

# Ethnic Profiling In Airport Screening: Lessons From Israel, 1968–2010

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We interviewed a random sample of 918 passengers—308 Israeli Jews, 306 Palestinians who are Israeli citizens (Israeli Arabs), and 304 non-Israelis—post check-in, at Ben-Gurion Airport, in an effort to learn about the individual and social cost incurred by the Israeli Arabs going through the security process. The article discusses what we learned from the survey and draws some policy implications. This is the first time such a survey was administered. (*JEL*: Z18, K00, H10)

## 1. Introduction

What makes Israeli airport security so great? Profiling.

(*The Economist*, January 16, 2011)

Back in 1997, Vice President Al Gore’s Commission on Aviation Safety and Security supported the development of a profiling system in aviation procedures, yet the Commission recommended that no profile should be based on “national origin, racial, ethnic, religious or gender characteristics” of citizens ([White House Commission on Aviation Safety and Security, 1997](#)). The 9/11 Commission reached a similar conclusion ([The 9/11 Commission, 2004a](#)). This policy has recently been updated. In January 2010, after a failed attempt to detonate an explosive device on

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Northwest Airlines flight 253 to Detroit, U.S. President Barak Obama ordered a review of all screening policies, technologies, and procedures related to air travel security (White House Office of the Press Secretary, 2010). He called for “more baggage screening, more passenger screening and more advanced explosive detection capabilities,” and announced a \$1 billion budget for developing the next generation of screening technologies (Obama, 2010). The Obama Administration declared that citizens and residents of fourteen countries—thirteen predominantly Muslim states plus Cuba—would be subject to enhanced airport screening when flying to the United States (Transportation Security Administration, 2010). This means treating people differently depending on where they come from, or what passport they hold.<sup>1</sup>

Basing profiling on national origin has already been recommended in other liberal countries. In Canada, a government commission concluded that national security investigations could be based on country of origin but “must not be based on racial, religious or ethnic profiling” (Commission of Inquiry into the Actions of Canadian Officials in Relation to Maher Arar, 2006). In Europe, the Council of the European Union recommended that member states develop and use terrorist profiles in combating terrorism. Terrorist profile factors may include nationality, place of birth, age, gender, and distinguishing physical features, but must exclude race, ethnicity, and religion (Council of the European Union, 2002).

Israel does not admit that it employs ethnic profiling but as this article will show, it very likely does.<sup>2</sup> Some scholars who write on racial profiling have suggested that it is ineffectual or counterproductive (Harcourt, 2006) but at least the way Israel does it, profiling seems to work to reduce airplane hijacking, as shown by its remarkable success record over the years.<sup>3</sup> The probability that an Israeli Arab passenger is a terrorist is close to zero, but is nevertheless slightly higher than that of an Israeli Jewish passenger.<sup>4</sup> Therefore, deviating from a random search rule toward searching a higher

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1. According to a 2010 Gallup poll, 71% of Americans, including 59% of those who voted for the Democratic party, were in favor of airport profiling based on age, ethnicity, and gender (Jones, 2010).

2. See *infra* text accompanying note 44.

3. See Section 3.

4. See discussion in Section 4.

percentage of Israeli Arab passengers might improve the chances of finding terrorists. In fact, plausibly assuming that all other relevant signals, such as acting nervously and flying alone, are equally distributed across ethnic groups, searching only Arabs (and people who have been in close and relevant contact with them) would maximize prevention.<sup>5</sup> This would be true even if the targeted group is a small percentage of the general population, as is the case of the Israeli Arab minority.

The fact that ethnic profiling is efficient does not mean that it is socially desirable. Moral considerations must be taken into account (Blumkin and Margalioth, 2006).<sup>6</sup> To shed light on some of the potential costs of ethnic profiling, as well as to provide insight into its contours, we undertook, in August 2008, the first survey in the world that studied the costs of using ethnic profiling in an airport. We interviewed a random sample of 918 passengers—308 Israeli Jews, 306 Palestinians who are Israeli citizens (Israeli Arabs), and 304 non-Israelis—post check-in, at Ben-Gurion Airport, and this article provides a multivariate analysis of this data.

Our survey provides empirical support for the expressive harm hypothesis suggested in the theoretical literature (Risse and Zeckhauser, 2004). According to this hypothesis, profiling minorities may result in significant equity costs as it reminds the targeted group members of the discrimination against them in other aspects of life. Our survey found that the equity cost was triggered when the suitcase of an Israeli Arab, or his/her companions' suitcases, were opened for additional security checks.

We know this cost was not due to loss of time, inconvenience, or a loss of privacy, because among the group of foreign passengers there was no

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5. Note, however, that ethnicity is not the only observable characteristic that is correlated with terrorism. See Blumkin and Margalioth (2008) explaining that the optimal profiling rule is based on a combination of attributes. For example, parents boarding the airplane with their children are negatively correlated with the propensity to commit an act of terror. For ethnic profiling to be efficient, it is important that the selectors not suffer from a cognitive bias that would result in assigning too much weight to ethnicity, relative to the other attributes.

6. See Blumkin and Margalioth (2006) for a welfare economics analysis, providing a full explanation of how profiling works, why it should be applied differently in the criminal and terror contexts, and how to balance its efficiency and equity costs. For a discussion of the moral aspects of racial (including ethnic) profiling, analyzing utilitarian as well as several nonconsequentialist approaches, see Risse and Zeckhauser (2004).

difference in overall satisfaction with the security system, between those whose suitcase was opened and those whose suitcase was not opened. So the cost must have been either the humiliation of one being singled out by one's own country as a potential terrorist; or it could be expressive harm, namely, the additional search served as a focal point, or reminder of a general discrimination outside the airport.

Our study shows that expressive harm was likely to be the explanation, because Israeli Jews whose suitcases were opened for an additional search reacted in the same way as foreigners, that is, the event did not decrease their general level of satisfaction with the security process.

Importantly, when we controlled for the opening of suitcases for additional checks, as well as for various other variables, the identity of the passenger had no effect on their satisfaction with the airport security process. The differences across Arabs and Jews completely disappeared. Looking at the Israeli Arabs as a group, without distinguishing between those whose suitcase was opened and those whose suitcase was not, we found that 66% of the Israeli Arabs agreed that Israel's airport security check was justified given Israel's security situation.

This finding indicates that the general procedure, which employs ethnic profiling in a tacit manner, does not involve harm. The expressive harm is not easily triggered. According to our survey, Israeli Arabs do not come to the airport so suspicious of being discriminated against (namely, profiled) that any treatment would be viewed by them as discriminatory. It is only when the security check becomes visibly intrusive that harm is triggered. This means that the way in which the screening is done, that is, making it as tacit as possible, in a patient and polite manner, could significantly reduce costs.

The article is organized as follows. Section 2 provides a brief literature review. Section 3 presents the security system used at Ben-Gurion Airport and the role that ethnic profiling plays in it. Section 4 discusses the relevant aviation terrorist profile. Section 5 analyzes all past aviation terror attacks on Israeli airlines and discusses the contribution of ethnic profiling to the success (and failure) of preventing them. Section 6 is the heart of the paper, presenting a survey we conducted at Ben-Gurion Airport aimed at trying to learn about the costs incurred by Israeli Arab passengers who go through the system. Section 7 offers some concluding remarks,

suggesting a policy implication and emphasizing our contribution to the literature.

## 2. Literature Review

The only other survey ever conducted in an airport of passengers' perceptions of the security process was [Sindhav et al. \(2006\)](#) and that study did not address profiling at all. It was a marketing oriented study, published in a marketing journal.

Unlike our study, which divided the passengers according to ethnic groups, Sindhav et al. surveyed 775 American passengers waiting in a medium-sized airport in the Midwest. Unlike the case in our study, there was no random sampling. The passengers were approached while waiting in the gate area to board their flights and asked to fill out a questionnaire.

The results showed that passengers' satisfaction with the security checks were mostly influenced by their perceptions of procedural justice, distributive justice, interpersonal justice, and informational justice. Passengers who believed that the security checks were fair and unbiased agreed that the increase in passenger safety was worth the increase in inconvenience.

The type of inconvenience considered was mainly wasted time, not expressive harm or any other type of harm that could be the result of profiling. The satisfied passengers also thought that the security personnel acted professionally, regarded the aviation authorities' communications with passengers positively, and expressed high levels of general satisfaction with the security process.

This article builds on a huge body of theoretical literature, as since September 11, the question of profiling on the basis of Arab ethnicity or nationality has attracted a great deal of scholarly attention. We will briefly mention only a small, but representative, part of this literature.

[Harcourt \(2007\)](#) is generally critical of the use of profiling in the criminal system.<sup>7</sup> With regard to the use of ethnic profiling in fighting terrorism, [Harcourt \(2006\)](#) accepts the accuracy of the terrorist profile as young

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7. His main criticism does not necessarily relate to theory, but with the way it is implemented in reality ([Margalioth, 2008](#); [Harcourt, 2008](#)).

Muslim men of Arab descent, but raises three concerns regarding the effectiveness of relying on the profile.

The first is that terror organizations will recruit outside the profiled group. This concern has indeed materialized in practice.<sup>8</sup> This does not mean, however, that the profile is doomed to be ineffective. It only means that an effective profile is more complex, as demonstrated by the examples detailed in Section 4.

His second concern is that using ethnic profiling in one location, the airport in our example, will not prevent terror, but merely affect the choice of target. We agree, but think that this does not mean that profiling is ineffective. If indeed it allows the policymaker to shift terror away from the most deadly targets, it is an important policy tool. Because of the special impact that aviation terror is thought to have on Israeli society, preventing hijacking and bombing of airplanes is considered socially desirable, even if it results in a substitution effect; namely, that other targets get hit.

