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ECONOMIC ANALYSIS OF AIRLINE PRICING: RETROSPECTIVE ANALYSIS AND CURRENT STATE

Illia Kobets, Sofiia Kulyk, Kateryna Boiarynova, Nadiia Rochshyna. «Economic analysis of airline pricing: retrospective analysis and current state». The article provides an in-depth analysis of airline ticket pricing, tracing its historical evolution and exploring current trends. The article provides a detailed description of the structure and components of airline ticket pricing, as well as the impact of factors on this process. The research examines the development of airline pricing from the early 20th century, when aviation was a luxury reserved for the wealthy, to its current state as a competitive and affordable industry. Key historical milestones

are discussed, including the introduction of computerised reservation systems in the 1960s, the US Airline Deregulation Act of 1978, and the emergence of low-cost airlines in the 1980s and 1990s. These developments have led to fundamental shifts in the pricing of airline tickets, which made it possible to transform the aviation landscape by reducing fares and expanding access to air travel. At the same time, the article discusses economic and technological factors that influence airfare changes, such as deregulation, fuel costs, global crises and consumer demand. The article analyses dynamic pricing strategies supported by sophisticated modern airline pricing algorithms, which allow carriers to adjust fares in real time in line with market conditions. The study also highlights important events that have influenced pricing trends, such as the 2008 financial crisis and the COVID-19 pandemic, showing how airlines have quickly adapted to economic shocks by adjusting their pricing structures. In addition, the study delves into the speed and frequency of price fluctuations, highlighting airlines' responses to real-time data and global changes. The implications of these price dynamics are assessed, identifying their impact on industry profitability, passenger accessibility and other economic consequences. Airlines benefit from revenue optimisation through dynamic pricing, while passengers face challenges in navigating variable fares. Thus, the results of the study, namely the economic analysis of airline pricing, provide an opportunity to identify the complex interaction of factors that shape airline prices. The results highlight how technological advances, competitive pressures and changes in consumer behaviour continue to redefine the airline market, offering valuable insights into the factors driving the evolution of airline affordability.

Keywords: airline ticket prices, dynamic pricing, airline deregulation, demand fluctuations, fuel costs, technological advancements, pricing algorithms, airline competition

Ілля Кобець, Софія Кулик, Катерина Бояринова, Надія Рощина. «Економічна аналітика ціноутворення авіаперевезень: ретроспективний аналіз та сучасний стан». Представлена стаття містить глибокий аналіз формування цін на авіаквитки, простежуючи їхню історичну еволюцію та досліджуючи сучасні тенденції. У статті розглянуто детальний опис структури та складових ціноутворення на авіаквитки, вплив чинників на означений процес. Дослідження вивчає розвиток ціноутворення на авіаквитки з початку 20-го століття, коли авіація була розкішшю, зарезервованою для заможних людей, до її нинішнього стану як конкурентоспроможної та доступної галузі. Обговорюються ключові історичні віхи, включаючи впровадження комп'ютеризованих систем бронювання у 1960-х роках, Закон США про дерегуляцію авіакомпаній від 1978 року та появу лоукостерів у 1980-х і 1990-х роках. Наведені події визначили кардинальні зрушення процесу формування цін на авіфквітки, що надало можливість трансформувати авіаційний ландшафт за рахунок зниження тарифів і розширення доступу до авіаперевезень. Поряд з цим. у статті розглядаються економічні та технологічні фактори, що впливають на зміну цін на авіаквитки, такі як дерегуляція, вартість палива, глобальні кризи та споживчий попит. Аналізуються стратегії динамічного ціноутворення, які підтримуються складними алгоритмами сучасного ціноутворення в авіакомпаніях, що дозволяє перевізникам коригувати тарифи в режимі реального часу відповідно до ринкових умов. У дослідженні також висвітлюються важливі події, що вплинули на цінові тенденції, такі як фінансова криза 2008 року та пандемія COVID-19, показуючи, як авіакомпанії швидко адаптувалися до економічних потрясінь шляхом коригування структури ціноутворення. Крім того, дослідження заглиблюється у швидкість та частоту цінових коливань, підкреслюючи реакцію авіакомпаній на дані в режимі реального часу та глобальні зміни. Оцінюються наслідки такої цінової динаміки, виявляючи її вплив на прибутковість галузі, доступність для пасажирів та інші економічні наслідки. Авіакомпанії отримують вигоду від оптимізації доходів завдяки динамічному ціноутворенню, тоді як пасажири стикаються з проблемами, намагаючись зорієнтуватися у змінних тарифах. Отже, представлені результати дослідження, а саме проведена економічна аналітика ціноутворення авіаперевезень, надають можливість визначити складну взаємодію

факторів, що формують ціни на авіаквитки. Результати підкреслюють, як технологічний прогрес, конкурентний тиск і зміни в поведінці споживачів продовжують переосмислювати ринок авіаперевезень, пропонуючи цінну інформацію про чинники, що визначають еволюцію доступності авіаперевезень.

