or consumer preference for domestic options during uncertain times.**
- ii The resilience and growth in the international parcel-post segment indicate a shift in consumer behaviour likely fuelled by the rise of online shopping during lockdowns. This transition, however, is **not enough to buoy the entire international postal sector**, given that parcel post still makes up a **relatively small percentage of traditional international postal transactions.**
- iii The dismal performance of the EMS category might point towards businesses and consumers opting for alternatives that may be perceived as faster, more reliable and cost-effective in the volatile environment brought about by the pandemic.

In essence, the pandemic appears to have acted as a catalyst, expediting shifts in consumer behaviour and business practices, thereby forcing the international postal sector to confront an inflection point.

### C. *An econometric approach to the evolution of international postal exchanges*

The global health crisis of 2020–2021 was hardly the sole disruptive force affecting the international postal sector; rather, **it was one in a series of unprecedented challenges that strained the industry's resilience to its limits.**

Apart from the onset of the COVID-19 pandemic in February 2022, the sector also grappled with significant regulatory changes. New terminal dues regimes and U.S. self-declared rates increased the compensation required for processing inbound international items in the United States.

Further complicating matters, various systems of electronic advance data were rolled out, initially through the U.S. STOP Act, and subsequently the European Union Import Control System 2, starting on 15 March 2021. To add to the upheaval, a new VAT tax regime aimed at online purchases came into effect in July 2021. Known as the EU VAT Import One Stop Shop, this system eliminated previous VAT exemptions for cross-border shoppers within the European Union.

As if these challenges were not formidable enough, the outbreak of armed conflict in Ukraine in February 2022 added yet another layer of complexity to the already precarious state of international postal exchanges.

To understand the nuanced impacts of these diverse shocks on the international postal sector, it is imperative to **isolate the relative influence of each disruptive event.** For this purpose, we constructed an econometric model leveraging the dynamic panel methodology developed by Arellano and Bond (1991). In this model, the dependent variable is the tonnage of mail exchanged across various mail classes, measured on a monthly basis starting from 2018. The independent variables include a series of indicator or “dummy” variables, each marking the onset of one of the mentioned disruptive events, ranging from regulatory changes to global crises, observed from 2018 through to the end of the first half of 2022.

With data spanning over 5,000 postal corridors, the model boasts a high level of variability, enhancing the robustness and reliability of our econometric findings. We also added in our econometric modelling the impact of these shocks on international cargo tonnage, to test for a possible diversion of cross e-commerce shipments from the international postal channel to the international cargo channel, using IATA CargoIS data.<sup>4</sup>

<sup>4</sup> The CargoIS data from the International Air Transport Association (IATA) is the air cargo industry's premier market intelligence tool, used by the full range of air cargo stakeholders: airlines, general sales agents, freight forwarders, ground handlers, airports and others.

The use of dynamic panel methods, specifically the Arellano–Bond estimator, allows us to control for potential endogeneity and unobserved heterogeneity across different postal operators or regions. This approach enables us to capture both the immediate and lagged effects of these shocks on international postal exchanges. Essentially, the model endeavours to quantify the “marginal effects” of each shock – that is, **the change in tonnage that can be specifically attributed to each event**, holding all else constant.

By applying this econometric approach, we aim to offer a more accurate and granular understanding of how the international postal sector has responded to multiple shocks over the last few years. In doing so, we seek to provide stakeholders with actionable insights that can guide adaptive and resilient strategies moving forward, in an environment that continues to be fraught with challenges and uncertainties.

Table 7 presents the findings of our econometric model, detailing the marginal effects – in terms of percentage change – of six out of the eight identified shocks that have significantly influenced the trajectory of international postal exchanges across different mail classes. In addition to the factors listed in the table, Brexit also had a discernible negative impact on the United Kingdom’s exchanges with the rest of the world (as also found by Cazals, Magnac, Pope and Soteri (2023)).

Conversely, the conclusion of **the pandemic acted as a counterbalancing positive shock**, offsetting the negative impact observed at the outbreak. Importantly, **all the econometric coefficients were statistically significant, underscoring the robustness of our model’s results**.

*Table 7: Marginal effects of external shocks on international postal exchange*

Shocks	Letter post	Parcel post	EMS	Cargo
COVID-19 (Feb 2020)	-28.4%	-24.0%	-25.9%	-20.4%
New TDs (Jul 2020)	-36.8%	23.1%	13.9%	9.3%
STOP Act (Jan 2021)	-6.6%	-9.4%	-10.0%	4.7%
ICS2 R1 (Mar 2021)	-20.4%	-7.0%	-3.0%	3.3%
EU VAT IOSS (Jul 2021)	-33.7%	-11.9%	-14.3%	-5.1%
Ukraine conflict (Feb 2022)	-20.9%	-18.3%	-20.0%	-10.1%

Highest negative effect
 

Highest positive effect

Source: Universal Postal Union, 2023.

While COVID-19 seems to exert a pervasive negative marginal impact across all mail classes and international air cargo services, Table 7 reveals that **other variables can wield an even greater detrimental influence on specific mail classes**.

Surprisingly, the most significant negative marginal impact originated from the introduction of the new terminal dues regime in July 2021. This change produced an average isolated effect of a 36.8% reduction in international letter-post tonnage across all postal corridors covered by the model. This reduction eclipsed the average 28.4% marginal negative impact attributed to the pandemic.

Alterations to the terminal dues regime implemented after July 2020 could have influenced online shoppers' purchasing decisions by potentially raising international shipping rates.

Another key element affecting the international online shopping cost structure was the introduction of the new EU VAT regime, which ranks as the second most significant factor affecting the trajectory of international letter-post volumes. When considered alongside the changes in terminal dues, these findings underscore consumer sensitivity to price-related factors, which in turn diminish their online purchasing power.

It is noteworthy that the change in relative international posting prices, potentially triggered by the introduction of the new terminal dues, appears to have had **a marginal positive impact on the tonnage of international parcel post, EMS, and air cargo**. This suggests that some shipments originally slated for international letter post were redirected to other mail classes and cargo options.

As previously noted, this trend towards international cargo is in sync with the rise of B2B2C cross-border e-commerce models. In these models, goods are moved closer to the end consumer via cargo and then delivered through either traditional domestic postal services or alternative last-mile delivery solutions. Once consumers become accustomed to these enhanced delivery options, reverting to previous models may prove challenging, if not nearly impossible, for retaining customer loyalty.

Regarding the introduction of new EAD requirements, the cumulative effects of U.S. and European regulations had a substantial impact on various international mail classes, **showing an average decrease ranging from 3.0% to 20.0%**. The unpreparedness of numerous postal operators for these changes appears to have had an unintended positive impact on international cargo flows.

Overall, it seems that **inefficiencies in the exchange of shipment data among postal operators, transportation companies and customs authorities are of significant concern**, second only to the aforementioned price-related factors. Without seamless data exchanges among involved parties, the quality of service in the international postal sector could face significant degradation.

Finally, the armed conflict in Ukraine has led to profound disruption of international supply chain logistics, markedly affecting international postal services. On average, this resulted in **a marginal negative impact of approximately 20% across all mail classes**. It is worth noting that the adverse effect on cargo was about half as severe.

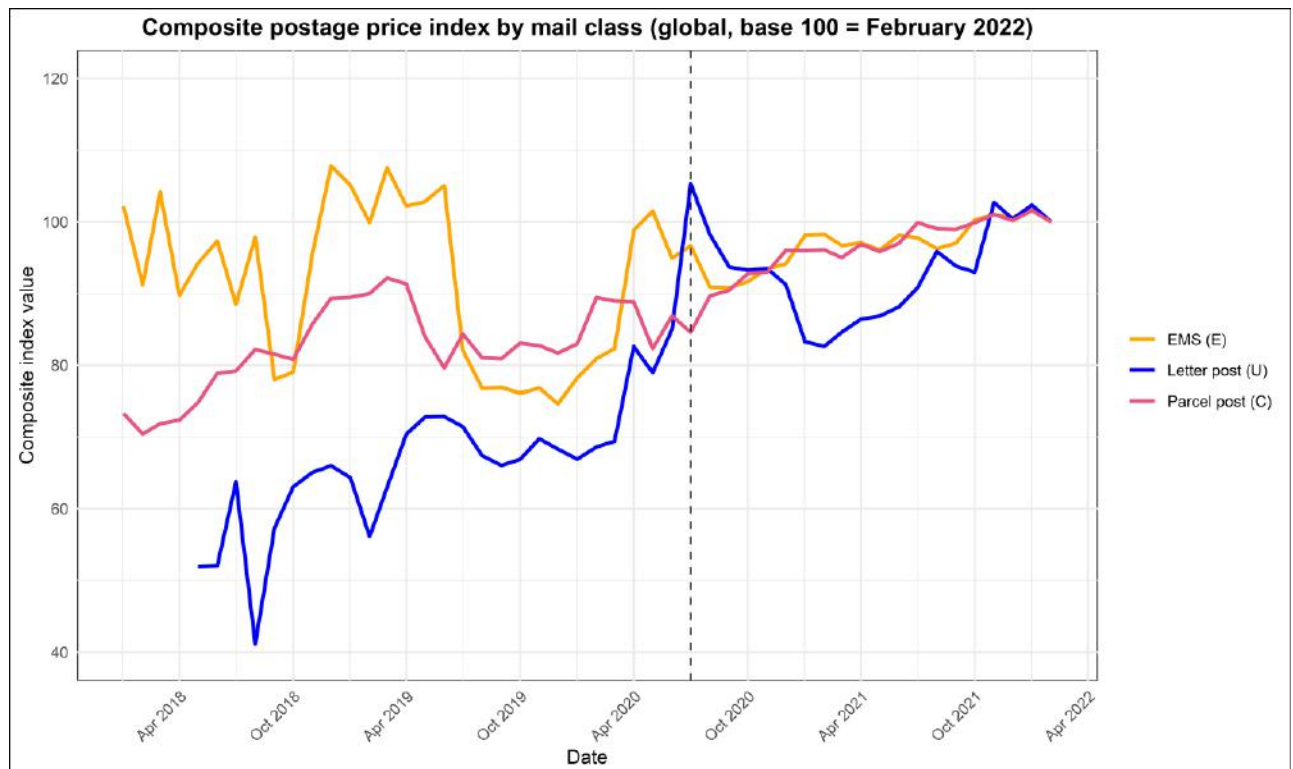
The marginal effects outlined **should not be summed, as these factors interact with one another**, leading to a nuanced aggregate impact which diverges from the simple sum of individual shocks.

Building on the insights gained from our econometric analysis, the sections below delve into a more detailed examination of how these various shocks may be associated with shifts in international postal shipping prices and declines in quality of service.

#### *D. Evolution of international postal shipping prices*

To better understand the drivers of international postal exchanges, **we have conducted the most comprehensive international postal shipping price indexing exercise to date**. Figure 21 illustrates the trends in the final composite postage price index across international mail classes U (letter post), C (parcel post), and E (EMS) from January 2018 to February 2022.

Figure 21: Composite global postal price index by mail class (2018–2022)



Source: Universal Postal Union, 2023.

Utilizing data from 1.8 billion digital customs declarations (known as ITMATT messages in the UPU's big data system) we have built the **world's most exhaustive repository of actual international postal rates**.

This repository of knowledge is scheduled for regular updates, and will serve as a valuable asset for international postal rate intelligence.

It enables easy benchmarking and optimization of pricing strategies, potentially providing DOs with the insights they need to make informed decisions.

We chose February 2022 as the index baseline because it provided the most reliable data set within the ITMATT messages for reconstructing the postal rate series back to the earliest adoptions of these systems. Compared to a baseline index value of 100 in February 2022, international letter-post rates – encompassing small packet categories – were nearly twice as inexpensive in 2018.

Notably, the introduction of the new terminal dues system in July 2021 aligns with the peak value of the international letter-post index, **strongly supporting the correlation between this policy change and the adverse price effects previously identified in our econometric analysis**.

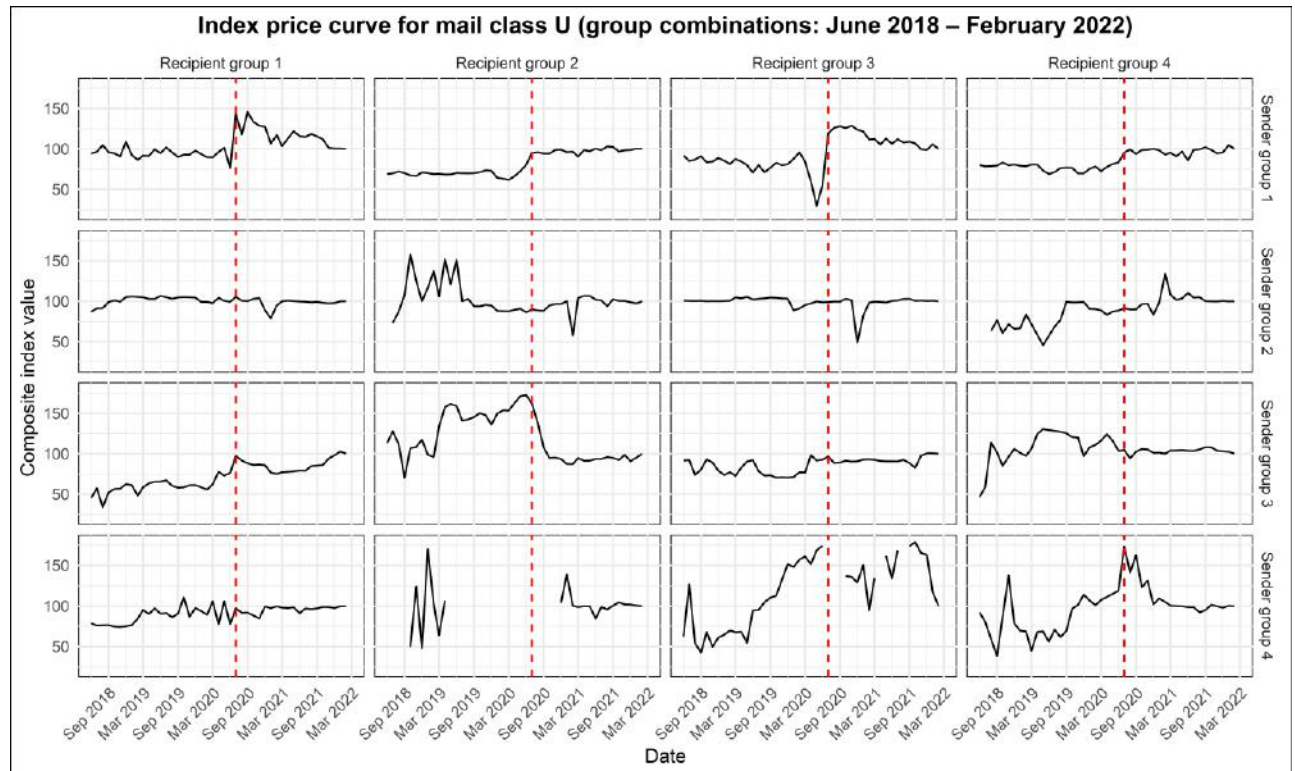
In terms of international parcel-post rates (classified under mail class C), they were **more than 25% less expensive at the start of the period under study** when viewed from a traffic-weighted index perspective. This represents a less dramatic escalation compared to the actual rates for international letter-post shipments. For EMS, **pricing began to closely align with international letter-post rates starting in the second half of 2019**, often serving as a leading indicator by adjusting a few weeks in advance. This early uptick in EMS rates could potentially drive customers to explore alternative mail class options.

Figure 22 examines the ripple effect, or pass-through, of increased terminal dues rates on international letter-post prices. To analyze this, we **generated international postage indices that map sending remuneration groups to receiving remuneration groups**, based on the four primary remuneration categories that shape the UPU's terminal dues system (Schoorl, Linhares and Somasundram, 2021).

A vertical dashed line marks the implementation of the new terminal dues regime in July 2020, highlighting its far-reaching impact on postal rates.



Figure 22: Pass-through effect of increased terminal due rates (2018–2022)



Source: Universal Postal Union, 2023.

While one might expect this change to significantly affect only shipments to the United States – classified in remuneration group 1 and applying higher self-declared rates under the new regime – **the data shows otherwise**. Rates for sending mail from group 1 to groups 2, 3, and 4, which primarily consist of less developed economies, also **saw an increase around this time**. Notably, rates for shipping from group 2 to groups 1, 2, 3 or 4 remained unaffected.

