TRANSPORT **POLICY RESPONSES**

TO THE WAR IN UKRAINE

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How the war in Ukraine impacts aviation – and what to do about it

At a glance

- Investment and market reforms fuelled Ukraine's aviation sector before the war.

- The war has shut down civil aviation in Ukraine and destroyed its airports.

- War-related airspace closures force international flights onto longer routes, resulting in longer travel times, higher fuel costs and added carbon dioxide (CO_2) emissions.

- The energy crisis unleashed by the war drives up ticket prices, potentially reducing demand and threatening aviation's recovery from the pandemic.

- The war's short-term impacts on air travel could trigger long-lasting changes in international aviation.

- Restoring Ukraine's air connectivity after the war hinges on rebuilding destroyed aviation infrastructure.

- Ending aviation's dependency on fossil fuels can make the sector more resilient to future crises.

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The issue

Investment and market reforms fuelled Ukraine's aviation sector before the war

The number of passengers using Ukraine's civil aviation sector doubled from 4 million to more than 7.5 million between 2010 and 2019. For significant parts of the decade, it grew faster than the European Union air-travel market (see chart). Drivers for this growth included visa-free travel for Ukrainians to the EU (since 2017) and the gradual liberalisation of Ukraine's aviation market, culminating in an Open Skies Treaty between Ukraine and the EU in 2021.

The arrival of European low-cost carriers in Ukraine in 2018 added new destinations, increased seat capacity and ended the monopoly of the national carrier, Ukraine International Airlines. These developments made flying within Ukraine and to destinations within the EU more affordable for Ukrainians. Ukraine's aviation sector also received a boost from infrastructure investments at several airports, including Dnipro, Kharkiv, Lviv, Odesa and Zaporizhia. As in most countries, the Covid-19 pandemic largely stopped air travel in and with Ukraine in 2020-21.

The war has shut down civil aviation in Ukraine and destroyed its airports

With the beginning of the war on 24 February 2022, civil aviation activity in Ukraine ceased as the country closed its airspace. Unable to leave by air, Ukrainians seeking shelter from the fighting travelled over land to airports in neighbouring countries. Flight bookings in Hungary, Poland and Romania increased 10-20% in the first month of the war, with a sharp increase in the share of outbound bookings that reached peaks of above 60% as far more one-way tickets than usual were purchased (PDF).

In Ukraine itself, the government reported that 12 of its 19 civilian airports had suffered damage as of July 2022 (PDF), including airports that had recently undergone infrastructure upgrades, such as Dnipro and Odesa. At the Ukraine Recovery Conference in Lugano, Switzerland, in the same month, Ukraine presented estimates of USD 95 billion in infrastructure damages (PDF), including USD 5 billion to airports and air navigation equipment. Ukraine's airlines accrued most of these losses (USD 4.28 billion) due to zero passenger activity. The remainder came from airports (USD 460 million), Ukraine's state air-traffic service (Ukraerorukh, USD 250 million) and other commercial airport activity.

Ukrainian carriers adapted to the closure of their home market swiftly. As fears of impending war grew in late January and early February 2022, operators evacuated aircraft to airports outside Ukraine. Several companies now wet-lease their fleet to airlines in other markets to generate cash.

Civil aviation passenger growth in Ukraine and the European Union, 2010-19
(Passengers carried; indexed with 2010 = 1)
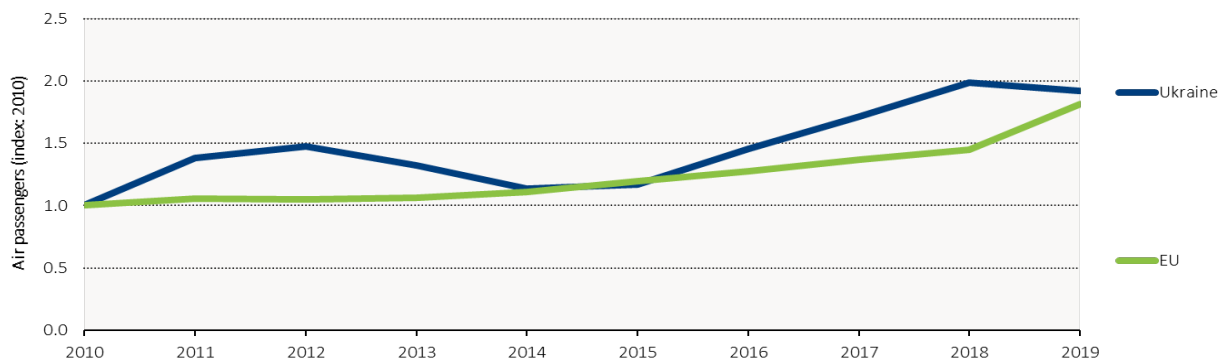
Source: Adapted from World Bank/International Civil Aviation Organization (2022).

