In the crossfire: Multinational companies and consumer boycotts☆

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A R T I C L E   I N F O

A B S T R A C T

Multinational firms face challenges as geopolitical tensions are rising when stakeholders may have divergent views on contentious issues. Sharply different attitudes toward the proposed extradition law by the Hong Kong SAR Government in 2019 and related issues were observed among some residents in mainland China and Hong Kong. While firms such as Cathay Pacific Airways expressed support of the government, it was perceived by some of its customers in mainland China that the firm was hostile to them due to the views expressed by some of its staff based in Hong Kong. In this paper, we estimate the impact of such perceived divergent staff political attitudes on consumer demand. Using a triple differences design that controls for changes in market demand and supply conditions, we find that passenger volumes from mainland China were adversely affected for Cathay Pacific, leading to a monthly decrease of approximately 20%, after contentious political views of some of its staff were widely reported in mainland China. However, the negative effects subside within a quarter. Further analysis reveals heterogeneity in consumer responses by regions, with passengers from South East Asia or countries having closer migration or trade ties with mainland China behaving similarly with those from mainland China.

1. Introduction

The increasing prevalence of multinational firms is one notable feature of economic globalization. By 2010, the value of worldwide sales of foreign affiliates of multinational firms has exceeded worldwide exports by close to two to one (UNCTAD, 2011). As geopolitical tensions are rising, multinational firms face special challenges. Stakeholders of firms include owners, managers, employees, customers, the public, the government, etc. For firms that operate in multiple markets, their stakeholders may have divergent views on some contentious issues. The economic incentives of various stakeholders and their impacts on firm performance have received much attention in the literature (Harrison & Wicks, 2013). However, less is known when the stakeholders have divergent beliefs on social or political issues, or whether consumers' heterogeneous perceptions about the event shape their responses. The possibility that employee behavior or value may not be aligned with those of the company represents a new challenge to multinational firms and few studies have examined its impact.

In this paper, we examine the impact of divergent staff and customer values on consumer demand for multinational firms by

focusing on the impacts of the events surrounding the proposed extradition law by the Hong Kong Special Administrative Region (SAR) Government in 2019 on companies, specifically, Cathay Pacific Airways which is an airline based in Hong Kong with a wide domestic and international flight network. The protests and civil unrest in Hong Kong in 2019 were initially sparked by an extradition law proposed by the Hong Kong SAR government but quickly grew in size and more political demands were raised. While it was reported that millions of people participated in the protests in Hong Kong, the protests were received mostly negatively in mainland China. During the events, Cathay Pacific Airways expressed strong support of the government, but some of its staff including flight attendants and pilots were perceived to be sympathetic to the protesters. We use the flight travel data of Cathay Pacific Airways to examine the impact of perceived divergent staff political attitudes that are contrary to the stance of the company on consumer demand.

One unique feature of the data is that we observe for each route and airline, where the flight tickets were sold, which allows us to use a triple differences model to cleanly identify the effects of consumer boycotts against Cathay Pacific when the flight travel market were also affected by the events in Hong Kong. Controlling for the changing conditions in the travel market as a result of the protests is important because the protests also caused significant disruptions in the travel sector, resulting in a substantial number of flight cancellations, among others. The observation on the location of sale of the tickets also allows us to analyze how consumer responses to the political event vary between countries, which is important, because consumer responses in regions outside mainland China are less likely to be confounded by the effects of government directives.

We find evidence of consumer boycotts against Cathay Pacific by travelers from mainland China. Fewer flight passengers from mainland China chose Cathay Pacific after it was widely reported in mainland China in 2019 August that some Cathay Pacific staff were sympathetic to the protesters, with decreases in passenger volume reaching around 35%. Among 19 passenger source regions around the world used in the analysis, only South East Asia displayed similar declines. The boycotts were stronger for business travelers and passengers traveling away from Hong Kong. However, the negative effects were temporary and became insignificant by 2020 January. Longer-term analysis could not be performed due to the large disruptions caused by the Covid-19 pandemic and ensuing travel restrictions.

We contribute to the literature in three main ways. First, we examine boycotts against actions of the employees. Most boycotts against products of a country or company are for the actions taken by the country or company, and these have received most attention in the literature. We examine the impact on consumer demand when the values of its employees do not align with those of its customers, even if the official stance of the company aligns with the customer. The results hold lessons for multinational firms in the current geopolitical environment. Second, we provide timely analysis on one aspect of the economic consequences of the 2019 Hong Kong unrest. We use micro level travel data and a triple differences empirical strategy to cleanly identify consumer boycotts against Cathay Pacific controlling for the effects of the unrest on the travel market. Third, we show that the same political event can elicit heterogeneous consumer responses in different countries and we examine factors such as migration and trade that can explain the differences, which add to the literature on the effects of social and economic activities on public opinions (Spilimbergo, 2009; Barsbai, Rapoport, Steinmayr, & Trebesch, 2017; Eichenauer, Fuchs, & Brückner, 2021).

Boycott is a kind of trade disruptions which can be voluntary (Baron, 2001; Baron, 2003) or state directed. Boycotts include instrumental boycotts organized by activists advancing certain demands (Garrett, 1987; Sen, Gürhan-Canli, & Morwitz, 2001; Egorov & Harstad, 2017), and expressive boycotts by individuals that express emotions and advocate based on personal values (Friedman, 1991). Consumer boycotts refer to the boycott of a certain product or service by consumers, which can be the result of domestic or international political conflicts (Heilmann, 2016; Luo & Zhou, 2020). Researches on political conflicts and associated consumer boycotts have been extensive. Some examples include Chinese consumers boycotting Japanese products during the Japanese aggression in the 1930s (Lauterpacht, 1933), Chinese consumers boycotting Japanese products due to the Sino-Japanese disputes (Heilmann, 2016; Luo & Zhou, 2020), Chinese consumers boycotting French cars during the 2008 Olympic Games (Hong, Hu, Prieger, & Zhu, 2011), US Consumers boycotting French products (especially wine) (Ashenfelter, Ciccarella, & Shatz, 2007; Bentzen & Smith, 2007; Chavis & Leslie, 2009) and Arab countries boycotting US goods (Clerides, Davis, & Michis, 2015) due to the Iraq war.

Political tensions can also affect the trading decisions of firms. Heilmann (2016) studies the effects of several boycotts which includes the boycott of Danish goods in Muslim countries due to the Muhammad Comic Crisis and Turkey's boycott of Israel over the Gaza conflict in 2014. Fuchs and Klann (2013) use the export data of China's 159 trading partners to test the extent to which bilateral tensions have affected trade and quantify the key role of politics in trade. Using firm level data, Lin, Hu, and Fuchs (2019) show that the intensive margins of imports respond more to political tensions between China and its trade partners surrounding the official meeting with the 14th Dalai Lama, and there are heterogeneities by trade modes and firm ownership types. Li, Jian, Tian, and Zhao (2021) examine multiple instances of bilateral conflicts on Chinese imports and highlight the role of firm ownership and goods characteristics. Ahn, Greaney, and Kiyota (2022) use Japanese tourism data to show that the boycotts of Korean consumers due to Japanese restrictions on exports of semiconductors and display panels to South Korea have impact on the Japanese tourism market. Besides boycotts, other types of trade disruptions can have more explicit state involvement, such as tariffs and export bans (Amiti, Redding, & Weinstein, 2018; Head & Mayer, 2019; Fajgelbaum, Goldberg, Kennedy, & Khandelwal, 2020). An extreme form of political conflicts is war which not only disrupts trade in the short term, but can have long term negative effects on trade between the parties involved even several generations later (Ouyang & Yuan, 2021).

To date, many instances of boycott were caused by offending behaviors of countries or firms, and much research has focused on the motivations and the effectiveness of consumer boycotts. Boycotts can damage the image of the targeted firm to a certain extent (Klein, Smith, & John, 2004; Luo, Zhang, & Marquis, 2016) and have a negative impact on their financial performance (Makarem & Jae, 2016). Some studies have found that consumer boycotts have caused a significant decline in company stock prices (Pruitt & Friedman, 1986; Tomlin, 2019). Research has shown that improving corporate social responsibility can reduce the possibility of consumer boycotts (Zeng, Audrain-Pontevia, & Durif, 2021). In terms of the effectiveness of boycotts, Garrett (1987) points out that economic

Table 1
Descriptive statistics.

Year	# Routes	Locations of sale	Obs.	Mean	Min	Max	p10	p50	p90
		Cathay Pacific Airways							
2015	48	Mainland China	576	610	0	5150	7	475	1377
2015	48	Outside mainland China	9492	279	0	23195	0	2	418
2016	48	Mainland China	576	615	0	4142	5	445	1516
2016	48	Outside mainland China	9492	286	0	23659	0	2	440
2017	48	Mainland China	576	642	0	4750	6	416	1570
2017	48	Outside mainland China	9492	292	0	19657	0	2	453
2018	48	Mainland China	576	797	0	6815	7	524	2078
2018	48	Outside mainland China	9492	314	0	17628	0	2	440
2019	48	Mainland China	576	684	0	7045	9	423	1797
2019	48	Outside mainland China	9492	288	0	15672	0	2	445
2020	48	Mainland China	48	678	0	4710	6	412	2149
2020	48	Outside mainland China	791	253	0	12515	0	1	483
		Other Airlines							
2015	48	Mainland China	756	745	0	9224	0	231	1923
2015	48	Outside mainland China	12228	231	0	25964	0	1	131
2016	48	Mainland China	756	597	0	7917	0	193	1666
2016	48	Outside mainland China	12228	243	0	24640	0	2	156
2017	48	Mainland China	756	516	0	6995	0	184	1453
2017	48	Outside mainland China	12228	250	0	27277	0	2	160
2018	48	Mainland China	756	460	0	6433	0	168	1471
2018	48	Outside mainland China	12228	245	0	29436	0	2	164
2019	48	Mainland China	756	386	0	4447	0	136	1155
2019	48	Outside mainland China	12228	240	0	28418	0	1	147
2020	48	Mainland China	63	410	0	2923	0	183	1342
2020	48	Outside mainland China	1019	224	0	25000	0	1	174

Notes: Observations are at route (departure and arriving airports) by airline by location of sale by month levels. For the upper panel, only direct flights with Cathay Pacific the marketing carrier are included. The sample only includes routes that are continuously served by Cathay Pacific and at least one other airline from January 2015 to January 2020 with a year-on-year change of less than 450% in each month. The lower panel shows the passenger statistics of other airlines which have direct flights on the routes in the upper panel.

pressure, image pressure and policy commitment are the determinants of whether a boycott is effective. Consumer boycotts are considered as an agency problem whose effectiveness depends on the majority of participants, but every individual's motivation to participate and influence is very low (Friedman, 2002; John & Klein, 2003). These theoretical studies suggest that consumer boycotts may only be effective in the short term. Heilmann (2016) and Luo and Zhou (2020) empirically illustrate the short-run nature of consumer boycotts.

The paper is organized as follows: Section 2 provides background information about the Hong Kong protests in 2019 and describes the data. Section 3 describes the empirical strategy in identifying the effects of consumer boycotts. Section 4 reports the empirical results. Section 5 concludes.

2. Background and data

2.1. Background

The Fugitive Offenders and Mutual Legal Assistance in Criminal Matters Legislation (Amendment) Bill 2019, typically referred to as the extradition law, was proposed by the Hong Kong SAR Government in 2019 February. Protests occurred in Hong Kong in the same year since the introduction of the bill, including large scale protests on June 9 and June 16 and the storming of the Legislative Council in July. The demands of protesters evolved to include issues beyond the extradition law, such as the election procedure of the Legislative Council and the Mainland-Hong Kong relations in general. Instances of anti China sentiments were widely reported in mainland China, including vandalism against properties perceived to be linked with mainland China and assault on travelers from the mainland at the Hong Kong International Airport. In 2019 August, the Civil Aviation Administration of China issued a warning to Cathay Pacific Airways which is a Hong Kong based airline with significant operations in the mainland, after some of its staff expressed support of the protests.[1] Although the airline stated its strong support of the Hong Kong government,[2] boycotts against the airline were called for by some in the mainland.

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[1] "Regulator issues warning over Cathay Pacific", China Daily, August 9, 2019, http://www.chinadaily.com.cn/a/201908/09/WS5d4d5afaa310cf3e35564e5d.html.