Shipping rates from group 3 countries, which include China (People's Rep.), **exhibited substantial increases**, except for postings from group 3 to group 2, **which actually decreased**. Even the costs of sending international letter-post items between the least developed countries (group 4 to group 4 case) **rose during the implementation of the new terminal dues regime**.

The overarching takeaway is **that altering terminal dues for a specific destination can influence other destinations through elevated international postal rates**, even if those flows were not the target in the initial terminal dues changes. Terminal dues and international postal rates must be seen as an ecosystem.

This nuanced effect could explain the significant impact on international postal flows identified in our earlier econometric analysis, highlighting the interconnectedness and unintended consequences of changes in terminal dues for specific destinations.

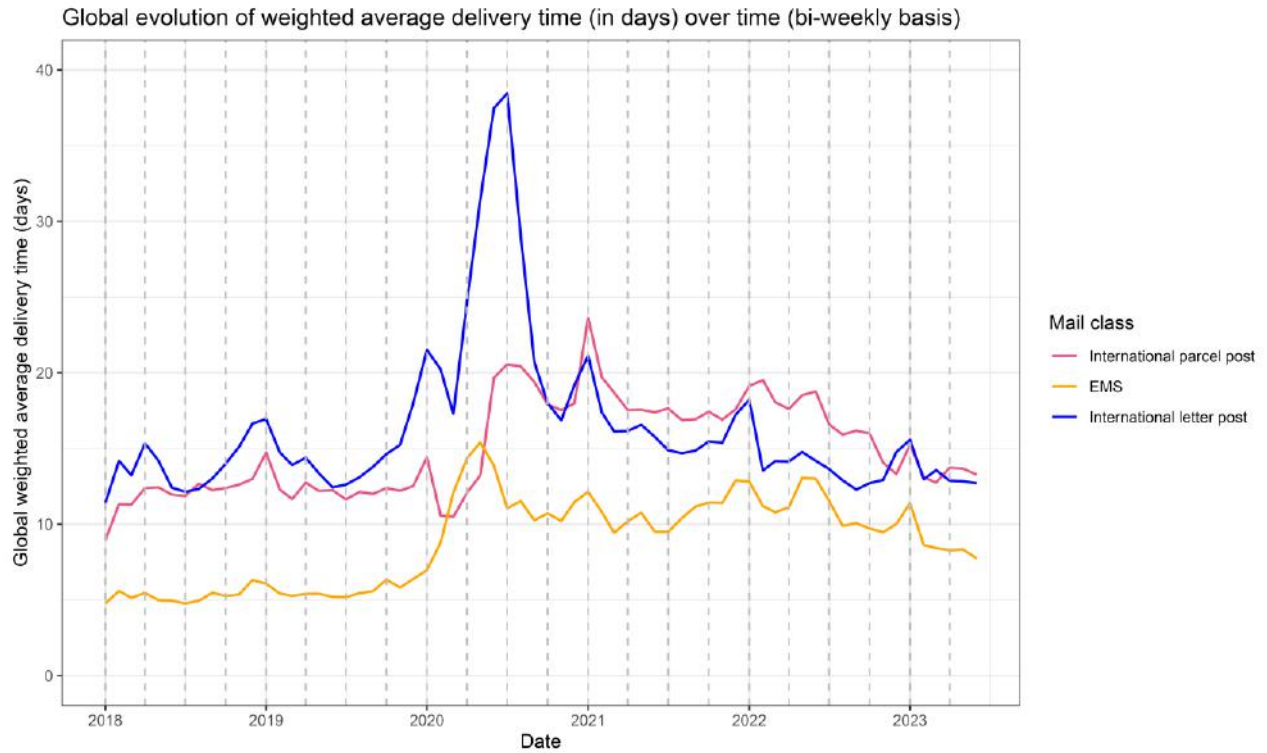
#### E. Evolution of international delivery times and reliability of postal services

Amid the backdrop of rising international postal rates, it is crucial to understand how end-to-end delivery times and service reliability have evolved, particularly given the disruptions to international transportation systems, predominantly airlines, that facilitate global postal movements. To shed light on this, we calculated the end-to-end delivery times – from the initial posting to the first delivery attempt – across all international postal routes for the three mail class categories between January 2018 to June 2023.

Our insights, encapsulated in Figure 23 and Figure 24, present a compelling narrative.

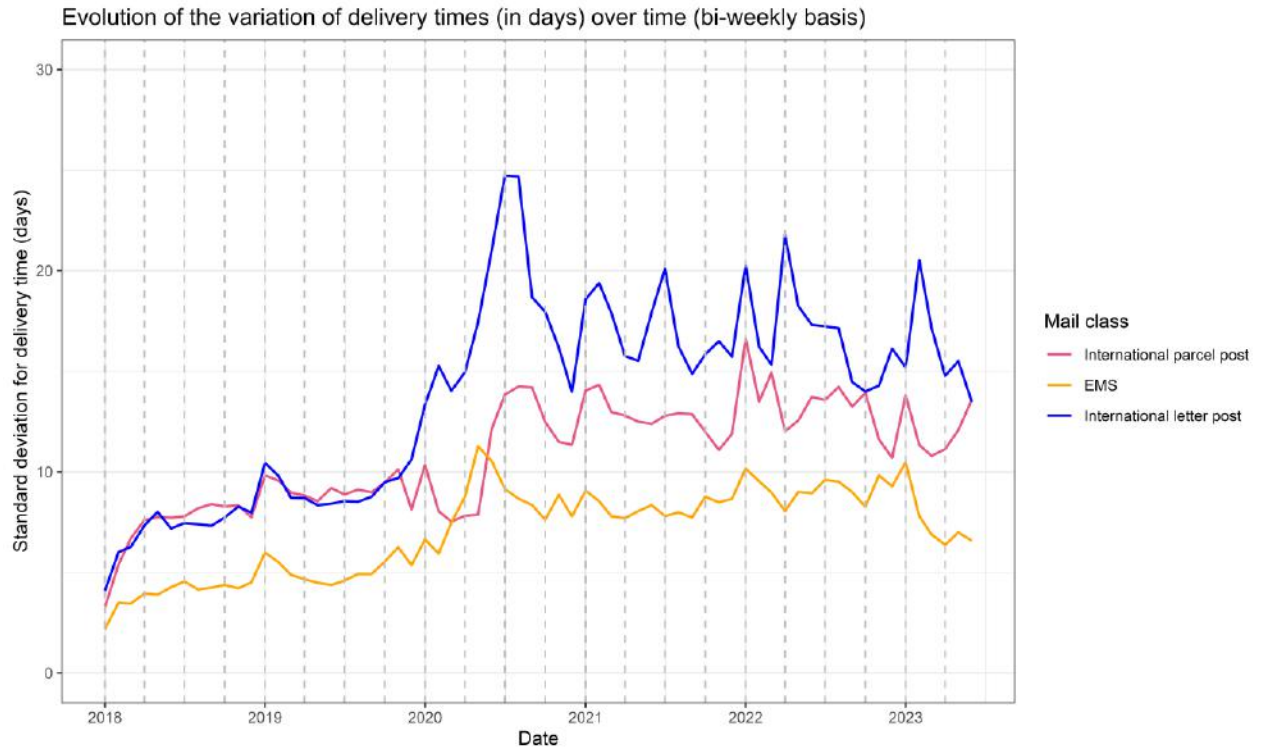


Figure 23: Global evolution of weighted average delivery times (Q1 2018–Q2 2023)



Source: Universal Postal Union, 2023.

Figure 24: Global evolution of the variation of delivery times (Q1 2018–Q2 2023)



Source: Universal Postal Union, 2023.

Except for EMS, end-to-end international postal delivery times have almost returned to pre-pandemic norms.

However, Figure 24 reveals that **the level of end-to-end service predictability has not yet fully recovered to its pre-pandemic state**. Across all mail classes, the standard deviation of delivery times has significantly increased: **from an initial range of 3 to 5 days around the average, it has expanded to a more volatile span of 7 to 13 days as of June 2023**.

The fluctuation in service predictability could have a variety of implications. For consumers, this greater variance **could reduce trust in international postal services**, potentially driving them toward alternative shipping methods or causing them to forego cross-border e-commerce altogether. For businesses, increased unpredictability in shipping times **could disrupt just-in-time inventory systems and create challenges in meeting customer expectations**, thus affecting their competitive edge.

The lag in returning to pre-pandemic levels of service predictability calls for an in-depth analysis to understand the underlying causes. It is crucial to discern whether these **delays are temporary, perhaps due to backlogs of shipping demands, or symptomatic of more structural issues within the international postal network**.

This kind of scrutiny would help policymakers and service providers devise targeted strategies to improve reliability, and ultimately restore consumer and business confidence in international postal services.

#### *F. Overarching findings*

As we emerge from these crises, the lessons learned have important implications for the long-term sustainability of postal operators. It is clear that agility, technological preparedness, and robust contingency planning are crucial for navigating not just pandemics but any large-scale disruptions that may occur in the future. **The post-COVID era may serve as an important catalyst for reform and innovation within the international postal ecosystem.**

Beyond the logistical aspect, **the essence of international postal services lies in knitting together economies, cultures, and people**. With such profound disruptions to the fabric of global connectivity, the question arises: *How can the international postal sector reinvent itself, ensuring not just survival but thriving in this dynamic and increasingly uncertain global landscape?*

The answer for DOs, postal policymakers and other postal sector stakeholders alike may lie at the intersection of technology, partnerships, and collaboration across sectors.

### **IX. The digital alchemy: AI and the dawn of hyper-collaboration in the postal sector**

#### *A. Introduction*

As challenges multiply, technology offers transformative solutions. AI has emerged as a beacon of hope for the international postal sector. Offering more than just automation or efficiency, AI presents an opportunity for **hyper-collaboration**, in turn ushering a new era of sustainable postal development.

By harnessing AI's capabilities, international postal and logistics services **across the globe can collaborate on an unprecedented scale, sharing data, insights, and best practices**. Such collaborative endeavours could help rectify the imbalances in both national and international postal development, ensuring that even regions with historically lower postal development scores can benefit from the digital revolution and offer seamless cross-border e-commerce solutions.

Generative AI models have the potential to help design adaptive, resilient and sustainable global postal and logistics systems and supply chains capable of weathering future shocks.

By fostering deep collaboration between **all** industry stakeholders, powered by cutting-edge technology, the postal sector stands on the cusp of a renaissance, poised to redefine global connectivity for the modern era.

This chapter underlines the transformative potential of AI-driven hyper-collaboration to bring back international postal relevance for better development outcomes worldwide.

*B. So what is hyper-collaboration? And what is the role of AI?*

As our world becomes increasingly interconnected and the pace of innovation accelerates, **collaboration with the broadest set of partners in the postal ecosystem is evolving from a mere advantageous strategy to an essential modus operandi.**

The emergence of “hyper-collaboration” can be traced back to this evolution, defined by the depth, scale and multidimensionality of collaborative efforts. We introduce the concept, its relationship with AI, and its growing significance in our economy.

Traditional collaboration involved parties from similar fields or sectors working together on common goals.

Hyper-collaboration extends the “traditional” collaboration paradigm with a mesh of diverse stakeholders from different industries, different parts in a given industry, different disciplines, different countries, different levels of maturity, and even from different cultural backgrounds – all converging to solve complex problems or create novel solutions.

The rise of digital platforms, real-time communication tools and advanced data-sharing mechanisms has paved the way for hyper-collaboration. These tools dissolve geographical and temporal barriers, allowing for synchronous and asynchronous collaborations between multiple parties and entities across the globe.

In this new landscape, artificial intelligence acts as a potent catalyst.

By automating mundane tasks, offering predictive insights, and seamlessly integrating data from disparate sources, AI amplifies the potential of hyper-collaborative efforts. For instance, AI-driven analytics can help identify potential hyper-collaborators based on complementary skill sets, past projects, or even nuanced factors like working methods.

As a result, hyper-collaboration, when facilitated by AI, can lead to rapid innovation, tapping into a much broader pool of data, knowledge and expertise. This **not only accelerates product development cycles, but can also lead to the creation of entirely new markets or sectors.** The economic benefits are multifaceted: **from reduced costs due to shared resources, to increased revenues from breakthrough innovations** (Porter and Kramer, 2011; Kramer and Pfitzer, 2016; Jacobides, 2019).

This represents a real paradigm shift for “legacy institutions” such as the Post.

The advent of hyper-collaboration signifies a shift from isolated, siloed work environments to open, boundary-less ecosystems. Organizations **are moving from a mindset of competition to co-opetition, where even traditional competitors might find common ground in hyper-collaboration.**

We explain why there is a pressing need for such an approach in the global postal network.

*C. The pressing need for new collective problem-solving mechanisms*

Previous chapters have shed light on the challenges recently impeding the growth of international postal exchanges. Pricing strategies have been falling short in preserving the appeal and competitiveness of global postal services. Delivery reliability has remained subpar on numerous international postal routes. Around the world, customs security measures have been intensifying, new customs duties have been introduced, and evolving consumption tax systems have also influenced online cross-border purchasing choices.

Additionally, unforeseen events such as the COVID-19 pandemic or the Ukraine conflict have significantly impacted logistics, altering international transportation capacity and availability. In an ever-shifting global landscape, **other unforeseen shocks are bound to challenge the global postal network’s resilience in the future** too.

Furthermore, as highlighted previously, economic and environmental sustainability are crucial for the next generation of postal services, especially for their international business. Our analysis has revealed that numerous postal companies face challenges related to economic relevance, which erode their financial health, and impact revenues and profit margins of their domestic and international operations.

To compound these challenges, **stark disparities still persist between the most advanced and the least developed national postal services**, further hindering the seamless operation of the global postal network.

The past two decades have witnessed **these issues impeding sustainable global postal growth, which has led global e-commerce platforms to craft their own cross-border logistics solutions**. Yet, achieving seamless international shipments remains elusive for any single entity. The global customer experience suffers due to frequent delivery glitches, and the inefficiencies of increasingly fragmented postal and logistics systems exact a high toll on the digital economy.

This is notably reflected by the effects of prolonged and unpredictable end-to-end delivery times on exchange volumes. Solving international logistics for e-commerce continues to be a universal challenge.

The challenge of reducing, if not eliminating, these barriers to cross-border postal exchanges and digital trade **has stretched the traditional problem-solving capacities of member countries to their utmost limits**.

The urgency for new collaborative solutions in international logistics has never been more pronounced.

*But how can the international postal community reimagine its future in this landscape? How might it transform its operations and implement more effective collective problem-solving mechanisms? We think that the solutions to these and many other pressing questions might be found in a hyper-collaborative international postal framework, enhanced by the latest advances in artificial intelligence.*

Yet, with each passing day without a comprehensive provision of answers or solutions, not only is the potential advancement of international postal services severely hindered, but the Post's contributions to global economic resilience also risk becoming compromised.

To explore potential solutions, we present three key use cases to convey how artificial intelligence can deliver a renaissance in the global postal network, driven by a new generation of hyper-collaborative international Posts.

#### *D. Use cases for a new generation of hyper-collaborative international postal institutions*

##### **Use case 1: Eliminating operational inefficiencies**

As underscored in our analysis, international postal rates have consistently increased since 2018, significantly affecting the demand for certain international postal service streams. We believe that **incorporating AI-driven cost-optimization processes into the framework of international postal services will likely offer a novel approach to optimizing the cost structures associated with delivering inbound postal items across diverse routes**.

Leveraging AI holds the **potential not only to rectify inefficiencies in postal operations, but also to prevent international postal rates from skyrocketing**, which could otherwise diminish demand for service on many routes, including the most profitable ones.

AI's potency in the realm of postal economics predominantly emanates from its adeptness in executing intricate micro-econometric evaluations, thereby streamlining the clustering of postal routes based on their profitability dynamics. Through meticulous data scrutiny, **AI can fathom underlying patterns in route profitability, paving the way for judicious bundling of routes and identifying their specific operational delivery features and requirements** that ensure economic sustainability within a range of international postal rates.

Consequently, a postal route that may **seem inherently loss-making in isolation can be synergistically aligned with other complementary routes to achieve a collective positive profit margin**. This smart bundling approach would also define the next generation of dynamic pricing in international postal services.

