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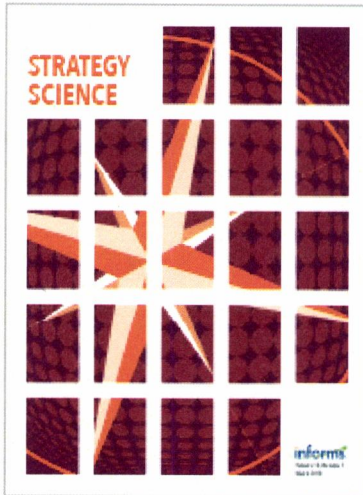
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Discriminatory Product Differentiation: The Case of Israel's Omission from Airline Route Maps

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Abstract. We ask whether international firms compete by designing products attractive to customers because they are objectionable to others. We investigate “discriminatory product differentiation” among international airlines through depictions of Israel on online route maps and availability of kosher meal options on online in-flight menus. Analyses of data for 112 airlines indicate that Israel’s map omission and omission of kosher meal options increase for airlines with customers from countries exhibiting higher rates of anti-Semitism and airlines with state owners not recognizing Israel. Neither omission matters for membership in major alliances. Such discrimination may be objectionable, but its subtlety permits industry globalization.

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Keywords: customer discrimination • product differentiation • airlines • alliances

1. Introduction

International business (IB) researchers since Buckley and Casson (1976) have been asking when and how international firms vary business practices to exploit cross-country differences in markets often separated by politics, law, religion, and other cultural factors. Some firms do so by adapting global products to fit local customer preferences. International fast-food giant McDonald’s, for example, exploits cross-country culinary differences related to religion by offering a “Maharaja Mac” with chicken rather than beef at restaurants in majority-Hindu India.¹ Such product differentiation strategies work by increasing sales to certain customers even as they decrease sales to others. In the McDonald’s example, customers from Muslim and other minority communities as well as tourists visiting India might object to McDonald’s restaurants lacking the standard beef-based products they prefer. Our study asks when and how international firms might differentiate products to appeal to certain customers precisely because they discourage the patronage of others.

Of course, product differentiation is not the only means for discrimination against customers. Firms seeking not to serve certain customers might simply treat them differently. Another international restaurateur, Denny’s, did that in the 1990s when it treated black customers differently and poorly compared with white customers in many U.S. locations. The

restaurateur required black customers to pay in advance and closed restaurants when “too many blacks” were present. Denny’s overtly discriminatory treatment led to lawsuits costing the restaurateur more than \$54 million to settle and millions more in negative publicity.²

Discrimination via product differentiation works more subtly. By designing a product to favor some customers over others, a firm can discriminate through customer self-selection rather than differential treatment.³ That strategy could involve no animus toward disfavored groups as the location strategies of for-profit hospitals in the United States illustrates. Norton and Staiger (1994) document that for-profit hospitals locate more often in wealthy neighborhoods to attract insured paying patients nearby and avoid uninsured charity patients from more distant poorer neighborhoods. The wealthy neighborhood may be predominately white and the poor neighborhoods predominately black, but the hospital’s location decision could follow from the pursuit of profit rather than racial animus.

But as Becker (1957) has discussed, profit-related rationales for product differentiation could be less benign in two ways. First, the hospital’s decision on location could reflect accommodation of discriminatory customer preferences. Prospective white patients may dislike patronizing a hospital also willing to admit black patients. In Becker’s terms, location-based product differentiation would then follow from

accommodation of the discriminatory preferences of certain customers even if the firm owner were inclined to serve others. Second, the hospital owner's discriminatory preferences might also matter if, say, the hospital location is farther from black neighborhoods than would be needed to accommodate white customer preferences. In Becker's terms, the hospital's location would then indulge the owner's "taste for discrimination," that is, a willingness to sacrifice profits just to avoid serving disfavored customers. What we call "discriminatory product differentiation" arises when firms design and offer products apparently motivated by such discriminatory customer preferences and/or owner tastes.

In this study, we ask how firms in the international airline industry use discriminatory product differentiation strategies. Our study begins with the observation that some international airlines omit Israel from their online route maps even as they identify essentially every other country in the world. Such map design decisions can be costly as the experience of atlas publisher HarperCollins suggests. In early 2015, a UK-based Catholic newspaper, *The Tablet*, reported that a HarperCollins atlas "developed specifically for schools in the Middle East" omitted Israel, instead depicting Middle East geography as in Figure 1. The publisher admitted that "including Israel in the Middle East Atlas would have been 'unacceptable' to its customers in the Gulf and instead adapted it to 'local preferences.'"⁴ When the omission of Israel

from the atlas became known, the publisher retreated, apologized, and destroyed all remaining copies.⁵

International airlines with online route maps that follow the HarperCollins design and "deny" Israel's existence either omit the country's name uniquely or omit it along with a handful of other country names. They also do not fly to Israel. These denier airlines differ from others publishing maps that "embrace" Israel, either by depicting the country's name with all other countries or by depicting the name of an Israeli city as a destination, typically Tel Aviv. These denier airlines also differ with others publishing online route maps that "avoid" Israel by omitting all country names and not providing direct flights to an Israeli city.

Building on these observations, we seek answers to three questions. First, why do some international airlines single out Israel for omission from online route maps? Such discriminatory product differentiation may cater to customer preferences, owner tastes, or both. Second, do these omissions reflect narrower discriminatory motivations directed at Israelis or broader motivations directed at Jews no matter their citizenship? Discriminatory product differentiation may have narrower political motivations related to anti-Zionism or broader religious motivations related to anti-Semitism. Third, do these omissions help explain airline participation in major international alliances led by prominent U.S. carriers that depict Israel on maps and tout their opposition to discrimination based on national origin or religion? Airlines in three major international alliances account for nearly 60% of all air travel annually: the Star alliance led by United Airlines, the OneWorld alliance led by American Airlines, and the SkyTeam alliance led by Delta Airlines.⁶ Foreign airlines depicting Israel on maps and offering kosher meal options on online in-flight menus indicate closer adherence to the nondiscriminatory norms touted by these U.S. carriers. Inclusion of these foreign airlines rather than others omitting Israel from maps and omitting kosher meal options from menus might enhance the compatibility of alliance members and enhance overall alliance effectiveness.

Answers to these questions matter for research linking discrimination to IB strategy research. Researchers in management (e.g., Lee et al. 2015); economics (e.g., Altonji and Blank 1999); and other disciplines, such as sociology (e.g., Pager and Shepherd 2008) and law (e.g., Gersen 2007) have devoted much more attention to employment rather than customer-discrimination issues. We know of no research on determinants of customer discrimination by international firms. That is surprising given 50 years of IB research on the sometimes difficult choice about which business norms to apply when firms expand abroad (Perlmutter 1969):

Figure 1. (Color online) HarperCollins Atlas of the Middle East



Source. *The Tablet* online newspaper (2014).

“ethnocentric” norms from the firm’s home country, “polycentric” norms from different foreign countries in which the firm operates, or “geocentric” norms the firm applies abroad because they represent some global consensus about appropriate business values and related practices, which Donaldson and Dunfee (1994) call “hyper-norms.” Our study sheds light on when firms are more likely to employ a discriminatory product differentiation strategy, what motivates that strategy, and how use of that strategy affects the likelihood of allying with others touting contrary hyper-norms.

To answer these three questions, we collect data on 112 international airlines operating in 2016. We know how their online route maps depicted Israel, whether their online in-flight menus included kosher meal options, and whether they were members of the Star, OneWorld, or SkyTeam alliances. We link these airline characteristics to contemporary airline customer preferences related to anti-Semitism and airline owner tastes related to state ownership and diplomatic non-recognition of Israel. We develop an airline-specific measure of customer preferences derived from Google searches of airline names by country along with each country’s Anti-Defamation League (ADL) measure of anti-Semitism. We develop a related airline-specific measure of customer interest in kosher meals based on Google searches of the term “kosher” by country along with the Google-based geographic distribution of interest for each airline.

Analyses of these data suggest first that both stronger discriminatory preferences among international airline customers and ownership by states not recognizing Israel decrease the likelihood of Israel’s (or Tel Aviv’s) presence on online route maps. Second, we find evidence that kosher interest among airline customers increases, but ownership by states not recognizing Israel decreases the likelihood of finding kosher meal options on online in-flight menus. This second set of findings suggests that discriminatory product differentiation reflects greater interest in not serving Jewish customers whether or not they live in Israel. Third, we find that alliance membership is neither more likely for airlines that embrace Israel on maps nor less likely for airlines owned by states not recognizing Israel. Only larger airline fleet size matters. A review of potential alliance partners in the Middle East highlights the limited options available to U.S. carriers that might otherwise seek Middle East airlines with less discriminatory customer preferences and owner tastes.

Our study makes at least three contributions to research on discrimination and IB strategy. First, we develop a new concept, discriminatory product differentiation, to explain how some international firms compete for certain customers by designing products others might object to and avoid. Second, we collect new

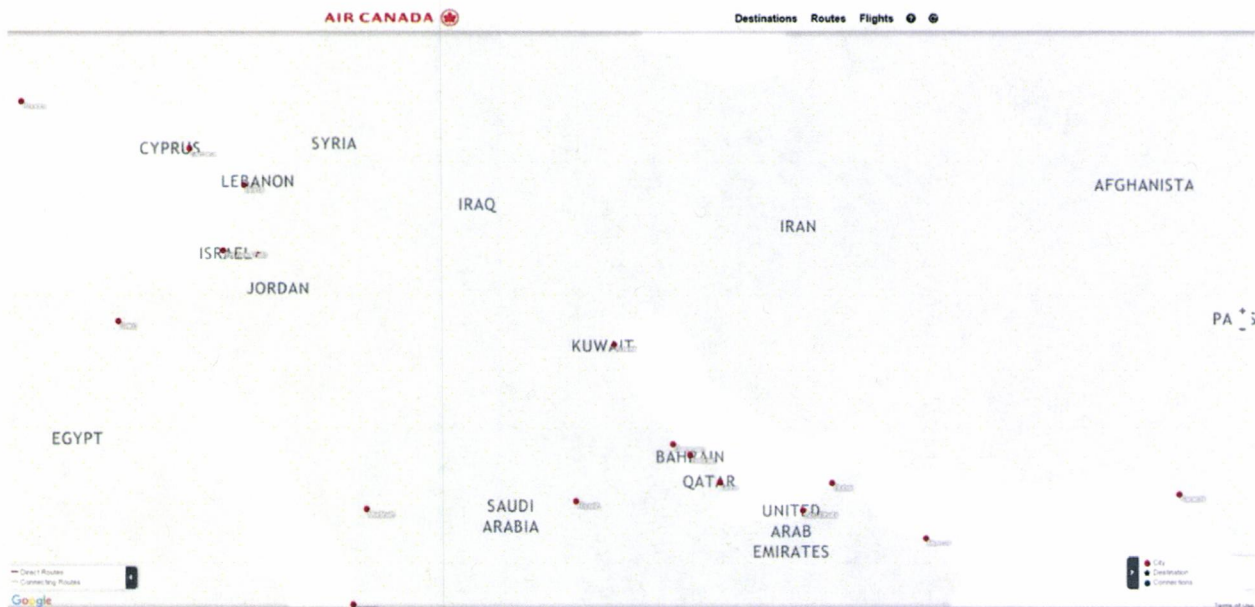
cross-country data with comparable firm-specific measures of discriminatory product differentiation as well as comparable firm-specific measures of customer preferences and owner tastes. Third, we assess new cross-country evidence on the simultaneous impact of customer preferences and owner tastes on discriminatory product differentiation, the scope of discriminatory product differentiation, and the alliance impact of discriminatory product differentiation.

To elaborate on these points, we proceed in five additional sections. Section 2 describes various modes by which international airline online route maps depict Israel and Israeli cities. The maps are themselves interesting. They also serve as data for follow-on empirical analyses. Section 3 summarizes literature related to our discriminatory product differentiation concept and international firm context in which we employ the concept. We develop the theoretical framework for our proposition that discriminatory product differentiation by an international firm reflects customer preferences in countries they serve and owner tastes related to home-country norms. We translate that proposition into six testable hypotheses related to the impact of customer preferences and owner tastes on map and online in-flight menu designs as well as on the likelihood of membership in major international alliances. Section 4 discusses data sources, sampling, and tests employed to assess empirical support for our six hypotheses. Section 5 reports results from regression and related analyses evaluating that evidence. Section 6 concludes with a review of key findings, their research and related implications, study limitations, and possible future directions for research on discriminatory product differentiation in similar industry contexts.

2. Empirical Context

In 2016 and today, international airlines typically present online route maps using one of five modes.⁷ The first and most common map mode presents routes connecting destination cities within named countries. Many of the largest airlines in the world present maps bearing a Google logo and listing the name of every country in the world, including Israel. These airlines “intentionally embrace” Israel. Air Canada’s map of the Middle East in Figure 2 is illustrative. It depicts all country names in the region and includes a Google logo in the lower left-hand corner. We found maps of this same mode for many large airlines from North America, Europe, and Asia—for example, U.S.-based Delta Airlines, Germany’s Lufthansa, Air China, and Japan Airlines. Maps for these airlines acknowledge all country names to customers searching for flights.

A second online route map mode does not list any country names but does depict cities in Israel served

Figure 2. (Color online) Online Route Map for Air Canada

by international airlines, typically Tel Aviv, either by name or symbol. These airlines “plausibly embrace” Israel because inclusion of an Israeli destination city presumably obligates the airline to acknowledge the country where it is located. Figure 3 illustrates this second mode with the map for Royal Jordanian Airlines. Destination cities, such as Amman, Doha, and Tel Aviv appear as red dots. Other plausible embracers include Israel’s El Al Airlines. Maps for the country’s flag carrier depict neither Israel nor any other country.

A third online route map mode used by international airlines does not depict any country names and does not depict Israeli cities either by name or symbol. International airlines with this map mode do not provide direct flights to Israel. As noted earlier, these airlines avoid Israel. Their maps neither explicitly embrace nor deny Israel’s existence pictorially. They avoid the country operationally by not offering direct flights to Israeli cities. Figure 4 illustrates this third mode with Royal Air Maroc. Several airlines based in countries outside North Africa and the Middle East use an avoider map. They include UK-based flybe, Icelandair, and Australia’s Qantas Airways, which has direct flights between the Europe and Australasia stopping in Middle East countries other than Israel.