The impact

War-related airspace closures force international flights onto longer routes, resulting in longer travel times, higher fuel costs and added CO_2 emissions

Ukraine's is a small aviation market. Its share of worldwide aviation activity is 0.8% of global revenue passenger-kilometres (RPKs) and 3.3% of European aviation (PDF).However, the impacts of the war extend well beyond air travel to and from Ukraine. Airspace closures due to military activity and war-related sanctions have forced airlines to seek alternative routes. Russia's airspace is now inaccessible for carriers from 36 countries, and flights that previously passed over its territory must take detours.

These add significant travel time for passengers on about 80% of routes connecting Asia and Europe. Longer flight times increase aircrafts' fuel burn and thus airline operating costs. They also add to the CO_2 emissions of air travel and worsen the climate impact of flying. Flights between Helsinki and Tokyo offered by Finnair, for example, now take up to 3.5 hours longer and, as a result, emit 40% more CO_2. Flights between Hong Kong and London, the busiest route connecting Asia and Europe, now take 1.5 hours longer and emit 12% more CO_2.

The impacts vary between airlines, depending on the location of hub airports, registration country and route network. Additional CO_2 emissions from aircraft due to airspace closures add up to approximately 10% of the total aircraft emissions between Asia and Europe.

Flight time increases due to airspace sanctions (in hours)
Eastbound Finnair flights from Helsinki, late February to mid-April 2022
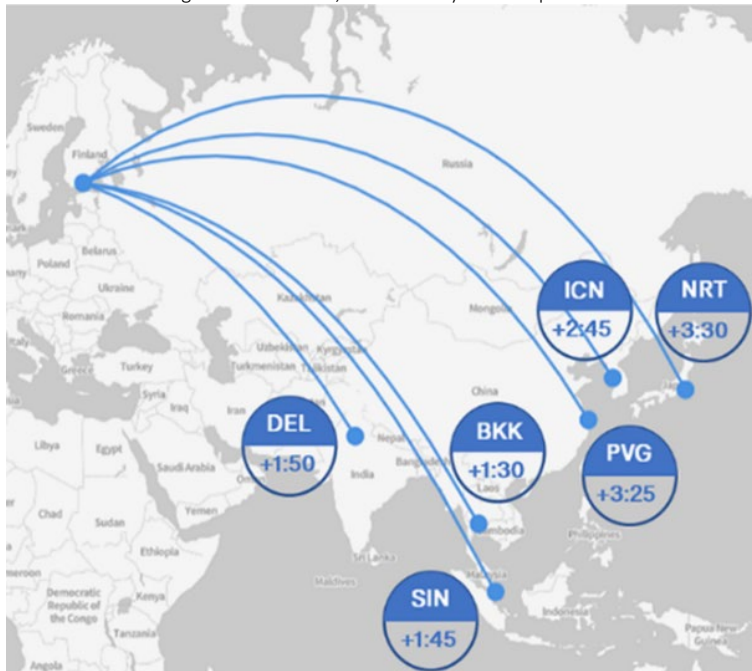
Source: Adapted from OAG Aviation (2022).

The energy crisis unleashed by the war drives up ticket prices, potentially reducing demand and threatening aviation's recovery from the pandemic

The war in Ukraine has added to airlines' fuel bills by requiring detours and triggering a steep rise in energy prices. Fuel costs represented 25% of airlines' average operating costs before the onset of the Covid-19 pandemic (PDF) halted flights worldwide. The energy crisis has driven up aviation fuel prices by 37% in 2022, significantly affecting airlines' balance sheets. In the short term, airlines that have not hedged against fuel price risks face the most severe impacts. Once existing fuel contracts expire, the entire aviation sector will suffer from sustained higher fuel prices. As airlines pass on increasing fuel costs to customers to maintain their often narrow revenue margins, ticket prices have increased across markets. Flights on popular routes from the United Kingdom were 30% more expensive in August 2022 compared to pre-pandemic levels. In the United States, annual airfare inflation exceeded 40% in September 2022.

