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The economic impact of ATC strikes in Europe

Key findings from our report for A4E



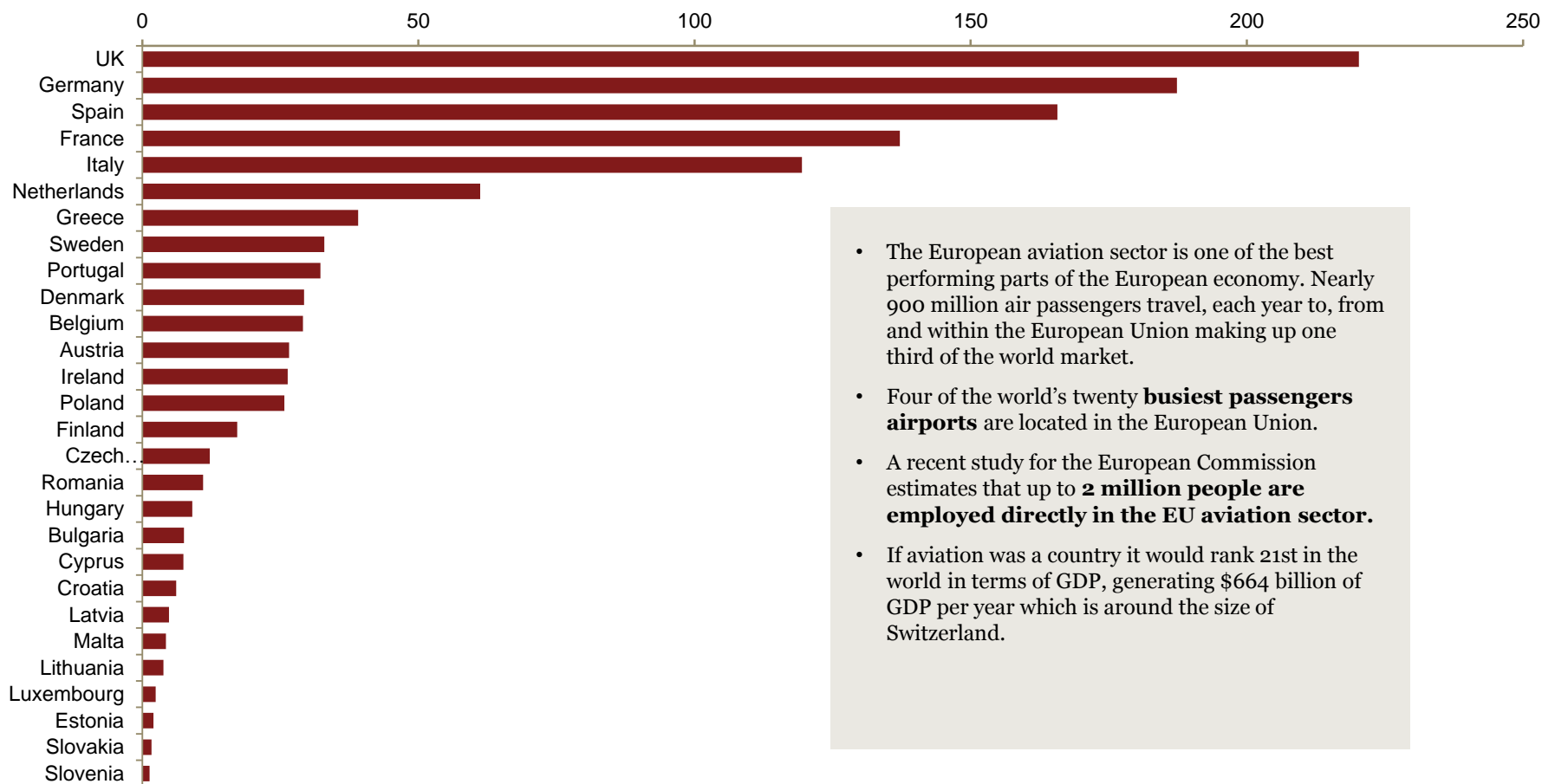
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Four facts you need to know

1

Fact #1: In 2014, more than 879 million air passengers were transported across the European Union which is more than 1,600 air passengers per minute

Air passengers on board by reporting country (2014)



- The European aviation sector is one of the best performing parts of the European economy. Nearly 900 million air passengers travel, each year to, from and within the European Union making up one third of the world market.
- Four of the world's twenty **busiest passengers airports** are located in the European Union.
- A recent study for the European Commission estimates that up to **2 million people are employed directly in the EU aviation sector**.
- If aviation was a country it would rank 21st in the world in terms of GDP, generating \$664 billion of GDP per year which is around the size of Switzerland.