A fourth online route map mode that depicts nearly all countries except Israel, does not list any Israeli city destinations and does not provide direct flights to Israel. These airlines “plausibly deny” Israel. Two airlines, both from the United Arab Emirates (UAE), employ this mode: Emirates and Ethihad Airways.

The Etihad Airways map in Figure 5 omits Israel along with North Korea, Taiwan, and certain countries in Africa. The Emirates map also omits Israel along with North Korea and Taiwan. Both maps bear Google logos. These airlines selectively acknowledge country names for customers searching for flights. Israel is omitted, but because that omission is bundled with a few other countries, Israel is less obviously singled out.⁸

A fifth online route map mode depicts all countries except Israel, does not list any Israeli cities, and does not provide direct flights to Israel. Airlines using this fifth mode are all based in the Middle East: UAE-based Flydubai, Kuwait Airways, Lebanon-based Middle East Airlines, Qatar Airways, and Saudi Arabia’s Saudia Airlines. These five airlines “intentionally deny” Israel. Figure 6 presents the Saudia map covering Europe, Africa, the Middle East, and much of Asia. It includes Iran, Taiwan, North Korea, and other countries but does not name Israel. We think this indicates a specific intent not to acknowledge Israel. Saudia’s map bears the Google logo as do maps of other airlines using this fifth mode. Three such airlines are members of major international alliances led by prominent U.S. carriers: Qatar Airways is in the OneWorld alliance led by American Airlines; Middle East Airlines and Saudia are in the SkyTeam alliance led by Delta Airlines.

Targeted omission of Israel from online route maps was exceptional in 2016. For example, none of the following international airlines based in the PRC published maps in 2016 omitting only Taiwan: Air

Figure 3. (Color online) Online Route Map for Royal Jordanian Airlines



China, Cathay Pacific, China Eastern Airlines, China Southern Airlines, Dragonair, Hainan Airlines, and Shenzhen Airlines.⁹ Nor did American Airlines, Delta Airlines, nor United Airlines publish maps omitting Cuba, North Korea, or Iran, the trio of countries U.S. President George W. Bush labeled as an “axis of evil” in 2002.¹⁰

Nor did all international airlines based in the Middle East single out Israel for omission from online route maps in 2016. For example, Egypt-based Nile Air is an Egyptian company established in 2008 and partially owned by Dr. Nassar Al Tayyar, the former president of Al Tayyar Group, a travel agency based in Saudi Arabia. It flies from Cairo and Alexandria to destinations in Saudi Arabia, Kuwait, Iraq, and Sudan. The airline does not serve Israel, but its map in 2016 included the Google logo and named Israel consistent with other intentional embracers. Early that same year, the state-owned Saudi Arabian budget carrier, Flynas, also used a generic Google map naming Israel.¹¹

International airlines based in Muslim-majority countries also varied their online route map treatment of Israel in 2016. Biman Bangladesh Airlines published an avoider map omitting all country names. Malaysia Airlines published an intentional embracer map naming Israel. Royal Jordanian Airlines and Turkish Airlines both flew to Tel Aviv and depicted it on maps like other plausible embracers. Several of these airlines were and are members of major international airline alliances led by prominent U.S. carriers: Malaysia Airlines and Royal Jordanian Airlines are in the OneWorld alliance led by American Airlines; Turkish Airways is in the Star alliance led by United Airlines.

Some international airlines from the Middle East paired omission of Israel’s existence from online route maps with other more conventional forms of discrimination that overtly treated some customers differently and poorly compared with others. In 2015, Kuwait Airways denied service on a New York-to-London flight to an Israeli passport holder married

Figure 4. (Color online) Online Route Map for Royal Air Maroc



Figure 5. (Color online) Online Route Map for Etihad Airways

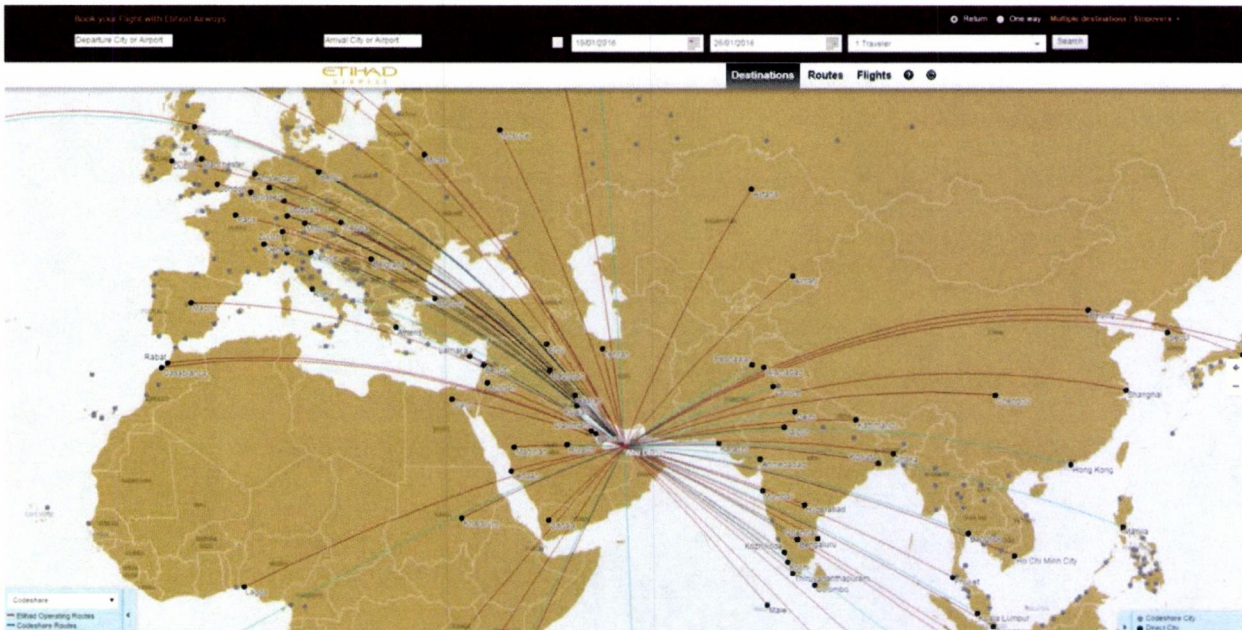
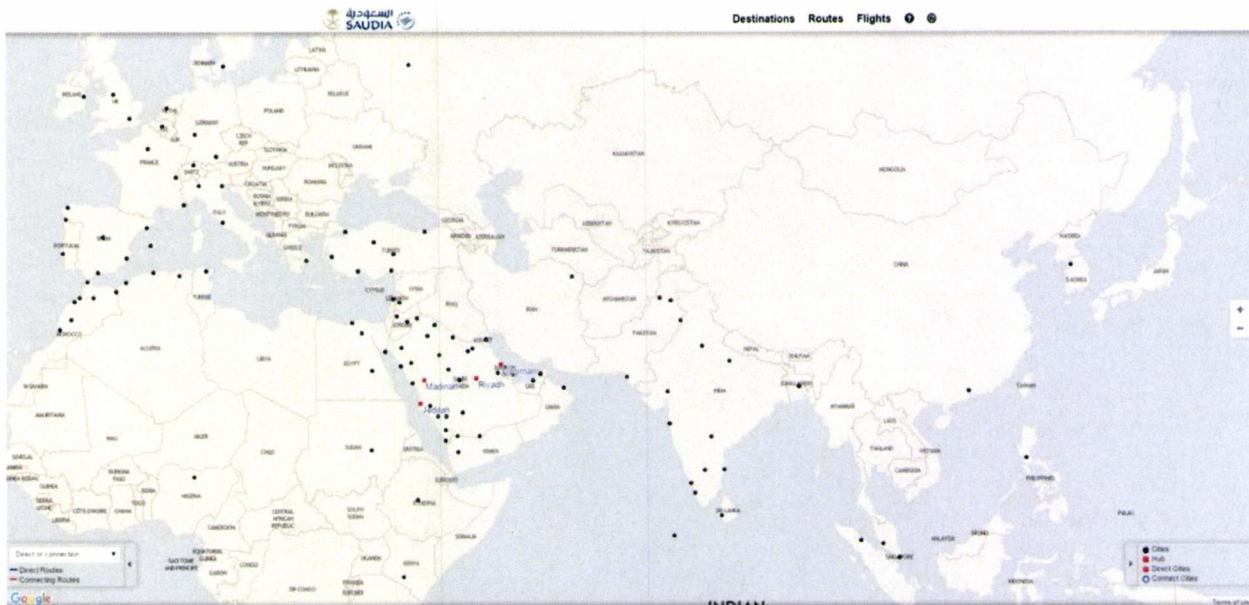


Figure 6. (Color online) Online Route Map for Saudia Airlines



to a U.S. citizen. A state-owned airline, Kuwait Airways noted that Kuwait did not recognize Israel and that domestic Kuwaiti law barred carriage of Israelis on Kuwait Airways even for flights between countries that did recognize Israel. Ordered on September 30, 2015, to cease such “unreasonable discrimination” by the U.S. Department of Transportation (DOT), Kuwait Airways responded by dropping the route.¹²

Other international airlines use less controversial forms of product differentiation. In 2015, two entrepreneurs with Hindu backgrounds launched Rayani Air to serve observant Muslim travelers based in Malaysia. In addition to depicting Israel and all other countries on the online route map, Rayani Air also promised customers flights including “prayers, halal meals, and a dress code for attendants.”¹³

At least three facts from this review of online route maps merit highlighting. First, there is substantial variation in map design among international airlines around the world, in Islamic-majority countries, and even in Islamic-majority countries of the Middle East. Second, even with that variation, several airlines in the Middle East have plausible or intentional denier maps omitting Israel. Third, three of those denier airlines are also members of major international alliances led by prominent U.S. carriers.

Having documented modes by which international airlines treated Israel on online route maps in 2016, we next present a theoretical framework for analyzing discriminatory product differentiation in international firms based on preferences of customers they serve in different countries and tastes of owners typically from their home countries. That framework

also suggests motivations for excluding discriminatory firms from alliances comprised of other firms touting nondiscriminatory norms. We then turn to three empirical tasks. First, we document the extent to which those customer preferences and owner tastes explain variation in airline map treatment of Israel. Second, we investigate whether the same forces explaining map treatment of Israel also explain variation in the treatment of Jewish customers via decisions to list kosher meal options on online in-flight menus. Finally, we analyze how those customer preferences and owner tastes explain whether an airline was a member of the Star, OneWorld, or SkyTeam alliance.

3. Theoretical Background

3.1. Customer Preferences

Although discrimination is often studied in management, economics, and related fields, much more work analyzes discrimination in labor rather than product markets.¹⁴ We view product differentiation designed to attract certain customers but deter others through two theoretical lenses: one is a product-positioning lens in the tradition of Hotelling (1929); another is a customer discrimination lens in the tradition of Becker (1957). Imagine a differentiated product market with a one-dimensional attribute located on a Hotelling line. The one-dimensional product spectrum measures the degree of dislike that international airline customers have for Israel and traveling with passengers related to Israel. An airline seeking the patronage of customers preferring to avoid those passengers might then locate at an extreme end of the

spectrum. They would be inclined to omit Israel's name from online route maps as well as in-flight travel conveniences Israel-related passengers might request.¹⁵ As we move from the extreme position back toward the middle, we would find airlines increasingly interested in the patronage of customers who acknowledge Israel, who might travel to Israel, and who appreciate an airline catering to the in-flight travel needs of these Israel-related passengers. These airlines would be more inclined to depict Israel or Israeli cities on maps even if they did not fly there. They would be more likely to list kosher meal options on online in-flight menus.¹⁶

The operation of differentiated product markets—and, in particular, whether customers find a product matching their preferences—often depends on the size of fixed costs in relation to market size. Imagine that fixed costs are high enough so that there is only one international airline positioned on the product spectrum. Customers would face different “travel costs” represented by distance from their preferred product position and the product's actual positioning on the spectrum. If the distribution of preferences is single-peaked, then it is generally most profitable for the airline to locate its product at a position corresponding to the peak. Certain customers with preferences located nearer to that position will benefit more than other customers with preferences located further away.

At what point does positioning on this spectrum indicate firm intent to design a product to appeal to certain customers because others might object to and avoid it? Even in the absence of discriminatory intent, product markets may appear to be guided by an apparent “tyranny of the majority” (Waldfoegel 2007). The larger the number of customers who prefer a product located, say, on an extreme end of the spectrum, then the less attractive that same product becomes to other customers preferring locations nearer to the middle. The positioning of daily newspapers in many U.S. cities provides a useful illustration of this idea. Newspaper preferences differ sharply between black and white readers.¹⁷ The larger the white population of a metropolitan area—for a given nonwhite population—the more that a newspaper caters to the preferences of white readers. George and Waldfoegel (2003) document negative cross-group consumption effects in U.S. daily newspaper markets such that more whites in one newspaper market reduces the tendency among blacks to read that newspaper. Although this mechanism can give rise to harm imposed by a larger customer group on another smaller one, it is not intentional discrimination, but an unintended side effect of the operation of differentiated product markets.

Our approach differs from George and Waldfoegel (2003). We attribute product design to an apparent

intent by firms to cater to the discriminatory preferences of certain customers. In the context of our study, an international airline's product design caters to the discriminatory preferences of the airline customers across different countries where the airline operates. When the product design component is the online route map, then stronger discriminatory preferences among customers prompt airlines to consider omitting Israel, either along with other countries as an Israel avoider or alone as an Israel denier. That prompt does not follow from any animus among the airlines, but from their profit-motivated interests in catering to customers preferring not to travel with passengers related to Israel.