Ключові слова: ціни на авіаквитки, динамічне ціноутворення, дерегуляція авіаперевезень, коливання попиту, вартість палива, технологічний прогрес, алгоритми ціноутворення, конкуренція авіакомпаній.

Introduction. The articles collectively explore the evolution of air travel from its inception to the modern day, focusing on how factors like technological advancements, inflation, and market competition have shaped the industry. "The Evolution of the Commercial Flying Experience" by the Smithsonian Institution traces the transformation of passenger experiences since 1914. "Here At The Smithsonian: The History of Aviation" by Kira M. Sobers exploring aviating history overall. It archives delve into aviation milestones, including ticketing practices like those of Pan American World Airways. Economic aspects are highlighted through tools like the CPI Inflation Calculator, showing historical currency adjustments, and data from Our World in Data, which quantifies the declining cost of transport since the 1930s. The IEA chart documents air passenger traffic trends from 1980 to 2020, revealing growth patterns and disruptions. Pricing insights include average fare data from Bureau of Transportation Statistics, inflation-adjusted ticket prices from the US Inflation Calculator, and a MoneyWise analysis of a 50% price drop over 40 years. The works represent a mix of institutional authors, independent data analysts, and generalist contributors, offering a comprehensive view of aviation's economic, social, and technical history.

Formulation of the Objectives of the Article (Statement of the Task). The article aims to unravel the complex mechanisms behind airline ticket pricing by exploring its historical evolution and identifying modern factors that influence price fluctuations. It seeks to provide insights into the interplay between technological advancements, economic pressures, and consumer behavior, demonstrating how these forces continue to redefine affordability and accessibility in the aviation industry.

Summary of the main research material. The history of airline tickets dates back to the early 20th century when commercial aviation began. Initially, air travel was a luxury reserved for the wealthy, and booking a ticket was a manual process, usually done through travel agents. Airlines issued paper tickets, and the process involved direct interaction with agents who would manually confirm flight details and ticket availability. As aviation developed, more airlines began offering scheduled flights, and the need for more efficient ticketing grew [9].

In the 1960s, with the advent of computerized systems, the industry began to transition toward more modern methods of booking. The introduction of Computer Reservation Systems (CRS) in the late 1960s allowed airlines to manage seat reservations and pricing with more efficiency. This was a significant leap forward, as it made it easier for airlines to adjust prices based on demand and operational costs, setting the stage for more dynamic pricing. With the advent of technology, airlines could now keep track of seat availability in real-time, which led to more precise fare structures. These systems eventually led to the creation of Global Distribution Systems (GDS), which connected airlines to travel agencies worldwide, standardizing the process of ticketing [9; 10].

The next major shift came with the deregulation of airlines in the late 1970s. The Airline Deregulation Act of 1978 in the United States led to increased competition among airlines, which had a dramatic effect on ticket pricing. Prior to deregulation, the government-controlled airfares, but with

deregulation, airlines were free to set their own prices. This resulted in a decrease in ticket prices and the introduction of discount carriers, which made air travel accessible to a wider audience. This era also saw the rise of "yield management" systems, which allowed airlines to set different prices for the same flight based on factors like seat availability, time before departure, and the number of passengers already booked. Prices fluctuated more often, and passengers could find cheaper tickets by booking in advance or flying at off-peak times.

The 1990s and 2000s saw further changes with the rise of the internet and online booking systems. Websites like Expedia and Orbitz allowed passengers to book tickets directly from airlines or through third-party services, eliminating the need for travel agents. This shift was particularly impactful for consumers, as it gave them access to a wider range of options and allowed them to track price changes in real-time. As a result, airlines adapted to new consumer behavior by further refining their pricing strategies and introducing more sophisticated algorithms to adjust ticket prices instantly based on demand and market conditions. This development also paved the way for the widespread use of electronic tickets (etickets), which were introduced in the late 1990s and became standard by the 2000s. Etickets simplified the booking process, reduced costs for airlines, and made the experience more convenient for passengers [10].