Air passengers on board refers to all passengers on board the aircraft upon landing at the reporting country or at taking off from the reporting airport. Source: Eurostat

Fact #2: In the 2010-2015 period, 167 ATC strike days were recorded in the EU – equal to about one strike every 13 days – which we estimate affected 475,000 flights

167

Number of days affected by ATC strikes in the 2010-15 period*

475,000

Estimated number of flights directly affected by ATC strikes**

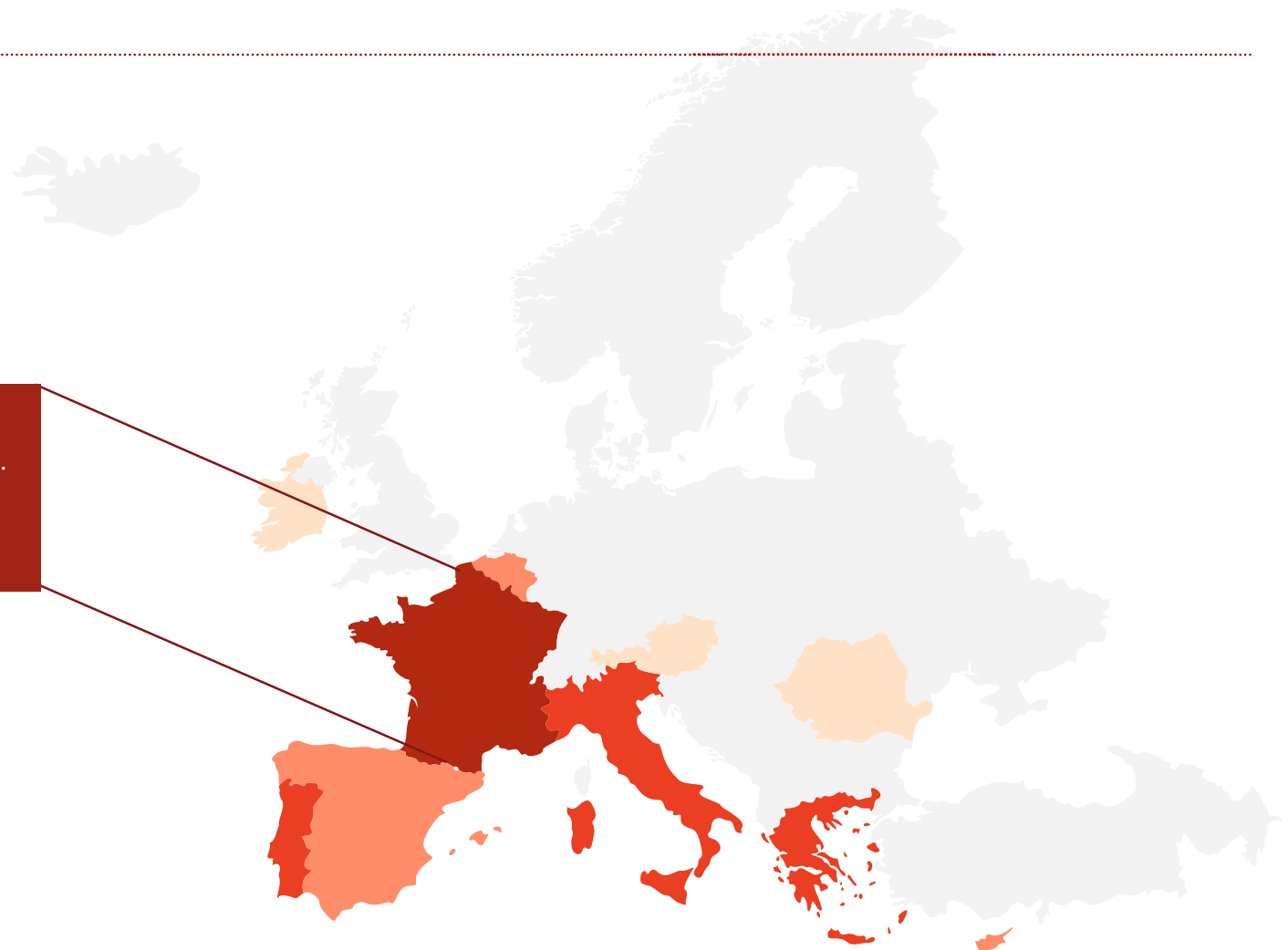
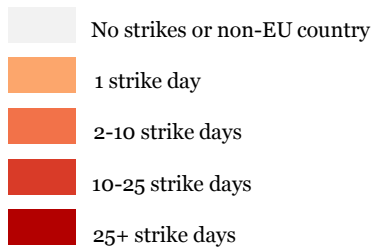
*The figure represents the number of days during which a strike occurred in a particular jurisdiction. E.g. if a one-hour ATC strike took place in Belgium and an additional ATC 10 hour strike took place in Greece on the same day, we would record this as two separate strike days.