Now, when hyper-collaboration is introduced into this equation between international postal operators and their partners, the global data pool available for AI to analyze becomes vastly richer and more diverse. This collective sharing of data and insights allows for a broader perspective on global postal dynamics.

By amalgamating the power of AI with the expansive possibilities presented by hyper-collaboration, the postal sector can significantly bolster both allocative and productive efficiency. This means delivery resources are

allocated in ways that most benefit society, while losses on some individual routes are minimized and will be compensated, in the long run, by a more expanded and profitable market.

This synergy between AI and hyper-collaboration **not only ensures a comprehensive and cost-effective postal network, but also averts the necessity of levying exorbitant tariffs** on international customers.

Some concerns might be expressed regarding the potential anti-competitive practices and price-setting collusion in the context of hyper-collaboration among international postal operators. These can be addressed by emphasizing the distinct nature of the postal sector, the overarching objectives of the collaboration, and the mechanisms in place to ensure transparency and regulatory oversight.

The following five points can be stressed in this respect:

- i Differentiation between collaboration and collusion: Collaboration and collusion, while both involving joint efforts, have different intentions, objectives and outcomes. Collaboration aims to achieve mutual benefits without necessarily harming consumers, whereas collusion is about manipulating prices or market shares to the detriment of consumers. The intent and impact of hyper-collaboration should be made clear: **it is to enhance efficiency, improve service delivery, and possibly reduce costs**, not to artificially inflate prices or restrict competition.
- ii Transparency: If international postal operators and their partners are transparent about their collaborative methods, the algorithms used, and the data shared, it will be easier to demonstrate that the primary aim is operational efficiency rather than market manipulation. As an intergovernmental organization, the **UPU is well-positioned to provide this transparency in the most credible manner**.
- iii Regulatory oversight: To ensure that hyper-collaboration does not drift into the realms of anti-competitive behaviour, **national regulatory bodies, through decentralized frameworks facilitated by the UPU, could oversee the collaborations**. Connected through this common intergovernmental regulatory framework, these institutions would ensure that collaborations stick to improving efficiencies and customer service, without engaging in activities that unfairly stifle competition or harm customers of international postal and logistics services.
- iv The unique nature of postal services: The postal sector, especially in the context of international deliveries, is a unique domain with complex logistical challenges. In many areas, especially remote ones and least developed countries, there is not enough volume to support multiple competing services. Collaboration can ensure that **underserved areas and countries still receive service without operators suffering from unsustainable losses**.
- v Consumer and societal benefits of universal services: Highlighting the prospective advantages for consumers and the broader society is paramount, as evidenced by our analysis of the bolstering effect of postal development on a country's economic resilience. If hyper-collaboration **leads to reduced costs, faster deliveries, or more reliable services, then consumers stand to benefit**.

The UPU could become the prime facilitator for these new postal development policies.

In summary, international postal hyper-collaboration serves a dual purpose: it is **not only compatible with competitive dynamics among operators, but is also essential for sustaining that competition over the long term**.

By facilitating a framework for collaboration, it helps mitigate the risk of market monopolization or oligopolization, ensuring that no small group of market players can dominate to the detriment of others. This balanced ecosystem encourages innovation, enhances service quality, and ultimately benefits the end consumers across the globe.

## **Use case 2: Truly predictable international postal delivery services**

As detailed in previous chapters, the reliability of international postal services deteriorated markedly during the COVID-19 pandemic and has not yet rebounded to its pre-pandemic standards.

This phenomenon has significantly threatened the anticipated recovery in international postal volumes and has likely eroded trust in the international postal system. Simultaneously, customer expectations have risen, leading to **a disparity between the delivered quality of service and customers' actual needs**.

Crafting a reliable, dependable international postal delivery system necessitates **aligning expected postal traffic with the anticipated transportation and delivery capacities of the numerous partners involved in the system.**

For every international postal route, it is imperative to **accurately forecast not only volumes, but also the availability of transportation and delivery resources at each network node.** Regularly failing in this critical exercise – involving perfectly matching postal volumes to be moved across borders on the one hand, and transport or delivery network capacity on the other – **jeopardizes the seamless transit of international postal items.**

This vast global coordination challenge can only be addressed through the use of advanced AI algorithms.

The efficacy of such systems is contingent upon unprecedented collaboration in data sharing across networks and **among all parties involved in these exchanges.** To harness the full potential of AI in streamlining international postal routes, a unified hyper-collaborative approach is paramount.

This hyper-collaboration begins with data aggregation and standardization from all DOs and their partners; and ensuring consistent and accurate inputs for AI processing that are fully compliant with new UPU data quality requirements. This will need to be augmented by secure, collaborative platforms that promote real-time data sharing while complying with global data privacy standards.

Only with these elements in place and functioning seamlessly can tailored AI algorithms forecast postal volumes, thus ensuring that network resources match the anticipated demand. Periodic model refinement, based on continuous data inputs and stakeholder feedback, ensures that the system remains adaptive to changing patterns.

The benefits of such an approach are multifaceted. For postal operators, **AI-driven systems promise optimized resource allocation, yielding significant cost savings and bolstering service reliability.** Customers stand to gain from **enhanced service consistency, potentially faster deliveries, and increased trust in the postal ecosystem.**

Moreover, the dynamic adaptability of AI, unlike today's conventional treatment of cross-border postal flows, ensures resilience against unforeseen challenges, facilitating data-informed strategic decisions.

As the global postal community leans into this hyper-collaborative data-sharing initiative, which could be governed according to orchestration principles determined by UPU members, the cumulative effect promises not just operational efficiency but also potential environmental benefits through optimized routes and reduced CO<sub>2</sub> emissions.

This AI-empowered approach further offers the **unique ability to pre-emptively identify and address potential bottlenecks or disruptions across the global postal network.**

By aggregating data from various sources such as weather forecasts, geopolitical updates, or even localized health crises, AI can predict and alert postal operators to potential delays, allowing them to make informed decisions in real-time. This **predictive capability, matched with the agility provided by shared insights, could dramatically reduce interruptions and the resultant customer dissatisfaction.**

Another consequential advantage lies in capacity management. Traditionally, many postal operators might have struggled with either overcapacity, leading to wasted resources, or under-capacity, resulting in service delays. By utilizing **AI to forecast demand, postal entities can better plan their resource allocation, adjusting dynamically based on real-time data.**

Finally, when integrating these developments with the first use case, the economic and environmental sustainability of international postal networks can be significantly enhanced.

### **Use case 3: Monetizing global postal decarbonization efforts**

In a recently published Policy Brief by the UPU's Think Tank (Borsenberger and Ansón, 2023), we highlighted the ongoing challenge of decoupling the surge in parcel volumes from the accompanying CO<sub>2</sub> emissions produced by postal operators. Despite increasing efforts towards the adoption of cleaner energy sources and

various climate change mitigation measures, **only a few UPU member countries have successfully achieved either absolute or negative decoupling.**

In particular, many DOs in developing countries **grapple with quantifying the carbon footprint of their services.** This situation accentuates the importance of introducing potent financial incentives. As of now, these incentives, which could significantly propel sustainability efforts and offer the necessary economic resources to meet environmental goals, remain largely unexplored.

Amid the convergence of environmental challenges and technological progress, this use case delves into the potential of AI and hyper-collaboration to economically drive the decarbonization of international postal exchanges.

We believe that, by leveraging AI to accurately measure carbon emission reductions, **DOs can amass and trade carbon credits on transparent platforms** backed by blockchain or other suitable decentralized technologies. The dynamic pricing models highlighted in the first use case can be further extended to the international context, facilitating competitive pricing based on environmental footprints and consequently guiding customers towards more sustainable choices.

With the aid of AI-integrated sensors, stakeholders could **gain real-time insights into the carbon emissions linked to each stage of cross-border delivery, fortifying both transparency and environmental awareness.** Unified global efforts, achieved through collaboration, can foster campaigns underscoring the green initiatives of the international postal arena, enhancing global trust and industry reputation.

Additionally, accurate AI-validated data on decarbonization might position postal entities in developing countries for environmental grants, channelling further investments into green innovations.

By intertwining AI and sector hyper-collaboration, international postal operators and their partners have the opportunity to morph their ecological commitments into financially rewarding endeavours. Together, they could capitalize on their decarbonization measures, **potentially gaining validation through the UPU's certification.**

This gives the Post the far-reaching potential to serve as a benchmark for other sectors, underscoring the harmonious relationship between sustainability and profitability.

The ripple effects of AI-driven hyper-collaborative initiatives in international postal exchanges **could also offer valuable lessons and transferrable practices for domestic postal systems.** As international systems are typically more complex, spanning different jurisdictions, regulations, and operational dynamics, their successful decarbonization initiatives could be viewed as robust test cases for domestic systems.

Indeed, we believe that **if these efforts work internationally, it can often be more straightforward to adapt and implement them domestically.**

By eventually implementing AI-driven measures that directly reduce emissions in both international and domestic postal exchanges, **postal entities would inherently align their operational strategies with broader global environmental goals.** This would create a synergy wherein every postal activity undertaken had an innate sustainability component.

In wrapping up this third use case, it is imperative to emphasize the transformative potential showcased within the international postal sector.

Amplified by AI and deep-rooted in ecosystemic collaboration, these advancements not only pave the way for environmentally conscious international postal services, but also signal lucrative prospects for the decarbonization of domestic delivery operations.

## **X. UPU-centric hyper-collaboration in international postal services**

The three previously mentioned use cases may still be viewed as unconventional approaches to developing international postal exchanges.

The conventional way of operating international postal services dates back to the 19th century, when countries first began to formalize agreements to exchange mail across borders. This historical model was mostly built on cumbersome bilateral treaties between countries, which established common postage rates for international transit, stamp formats, delivery methods, and other logistical details for international postal exchanges.

Over time, this web of complex, and often contradictory bilateral agreements evolved into a much wider, streamlined and standardized multilateral system governed by the second oldest intergovernmental body in human history, the UPU, which was founded in 1874.

Seen as a landmark achievement upon its establishment at the time, the UPU significantly reduced the transaction costs of operating an international postal network and led to steady growth in international postal exchanges, facilitating international communication and commerce throughout the 20th century.

In the age of digital transformation, however, this traditional model, tweaked multiple times through successive UPU Congresses, not only faces the challenges already highlighted, but also helped member countries capitalize on opportunities that were once unimaginable.

The idea of transforming the international postal sector through AI-driven hyper-**collaboration is shifting from a theoretical vision to a practical possibility.**

However, challenges still exist, including issues related to data sharing, governance, data quality, algorithm orchestration, scalability, security, and finally, ensuring that all DOs have equitable, inclusive access to these technologies. Despite these challenges, **transitioning to a new model for international postal exchanges is not just an option; it is a necessity.**

In today's fast-paced world, the expectations of both individual consumers and businesses have dramatically evolved. The rise of cross-border e-commerce, the expectation of rapid, trackable delivery, and the need for more complex logistical solutions to navigate a truly global marketplace are all forces pushing against the limitations of the traditional international postal system. Legacy UPU systems and frameworks, despite successive updates, are **reaching the limits of their scalability and efficiency.**

To further exacerbate this complexity, the bureaucracy and rigidity that come with a system largely designed before the advent of the 21st century digital economy, and adjusted rather than fully modernized over the years, can hinder rapid adaptation to these new realities.

Simply put, technological and economic logic inertia could render the sector less competitive against some emerging private initiatives that could be quicker to adapt and implement tech-driven solutions delivered through platform models, and to replace B2C by B2B2C cross-border e-commerce models. The increasing obsolescence of international postal money orders serves as a cautionary tale for the postal sector about the risks of not adopting new technologies and business models on time.

In this context, the potential of AI-driven hyper-collaboration is not merely a lofty ideal; **it is fast becoming a requirement for survival.**

Issues related to data quality, governance and scalability are not just challenges – they are imperatives that the sector must address to remain relevant and effective in fulfilling its crucial role in global communication and commerce.

Sticking with the status quo would mean ignoring the dynamic shifts in consumer behaviour, technological capabilities, and market demands, **leaving the international postal sector increasingly misaligned with the world it serves.**

The transformation towards AI-driven hyper-collaboration is thus not a mere option for future-proofing international postal services; it is **a necessity for their continued relevance and viability.**

This shift in the global postal sector will certainly also reshape the UPU and reorient its role as an intergovernmental organization.



### A. *Reimagining the UPU's mission for the AI century*

In these final chapters, we have shown that hyper-collaboration serves as the critical catalyst for the future evolution of the international postal sector. While AI will likely be utilized as the engine powering this transformation, **a reimagined, realigned and repurposed mission for the UPU is equally vital.**

In a landscape marked by rapid technological advances and a widening digital divide, the UPU's role in streamlining, standardizing and securing access to the next generation of international postal services, across countries at different levels of postal development, becomes crucial.

This revised mission will **pave the way for the successful execution of the ground-breaking concepts discussed in the use cases.** It aims to achieve both economic and environmental sustainability while elevating the quality of international postal services to unprecedented levels.

As we move further into the 21st century, data has emerged as the new oil for economies, shaping the course of globalization. In this context, the role of data exchanges in the international postal sector becomes increasingly critical. Data is essential for harnessing the capabilities of AI, which in turn fuels hyper-collaborative frameworks that enhance operational efficiency, inform effective policy decisions, and elevate customer satisfaction to unparalleled heights.

In this landscape, **the UPU's role is indispensable.**

Drawing inspiration from its foundational concept of a "single postal territory", which allows for the free transit of postal items across countries, the UPU should focus on establishing the conditions for **a unified international postal and logistics data ecosystem.**

Specifically, this would involve reimagining the "single territory" to include both physical and digital realms. In this way, an integrated platform could provide a robust and cohesive foundation for data sharing and the dissemination of intelligence across all parties engaged in international postal exchanges.

Currently, the hyper-fragmentation of data across various postal and logistics systems, e-commerce platforms, customs and international transportation systems undermines the principle of a "single source of truth". This principle is crucial for safely and sustainably operating international postal exchanges.

Fragmentation often results in poor orchestration of data flows, leading to unexpected bottlenecks that inhibit or slow down these exchanges, bringing the international postal community back to the chaotic pre-UPU times of the 19th century. Thanks to innovative data orchestration and governance methods, centralization of data in a single location is no longer required. Instead, new solutions allow algorithms to traverse different data sources and types for specific objectives and pre-defined uses, all while maintaining full compliance with diverse data protection and privacy regulations worldwide.

By so doing, the **UPU will define its unique and unified data mesh architecture to boost its members' ecosystem value creation.** Moreover, the four following points are worth highlighting:

First, the UPU's reimagined mission should also prioritize **bridging the digital divide that exists between member countries** at different stages of technological advancement.

As the world transitions towards an AI-driven future, it is essential that **all** nations have equitable access to the technologies that will define the next era of international postal services. By fostering technology transfer, training programmes and international cooperation, the UPU can ensure that its revised mission remains inclusive, serving all its members, and not just those that are already technologically advanced.

Secondly, **the importance of cybersecurity in this new framework cannot be overstated.** As data exchanges become more frequent and more vital for operations, the security of these data flows must be assured. The UPU could serve as the steward of a global cybersecurity framework for the postal sector, setting the standards and protocols that ensure data integrity, confidentiality and availability. This would not only bolster the credibility and reliability of the international postal system, but also enhance trust among member countries and consumers alike.

Thirdly, the UPU needs to **continue adapting its partnership and collaborative efforts to reflect a technology-driven mission**. This involves forging mutually beneficial alliances with technology providers, member countries, and even sectors outside of traditional postal services, such as e-commerce companies, to create an ecosystem that is both innovative and robust. Hyper-collaborative partnerships, featuring multi-stakeholder engagement, would allow the UPU to remain agile, responsive and attuned to the latest advancements in artificial intelligence and data science.

Lastly, the UPU must also **consider the ethical implications of an AI-driven, hyper-collaborative postal sector**. Questions around data privacy, algorithmic bias and social impact must be thoughtfully addressed. As part of its new mission, the UPU should **establish a code of ethics for AI and data usage in the postal sector**, which member countries can adopt or adapt for local contexts. This would ensure that, in the pursuit of international postal operational efficiency and innovation, human values and ethical principles are not compromised.

We believe that the UPU has an opportunity to not merely adapt to the changes brought about by AI and data science, but **to become a leader in shaping the next era of international postal services and global digital economies**.