[2] "Cathay Pacific strongly supports the HKSAR Government; calls for the restoration of law and order in Hong Kong", press release, August 13, 2019.
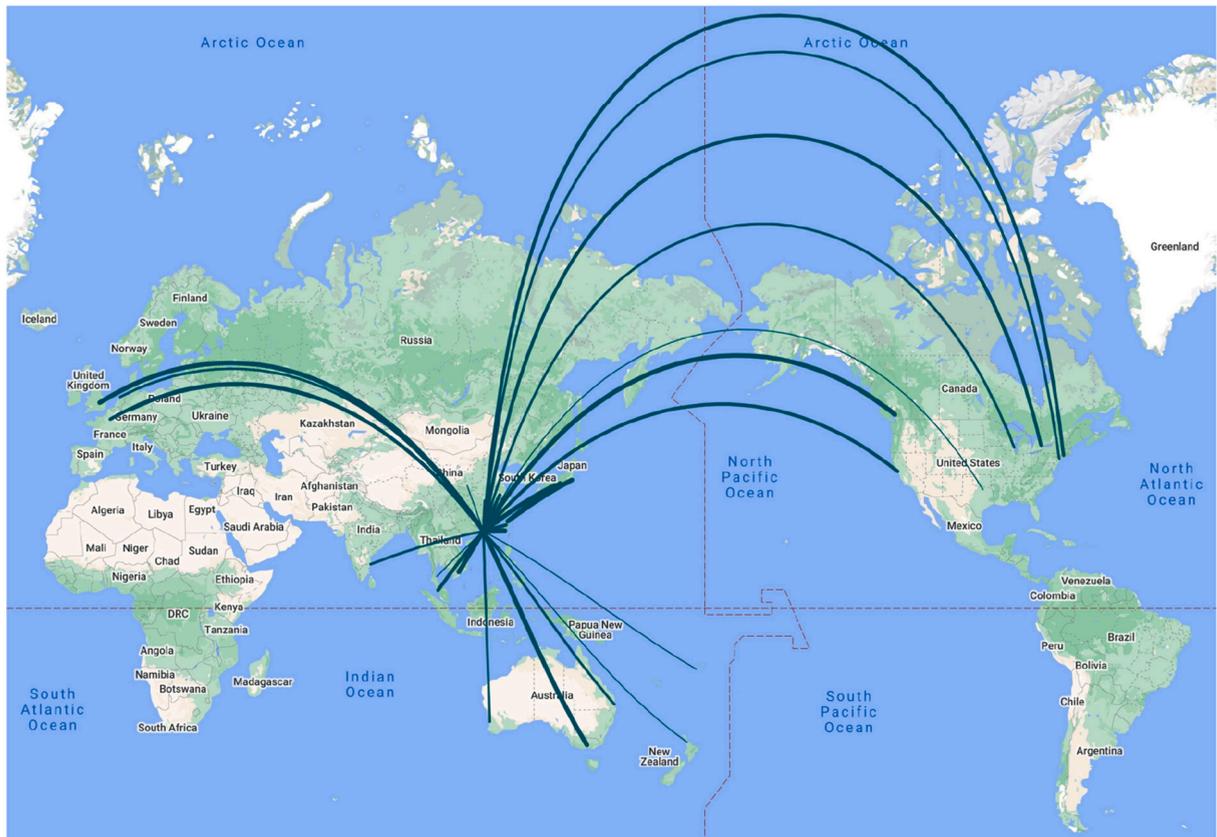
Fig. 1. Routes in the sample. *Notes:* The figure shows the 48 routes in the analysis sample, which are continuously operated by Cathay Pacific and at least one other airline from January 2015 to January 2020, and the year-on-year change rate in passenger volumes of the routes for each month, each airline and each passenger source region is less than 450%. The passenger volumes are sorted into 4 quartiles indicated by the thickness of the lines, with the thickest line representing the 4th quartile.
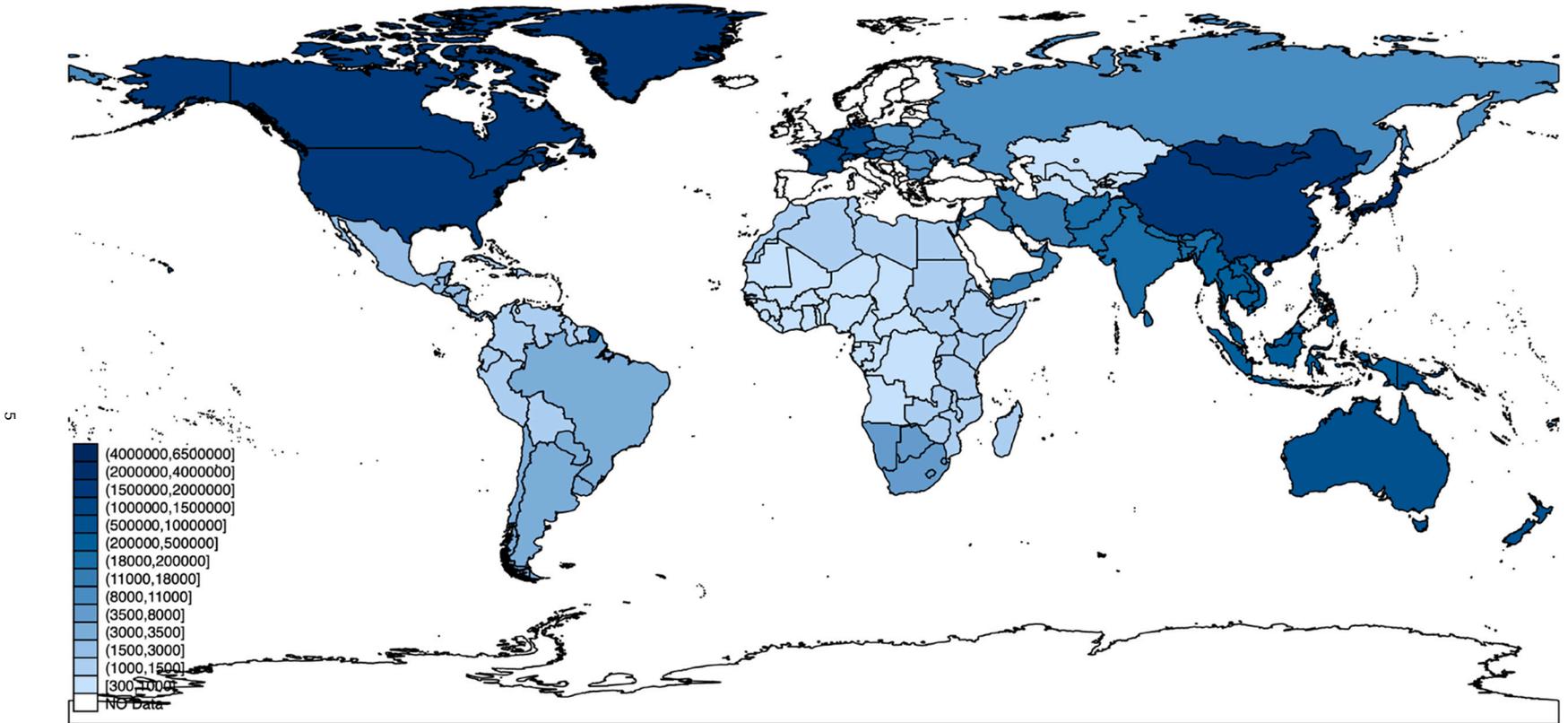
2.2. Data

Air travel volumes between cities are obtained from OAG.[3] The dataset provides monthly air passenger volumes between airports from January 2015 to January 2020, including the total volumes as well as by cabin classes such as first class, business, premium economy, full price economy and discount economy. The passenger volumes on a route are broken down by the airlines and the countries or regions where the tickets are sold. The location of sale may not be the origin or the destination of a route. For example, travelers from Los Angeles to Hong Kong may book the tickets in mainland China. We assume that the location of sale is the home location of the passengers. We observe the identity of the operating airline and the identity of the marketing airline, which can differ if there are code sharing agreements where the flight can be sold under a different airline's code. We identify an airline based on the identity of the marketing airline as it is the brand that is more salient to the passengers when they purchase flight tickets. Similar data was used by Wu, Leung, and Leung (2020) to measure the extent of outbound travels from Wuhan during the Covid-19 outbreak in 2020.

New flights are introduced from time to time which may attract more customers from certain markets. The changes in flight schedules from other airlines may also affect the travel volumes on Cathay Pacific due to connection flights. To eliminate these time varying confounding factors, we firstly restrict the routes in the analysis sample to those that are continuously served by direct flights of Cathay Pacific, i.e, for an origin and destination pair, the number of passengers on direct flights of Cathay Pacific is nonzero for all months from 2015 January to 2020 January. For these routes, we also obtain the flight passenger volume data of direct flights of other airlines. In the empirical analysis, the sample is restricted to routes which Cathay Pacific has direct flights and are continuously served by Cathay Pacific and at least one other airline from January 2015 to January 2020. We then drop routes if the year-on-year change of passenger volumes is greater than 450% in any month for an airline operating the route and a passenger source region.[4] The threshold

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[3] https://www.oag.com.
[4] In the raw data, less than 1% of the observations, each being a combination of the route, airline, passenger source region and time, exceed the threshold. If an observation is dropped, we subsequently also drop other observations with the same route.

■	(4000000,6500000]
■	(2000000,4000000]
■	(1500000,2000000]
■	(1000000,1500000]
■	(500000,1000000]
■	(200000,500000]
■	(18000,200000]
■	(11000,18000]
■	(8000,11000]
■	(3500,8000]
■	(3000,3500]
■	(1500,3000]
■	(1000,1500]
■	(300,1000]
□	NO Data

Fig. 2. Total passenger volumes of Cathay Pacific by locations of sale. *Notes:* The depth of the color represents the relative size of the passenger volumes from January 2015 to January 2020 of Cathay Pacific where the tickets are sold in the respective region, and the darker the color, the greater the passenger volumes. The regions of sale are the following: Central/Western Africa, Eastern Africa, North Africa, Southern Africa, Central Asia, North East Asia excluding mainland China and Hong Kong, South Asia, South East Asia, China Mainland, Hong Kong, Eastern/Central Europe, Western Europe, Caribbean, Central America, Lower South America, Upper South America, Middle East, North America, and Southwest Pacific.
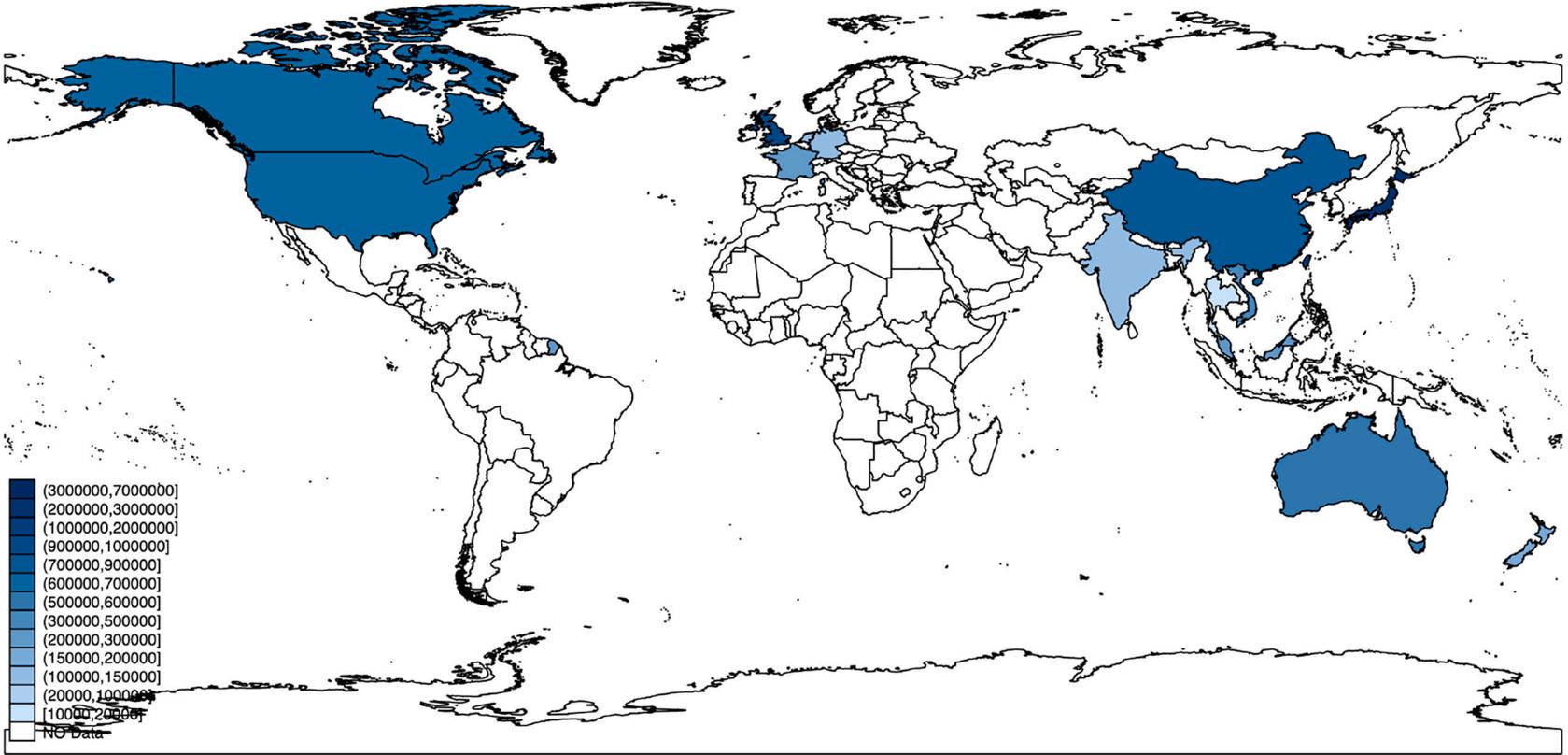
(3000000,7000000]
(2000000,3000000]
(1000000,2000000]
(900000,1000000]
(700000,900000]
(600000,700000]
(500000,600000]
(300000,500000]
(200000,300000]
(150000,200000]
(100000,150000]
(20000,100000]
(10000,20000]
NO Data