As technology advanced, so did the speed of price changes. Airlines began using complex algorithms that could adjust ticket prices multiple times a day based on a variety of factors, including seat availability, time of booking, and customer preferences. This led to a dramatic increase in price variability. Tickets could cost significantly different amounts depending on when they were purchased or even who was buying them. The rapid fluctuation in ticket prices created both opportunities and challenges for travelers. While it became easier to find cheaper fares, it also meant that passengers needed to remain vigilant and flexible in their travel plans to secure the best deals.

The consequences of these price changes were significant. For airlines, dynamic pricing allowed them to maximize revenue and fill more seats, but it also meant that they had to manage customer expectations carefully. Price fluctuations often led to frustration, especially for passengers who felt they were paying too much compared to others who booked earlier or found last-minute deals. However, for consumers, the benefits were The competitive environment, clear. combined with more affordable pricing, made air travel more accessible. It also created an environment where customers could take advantage of sales or last-minute deals if they were willing to adapt their schedules [9; 10].

Today, the world of airline ticketing continues to evolve, with new technologies and pricing strategies shaping the industry. While prices have fallen significantly from the high costs of the past, the future of ticket pricing will likely continue to be influenced by advances in technology, competition, and changing consumer behavior. The industry is now at a point where online platforms and sophisticated algorithms allow for real-time price adjustments, making it easier for consumers to access flights at a wide range of prices. However, as the complexity of pricing systems increases, so does the need for passengers to stay informed and flexible in their travel choices [10].

In the 1920s and 1930s, commercial air travel was a luxury reserved for the wealthy elite. Flights were characterized by their high costs, with a ticket from London to Paris priced at around £15–20, equivalent to several thousand dollars (£1 120 to be exact) today when adjusted for inflation. Passengers traveled aboard noisy, unpressurized planes like the Ford Tri-Motor, enduring rudimentary comfort and limited services. Despite these drawbacks, the novelty and exclusivity of flying appealed to adventurous travelers, setting the foundation for the global aviation industry. This era marked the beginning of passenger air travel as a symbol of status and progress. [1; 2]



Figure 1 – £20 adjusted for inflation from 1920 to present days. In 2024 it equals to £1 120. Source: compiled based on [2].

During the post-war period, the Londonto-Paris route remained one of Europe's most popular air connections, benefiting from advancements in aviation technology and an increase in demand for international travel. In the 1950s, the introduction of more efficient propeller planes like the Douglas DC-3 and later the jet-engine aircraft dramatically reduced flight times to about an hour. Ticket prices, however, were still high due to regulated fare systems. A one-way ticket could cost around £25–30, a significant amount equivalent to nearly £800–1,000 today. Airlines such as British European Airways (BEA) and Air France competed to attract travelers with improved services, including on-board meals and higher comfort, signaling the beginning of air travel's golden age [1; 2]



Figure 2 – £30 adjusted for inflation from 1950 to present days. In 2024 it equals to £1 288. Source: compiled based on [2].

The 1980s and 1990s saw a dramatic transformation in air travel with the rise of deregulation and budget airlines, making previously expensive routes like London to Paris much more affordable. In Europe, deregulation policies allowed new competitors like Ryanair and EasyJet to challenge legacy carriers, driving prices down. Flights between London and Paris, once a luxury, became accessible to a broader audience, with tickets often dropping below £50 for one-way trips by the late 1990s. Airlines adopted a no-frills approach, cutting extras like in-flight meals and introducing dynamic pricing models to maximize occupancy. This era marked the democratization of air travel, forever changing how people viewed short-haul flights [1; 2].

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Figure 3 – £50 adjusted for inflation from 1990 to present days. In 2024 it equals to £142. Source: compiled based on [2].

In the 2000s and beyond, the London-to-Paris route became emblematic of the modern air travel experience, defined by affordable prices, dynamic fare systems, and fierce competition. With budget airlines like EasyJet and Ryanair dominating the market, tickets often started as low as £10 for one-way trips during sales, though prices could fluctuate based on demand, seasonality, and booking time. The emergence of online booking platforms revolutionized accessibility, enabling passengers to compare and find deals prices with ease. Environmental concerns also began shaping the industry, with airlines introducing carbon offset programs and governments debating taxes on short-haul flights to encourage greener alternatives like high-speed rail. Despite these changes, the route remained one of Europe's busiest, showcasing the evolution of aviation into a global, massmarket service [1; 2].