The third concern raised by Harcourt is that the use of ethnic profiling would hurt the feelings of the Muslim population, resulting in greater motivation to initiate terror attacks, and may have a detrimental effect on the criminal justice system as a whole, especially on general obedience to the law. We fully share Harcourt's third concern. Indeed, as is apparent from the terminology we use in this paper, this is part of the equity costs that our empirical research is trying to assess.

Schauer (2003) is generally supportive of the use of profiling, but not when it comes to the use of ethnic profiling in airports. Schauer provides two reasons. The first is his concern that in a world of nonideal employees, the security personnel will tend to over-rely on ethnicity in their use of the profile. Schauer, therefore, suggests using profiling, but not ethnic profiling, if we believe that security personnel may suffer from cognitive bias that will make them give too much weight to the ethnic factor.

His second, and main, concern is the same as ours. He thinks the equity costs may be too high. In his estimate, giving up on ethnic profiling would merely result in the social price of everyone having to arrive 30 minutes earlier at the airport, and he believes this to be a price worth paying.

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8. See Section 3.

Barak-Erez (2007) argues that even if ethnic profiling is thought to be effective, it is nevertheless important to re-examine its effectiveness over time because its use involves significant human rights costs. We agree. The human and civil rights dilemma that the use of ethnic profiling poses is part of what we refer to as equity costs.

Barak-Erez points out that countries tend not to use legislation to regulate their use of anti-terrorism measures such as profiling, and questions this practice. Legislation may reduce the probability of unnecessary infringements of human rights.

We think that it may be optimal for the policymaker to use ethnic profiling without admitting it, assuming that the executive guidelines are sufficiently effective (even if legislation would be more effective in limiting the executive branch). Express legislation may increase the equity costs incurred by the targeted ethnic group because declaring the use of ethnic profiling gives it legitimacy, and does not allow the targeted group to ignore it as in the case that ethnic profiling is employed inconspicuously.

This, however, adds another type of cost—cost to the democratic process and the ability of citizens to sue the government when their rights are being infringed—to be considered in the already complex cost–benefit analysis of the use of ethnic profiling.

Lastly, Barak-Erez argues that the use of racial or ethnic profiling should be allowed, if at all, only in the context of decisions that do not have long-lasting effects on people's lives. For example, relying on profiling to justify complete denial of the possibility to immigrate to a country cannot be justified, whereas relying on profiling to select people for a short-time search can be justified. We agree. Our focus in this paper is on the use of ethnic profiling in deciding whom to select for an additional search when boarding an airplane.<sup>9</sup>

Gross and Livingston (2002) argue that profiling on the basis of a potential connection to al-Qaeda can be justified on efficiency grounds, but will

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9. Barak-Erez also discusses the distinction between nationality-based and ethnicity-based profiling; arguing that it may not make much sense. This discussion is outside the scope of our paper, as we discuss ethnicity-based profiling, which is the more extreme measure of the two in terms of equity costs. Applying our study to nationality-based profiling would be the same as assuming lower equity costs. In practice, all foreigners are subjected to a more intensive search than Israeli citizens, as was also indicated by our finding of a relatively high percentage of foreigners' suitcases being opened.

come at a price that may be very high depending on particular circumstances.<sup>10</sup>

When discussing the situation examined in our paper—security checks at airports—they argue that the harm involved in a search may not be severe as long as the person is allowed to board the flight, but it is unclear what kind of intensive search they had in mind.

Legomsky (2005) discusses profiling of noncitizens, but makes a strong case for why it is no different from ethnic profiling of citizens, hence his analysis is relevant to our paper. He accurately explains why profiling of Arabs or Muslims may be rational, correcting errors made in previous literature that simply did not understand the logic of profiling. He nevertheless rejects the use of ethnic- or religious-based profiling due to their equity costs, to which he refers as social harm or violations of human or civil rights.

This line of analysis is exactly the one we follow. We think that ethnic profiling may be efficient (depending on data that we do not possess) but clearly entails significant equity costs, and that the optimal policy must balance the two.

With regard to the proper balance, Legomsky makes three additional points. First, he argues that profiling in the context of a search would likely be based on appearance. This could result in searching people who look either Muslim or of Arab descent but in fact are not, thereby wasting searching time. This criticism does not necessarily apply to airport screening because the security process in airports (at least in Israel, the location of our study) involves the presentation of documentation that allows relatively accurate inference of ethnicity and religion.

The second concern raised by Legomsky is that ethnic or religious profiling would provide racist individuals who belong to the law enforcement staff an opportunity to harass people, with an official excuse. We agree that this is indeed a serious concern. It can be addressed by careful supervision of the selection process, but this certainly adds to the costs of operating the system and must be accounted for.

The third point raised by Legomsky is that when balancing national security and civil rights, we must distinguish between the different uses of

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10. They caution that the fear created by the events of September 11 may cause people “to exaggerate the danger of future attacks in general, and by Middle Eastern terrorists in particular.”



profiling. Using profiling in “voluntary” interviews is less harmful than using it as criteria for deportation, detention, special registration, or heightened visa requirements. We agree. Subjecting passengers to additional searches at the airport is closer to the case of a voluntary interview, in the sense that it involves a relatively minor inconvenience over a short period of time, than to decisions regarding deportation, detention, etc., which have long-lasting effects.

Previous studies of social costs found that the treatment of law enforcement agencies may influence perceptions of legitimacy and fairness of the system, thereby affecting individuals’ compliance with the law and the level of trust in, as well as cooperation with, law enforcement agencies.

The more authorities are viewed as legitimate, the more their rules and decisions are likely to be followed. Law enforcement agencies are valued as legitimate when both their *rules* and *decisions* are viewed as legitimate (Tyler, 2006).

Perceived legitimacy is thus a function of policy formation and implementation; fair decision-making and just treatment positively influence the level of compliance, the level of trust in law enforcement, and the level of cooperation with state authorities (Tyler and Fagan, 2008).

Among the factors that have been found to affect perceived legitimacy are the manner in which law enforcement is conducted, equal treatment, dignity, and respect (Tyler, 2009). Thus, on one hand, unfair treatment may have negative consequences in terms of social costs: less trust in law enforcement, less cooperation with the policy and less social order and community cohesion (Tyler, 2001; Tyler and Wakslak, 2004). Perceived unfairness has been found to be a strong predictor of social resistance (LaFree and Ackerman, 2009). On the other hand, citizens who trust law enforcement agents are more willing to assist in identifying offenders and are more likely to comply with state authorities (Tyler and Huo, 2002).

These studies focus on ordinary criminal law in the United States. We extend them to a different setting and location: examining the social costs of ethnic profiling, at an airport in Israel.

Finally, we would like to address one particular segment of the literature, commonly referred to as “air piracy” literature, due to its seeming relevance to our paper.

The appearance of relevance is somewhat misleading, because even though profiling was employed, it was not based on ethnicity, and the hijackers were not terrorists; at least not of the suicidal type discussed in this paper. Their motivation, as reflected in the use of the term “piracy” in the literature, was mostly to travel to Cuba and to extort ransom (Landes, 1978; Holden, 1986).

The air piracy literature analyzes a phenomenon that took place in the United States, peaking between 1968 and 1972, during which time more than a hundred U.S.-registered airplanes were hijacked (Phillips, 1973). Among the first measures taken by the U.S. government to circumvent hijacking was profiling. It was introduced by the Federal Aviation Administration (FAA) in 1969 based on a “behavioral profile” developed earlier that year by the FAA’s psychology staff (Kraus, 1973). Its implementation was left to the discretion of the airlines. Passengers who were found to fit the profile were searched for concealed weapons using a magnetometer (Margalioth and Stephen Downs, 1972). Passengers who did not fit the profile were not screened for weapons at all.

By the end of 1971, all U.S. commercial carriers were using screening according to the profile, but only at major airports. In January 1973, all airlines were required to screen all passengers with metal detectors and to inspect their hand luggage. Profiling was canceled because it was only used to select the passengers to be screened by metal detectors; therefore, once everyone was screened, profiling became superfluous (Chauncey, 1975).

The characteristics included in the profile were kept secret, but we know it was based on behavior; hence, it was unlikely to be based on characteristics that fall under the category of “racial profiling.” When discussing the profile, the chief psychologist of the FAA said that:

There is no way to tell a hijacker by looking at him. But there are ways to differentiate between the behavior of a potential hijacker and that of the usual air traveler. This is what we depend on: that is what we call our profile of the behavioral characteristics of a hijacker. We stress it is behavior—things they do or don’t do, or their style of doing it or not doing it (Margalioth and Stephen Downs, 1972).<sup>11</sup>

11. “One columnist states that the Profile identifies males, between the ages of fifteen and fifty-five, who are travelling alone, purchase a one-way ticket, and pay in cash” (Kraus, 1973).

We know for sure that ethnicity was not part of the profile because in *United States v. Lopez*, 328 F. Supp. 1077, (E.D.N.Y. 1971) the court found a specific case of airport screening to be unconstitutional for two reasons, one of them being the reliance on an ethnic element in addition to the behavioral profile.<sup>12</sup>

The literature looks for explanations for the dramatic reduction in hijacking after 1972, analyzing the contribution of profiling and other measures to the success of averting the problem.