Fig. 3. Total passenger volumes of Cathay Pacific by regions of departure. *Notes:* The depth of the color represents the relative size of the passenger volumes from January 2015 to January 2020 of Cathay Pacific for the origin region, and the darker the color, the greater the passenger volumes.
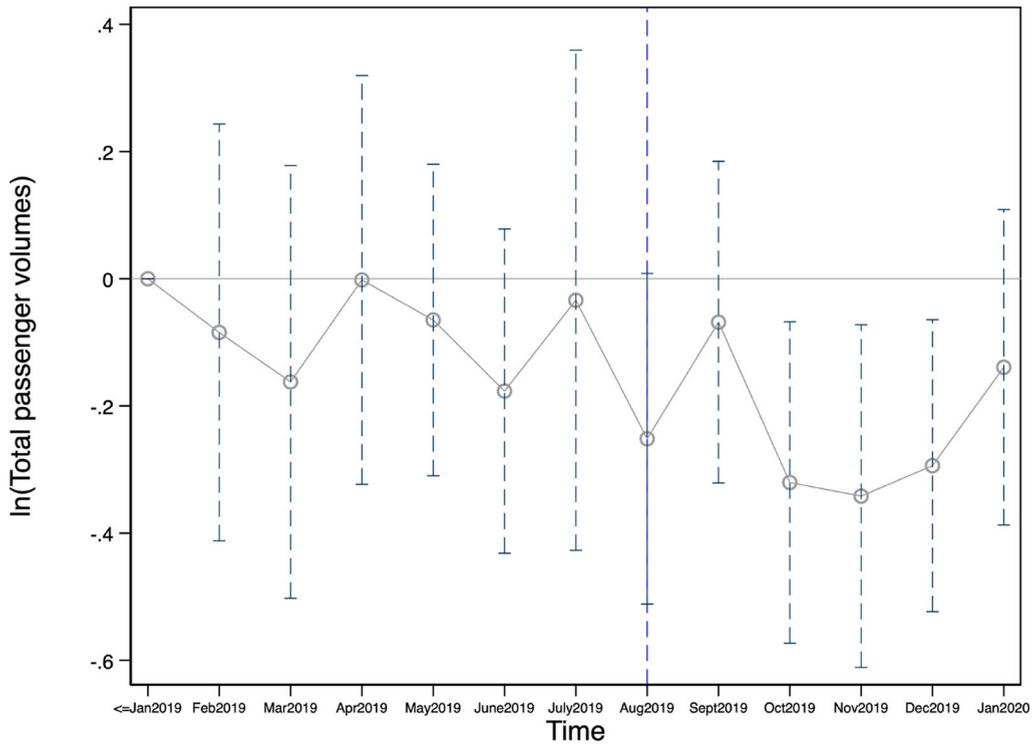
Fig. 4. Dynamic effects on the total passenger volumes. *Notes:* January 2019 and months from January 2015 to December 2018 are the baseline group. Dotted vertical lines indicate 95% confidence bands.

Table 2
Baseline results.

	(1)	(2)	(3)	(4)
DDD	1.238***	−0.059	−0.022	−0.224***
	[2.449***]	[−0.057]	[−0.022]	[−0.201***]
	(0.321)	(0.078)	(0.105)	(0.075)
$Post_t \times CX_i$	−0.065	−0.149***	0.018	−0.081**
	(0.054)	(0.024)	(0.040)	(0.039)
$Post_t \times China\ Mainland_i$	2.207***	−0.019	−0.100	0.154***
	(0.325)	(0.063)	(0.084)	(0.051)
N	117181	94129	117181	94129
$Within-R^2$	0.007	0.002	0.931	0.042
FE_i	No	No	Yes	Yes
FE_t	No	No	Yes	Yes
Cluster	Yes	Yes	Yes	Yes
Linear trend	No	Yes	No	Yes

Standard errors in parentheses are clustered at the level of the route (an origin-airport and destination-airport pair). In square brackets are the relative changes in the outcome variable: relative change $= \exp(\text{coefficient}) - 1$. $*p < 0.10, **p < 0.05, ***p < 0.01$.

on passenger volume changes is intended to rule out factors such as significant schedule changes. We show in robustness checks that our results are not sensitive to restricting to the smaller sample. We also exclude Hong Kong Express Airways from the sample and define Cathay Dragon Airlines as Cathay Pacific, since Hong Kong Express Airways was acquired by Cathay Pacific in 2019 July and
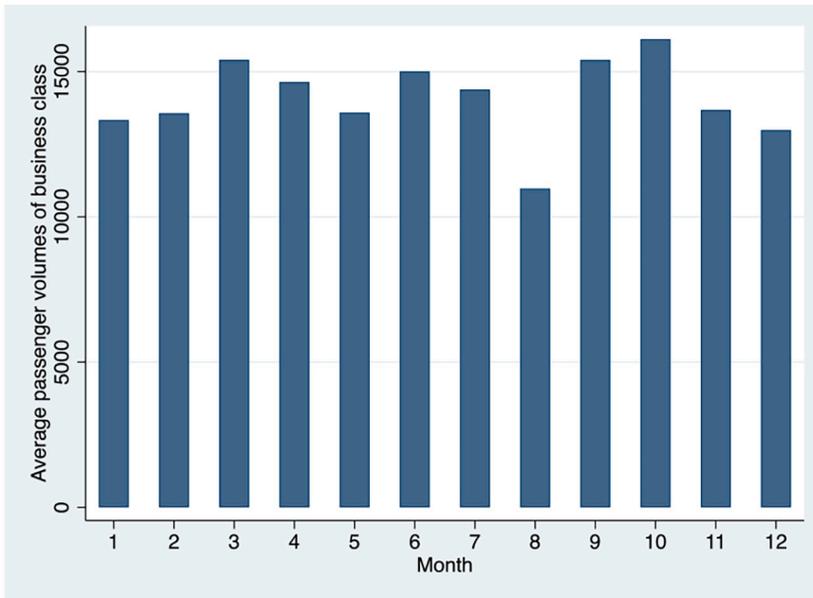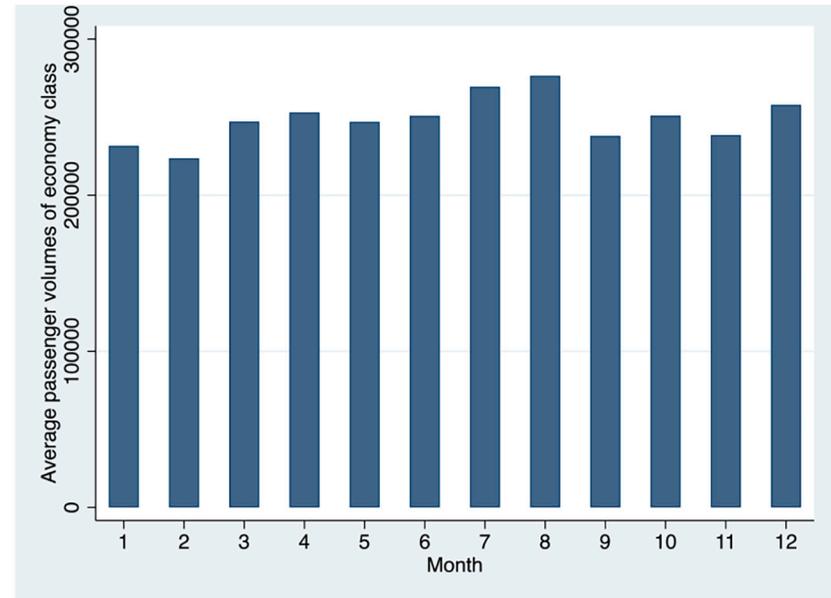
(a) Business class   (b) Economy class

Fig. 5. Average passenger volumes by month and cabin class of Cathay pacific. *Notes:* The passenger volumes for each month are taken as the average of Cathay Pacific's passenger volumes from January 2015 to January 2020. In our analysis, "business class" includes first class and business class travelers, and "economy class" includes premium economy, full price economy and discount economy travelers.

Table 3
Baseline results by cabin class.

	Business class			Economy class		
	(1)	(2)	(3)	(4)	(5)	(6)
DDD	0.077	−0.195**	−0.304***	1.278***	−0.035	−0.210***
	[0.080]	[−0.177**]	[−0.262***]	[2.589***]	[−0.034]	[−0.189***]
	(0.250)	(0.095)	(0.100)	(0.323)	(0.107)	(0.068)
$Post_t \times CX_i$	−0.203***	−0.146***	−0.024	−0.017	0.054	−0.098**
	(0.032)	(0.031)	(0.034)	(0.053)	(0.040)	(0.040)
$Post_t \times China\ Mainland_i$	1.379***	0.019	0.162**	2.168***	−0.116	0.135**
	(0.211)	(0.071)	(0.070)	(0.330)	(0.085)	(0.051)
N	117181	117181	94129	117181	117181	94129
$Within-R^2$	0.005	0.897	0.034	0.007	0.928	0.041
FE_i	No	Yes	Yes	No	Yes	Yes
FE_t	No	Yes	Yes	No	Yes	Yes
Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Linear trend	No	No	Yes	No	No	Yes

Standard errors in parentheses are clustered at the level of the route (an origin-airport and destination-airport pair). In square brackets are the relative changes in the outcome variable: relative change $= \exp(\text{coefficient}) - 1$. $*p < 0.10, **p < 0.05, ***p < 0.01$.

Cathay Dragon Airways is a subsidiary of Cathay Pacific Airways. We group the locations of sale into 19 regions,[5] among which North East Asia is divided into mainland China, Hong Kong and other regions in North East Asia.

Some route level time-varying characteristics may affect the passenger volumes, so we add three types of control variables to the regressions. The first type of variables measures route level travel demand, including the total number of passengers of the origin airport, destination airport, and the origin and destination pair. The second type of variables includes characteristics of the departure country, which include the real GDP, total population of the country and the exchange rate of its currency relative to the US dollar. The country data are obtained from Penn Word Table. The third type of variables measures weather characteristics of the departure city, including monthly average temperature and average dew point temperature, and the data are obtained from National Oceanic and Atmospheric Administration.

Airlines have cargo and mail transportation business in addition to passenger transportation. Unlike passenger transportation, the cargo and mail transportation business does not directly face the end consumers. Cargo and mail transportation therefore may be less likely to be boycotted. We use the year-on-year growth rates of cargo and mail volumes of Cathay Pacific Airways and three other airlines with available data[6] and estimate a difference-in-difference model as a robustness check. The data on cargo and mail volumes are obtained from China Stock Market & Accounting Research Database (CSMAR). The supplementary analysis also uses data on historical prices of stocks traded in Hong Kong Exchange from CSMAR.

Table 1 shows the descriptive statistics of the passenger volumes by airlines, locations of sale and years. Observations are at route by airline by location of sale by month levels, and they constitute a balanced panel from January 2015 to January 2020. We observe that before 2019, the average passenger volumes of Cathay Pacific originated from mainland China show an upward trend, but they post a noticeable decline in 2019. The relative decrease in the passenger volumes from mainland China in 2019 is greater than those from other regions. Fig. 1 shows the routes in the analysis sample. The thickness of the line represents the total passenger volumes, which are classified into 4 groups according to the quartiles. Most of the routes of Cathay Pacific start or end in Hong Kong. Because the civil unrest in 2019 likely affected travel demand on these routes for travelers from mainland China, it is necessary to separate these general changes in travel demand from a possible boycott of Cathay Pacific by travelers from mainland China after 2019 August. Section 3 provides details on the empirical strategy that we use.