By reimagining its mission to include hyper-collaboration, focusing on equitable technological access, ensuring cybersecurity, modernizing its collaborative structure, and resolving ethical considerations, the UPU can set a course for a future that is both innovative and inclusive.

#### *B. The UPU's path to the future*

The UPU's 150-year journey has seen it adapt and evolve in response to changing global landscapes, and it ought not to be any different today.

As it stands at the cusp of another transformation, the concept of hyper-collaboration and the development of a "unified data platform" could be the key to its future relevance. By fostering technological partnerships, offering regulatory flexibility, and facilitating an unprecedented level of data sharing and intelligence circulation, the UPU could redefine its fundamental mission for the new AI age.

As a specialized agency of the United Nations, the UPU has an even greater calling beyond its mandate for coordinating global postal services. It has the opportunity to be a beacon of international cooperation, equity, and champion to achieve the UN's Sustainable Development Goals (SDGs).

The UPU's potential transformation into a hyper-collaborative unified intergovernmental platform aligns perfectly with the ambitions of the SDGs set for 2030, as well as the UN Secretary General's vision for a modern UN as encapsulated in the UN 2.0 agenda.<sup>5</sup>

Imagine a UPU that not only ensures seamless international postal exchanges but also leverages its members' vast networks and data capabilities to improve education, reduce inequalities, and promote economic growth in underprivileged areas. By functioning as a central node for the flow of information and resources, the UPU could significantly contribute to measuring, monitoring, and helping to achieve these global goals, thereby amplifying the impact of the United Nations' efforts to create a more equitable and sustainable world.

## **XI. A renewed global postal fabric: stitching together a resilient future**

The narrative of the postal sector is not just a story of challenges met and innovations adopted; it is a testament to the global postal network's resilience and adaptability. Our deep dive into the postal landscape has unveiled a dual narrative: **of regions surging ahead, reaping the economic benefits of robust postal development; and of others striving to catch up, battling legacy challenges and new disruptions.**

<sup>5</sup> More about the UNSG UN 2.0 and the Quintet of Change here: [www.un.org/two-zero/en](http://www.un.org/two-zero/en).

Yet, the promise of the future lies in the hyper-collaborative power of AI, capable not just of bridging these development divides, but of weaving a stronger, more adaptive, resilient global postal tapestry.

In a rapidly evolving global landscape, our investigation of the postal sector through diverse lenses, ranging from pricing dynamics to EAD requirements and international supply chain disruptions, **affirms its integral role as a backbone of economies, communities, and global connectivity**. Far from being a static or declining sector, **we have seen evidence of its dynamic adaptability and the sheer breadth of its reach**, which extends far beyond the straightforward exchange of parcels and letters to underpin international trade, boost economic development, and facilitate global communication.

Our exploration of the 2IPD revealed not just disparities but also opportunities for nations to leapfrog development barriers, advance economic resilience, and gain significant competitive advantages by investing in a modern, robust postal infrastructure.

The strong correlation between high PDL scores and economic resilience cannot be overstated; it validates the sector as not merely a service, but a cornerstone for economic stability and recovery, especially in challenging times like the pandemic.

Technological advancements, particularly the potential of AI, offer unprecedented opportunities to revolutionize the postal ecosystem. From automating complex logistical challenges to enabling real-time tracking and optimizing pricing strategies, AI stands as a catalyst that can accelerate innovation across the sector. Notably, the promise of AI-led hyper-collaboration extends beyond mere technological prowess; it holds **the key to addressing longstanding inequities between regions by democratizing access to high-quality, reliable postal services**.

The findings in this report are a call to action for policymakers, regulators, industry stakeholders, and the international community.

It highlights the imperative of proactive collaboration, policy reforms, and targeted investments to maintain the integrity and vitality of this indispensable global network. In grappling with issues like changing terminal dues, evolving international regulations, and the influx of digital transformations, there is an urgent need for coordinated, multi-level efforts to steer the sector toward a more equitable and resilient future.

In the face of uncertainties, be they economic, technological, or geopolitical, the postal sector stands as a testament to our shared human endeavour for connection and mutual benefit. The sector has weathered storms before and has emerged stronger, more adaptable, and more integral to our daily lives.

As we close this comprehensive examination, we are optimistic that with a **collective commitment** toward unity, innovation, and shared progress, the postal thread that so intricately binds our world will not just remain unbroken, but will grow stronger, more vibrant, and more capable of supporting the ever-evolving tapestry of human interaction and economic activity.

By leveraging the transformative powers of technology and human ingenuity, there is every reason to believe that the postal sector will continue to stitch together a future that is not only resilient, but filled with unparalleled opportunities for growth and human connection.

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## Detailed 2022 2IPD scores by PDL

2022 2IPD scores: countries at postal development levels 7, 8, 9 and 10

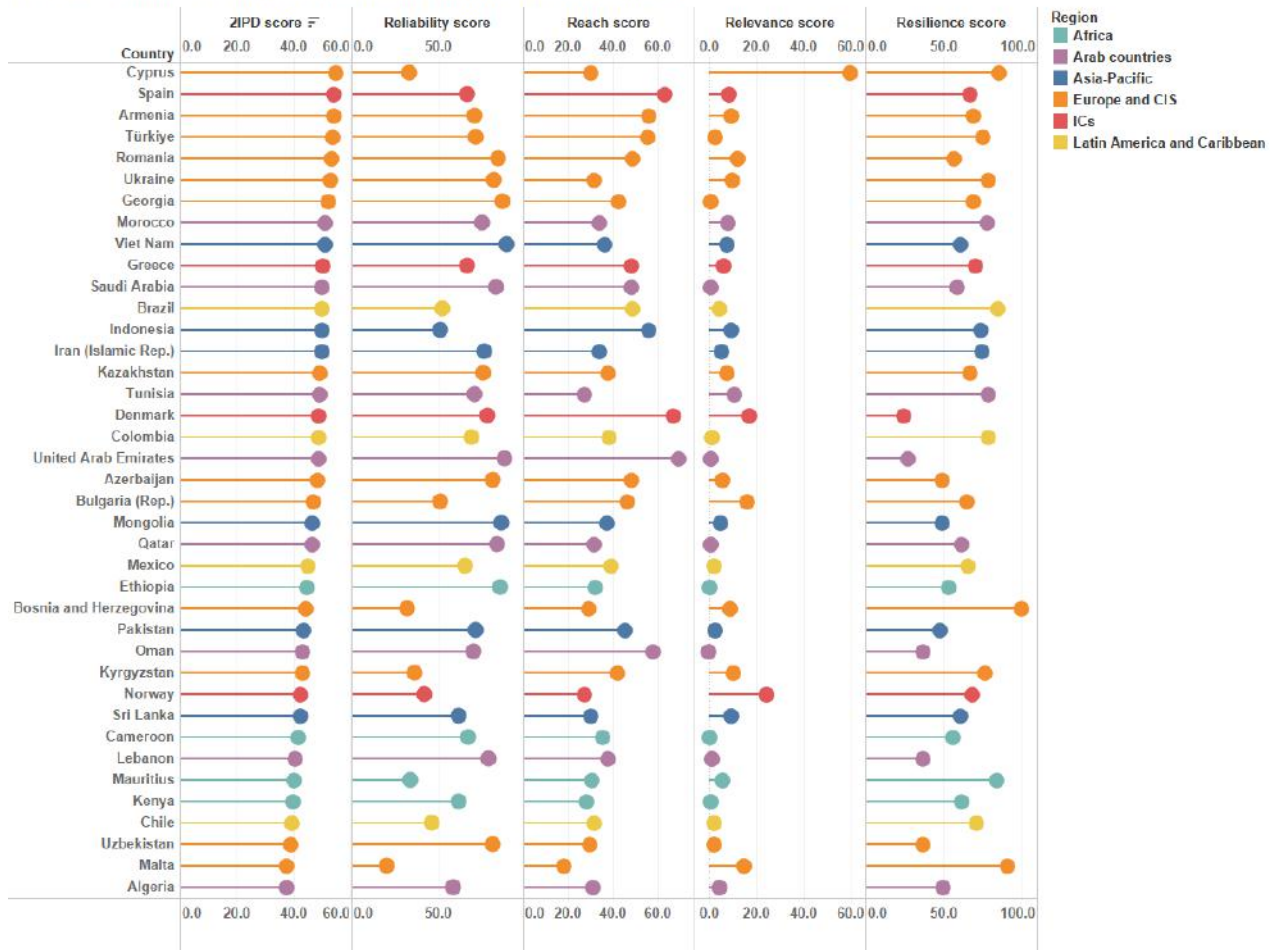


2022 2IPD results: countries at postal development levels 7, 8, 9 and 10

Country	PDL	2IPD score	2022-21 difference	Reliability score	Reach score	Relevance score	Resilience score
Australia	8	67.4	-1.3	89.9	63.2	20.3	82.3
Austria	10	96.7	0.0	92.7	78.3	100.0	93.8
Belarus	8	71.3	-3.8	95.3	57.6	18.6	98.6
Belgium	8	71.8	-2.1	74.1	78.8	27.9	91.2
Canada	9	81.8	-0.1	90.5	70.8	51.1	96.8
China (People's Rep.)	9	79.7	-11.4	44.7	89.4	94.6	72.7
Croatia	7	57.0	0.7	85.9	42.7	18.3	70.1
Czech Rep.	8	66.7	-2.3	85.1	61.4	22.3	84.2
Estonia	8	75.1	-4.9	85.2	40.7	65.6	92.7
Finland	7	57.4	0.1	85.7	41.9	30.6	60.1
France	10	88.3	-4.5	95.8	88.7	52.3	96.8
Germany	10	95.7	-1.8	88.3	97.6	98.6	76.3
Hungary	7	57.4	0.5	88.3	71.3	23.4	35.5
India	7	57.5	0.2	78.6	73.1	4.9	62.2
Ireland	8	69.1	-1.4	90.2	50.6	22.8	98.1
Israel	7	58.8	-0.5	74.8	52.4	9.2	87.0
Italy	8	72.9	0.1	72.8	83.2	22.7	97.3
Japan	10	91.5	-0.2	97.6	70.5	99.8	77.4
Korea (Rep.)	7	59.5	0.5	97.5	48.1	11.7	68.6
Latvia	7	61.8	-0.2	88.9	59.8	16.0	69.8
Lithuania	7	56.7	-1.8	72.0	55.4	5.1	83.3
Malaysia	7	65.0	1.5	88.1	73.9	2.9	81.6
Moldova	7	60.9	-0.4	97.5	44.3	12.2	77.4
Netherlands	9	84.0	-2.2	87.5	93.1	42.0	95.0
New Zealand	8	69.6	0.0	98.5	53.8	21.1	90.3
Poland	8	67.3	1.9	76.0	74.3	12.8	92.2
Portugal	7	62.5	-3.6	47.8	69.4	25.4	94.6
Russian Federation	7	63.2	-4.6	77.8	60.4	12.7	88.8
Serbia	7	64.0	-1.2	87.8	44.0	11.3	99.6
Singapore	9	76.5	-2.2	97.8	84.3	14.8	92.6
Slovakia	7	65.6	-0.2	98.1	45.0	15.6	90.3
Slovenia	8	70.1	16.2	94.3	35.6	67.2	68.4
Sweden	7	59.4	-1.0	84.4	63.3	27.4	50.7
Switzerland	10	100.0	0.0	97.3	81.0	98.7	100.0
Thailand	7	62.1	0.8	100.0	47.3	5.4	83.2
United Kingdom	9	85.3	0.4	97.8	96.5	33.2	94.8
United States of America	9	86.4	-1.1	88.6	100.0	78.6	59.1



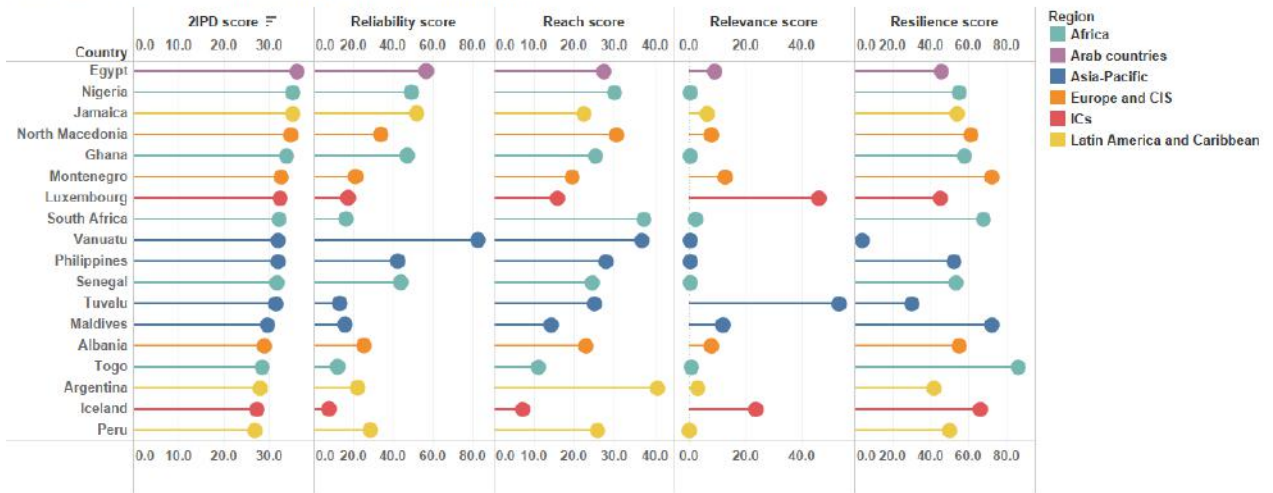
## 2022 ZIPD scores: countries at postal development levels 5 and 6



## 2022 ZIPD results: countries at postal development levels 5 and 6

Country	PDL	ZIPD score	2022-21 difference	Reliability score	Reach score	Relevance score	Resilience score
Algeria	5	37.4	6.7	58.6	31.2	4.6	49.3
Armenia	6	54.0	2.5	71.2	56.3	9.6	68.4
Azerbaijan	6	48.5	4.9	82.0	48.5	5.7	49.0
Bosnia and Herzegovina	5	44.5	0.9	32.3	29.3	9.0	99.4
Brazil	6	50.1	1.0	52.7	49.2	4.3	84.7
Bulgaria (Rep.)	6	47.0	-5.6	51.5	46.8	16.3	64.9
Cameroon	5	41.5	-5.5	67.3	35.6	0.3	55.9
Chile	5	39.4	1.0	46.5	32.0	2.1	70.6
Colombia	6	49.0	-4.2	69.3	38.3	1.2	78.0
Cyprus	6	54.9	1.0	33.6	30.4	59.9	85.0
Denmark	6	49.0	-3.4	78.4	66.9	17.2	24.6
Ethiopia	5	44.8	4.9	85.9	32.4	0.4	52.8
Georgia	6	52.4	7.9	87.2	43.0	1.0	68.5
Greece	6	50.3	-1.5	66.9	48.5	6.5	70.2
Indonesia	6	50.0	9.7	51.7	56.0	9.6	73.4
Iran (Islamic Rep.)	6	49.9	-1.7	76.6	34.0	5.4	74.1
Kazakhstan	6	49.3	-3.6	76.0	37.8	7.5	67.0
Kenya	5	39.8	-3.3	61.8	28.5	1.0	61.4
Kyrgyzstan	5	43.1	0.2	36.5	42.2	10.5	76.1
Lebanon	5	40.5	0.7	79.4	38.1	1.3	36.5
Malta	5	37.7	-1.4	20.4	18.5	15.1	90.9
Mauritius	5	40.1	2.3	33.9	30.8	5.8	83.6
Mexico	5	45.2	-1.6	65.6	39.3	2.3	65.5
Mongolia	6	46.7	5.9	86.9	37.4	5.1	48.9
Morocco	6	51.2	13.1	75.4	34.2	8.2	77.4
Norway	5	42.3	-3.2	42.1	27.5	24.2	68.3
Oman	5	43.2	14.9	70.5	58.3	0.2	36.4
Pakistan	5	43.8	-2.4	71.6	45.9	2.7	47.3
Qatar	6	46.6	7.1	84.3	31.6	0.7	61.5
Romania	6	53.3	1.6	85.1	49.2	12.2	56.5
Saudi Arabia	6	50.1	0.7	83.7	48.3	1.0	58.2
Spain	6	54.0	-6.1	66.9	63.4	8.5	66.8
Sri Lanka	5	42.3	8.7	61.8	30.6	9.6	60.2
Tunisia	6	49.1	5.4	71.1	27.4	10.8	78.2
Türkiye	6	53.8	-3.5	71.9	55.6	2.5	75.1
Ukraine	6	53.1	3.5	82.6	31.6	9.9	78.1
United Arab Emirates	6	48.9	4.6	88.9	69.5	1.0	27.2
Uzbekistan	5	39.2	21.5	82.0	30.0	2.1	36.3
Viet Nam	6	51.0	4.5	90.0	36.3	7.4	60.8