Figure 4 – £10 adjusted for inflation from 2000 to present days. In 2024 it equals to £21. Source: compiled based on [2].

Overall flight fairs from 1930s to present days have fallen. Compared to 1930, in 2005

the price for the ticket for more than 90% cheaper [5].



Figure 5 – Passenger air transport cost from 1930s to 2005. Source: compiled based on [5].

Inspecting the graph of the World air passenger traffic evolution from 1980s. Exactly from this date the government made a law that opens for airlines ability to charge any price for their services. Before it, the flight costs were regulated.

As we can see, most of the crises and wars didn't affect on flights and the number of

passengers. Some amounts of flights decreased during Gold War, Asian financial crisis and 9/11 tragedy. But because the other world could continue to flight without any restrictions, the numbers were the same. Only during Covid-19, when it shook the world and the countries closed borders, the amounts of flights and passengers rapidly fallen down [6].



Figure 6 – World air passenger traffic evolution. Light blue line – total, blue line – domestic, green line – internation. Source: compiled based on [6].

Next is the graph of change in airline ticket prices. We can see some rapid changes in prices in 1978, 2009 and 2019. [7; 8]

1978. Airline Deregulation Act of 1978 (U.S.). The U.S. deregulated its airline industry, allowing airlines to set their own routes and fares. This led to initial pricing instability as carriers adjusted to competitive pressures, with some dramatic price drops to attract customers. However, fuel costs surged due to the 1979 oil crisis, triggered by reduced oil supplies following the Iranian Revolution, pushing up ticket prices.

The global economic downturn of the early 1980s reduced consumer demand for air travel, forcing some airlines to lower prices, but inflationary pressures and higher operational costs kept volatility high. The 2008-2009 global financial crisis drastically reduced disposable income, leading to reduced demand for travel. Airlines responded by slashing fares to attract passengers, resulting in a sharp drop in average ticket prices. Simultaneously, some airlines introduced ancillary fees (e.g., baggage fees) to recover lost revenue without increasing base fares.

Pandemic Impact: The COVID-19 pandemic devastated the aviation industry, with travel restrictions and reduced demand causing ticket prices to plummet. Airlines faced severe losses and had to implement price cuts to attract hesitant travelers.

As the industry rebounded, high postpandemic demand for leisure and business travel led to fare increases, exacerbated by inflation and rising fuel costs. Additionally, supply chain disruptions and labor shortages increased operating expenses, further driving up prices. [7; 8]



Figure 7 – Change in airline ticket prices. The rapid price changes in 1978, 2009 and 2019. Data from 1964 to 2024. Source: compiled based on [8].

Conclusions. The evolution of airline ticket pricing reflects broader shifts in global economic, technological, and social landscapes. Historically, the early days of aviation positioned air travel as an exclusive luxury, with tickets costing the equivalent of thousands of modern-day pounds. Through significant milestones—such as the introduction of computerized reservation systems in the 1960s, deregulation in the 1970s, and the rise of budget airlines and online booking platforms—prices steadily became more affordable, democratizing air travel for the masses. For example, a Londonto-Paris flight that once cost the equivalent of £1,120 in 1930 could be found for as little as £10 (equivalent to £21 in 2024) by the 2000s.

Analyzing key historical data reveals that airline pricing trends have been influenced by a mix of economic crises, technological advancements, and geopolitical events. The Airline Deregulation Act of 1978 in the United States marked a major turning point, enabling airlines to set their own fares and adopt dynamic pricing strategies. Later, global events such as the 2008 financial crisis and the COVID-19 pandemic triggered rapid price adjustments, demonstrating the industry's sensitivity to external factors.

Price charts highlight periods of dramatic shifts. In 1978, deregulation and the subsequent oil crisis caused pricing turbulence. The 2009 financial crisis led to significant fare reductions, while the pandemic in 2019 forced airlines to lower prices to survive declining demand. However, recovery brought price hikes driven by inflation and operational cost increases, showing how the industry balances affordability with profitability.

The overall trend points to a 90% decrease in real airfares since the 1930s, illustrating how competition, technology, and market forces have made flying accessible. Nonetheless, this affordability is tempered by modern challenges like fluctuating fuel prices,

labor shortages, and environmental concerns. Looking ahead, airlines must navigate these dynamics while addressing the growing demand for sustainable travel options. This comprehensive analysis underscores the transformative power of innovation and market forces in shaping one of the most dynamic industries in the modern world.

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