Hypothesis 1. *International airlines are more likely to omit Israel from online route maps when airline customers have stronger preferences against traveling with Israel-related passengers.*

3.2. Owner Tastes

Discriminatory product differentiation may have both demand- and supply-side prompts. As suggested, on the demand side, product design lets firms cater to the discriminatory preferences of customers with a subtlety that overt discriminatory treatment of disfavored groups rarely permits. As another example, consider a cable (pay) television firm operating in a right-leaning (Republican) region of the United States. It might cater to majority viewer political preferences rather than those of left-leaning (Democratic) viewers. The firm might produce news disfavoring left-leaning views—perhaps running more stories critical of Democratic rather than Republican politicians. Programming with this bias might lead to objection by and then loss of left-leaning viewers but attract many more right-leaning viewers, thus advancing the profit goals of a firm owner who might harbor no political animus toward left- or right-leaning viewers.

But what if that cable television firm owner does harbor animus against left-leaning viewers? Now, supply-side motivations for discriminatory product differentiation emerge. The owner might design products to indulge a discriminatory taste in ways that reduce profitability. Maybe the owner's personal political views are far to the right of the average viewer. Maybe, too, the owner derives personal satisfaction from expressing those extreme views. This combination of factors could lead to an increase in programming bias above the level maximizing overall viewership—perhaps running only stories critical of Democratic (not Republican) politicians. The owner would be sacrificing profits to indulge a discriminatory taste stronger than discriminatory viewer preferences. Gentzkow and Shapiro (2010) use this

logic to analyze the extent of media company bias in U.S. daily newspaper markets.

When the product design component is the online route map, the discriminatory tastes of some international airline owners might prompt use of an avoider map omitting Israel and all other countries even though customers would prefer an embracer map naming Israel. Stronger discriminatory owner tastes might prompt use of a denier map singling out Israel for omission. Airline owner animus against Israel-related customers could lead to product design changes that discriminate more than favored customers prefer. The strategy is less profitable but indulges the airline owner's discriminatory taste.

Hypothesis 2. *International airlines are more likely to omit Israel from online route maps when airline owners have stronger tastes against serving Israel-related customers.*

3.3. Motivational Scope

Phrases such as "Israel-related passengers" and "Israel-related customers" gloss over context-specific factors we now address directly. Observers often distinguish opposition to Israel and Israelis from opposition to Jews. For example, Saudi Arabia bans Israelis from the country but allows Jews. The Saudi Ministry of Labor bars entry "only to those with Israeli citizenship. Other than that, we are open to most nationalities and religions." A Saudi spokesman describes the policy as evidence that the kingdom is open to other religions.¹⁸ Hence, refusal to serve Israelis on the basis of nationality and omitting Israel's name from online route maps can be viewed as mere compliance with the domestic laws of countries not recognizing Israel. Such compliance may be especially important when an international airline is also majority state-owned as in the 2015 Kuwait Airways case.¹⁹

These anecdotes suggest that there may be variance in the discriminatory motivation underlying product differentiation strategies. If only directed at Israeli customers, then the motivational scope is narrower than if directed at Jewish customers no matter their nationality. To distinguish between these two motivations, we can analyze context-specific components of product design that plausibly matter for one but not the other. In our international airline context, we look to online in-flight menu offerings. Whether an airline lists kosher meal options on online in-flight menus reflects a decision about the motivational scope of discriminatory product differentiation. Jews might follow *kashrut* regardless of their nationality. An airline seeking to serve Jewish customers, even if prohibited by domestic law from serving Israelis, would then have greater incentive to publicize kosher meal options on online in-flight menus. Our framework proposes that catering to discriminatory

customer preferences against traveling with Jewish passengers or indulging airline owner tastes against serving Jewish customers would decrease that incentive.

Hypothesis 3. *International airlines are more likely to omit kosher meal options from online in-flight menus when airline customers have stronger preferences against traveling with Jewish passengers.*

Hypothesis 4. *International airlines are more likely to omit kosher meal options from online in-flight menus when airline owners have stronger tastes against serving Jewish customers.*

3.4. Alliance Membership

Given that nearly 60% of all international air travel is accounted for by three major alliances, it is important to understand how the discriminatory product differentiation strategies of individual firms may affect their likelihood of being alliance members. Prior research provides guidance. A discriminating firm may be excluded because of what researchers in IB (Parkhe 1991, 1993; Pothukuchi et al. 2002), international marketing (Sarkar et al. 2001), and related fields such as organization theory (Madhok and Tallman 1998) describe as "cultural incompatibility" with other alliance members. By this term, we mean the dissimilarity of behavioral norms between the discriminating firm and potential allies (Sarkar et al. 2001). For Pothukuchi et al. (2002), those norms are demonstrated by patterns of organizational practice indicative of deeper national beliefs and values. When many important patterns of practice are mandated by regulatory and technological standards common to all incumbent firms, similarity or dissimilarity in behavioral norms are likely to follow more closely from the deeper national beliefs and values where firms operate.

The international airline industry is an apt example with well-known industry standards for airline navigation and safety set by institutions such as the UN's International Civil Aviation Organization and the International Air Transport Association and well-accepted technological standards for airline construction and operation set by the two dominant long-haul civil aircraft manufacturers, Boeing and Airbus (Johannessen 2016). Dissimilarity in national beliefs and values raises the cost of sharing valuable assets and information between firms internationally (Parkhe, 1991, 1993). Greater similarity increases mutual trust, reciprocal commitment, and multilateral information exchange, all lowering the costs of cooperating to achieve greater international scope in operations (Madhok and Tallman 1998, Sarkar et al. 2001).

In our framework, product design components, such as online route maps and online in-flight menus,

reflect international airline business norms informed substantially by beliefs and values where an airline is headquartered and operates. Omitting Israel from maps and omitting kosher meal options from online in-flight menus may reflect business norms informed by the discriminatory preferences of customers in countries served by the airline. These same product design components may also reflect business norms informed by the discriminatory tastes of the airline owner's home country. Airlines setting business norms based on discriminatory customer preferences in individual countries served indicates a polycentric approach. Airlines doing the same based on their home country represents an ethnocentric approach.

Perlmutter (1969) notes these two organizational approaches along with a third geocentric approach in which international airlines set business norms based on a single referent not necessarily traceable to the airline's home country. Geocentric norms generally reflect broader cross-country, perhaps even global, consensus about appropriate behavior—what Donaldson and Dunfee (1994) call hyper-norms. In our context, behavioral hyper-norms would prompt greater interest in serving a broader range of customers than in the home country or even the different foreign countries currently served by an airline. Large U.S. carriers with the broadest range of customers and destinations and the greatest influence in determining membership in international alliances also tout their commitment to nondiscrimination. Cultural incompatibility with this behavioral hyper-norm would decrease the likelihood of international alliance membership as discriminatory customer preferences and discriminatory owner tastes for a given airline strengthen.

Hypothesis 5. *International airlines are less likely to be members of alliances when airline customers have stronger preferences against traveling with Israeli or Jewish passengers.*

Hypothesis 6. *International airlines are less likely to be members of alliances when airline owners have stronger tastes against serving Israeli or Jewish customers.*

4. Empirical Methods

4.1. Data and Sampling

To test these six hypotheses, we collect data on 112 airlines flying international routes in the first quarter of 2016. Our aim is to sample international airlines serving the Middle East or at least depicting the Middle East on an online route map marked in English.²⁰ Requiring online rather than printed maps has advantages. Online maps are available to travelers anywhere in the world with web access. They may be viewed by thousands of individuals interested in an airline as potential carrier customers. The global map at Delta Airline's U.S. website alone had

more than 50,000 visits in six months from July 2018 to December 2018 (Similarweb.com 2018).²¹ Aside from their availability to the traveling public, these maps typically have zoom-in capabilities to permit depiction of country names for even small states. Online maps contrast with single-scale printed maps in the back of many airline magazines. Printed country maps may omit the names of smaller countries (such as Israel) as unreadable. Customers considering airline ticket purchases are less likely to use printed maps, which are typically found in lounges for ticketed, in-transit travelers, and in seat-back pockets facing ticketed in-flight passengers.

We start with a list of 522 airlines listed on openflights.org, a Singapore-based website mapping flights around the world.²² We identify 107 airlines with headquarters anywhere in the world, at least 25 international city-pair destinations (e.g., Tokyo–London), and an online route map of the Middle East marked in English. We identify another five airlines with headquarters in the Middle East, at least one international city-pair destination (e.g., Beirut–London), and an English-marked map.

The resulting 112 international airlines in our base sample include some of the world's largest airlines (e.g., Delta Airlines), many state-owned airlines (e.g., Qatar Airways), and several smaller airlines (e.g., Hungary-based Wizz Air) from within (e.g., Kuwait-based Jazeera Airways) and without (e.g., Aerolineas Argentinas) the Middle East. Our sample also includes airlines such as Icelandair, which does not have regularly scheduled flights to Middle East destinations but still has an online route map of the region marked in English.

We also collect data on alliance membership for the same 112 international airlines. We look to individual airline websites (e.g., Qatar Airways), the websites of prominent U.S. carriers leading major alliances (e.g., American Airlines), and alliance websites (e.g., OneWorld). We use these online data to identify whether airlines are members of the Star, OneWorld, or SkyTeam alliances.

We also collect data on in-flight menus for a subsample of these same 112 international airlines. We require that they have information on online in-flight menus marked in English. The logic for requiring online in-flight menus follows the same logic for using online route maps. Online listings are likely more readily available to customers choosing airlines or ticketed (but not yet traveling) customers able to switch airlines. They also permit greater detail in menu description. To obtain this online information, we consult individual airline websites and a travel website that collected and published this information for airlines in 2016, wanderbat.com. The resulting subsample of 84 airlines with this online

information again includes airlines of different sizes, ownership types, and locations around the Middle East and the world.²³

4.2. Outcome Variables: Route Map Treatment, Meal Options, and Alliance Membership

We create three outcome variables for each international airline in our base sample: 1) their online route map treatment of Israel (*Route Map Treatment*), 2) whether they have kosher meal options on online in-flight menus (*Kosher Meal Options*), and 3) whether they are members of one of the three major international alliances including prominent U.S. carriers (*Alliance*). We use the *Route Map Treatment* variable to test Hypotheses 1 and 2, the *Kosher Meal Options* variable to test Hypotheses 3 and 4, and the *Alliance* variable to test Hypotheses 5 and 6.

For our first outcome variable, *Route Map Treatment*, we observe the treatment of Israel on an international airline's online route map and categorize that treatment either as an Israel embracer (*Route Map Treatment* = 3), avoider (*Route Map Treatment* = 2), or denier (*Route Map Treatment* = 1). This measurement approach consolidates plausible and intentional embracers into a single embracer category. It also consolidates plausible and intentional deniers into a single denier category. The avoider category is unchanged and lies between the other two in a three-level ordinal ranking.²⁴

For our second outcome variable, *Kosher Meal Options*, we observe whether an international airline in-flight menu lists kosher meal options at its company website or at wanderbat.com. We categorize airlines as either including such kosher meal options (*Kosher Meal Options* = 1) or not (*Kosher Meal Options* = 0).

For our third outcome variable, *Alliance*, we observe whether an international airline is listed as a member of either the Star, OneWorld, or SkyTeam alliances. We categorize airlines as either in one of these major international alliances (*Alliance* = 1) or not (*Alliance* = 0). Wang and Evans (2002) tell us that terms of alliance membership differ, but they typically permit shared use of facilities, such as airline lounges, and employees, such as ground crew, as well as coordinated benefits, such as mutual recognition of frequent-flyer programs or the purchase of around-the-world tickets requiring multiple carriers. We do not require that airlines also list common flight codes with alliance members though code sharing is frequent among alliance members.

4.3. Explanatory Variables: Customer Attitudes and Owner Tastes

The main explanatory variables of interest are international airline-specific measures of discriminatory

customer preferences for Israel-related passengers and discriminatory owner tastes for Israel-related customers. We develop two airline-specific measures of customer preferences for Israel-related passengers: *Customer Preferences* and *Customer Kosher Interests*. *Customer Attitudes* measures negative assessments of Israel-related passengers by airline customers. We combine information on the geographic origin of an airline's prospective or actual ticket holders—customers—with anti-Semitism levels in their home countries. The ADL provides survey-based data on the degree of anti-Semitism in 100 countries.²⁵ Measures range from 0 to 100 with 100 indicating the highest degree of anti-Semitism. ADL data we use indicate substantial variation across the world with the highest measures in the Middle East. Iraq has the highest index value at 92, followed in descending order by 88 for Yemen; 87 for Algeria; 86 for Tunisia; 82 for Kuwait; 81 for Bahrain and Jordan; and 80 for Morocco, Qatar, and the UAE. By comparison, the same index value is 8 for the United Kingdom, 9 for the United States, 27 for Germany, and 37 for France.

Although we cannot directly observe the geographic origin of customers, we can indirectly observe geographic origins of Google-based searches for international airline websites. Google Trends provides information on the use of particular search terms by Google users across countries since 2004. We obtain Google search-term use intensity from the Google Trends site for each airline name, by country, for the period from 2004 to the first quarter of 2016.²⁶

Our approach yields reasonable-looking measures of customer locations for each international airline. For example, a Google Trends search on the Russian carrier "Aeroflot" yields the maximum index value of 100 on a 0–100 scale for Russia. The index values are 45 for Armenia, 32 for Kyrgyzstan, 17 for Uzbekistan, 17 for Cyprus, 14 for Latvia, 13 for Azerbaijan, 13 for Belarus, 11 for Kazakhstan, 8 for Ukraine, 8 for Moldova, 8 for Estonia, 6 for Hong Kong, and 6 for Israel; index values are lower for an additional 30 countries. Not surprisingly, interest in Aeroflot is concentrated largely in and near Russia. Other Google Trends searches yield similar geographically concentrated results.