In addition to profiling/screening of passengers, the U.S. government took a number of other measures to increase deterrence of potential hijackers and to make actual hijacking less likely to succeed. One such measure was the introduction of sky marshals.<sup>13</sup> Another was increasing penalties and making sure the severity of sentencing was brought to public's attention (Chauncey, 1975). Other measures were specifically tailored to address two specific threats:

Until 1972, the primary objective of hijackers was to obtain "free" transportation to Cuba. To circumvent it, Cuba made skyjacking a crime in October 1970, and in 1973, the United States and Cuba signed an agreement to either extradite hijackers or put them on trial (Landes, 1978; Holden, 1986).

In late 1971, a new trend began. A person boarding a flight in Portland in November 1971, under the name of D.B. Cooper, hijacked the plane, demanded and received a ransom of \$200,000 and jumped off the airplane using a parachute. A wave of attempts to imitate him began (Minor, 1975). The United States fought this type of hijacking by ordering the airlines to modify the tail and ventral exit doors of the relevant aircraft so that they could not be opened in flight (Kraus, 1973).

The main explanation suggested by the literature for the sharp drop in hijacking that took place in 1973 and afterwards is deterrence. The various

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12. Heroin was found during a search that was initiated by profiling, but the court granted a motion to suppress the evidence because the profiling employed in that case did not follow the approved behavioral profile.

13. According to Landes (1978) and Chauncey (1975), this took place in October 1970, when President Nixon announced it. However, according to Kraus (1973) the sky marshal program failed because Congress did not vote the necessary funds, and was therefore implemented only later, if at all. According to Minor (1975) there were 1,200 sky marshals, but 75% of them were shifted to ground duty in 1971 to operate the weapon detection system.

measures described above increased the probability of apprehension, the likelihood of incarceration, and the severity of sanctions, thereby deterring potential hijackers.

Landes (1978) distinguished between *ex ante* and *ex post* deterrence. *Ex ante* deterrence was generated by screening, which included both profiling and the use of the magnetometer. *Ex post* deterrence was generated by sky marshals and the U.S.–Cuba agreement to extradite hijackers. He found that *ex ante* measures accounted for about 55% of the deterrence effect, whereas *ex post* measures accounted for 45% of the deterrence.

Assessing the contribution of profiling to the deterrence effect is difficult, because it is impossible to separate the contribution of profiling from that of the use of the metal detector. Before 1973, profiling was used to select the passengers that were required to go through a metal detection search. That is, profiling had no contribution to security apart from that of the metal detection search. In January 5, 1973, President Nixon issued an executive order requiring all the nation's airlines to electronically search passengers' hand luggage and to require all passengers to go through metal detectors; and profiling ceased to be employed.

Searching everyone is clearly more effective than searching only a few based on a profile, but this does not mean that the use of a profile is inefficient. It saves costs which were apparently thought to be too high prior to 1973. It was only in 1973 that the government decided to incur the cost of full screening, and a month later, even required local law enforcement officers to be stationed at all passenger check points to enhance the deterrence and prevention effects of the screening.

According to Chauncey (1975), profiling did little to deter a potential skyjacker by influencing the certainty of punishment, because its use was limited to the major airports and was applied to only a small number of passengers.<sup>14</sup> Moreover, because it was not based on innate characteristics, such as ethnicity, it was easy to circumvent even by passengers flying out of major airports. As pointed out by Arey (1972):

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14. The fact that it applied to only a minimal number of passengers is not necessarily a fault. Efficient profiling may have a significant deterrence effect if it applies to the marginal offenders group only, that is, to those people who consider hijacking an airplane but are susceptible to deterrence by screening. This could be a very small group (Blumkin and Margalioth, 2006). Covering only major airports makes no sense. Less than uniform coverage makes profiling highly inefficient.

Now the determined hijacker need only scout ahead for an unguarded boarding gate, buy a round-trip ticket, dress and act like a businessman on a routine business trip, and take one or two simple precautions (including a type of weapon) that we do not choose to describe.

Accordingly, it was the mandatory screening of all passengers introduced in January 1973, together with all other measures such as increased sanctions, the agreement with Cuba, and the sealing of the rear doors in aircraft, that was responsible for the change. Not the profiling.

Another explanation offered in the literature for the phenomenon and its disappearance is that hijacking was a fad, or a contagious virus.<sup>15</sup> Holden (1986) showed that successful transportation hijackings (namely, hijackings motivated by the desire to get out of the country, usually to Cuba) generated transportation hijackings, but not extortion hijackings, and vice versa. Unsuccessful attempts had no contagion effects.

Accepting the contagion explanation would call for limiting media coverage of successful hijackings. It is less clear whether this has any relevance to the question of profiling. If we think that the fad is something that cannot be controlled, then there is no reason to use profiling as a deterrence measure, but it may still be required for prevention purposes. Moreover, if success feeds the “virus,” then profiling, assuming it is effective, may be warranted to starve it.

To sum up, the air piracy literature seems relevant as it discusses the use of profiling in the context of airplane hijacking. We can learn very little from it, however, because the profiling discussed was used for a very limited purpose that is no longer required; was not based on ethnicity or any other ‘sensitive’ trait; and the discussion of deterrence, which is at the heart of this literature, does not apply to our context.

Terrorists of the type we analyze in this paper cannot be deterred by increased expected punishment because they are willing to die (Dugan, Lafree and Piquero, 2005). Many of the terror acts committed against Israel in recent years were carried out by suicide bombers; hence, the potential hijacker of an Israeli airplane is very likely to be one. The same seems to be true in the American context (Pape, 2005).

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15. See Rich (1972) arguing that the “virus” may be transmitted through the media coverage of hijacking incidents and Phillips (1973) arguing that imitation can explain the distribution of hijackings across time.

### 3. Security Checks at Ben-Gurion Airport

Israel's airport security procedures were first established in 1968 after the hijacking of an El Al aircraft on July 23, 1968. Three members of the Popular Front for the Liberation of Palestine (PFLP) hijacked an El Al airplane en route from Rome to Tel Aviv and forced the pilot to land in Algiers. The Algerian President declared that the passengers were prisoners of war and rejected the demand by the International Air Transport Association to release the passengers in spite of an air traffic boycott of Algiers. The event signaled a new era of terrorism (Hoffman, 1999). It was the first global aviation attack motivated by political (namely, terrorist) aims.<sup>16</sup> The incident drove Israel to develop terrorist profiles that have been employed ever since and to establish, for the first time, a special department of aviation security.<sup>17</sup>

The system has proved itself. The last attempt to hijack an Israeli airplane was in 1979. Between 1968 and 1979, Palestinian terror organizations made eleven attempts to hijack Israeli airplanes; all of them failed. In addition to hijacking, terrorists also tried to blow up Israeli airplanes by smuggling bombs in passengers' baggage. With the exception of two cases, which fortunately ended with no casualties, the system was generally successful in preventing these attacks. In the first case, the explosives malfunctioned; in the second, the special armored protection layer in the baggage compartment of Israeli aircraft blocked their effect. In both cases, young European women, who had fallen in love with Palestinians, were sent by them, alone, to meet their families in Israel. Bombs were planted in their luggage without their knowledge. The women did not fit the profile in use at that time, and did not act nervously because they were unaware of being used as "human bombs."

In light of the above, Israeli airport security procedures have been remarkably effective. No hijacking of an Israeli airplane has succeeded since the system's implementation, and none of the terror attacks originated in an Israeli airport. On the scale of casualties, a total of seven people

16. The PFLP's demand was to release Palestinian prisoners.

17. In 1968, a special task force, headed by Benjamin Oliver Davis, decided to develop a similar system in the United States. This system was used in U.S. airports until 1972. For historical development, see Baker (2002).

were killed and seventy five were wounded in attempts to hijack or bomb Israeli airplanes. For the sake of comparison, between October 1994 and October 2004 alone, 303 people were killed and 1,365 were wounded in terror attacks on buses in Israel (Protecting Public Transportation, Ministry of Domestic Defense, 2002).

In addition to the benefit in terms of actual security, another benefit of the system is its accompanying feeling of security. This psychological factor is important since one of the goals of terrorists is to create panic. Linguistically, this is what terror is all about. Our survey shows that Israel's security checks are not only lifesaving but also contribute significantly to the sense of security of all passengers, Jews and Arabs alike. Of the respondents, 82% reported that "the security checks contribute to my sense of safety during the flight" with only small differences between Jewish and Arab passengers (88% and 80%, respectively).<sup>18</sup>

Hijacking an airplane is a highly rewarding activity for terrorists. If successful, Israel could be forced to pay a very high price, such as the release of hundreds or even thousands of terrorists from its jails, many of whom might return to engage in terrorist activity, murder people, and seriously disrupt life in Israel. Freeing them would also encourage more people to engage in terrorist activities against Israel, thus amplifying the terror effects.

Blowing up an airplane is also extremely desirable for terrorists, as hundreds of people die in one act, and because the psychological effect is greater than the murder of a similar number of people on the ground. Thus, the special importance of aviation terror has to do with the potential for killing hundreds of people in one act of terror as well as its symbolic value. Airplanes connect Israel to the world. Surrounded by Arab countries, and due to the long-lasting Arab–Israeli conflict, leaving Israel by car is not an option for the vast majority of Israeli citizens. Shooting down airplanes can give Israelis the feeling of being trapped. It would also drastically affect tourism to Israel—mostly for psychological reasons, but also because nearly all tourists arrive in Israel by air.