** To estimate the number of flights affected by ATC strikes we calculated the number of flights directly affected by strike delays (as defined by Eurocontrol i.e. the delay in regulated flights due to ATC strikes) for a sample of a short (strike lasting one day or less) and long (strike lasting more than one day) strike days. We then extrapolated the delays from these strikes to the entire population of strike days reported by Eurocontrol.

Source: PwC analysis of Eurocontrol and A4E data

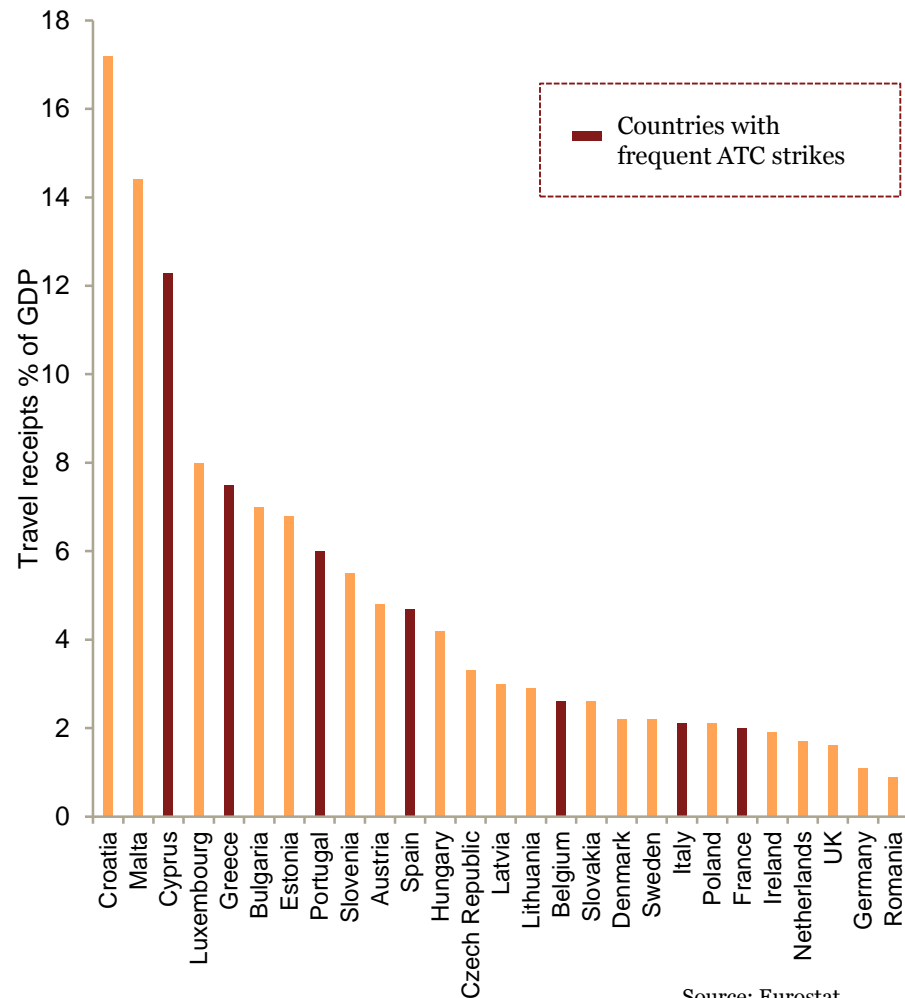
Fact#3: In the 2010-15 period, most ATC strikes occurred in France, followed by Greece, Italy and Portugal

ATC strikes (as per the definition in the previous slide) occurred most often in France. French ATCs were on strike for 95 days from 2010 to 2015 which was 72 days more than Greece, the second-most frequent location.