A Google Trends search index value is a per-search use intensity measure, so it should be weighted by country size to determine a distribution of interest in an international airline across countries. We might weight measures by population but instead weight by GDP because larger countries economically also likely use more airline services. The midpoint of our 2004–2016 observation period is 2010, so we use that year's GDP to weight measures. Using this approach,

we calculate a weighted customer anti-Semitism measure specific to each airline i as follows:

$$CA_i = \sum_{c \in C} \left(\frac{Google_i^c GDP^c}{\sum_{c \in C} Google_i^c GDP^c} \right) ADL^c,$$

where $Google_i^c$ is the Google search index for airline i in country c , GDP^c is 2010 GDP in country c as reported by the World Bank, ADL^c is the ADL anti-Semitism index for country c , and C is the full set of countries. Thus, *Customer Attitudes_i* (CA_i) measures airline i 's weighted average of the ADL index on a 0–100 scale. Note that this measure varies across airlines even if the airlines are located in the same country as long as their customers are distributed differently across countries. We expect *Customer Attitudes* to be negatively related to *Route Map Treatment*. We expect a related 0–1 categorical variable, *Embracer*, taking the value of one (zero otherwise) when *Route Map Treatment* equals three, to be positively related to *Alliance*.

Customer Kosher Interests measures positive assessments of Israel-related passengers by international airline customers. We follow a similar measurement approach to *Customer Attitudes*. We first obtain the search intensity on use of the word “kosher” by country. For each airline, we then weight these search intensities by the GDP-weighted search intensities on the respective airline names. Our approach yields reasonable-looking results. A Google Trends search on “kosher” for Israel’s Arkia Airline yields a *Customer Kosher Interests* index value of 90 on a 0–100 scale. The second highest *Customer Kosher Interests* index value is 65 for El Al, followed by the major U.S. and Canadian carriers with *Customer Kosher Interests* index values from 35 to 45. Airlines with the lowest *Customer Kosher Interests* index values are below 0.4: Saudia, Flynas, TAAG Angola, Kazakhstan’s Air Astana, and Egypt’s Nesma. We expect this variable to be positively related to *Kosher Meal Options*.

We develop a single measure of discriminatory owner tastes: *State-Owned Doesn’t Recognize*. To develop this measure negatively assessing Israel-related customers, we first note that many international airlines are majority state-owned. This arguably simplifies the determination of owner taste. We classify majority state-owned airlines located in countries not recognizing Israel as owners potentially preferring not to serve customers associated with Israel. Data on whether the airline is majority state-owned are from airline websites and the International Civil Aviation Organization (ICAO), a UN agency managing the administration and governance of the Convention on International Civil Aviation.²⁷ We then use Wikipedia to ascertain whether an airline’s

home-country government recognizes Israel diplomatically.²⁸ We use this information to create our categorical measure related to owner’s taste: *State-Owned Doesn’t Recognize* is a categorical measure indicating whether an airline is majority state-owned by a country not recognizing Israel (*State-Owned Doesn’t Recognize* = 1) or not (*State-Owned Doesn’t Recognize* = 0). We expect a negative relationship between this variable and *Route Map Treatment*, *Kosher Meal Options*, and *Alliance*.

4.4. Control Variables

In addition to these explanatory variables of main interest, we create variables to serve as controls. The size and safety rating of airline operations may also explain variation in online route map treatment and the availability of online in-flight menu kosher meal options. Larger international airlines carry more passengers likely to be from more countries around the world. Safer airlines also tend to have more technologically advanced aircraft and better-trained crews. Both characteristics point to closer adherence to other global hyper-norms, including political ones recognizing UN member states, social ones catering to different customer dietary preferences, and commercial ones permitting cooperation among airlines.

To control separately for these attributes, we collect data from Wikipedia and airline websites on airline fleet size and take its natural logarithm (*Aircraft*). We also collect data on airline safety (*Safety*) from the *West Australian*, a newspaper grading airlines from zero to seven with seven being the highest safety rating.²⁹ An alternative means of achieving broader operational scale and scope is through alliance membership; thus, we also include the *Alliance* term as a control in some estimations. For analyses of the likelihood of advertising a kosher meal option, we also include a control for the breadth of other meal options advertised by sampled airlines. We operationalize this as the number of available options among Muslim, Hindu, diabetic, and vegetarian. Our *Menu* control ranges from zero (no nonkosher meal options) to four (all four meal options other than kosher). Data for this control comes from wanderbat.com and airline websites. All control variable measures are current to the first quarter of 2016. We expect these control variables to exhibit positive signs when included in regression analyses of *Route Map Treatment*, *Kosher Meal Options*, and or *Alliance*.

5. Empirical Results

5.1. Descriptive Evidence and Preliminary Analytical Results

Table 1 reports sample means, standard deviations, and pairwise correlations for all variables used in

Table 1. Means, Standard Deviations, and Pairwise Correlations for Variables Used in Empirical Analyses

Variable	Mean	Standard deviation	RMT	KMO	Alliance	CA	CKI	SODR	Aircraft	Safety	Menu
1. RMT	2.5385	0.6062	1								
2. KMO	0.7262	0.4486	0.3673**	1							
3. Alliance	0.4554	0.5002	0.1620**	0.3767**	1						
4. CA	31.5404	18.2778	-0.5055*	-0.4881**	-0.1792*	1					
5. CKI	12.9835	13.7933	0.2775**	0.2694*	0.0315	-0.5440**	1				
6. SODR	0.1696	0.3770	-0.6283**	-0.3701**	-0.1744†	0.5722**	-0.2323*	1			
7. Aircraft	4.1654	1.0517	0.1327**	0.2908**	0.4738**	-0.3600**	0.2263*	-0.1510	1		
8. Safety	6.0625	1.1647	0.2259*	0.2290*	0.2290*	-0.3535**	0.2840**	-0.3527**	0.2799**	1	
9. Menu	3.1429	1.3366	-0.1434	0.4434**	0.4434**	0.1058	-0.1799	0.0481	0.2694*	0.2586*	1

Notes. Table 2 reports sample means, standard deviations, and pairwise correlations for all variables used in empirical analyses reported in this study. The variables include (1) *Route Map Treatment (RMT)*, a 1–3 ordinal variable indicating denier (1), avoider (2), or embracer (3) regarding the treatment of Israel; (2) *Kosher Meal Options (KMO)*, a 0–1 categorical variable indicating whether an airline offers kosher meal options on online menus (1) or does not (0); (3) *Alliance*, a 0–1 categorical variable indicating whether an airline is a member of one of three major international alliances (i.e., Star, OneWorld, or SkyTeam) (1) or not (0); (4) *Customer Attitudes (CA)*, a 0–100 integral variable indicating the extent of anti-Semitic attitudes and practices of an airline’s likely customers—higher values indicate greater anti-Semitism; (5) *Customer Kosher Interest (CKI)*, a 0–100 integral variable indicating the extent of searching on the word “kosher” by customers contacting airline online websites—higher values indicate greater kosher interest; (6) *State-Owned Doesn’t Recognize (SODR)*, a 0–1 categorical variable indicating whether an airline is majority state-owned and located in a country that does not recognize Israel (1) or not (0); (7) *Aircraft*, the natural log of the number of aircraft in an airline fleet; (8) *Safety*, a 0–7 ordinal variable indicating airline adherence to various safety criteria set by regulatory agencies (e.g., U.S. Federal Aviation Authority) industry associations (e.g., International Air Transport Association), and the *West Australian* newspaper compiling the safety ratings—higher values indicate greater safety; and (9) *Menu*, a 0–4 integral variable indicating the number of up to four online menu options other than kosher meal options advertised on airline websites or wanderbat.com—Muslim, Hindu, diabetic, and vegetarian. Other details on variable measures, sources, and sampling are provided in Section 4 of the study.

Significance levels: † = $p < 0.10$; * = $p < 0.05$; ** = $p < 0.01$.

our study. Sample means for the three dependent variables comport with intuition. The *Route Map Treatment* mean is 2.54; 66 of the 112 international airlines in our base sample have embracer online route maps, and 39 have avoider maps. Only seven are deniers: Emirates, Etihad Airways, Flydubai, Kuwait Airways, Middle East Airlines, Qatar Airways, and Saudia. The *Kosher Meal Options* mean of 0.73 indicates that almost three quarters (61) of the 84 subsampled airlines offer kosher meal options on online in-flight menus. The *Alliance* mean of 0.46 indicates that nearly half (51) of the airlines in our base sample are members of one of the three major international alliances.

Descriptive statistics for *Route Map Treatment* merit closer study to understand whether its use as an ordered dependent variable is warranted. Recall that only 7 of the 112 international airlines in our base sample are deniers (*Route Map Treatment* = 1), and most are embracers (*Route Map Treatment* = 3). What about avoiders (*Route Map Treatment* = 2)? Do they lie between these two other groups based on other relevant indicators? About a third (15) of the 39 airlines with avoider maps are from countries that do not recognize Israel, and only 3 of the 66 airlines with embracer maps are from countries not recognizing Israel. This pattern suggests that avoider airlines do lie between deniers and embracers in an ordered structure.

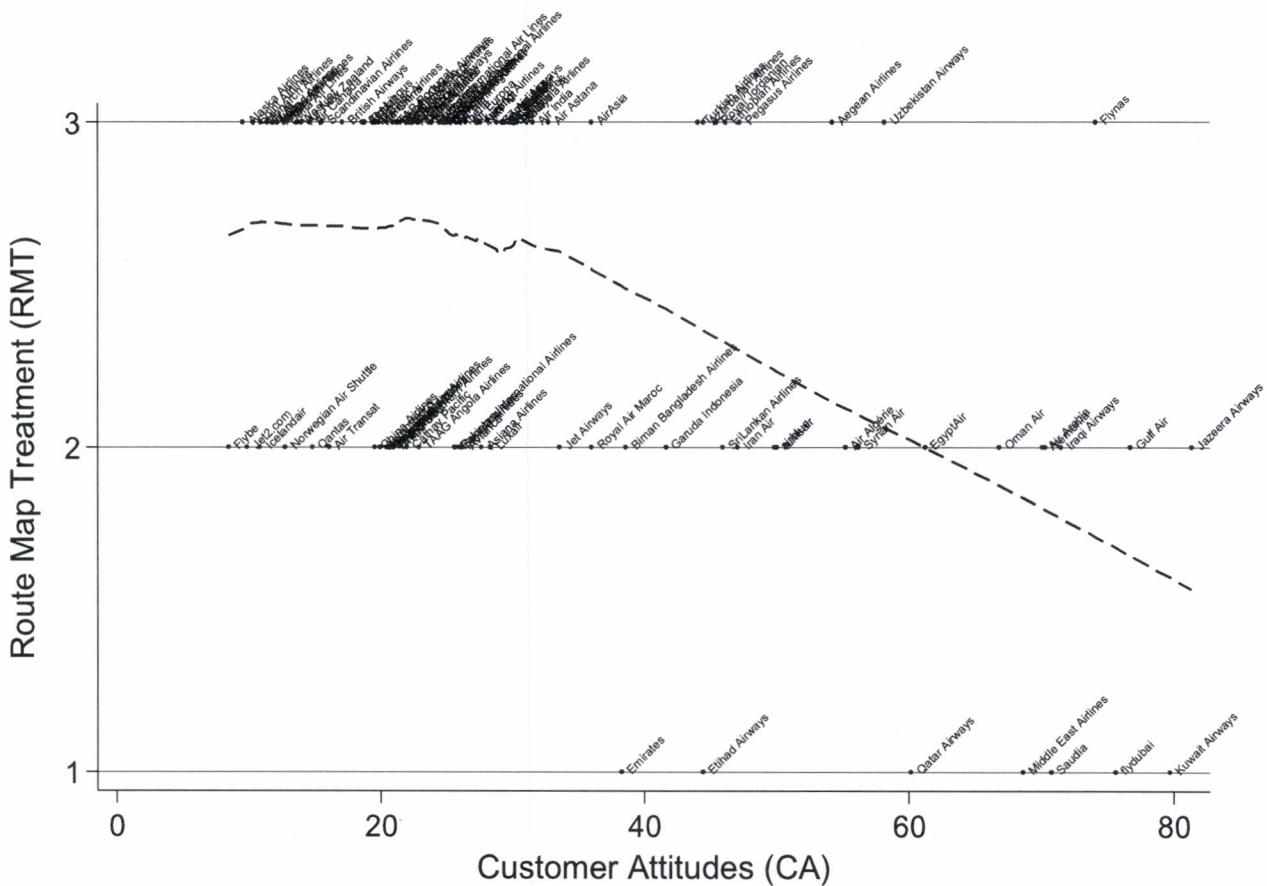
Route Map Treatment exhibits negative pairwise correlation with two key explanatory variables in Table 1: *Customer Attitudes* ($-0.51, p < 0.05$) and *State-Owned Doesn’t Recognize* ($-0.63, p < 0.01$). We take these results as preliminary evidence supporting

Hypotheses 1 and 2 that discriminatory customer preferences and owner tastes increase the likelihood of Israel’s omission from online route maps. *Kosher Meal Options* exhibits positive pairwise correlation with *Customer Kosher Interest* ($0.27, p < 0.05$) but negative pairwise correlation with *State-Owned Doesn’t Recognize* ($-0.37, p < 0.01$). Both results are consistent with Hypotheses 3 and 4 holding that customer preferences for kosher items increase, but discriminatory owner tastes decrease the likelihood of kosher meal options on online in-flight menus. *Alliance* also exhibits negative pairwise correlations with *Customer Attitudes* ($-0.18, p < 0.05$) and *State-Owned Doesn’t Recognize* ($-0.17, p < 0.10$). This preliminary evidence supports the Hypotheses 5 and 6 claims that discriminatory customer preferences and owner tastes also decrease the likelihood of airline membership in a major alliance.

Other preliminary evidence related to certain hypotheses is presented in Figures 7 and 8. In Figure 7, we use Stata’s locally weighted smoothed scatterplot (lowess) procedure to analyze *Route Map Treatment* trends explained by *Customer Attitudes*. The lowess curve for *Route Map Treatment* in Figure 7 declines as *Customer Attitudes* increases. Consistent with Hypothesis 1, international airlines are more likely to avoid or deny Israel’s existence on online route maps when their customers come from countries with higher rates of anti-Semitism.