The location of sale of a ticket of a route can be in a region other than that of the origin or the destination. Figs. 2 and 3 separately show the spatial distributions of passengers of Cathay Pacific according to the total passenger volumes by location of sale regions and departure countries. It can be seen that mainland China, other regions in North East Asia, South East Asia, and North America are significant origins of customers for Cathay Pacific.

3. Empirical model

We employ a triple differences (difference-in-difference-in-differences, DDD) strategy to isolate the effect of divergent staff and

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[5] The regions of sale are the following: Central/Western Africa, Eastern Africa, North Africa, Southern Africa, Central Asia, North East Asia excluding mainland China and Hong Kong, South Asia, South East Asia, China Mainland, Hong Kong, Eastern/Central Europe, Western Europe, Caribbean, Central America, Lower South America, Upper South America, Middle East, North America, and Southwest Pacific.

[6] The other airlines are the following: China Southern Airlines, Hainan Airlines and Air China.
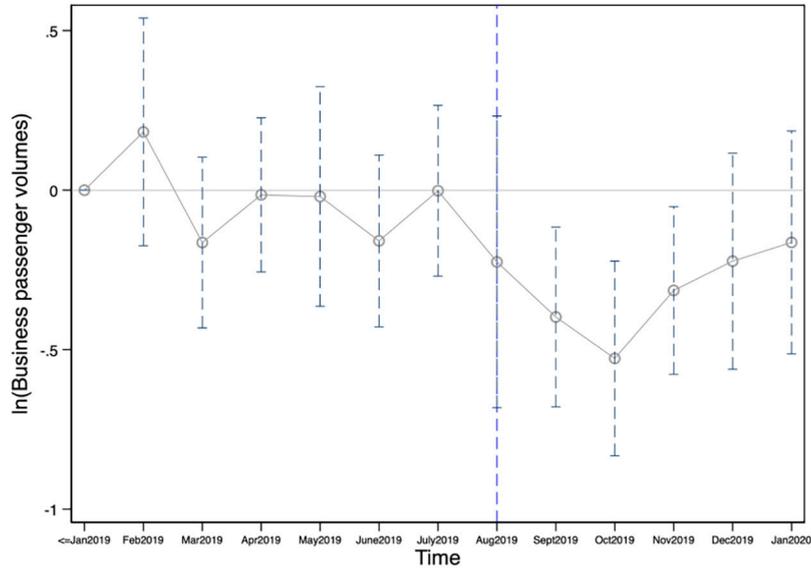
(a) Business class
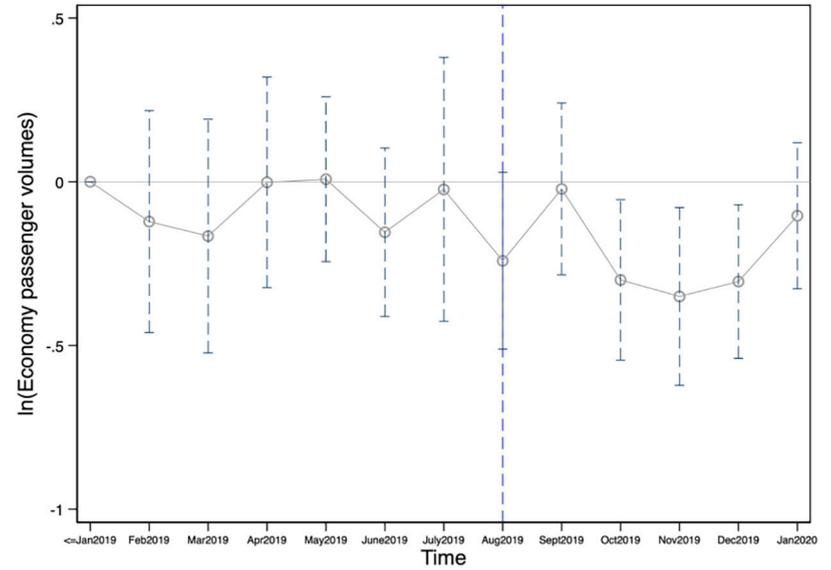
(b) Economy class

Fig. 6. Dynamic effects by cabin class. *Notes:* January 2019 and months from January 2015 to December 2018 are the baseline group. Dotted vertical lines indicate 95% confidence bands.

Table 4
Estimation results with different controls.

|	(1)	(2)	(3)	(4)
DDD	−0.223***	−0.223***	−0.223***	−0.223***
	[−0.200***]	[−0.200***]	[−0.200***]	[−0.200***]
	(0.075)	(0.074)	(0.075)	(0.074)
$\text{Post}_t \times \text{CX}_i$	−0.079**	−0.080**	−0.081**	−0.078**
	(0.038)	(0.039)	(0.039)	(0.038)
$\text{Post}_t \times \text{China Mainland}_i$	0.154***	0.153***	0.153***	0.153***
	(0.051)	(0.051)	(0.051)	(0.051)
Total volumes of dest. airport (log)	−0.031			−0.029
	(0.061)			(0.064)
Total volumes of orig. airport (log)	−0.077			−0.082
	(0.063)			(0.067)
Total volumes of the route (log)	0.080**			0.085**
	(0.038)			(0.040)
Real GDP (log)		−0.072		−0.057
		(0.316)		(0.309)
Population (log)		−0.466		−0.768
		(1.464)		(1.427)
Exchange rate (log)		0.012		0.023
		(0.436)		(0.434)
Average temperature			−0.003	−0.003
			(0.002)	(0.003)
Average dew point temperature			0.002	0.003
			(0.002)	(0.002)
N	94129	94129	94129	94129
$Within - R^2$	0.0417	0.0415	0.0415	0.0417
FE_i	Yes	Yes	Yes	Yes
FE_t	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes
Linear trend	Yes	Yes	Yes	Yes

Notes: Real GDP, population and exchange rate are the annual values of the origin country. Average temperature and average dew point temperature are the monthly average values of the origin airport. Standard errors in parentheses are clustered at the level of the route (an origin-airport and destination-airport pair). In square brackets are the relative changes in the outcome variable: relative change $= \exp(\text{coefficient}) - 1$. $*p < 0.10, **p < 0.05, ***p < 0.01$.

consumer political views on firm demand from the confounding effects of the unrest in Hong Kong on travel demand for routes associated with Hong Kong. Let y_{it} denote the year on year changes in passenger volumes in logarithms. The passenger numbers can be the total passenger volume or the passenger volume of different cabin classes. The DDD model is:

$$y_{it} = \text{CX}_i \times \text{China Mainland}_i \times \text{Post}_t \alpha + \text{CX}_i \times \text{Post}_t \beta_1 + \text{China Mainland}_i \times \text{Post}_t \beta_2 + x_{it}\beta_3 + \eta_i + \mu_t + \epsilon_{it}, \tag{1}$$

where i denotes a combination between the route (an origin-airport and destination-airport pair, as shown in Fig. 1), the airline, and the region of sale for the tickets. t indicates the year and month. The dummy variable CX_i is one if the airline is Cathay Pacific and zero otherwise. China Mainland_i is one if the region of sale of the tickets is mainland China, and zero otherwise. Post_t is a dummy variable which is one if it is on or after 2019 August, and zero otherwise. x_{it} is a vector of control variables. η_i and μ_t are individual and time fixed effects. ϵ_{it} is the error term that captures the idiosyncratic shocks. Notice that the interaction between CX_i and China Mainland_i is absorbed by the fixed effects. Standard errors are clustered at the level of the origin airport and the destination airport pair to allow for within-route correlations among passenger volumes from different regions and on different airlines. The data is a balanced panel with t from January 2015 to January 2020.

The identifying assumption is that had the reported disagreement of Cathay Pacific staff with the prevailing views in mainland China not happened, the changes in the number of passengers on Cathay Pacific who booked their tickets in mainland China post 2019 August relative to those on other airlines which fly the same routes would be the same with the changes in the number of passengers on Cathay Pacific who booked their tickets outside mainland China relative to other airlines. Note that this allows the possibility that had the events specifically related to Cathay Pacific in 2019 August not happened, the demand for Cathay Pacific flights would still be affected relative to other airlines due to the civil unrest in Hong Kong and the central role of Hong Kong International Airport in the route system of Cathay Pacific. To test this assumption, we use an event study specification to examine if there are systematic differences in the number of passengers who booked their tickets in mainland China and outside mainland China between airlines prior to 2019 August:
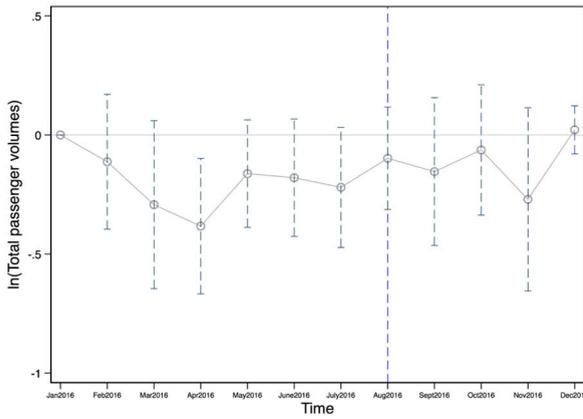
(a) 2016
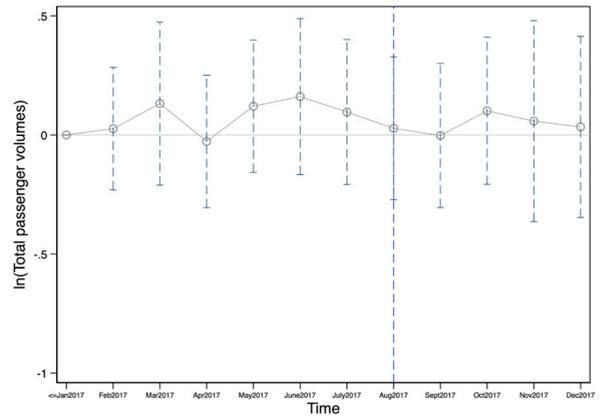
(b) 2017
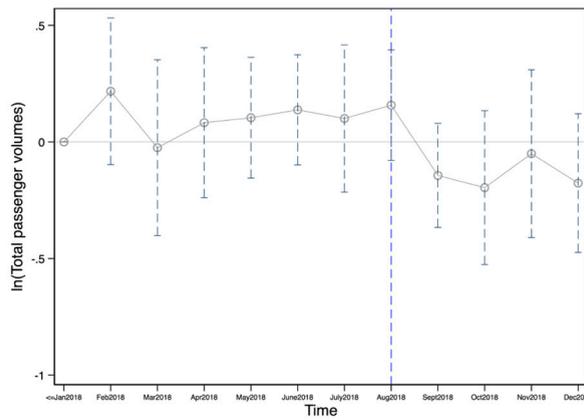
(c) 2018

Fig. 7. Placebo test. *Notes:* Each figure corresponds to a separate regression with the month of the year in the triple interaction dummies indicated in the horizontal axis. After first differencing, the sample includes observations from 2016 January to 2018 December and we drop the observations in 2019 and 2020.

$$
y_{it} = \text{CX}_i \times \text{China Mainland}_i \times \sum_{q=2019 \text{ Feb}}^{2020 \text{ Jan}} I\left(t = q\right)\alpha_q + \text{CX}_i \times \sum_{q=2019 \text{ Feb}}^{2020 \text{ Jan}} I\left(t = q\right)\beta_{1q} + \text{China Mainland}_i \times \sum_{q=2019 \text{ Feb}}^{2020 \text{ Jan}} I\Bigg(t
$$
$$
= q\Bigg)\beta_{2q} + \eta_i + \mu_t + \epsilon_{it}, \tag{2}
$$

where $I()$ is an indicator function. Under the parallel trend assumption, we expect α_t to be insignificant for t prior to 2019 August. The event study model also uncovers if there are effect heterogeneities over time after 2019 August.