For these reasons, Israel is unwilling to take any risk with regard to aviation safety.<sup>19</sup> It employs a zero-tolerance philosophy. On the one

18. See Section 6, Table 1.

19. It is possible that due to the enhanced security at airports, terrorists commit acts of terror elsewhere. See discussion in Section 2.

hand, universal security checks—subjecting all passengers to intensive searches—is too costly and would require that passengers arrive many hours before the flight. On the other hand, random security checks—subjecting only a small percentage of the passengers to an intensive search—is too risky. Instead, Israel uses profiling, and targets its intensive searches at those passengers who are more likely to be terrorists than others. This is a risk-based security technique in which the level of the security check is proportionate to the level of the estimated risk, evaluated based on each passenger’s risk category.

Airport security procedures in Israel are roughly made up of four layers of security: early detection outside the airport zone, airport access control, passenger and baggage screening in the terminal zone, and on-board security.<sup>20</sup> Arab ethnicity is likely to be a factor, one of many, in all four security layers.

In the first layer, passenger lists are screened before the passengers’ arrival at the airport, a method commonly used by El Al staff in foreign airports. Screening is mainly based on databases and intelligence sources, which create watch lists. Passenger screening is also managed by a data mining system, known as the computer-assisted passenger prescreening (CAPPS). CAPPS collects dozens of pre-boarding data items from external sources—mainly airlines and travel agencies—about passengers’ flight habits, method of purchasing the ticket, flight itinerary, travel record, whether a car was rented, whether the passenger is flying alone, meal preferences, and other data that can be inferred from the ticket. CAPPS’s purpose is to identify travelers who should be subject to heightened security procedures; its characteristics are confidential.

In the second layer, at the entrance to the airport, technology such as weight sensors, trunk X-rays, and undercarriage scans are used to inspect the car, but the main form of inspection is quick profiling by the airport staff at the gate. Profiling through face-to-face interaction between the passenger and the airport staff is the most important part of the third layer, in the terminal before check-in. Cutting edge technology is used to inspect the

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20. For a detailed discussion of these layers of security, see [The 9/11 Commission \(2004b\)](#).



luggage,<sup>21</sup> but the heart of the system is profiling based on a multidimensional scaling approach, which has developed according to changes in the threats.

Ethnicity is identified indirectly, using signs such as language, name, accent, dress code, and dwelling place in Israel. The latter is very meaningful as many Israeli Arabs live in ethnically homogeneous localities. Ethnicity is only one of dozens suspicious signs included in the profile—the terrorist profile consists of dozens of characteristics empirically linked with those of past aviation terror events<sup>22</sup>—but it is probably the one over which the passenger has the least control. Generally, the more suspicious the signs, the more intrusive and thorough the security checks will be. The profiling process is designed to sort passengers into different risk groups (low-risk, medium-risk, and high-risk), with screening resources applied to each group in proportion to its risk level. Failing to pass the profiling process leads to additional security screening—questioning—with more questions and, in some cases, frisks and searches. This can take a very long time, and the profiling is meant to limit such intensive interrogations and searches as far as possible.

The variables in the profile are based on empirical analysis of past events, but the key input is the human factor—the expertise and qualifications of the security staff.<sup>23</sup> Setting up the procedures as well as training the security staff is carried out by the Israeli General Security Services. All the security officers working at Ben-Gurion airport, or for Israeli airlines (El Al, Arkia, Israil, and Sandor), are well-trained and often benefit from previous related experience acquired during their army service, which is mandatory in Israel. Their experience and intuition are central to the process. Many of them are students, working in shifts to support themselves during their university studies. This makes them better educated, and probably also more intelligent, on average, than the typical selector in a non-Israeli airport or

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21. Unlike other countries, Israel does not use full body scans or naked body imaging.

22. Thus, a non-Arab passenger can be subjected to a strict security check if he behaves suspiciously, just as an Arab passenger can easily pass the security checks if he travels with his family—passengers flying alone are considered a higher risk than passengers flying with family members.

23. Studies showed an average of 24% error rate in weapons detection by baggage screening (Persico and Todd, 2005; Seidenstat, 2004).

airline. Being relatively more intelligent allows selectors to be less strict and rely more on common sense, thereby mitigating harshness without sacrificing security.

Finally, even in the fourth security layer, on-board security, profiling, including ethnic profiling, is likely to take place. The sky marshals are informed of suspicious passengers prior to boarding.

#### 4. The Profile of The Aviation Terrorist: Israel, 1968–2010

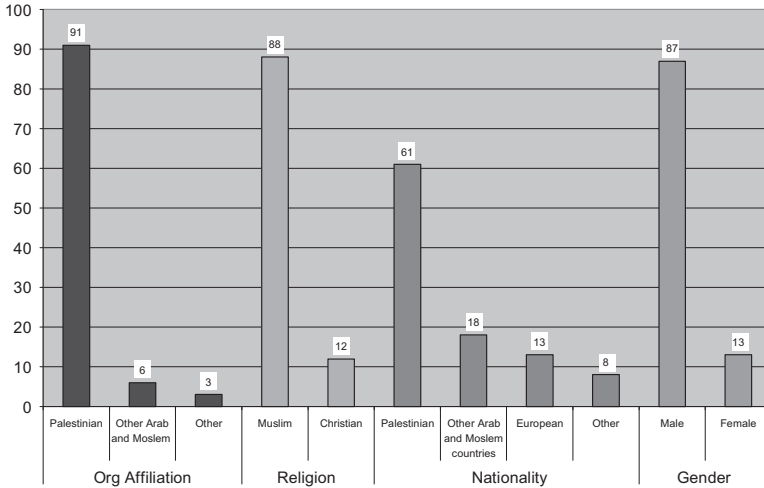
The research analyzes all the published civilian aviation terror events against Israeli airlines, and non-Israeli airlines flying to Tel Aviv.<sup>24</sup> The data were derived from the archives of two leading daily newspapers (*Haaretz* and *Maariv*). The research period contains all civilian air terrorist events from the first attack, in July 1968 through 2010.

Figure 1 is based on aviation terror attacks that took place between 1968 and 2010. The typical terrorist is a Muslim (88%) Arab (79%) male (87%), who is a member of a Palestinian terror organization (91%). In cases where the terrorist did not fit this profile, the operators, who sent the terrorist, were Muslim Arab men. The demographic distribution is presented in Figure 1.

Only one of the 102 terrorists involved in aviation terror attacks during the period studied was an Israeli Arab. This raises the question of why the characteristic *Israeli Arab* should be part of the profile. There are at least two answers. First, the terrorist profile is meant to identify the kind of person who would commit an act of terror. For this purpose, there is no reason to think there is a difference between the propensity to commit an act of terror against an airplane and against some other target. We should therefore look beyond aviation terror. Once we examine terrorist acts against other Israeli civilian targets, which are similar in their composition of potential victims to that of an airplane, such as suicide bombings in buses, trains, or shopping malls, we see that Israeli Arabs were involved relatively more than

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24. The database does not include military aviation events or charter flights or flights by private airplanes. It focuses on international rather than domestic flights. The database is based on a broader definition of aviation terror than the one used throughout this paper, which focuses only on what is under the control of the Israeli security system. It includes, for profile-building purposes, terror attacks against Israeli airlines that took place abroad as well as terror attacks on non-Israeli airlines flying to Tel Aviv. Yet, the narrower definition of aviation terror barely changes the profile.



**Figure 1.** Terrorist Profile (%).

other groups in these types of acts, including suicide attacks against Israeli targets.<sup>25</sup> In most of these cases, the terrorists were young Muslim males (Pedahzur, 2005).

A second, and probably the main, reason for including Arab ethnicity in the profile even though it applies to Israeli citizens, is the complex history and the current state of the Arab–Israeli conflict in the Middle East. Arab countries, formed after the collapse of the Ottoman Empire and the end of the European mandates (mainly British and French), rejected the efforts of the Zionist movement to create a "Jewish homeland" in Palestine. The hostility turned into a war between the Jews, who accepted the UN Partition Plan in November 29, 1947, and the Arabs, who rejected it. In May 1948, one day before the end of the British Mandate, David Ben-Gurion, the first Israeli Prime Minister, declared the establishment of the State of Israel. Neighboring Arab armies (Egypt, Syria, Lebanon, Jordan, and even Iraq, which sent its troops through Jordan) invaded the new State. Against all odds, Israel gained a decisive victory. When the war ended in 1949, about

25. Terrorists who board a plane are suicidal because their chances of survival are slim or zero (if they plan to blow up or crash the airplane). On the other hand, terrorists who send others to board a plane, as in the case of the Palestinians who sent their European girlfriends, do not risk their own lives.

700,000 Palestinians had fled (or been forced to leave) Israel, and became refugees in neighboring Arab countries.<sup>26</sup> Israeli Arabs, who are a minority in Israel, are those who remained in Israel at the end of the war. They are part of the Palestinian people that constituted the majority group (about two-thirds) in Mandatory Palestine.

One cannot understand the relationship between the Israeli Arab minority and the State of Israel without considering the triangular structure of relations between Israeli Arabs, the Palestinian people who live alongside them, and the State of Israel. While Israeli Arabs are a minority within the State of Israel, they are an ethno-national majority (Arabs) in the Middle East. The Jews constitute a majority in Israel but a minority in the Middle East. The existence of the Arab–Israeli conflict makes the Jews suspicious of the Arab minority when it comes to questions of security. Thus, for example, most Arabs are excluded from army service, although conscription is mandatory for Jews.<sup>27</sup> The main argument for the nonconscription of Arabs is the concern that they will use army skills and equipment against Israel.<sup>28</sup>

## 5. The Contribution of Profiling to Aviation Security

A total of 53 aviation terror events occurred between the country's establishment (1948) and 2010. The vast majority of these events (94%) occurred between 1968 and 1986. The peak was between 1968 and 1976, during which period 57.7% of the events occurred. The findings show that none of the terror attacks originated in Israel; a large majority of the attacks took place or originated in Europe (88.5%). The two modes of operation relevant to our analysis are *hijacking* of an Israeli aircraft (21%),

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26. The conflict created about as many Jewish refugees from Arab countries. Most of them came to Israel.