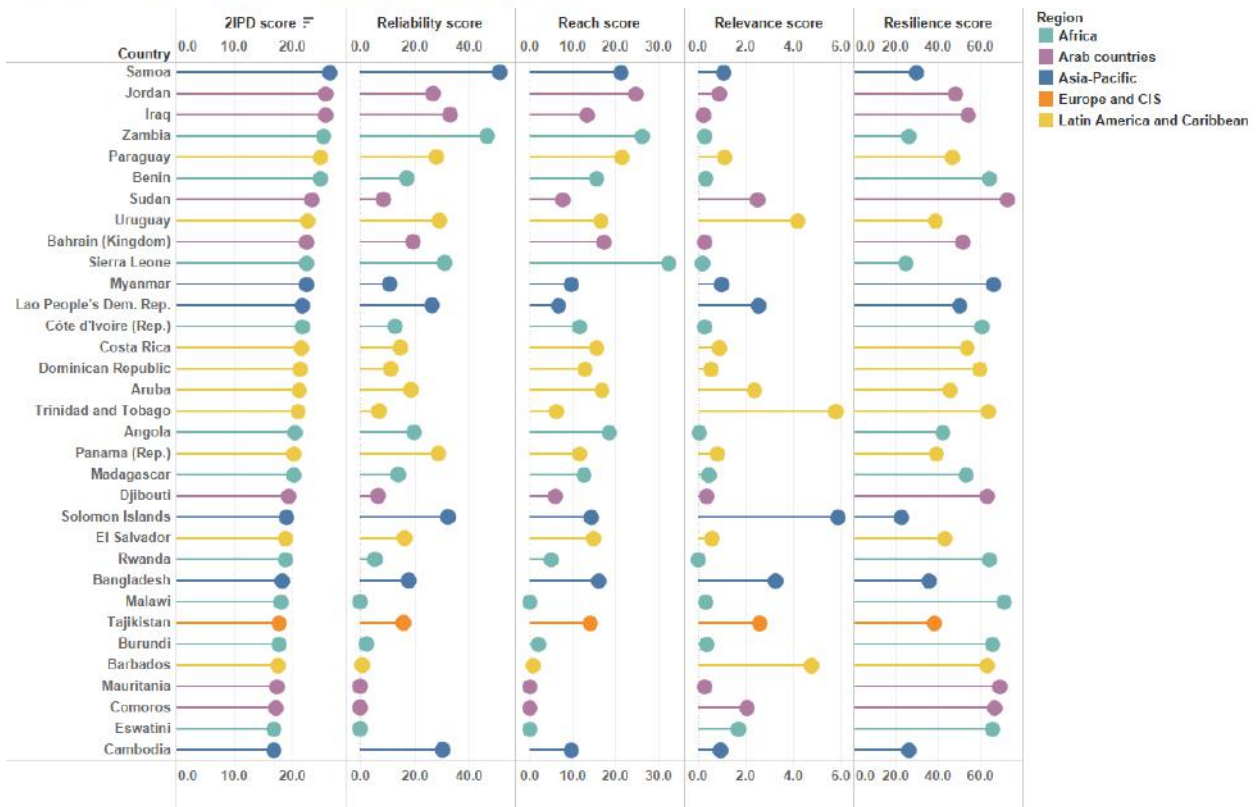
## 2022 ZIPD scores: countries at postal development level 4



## 2022 ZIPD results: countries at postal development level 4

Country	PDL	ZIPD score	2022–21 difference	Reliability score	Reach score	Relevance score	Resilience score
Albania	4	28.8	2.1	25.4	23.0	8.1	55.4
Argentina	4	27.9	-2.1	22.5	40.8	3.2	41.9
Egypt	4	36.2	-9.0	56.7	27.3	9.3	46.1
Ghana	4	33.9	-4.7	47.2	25.2	0.4	57.9
Iceland	4	27.2	-2.0	8.0	7.3	23.8	66.7
Jamaica	4	35.1	-2.9	51.9	22.4	6.6	54.4
Luxembourg	4	32.4	-1.5	17.6	15.9	46.3	45.4
Maldives	4	29.6	1.0	15.8	14.3	12.0	72.7
Montenegro	4	32.7	3.7	21.5	19.5	12.9	72.6
Nigeria	4	35.1	-8.6	49.2	30.0	0.7	55.4
North Macedonia	4	34.7	-3.3	33.8	30.6	7.8	61.3
Peru	4	26.9	0.3	28.4	25.8	0.1	50.3
Philippines	4	31.9	-3.8	42.6	27.8	0.5	52.4
Senegal	4	31.7	-0.7	44.0	24.4	0.5	53.6
South Africa	4	32.1	-6.6	16.3	37.3	2.4	67.9
Togo	4	28.5	-1.7	12.3	11.2	0.7	86.6
Tuvalu	4	31.6	21.8	13.4	24.9	53.3	30.4
Vanuatu	4	32.0	26.9	82.5	36.8	0.5	3.9

## 2022 ZIPD scores: countries at postal development level 3

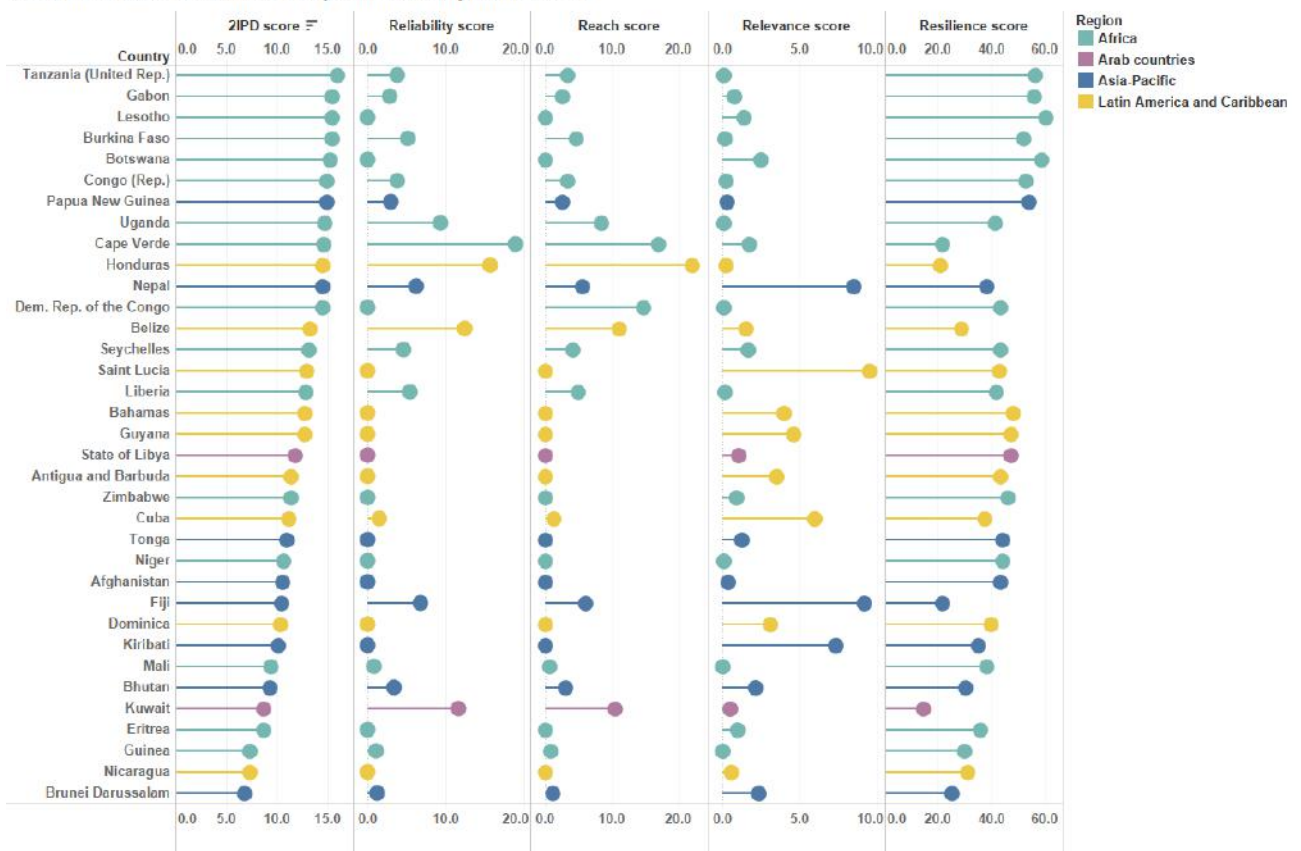




## 2022 2IPD results: countries at postal development level 3

Country	PDL	2IPD score	2022–21 difference	Reliability score	Reach score	Relevance score	Resilience score
Angola	3	20.5	4.7	19.7	18.7	0.0	42.4
Aruba	3	21.1	2.4	18.5	16.7	2.4	45.6
Bahrain (Kingdom)	3	22.5	1.1	19.2	17.4	0.3	51.6
Bangladesh	3	18.3	4.4	17.7	16.1	3.3	35.6
Barbados	3	17.5	0.4	0.9	0.8	4.8	63.4
Benin	3	24.8	4.4	17.1	15.5	0.3	64.1
Burundi	3	17.7	0.8	2.2	2.0	0.4	65.8
Cambodia	3	16.8	-4.8	30.4	9.8	0.9	26.0
Comoros	3	17.2	0.0	0.0	0.0	2.1	66.6
Costa Rica	3	21.5	-4.4	14.5	15.5	0.9	53.7
Côte d'Ivoire (Rep.)	3	21.7	-2.6	12.8	11.6	0.3	60.9
Djibouti	3	19.3	-0.2	6.6	6.0	0.4	63.4
Dominican Republic	3	21.4	-3.8	11.0	12.9	0.5	59.7
El Salvador	3	18.9	0.0	16.3	14.7	0.6	43.4
Eswatini	3	16.8	-0.3	0.0	0.0	1.7	65.5
Iraq	3	25.7	7.3	32.9	13.3	0.2	54.0
Jordan	3	25.7	-6.7	26.7	24.7	0.9	48.1
Lao People's Dem. Rep.	3	21.8	-3.9	26.1	6.9	2.5	50.1
Madagascar	3	20.3	-1.8	13.9	12.6	0.4	53.1
Malawi	3	18.0	-0.3	0.0	0.0	0.3	71.3
Mauritania	3	17.4	-0.3	0.0	0.0	0.3	69.2
Myanmar	3	22.4	7.3	10.8	9.8	1.0	66.3
Panama (Rep.)	3	20.4	6.3	28.6	11.7	0.8	39.3
Paraguay	3	24.9	0.1	27.8	21.5	1.1	46.8
Rwanda	3	18.8	-2.3	5.5	5.0	0.0	64.0
Samoa	3	26.4	18.0	51.1	21.2	1.1	29.7
Sierra Leone	3	22.4	12.4	30.9	32.4	0.2	24.5
Solomon Islands	3	19.0	4.8	32.1	14.4	5.9	22.8
Sudan	3	23.3	0.4	8.5	7.7	2.5	72.6
Tajikistan	3	17.8	0.1	15.7	14.2	2.6	38.4
Trinidad and Tobago	3	21.1	2.7	7.0	6.3	5.8	63.9
Uruguay	3	22.6	6.6	29.1	16.6	4.2	38.9
Zambia	3	25.4	8.9	46.4	26.1	0.3	26.4

## 2022 2IPD scores: countries at postal development level 2



## 2022 2IPD results: countries at postal development level 2

Country	PDL	2IPD score	2022–21 difference	Reliability score	Reach score	Relevance score	Resilience score
Afghanistan	2	10.6	-2.0	0.0	0.0	0.4	43.7
Antigua and Barbuda	2	11.4	-0.5	0.0	0.0	3.5	43.7
Bahamas	2	12.8	-0.5	0.0	0.0	4.0	48.1
Belize	2	13.2	0.7	12.3	11.2	1.6	28.7
Bhutan	2	9.3	0.6	3.4	3.1	2.1	30.5
Botswana	2	15.3	-0.3	0.0	0.0	2.5	58.9
Brunei Darussalam	2	6.8	-0.5	1.2	1.1	2.4	25.3
Burkina Faso	2	15.4	0.0	5.0	4.6	0.2	52.1
Cape Verde	2	14.6	-1.8	18.8	17.0	1.7	21.5
Congo (Rep.)	2	15.0	1.5	3.7	3.3	0.2	53.1
Cuba	2	11.2	-4.8	1.5	1.3	6.0	37.6
Dem. Rep. of the Cong.,	2	14.5	-7.4	0.0	14.8	0.1	43.6
Dominica	2	10.3	-0.5	0.0	0.0	3.1	39.9
Eritrea	2	8.7	-0.4	0.0	0.0	1.0	36.0
Fiji	2	10.5	1.1	6.7	6.1	9.2	21.5
Gabon	2	15.5	2.3	2.8	2.5	0.8	56.2
Guinea	2	7.4	0.2	1.0	0.9	0.0	30.0
Guyana	2	12.8	0.8	0.0	0.0	4.6	47.5
Honduras	2	14.5	1.1	15.6	22.1	0.3	20.7
Kiribati	2	10.2	-0.6	0.0	0.0	7.4	35.0
Kuwait	2	8.7	2.1	11.6	10.5	0.6	14.3
Lesotho	2	15.5	-0.1	0.0	0.0	1.4	60.8
Liberia	2	12.9	-0.5	5.4	4.9	0.2	42.0
Mali	2	9.4	-1.8	0.7	0.7	0.0	38.1
Nepal	2	14.5	-0.3	6.1	5.6	8.6	38.3
Nicaragua	2	7.3	-0.5	0.0	0.0	0.6	31.1
Niger	2	10.7	-0.4	0.0	0.0	0.1	44.4
Papua New Guinea	2	14.9	1.6	2.9	2.6	0.3	54.2
Saint Lucia	2	12.9	-0.6	0.0	0.0	9.6	43.1
Seychelles	2	13.2	1.4	4.5	4.1	1.7	43.4
State of Libya	2	11.8	0.1	0.0	0.0	1.1	47.6
Tanzania (United Rep.)	2	15.9	-3.4	3.7	3.4	0.1	56.7
Tonga	2	11.0	-6.1	0.0	0.0	1.3	44.2
Uganda	2	14.7	-1.5	9.3	8.4	0.1	41.5
Zimbabwe	2	11.4	-0.4	0.0	0.0	1.0	46.1

## 2022 2IPD scores: countries at postal development level 1



## 2022 2IPD results: countries at postal development level 1

Country	PDL	2IPD score	2022–21 difference	Reliability score	Reach score	Relevance score	Resilience score
Central African Rep.	1	0.2	0.2	1.4	1.3	0.1	2.6
Chad	1	6.3	-0.5	0.0	0.0	0.1	28.0
Equatorial Guinea	1	2.0	-0.4	0.0	0.0	0.4	11.6
Gambia	1	6.2	-0.5	0.0	0.0	0.2	27.5
Guatemala	1	0.0	-0.4	0.0	0.0	0.2	4.4
Haiti	1	3.1	-0.4	0.0	0.0	0.0	16.2
Mozambique	1	4.7	1.0	2.9	2.7	0.0	16.4
Saint Vincent and the Grenadines	1	6.2	-0.5	0.0	0.0	5.2	22.4
St. Christopher and Nevis	1	5.0	-0.6	0.0	0.0	3.4	19.7
Suriname	1	5.2	0.6	2.2	2.0	1.0	18.6