4. Results

4.1. Baseline model results

We first conduct an event study by estimating Eq. (2). Fig. 4 plots the estimated coefficients of the triple interaction terms. The coefficients measure the gap between Cathay Pacific and other airlines in the differences between changes in passenger volumes from mainland China and from other regions. The identifying assumption for the estimated coefficient of the triple interaction term measuring the boycott effects requires that there are no systematic differences between Cathay Pacific and other airlines in the differences between changes in passenger volumes from mainland China and from other regions, in the absence of the controversies
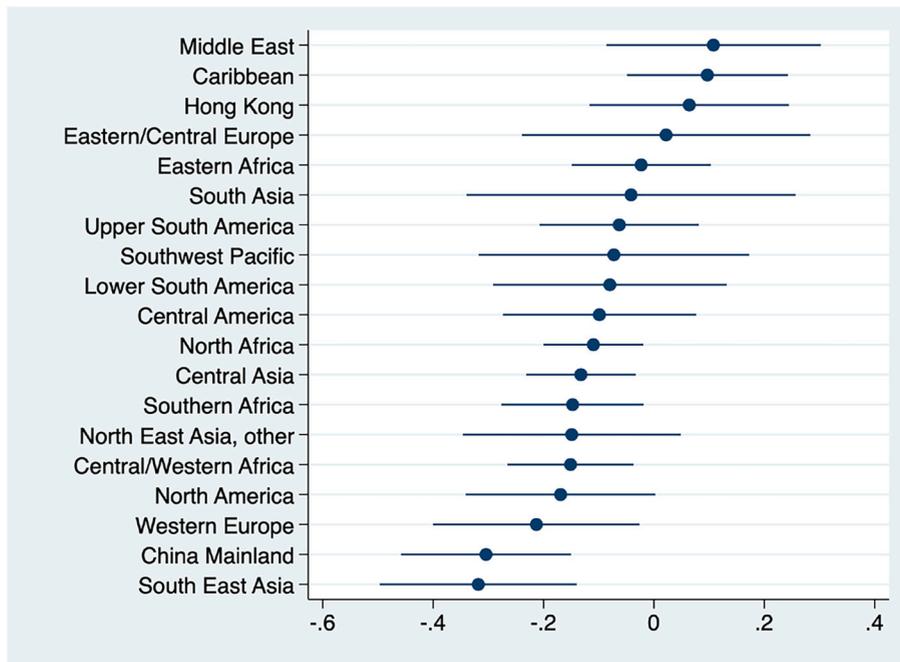
Fig. 8. Heterogeneous consumer responses by passenger source regions. *Notes:* This figure presents the estimates of the model where the dummy for mainland China is replaced by the dummies of each locations of sale in the baseline model. Point estimates and their 95% confidence intervals are reported.

regarding Cathay Pacific staff behavior in 2019 August. From Fig. 4, we observe that the differences are indeed small and statistically not significant before 2019 August which are consistent with the identifying assumption. There is a large decrease in passenger volumes from mainland China in 2019 August, although not statistically significant at 5% levels. The boycott effects begin to manifest in 2019 October with a delay of two months. The delay is probably because some trips, especially international trips, are booked in advance. The largest boycott effects are observed in 2019 November when the passenger volumes from mainland China for Cathay Pacific post a decline of approximately 35%. After about three months, in 2020 January, the passenger volumes from mainland China pick up and largely return to the pre-event level.

Table 2 shows the baseline DDD results based on Eq. (1). From column (1) to column (4), we add route by airline by passenger source region fixed effects, time fixed effects and route specific linear time trends. The preferred specification is column (4) where all fixed effects are included. All regressions are clustered at the level of the departure and the arrival airport pair to allow for flexible correlations between airlines and passenger source regions. From the preferred specification, passenger volumes from mainland China for Cathay Pacific decrease by about 20% as a result of the consumer boycott.[7] Passenger volumes for Cathay Pacific also decrease across the board by approximately 8%. As discussed earlier, because Hong Kong International Airport is the hub of Cathay Pacific, the 2019 unrest may affect the operations of the airline and the demand for travel to Hong Kong that are unrelated to consumer boycotts of the airline. We use the passenger source region information to quantify differential responses to the event between Cathay Pacific passengers from mainland China and other regions, which we identify as the boycott effect.

Flights have different cabin types catering to different markets such as business travelers or leisure travelers,[8] and the characteristics of consumer boycotts might be different for different types of travelers. Fig. 5 shows the average monthly passenger volumes of Cathay Pacific by cabin types. We observe that the monthly average passenger volumes of business class are relatively higher in the second and third quarters of the year, while the numbers for economy class are relatively higher in the summer months. Due to the different seasonal characteristics of the passenger volumes of the two cabin types, we will analyze them separately.

Table 3 shows the estimates of the boycott effects by cabin class. The first three columns are the regression results of business class, and the last three columns are the regression results of economy class. Our preferred specifications are column (3) and column (6) where the most demanding set of fixed effects are controlled, including route by airline by passenger source region fixed effects, time fixed effects and route specific year on year time trends. Based on the preferred specifications, as a result of consumer boycotts, average

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[7] In our model specification, regression coefficients are semi-elasticities, i.e., percentage changes in the outcome variable for a small change in the explanatory variables. Due to the binary nature of the interaction term, we transform the coefficient to measure the impact on the outcome variable for changes from 0 to 1 for the interaction term, $\exp(-0.224) - 1 = -0.201$. Note that this is close to the original coefficient.

[8] We divide the cabin types into two categories. The first category includes first class and business class, and captures business travels. The second category includes premium economy, full price economy and discount economy, and captures leisure travels.

Table 5
Robustness check with subsets of passenger source regions in the control group.

	Total		Business class		Economy class	
	(1)	(2)	(1)	(2)	(1)	(2)
DDD	−0.206***	−0.205***	−0.307***	−0.306***	−0.192***	−0.191***
	[−0.186***]	[−0.185***]	[−0.264***]	[−0.264***]	[−0.175***]	[−0.174***]
	(0.074)	(0.074)	(0.098)	(0.098)	(0.070)	(0.069)
$Post_t \times CX_i$	−0.098**	−0.097**	−0.021	−0.019	−0.116***	−0.115***
	(0.039)	(0.039)	(0.038)	(0.038)	(0.040)	(0.040)
$Post_t \times$ China Mainland$_i$	0.153***	0.153***	0.158**	0.158**	0.138**	0.137**
	(0.052)	(0.052)	(0.070)	(0.070)	(0.053)	(0.053)
Total volumes of dest. airport (log)		−0.014		−0.085		0.033
		(0.063)		(0.071)		(0.062)
Total volumes of orig. airport (log)		−0.032		−0.094		−0.007
		(0.067)		(0.061)		(0.064)
Total volumes of the route (log)		0.064		0.064**		0.063
		(0.043)		(0.025)		(0.042)
Real GDP (log)		−0.192		−0.213		−0.164
		(0.384)		(0.292)		(0.393)
Population (log)		0.365		−1.142		0.423
		(1.685)		(1.594)		(1.685)
Exchange rate (log)		0.101		0.116		0.115
		(0.461)		(0.290)		(0.451)
Average temperature		−0.004		−0.002		−0.004
		(0.003)		(0.003)		(0.003)
Average dew point temperature		0.003		0.002		0.003
		(0.002)		(0.003)		(0.002)
N	73941	73941	73941	73941	73941	73941
$Within - R^2$	0.041	0.041	0.034	0.034	0.041	0.041
FE_i	Yes	Yes	Yes	Yes	Yes	Yes
FE_t	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Linear trend	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Passenger volumes where the tickets are booked in the following regions are excluded: Middle East, Caribbean, Hong Kong and South East Asia. Real GDP, population and exchange rate are the annual values of the origin country. Average temperature and average dew point temperature are the monthly average values of the origin airport. Standard errors in parentheses are clustered at the level of the route (an origin-airport and destination-airport pair). In square brackets are the relative changes in the outcome variable: relative change $= \exp(\text{coefficient}) -1$. $*p < 0.10, **p < 0.05, ***p < 0.01$.

monthly passenger volumes from mainland China of Cathay Pacific drop by about 26% for business class and 19% for economy class. Fig. 6 shows the dynamic effects of the boycott on the numbers of business and economy class travelers. Before 2019 August, for both business and economy class travelers, there are no statistically significant differences between Cathay Pacific and the control airlines in the differences between the numbers of passengers from mainland China and other regions, consistent with the parallel trend assumption underlying the triple differences design. The dynamics of boycott effects differ between business and economy class travelers. For business class travelers, boycott effects appear sooner and are larger, reaching about −50% in 2019 October comparing with about −30% for economy class travelers in 2019 November. The larger responses from business travelers are probably due to their lower price sensitivity. For both types of travel, the negative effects appear to be temporary with business (economy) class travel beginning to recover in 2019 November (2020 January). Longer term analysis is not feasible due to the disruptions to travel caused by the Covid-19 pandemic.

4.2. Robustness check

While the baseline model already controls for a rich set of fixed effects including route by airline by passenger source region specific fixed effects and linear time trends, we further verify the robustness of the regression results by adding different control variables of the characteristics of the routes, including variables measuring route level market size, travel demand and weather conditions. Table 4 shows the estimation results with different sets of control variables. The estimates of the boycott effects are virtually not affected by the inclusion of these control variables.

For our triple differences estimator to identify the boycott effects, there should be no systematically differences between Cathay Pacific and other airlines who operate the same routes when we compare their route and airline specific differences between passenger volumes from mainland China and from other regions before 2019 August, i.e., there are parallel trends in the differences between passenger volumes from mainland China and from other regions between Cathay Pacific and the control airlines before 2019 August.

Table 6
Robustness check with full sample.

	Total		Business class		Economy class	
	(1)	(2)	(1)	(2)	(1)	(2)
DDD	−0.110*	−0.110*	−0.136**	−0.137**	−0.105*	−0.105*
	[−0.104*]	[−0.104*]	[−0.127**]	[−0.128**]	[−0.100*]	[−0.100*]
	(0.063)	(0.063)	(0.059)	(0.059)	(0.063)	(0.063)
$\text{Post}_t \times \text{CX}_i$	−0.053**	−0.049**	−0.019	−0.017	−0.065***	−0.062**
	(0.025)	(0.024)	(0.017)	(0.017)	(0.025)	(0.024)
$\text{Post}_t \times \text{China Mainland}_i$	0.039	0.039	−0.005	−0.005	0.026	0.026
	(0.053)	(0.053)	(0.041)	(0.041)	(0.054)	(0.054)
N	340550	340550	340550	340550	340550	340550
$Within-R^2$	0.052	0.053	0.041	0.042	0.052	0.052
FE_i	Yes	Yes	Yes	Yes	Yes	Yes
FE_t	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes	Yes	Yes
Linear trend	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes

Notes: Full sample only includes routes that are continuously served by Cathay Pacific and at least one other airline from January 2015 to January 2020. Standard errors in parentheses are clustered at the level of the route (an origin-airport and destination-airport pair). In square brackets are the relative changes in the outcome variable: relative change $=\exp(\text{coefficient})-1$. $*p < 0.10, **p < 0.05, ***p < 0.01$.

Figs. 4 and 6 already show that the parallel trends hold for months in 2019 before August. We conduct more tests on the parallel trends by restricting the sample to 2015 to 2018 and run separate regressions with placebo treatments for each year. Fig. 7 shows that most of treatment dummies are not statistically significant and the parallel trends assumptions hold.

There are two potential concerns. Firstly, besides passengers from mainland China, passengers from other regions may also react to the reported sympathies expressed by Cathay Pacific staff in 2019 August with the protesters in Hong Kong. The difference between the passenger volumes from mainland China and those from other regions may be affected by changes in other regions' consumer behavior and does not exactly correspond to the boycott by passengers from mainland China. To address this possibility, we firstly replace the dummy for mainland China with dummies for each region of sale in the triple interaction term, and examine if passengers from other regions will react to the event in 2019 August. Fig. 8 shows the heterogeneous consumer responses by locations of sale. Notice that passenger volumes from South East Asia react negatively to the event while passenger volumes from regions such as Middle East, Caribbean and Hong Kong increase. We therefore drop these regions from the analysis and Table 5 reports the estimation results. The boycott effects are similar to the baseline results (Table 3).