Figure 7 also indicates which airlines exhibit online route map treatment of Israel more closely correlating with the discriminatory preferences of international

Figure 7. Lowess Analysis of Customer Attitudes (CA) and Israel Online Route Map Treatment (RMT)



Notes. Figure 7 plots Customer Attitudes (CA) and Route Map Treatment (RMT) values and then estimates a locally weighted, scatterplot-smoothed (lowess) trend line based on these values. See Table 1 for a summary description of Customer Attitudes (CA) and Route Map Treatment (RMT) and Section 4 of the study for more detailed description of each variable. We use Stata version 14.2 (StataCorp 2015) and Stata’s “lowess” procedure to create Figure 7.

airline customers. Greece-based Aegean Airlines, Uzbekistan Airlines, and Saudia Arabia-based Flynas each embrace Israel despite higher Customer Attitudes values. It is perhaps not surprising that Kuwait Airways, which has the highest Customer Attitudes value of all sampled airlines, also singles out Israel for omission. Emirates and Etihad both market themselves to travelers from outside the Middle East. As the more “outward-facing” airlines in the region, they also exhibit substantially lower Customer Attitudes values than, say, Kuwait Airways, Qatar Airways, or Saudia. Their different customer preferences help explain their more nuanced map treatment omitting a few other country names along with Israel.

Figure 8 presents analogous lowess results for the relationship between Kosher Meal Options and Customer Kosher Interests. For ease of interpretation, we include in Figure 8 only international airlines with Customer Kosher Interests values from 0 to 40, thus excluding Israeli and many U.S. carriers with higher Customer Kosher Interests values. Consistent with

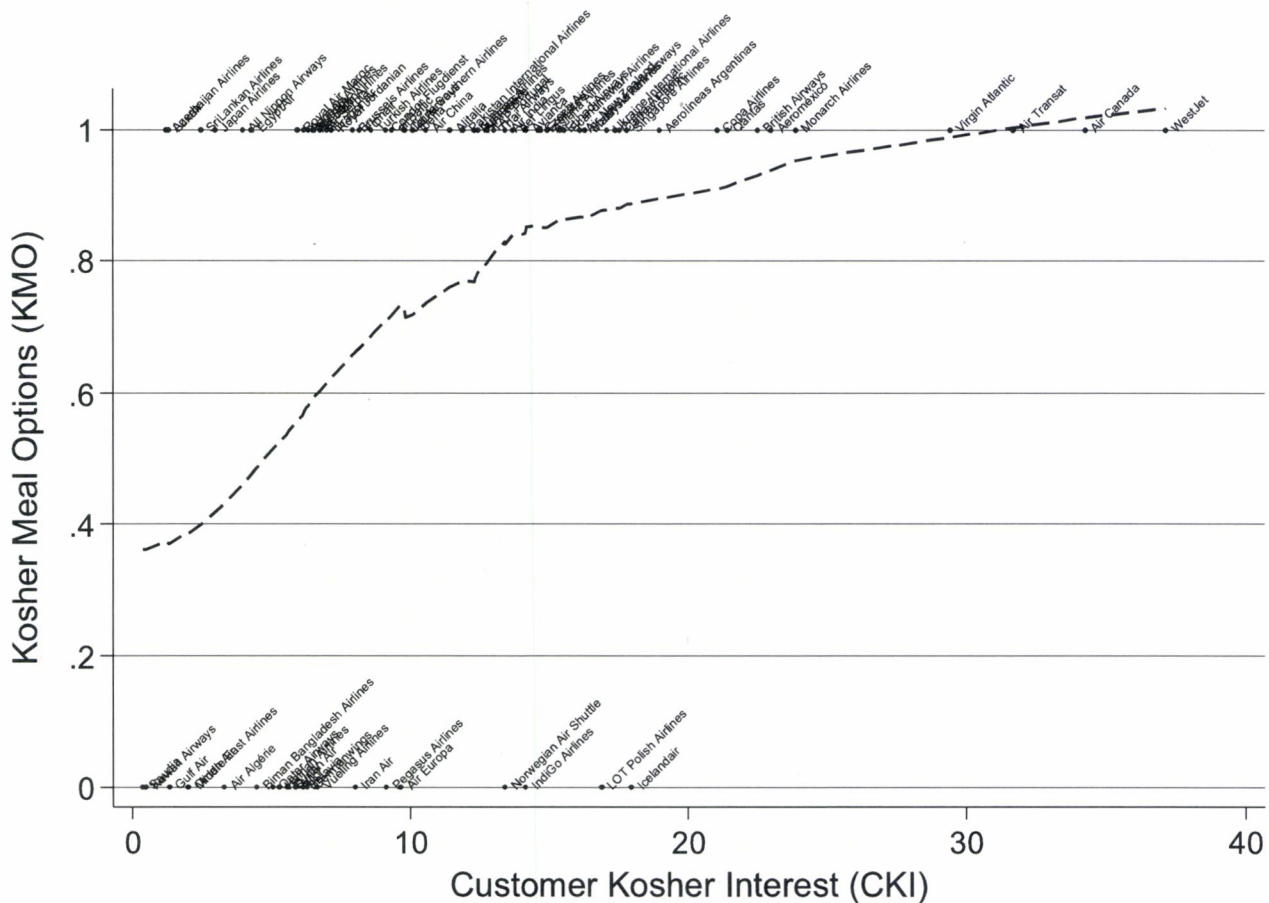
Hypothesis 3, the upward-sloping line indicates that increasing customer interest in kosher food is associated with a higher likelihood of kosher meal options on online in-flight menus. When Customer Kosher Interests values reach 10, the share of airlines with online in-flight kosher meal options is 80%. When Customer Kosher Interests values reach 20, the same share is 90%.

A comparison of alliance membership percentages for airlines that embrace Israel on online route maps (Route Map Treatment = 3) to percentages for airlines that avoid or deny Israel (Route Map Treatment = 1 or 2) supports Hypothesis 5. About 50% of the embracer airlines are members of the Star, OneWorld, or SkyTeam alliance, but only 30% of the avoiders or deniers are alliance members.

5.2. Ordered Probit Regression Results: Israel’s Online Route Map Treatment

To confirm and expand on this preliminary evidence, we next to turn to multivariate analyses. Columns (1)

Figure 8. Lowess Analysis of Customer Kosher Interest (CKI) and Online In-Flight Menu Kosher Meal Options (KMO)



Notes. Figure 8 plots airline Customer Kosher Interest (CKI) and Kosher Meal Options (KMO) values and then estimates a locally weighted, scatterplot-smoothed (lowess) trend line based on these values. The lowess trend line analysis is truncated at the Customer Kosher Interests (CKI) value of 40 though values can range from 0 to 100. A lowess trend line analysis with the full range of values is available from the authors. See Table 1 for a summary description of Customer Kosher Interest (CKI) and Kosher Meal Options (KMO) and Section 4 of the study for more detailed description of each variable. We use Stata version 14.2 (StataCorp 2015) and Stata’s “lowess” procedure to create Figure 8.

and (2) of Table 2 report ordered probit estimates for which the dependent variable is *Route Map Treatment*, which takes the value of one when airline online route map treatment indicates a denier, two when the airline is an avoider, and three when the airline is an embracer. Column (1) of Table 2 explains variation in *Route Map Treatment* with just our main explanatory variables of interest. Negative signs for both terms are significant at commonly accepted levels ($p < 0.10$ for *Customer Attitudes* and $p < 0.01$ for *State-Owned Doesn't Recognize*).

Column (2) adds the three controls. None is statistically significant at commonly accepted levels. Results for *Customer Attitudes* and *State-Owned Doesn't Recognize* are unchanged in sign with significance again at commonly accepted levels ($p < 0.05$ for *Customer Attitudes* and $p < 0.01$ for *State-Owned Doesn't Recognize*). Results in both columns of Table 2 are consistent with Hypothesis 1’s prediction that international airlines are more likely to omit Israel from

online route maps when their customers have stronger preferences against traveling with Israel-related passengers. Results are also consistent with Hypothesis 2’s prediction that airlines are more likely to omit Israel when owners have stronger preferences against serving Israel-related customers.³⁰

5.3. Probit Regression Results: Online In-Flight Menu Kosher Meal Options

Columns (3) and (4) of Table 2 report probit estimates with *Kosher Meal Options* as the dependent variable. We have data on all relevant variables for 84 international airlines in our base sample. In addition to the *Kosher Meal Options* dependent variable, we include the customer preferences (*Customer Kosher Interest*), owner tastes (*State-Owned Doesn't Recognize*), alliance (*Alliance*), safety (*Safety*), and fleet size (*Aircraft*) variables as well as a measure of the number of different meal options besides kosher offered by the airline (*Meal Options*). Column (3) explains the likelihood

Table 2. Ordered Probit and Probit Regression Analyses of *Route Map Treatment (RMT)* and *Kosher Meal Options (KMO)*

	RMT		KMO	
	(1)	(2)	(3)	(4)
<i>Customer Attitudes (CA)</i>	-0.0154 (0.0080)†	-0.0199 (0.0088)*		
<i>Customer Kosher Interest (CKI)</i>			0.0311 (0.0167)†	0.0975 (0.0335)**
<i>State-Owned Doesn't Recognize (SODR)</i>	-2.0303 (0.4977)**	-2.1361 (0.5289)**	-0.9930 (0.4045)**	-1.4119 (0.5737)*
<i>Alliance</i>		0.2818 (0.2867)		0.2848 (0.5040)
<i>Aircraft</i>		-0.1385 (0.1475)		-0.1309 (0.3300)
<i>Safety</i>		-0.1363 (0.1181)		0.3262 (0.2665)
<i>Menu</i>				1.0963 (0.2603)**
<i>Constant</i>			0.3977 (0.2774)	-4.9990 (2.0122)*
<i>Cut-point 1</i>	-3.2837 (0.5583)**	-4.8122 (1.1622)**		
<i>Cut-point 2</i>	-0.9509 (0.2582)**	-2.3704 (0.9683)*		
<i>N</i>	112	112	84	84

Notes. Table 2 reports ordered probit and probit regression coefficient estimates and standard errors (in parentheses) for up to 112 international airlines operating in the first quarter of 2016. See Table 1 for a summary description of the *Route Map Treatment (RMT)*, *Kosher Meal Options (KMO)*, *Customer Attitudes (CA)*, *State-Owned Doesn't Recognize (SODR)*, *Customer Kosher Interest (CKI)*, *Alliance*, *Aircraft*, *Safety*, and *Menu* variables and Section 4 of the study for a more detailed description of each variable used to obtain results. Columns (1) and (2) report ordered probit results based on 112 airlines with embracer (3), avoider (2), or denier (1) online route maps. Columns (3) and (4) report probit results based on 84 airlines with or without online in-flight menu kosher options.

Significance levels: † = $p < 0.10$; * = $p < 0.05$; ** = $p < 0.01$.

of an airline listing kosher meal options on online in-flight menus with just *Customer Kosher Interest* and *State-Owned Doesn't Recognize*. The positive sign on *Customer Kosher Interest* ($p < 0.10$) and negative sign on *State-Owned Doesn't Recognize* ($p < 0.01$) are both significant at commonly accepted levels. Column (4) adds the controls. Only *Menu* ($p < 0.01$) enters with the predicted positive sign at the same commonly accepted level of statistical significance. *Customer Kosher Interest* ($p < 0.01$) retains the same positive sign at a higher level of statistical significance. *State-Owned Doesn't Recognize* ($p < 0.05$) retains the same negative sign at a lower but still commonly accepted level of statistical significance.

Results in these last two columns of Table 2 indicate a broad motivational scope for discriminatory product differentiation. They are consistent with Hypothesis 3's prediction that international airlines are more likely to omit kosher meal options from online in-flight menus when their customers have stronger preferences against traveling with Jewish passengers no matter their citizenship. Results are

also consistent with Hypothesis 4's prediction that airlines are more likely to omit kosher meal options from online in-flight menus when owners have stronger preferences against serving Jewish customers no matter their citizenship.

Online in-flight menu options for online route map denier Kuwait Airways are illustrative. A relatively small airline with only 23 aircraft in 2016, Kuwait Airways' website lists no fewer than 17 different menu options, including "vegetarian oriental" and "Jain" options. Yet there is no kosher in-flight menu option advertised at the website (*The Economist* 2017). At Kuwait Airways and other airlines, such product design evinces an intent to prompt objection and avoidance by Jews around the world.

5.4. Probit and Linear Regression Results: Alliance Membership

Table 3 reports results from probit and linear regression of international airline alliance membership (*Alliance*) on five variables: whether the airline is state-owned in a country not recognizing Israel (*State-Owned*

Table 3. Probit and Linear Regression Analyses of Airline Alliance Membership (*Alliance*)

	Probit no dummies (1)	Linear no dummies (2)	Linear continent dummies (3)	Linear region dummies (4)	Linear country dummies (5)	Linear country dummies (6)
<i>Safety</i>	0.0490 (0.0496)	0.0325 (0.0397)	-0.0283 (0.0402)	0.0342 (0.0441)	0.0966 (0.0709)	-0.1133 (0.1015)
<i>State-Owned Doesn't Recognize (SODR)</i>	-0.0600 (0.1651)	-0.0493 (0.1341)	-0.0572 (0.1351)	0.0062 (0.1538)	0.0630 (0.2527)	
<i>Aircraft</i>	0.2631 (0.0593)**	0.2071 (0.0417)**	0.2220 (0.0436)**	0.2088 (0.0492)**	0.2670 (0.0746)**	0.2826 (0.0964)**
<i>Embracer</i>	0.1187 (0.1169)	0.0921 (0.0978)	0.1688 (0.1041)	0.1234 (0.1129)	0.1271 (0.1761)	0.1196 (0.2165)
<i>Kosher Meal Options (KMO)</i>						0.2763 (0.2047)
Constant		-0.6503 (0.2762)*	-0.7308 (0.2850)*	-0.6958 (0.3168)*	-1.3280 (0.4555)**	-1.6761 (0.6620)*
N	112	112	112	112	112	84
R ²		0.25	0.32	0.40	0.80	0.86

Notes. Table 3 reports probit regression coefficient estimates and standard errors (in parentheses) in Column (1) and ordinary least squares regression coefficients with standard errors (in parentheses) in Columns (2)–(6) for up to 112 international airlines operating in the first quarter of 2016. Column (3) includes 0–1 dummies for continents where airline headquarters are located. Column (4) includes 0–1 dummies for regions (defined by the UN) where airline headquarters are located. Columns (5) and (6) include 0–1 dummies for countries where airline headquarters are located. See Table 1 for summary description of the *Alliance*, *Safety*, *State-Owned Doesn't Recognize (SODR)*, *Aircraft*, *Embracer* (*Route Map Treatment = 3*), and *Kosher Meal Options (KMO)* variables and Section 4 of the study for more detailed description of each variable used to obtain results.