27. The compulsory military service law is enforced only among the Druze and the Circassians, while Muslim and Christian Arabs are exempt from army service.

28. The guiding principle, declared by the first Israeli Prime Minister David Ben-Gurion, indicated that “the Arab citizens in Israel shall be judged not by what they did, but by what they might do.” (Benziman and Mansour, 1992). The focus is not an actual threat but on a potential threat presented by the minority groups as perceived by the dominant group.

and *bombing*—placing a bomb in an Israeli airplane (32%).<sup>29</sup> The last attempt at hijacking an Israeli airplane took place in 1979. From that year on, there were no attempts at hijacking. Planting bombs on Israeli aircraft occurred from 1969 to 1986.

All attempts to hijack an Israeli airplane after 1968, when the system was founded, failed.<sup>30</sup> The system also thwarted nearly all attempts to blow up aircrafts. The screening failed only in the two cases mentioned in Section 3, which involved young European women being unaware of the bombs planted in their suitcases. Fortunately, the special armored protection layer in the baggage compartment of Israeli aircraft blocked the explosion's effect.

What caused the failure to hijack an Israeli airplane, or plant a bomb therein? It is hard to know given the small number of cases (28 in total) and the ambiguity of the exact causes. Most of the events were prevented in the third security layer (passenger and baggage screening, including profiling, questioning, magnetometers, metal detectors, etc.), while a few cases were prevented in the first security layer (early detection), or the fourth security layer (on-board security). When focusing on the prevented events in the third layer, most cases were prevented due to profiling—either by security patrols in the terminal zone, or by the selectors during the questioning process—while only a few events were prevented due to technology. It is difficult to effectively evaluate the marginal contribution of ethnic classification to the airport security system as a whole; nonethnic factors, such as nervousness and contradictory statements, were often involved in

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29. Other modes of operation were: (a) *hijacking* of a *foreign* aircraft carrying Israeli passengers (5%); (b) *sabotage*—attacks against Israeli airline officers or offices on the ground (31%); and (c) *interception* of an Israeli airplane using surface-to-air missiles or anti-aircraft missiles (11%). We do not include these modes of operation because Israel's security system does not operate in the first two cases, and the third type of attack cannot be mitigated through profiling.

30. The criterion to define the success (or failure) of terrorists was based on whether they managed to overcome the Israeli security system. Our scale thus does *not* assess benefit in terms of broader implications on international relations. An attempt to hijack an airplane, even if failed, might have political implications. George Habash, leader of the Popular Front for the Liberation of Palestine, said: "When we hijack a plane it has more effect than if we killed a hundred Israelis in battle." Another Palestinian leader stated: "The first several hijackings aroused the consciousness of the world and awakened the media and the world opinion much more—and more effectively—than twenty years of pleading at the United Nations." Cited in *Dershowitz* (2003).

the process as well. In addition, there is no proof that the profiling-based detected cases would not have been detected by other means, such as a metal detector, regardless of profiling. Moreover, there is no simple way to know whether these cases would not have been prevented anyway in the fourth security layer, on-board security, by means of reinforced cockpit doors and armed sky marshals. The following cases give a sense of how ethnic profiling may be helpful in preventing aviation terror:

In April 1980, a passenger was asked by a German friend—his cellmate during imprisonment—to smuggle a suitcase of diamonds to Israel in return for a large sum of money. He was not aware that his friend was a member of the Baader Meinhof terrorist group, or that the suitcase with diamonds was replaced by a suitcase bomb. During standard questioning by El Al's security officer in Zurich, the passenger, a German citizen of Christian faith who feared being caught for smuggling, responded nervously, perspired, and made contradictory statements. When asked about his planned trip to Israel, he could not supply reliable information and exposed his relations with Palestinians. The officers thus searched the passenger and detected the bomb.

Another example is the story of Anne-Marie Murphy.<sup>31</sup> Anne-Marie was an Irish woman who fell in love with Nizar Hindawi, a Jordanian citizen. She was six months pregnant with Nizar's baby and was asked by her lover to fly to Israel to meet his family before their wedding. Nizar told her that he was unable to travel with her because of his Jordanian citizenship, yet promised to cross the border from Jordan and meet her in Israel. On April 17, 1986, when Anne-Marie attempted to board an El Al flight from London to Tel Aviv, El Al's officers found semtex explosives in her handbag (the device was not detected by X-rays). She was not aware that Nizar had set her up and planned to plant improvised explosive devices on the airplane. The suspicious signs were the answers she provided during questioning: Anne-Marie could not provide much detail on Israel, or on her travel plans. She reported that she would stay at the Hilton Hotel in Tel Aviv, but had no suitcase and had only \$150 in her wallet with no valid credit card. Further

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31. Details about this case are available at: "Anne-Marie Murphy Case (1986)" <http://www.shabak.gov.il/english/history/affairs/pages/anne-mariemurphy.case.aspx> (last accessed Nov. 27, 2011).

questioning revealed her plan to meet with her Jordanian lover in Israel, a suspicious sign justifying conducting a meticulous search of her bag.

## 6. The Survey

How do different passengers perceive the security checks at Ben-Gurion Airport? In order to evaluate passengers' perceptions of airport security procedures, we conducted a survey among a random sample of passengers after check-in at Ben-Gurion Airport.<sup>32</sup> In every case, we made contact with passengers *immediately* after they had passed through the security screening. The sample was stratified to ensure the adequate representation of Israeli Jews (308), Israeli Arabs (306), and non-Israeli passengers (hereinafter: "foreign passengers") (304), and totaled 918 individuals.<sup>33</sup>

The survey was carried out in one of four languages—Hebrew, Arabic, English, and Russian, according to the respondent's native tongue, or the language the passenger felt most comfortable with, by a research team from the Hebrew University over a period of four weeks in August 2008 (August was chosen due to the high volume of flights). All of the assistants who carried out the survey spoke at least one of these languages fluently. Passengers who answered the full questionnaire received a coffee voucher as a token of appreciation and an incentive to reduce refusal rates.<sup>34</sup>

### 6.1. Dependent Variable

There is only one dependent variable which is the overall satisfaction with the airport security procedures. In choosing our survey questions, we relied on common sense as well as on surveys that studied the interaction between the police and citizens—surveys that examined the impact of

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32. We received approval from the Israel Airports Authority to conduct the survey. The specific method by which the survey was carried out was coordinated with the Israel Airports Authority so as to ensure the random over-sampling of Israeli Arabs. We also conducted field observations at the airport in order to map the course of the security process, and identify those procedures that have the potential to generate tension among passengers.

33. See [Appendix A](#) for a description of our survey's data.

34. The total refusal rate was 60%. We could not identify specific characteristics of those passengers who refused to complete the questionnaire; most replied that they were in a hurry to get to the duty-free shops.

procedural justice on the public's attitude towards the police (Tyler and Wakslak, 2004; Reising, Bratton and Gertz, 2007). We asked 13 questions on our survey and then used factor analysis to whittle those down to nine, which were then summed as indicated below. We used Exploratory Factor Analysis to identify a group of questions (“items” or “indicators”) with high correlation.<sup>35</sup> We detected these items by observing their factor loadings. We selected those items with factor loading of 0.50 and higher. These nine indicators represent a latent variable that measure the passengers' overall satisfaction with airport security checks.

The items are the following: (1) *the security inspectors did a good job*; (2) *the security check contributes to my sense of safety during the flight*; (3) *I am satisfied with the security check*; (4) *The security inspectors were honest with me*; (5) *The security inspectors gave me the feeling they cared about me*; (6) *The security inspectors treated me like any other passenger*; (7) *The security inspectors treated me courteously*; (8) *I trust the security inspectors*; (9) *The treatment I received during the security check was fair*.

Respondents were asked to rank the extent to which they agreed with each of the above nine statements, from 1 (strongly disagree) to 5 (strongly agree). For every respondent, we built a summated scale.<sup>36</sup> Combining these nine items resulted in a Chronbach's Alpha of 0.90, indicating a high level of internal reliability for the index.

In Table 1, we described the statistics of our dependent variable, which is passengers' overall satisfaction with the airport security process. The picture is complicated. On THE one hand, most of the passengers thought the security inspectors did a good job, and felt that the security checks contributed to their sense of safety during the flight—with only small differences between Jewish, Arab, and foreign passengers.

On the other hand, analyzing statements on the treatment of the security personnel (honesty, neutrality of checks, courtesy, trust, and fairness) shows significant differences between Arab passengers and the other two groups: Jewish passengers on average hold a significantly positive attitude, while Arab passengers hold a negative one. The most salient disparity between

35. Only two components were identified and their explained variance was 60%.

36. 9 items,  $M = 37.64$ ,  $SD = 7.69$ .