## 2022 Reliability catch-up stars

## 2022 reliability catch-up stars

Region	Country	2IPD + reliability scores changes	PDL
Africa	Angola	14.49	3
	Benin	13.57	3
	Ethiopia	24.21	5
	Sierra Leone	35.29	3
	Zambia	29.14	3
Arab countries	Algeria	25.61	5
	Iraq	30.22	3
	Lebanon	12.42	5
	Morocco	56.00	6
	Oman	40.10	5
	Qatar	32.51	6
	Tunisia	27.42	6
Asia-Pacific	Indonesia	14.05	6
	Mongolia	25.85	6
	Myanmar	14.15	3
	Samoa	67.38	3
	Solomon Islands	23.81	3
	Sri Lanka	42.12	5
	Tuvalu	32.19	4
	Vanuatu	100.21	4
	Viet Nam	14.90	6
Europe and CIS	Georgia	27.71	6
	Slovenia	73.49	8
	Ukraine	19.62	6
	Uzbekistan	87.77	5
Latin America and Caribbean	Panama (Rep.)	27.27	3
	Uruguay	24.76	3

## 2022 Reach catch-up stars

## 2022 reach catch-up stars

Region	Country	2IPD + reach scores changes	PDL
Africa	Angola	14.23	3
	Benin	12.59	3
	Sierra Leone	37.38	3
	Zambia	24.07	3
Arab countries	Algeria	14.10	5
	Iraq	11.40	3
	Morocco	17.33	6
	Oman	47.22	5
	Tunisia	10.08	6
	United Arab Emirates	25.21	6
Asia-Pacific	Indonesia	36.81	6
	Myanmar	13.44	3
	Samoa	37.60	3
	Sri Lanka	10.82	5
	Tuvalu	43.95	4
	Vanuatu	55.25	4
Europe and CIS	Armenia	23.37	6
	Azerbaijan	22.90	6
	Georgia	19.89	6
	Kyrgyzstan	14.94	5
	Poland	12.47	8
	Slovenia	17.57	8
	Uzbekistan	36.93	5
Latin America and Caribbean	Panama (Rep.)	10.92	3
	Uruguay	13.11	3

## 2022 Relevance catch-up stars

## 2022 relevance catch-up stars

Region	Country	2IPD + relevance scores changes	PDL
Arab countries	Morocco	14.58	6
Asia-Pacific	Indonesia	16.30	6
	Tuvalu	72.11	4
Europe and CIS	Slovenia	19.40	8

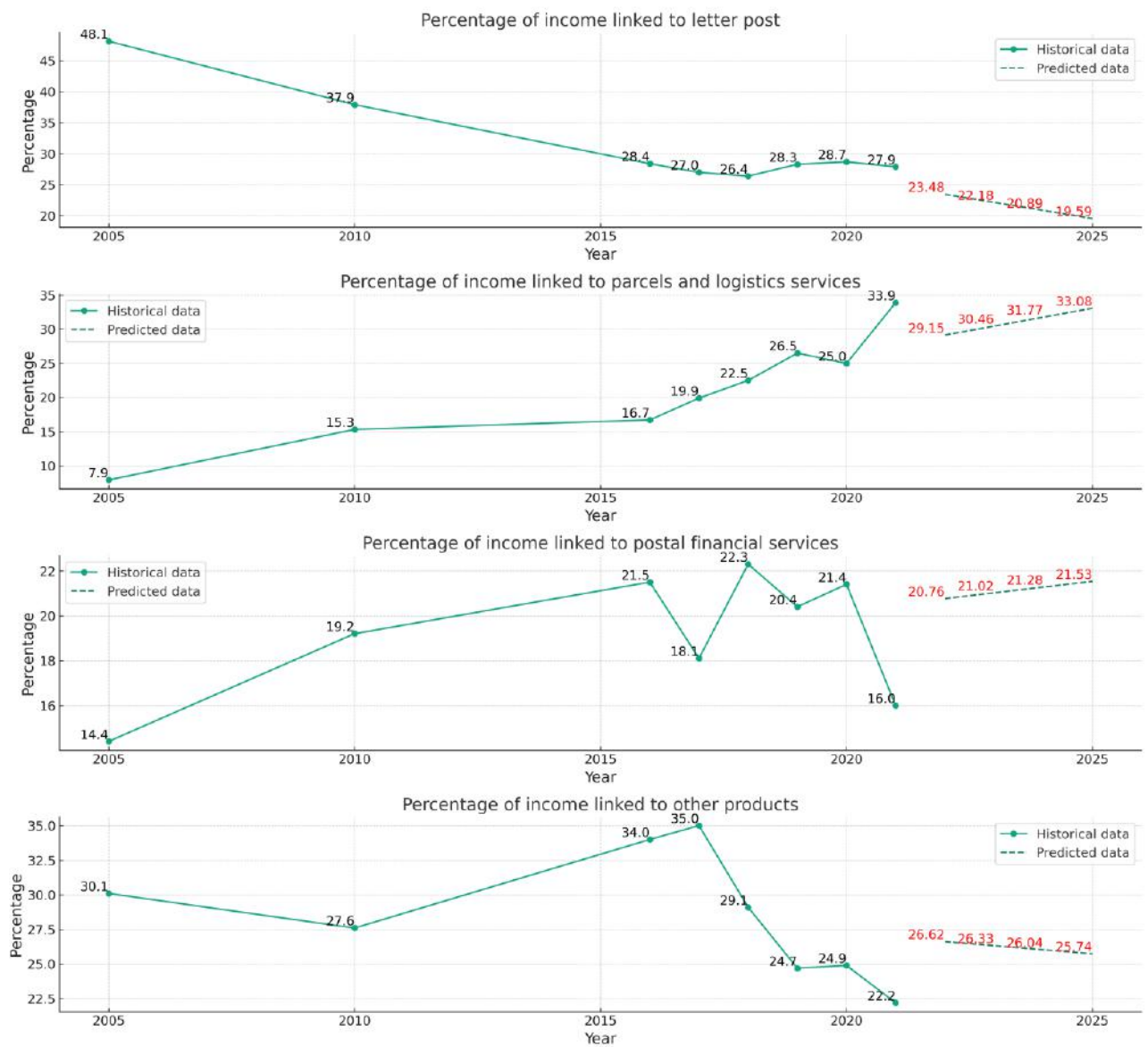
## 2022 Resilience catch-up stars

## 2022 resilience catch-up stars

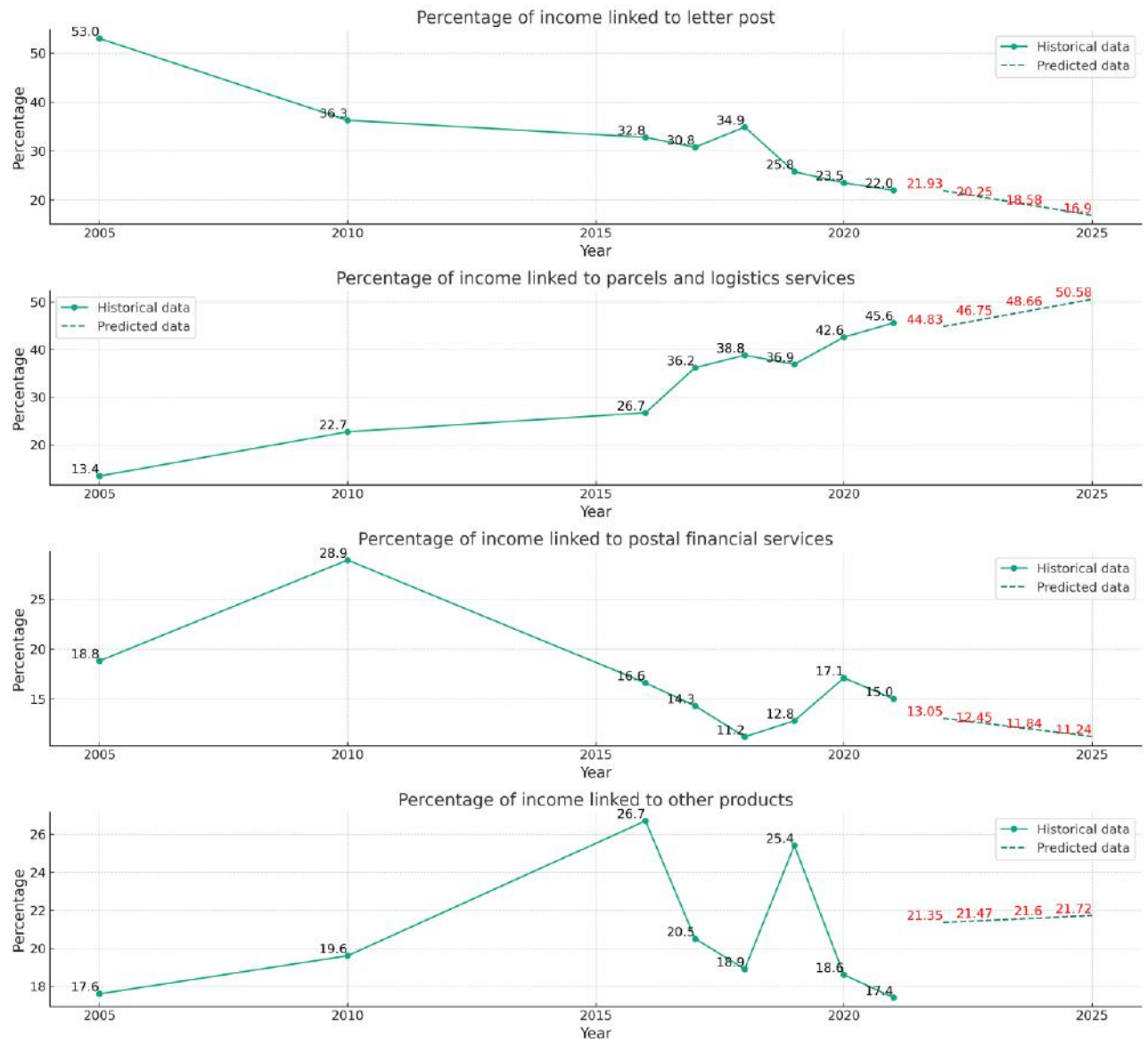
Region	Country	2IPD + resilience scores changes	PDL
Africa	Gabon	18.62	2
Asia-Pacific	Bangladesh	19.32	3
	Myanmar	24.09	3
Europe and CIS	Montenegro	13.52	4
ICs	Finland	16.65	7
Latin America and Caribbean	Honduras	16.56	2

## Postal industry trends and forecasts (2005–2025)

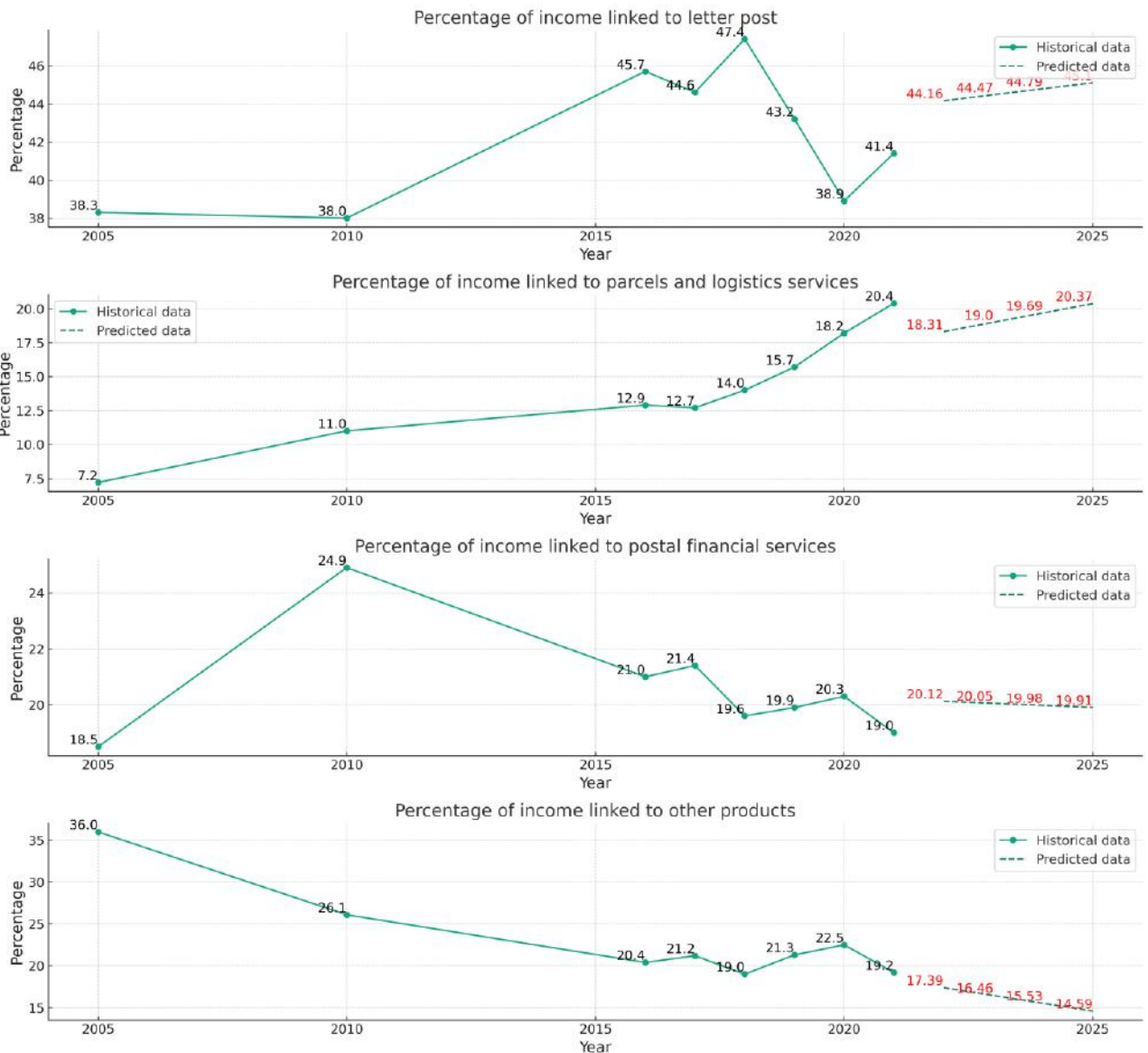
Africa postal industry: income composition trends (2005–2021) and predictions (2022–2025)