Significance levels: † = $p < 0.10$; * = $p < 0.05$; ** = $p < 0.01$.

Doesn't Recognize), whether the airline's online route map embraces Israel (*Embracer* = 1), the airline's safety rating (*Safety*), and the size of the airline's fleet (*Aircraft*). We also report specifications including an indicator for whether the airline lists kosher meal options on online in-flight menus (*Kosher Meal Options*).

Column (1)'s probit estimation of *Alliance* includes all variables except *Kosher Meal Options*, thus bringing the sample size to 112 international airlines. Only fleet size (*Aircraft*) ($p < 0.01$) enters with the expected sign significant at commonly accepted levels. Larger airlines are more likely to be included in the Star, OneWorld, or SkyTeam alliance.

Columns (2)–(6) report results using linear rather than probit regression and include successively narrower geographic-area controls. Because we have international airline-specific measures and, in many cases, multiple airlines in each geographic area, we can identify our parameters using within-geographic variation in the dependent and independent variables. If we thought that alliance membership was a function of geographic area rather than airline characteristics, then, without controlling for geography, we could mistake these effects. If we instead include geographic-area dummies, then we are asking whether airline characteristics affect alliance membership among airlines in the same geographic area.

In Column (2), we use linear estimation with no dummies. In Column (3), we include continental dummies (e.g., North America). In Column (4), we include regional dummies (e.g., Western Asia). In Column (5),

we include country dummies (e.g., Saudi Arabia)—recall that several countries are homes to multiple international airlines. In Column (6), we again include country dummies and add *Kosher Meal Options*, thus decreasing the sample size to 84. Across Columns (2)–(6) of Table 3, neither key explanatory term is significant, only *Aircraft*. Among airlines in a given continent, region, or country, those with larger fleets are more likely to be included in major international alliances led by prominent U.S. carriers. Customer preferences and owner tastes are not significant, yielding no support for Hypotheses 5 and 6. We might interpret these results as indicating that U.S. carriers leading major international alliances care little about discriminatory product differentiation when considering other airlines for inclusion as new members. Alternatively, prominent U.S. carriers may have little choice about which airlines to include as new members, at least in the Middle East.

A closer look at the data suggests support for this latter interpretation. There are relatively few airlines in the Middle East with the operational scale to fill a regional gap in the global route network of a major alliance. Our sample of 112 airlines includes 21 headquartered in the Middle East, but only five of those Middle East airlines have more than 100 aircraft in their fleets: Emirates (245), Etihad Airways (119), Qatar Airways (167), Saudia (163), and Turkish Airlines (299). Emirates and Etihad Airways codeshare with certain U.S. carriers but do not belong to and generally compete with the three major alliances. That leaves

only three large regional airlines for three U.S. carriers to enlist as alliance members. In 2008, United Airlines enlisted Turkish Airlines, an embracer, into its Star alliance. Delta Airlines followed in 2011 by enlisting Saudia, a denier, into its SkyTeam alliance. American Airlines moved last in 2013 to enlist Qatar Airways, another denier, into its OneWorld alliance. As Gimeno (2004) has demonstrated in other contexts, network needs and competitive dynamics among larger U.S. carriers explain substantial variation in their alliance choices.

6. Conclusion

6.1. Key Findings

Our study highlights several findings, starting with some simple facts. Online route maps for many international airlines pointedly omit Israel. Some of these omitting airlines are members of major international alliances led by prominent U.S. carriers. Consistent with Hypothesis 1, map denial is explained by airline-specific customer preferences derived from country-by-country ADL anti-Semitism survey data paired with data on the country location of airline customers from Google Trends. Consistent with Hypothesis 2, map denial is also explained by airline-specific owner tastes related to state ownership by countries not recognizing Israel. Airlines design their maps to cater to discriminatory customer preferences and owner tastes.

These findings are confirmed and sharpened through analyses of online in-flight menu options for the same international airlines. Consistent with Hypothesis 3, the likelihood of listing kosher meal options is explained by airline-specific customer preferences derived from country differences in search intensity on the word “kosher” along with the country location of airline customers from Google Trends. Consistent with Hypothesis 4, the same likelihood is also explained by airline-specific owner tastes related to state ownership by countries not recognizing Israel. Airlines also design their online in-flight menu options to cater to discriminatory customer preferences and owner tastes. The motivation for such discriminatory product differentiation is broad. Omission of kosher meal options indicates animus toward Jewish passengers and customers, not just Israelis.

Such discriminatory product differentiation by certain international airlines does not significantly affect the likelihood of membership in any of the major international alliances led by U.S. carriers. Regarding Hypothesis 5, supportive preliminary evidence finds no consistent confirmation in follow-on regression analyses. Having an embracer online route map depicting Israel does not significantly change the likelihood of alliance membership. Regarding Hypothesis 6, including kosher meal options on

online menus does not significantly change the same likelihood within countries. Fleet size is the only significant factor explaining whether an airline is part of the Star, OneWorld, or SkyTeam alliance.

In sum, certain airlines discriminate in a subtle way via product design. They do so by catering to discriminatory preferences of airline customers, perhaps profitably. They also do so by indulging discriminatory tastes of airline owners, perhaps unprofitably. Their motivation goes beyond animus toward individuals from a particular country to include individuals of a particular religion living throughout the world. Yet airlines employing such broadly motivated discriminatory product differentiation suffer no significant disadvantage when vying for membership in major international alliances led by U.S. carriers touting their own adherence to antidiscriminatory hyper-norms.

6.2. Research, Practice, and Policy Implications

We think these findings have important implications for research on customer discrimination, particularly in international industries. Our findings are based on a novel concept, discriminatory product differentiation, grounded in theories explaining product positioning (Hotelling 1929), the emergence of discriminatory behavior (Becker 1957), international alliance formation (Sarkar et al. 2001), and the propagation of hyper-norms guiding firm behavior globally (Donaldson and Dunfee 1994). Our study design contrasts with most research on the economics of discrimination analyzing either customer preferences (e.g., Nardinelli and Simon 1990) or owner tastes (e.g., Fershtman and Gneezy 2001) but not both and, indeed, not both in an international context such as ours. Our study also differs from others by investigating the impact of customer discrimination by firms looking to work with others touting their own non-discrimination against the same customers. The subtlety of customer discrimination via product design rather than overt behavior may explain how such firms can cooperate internationally and promote the globalization of an industry in which contrasting business norms might otherwise prompt interfirm confrontation and industry deglobalization.

Our findings have relevance for IB practice, starting with the discriminatory practices of certain international airlines from the Middle East. We grounded our discriminatory product differentiation concept in Becker's (1957) research on the economics of discrimination. That same research assumed that customer discrimination based on owner tastes was unprofitable and would fade in the face of competition. Our study demonstrates that Becker's (1957) assumption is problematic for the seven denier airlines we studied. They are majority state-owned

firms, all but one from oil-rich countries that have not substantially liberalized entry into domestic and international air travel segments. Such circumstances act as buffers to the competitive forces Becker contemplated. If these circumstances suddenly disappeared, we might still observe the same denier online route maps if they catered profitably to the discriminatory preferences of airline customers.

Those practice implications extend to U.S. carriers and key industry suppliers. We noted earlier that U.S. carriers may have allied with certain denier airlines from the Middle East out of business necessity, but business opportunity may also be a consideration. American Airlines' apparent willingness to accommodate denier Qatar Airways in the One-World alliance may follow from Qatar Airways' decision in 2016 to take a 20% stake in the parent company that owns OneWorld members British Airways, Aer Lingus, and Iberia Airways.³¹ Business opportunity may explain how Google became an online route map supplier to international airlines, but business necessity probably explains why the map-maker persists in letting certain airlines alter their maps in ways some may find objectionable. There are alternative suppliers. Licensing terms forbidding, say, the unique omission of Israel from Google maps might only drive airlines to another vendor. No matter their business motivation, such firms run the same risk of negative public backlash that HarperCollins felt after marketing its discriminatory atlas. It only takes one astute industry observer with media access.

Our findings have implications for public policy. International airlines and other firms may use product design to discriminate against customers with less legal risk than overt forms of customer discrimination might create. But discriminatory product differentiation strategies do not eliminate legal risk for either focal firms or their allies. Recall the 2015 U.S. DOT decision involving Kuwait Airways. The airline denied service to an Israeli in the United States seeking to travel to the United Kingdom, two locations where Israel and Israeli passports were recognized. The location of the incident triggered antidiscrimination provisions of U.S. transportation laws (49 U.S. Code §41310) as well as regulations promulgated by the U.S. Department of Commerce (U.S. DOC) pursuant to U.S. antiboycott laws (Section 3 of the U.S. Export Administration Act of 1979, Pub. L. 96-72, 93 Stat. 503). Both overruled the airline's defense that domestic Kuwaiti law enacted pursuant to the Arab League's boycott against Israel and persons doing business with Israel required the denial of service.

Online route maps omitting Israel may also violate U.S. laws and regulations under a theory of unreasonable discrimination taking place *in* the United States.

Saudia's maps may originate from a server in Jeddah but are reproduced repeatedly on servers and screens in the United States. As in the 2015 Kuwait Airways case, the Saudia map omission of Israel likely follows from adherence to a domestic Saudi law enacted pursuant to the Arab League's anti-Israel boycott. But if deemed unreasonable by U.S. regulators or courts, then antidiscrimination provisions of U.S. transportation laws may prohibit denier map publication in the United States.³² The 2015 Kuwait Airways ruling also suggests that U.S. antiboycott provisions may also prohibit denier map publication. Those provisions prohibit actual business practices as well as agreements to undertake practices furthering boycotts the United States does not support. The United States has been an opponent of Arab League's anti-Israel boycott for decades. It is easy to see how U.S. anti-boycott provisions might apply not only to Saudia but also to its SkyTeam partner in the United States. Delta Airlines assists in the dissemination of Saudia's denier maps in travel lounges and other U.S. and foreign locations as part of the U.S. carrier's broader policy of accommodation.³³

6.3. Limitations and Future Research

Like any study, ours has limitations, starting with its cross-sectional design. We observe international airline customer preference and owner taste characteristics on the one hand and online route map treatment, menu options, and alliance membership outcomes on the other at a single point in time, the first quarter of 2016. This design prompts concerns that some unobservable factor could be responsible for, say, both discriminatory customer preferences and discriminatory map treatment. In principle, this concern could be addressed by studying changes in map treatment over time as customer preferences change. But preferences change only slowly, so this approach might become viable only with time as well as changes in preferences that are sharp enough to give rise to detectable effects on map treatment.

We developed firm-specific measures of customer preferences and owner tastes to facilitate analyses of both effects on discriminatory product differentiation. But our firm-specific measures could be improved. To assess airline-specific customer preferences, we relied on an ADL survey of a broad cross-section of residents in each country. Future researchers might survey air travelers in each country rather than the general citizenry. We assessed owner tastes conservatively by distinguishing only a few airlines with the unique combination of state ownership and Israel nonrecognition. Future researchers might instead investigate the attitudes of prominent equity holders in airlines, whether they be state-owned, family-owned, publicly owned, or some mix of these.

We found no evidence that discriminatory product differentiation by international airlines affected the likelihood of any sort of international alliance membership. But perhaps discriminatory product differentiation affects how *deeply* two airlines are allied. Airlines not adhering to antidiscriminatory hyper-norms might still ally with U.S. carriers but on an attenuated basis to diminish increased transaction costs, including costs related to negative publicity.

A case in point might be Delta Airlines' announcement in 2011 that Saudia would join the SkyTeam alliance. At the time, critics highlighted Saudia's practices discriminating against Israel and Israelis, against travelers carrying non-Islamic religious accessories (e.g., the Bible), and against travelers bearing passports with Israeli entry and exit stamps, all of which led to a public relations embarrassment for Delta Airlines. In response, the U.S. carrier reiterated its own commitment to nondiscrimination and told the public that cooperation with Saudia would be limited only to so-called "interline booking agreements" permitting in-flight transfers of baggage and passengers between airlines without need to check in again.³⁴

But that attenuated alliance became less so quickly. Eight years on, Delta Airlines represents Saudia as a code-share partner,³⁵ advertises a schedule for the accrual of frequent-flyer program benefits for customers flying on flights marketed by Saudia,³⁶ lets Saudia passengers use SkyTeam member travel lounges, and lets Saudia passengers purchase tickets

and travel on Delta Airlines flights through SkyTeam regional and global travel programs.³⁷ The absence of public criticism indicates success for Delta Airlines in exploiting advantages of closer cooperation with Saudia without also bearing responsibility for Saudia's business practices.

Our map-based approach to investigating discriminatory product differentiation is not limited to airlines. Figure 9 presents the Middle East store map for the UAE-based franchisee of Carrefour, a French retailer. As with the online route maps of certain Middle East airlines, the Carrefour store map published by Majid Al-Futtaim omits Israel while it names all other countries. The methodological approach used in our study might also help us understand customer preference- and owner (franchisee) taste-based factors explaining map variation in retailing and other service industries in which establishment location is important (e.g., hotels). Future research in this direction also promises new insights on old IB research questions regarding how and why firms choose franchising and other cooperative modes of foreign direct investment to mitigate risks related to cultural incompatibility between multinational parent firms and their foreign subsidiaries (Fladmoe-Lindquist and Jacque 1995).