Secondly, the analysis sample is a subsample of the data because if the year on year change in a route by airline by passenger source region by time pair exceeds the 450% threshold, we drop the route entirely. To test if our results are sensitive to this procedure, we estimate the baseline model for the sample without dropping these routes, and the estimation results are reported in Table 6. The boycott effects are still negative and significant with again larger effects in business class travel, although the magnitude is smaller and the significance level is lower.
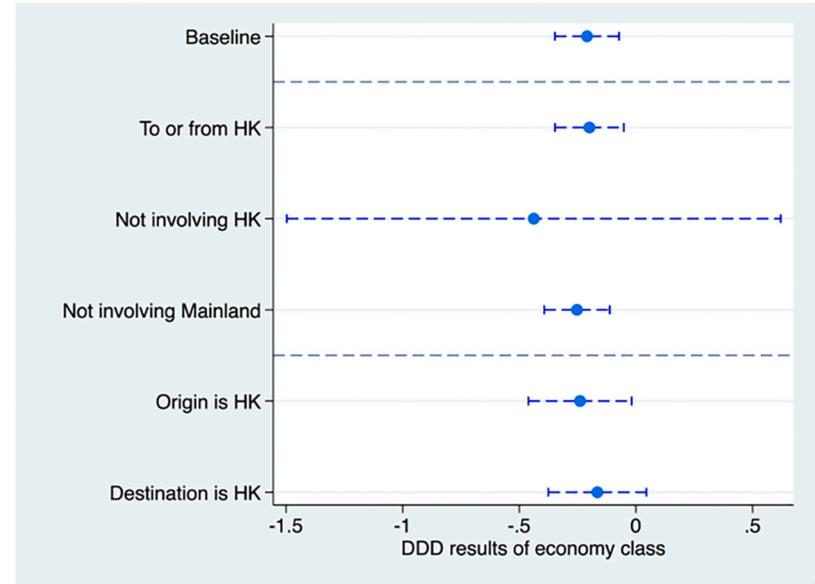
4.3. Heterogeneity

The magnitude of the boycott effects may be heterogeneous and we explore factors that explain the heterogeneous consumer responses from two angles: directions of travel and the availability of substitutes. The events in Hong Kong may be more salient to passengers traveling to or from Hong Kong. We test whether they behave differently by conducting subsample analyses according to whether the route (a pair of the origin airport and the destination airport) involves Hong Kong. Fig. 9 shows the estimates of the triple interaction term in each of the subsamples. For routes related to Hong Kong, the coefficients are significantly negative. While for routes not involving Hong Kong, the coefficients are negative but not statistically significant and this may be due to the smaller sample size of routes not involving Hong Kong.[9] Focusing on routes involving Hong Kong, we find that the boycott effects are slightly stronger for passengers from mainland China who are traveling away from Hong Kong, which is expected because travelers who chose to travel to Hong Kong during the periods of social unrest in 2019 might feel less strongly about the events.

The boycott effects may be stronger if the products in question are more substitutable. We calculate the market shares of Cathay Pacific and test if the boycott effects vary with the degree of substitutability. Fig. 10(a) and (c) show the routes of Cathay Pacific with higher market shares of business and economy class. Fig. 10(b) and (d) show the routes with lower shares. The estimates on the boycott

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[9] As Fig. 1 shows, the flight network of Cathay Pacific displays a hub-spoke structure with Hong Kong the origin or destination for most flight routes. In our analysis sample, there are few Cathay Pacific routes that do not involve Hong Kong.
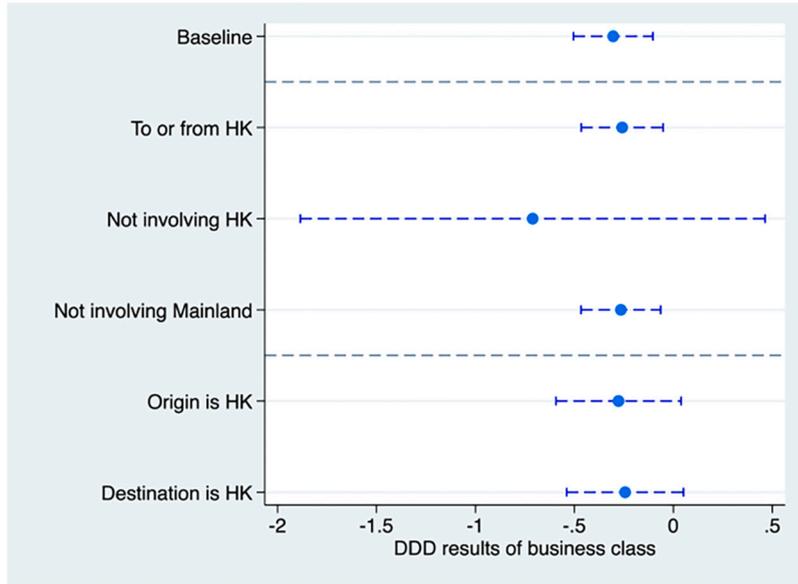
(a) Business class (b) Economy class

Fig. 9. Heterogeneity by routes. *Notes:* Each line is a separate regression on a subsample of routes (an origin-airport and destination-airport pair) as indicated on the left axis. Point estimates of the coefficient of the triple interaction term and their 95% confidence intervals are reported.

(a) Business market share >= median

(b) Business market share < median

(c) Economy market share >= median

(d) Economy market share < median

Fig. 10. Route map by the market share of Cathay Pacific. *Notes:* For each route (an origin-airport and destination-airport pair) in the baseline sample, we compute the market share of Cathay Pacific as the ratio between the business or economy passenger volumes of Cathay Pacific and the total number of business or economy passengers from January 2015 to July 2019. Only direct flights are included. Median level refers to the median of Cathay Pacific's share of all routes. The thickness of the line represents whether it is a one-way route or a round-trip route. Thick lines represent round-trip routes and thin lines represent one-way routes.

Table 7
Heterogeneity by market shares of Cathay Pacific.

	Business class		Economy class	
	(1)	(2)	(1)	(2)
DDD	−0.326**	−0.289*	−0.197**	−0.227*
	[−0.278**]	[−0.251*]	[−0.179**]	[−0.203*]
	(0.146)	(0.145)	(0.075)	(0.114)
$\text{Post}_t \times \text{CX}_i$	−0.064	0.010	−0.140**	−0.060
	(0.039)	(0.056)	(0.056)	(0.059)
$\text{Post}_t \times \text{China Mainland}_i$	0.206*	0.124	0.140*	0.133*
	(0.111)	(0.096)	(0.072)	(0.071)
N	46109	48020	43218	50911
$Within - R^2$	0.028	0.039	0.048	0.038
FE_i	Yes	Yes	Yes	Yes
FE_t	Yes	Yes	Yes	Yes
Linear trend	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes
Biz/Eco share	$>= median$	$< median$	$>= median$	$< median$

Notes: For each route (an origin-airport and destination-airport pair) in the baseline sample, we compute the market share of Cathay Pacific as the ratio between the business or economy passenger volumes of Cathay Pacific and the total number of business or economy passengers from January 2015 to July 2019. Only direct flights are included. Median level refers to the median of Cathay Pacific's share of all routes. Standard errors in parentheses are clustered at the level of the route (an origin-airport and destination-airport pair). In square brackets are the relative changes in the outcome variable: relative change $= \exp(\text{coefficient}) - 1$. $*p < 0.10, **p < 0.05, ***p < 0.01$.

effects by Cathay Pacific market shares and cabin classes are reported in Table 7. While boycott effects are all negative in each scenario, it is larger for economy class travelers on routes where the market shares of Cathay Pacific are lower. For business classes, on the contrary, the boycott effects are larger on routes where the market shares of Cathay Pacific are larger. The results are consistent with larger price sensitivity for economy class travelers, because it tends to be less costly for travelers to switch to other airlines on routes where Cathay Pacific is less dominant.

4.4. Supplementary analysis

The decline in Cathay Pacific's mainland passenger numbers could be due to two reasons. The first is that mainland passengers canceled their trips. The other is that mainland passengers switched to other airlines. Both effects are present in other episodes of consumer boycotts (Luo & Zhou, 2020). To quantify the effects of switching to other airlines, we add dummy variables of the five other airlines (China Airlines, Mandarin Airlines, Air Canada, British Airways and Qantas) that have the most passenger numbers on these routes in the triple interaction terms. Fig. 11 shows the effects in passenger volumes from mainland China on these airlines. The coefficients of Air Canada and Qantas are positive for business and economy class and the coefficients of China Airlines and British Airways are positive only for economy class. For Mandarin Airlines, the passenger volumes also decline. This analysis suggests that some travelers from mainland China switch from Cathay Pacific to the other airlines, and the positive effects are larger for some airlines outside the region.

Airlines have cargo and mail transportation businesses in addition to passenger transportation, and unlike passenger transportation, cargo and mail transportation do not face end consumers directly and may be less likely to be boycotted. If consumer boycott is the reason for the declines in passenger volumes, there should be little impact on cargo and mail. We test this hypothesis by collecting data on monthly year-on-year growth rates of cargo and mail volumes of Cathay Pacific and three other airlines in the region from January 2016 to January 2020 with available data from CSMAR, and applying a difference-in-difference analysis. The treatment group is Cathay Pacific and the treatment period is from August 2019. The first column of Table 8 shows that the effect on cargo and mail is small and statistically not significant.

The estimated boycott effects from the triple differences design are identified by comparing between-airline differences in passenger volumes from mainland China and from other regions before and after 2019 August. However, from the perspectives of airlines and Hong Kong as a travel destination, the negative impacts can be beyond the boycott effects. The social unrest caused significant disruptions and potential travelers to Hong Kong might change their travel plans, which could negatively affect the city and Cathay Pacific whose hub airport is Hong Kong International Airport, irrespective of whether boycott against Cathay Pacific happened. To quantify these macro-level impacts, we aggregate the data in the baseline analysis to the level of airline by time and route for the airline
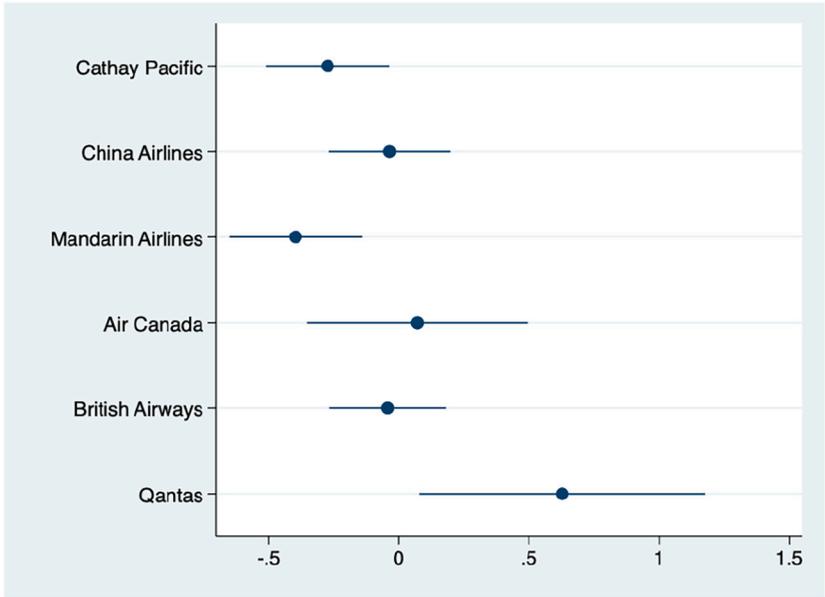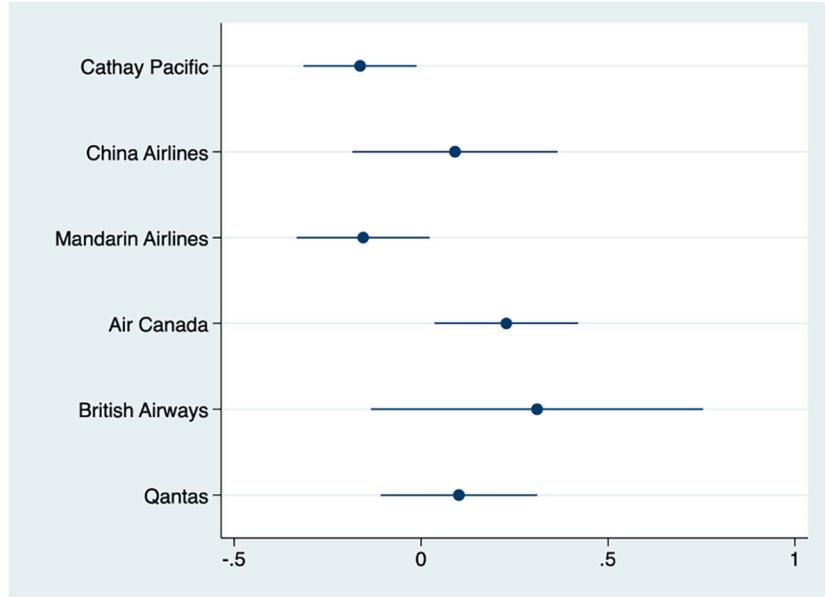
(a) Business class   (b) Economy class

Fig. 11. Substitution effects by airlines. *Notes:* The figures present the estimates of the model where the dummy for Cathay Pacific is replaced by the dummies of different airlines in the baseline model. The airlines are selected based on passenger volumes ranking. Point estimates and their 95% confidence intervals are reported.