## Asia-Pacific postal industry: income composition trends (2005-2021) and predictions (2022-2025)

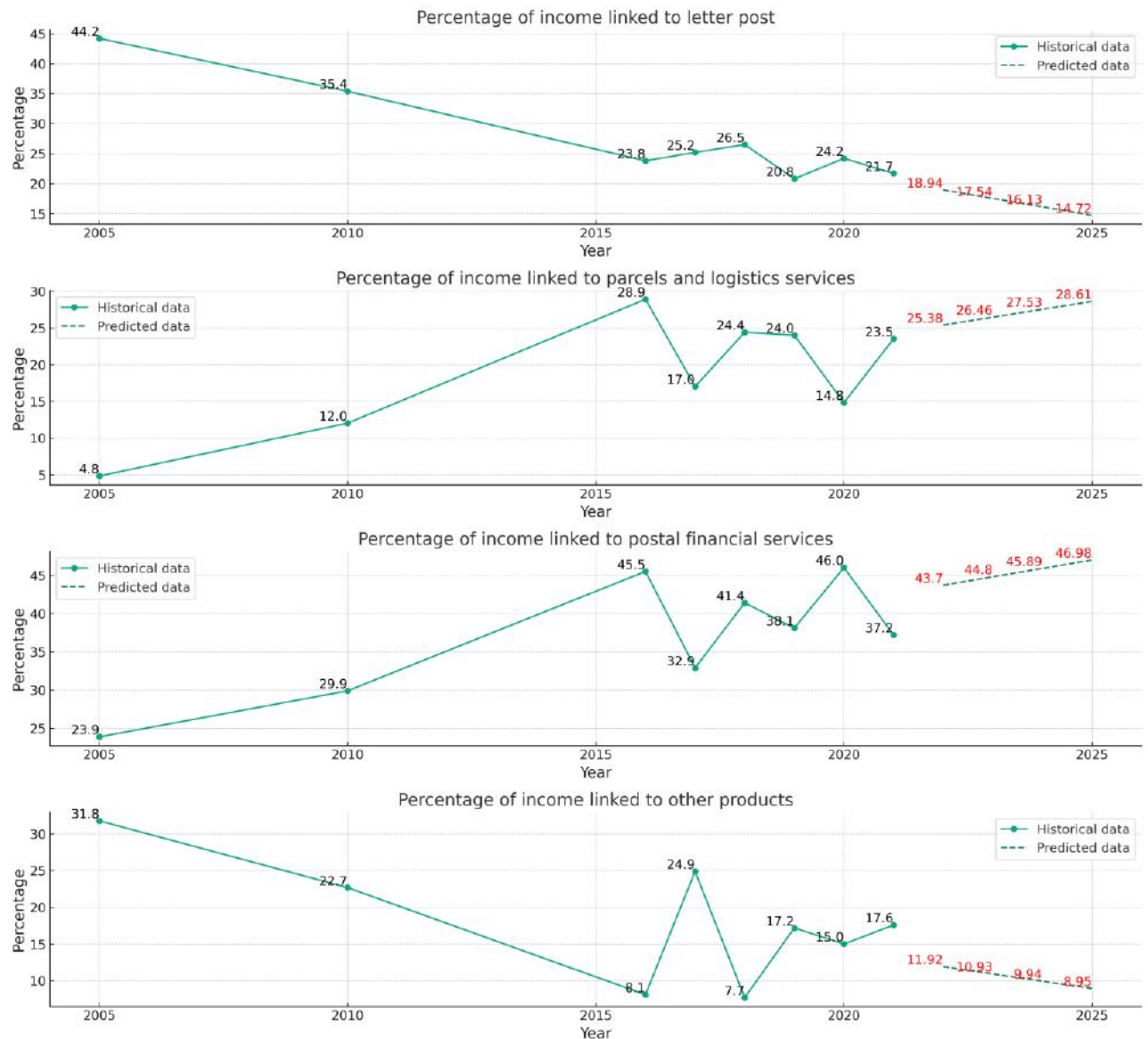


## Europe and CIS postal industry: income composition trends (2005–2021) and predictions (2022–2025)



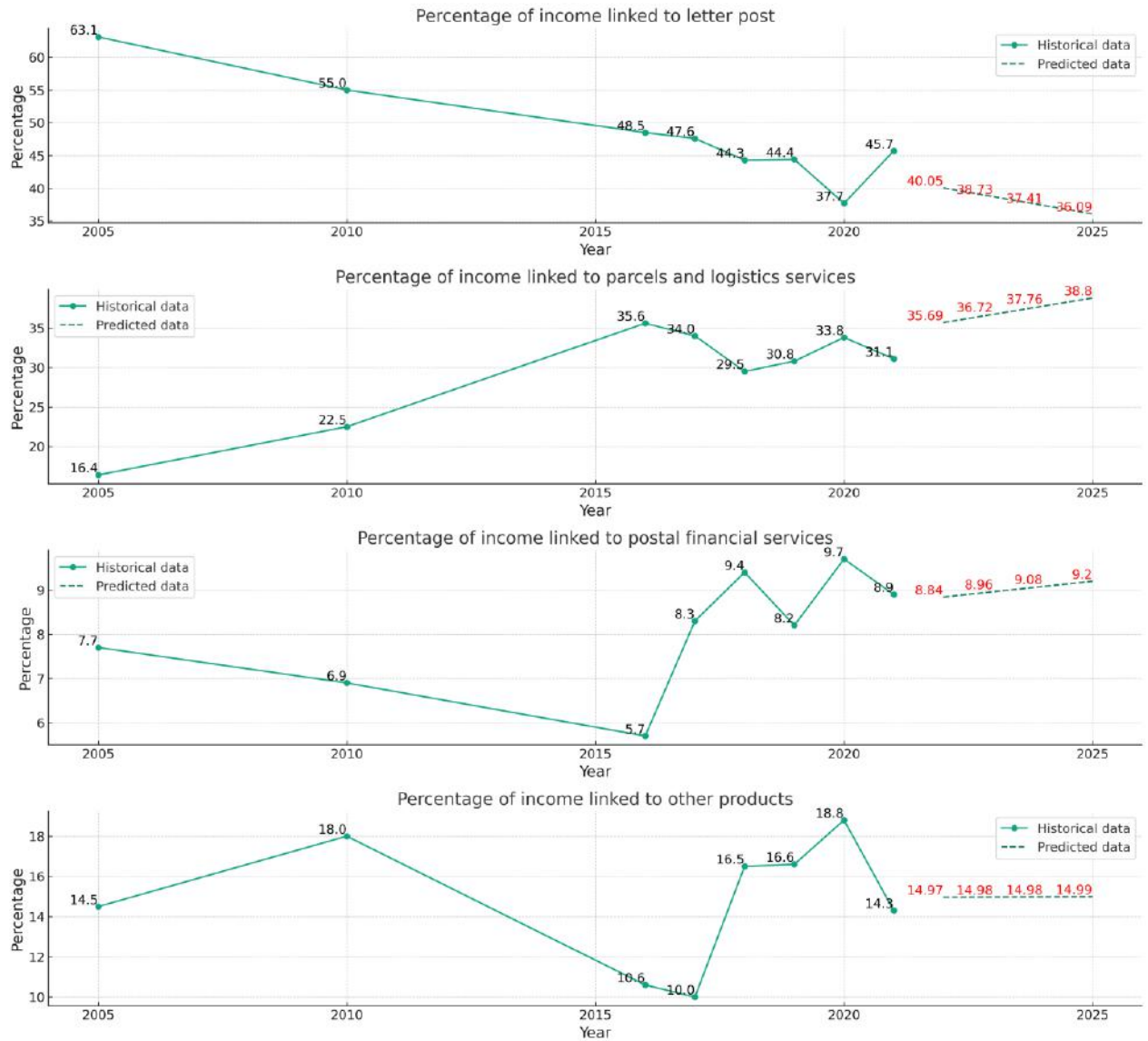


# Arab countries postal industry: income composition trends (2005–2021) and predictions (2022–2025)

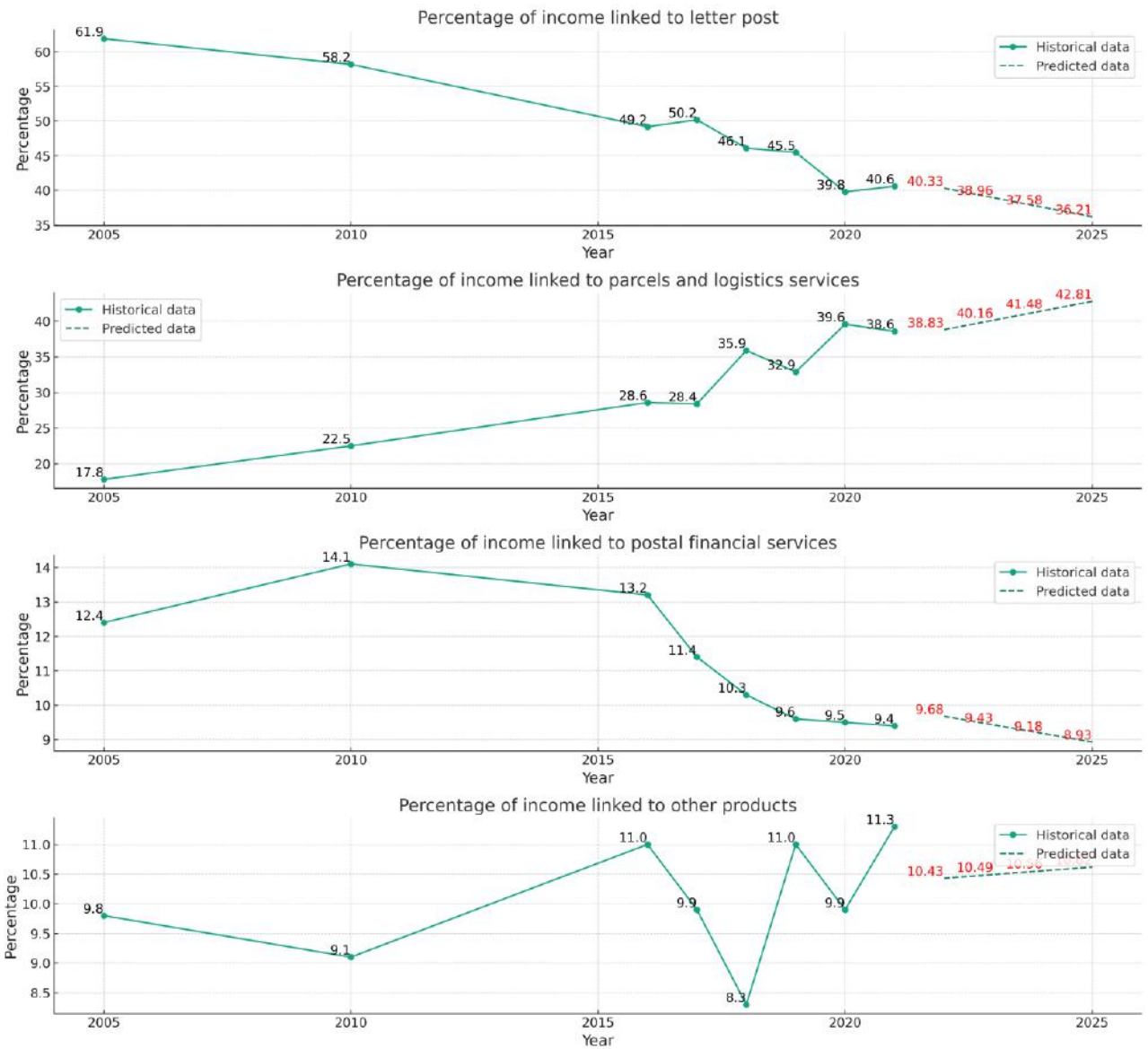




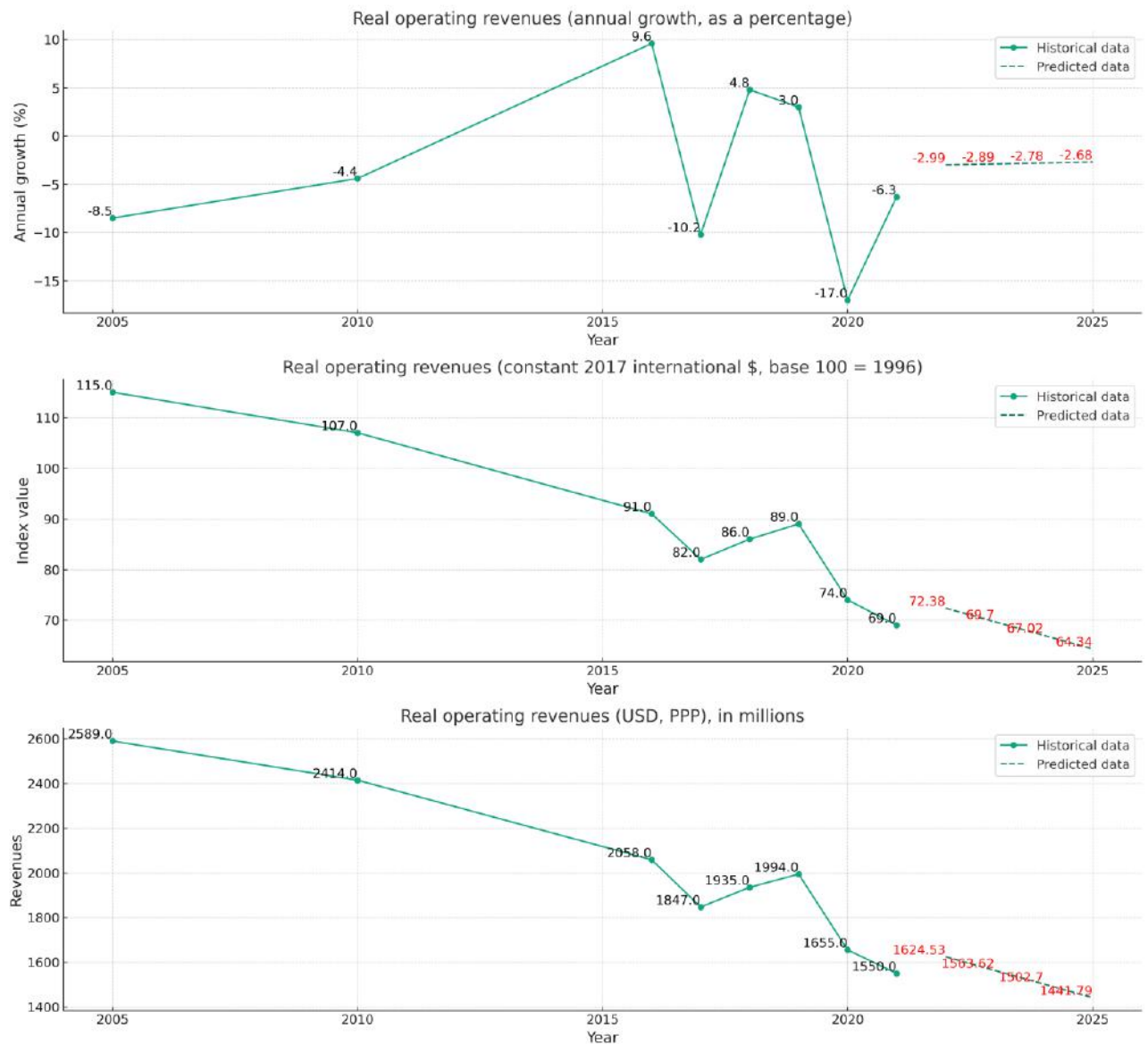
## Latin America and the Caribbean postal industry: income composition trends (2005–2021) and predictions (2022–2025)



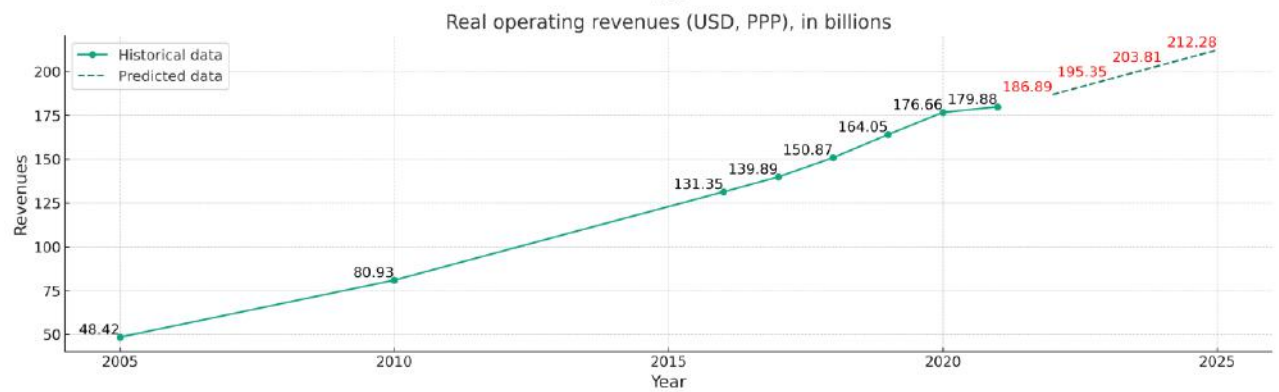
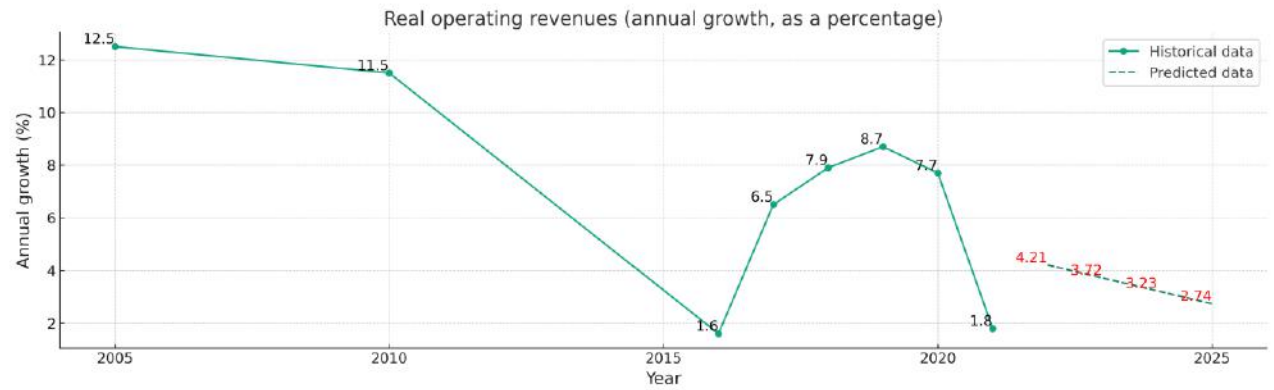
## Industrialized countries postal industry: income composition trends (2005-2021) and predictions (2022-2025)