Source: PwC analysis of Eurocontrol and airline specific data

Fact #4: Most southern EU member countries are reliant on tourism receipts which could be adversely affected by ATC strikes



Source: Eurostat

- Tourism plays a major role in the EU economy. The European Commission¹ estimates it is estimated that the tourism industry generated over 5% of EU GDP in 2010.
- However, the figure on the left shows that there are significant differences between countries.
- In the same study, the European Commission estimates that the EU tourism industries comprise of almost 2 million enterprises, most of them small and medium-sized enterprises, providing work for more than 5% of the total EU workforce.
- In 2013, the accommodation and food services sector alone accounted for almost 10 million jobs (4% of total EU employment)².
- Further analysis by the World Travel and Tourism Council (WTTC) shows that the economic impact of travel and tourism is more than 10% of GDP for most southern European countries, including Cyprus, Greece, Portugal and Spain.
- However, the European tourism industry could be at risk from disruption by ATC strikes. According to Eurostat data, air travel is the preferred mode of transport for outbound trips (i.e. trips out of the country of origin) for EU citizens.

¹ European Commission (2010), *Europe, the world's No 1 tourist destination – a new political framework for tourism in Europe*

² European Parliament (2015), *Tourism and the European Union: Recent trends and policy developments*

Methodology

2

We identified three key economic sectors which are most disrupted by ATC strikes in Europe

Leisure tourism

Airline sector

Business tourism



To estimate the economic impact of ATC strikes in Europe, we used a four step analytical approach



Establish channels of transmission

We identified the channels of transmission through which ATC strikes could affect the wider economy based on a literature review and consultation with industry experts.



Data gathering and analysis

To aid our analysis, we obtained data from Eurocontrol, A4E member airlines and other public data sources. In some cases, our analysis of the numbers involved making assumptions which we have clearly laid out.



Estimate model inputs

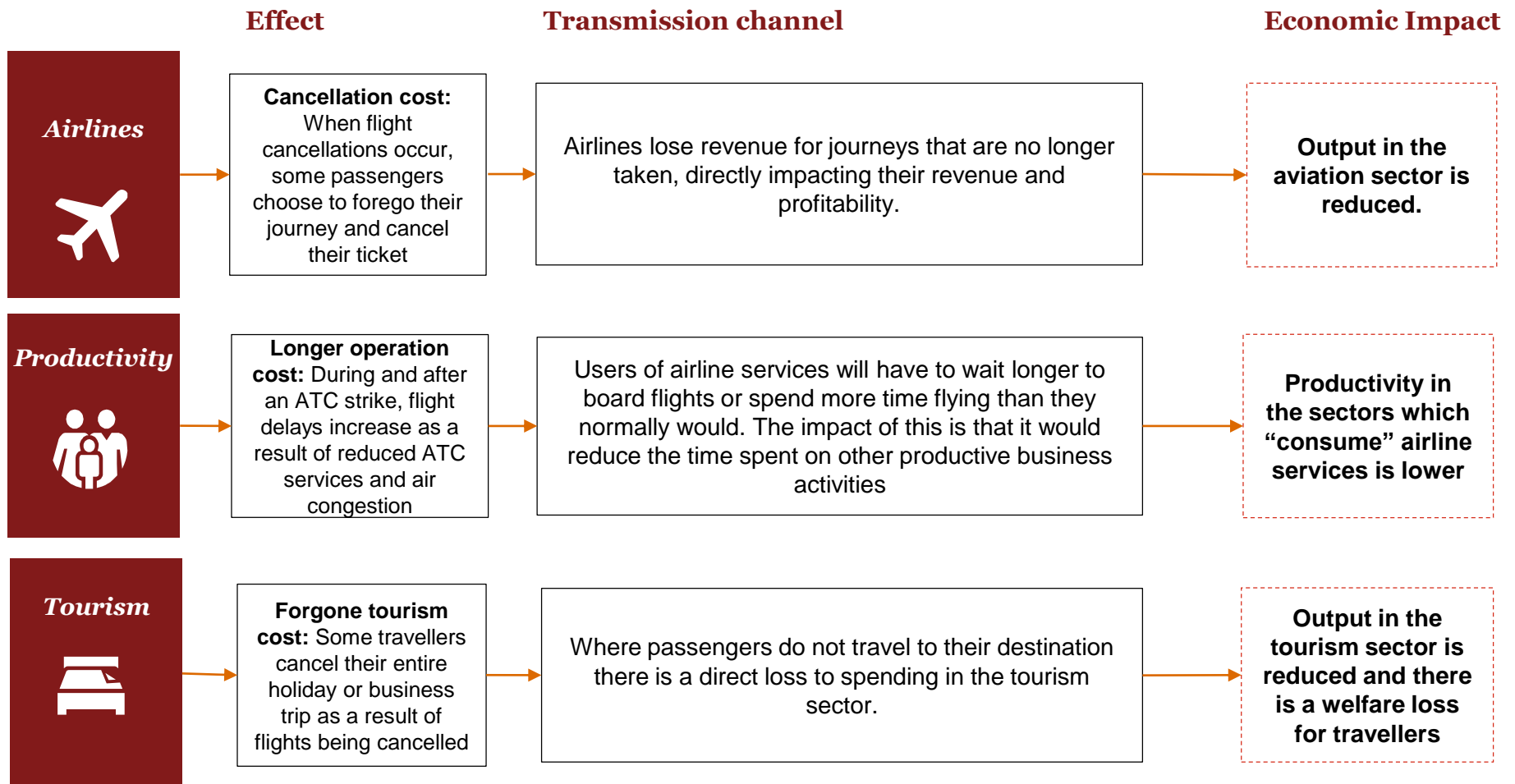
We estimated the direct shocks attributable to the relevant markets for which we had adequate data i.e. business and leisure tourism, and the broader airline transport sector. To do this we had to make assumptions.