So far, higher ticket prices have not reduced demand significantly. Bookings slumped only temporarily in the early weeks of the war (PDF), likely driven more by uncertainty than higher prices. Global RPKs have increased continuously since then and reached 74% of pre-pandemic levels in October 2022 (PDF). Forecasts expect a return to pre-pandemic levels by 2024. Passengers eager to travel after the involuntary hiatus during the pandemic are sustaining demand. The relaxation of Covid-19 restrictions in China, in particular, has triggered a surge in bookings; the associated energy demand could make aviation fuel, and thus airline tickets, more expensive.

Also, airlines and airports worldwide face labour shortages that increase operational costs and cause supply bottlenecks, further driving up prices. However, a recession in Europe could reduce oil demand and mitigate war-related increases in fuel prices. Ultimately, all factors driving ticket prices up may slow aviation's rebound from Covid-19.

The war's short-term impacts on aviation could trigger long-lasting changes in international aviation

A long war will increase the impact on international aviation and make its recovery from the Covid-19 pandemic more difficult. Even if the war-related airspace closures are temporary, they could spark long-lasting changes to the industry. Routes and networks quickly reconfigured in response to the hostilities, and sanctions may well outlast them. For example, Finnair, a hub airline based in Finland's capital that specialised in Europe-Asia flights before the war, shifted its offer towards Western destinations. Similarly, the increase in freight flights between Europe and hubs in the Middle East, at the expense of flights between Europe and Asia, could herald a permanent shift in air freight flows (PDF).

Policy considerations

Restoring Ukraine's air connectivity after the war hinges on rebuilding aviation infrastructure

Rebuilding destroyed airports, together with strategic road and rail connections, must be the immediate priority to reconnect Ukraine with the world once the country's airspace reopens for civil aviation. Ukraine's government aims to build or rebuild five international airports after the conflict and restore passenger traffic to the 2021 level of 16.2 million passengers (PDF). As airport infrastructure usually takes a long time to build, it is important that the investment plans are turned into action as swiftly as possible once it is safe to do so.

Once Ukraine's airspace is safe and airports are operational again, partner governments and foreign airlines should work together to help reconnect Ukraine to the international aviation network. The EU has proposed lowering the minimum airport slot usage rate for airlines flying to Ukraine in the first 16 weeks after resuming service. On the part of Ukraine, continuing with the market liberalisation launched before the war will attract carriers to make it a destination again.

For Ukraine's domestic carriers, finding staff could be a challenge. Given the delay until airlines can resume operations in their home market, airline personnel might lose their qualifications after prolonged downtime. Others might change sectors or take up work for foreign carriers. Not least, the high and continuing human cost of the war for Ukraine impacts the availability of qualified staff for airlines.

Ending aviation's dependency on fossil fuels can make the sector more resilient to future crises

Today, airlines rely almost exclusively on fossil fuels to power their aircraft. Overcoming this dependency as quickly as possible will reduce aviation's exposure to international crises that drive up the price of oil, as is currently happening due to the war in Ukraine. At the same time, energy security for aviation via diversification away from fossil fuels offers a win-win with regard to the no-less-urgent need to curb aviation's CO_2 emissions. The technical and economic challenges are high and require extensive effort to master.

The aviation sector needs to optimise operations, invest in fuel-efficient aircraft and deploy sustainable aviation fuels (SAFs) at scale to reach aviation's pledge to reach net zero by 2050. SAFs also add to resilience by decentralising fuel production. Timely, targeted and stable policy support (PDF) is a prerequisite for SAFs to become available at scale. Ukraine's large agriculture sector offers opportunities to produce advanced biofuels from agricultural waste at a significant scale so that it could support the emerging SAF sector as well as benefit from it.

More generally, Ukraine's track record in implementing bold reforms and innovative solutions under an agile, results-oriented political leadership tested by existential challenges could be the ingredients to establish the country at the forefront of ambitious policies in the decarbonisation field.