**Table 1.** Descriptive Statistics of the Dependent Variable—Overall Satisfaction with the Airport Security Procedures (% agree and strongly agree)

Variable	Israeli Jewish Passengers		Israeli Arab Passengers		Foreign Passengers		All Passengers	
	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)
The security inspectors did a good job**	90.3	4.51 (0.767)	82.9	4.29 (1.06)	89.2	4.37 (0.911)	87.5	4.39 (0.927)
The security check contributes to my sense of safety during the flight*	87.6	4.48 (0.879)	79.6	4.24 (1.18)	79.8	4.24 (1.09)	82.4	4.32 (1.06)
I am satisfied with the security check***	84.4	4.40 (0.835)	71.1	3.93 (1.39)	78.0	4.12 (1.17)	77.9	4.15 (1.17)
The security inspectors were honest with me***	91.2	4.58 (0.738)	73.1	4.04 (1.32)	78.0	4.39 (1.02)	83.4	4.34 (1.07)
The security inspectors gave me the feeling they cared about me***	70.0	4.00 (1.04)	61.5	3.71 (1.40)	53.9	3.52 (1.33)	61.9	3.74 (1.28)
The security inspectors treated me like any other passenger***	90.3	4.58 (0.809)	61.2	3.60 (1.61)	75.5	4.05 (1.26)	75.7	4.08 (1.33)
The security inspectors treated me courteously**	87.6	4.49 (0.814)	75.2	4.09 (1.17)	75.9	4.14 (1.10)	79.6	4.24 (1.05)
I trust the security inspectors***	85.4	4.37 (0.895)	64.7	3.76 (1.39)	71.6	3.97 (1.19)	74.0	4.03 (1.20)
The treatment I received during the security check was fair***	96.1	4.77 (0.566)	62.4	3.75 (1.42)	75.1	4.13 (1.21)	77.9	4.22 (1.20)

\*Significance level at  $p < .05$ , \*\*Significance level at  $p < .01$ , \*\*\*Significance level at  $p < .001$ .

Arab and Jewish passengers was revealed when we asked for responses to the following statement: “The treatment I received during the security check was fair.” Only 62.4% of Arab passengers reported that the treatment during the security check was fair compared with 96.1% among Jewish passengers.

**Table 2.** Descriptive Statistics of the Independent Variable (Security Treatment): Whether passenger's suitcase was opened for additional checks (%)

	Israeli Jewish Passengers		Israeli Arab Passengers		Foreign Passengers		All Passengers	
	Yes	No	Yes	No	Yes	No	Yes	No
Passenger's suitcase was opened***	9.8	90.2	46.4	53.6	43.5	56.5	33.0	67.0

\*\*\*Significance level at  $p < .001$ .

## 6.2. Independent Variables

Among the independent variables, we first determined the passenger's identity and nationality: Israeli Jews, Israeli Arabs, and foreigners. The second set of independent variable includes characteristics of the security process, such as whether the passenger's or his/her companions' suitcases were opened for additional security checks (Table 2). We assumed that additional security checks would negatively affect passengers' overall evaluation of airport security checks. Table 2 shows that 33% of the passengers reported that their suitcases were opened and examined through additional security checks. However, when focusing on different groups, only 9.8% of the Israeli Jewish passengers' suitcases were opened for an additional check compared with more than 40% of Israeli Arabs and foreign passengers. The finding shows that Israeli Arab and foreign passengers received similar security treatment, different from the treatment received by Israeli Jewish passengers.

Third, we also included interactions between the identity of the passenger (Israeli Arab, Foreign, and Israeli Jew) and the fact that his/her suitcase was opened for additional security checks. We assume that additional security procedures (i.e., open suitcase) might have different impact on different passengers.

The fourth set of independent variables included two variables: Distributive Justice and Procedural Justice. The distributive justice variable intended to determine the extent to which the passenger justified Israel's security checks (Table 3). Respondents were asked to rank their agreement or disagreement with the following statement: "The security check is justified considering the reality of Israel's security situation." This measure

**Table 3.** Descriptive Statistics of the Justification for Security Checks (% agree and strongly agree)

Variable	Israeli Jewish Passengers		Israeli Arab Passengers		Foreign Passengers		All Passengers	
	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)
The security check is justified considering the reality of Israel's security situation***	95.4	4.80 (0.572)	66.0	3.92 (1.30)	80.3	4.30 (1.17)	80.7	4.34 (1.12)

\*\*\*  $p < .001$ .

reflects the passengers' perceptions of the security threat in Israel and may affect the passengers' evaluation of the security procedure. Studies have shown that passengers who believed that improved safety is justified tended to rate the security checks high and expressed high levels of satisfaction (Sindhav et al., 2006).

Table 3 shows that 80.7% of the passengers agreed or strongly agreed that Israel's airport security check is justified given Israel's security situation. However, when comparing the different groups, a significant disparity appears: 95.4% of the Jewish passengers endorse this statement compared with 80.3% of the foreign passengers and only 66% of the Israeli Arab passengers. In spite of the difference between groups, the findings nevertheless indicate that a majority of both foreign and Israeli Arab passengers understand the necessity for strict security checks in Israel.

The procedural justice variables reflect the overall measurement of the passenger's belief that he was discriminated against, humiliated, or intimidated during the security checks (Table 4). This variable was measured through three statements: (1) *The treatment I received during the security check was different from the treatment other passengers received*; (2) *The security check caused me to feel humiliated*; (3) *I felt intimidated by the security check*. The respondents were asked to rank their agreement with these statements from 1 (strongly disagree) to 5 (strongly agree). Combining these measures resulted in a Chronbach's Alpha of 0.71 indicating a reasonable level of internal reliability for the index.

**Table 4.** Descriptive Statistics of Perceptions of the Security Checks (% agree and strongly agree)

Variable	Israeli Jewish Passengers		Israeli Arab Passengers		Foreign Passengers		All Passengers	
	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)	%	Mean (SD)
The treatment I received during the security check was different from the treatment other passengers received***	13.4	1.60 (1.22)	33.0	2.59 (1.64)	21.0	2.01 (1.46)	22.4	2.06 (1.50)
The security check caused me to feel humiliated***	5.5	1.33 (0.88)	19.1	2.05 (1.45)	12.2	1.67 (1.22)	12.3	1.68 (1.24)
I felt intimidated by the security check***	4.9	1.28 (0.822)	17.9	1.93 (1.43)	13.4	1.76 (1.26)	12.0	1.66 (1.23)

\*\*\*  $p < .001$ .

Table 4 shows that, overall, Israeli Arab passengers reported more than Israeli Jewish and foreign passengers that they found the security process to be a negative experience (foreign passengers' perceptions were located in the middle between Israeli Jewish and Israeli Arab passengers).

Table 4 shows that almost a quarter of all passengers felt that the treatment they received during the security check differed from that of other passengers. However, the findings indicate that Israeli Arab passengers felt that their civil rights were violated during the security checks in terms of privacy, liberty, dignity, equality, and fairness considerably more than the other groups.<sup>37</sup> To begin with, Israeli Arab passengers agreed considerably more (33%) than Israeli Jewish passengers (13.4%) and foreign passengers (21%) with the statement that they were treated differently by the airport's security personnel. Next, Israeli Arab passengers (19.1%), more than Israeli Jewish

37. The negative effect of the security checks on Arab passengers might even be biased downwards because August is the annual vacation period and as a result a high percentage of the passengers sampled flew with family members and thus went through less strict inspection.

passengers (5.5%) and foreign passengers (12.2%), reported that the security checks caused them to feel humiliated. A similar pattern was found with regard to feelings of intimidation: 12% of all passengers felt intimidated by the security check, yet Israeli Arab passengers reported feeling intimidated by the security checks more than both Israeli Jewish passengers and foreign passengers (17.9% vs. 4.9% and 13.4%, respectively). For Israeli Arab passengers, thus, the security checks were more intrusive, degrading, and insulting. This indicates that Israeli Arab passengers generally perceive a different experience of the security checks and feel disparate treatment during the security checks.

In the fifth and last set of independent variables, we identified socio-demographic variables (i.e., age, income, education, gender, and marital status) as well as characteristics of the passenger's flight such as frequency of travel and whether or not the passenger was flying alone.<sup>38</sup>

### 6.3. Multivariate Analysis

6.3.1. Analysis strategy. The purpose of our multivariate analysis is to reveal the most important factors that affect passengers' overall satisfaction with the airport security process. We are especially interested in learning how Israeli Arabs perceive the airport security process because they are the ones who are most likely to be adversely affected by the use of profiling (Hasisi and Weisburd, 2011). We also want to learn about the perceptions of non-Israeli passengers toward the security process, knowing that they receive similar security treatment at the airport, at least in the sense that their suitcases are opened as frequently (see Table 4).

One of the main tasks of our study is to examine the effect of specific security treatment on passengers' overall satisfaction with airport security procedures. In order to learn about the independent effect of security treatment on passengers' overall satisfaction with the security process, we chose an analysis strategy of step-by-step OLS. This strategy enables us to measure the effect of different sets of independent variables and to isolate the influence of security treatment when other variables are controlled for. In

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38. We also asked about the reasons for traveling (business, tourism, family visit, pilgrimage, etc.) but did not include them in Table 5. None of these variables were found significant and thus are not included in the multivariate analysis.

our step-by-step analysis, we want to show how similar security treatment has different effects on Israeli Arab and non-Israeli passengers, in their overall satisfaction with the security process at the airport. We do so by using interaction procedures in our model, in order to examine the differential effects that opening of suitcases for additional searches had on the different groups of passengers.