Model impacts using a CGE model

We modelled the wider economic impact of ATC strikes by changing the various sector-specific assumptions available in the model that could change as a result of the strikes taking place.

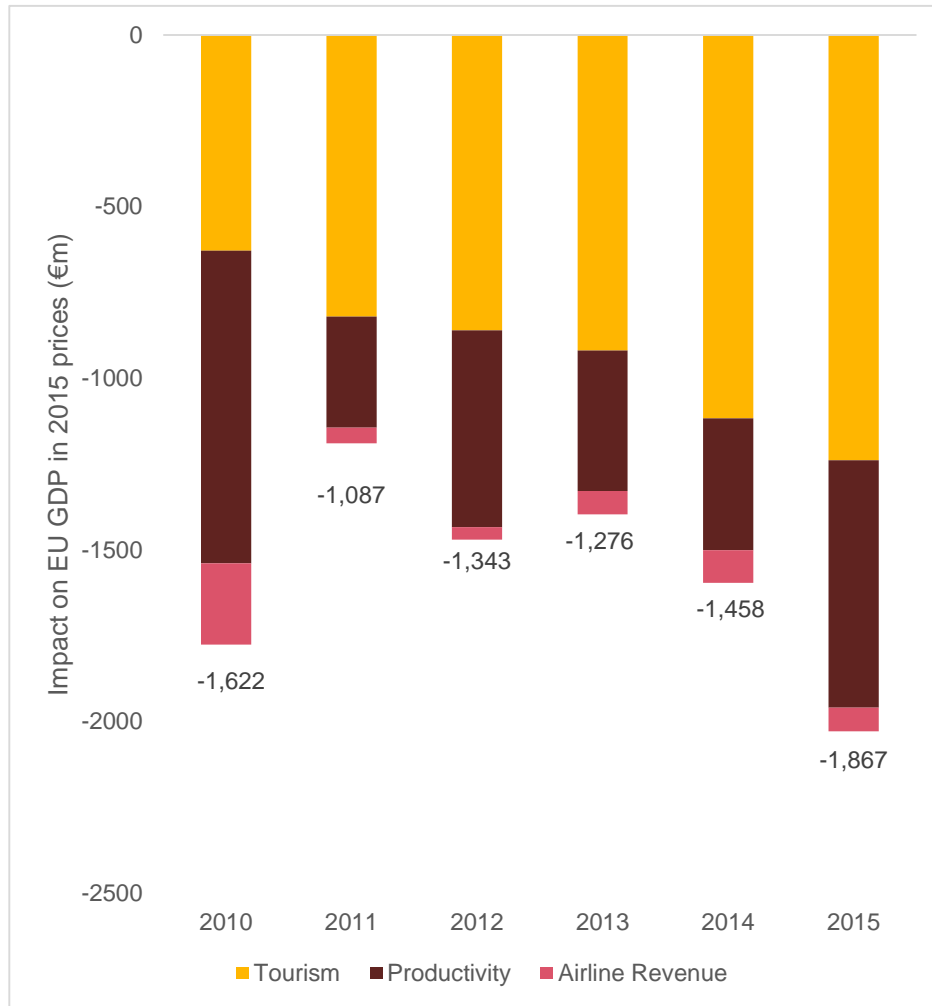
Our model focuses on the revenue loss to airlines of cancelled passengers, the productivity loss from increased journey times and the impact on the tourism industry