Our map-based approach to investigating discriminatory product differentiation is also not limited to Israel. Figure 10 presents another Air Canada online route map, but this time it depicts destinations in the Far East in the summer of 2018. This map omits depiction of Taiwan with the same capitalized block

Figure 9. (Color online) Online Middle East Store Map for Carrefour Franchisee Majid Al Futtaim

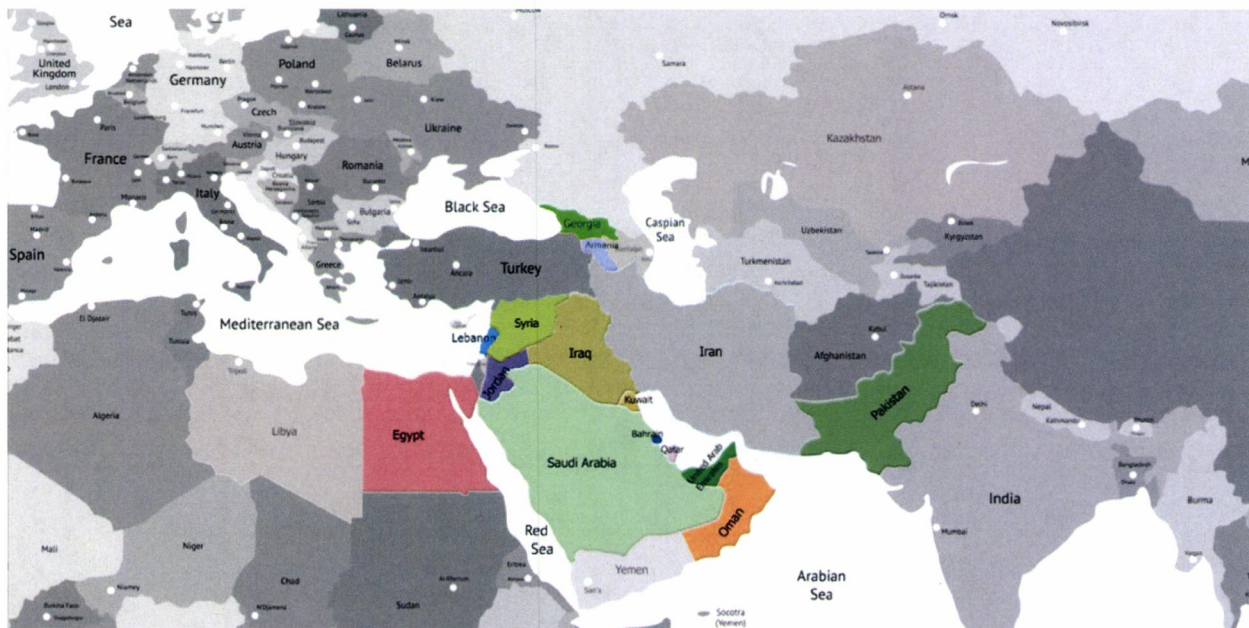
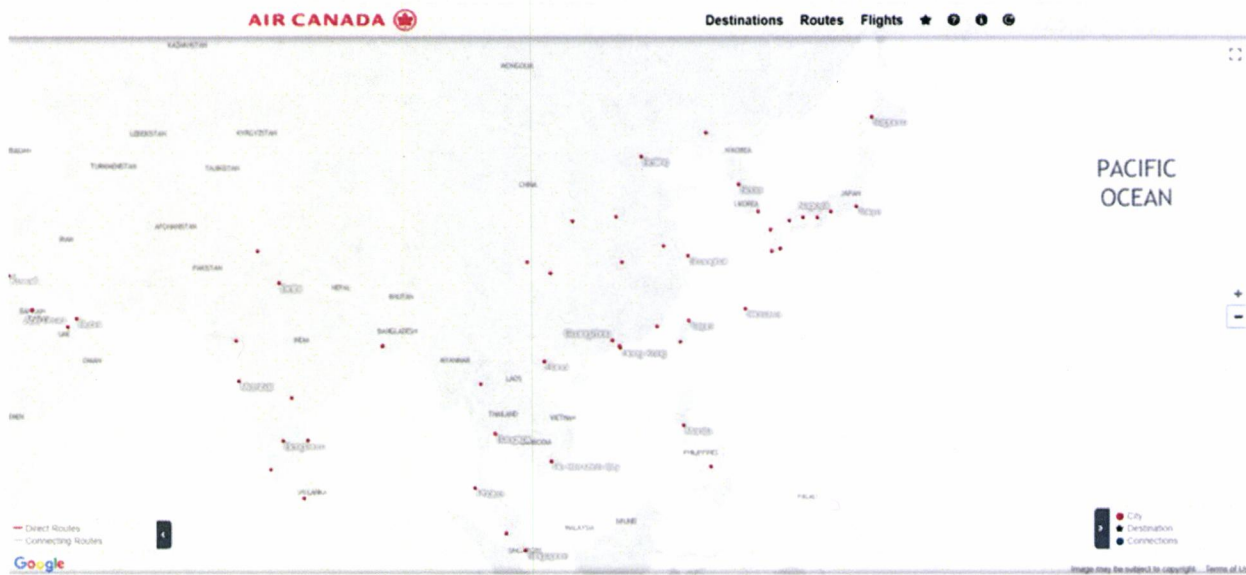


Figure 10. (Color online) Online Route Map for Air Canada



letters other sovereign countries bear. For many international airlines, Taiwan's disappearance followed demands from Beijing earlier in the same year to refrain from referring to destinations on the island as part of any sovereign Taiwanese Republic of China. Failure to refer to island destinations consistent with the PRC's "One China" policy would prompt "disciplinary actions" against Air Canada and other airlines concerned with maintaining access to PRC routes.³⁸

This context presents an opportunity to study discriminatory product differentiation in flux. Air Canada shifted to a conventional denier online route map singling out Taiwan for omission as Saudia has for years with Israel. Other airlines chose different forms of denial. Air France published a "demotion" denier map naming Taiwan but with the same font used by the airline to name other PRC provinces. Azerbaijan Airlines published a "delusion" denier map erasing Taiwan and replacing it with the Pacific Ocean. Future research can ask how customer preferences and owner tastes explain variation in these different denier maps of Taiwan similar to the way we explained variation in embracer, avoider, and denier route maps for Israel. More broadly, these maps of Taiwan give IB researchers an opportunity to study discriminatory product differentiation as a firm response to sudden policy change and threats of hostile action against foreign business by host-country governments evocative of Vernon's (1971) obsolescing bargain model.

This final point reminds us that the discriminatory product differentiation can be a subtle yet effective

response to national and regional firms and states sometimes inclined to slow or even reverse broader globalization trends by asserting positions and values that contradict the industry consensus. Thus, some airlines alter depictions of Taiwan rather than end service there in response to heightened political tensions across the Taiwan Strait. Some airlines permit allies from the Middle East to omit kosher meal options from online in-flight menus rather than bar Jews from travel in response to centuries-old religious animus. Either instance of discriminatory product differentiation might prompt commendation or condemnation from outside observers. No matter, both instances merit our close study as examples of product design-based corporate diplomacy (Henisz 2014) permitting the development of global travel networks and broader industry globalization.

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Endnotes

¹ Information on McDonald's menu variations for Indian customers is available here: <https://www.cbsnews.com/news/mcdonalds-to-beef-up-in-india-with-meatless-menu/>.

² Information on Denny's discriminatory practices and lawsuits is available here: <http://www.nytimes.com/1994/05/27/opinion/on-denny-s-menu-discrimination.html> and <http://www.nytimes.com/1994/05/25/us/denny-s-restaurants-to-pay-54-million-in-race-bias-suits.html?pagewanted=all>. Denny's discriminatory practices and lawsuits prompted *Multinational Monitor* magazine to rank the firm as one of the "10 Worst Corporations" of 1994. Information on that ranking is here: <https://multinationalmonitor.org/hyper/mm1294.html#topten>. Discriminatory customer treatment arises in other commercial contexts such as lending (Ross and Yinger 2002).

³ Distinctions between discrimination and self-selection recall price-discrimination theories (Stole 2007).

⁴ See the original *Tablet* article here: <https://www.tabletmag.com/scroll/188052/harpercollins-leaves-israel-off-school-atlas>. See one of several follow-on articles in the *Tablet* here: <http://www.thetablet.co.uk/news/1579/0/harpercollins-pulps-school-atlas-that-omits-israel->

⁵ See one of several follow-on articles in U.S., UK, and other international media outlets here: <https://www.washingtonpost.com/news/morning-mix/wp/2015/01/02/harpercollins-omits-israel-from-maps-for-mideast-schools-citing-local-preferences/>. The specific HarperCollins product containing the map omitting Israel is the *Collins Primary Geography Atlas for the Middle East* (Paperback Edition Published June 1, 2014; 72 pages; ISBN-10: 0007563701 and ISBN-13: 978-0007563708). This atlas was part of the Collins Primary Geography Series. Although no longer sold by HarperCollins, this atlas is available from select second-hand dealers via channels such as eBay, where it was recently offered to buyers for \$750 or "best offer." The eBay advertisement highlighted that it was "The 'Infamous' (sic) 2014 Harper Collins Middle East Atlas leaving out ISRAEL!" See the eBay offering here: <https://www.ebay.com/p/Atlas-for-the-Middle-East-by-Collins-Maps-Staff-2014-Paperback/201659003?iid=122724411627>. Israel may be one of the most politically charged nations in the world, justifying for many its omission from maps (see, e.g., *The Economist* 2017).

⁶ This percentage estimate is based on information about world air travel in 2017 available from Statista here: <https://www.statista.com/statistics/718635/airline-alliances-market-share/>.

⁷ Images of online route maps for other international airlines with service to Middle East destinations during the first quarter of 2016 are available from the authors.

⁸ Note that this is not simply a matter of omitting names of unserved countries. For example, Etihad Airways named Mali but did not fly there.

⁹ Relatively few countries recognize Taiwan. For a list of such countries, see https://en.wikipedia.org/wiki/Political_status_of_Taiwan. In 2018, the PRC pressured airlines to change public data depicting Taiwan as a sovereign nation. We address that policy development and the future research opportunity it presents in the conclusion of this study.

¹⁰ See <http://www.pbs.org/wgbh/pages/frontline/shows/tehran/axis/map.html>.

¹¹ By July 2016, Flynas had switched to an avoider map indicating only destination city names.

¹² See <http://www.cnn.com/2015/12/17/aviation/kuwait-airways-flight-israeli-passengers/> and <https://www.transportation.gov/sites/dot.gov/files/docs/Kuwait-Airways-Letter-Sept-30-2015.pdf> and also http://www.nytimes.com/2016/01/16/business/kuwait-airways-drops-flights-to-avoid-israeli-passengers.html?_r=0.

¹³ See <http://www.usnews.com/news/business/articles/2015-12-23/malaysias-new-islamic-airline-takes-off-with-a-prayer>. The airline is now defunct. See https://en.wikipedia.org/wiki/Rayani_Air.

¹⁴ See, for example, Altonji and Blank (1999), Ayres (2001), Bertrand and Mullainathan (2004), and Pager and Shepherd (2008), among many others.

¹⁵ We assume that most Israeli passengers are Jewish. Since its founding in 1948, Israel has been described as a "Jewish state," a term that also appeared in the United Nations partition decision of 1947. A related term, "Jewish and democratic state," dates from 1992 legislation by the Israeli Knesset. In July 2018, the Israeli Knesset passed legislation entitled "The Basic Law: Israel as the Nation State of the Jewish People." See <https://www.bbc.com/news/world-middle-east-44881554>. In 2016, approximately 75% of all Israelis adhere to Judaism (Central Bureau of Statistics 2017).

¹⁶ Indeed, at the other extreme, we could imagine airlines positioning themselves to attract airline customers specifically seeking Israeli or Jewish passengers, menu options attractive to them, and depictions highlighting Israel's position as a sovereign state and Jewish homeland in the Middle East.

¹⁷ For example, a Pew Research survey from 2015 finds that black readers in certain U.S. communities have a stronger interest in local rather than national or international news compared with whites. Information on that survey is here: <http://www.journalism.org/2015/03/05/race-and-ethnicity-in-the-local-news-ecosystem/>. In metropolitan areas with more than one newspaper, the market shares of the different products differ sharply between heavily black and predominantly white zip codes.

¹⁸ See <http://www.timesofisrael.com/saudi-arabia-jews-now-allowed-to-work-here/>.

¹⁹ On the other hand, the September 30, 2015, decision of the U.S. DOT ordering Kuwait Airways to serve Israelis seeking to fly from New York to London also held that U.S. transportation laws against discriminatory practices by air carriers (49 U.S. Code §41310) bar such unreasonable discrimination occurring in the United States and other third-party countries where Israel is recognized. See the U.S. DOT September 30, 2015, letter here: <https://www.transportation.gov/sites/dot.gov/files/docs/Kuwait-Airways-Letter-Sept-30-2015.pdf>. This U.S. DOT decision also held that Kuwait Airways' action was also inconsistent with and possibly in violation of regulations promulgated by the U.S. DOC pursuant to U.S. antiboycott laws (Section 3 of the U.S. Export Administration Act of 1979, Pub. L. 96-72, 93 Stat. 503) prohibiting foreign firms in the United States from refusing to do business with nationals of a boycotted country when such refusal is pursuant to a requirement of the boycotting country. U.S. antiboycott laws and related U.S. DOC regulations were enacted to prohibit and or penalize cooperation with international economic boycotts in which the United States does not participate. Domestic Kuwaiti law at issue in the Kuwait Airways case was enacted pursuant to the Arab League's boycott against persons doing business with Israel. U.S. policy opposes this boycott. The same U.S. DOC regulations also encourage and, in specified cases, require U.S. firms to refuse to participate in foreign boycott activities the United States does not sanction. These regulations prevent U.S. firms from being used to implement foreign policies of other nations running counter to U.S. policy. See relevant U.S. DOC regulations here: <https://www.bis.doc.gov/index.php/enforcement/oac>. We discuss their possible application to U.S. carriers and other U.S. firms in the concluding section of this study.

²⁰ Many larger airlines (e.g., Lufthansa) publish online route maps marked in different languages including Arabic, Chinese, German, French, Italian, and Chinese. Other smaller airlines (e.g., Gulf Air) publish route maps in fewer languages. Most airlines with route maps publish one in English.

²¹ Delta Airlines route map website visit counts for a given six-month period are based on this SimilarWeb search: <https://www.similarweb.com/website/dl.fitmaps.com>.

²² For more information on openflights.org, see <http://openflights.org/about>.

²³ Complete information for sampled airlines is available in an online appendix (Appendix Table 1) available at the *Strategy Science* website. That table includes information on airline ownership, headquarters country, whether the headquarters country recognizes Israel diplomatically, aircraft fleet size, online route map treatment of Israel, the availability of online in-flight menu kosher meal options, and alliance membership.