This analysis strategy led us to construct a 5 step model, in which we added different groups of independent variables, step by step. In Step 1, we included the identity of the passenger (Israeli Jew, Israeli Arab or non-Israeli) in order to estimate its impact on satisfaction with the security procedures. In Step 2, we included a measure of security treatment; namely, opening the passenger's suitcase. In Step 3, we included interaction between the identity of the passengers (Israeli Arab, non-Israeli and Israeli Jew) and the security treatment that they received (opening their suitcases). This step helps us to estimate the effect of similar security treatment on different passengers. In Step 4, we included two important variables that reflect the attitudes of the passengers toward the security process. The first variable is a measure of distributive justice, indicating that the passengers believe that security checks in Israel are justified. The second variable reflects measures of procedural justice in which we included negative perceptions of the passengers regarding the security process. Following earlier studies, we assume that these two variables may influence passengers' overall satisfaction with the security process (Tyler and Wakslak, 2004).

In Step 5, we included a wide range of socio-demographic variables that might influence the dependent variable (i.e., gender, marital status, income, education level, and age).

6.3.2. Findings from the multivariate analysis. The descriptive data shows strong differences between Jewish, Israeli Arab, and foreign passengers in their overall satisfaction with airport security procedures. We already know that Israeli Arab and foreign passengers are likely to evaluate the security procedures less positively than Israeli Jewish passengers, yet we do not know whether these differences persist once we control for other variables. Thus, we tested the impact of the different security treatment on Israeli Arab and foreign passengers, and how it affected their evaluation of the security procedure. Table 5 shows our models using a step-by-step approach.

**Table 5.** OLS Regression Model Predicting Passengers' Overall Satisfaction with Airport Security Checks

	Model 1 b ( $\beta$ )	Model 2 b ( $\beta$ )	Model 3 b ( $\beta$ )	Model 4 b ( $\beta$ )	Model 5 b ( $\beta$ )
<i>Constant</i>	40.236***	40.609***	41.488***	29.895***	33.232***
<i>Identity</i>					
Jewish (ref.)	–	–	–	–	–
Arab	–4.67 (–0.285)***	–3.15 (–0.189)***	–3.94 (–0.236)***	–0.107	–0.620 (–0.037)
Foreigner	–3.18 (–0.195)***	–1.72 (–0.106)**	–3.07 (–0.189)***	–1.11 (–0.069)*	–0.689 (–0.043)
Suitcase was opened	–	–4.34 (–0.263)***	–3.30 (–0.200)***	–1.53 (–0.093)**	–1.43 (–0.086)**
Suitcase was opened* Arab Passenger	–	–	–8.66 (–0.251)***	–6.60 (–0.190)***	–5.75 (–0.164)***
Suitcase was opened* Foreigner Passenger	–	–	–3.95 (–0.117)*	–1.51 (–0.045)	–1.27 (–0.037)
Security checks are justified in Israel	–	–	–	2.94 (0.426)***	2.95 (0.427)***
Perceptions of negative contact: profiling, humiliation and intimidation	–	–	–	–0.739 (–0.298)***	–0.792 (–0.321)***
Gender (Male = 1)	–	–	–	–	0.177 (0.011)
Marital status (Single = 1)	–	–	–	–	–1.60 (–0.101)**
Income	–	–	–	–	–0.092 (–0.016)
Education	–	–	–	–	–0.230 (–0.043)
Age	–	–	–	–	0.019 (0.033)
Frequency of flying	–	–	–	–	–0.97 (–0.031)
Flying alone	–	–	–	–	–0.39 (–0.021)
$R^2$	0.065 <sup>a</sup>	0.125 <sup>b</sup>	0.156 <sup>c</sup>	0.467 <sup>d</sup>	0.539 <sup>e</sup>
Adjusted $R^2$	0.063	0.122	0.151	0.462	0.529
$N$	883	845	845	814	701

<sup>a</sup> $F$  test of  $R^2$  change was found significant,  $F = 31.001$ .

<sup>b</sup> $F$  test of  $R^2$  change was found significant,  $F = 64.333$ .

<sup>c</sup> $F$  test of  $R^2$  change was found significant,  $F = 16.302$ .

<sup>d</sup> $F$  test of  $R^2$  change was found significant,  $F = 221.878$ .

<sup>e</sup> $F$  test of  $R^2$  change was found significant,  $F = 57.321$ .

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Step 1 shows that, in the absence of other independent variables, the passenger's identity and nationality (Israeli Jewish, Israeli Arab, or foreigner) plays a significant role in determining the overall satisfaction with airport security process: both Israeli Arabs and foreign passengers tended to express lower levels of satisfaction with airport security checks compared to Israeli Jewish passengers. The findings also indicate that Israeli Arab passengers have a stronger negative orientation than foreign passengers (comparing the unstandardized  $\beta$  values,  $\beta = -0.285$  and  $-0.195$ , respectively).

In Step 2, we attempted to estimate the impact of security treatment on passengers' overall satisfaction with the security process. We identified the security treatment by adding a variable indicating whether a passenger's suitcase was opened for additional security checks. Our field observations, followed by a review of passenger complaints filed with the airport security customer relations department, convinced us that this is a very sensitive stage in the security process. The model shows that having one's (or one's companions) suitcases opened and examined has a negative influence on the passenger's overall satisfaction with the security procedures ( $\beta = -0.263$ ). Furthermore, this variable became the most salient in the model while the impact of the identity of passengers (Israeli Arab and foreign) decreased but remained significant.

In Step 3, we tried to estimate the impact of different treatment (opening a suitcase for additional security checks) on Israeli Arab and non-Israeli passengers, and whether this affects their evaluation of the airport security procedure. The interaction indicates that the fact that a foreign passenger's suitcase was opened for additional checks did negatively affect their overall satisfaction with airport security checks; however, this effect was very weak when compared with Israeli Arab passengers ( $\beta = -0.117$  and  $-0.251$ , respectively), indicating that the opening of suitcase has much stronger effect on the attitudes of Israeli Arab passengers toward airport security.

While the addition of an interaction term is likely to add model instability because of potential multicollinearity (Weisburd and Britt, 2007) and this might be expected to be pronounced in a model in which the overall level of variance explained is high, the indications in this study are that the interaction term increases the overall stability and strength of the model.



We also note that the main coefficients have relatively high levels of statistical significance, which suggest that multicollinearity is not a factor in the model. Thus, the results of our analysis suggest that the interaction term adds to the correct specification of the model.<sup>39</sup>

In Step 4, we included two new independent variables: distributive justice (airport security checks are justified) and procedural justice (perceptions of profiling, humiliation and intimidation). This was the first time that the identity of a passenger as an Israeli Arab lost its significance, indicating that most of the variance was explained by the other independent variables in the model. Step 4 shows that passengers' orientation toward the need for strict security checks in Israel became the most important variable ( $\beta = 0.426$ ), arguing that passengers who justify the use of strict security measures tend to express positive attitudes in their overall satisfaction with airport security procedures (distributive justice). In addition, Step 4 includes a measure of procedural justice assessed by whether the passengers reported that they had been discriminated against during the security check, and whether they felt intimidated and humiliated. This variable becomes a salient predictor in the model ( $\beta = -0.298$ ): Passengers who believed that they had been discriminated against, humiliated, and intimidated reported a much lower evaluation of the security process.

Adding the variables of distributive and procedural justice has also influenced the interaction effect; this was the first time that the fact that foreign passengers' suitcases were opened for additional checks did not affect their evaluation of the airport security process ( $\beta = -0.045$ ). However, this effect kept strong and salient among Israeli Arab passengers ( $\beta = -0.190$ ). This finding shows that while Israeli Arab and non-Israeli passengers received similar treatment (see Table 2), they experience the security process differently.

In Step 5, we added socio-demographic variables as well as two characteristics of the flight. This step shows that after controlling for these independent variables, the passenger's nationality became insignificant for

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39. Collinearity statistics was conducted to verify if any independent variable in the model is a linear function of other independent variables. The tolerance values were above 0.20 in all five steps of the model. In order to create the interaction terms we first mean centered the key variables (identity and suitcase opening) and then multiplied the mean centered values. See Cronbach (1987).

foreign passengers as well. At this stage, marital status played a major role among the added independent variables ( $\beta = -0.101$ ), where single passengers tended to express less satisfaction with the security process. Gender, income, education, and age, are not significantly related to overall satisfaction with the security procedure. The variables of flying alone and frequency of flying were found insignificant to overall satisfaction with the security procedure. Another important finding in Step 5 is that the interaction effect kept stable. Israeli Arab passengers who went through additional security checks and their suitcases were opened, were still expressing negative attitudes toward the security checks compared with Israeli Jews, while non-Israeli passengers did not. This indicates that the expressive harm was triggered only when the Israeli Arab's (or his companion's) suitcase was opened.

#### 6.4. Limitations

Our cost analysis is based on an observational study (i.e., the survey), and though we have tried to control for the possible confounders of ethnicity, only a randomized *experiment* with a random allocation of airport security procedures could provide a clear-cut answer to our research question: whether different treatment of high risk passengers indeed affects their evaluation of the airport security procedures. Considering the reality of airport security an experimental study is unlikely to be possible.

Our model suggests an impressive explained variance (Step 5 reached 51%), yet a large degree of variance in the different steps is unexplained and raises the possibility of biases we have not accounted for. Furthermore, the fact that our response rate was only about 40% raises questions regarding the characteristics of the passengers who refused to participate in the survey.<sup>40</sup> As in all multivariate analyses, we should be cautious in drawing conclusions, but believe that our findings are robust enough to provide some important insights into the field.

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40. The average of response rate to public surveys in Israel is about 40% (Unit of Statistical Analysis, Haifa University).