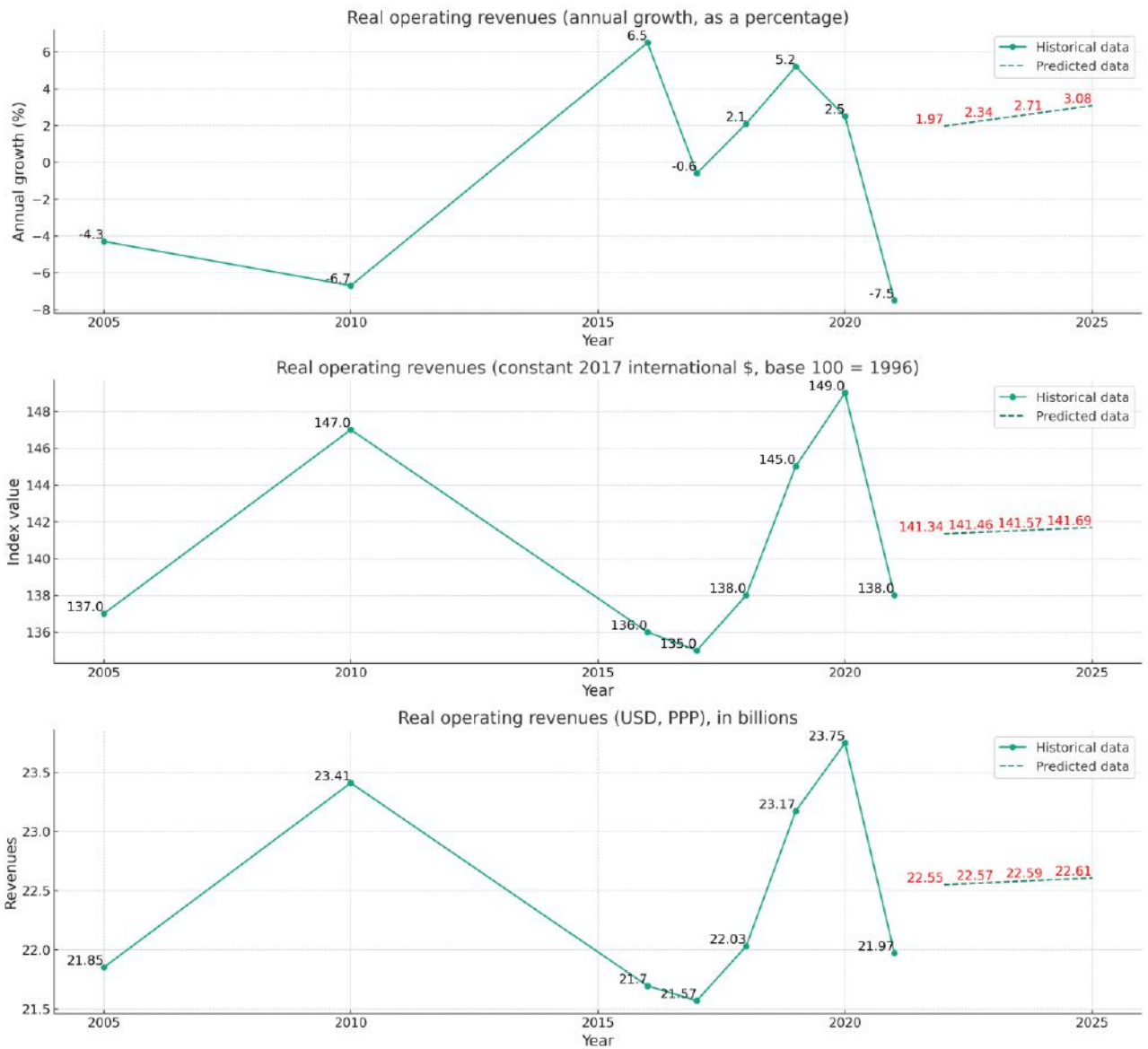
## Africa postal industry: revenue trends (2005–2021) and predictions (2022–2025)



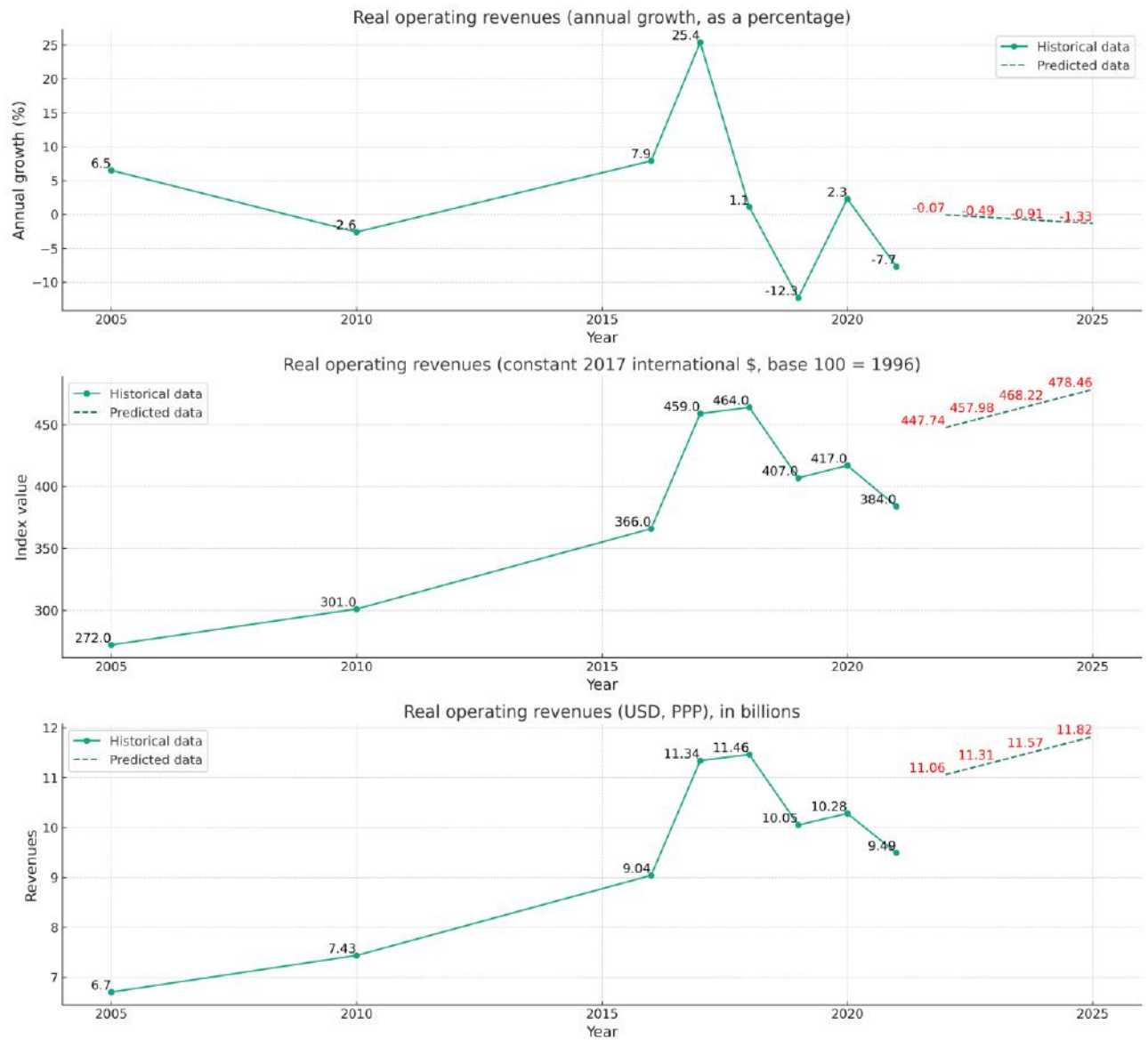
## Asia-Pacific postal industry: revenue trends (2005-2021) and predictions (2022-2025)



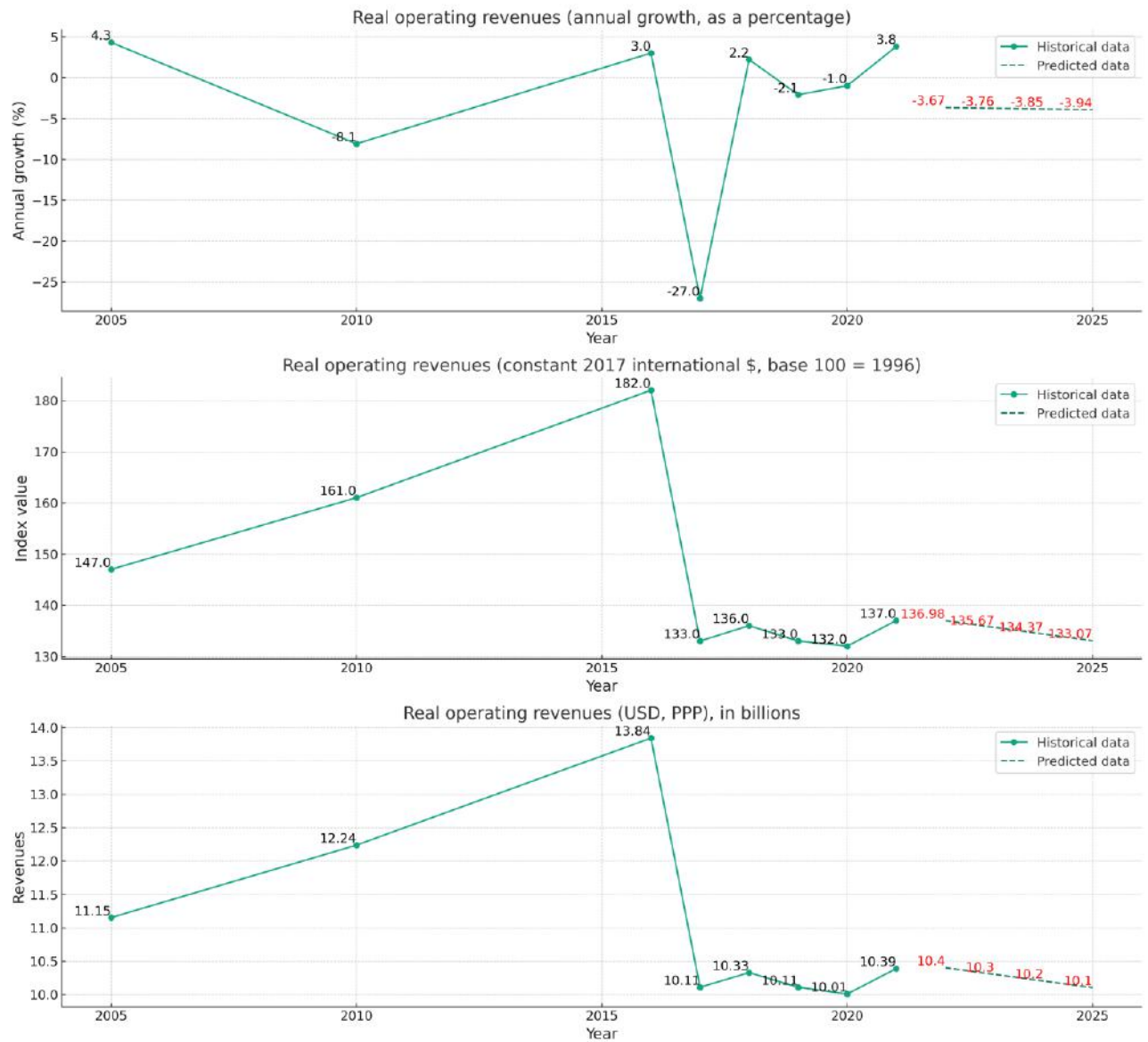
## Europe and CIS postal industry: revenue trends (2005-2021) and predictions (2022-2025)



# Arab countries postal industry: revenue trends (2005–2021) and predictions (2022–2025)

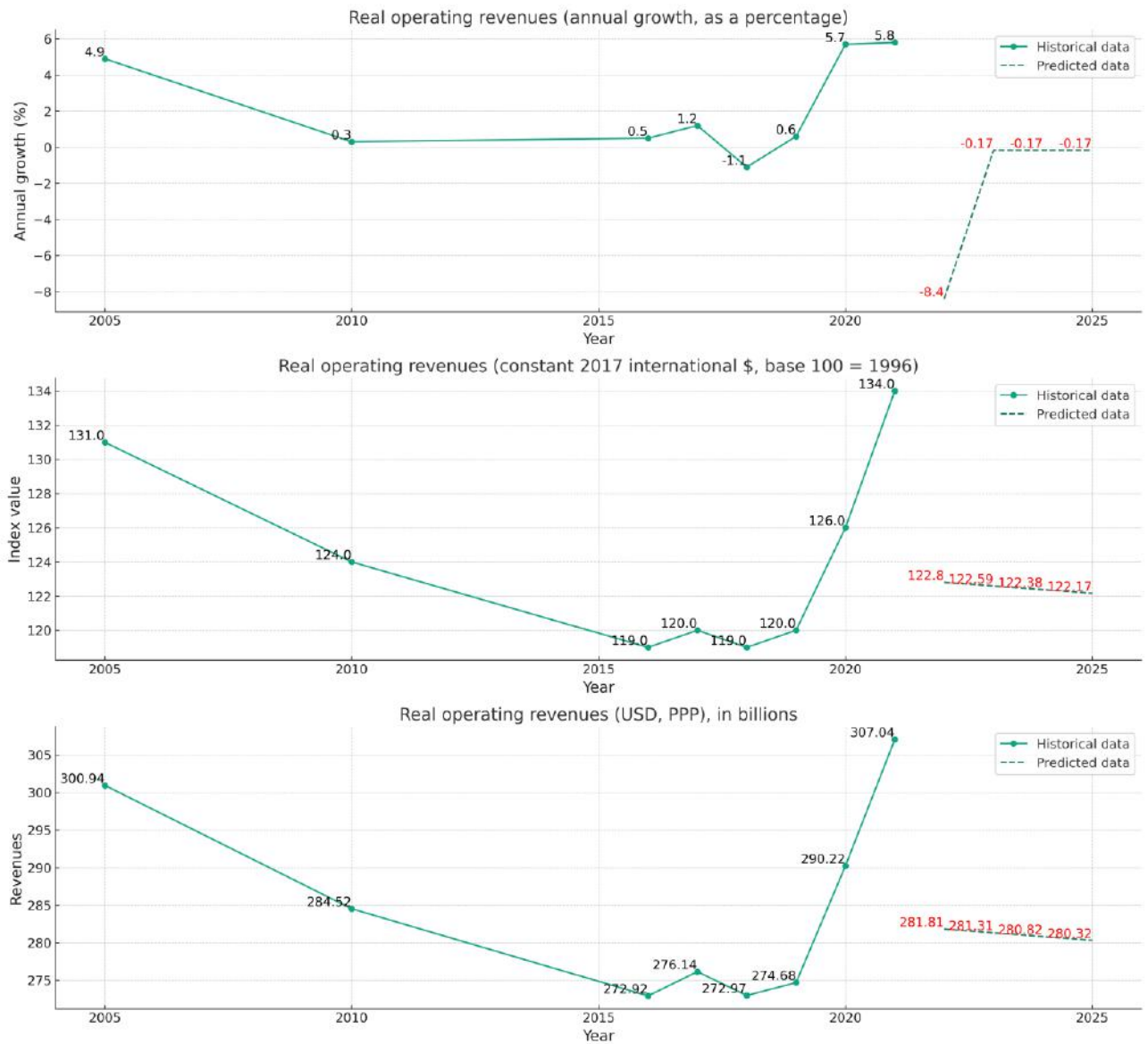


## Latin America and the Caribbean postal industry: revenue trends (2005–2021) and predictions (2022–2025)





## Industrialized countries postal industry: revenue trends (2005–2021) and predictions (2022–2025)





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