²⁴ Results using all five categories are consistent with those reported in this study and are available from the authors.

²⁵ For details on the ADL survey methods and measures see <http://global100.adl.org/>.

²⁶ See <https://www.google.com/trends/>.

²⁷ For details on majority state-owned airlines available at ICAO, see <http://www.icao.int/sustainability/documents/privatizedairlines.pdf>. It is useful to confirm this information at airline websites and, at times, media sources. Ukraine International Airlines (UIA) is illustrative. It is listed as majority state-owned in ICAO documents. The UIA website provides no clear information on ownership. Ukrainian media reporting links UIA ownership to a private holding company controlled by a regional governor who is also a billionaire investor: <https://www.kyivpost.com/article/content/legal-quarterly/ukraine-international-airlines-nations-top-conceals-ownership-385153.html>.

²⁸ For a list of countries not recognizing Israel, see https://en.wikipedia.org/wiki/International_recognition_of_Israel.

²⁹ For details on airline safety ratings see <http://www.airlineratings.com/>. For details on rating criteria, see http://www.airlineratings.com/safety_rating_criteria.php.

³⁰ Though not reported in this study, we also reestimated these ordered probit models after adding two other 0–1 dummies. One 0–1 dummy took the value of one when an airline was privately owned and based in a country that recognized Israel (*Privately Owned Does Recognize*) (e.g., U.S.-based Delta Airlines). The other 0–1 dummy took the value of one when an airline was privately owned and based in a country that does not recognize Israel (*Privately Owned Doesn't Recognize*) (e.g., UAE-based Air Arabia). Interestingly, we find that coefficients on *Privately Owned Does Recognize* and *Privately Owned Doesn't Recognize* are both positive and significantly greater than the negative coefficient on *State-Owned Doesn't Recognize*. After controlling for other factors, state-owned airlines based in countries not recognizing Israel (e.g., Royal Air Maroc) are, as a group, more likely to publish avoider or denier online route maps than airlines in these other two groups. We also reestimated probit models of kosher meal options and linear models of alliance membership with these additional dummies. These results are available from the authors.

³¹ For details on Qatar Airways' investments in International Airlines Group during 2016, see <http://www.telegraph.co.uk/business/2016/08/01/qatar-airways-boosts-stake-british-airways-owner-iaig/>.

³² The U.S. DOT noted this legal standard in its September 30, 2015, ruling against Kuwait Airways. See <https://www.transportation.gov/sites/dot.gov/files/docs/Kuwait-Airways-Letter-Sept-30-2015.pdf>.

³³ Delta Airlines and other U.S. carriers allied with denier airlines from the Middle East may also violate recently enacted laws in several U.S. states prohibiting state government vendors and or

recipients of state funds from discriminating against Israel. For an example of such U.S. state laws, see <https://www.revisor.mn.gov/statutes/?id=16c&view=chapter#stat.16C.053>. The constitutionality of these U.S. state laws is questionable (*Harvard Law Review* 2016).

³⁴ For details about the June 2011 announcement and criticism, see <http://www.dailymail.co.uk/news/article-2007780/U-S-Jews-angered-Delta-partnership-Saudi-Arabian-Airlines-amid-anti-Semitic-policy.html>. For details on Delta Airlines' June 2011 press release touting its nondiscriminatory policies, see <http://news.delta.com/delta-issues-statement-saudi-arabian-airlines>.

³⁵ Delta Airlines also lists denier Middle East Airlines as a codeshare partner. A complete list of Delta Airlines codeshare partners is here: <https://pro.delta.com/content/agency/us/en/agent-resources/partner-information/codeshare-partners.html>.

³⁶ Delta Airlines' schedule for the accrual of frequent-flyer program benefits from flying on flights marketed by Saudia is published here: http://www.delta.com/content/www/en_US/skymiles/earn-miles/earn-miles-with-partners/airlines/saudia-airlines.html.

³⁷ For a list of SkyTeam customer benefits, including those discussed in this study, see http://static.skyteam.com/contentapi/globalassets/about-us/pdf/customer_benefits_mar_2014.pdf?_ga=1.62146916.992546940.1481515780.

³⁸ More information about these demands is available here: https://www.washingtonpost.com/news/josh-rogin/wp/2018/05/05/white-house-calls-chinas-threats-to-airlines-orwellian-nonsense/?noredirect=on&utm_term=.f47d3c74a2ce.

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Appendix Table 1: List of International Airlines Sampled

Airline Name	Headquarters Country	Route Map Treatment	Kosher Meal	Fleet Size	Major Alliance Membership
Aegean Airlines	Greece	Embracer	Yes	58	Star
Aer Lingus	Ireland	Embracer	Yes	48	
Aeroflot*	Russia	Embracer	Yes	162	SkyTeam
Aerolíneas Argentinas	Argentina	Embracer	Yes	54	SkyTeam
Aeroméxico*	Mexico	Avoider	Yes	63	SkyTeam
Air Algérie*	Algeria#	Avoider	No	50	
<i>Air Arabia</i>	<i>UAE#</i>	<i>Avoider</i>		<i>44</i>	
Air Astana*	Kazakhstan	Embracer		30	
airBaltic*	Latvia	Embracer	Yes	24	OneWorld
Airblue	Pakistan#	Avoider		8	
Air Berlin	Germany	Embracer	Yes	130	
Air Canada	Canada	Embracer	Yes	171	Star
Air China*	China	Embracer	Yes	354	Star
Air Europa	Spain	Embracer	No	54	SkyTeam
Air France	France	Embracer	Yes	235	SkyTeam
Air India*	India	Embracer	Yes	109	Star
Air Malta*	Malta	Embracer		9	
Air New Zealand*	New Zealand	Embracer	Yes	106	Star
Air Serbia	Serbia	Embracer	Yes	20	
Air Transat	Canada	Avoider	Yes	36	
AirAsia	Malaysia#	Embracer		188	
Alaska Airlines	USA	Embracer	Yes	147	
Alitalia	Italy	Embracer	Yes	110	SkyTeam
All Nippon Airways	Japan	Embracer	Yes	208	Star
American Airlines	USA	Embracer	Yes	953	OneWorld
<i>Arkia</i>	<i>Israel</i>	<i>Embracer</i>	<i>Yes</i>	<i>7</i>	
Asiana Airlines	Korea	Avoider	Yes	84	Star
Austrian Airlines	Austria	Embracer	Yes	80	Star
Avianca*	Colombia	Avoider	No	173	Star
<i>Azerbaijan Airlines*</i>	<i>Azerbaijan</i>	<i>Embracer</i>	<i>Yes</i>	<i>32</i>	
Belavia*	Belarus	Embracer	No	25	
Biman Bangladesh Air*	Bangladesh#	Avoider	No	12	
British Airways	UK	Embracer	Yes	293	OneWorld
Brussels Airlines	Belgium	Embracer	Yes	45	
Bulgaria Air*	Bulgaria	Embracer		13	
Cathay Pacific	China	Avoider	Yes	187	OneWorld
China Airlines*	China (Taiwan)	Avoider	Yes	81	SkyTeam
China Eastern Airlines*	China	Avoider		414	SkyTeam
China Southern Airlines*	China	Avoider	Yes	512	SkyTeam
Condor Flugdienst	Germany	Embracer	Yes	48	
Copa Airlines	Panama	Embracer	Yes	105	Star
Czech Airlines*	Czech Republic	Embracer	Yes	16	SkyTeam

Delta Air Lines	USA	Embracer	Yes	722	SkyTeam
Dragonair	China	Avoider	Yes	41	
<i>EgyptAir*</i>	<i>Egypt</i>	<i>Avoider</i>	<i>Yes</i>	<i>63</i>	<i>Star</i>
<i>El Al</i>	<i>Israel</i>	<i>Embracer</i>	<i>Yes</i>	<i>41</i>	
<i>Emirates*</i>	<i>UAE#</i>	<i>Denier</i>	<i>Yes</i>	<i>245</i>	
Ethiopian Airlines*	Ethiopia	Embracer		76	Star
<i>Etihad Airways*</i>	<i>UAE#</i>	<i>Denier</i>	<i>Yes</i>	<i>119</i>	
Finnair*	Finland	Embracer	Yes	72	OneWorld
Flybe	UK	Avoider		73	
<i>Flydubai*</i>	<i>UAE#</i>	<i>Denier</i>		<i>50</i>	
<i>Flynas</i>	<i>Saudi Arabia#</i>	<i>Embracer</i>		<i>26</i>	
Garuda Indonesia*	Indonesia#	Avoider		140	SkyTeam
Germania	Germany	Embracer		22	
Germanwings	Germany	Avoider	No	36	
<i>Gulf Air*</i>	<i>Bahrain#</i>	<i>Avoider</i>	<i>No</i>	<i>28</i>	
Hainan Airlines*	China	Embracer	No	149	
Iberia	Spain	Embracer	Yes	129	OneWorld
Icelandair	Iceland	Avoider	No	26	
IndiGo	India	Avoider	No	208	
<i>Iran Air*</i>	<i>Iran#</i>	<i>Avoider</i>	<i>No</i>	<i>51</i>	
<i>Iraqi Airways*</i>	<i>Iraq#</i>	<i>Avoider</i>		<i>31</i>	
Japan Airlines	Japan	Embracer	Yes	167	OneWorld
<i>Jazeera Airways</i>	<i>Kuwait#</i>	<i>Avoider</i>		<i>7</i>	
Jet Airways	India	Avoider	Yes	116	
Jet2.com	UK	Avoider		58	
KLM	Netherlands	Embracer		116	SkyTeam
Kenya Airways	Kenya	Embracer		45	SkyTeam
<i>Kuwait Airways*</i>	<i>Kuwait#</i>	<i>Denier</i>	<i>No</i>	<i>23</i>	
LOT Polish Airlines*	Poland	Embracer	No	45	Star
Lufthansa	Germany	Embracer	Yes	266	Star
Luxair	Luxembourg	Avoider	Yes	18	
Malaysia Airlines*	Malaysia#	Embracer	Yes	86	OneWorld
<i>Middle East Airlines*</i>	<i>Lebanon#</i>	<i>Denier</i>	<i>No</i>	<i>17</i>	<i>SkyTeam</i>
Monarch Airlines	UK	Embracer	Yes	35	
Niki	Germany	Embracer	No	22	
Norwegian Air Shuttle	Norway	Avoider	No	163	
<i>Oman Air*</i>	<i>Oman#</i>	<i>Avoider</i>	<i>No</i>	<i>39</i>	
Pakistan Int'l Airlines*	Pakistan#	Avoider	Yes	38	
<i>Pegasus Airlines</i>	<i>Turkey</i>	<i>Embracer</i>	<i>No</i>	<i>66</i>	
Qantas	Australia	Avoider	Yes	131	OneWorld
<i>Qatar Airways*</i>	<i>Qatar#</i>	<i>Denier</i>	<i>No</i>	<i>167</i>	<i>OneWorld</i>
Royal Air Maroc*	Morocco#	Avoider	Yes	53	
<i>Royal Jordanian*</i>	<i>Jordan</i>	<i>Embracer</i>	<i>Yes</i>	<i>26</i>	<i>OneWorld</i>
Ryanair	Ireland	Embracer		320	
S7 Airlines	Russia	Embracer		45	OneWorld

<i>Saudia*</i>	<i>Saudi Arabia#</i>	<i>Denier</i>	<i>No</i>	<i>163</i>	<i>SkyTeam</i>
Scandinavian Airlines	Sweden	Embracer	Yes	139	Star
Singapore Airlines*	Singapore	Avoider	Yes	109	
South African Airways*	South Africa	Embracer	Yes	65	Star
Spirit Airlines	USA	Embracer	No	128	
SriLankan Airlines*	Sri Lanka	Avoider	Yes	24	OneWorld
Swiss Int'l Air Lines	Switzerland	Embracer		83	Star
Syrian Air*	Syria#	Avoider	No	10	
TAAG Angola Airlines*	Angola	Avoider		14	
TAP Portugal*	Portugal	Embracer	Yes	77	Star
Thai Airways*	Thailand	Avoider	Yes	82	Star
Transavia	Netherlands	Embracer		35	
TUI fly Netherlands	Netherlands	Embracer	No	9	
<i>Turkish Airlines</i>	<i>Turkey</i>	<i>Embracer</i>	<i>Yes</i>	<i>299</i>	<i>Star</i>
Ukraine Int'l Airlines	Ukraine	Embracer	Yes	31	
United Airlines	USA	Embracer	Yes	718	Star
Ural Airlines	Russia	Embracer		34	
Uzbekistan Airways*	Uzbekistan	Embracer		34	
<i>Tunisair*</i>	<i>Tunisia#</i>	<i>Avoider</i>		<i>9</i>	
Vietnam Airlines*	Vietnam	Avoider	Yes	99	SkyTeam
Virgin Atlantic	UK	Embracer	Yes	40	
Vueling	Spain	Embracer	No	118	
WestJet	Canada	Embracer	No	178	
Wizz Air	Hungary	Embracer		64	
<i>Yemenia*</i>	<i>Yemen#</i>	<i>Avoider</i>		<i>9</i>	

Appendix Table 1 lists international airlines sampled for analyses in this study. It includes the airline name, country where the airline is headquartered, the airline's online route map treatment of Israel based on consolidated 3-level categorization, whether the airline lists kosher meal options on online inflight menus, the airline's fleet size, and which of three major international alliances it may belong to as of the first quarter of 2016. An asterisk (*) next to the airline's name indicates majority state ownership. A hashtag (#) next to a country's name indicates diplomatic non-recognition of Israel. Blank spaces regarding map treatment or kosher meal option availability mean that data were not available. Blank spaces regarding alliance membership mean that airlines were *not* members of the Star, OneWorld, or SkyTeam alliances. Airlines listed in italicized font were current or potential "Middle East" alliance partners for United Airlines (Star), American Airlines (OneWorld) or Delta Airlines (SkyTeam). These airlines are located in countries considered to be from "Western Asia" by the UN (see, e.g., <http://www.unep.org/tunza/tunzachildren/downloads/country-Classification.pdf>).