## 7. Concluding Remarks

Passengers in almost every major airport in the world are currently subject to various levels of security screening as aviation terror is considered to be a viable threat.<sup>41</sup> Israel has the most experience in the world in airport security, being the first country to implement a method of airport screening in 1968, and, at least so far, has had a remarkable success record in preventing aviation terror attempts.<sup>42</sup> This paper, therefore, provides empirical data from a country that is likely to be the world's frontier on the topic. Moreover, to the best of our knowledge, there was only one other empirical study in the world carried out in an airport, and that study did not address the issue of profiling and did not randomly select passengers for questioning.<sup>43</sup>

Israel's aviation security system is widely believed to rely on ethnic profiling. As our analysis of aviation terror attacks that took place between 1968 and 2010 reveals, the typical terrorist, in the Israeli context, is a Muslim Arab male, who is a member of a Palestinian radical political terror organization. Moreover, in cases where the aggressor was not a Muslim Arab man, the operators, who sent the terrorist to execute the attack, were Muslim Arab men.

Our study aimed at improving our understanding of the equity costs entailed by the use of ethnic profiling. A potentially important policy implication of our findings, that may justify an incremental change in the screening policy, even if full reconsideration of what would be the optimal policy is impossible due to lack of data on other relevant factors, is the following. We found that the opening of suitcases of Israeli Arabs for intensive search has negatively influenced their perception of the security procedure. When opening a suitcase for intensive search was controlled for, the identity of the passengers (Israeli Jews or Israeli Arabs) did not affect their satisfaction

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41. The issue of airport screening is currently pending in Congress. The War on Terror has no foreseeable end. See *H.R. Res. 6047, 111th Cong. (2010a)*; *H.R. Res. 2940, 111th Cong. (2010b)*.

42. Just recently, in an attempt to improve U.S. airport screening, Homeland Security Secretary Janet Napolitano came to Israel to study the Israeli airport security system, which is "widely considered the best in the world." See *Palmer (2011)*.

43. *Sindhav et al. (2006)* surveyed 775 American passengers waiting in a medium-sized airport in the Midwest. The passengers were asked to fill out a questionnaire while waiting to board their flights. This type of approach created selection bias as it was not based on a random sample.

with the security process, hence the harm (i.e., equity cost) is concentrated in one specific part of the entire security process.

We therefore suggest that, assuming that intensive search is indeed necessary, then, to the extent possible, the security authorities should avoid opening the suitcases of Israeli Arabs in their presence and in the public sphere. Performing an intensive search of their suitcases without their presence would be ideal. Opening suitcases for intensive search without the presence of the passenger and leaving a card or sticker to notify the passenger that the suitcase was opened, is standard procedure in many countries. If watching the passengers' reactions to the search is part of the security process, then performing the act in a separate space, unobserved by other passengers, seems to be a sensible way to try to mitigate the equity cost.

The policy implication suggested above is also a contribution to the airport screening literature. It emphasizes the importance of avoiding opening passengers' suitcases in their presence and in public, whenever this is technologically possible. The costs involved may not be limited to the intuitively expected direct costs. They could also entail expressive harm when passengers belong to groups that suffer from underlying discrimination, in which the opening of a suitcase becomes the focal point.

This paper makes the following additional contributions to the profiling literature.

In the survey we conducted at Ben-Gurion Airport, we found a strong indication (but not proof) that Israel uses ethnic profiling. Indeed, more than 40% of the suitcases of Israeli Arabs and non-Israelis were opened for additional searches, whereas only 9.8% of Israeli Jews were required to open their suitcases. This is the first time that this policy has been empirically examined.<sup>44</sup>

The paper makes an important contribution to the literature by empirically testing the hypothesis of expressive harm.<sup>45</sup>

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44. See Higgins, Gabbidon and Jordan (2008). "Even with the persistent allegations and anecdotal incidents of profiling in airports since that date, to our knowledge, there are no empirical studies that have examined whether the screening or other practices implemented after September 11 have been colored by racial, ethnic, or religious discrimination (Persico and Todd, 2005). Thus, even though acquiring the requisite data to study this topic is likely to be challenging, there is a serious need for further research in this area."

45. See Risse (2007). "The expressive harm thesis, then, is a causal thesis, and as such an empirical claim whose proper verification is a question for the social sciences,

We found that Israeli Arabs hold, on average, negative attitudes toward Israel's airport security procedures. This is not surprising, as we assume from the outset that they are subjected to ethnic profiling. As mentioned above, what is surprising is that when the variable of opening suitcases was controlled for, the identity of the passenger had no effect on their satisfaction with the airport security process. The differences across the two ethnic groups completely disappeared.

Requiring passengers to open their suitcases for an intensive search imposes various costs on them, such as additional time spent in the security check area instead of the duty-free lounge, loss of privacy, the need to repack the suitcase at the end of the check, the need to engage in discussions with security personnel and to answer their questions. One might think that the difference in the levels of satisfaction expressed by Israeli Jews and Arabs is the outcome of the above costs (hereinafter: direct costs).

We show that this is not the case by including a third group—the non-Israeli passengers in our survey. A similar percentage of Israeli Arabs and non-Israeli passengers were asked to open their suitcases for an additional search. Whereas this request for additional search had a major effect on the overall satisfaction expressed both by the Israeli Arab and the foreign passengers in the first steps, it had no effect at all on the foreign passengers in Step 5. The direct costs described above were probably perceived by the foreign passengers as reasonable. They must have been aware of the terror threat and realized that it made sense to subject them to an additional search.<sup>46</sup> This, however, was not the case with regard to Israeli Arabs. The request to open their suitcases for an additional search changed their perception of the security process into a negative one.

This means that the requirement to open the suitcases created another form of harm, which was inflicted on the Israeli Arabs, but not on the

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provided the relevant data and conceptual tools are available. No such investigation is available, as far as I know, so for the time being we are limited to more speculative ways of thinking about the expressive harm thesis, that is, thought experiments and parallel scenarios.”

46. See [Risse and Zeckhauser \(2004\)](#). “As another example, Ben Gurion Airport employs strict screening mechanisms for visitors exiting Israel. Security personnel decide in interviews whom to search. One criterion that tends to trigger a search is if the visitor spent time in Arab areas. Again, it seems that this measure is not offensive, given the security problems emerging from such areas. (This comparison is relevant only as long as we talk about tourists: If we are talking about Arabs, it becomes question-begging.)”

foreigners. The question is whether this is expressive harm or not. If it is expressive harm, the request to open the suitcase served as a focal point associated with their overall feelings of being discriminated against and as posing a security threat, being a minority that is part of the Palestinian people, who is in violent conflict with the State of Israel. This plausibly explains the Israeli Arabs' harsh reaction.

Alternately, one can interpret our findings as implying that there is no expressive harm at all, which may also imply that Israeli Arabs do not feel they are being discriminated against and suspected as collaborating with the enemy, outside the airport. According to this interpretation, what explains the difference between Israeli Arabs and foreigners in their reactions to the request to open a suitcase for additional search, is that the Israeli Arabs were offended that their own country of citizenship suspects them of being terrorists, to the same extent that it suspects foreigners; much more than it suspects their fellow citizens—the Israeli Jews.

However, our paper provides empirical support for the expressive harm hypothesis by comparing the reactions of Israeli Jews and Arabs to the opening of their suitcases. The full model (Step 5) showed that Israeli Jews reacted the same as non-Israelis, namely, the opening of their suitcases had no significant effect on their satisfaction with the security process. Israeli Arabs, on the other hand, reacted harshly. This provides empirical support for the expressive harm hypothesis. Requiring Israeli Arabs to open their suitcase probably reminded them of other painful events or practices.

## Appendix A

### Data Description

Variables	Percentage, Mean (STD)
Gender	
Male	56
Female	44
Age	
Range	18-87
Mean (STD)	36.8 (13.7)

*(Continued)*

**Appendix A (Continued)**


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Marital Status	
Single	33.7
Married	62.7
Divorced	2.7
Widow	0.9
Income (average monthly income in Israel is about 7,500 NIS)	
1. Much below average	13.1
2. A little below average	13.2
3. About average	27.9
4. A little above average	24.0
5. Much above average	21.9
Education	
1. No education	0.7
2. Elementary school or less.	2.6
3. High school without diploma.	10.8
4. High school with diploma.	19.0
5. Non-academic education beyond high school.	11.4
6. B.A.	38.3
7. M.A.	11.7
8. PhD	5.6
Frequency of flying	
How many times did you fly during the year of 2008?	
1. 0	
2. 1 and more	6.5
	93.5
Reason for traveling	
1. Tourism	71.7
2. Business	5.8
3. Family visit	11.3
4. Religion and Pilgrimage	3.7

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*(Continued)*

**Appendix A (Continued)**

5. Medical Treatment	.2
6. Study	4.9
7. Other	2.3
You are flying	
1. Alone	22.2
2. With another person	39.1
3. With my family	28.2
4. In a group	9.0
5. Other	1.6
<i>N</i>	918
Jewish	308
Arab	306
Foreign	304

**Appendix B**

## Descriptive Statistics of the Duration of Security Checks

	Israeli Jewish passengers	Israeli Arab passengers	Foreign passengers	All Passengers
How long it took to complete the security checks?***				
1. A very short time	32.2	14.9	11.3	19.6
2. A short time	28.5	14.6	21.7	21.7
3. A reasonable amount of time	29.9	41.6	43.3	38.2
4. A long time	6.4	15.3	16.0	12.5
5. A very long time	3.0	13.5	7.7	8.0

\*\*\*  $p < .001$ .



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