Key findings

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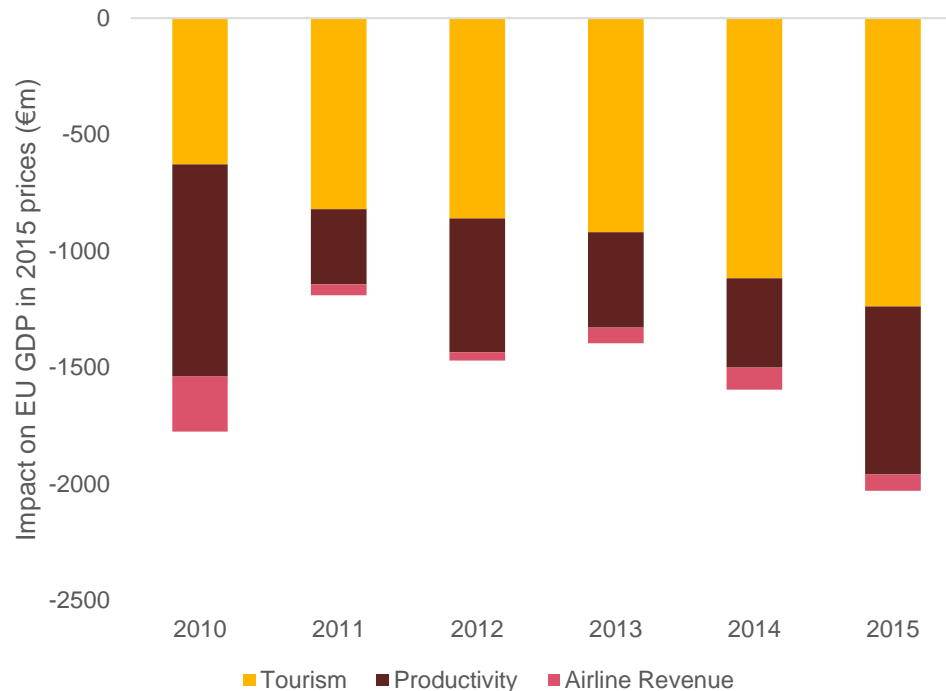
Our modelling results suggest that in the 2010-15 period the overall impact of ATC strikes reduced EU GDP by € 8.6 billion in the six years to 2015



Source: PwC analysis

- The majority of the economic impact of ATC strikes is felt through reduced tourism spending. Our modelling suggests the overall impact through this channel over the past six years amounts to around €5.0 billion or €850 million a year in 2015 prices.
- Specifically, the second largest impact is felt through the reduction in productivity associated with longer flights and waiting times. The cumulative economic impact felt through this channel amounts to € 3 billion or just under €500 million a year in 2015 prices.
- Finally, the third largest impact is felt via lower airline sector revenues. The economic impact of this, however, is limited to around €497 million or around €80 million per year in 2015 prices.
- Our modelling results suggest that the cumulative negative impact on EU employment for the six years to 2015 was 120,000 jobs (measured in Full).
- However, this should not be taken at face value as ATC strikes are unexpected events which suggests that employers would react different compared to a state of the world where ATC strikes were business as usual.

Taking into account delays associated with rescheduling as well as delays to last-filed flight plan, the true economic impact over the six years is € 9.5 billion, associated with 131,000 jobs



Source: PwC analysis

€9.5bn.

Cumulative impact of ATC strikes on EU GDP for the 2010-15 period

131,000 jobs

Cumulative negative impact of ATC strikes on EU employment for the 2010-15 period

Unlike the previous slide, the basis of the calculation of this figure is different. Specifically, our analysis includes rescheduling delays account for time changes in the flight plan that are experienced by passengers which is not fully captured in the Eurocontrol data on the previous slide. The airline-provided data we have used takes into account the changes that are made to flight plans as a result of strike notifications and therefore provides a full picture of the delays caused by air traffic control strikes.

This report has been prepared for and only for Airlines for Europe (“A4E”) in accordance with the terms of our engagement letter dated 23rd May, 2016 and for no other purpose. We do not accept liability or duty of care for any other purpose or to any other person to whom this report is shown or into whose hands it may come save where expressly agreed by our prior consent in writing.

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