Table 8
DID analysis with alternative outcomes.

| | Cargo and mail | Airline level | | Route level | |
| | Total | Business | Economy | Business | Economy |
	(1)	(2)	(3)	(4)	(5)
$\text{Treat}_i \times \text{Post}_t$	−0.029	−0.191**	−0.110**	−0.275***	−0.167***
	[−0.029]	[−0.174**]	[−0.104**]	[−0.240***]	[−0.154***]
	(0.035)	(0.085)	(0.041)	(0.053)	(0.020)
N	187	5733	5733	31262	31262
$Within - R^2$	0.523	0.098	0.129	0.163	0.129
Individual fixed effect	Yes	Yes	Yes	Yes	Yes
Time fixed effect	Yes	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes	Yes
Linear trend	Yes	Yes	Yes	Yes	Yes

Notes: In column 1, the dependent variable is monthly year-on-year growth rates of cargo and mail volumes of Cathay Pacific and three other airlines from January 2016 to January 2020 that are available from CSMAR (please refer to Section 2.2 for details). In columns 2–5, the dependent variable are monthly year-on-year growth rates of passenger volumes. An observation is an airline by year and month (column 1), an airline by route by year and month (column 2 and 3) or a route by year and month (column 4 and 5). The sample for columns 2–3 are based on the baseline sample, and the sample for columns 4–5 includes routes ever served by Cathay Pacific between 2015 and 2019 and includes both direct and connection flights. Treat_i is equal to one if the airline is Cathay Pacific in the first three columns or the route is to or from Hong Kong in the last two columns. The individual fixed effects are airline fixed effects (column 1), airline-route fixed effects (columns 2 and 3) and route fixed effects (columns 4 and 5), respectively. Time fixed effect indicates the year by month fixed effects. Standard errors in parentheses are clustered at the level of the airline (column 1) or the route (an origin-airport and destination-airport pair) (column 2–5). In square brackets are the relative changes in the outcome variable: relative change = $\exp(\text{coefficient}) - 1$. $* p < 0.10, * * p < 0.05, * * * p < 0.01$.

level analysis. As for the route level analysis, we aggregate the total number of passengers to the level of routes[10] by time, and conduct a DID analysis.

The second and third columns of Table 8 show that the economy class passenger volumes of Cathay Pacific drop by around 10%, while business class passenger volumes decrease by a larger amount of about 17%. Both are statistically significant. The last two columns of Table 8 show that at the route level, there is a significant drop in passenger volumes on Hong Kong-related routes compared to non-Hong Kong-related routes after August 2019, and the drop in business class passenger volumes is again much larger. The results provide suggestive evidence that in the 2019 social unrest in Hong Kong, consumer boycotts by mainland China travelers are only part of the negative effects for Cathay Pacific and Hong Kong. The effects on the travel market as a whole also illustrate the necessity of using the triple differences strategy in order to separate the boycott effects by mainland China travelers from the changes in the market conditions.

Passengers from some regions other than mainland China also react to the event (Fig. 8), with some behaving similarly as those from mainland China while some behaving in an opposite way, which is not surprising given increasing international confrontations on the related issues. We provide some suggestive evidence on the factors that explain the behavior of passengers from regions other than mainland China and Hong Kong. In order to utilize cross country variations in their connections to mainland China and Hong Kong, we use the original travel data with observations at the level of country of sale and do not aggregate them to the level of regions. To avoid an excessive number of zeros, we aggregate monthly observations to quarterly frequencies. Four types of variables measuring bilateral social and economic connections are considered, including trade volumes, migration flows, political differences and geographic distances to mainland China. We use similarities in the democracy index complied by the Economist Intelligence Unit to measure similarities in political systems. The empirical model is similar to Eq. (1) where the dummy for mainland China is replaced by the dummies for each region of sale andvariables measuring bilateral connections. Observations with location of sales in mainland China or Hong Kong are dropped.

Table 9 shows that passengers from countries having higher trade volumes with or more migrants from mainland China tend to behave similarly with passengers from mainland China (Columns 2, 3 of Table 9). A one standard deviation increase in trade (migration) flows from mainland China is associated with a 8.9% (6.9%) decrease in passenger volumes for Cathay Pacific after 2019 August. The effect is smaller for business travelers. The effects from other types of connection variables are not statistically significant. When both migration and trade flows variables are included, the former is more statistically significant, suggesting that international

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[10] Here, the number of routes is larger than that in the baseline analysis. The route that we use includes both direct flights and connecting flights that are ever served by Cathay Pacific, for a total of 638 routes.

Table 9
Factors explaining the heterogeneous consumer responses.

	Total				Business class		Economy class	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Interactions with $\text{Post}_t \times \text{CX}_i$								
Middle East	0.070*	0.530***	0.446***	0.795	0.015	−0.043	0.061	1.222
	(0.041)	(0.169)	(0.088)	(0.993)	(0.021)	(0.881)	(0.040)	(0.877)
Caribbean	0.067	0.518***	0.259***	0.602	0.028	−0.048	0.046	1.008
	(0.060)	(0.187)	(0.092)	(1.042)	(0.017)	(0.917)	(0.063)	(0.928)
Eastern/Central Europe	0.034	0.470***	0.268***	0.571	0.031	−0.008	−0.002	0.944
	(0.048)	(0.173)	(0.098)	(1.009)	(0.025)	(0.865)	(0.045)	(0.886)
Eastern Africa	−0.002	0.483***	0.253*	0.597	0.021**	−0.028	−0.016	1.009
	(0.055)	(0.154)	(0.129)	(1.006)	(0.009)	(0.882)	(0.053)	(0.904)
South Asia	−0.140	0.348*	0.146	0.512	−0.060	−0.088	−0.106	0.954
	(0.087)	(0.174)	(0.114)	(0.967)	(0.047)	(0.836)	(0.076)	(0.840)
Upper South America	−0.074	0.399**	0.174*	0.517	0.034	0.010	−0.081	0.931
	(0.062)	(0.177)	(0.102)	(1.081)	(0.028)	(0.941)	(0.060)	(0.966)
Southwest Pacific	0.073	0.585***	0.344***	0.770	−0.023	−0.028	0.079	1.188
	(0.073)	(0.156)	(0.096)	(1.005)	(0.043)	(0.864)	(0.074)	(0.901)
Lower South America	−0.033	0.490***	0.290**	0.678	−0.027	−0.058	−0.022	1.141
	(0.080)	(0.173)	(0.113)	(1.115)	(0.039)	(0.955)	(0.073)	(0.990)
Central America	−0.075	0.401**	0.166	0.513	−0.078	−0.112	−0.066	0.950
	(0.072)	(0.167)	(0.101)	(1.061)	(0.055)	(0.925)	(0.063)	(0.950)
North Africa	−0.095	0.386**	0.067	0.402	0.053**	−0.013	−0.167**	0.764
	(0.062)	(0.188)	(0.099)	(1.017)	(0.022)	(0.903)	(0.069)	(0.900)
Central Asia	−0.251*	0.243	−0.038	0.302	0.025	−0.009	−0.288**	0.666
	(0.132)	(0.198)	(0.158)	(0.962)	(0.041)	(0.860)	(0.121)	(0.846)
Southern Africa	−0.132**	0.310*	0.106	0.408	0.022	0.002	−0.122**	0.837
	(0.051)	(0.169)	(0.128)	(1.052)	(0.025)	(0.916)	(0.052)	(0.932)
North East Asia, other	0.017	0.509***	0.342**	0.680	−0.016	−0.022	0.008	1.055
	(0.098)	(0.177)	(0.137)	(0.853)	(0.072)	(0.721)	(0.101)	(0.742)
Central/Western Africa	−0.129***	0.304*	−0.135	0.193	−0.020	−0.074	−0.120***	0.625
	(0.038)	(0.169)	(0.096)	(1.070)	(0.017)	(0.918)	(0.033)	(0.952)
North America	−0.068	0.506**	0.346**	0.772	−0.161	−0.146	−0.101	1.193
	(0.118)	(0.192)	(0.172)	(1.044)	(0.102)	(0.907)	(0.128)	(0.932)
Western Europe	−0.076	0.398**	0.220*	0.553	0.034	0.010	−0.119**	0.933
	(0.045)	(0.171)	(0.122)	(1.003)	(0.041)	(0.866)	(0.051)	(0.902)
South East Asia	−0.134***	0.345*	0.159	0.501	−0.029	−0.042	−0.146***	0.891
	(0.048)	(0.184)	(0.117)	(0.940)	(0.042)	(0.831)	(0.054)	(0.835)
Trade with HK		0.020		0.019		−0.001		0.019
		[0.048]		[0.045]		[−0.002]		[0.045]
		(0.015)		(0.030)		(0.020)		(0.026)
Trade with CN		−0.049**		−0.047		0.002		−0.058
		[−0.089**]		[−0.085]		[0.004]		[−0.104]
		(0.018)		(0.040)		(0.025)		(0.035)
Immigrant from CN			−0.029**	−0.027*		−0.011		−0.026*
			[−0.069**]	[−0.064*]		[−0.027]		[−0.062*]
			(0.012)	(0.016)		(0.009)		(0.015)
Political difference with CN				0.029		0.019		0.017
				[0.032]		[0.021]		[0.019]
				(0.037)		(0.029)		(0.033)
Distance to CN				0.005		0.008		−0.024
				[0.003]		[0.005]		[−0.015]
				(0.110)		(0.089)		(0.103)
N	149248	143692	121824	114616	149248	114616	149248	114616
Within $-R^2$	0.048	0.049	0.051	0.053	0.038	0.040	0.049	0.054
FE_i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE_t	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pairwise interactions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Linear trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: In square brackets are the relative changes in the outcome variable for one standard deviation increase in the trade, immigrant, distance or political difference variable: $\exp(\text{coefficient} \times \text{SD}_x) - 1$. Trade stands for bilateral trade flows between Hong Kong (HK) or Mainland China (CN) and other point of sale countries between 2015 and 2019. Distance stands for the geographic distance between Beijing (CN) and capital cities of other point of sale countries. Data on the trade and the distance variables are obtained from CEPII (http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele.asp). Politics stands for the absolute difference of the democracy index between Mainland China and other point of sale countries from 2015 to 2019. The democracy index is compiled by the Economist Intelligence Unit. The immigration variable stands for the stock of immigrants from

Mainland China to other point of sale countries in 2019, which is organized by United Nations, Department of Economic and Social Affairs, Population Division. The variables are then transformed to logarithmic forms. Here, i denotes a combination between the route (an origin-airport and destination-airport pair, the airline, and the country of sale for the tickets). The passenger volumes are aggregated to the quarterly level, and the quarters are divided into the form of February to April, May to July, August to October, and November to January in next year. The sample is restricted to the routes used in the baseline model. The passenger volumes of Hong Kong and Mainland China are excluded. Pairwise interactions between Post_t, CX_i and the connection variables are controlled for. $*p < 0.10, * * p < 0.05, * * *p < 0.01$.

social connections may transfer political and social norms.[11] In models with all the connection variables (Columns 4,6,8 of Table 9), the region dummies are not statistically significant, suggesting that the bilateral social and economic connections, specifically migration and trade flows, can explain the heterogeneous consumer responses between regions.

We have shown that Cathay Pacific was negatively affected by consumer boycotts for its employees' actions from mainland China travelers since August 2019 and the boycotts gradually dissolved by January 2020. The negative effects may be anticipated by investors as history abounds in episodes of boycotts albeit in different contexts (Lauterpacht, 1933; Ashenfelter et al., 2007; Heilmann, 2016; Lin et al., 2019; Tomlin, 2019; Luo & Zhou, 2020). The stock market responses to the event can be used to analyze the expected economic impacts of boycotts (Fisman, Hamao, & Wang, 2014). As a complement to the main results, we examine how the consumer boycotts affect the market value of Cathay Pacific and its related listed firms. We first calculate daily abnormal returns for Cathay Pacific, a portfolio of companies whose major shareholder is the same as Cathay Pacific (the Swire Group), and portfolios of stocks traded in Hong Kong Exchange for each of the 14 industries in 2019 using the residuals from the Fama–French Three Factor Model. The industry specific portfolios exclude the stocks of Cathay Pacific and its related firms, and are used as control units. Stocks in the portfolios are weighted by their market capitalization at the beginning of 2019. Table 10 presents coefficient estimates of from the portfolio regressions. We then aggregate daily abnormal returns to weekly cumulative abnormal returns (CARs).

We use the recently developed synthetic difference-in-differences (SDID) method of Arkhangelsky, Athey, Hirshberg, Imbens, and Wager (2021) to estimate the boycott effects. The SDID method for causal inferences compares over time differences between the treated and the control groups as in the more traditional DID method, and compensates for violations of parallel trends in the absence of treatment by applying cross section and time weights, which is necessary in our context as the parallel trend assumption may be violated. In the absence of the call for boycotts against Cathay Pacific since 2019 August, the treated and the control units may be on different time trends because they might be impacted differently by the factors such as the disruptions to the travel market caused by the social unrest in Hong Kong. Fig. 12 shows that the CARs of the treated and the weighted control units are approximately parallel before August 9, 2019. Table 11 shows the SDID estimates alongside the DID estimates. The DID estimates indicate that as a result of the boycotts, the market value of Cathay Pacific and its related firms decline by 8.3% and 5.3%, respectively. Although the magnitudes of the SDID estimates are similar to those of the DID estimates, they are not statistically significant. Overall we find that the negative effects on market values of Cathay Pacific that are attributed to the boycotts are temporary.

4.5. Discussions

Boycotts may be voluntary or state directed. While we do not have individual level information on how a traveler chooses among alternatives and cannot separately identify the effect of changes in consumer preferences and government directed restrictions in choice sets on consumer choices, there are suggestive evidence that some negative effects are due to voluntary choices of consumers. First, the negative effects are present outside mainland China and it is unlikely that these are all mandated by the government. The number of passengers from mainland China on routes that do not involve airports in mainland China also decrease (Fig. 9). Passenger volumes for Cathay Pacific from regions such as South East Asia also drop after 2019 August relative to other regions (Fig. 8), and the negative effects are larger for passengers from countries with a larger number of migrants from or a closer trade link with mainland China (Table 9). The results add to the literature on how public opinion towards another country can be influenced by their social and economic connections (Spilimbergo, 2009; Eichenauer et al., 2021). Second, the effect on cargo and mail, which does not face end consumers directly while nonetheless may be affected by government edicts, is small and not statistically significant (Table 8).

5. Conclusion

Stakeholders of multinational firms can be based in different regions and may increasingly disagree on issues that arouse strong emotions when geopolitical tensions are rising. In this paper, we examine a new challenge facing multinational firms that their staff may have different views on issues from those held by the firm and customers. We quantify the effect of the divergent customer and staff values on firm sales by examining consumer boycotts by travelers from mainland China against Cathay Pacific during the unrest in Hong Kong in 2019. We use a triple differences design with a rich set of fixed effects, and find that conditional on the route, passenger origin and airline specific time trends, passenger volumes from mainland China were adversely affected for Cathay Pacific after the political views of some of its staff, which were contrary to the prevailing views in mainland China and the official stance of the

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[11] Spilimbergo (2009) find that foreign educated students in democratic countries can promote democracy in their home country. Subsequent work have shown that the exchange of people can lead to the transfer of political and social preferences (Barsbai et al., 2017; Tuccio, Wahba, & Hamdouch, 2019).

Table 10
Portfolio regressions with Fama–French Three-Factor Model.

	CX	CXrelated	Ind.1	Ind.2	Ind.3	Ind.4	Ind.5	Ind.6	Ind.7	Ind.8	Ind.9	Ind.10	Ind.11	Ind.12	Ind.13	Ind.14
$R_m - R_f$	1.155***	1.083***	0.524***	0.859***	1.316***	1.066***	0.899***	3.547	1.719***	1.161***	1.332***	1.391***	1.227***	1.133***	1.016***	1.235***
	(0.269)	(0.250)	(0.127)	(0.166)	(0.239)	(0.174)	(0.184)	(2.383)	(0.371)	(0.179)	(0.192)	(0.233)	(0.236)	(0.157)	(0.185)	(0.180)
SMB	0.906**	0.496	0.218	0.954***	1.123***	0.863***	0.827***	6.423	2.199***	0.784***	1.170***	1.080***	1.070***	0.929***	0.701**	0.971***
	(0.454)	(0.366)	(0.207)	(0.286)	(0.319)	(0.257)	(0.291)	(5.177)	(0.612)	(0.250)	(0.306)	(0.354)	(0.350)	(0.227)	(0.304)	(0.262)
HML	−0.066	0.224	−0.129	0.594***	0.380*	0.126	−0.015	1.133	−0.288	0.246	0.473**	−0.029	−0.007	0.231	0.303	0.165
	(0.270)	(0.218)	(0.145)	(0.166)	(0.200)	(0.163)	(0.186)	(0.697)	(0.365)	(0.161)	(0.191)	(0.237)	(0.234)	(0.140)	(0.188)	(0.157)
Constant	−0.000	−0.001	−0.001	−0.000	0.000	−0.000	0.001	0.016	0.003*	−0.001	−0.001	0.000	0.001	−0.000	−0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.021)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
N	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245	245
$Within - R^2$	0.088	0.164	0.108	0.104	0.217	0.186	0.120	0.002	0.096	0.229	0.211	0.184	0.123	0.246	0.156	0.228

The sample consists of daily excess returns (over the risk-free rate) during trading days between January 1, 2019 and December 31, 2019. "CX" denotes a portfolio of the Cathay Pacific stock only. The major shareholder of Cathay Pacific is the Swire Group, and we define Cathay Pacific-related companies as firms whose major shareholder is the Swire Group and form the "CX related" portfolio. "Ind.1-Ind.14" denotes portfolios of stocks for each of the industries: Utilities (1), Materials (2), Properties & Construction (3), Industrials (4), Consumer Staples (5), Consumer Goods Manufacturing (6), Consumer Services (7), Conglomerates (8), Energy (9), Information Technology (10), Healthcare (11), Financials (12), Telecommunications (13), Consumer Discretionary (14). Stocks in the portfolios are weighted by their market capitalization at January 2, 2019. Daily Fama–French Asia Pacific ex Japan 3 Factors are obtained from http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html. The stock data is obtained from China Stock Market & Accounting Research Database (CSMAR). $*p < 0.10, * * p < 0.05, * * *p < 0.01$.
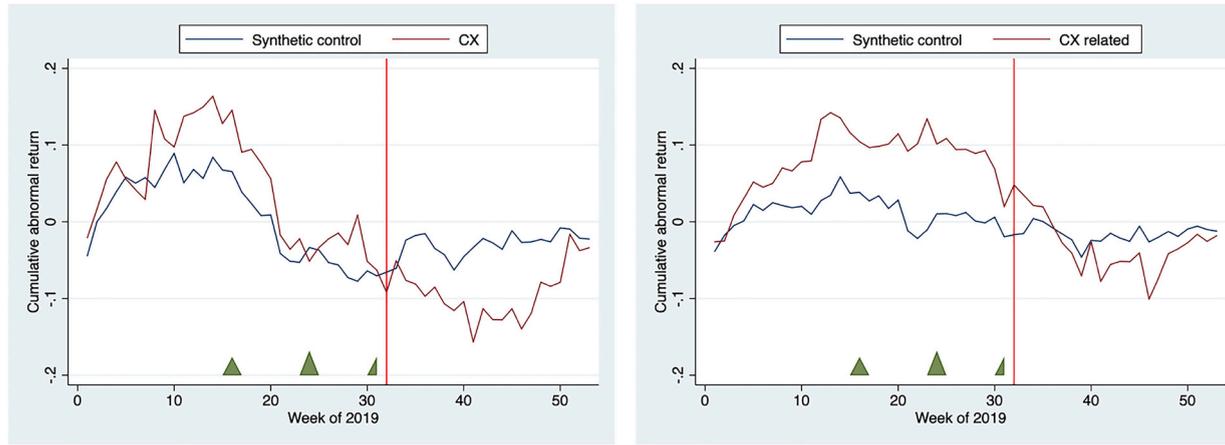
(a) CAR of CX and the synthetic portfolio

(b) CAR of CX related firms and the synthetic portfolio
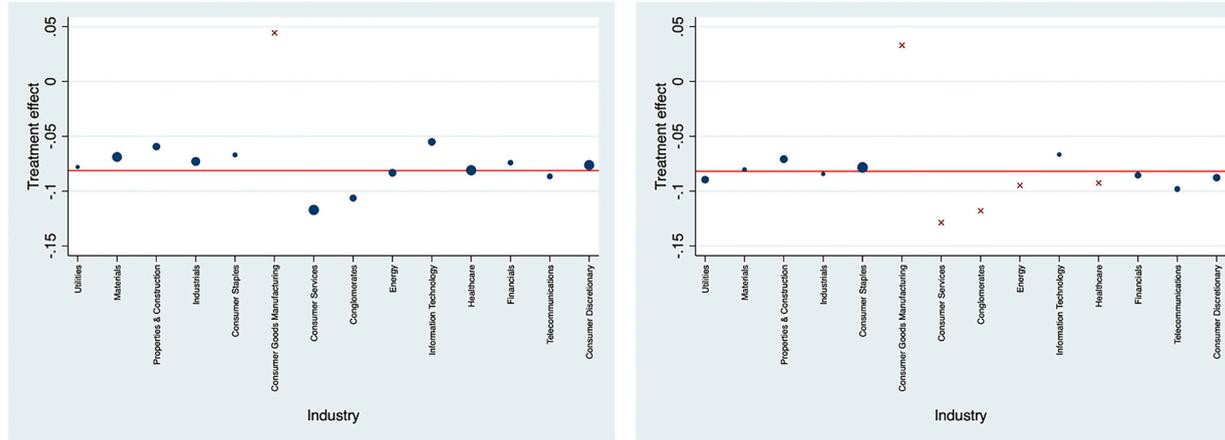
(c) Weights of the control group

(d) Weights of the control group

Fig. 12. Cumulative abnormal returns (CAR). *Notes:* The sample consists of weekly cumulative abnormal returns of Cathay Pacific ("CX"), a portfolio of companies whose major shareholder is the Swire Group ("CX related"), and a weighted combination of 14 industry-specific portfolios ("Synthetic control") in 2019. The vertical line in (a) and (b) indicates the treatment date (August 9, 2019, which is in the 32nd week). The control group is a weighted combination of the 14 industry-specific portfolios with weights given by the synthetic difference-in-differences (SDID) method proposed by Arkhangelsky et al. (2021) and implemented by Pailañir and Clarke (2022). The sizes of the circles in (c) and (d) are proportional to the units' cross section weights and the horizontal red line indicates the SDID estimate. The time weights of the SDID estimate are shown in the bottom of (a) and (b).

Table 11

Estimates for the boycott effects on cumulative abnormal returns.

Sample	CX VS Control		CX related VS Control	
	DID	SDID	DID	SDID
$\text{Post}_t \times \text{Treat}_i$	−0.083***	−0.081	−0.053***	−0.082
	(0.022)	(0.105)	(0.020)	(0.105)
N	795	795	795	795

The sample consists of weekly cumulative abnormal returns of Cathay Pacific ("CX"), a portfolio of companies whose major shareholder is the Swire Group ("CX related"), and 14 industry-specific portfolios ("Control") in 2019. Treat_i is equal to 1 if the portfolio is CX or CX related companies, and 0 otherwise. Post_t equals 1 if the date is after the 31st week, and 0 otherwise. The estimates are based on either the DID or the SDID method (Arkhangelsky et al., 2021) implemented by Pailañir and Clarke (2022) with estimated standard errors in parentheses. $*p < 0.10, **p < 0.05, ***p < 0.01$.

company, were widely reported, leading to a reduction in passenger volumes from mainland China of approximately 20%. The boycott effects are larger among business travelers, economy class travelers on routes where the market shares of Cathay Pacific are lower, or travelers departing from Hong Kong. The boycotts are temporary and passenger volumes for Cathay Pacific from mainland China gradually recovered after a quarter. Additional analysis shows that passenger responses are heterogeneous by locations. Passengers from South East Asia or from countries receiving more migrants from mainland China tend to behave similarly with those from mainland China.

One limitation of our analysis is that we do not observe how airlines respond to consumer boycotts because detailed price and schedule information are not available. To the extent that Cathay Pacific may cut prices in order to compensate decreases in demand, the total negative impact due to boycotts from mainland China travelers may exceed the 20% reduction in passenger numbers.

Our results reveal one significant disruption that the unrest in Hong Kong in 2019 has caused to the economy. For Cathay Pacific, in addition to the 20% reduction of the number of passengers from mainland China after 2019 August that can be attributed to the boycott, airline level analysis shows that for Cathay Pacific as a whole, passenger volumes decrease by 10%-17%, and route level analysis shows that routes to or from Hong Kong post 15%-24% reductions in passenger volumes. During times of political tension, boycotts from consumers could exacerbate the negative effects of unrest to the economy. A multinational firm that is more resilient to external shocks could either make its stakeholders more diverse or convey and foster common values among its stakeholders including owners, employees and customers.

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