From Asylum Seekers to Illegal Migrants:
The intention to overstay of Afghan asylum seekers in Germany *

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Abstract

Asylum seekers with a rejected application account for three out of five illegal migrants in Germany. This research sheds some light on the motives behind the decision of asylum seekers to overstay. We conducted a survey on a population of Afghan asylum seekers in three large German cities and elicited subjective beliefs about the chance of obtaining the right to stay in Germany, the perceived risk of deportation and outcomes related to the legal status. We included a Randomized Controlled Trial that provided information about the actual proportion of deportation to half of the population. Furthermore, we elicited the intention to overstay under different hypothetical scenarios. According to the data we collected, Afghan asylum seekers have upwardly biased beliefs about the risk of deportation. Providing information about the actual proportion of deportation in the population does not have a sizable effect on those beliefs or on the intention to overstay. The perceived chance of obtaining the legal right to stay is a key determinant of the intention to overstay. Moreover, we also document substantial variations of subjective beliefs and intention to overstay across cities.

Keywords: Subjective expectations; Intention to overstay; Asylum seekers; Germany; Afghanistan.

JEL: D84, F22, J18, J61, O15.

1   Introduction

Between the years 2014 and 2016, Germany registered the highest number of asylum seekers in its history, nearly 1.1 million applications. As of 2019, more than 1.84 million asylum seekers were accounted for in the country. The top three sending countries were Syria, Afghanistan and Iraq. Both the prospect for recognition and the length of the asylum procedure strongly depend on an applicant's country of origin. For example, of the total number of applications submitted by Syrian asylum seekers between 2014 and 2019, only 4 percent had been rejected in the initial application phase, in contrast 49 percent for Afghan asylum seekers were rejected.[1] Moreover, 96 percent of Syrians received a protection status as of 2019 for the final decisions, after initial and follow-up applications, whereas only 66 percent among Afghans received similar statuses. Thus, for some groups of asylum seekers, the outcome of an asylum procedure involves a great amount of uncertainty.

Asylum seekers with rejected asylum claims must then decide whether to leave the country, as they are legally obliged, or remain without the legal right to stay and face the risk of deportation. An increasing number of asylum seekers with a rejected application have remained in Germany in the past years for several reasons. Many asylum seekers would rather stay clandestinely rather than return to their country of origin or seek a new host country; while others cannot be deported because they do not have a passport and/or their country of origin or nationality has not been confirmed beyond doubt. In addition, there is often little interest on the part of the countries of origin in enabling the forced return of their citizens. Furthermore, deportation to countries with ongoing armed conflicts like Syria and Afghanistan has become a contentious political issue.[2]

Of those asylum seekers with a rejected application who stay, close to 80 percent obtain a rather precarious status referred to as "toleration" (*Duldung*) until their deportation is enforced or their toleration status renewed. This status does not grant an individual

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[1]In Germany asylum seeking applicants can file an initial application for asylum and if rejected file up to two subsequent follow-up requests on technical grounds.

[2]FAZ (2019) "SPD-Innenminister gegen Ausweitung von Abschiebungen", last accessed on October 15, 2020 at https://www.faz.net/aktuell/politik/inland/spd-innenminister-gegen-ausweitung-von-abschiebungen-16233710.html.

the right to stay for the long run but allows them to work legally and receive some social assistance to cover their basic needs. Importantly, those who manage to remain in the country may eventually have the chance to obtain the legal right to stay.

The aim of this paper is to shed some light on the motives behind the decision of asylum seekers with [the possibility of] a rejected application to overstay. In particular, it highlights the importance of expectations with respect to differing legal status and their respective outcomes. For this purpose, we introduced a module on subjective expectations in the Survey on Migrants' Expectations (SME) study. The focus on Afghanistan is motivated by the fact that Afghan citizens represent the second largest group of asylum seekers in Germany and are the largest group of foreigners with a legal obligation to leave Germany.

The survey elicited subjective beliefs of Afghan asylum seekers about the chance of obtaining the right to stay in Germany (RtS) and the perceived risk of deportation. It included a Randomized Controlled Trial (RCT) that provided information about the actual proportion of deportation for the Afghan population in Germany to half of the sample. It also collected information on expected income depending on legal status, as well as expected access to social services (education, social assistance, health service) and the labour market. Finally, the survey elicited the intention to overstay under different hypothetical scenarios.

We find that Afghan asylum seekers, on average, believe that half of all Afghan asylum applicants are granted some form of protection. This is below the actual final decision proportion (66 percent); but is close to the proportion of positive decisions in the initial application phase. Respondents report, on average, 68 percent chance of obtaining the RtS when *their* current status expires. Importantly, the variance in this statistic is large, reflecting that beliefs are very heterogeneous in the population. In particular, beliefs differ significantly by the city of residence, with those in Munich holding the most pessimistic beliefs.

Afghan asylum seekers have upwardly biased beliefs about the risk of deportation. On average, they are 20 percentage points (pp) higher than the actual number. The

control group expected this risk to increase in the coming years. The RCT aimed at finding out whether these beliefs would respond to information about the actual proportion of deportation. The experiment showed that providing information about the actual deportation proportion for Afghan asylum seekers had neither a sizable effect on deportation expectations nor on the intention to overstay.

On average, respondents stated a 64 percent chance to overstay, were they to be denied the RtS, indicating a relatively high intent in the population to overstay. Our empirical analysis suggests a strong association between intention and subjective beliefs about legal outcomes. In particular, there is a significant influence of the belief about the chance of becoming regularized, if one were to overstay, on the intention to overstay.

To further investigate this effect, the survey included a set of questions that exogenously varied the perceived chance of obtaining the RtS between three hypothetical values (very unlikely, medium and very likely). This allows us to measure the effect of this variable on the intention to overstay while controlling for individual-specific unobserved characteristics. An increase of one-standard-deviation from the mean raises the intention to overstay by 10 pp. Furthermore, the option to be regularized explains more than 20 percent of the intention to stay for one half of the population. The elasticity of the decision to overstay differs significantly by the city of residence. Asylum seekers residing in Munich are considerably less willing to overstay when the chance of obtaining the RtS decreases.

The rest of the paper is organized as follows: section 2 gives a brief description of the context of asylum migration in Germany and places this paper in the wider literature. Section 3 describes subjective beliefs in the sample. Section 4 presents the results of the RCT. Section 5 describes intentions to overstay and the effect of the chance to be regularized on it. Finally, section 6 concludes the paper with a discussion on the implications of the findings.

2 Context

This section provides a brief contextual description of asylum migration to Germany.[3] According to the German Federal Statistical Office, the number of asylum seekers living in Germany has tripled between 2013 and 2019 from around 615 thousand in 2013 to more than 1.84 million in 2019, with a peak of near 1.1 million registrations between 2014 and 2016. As of 2019, 214 thousand Afghans registered as asylum seekers, making Afghanistan the second highest source country, before Iraq (193 thousand) and after Syria (587 thousand). At the height of the asylum migrant crisis (between 2014 and 2016), about 150 thousand Afghans entered Germany.

As of 2019, 15 percent of all asylum seekers in Germany were granted a permanent status, 59 percent a temporary status, and 26 percent were still in a precarious status (pending application, pending appeal or rejected application - *ungesicherten Status*). The prospect of recognition strongly depends on the country of origin. Also as of 2019, 96 percent of asylum seekers from Syria received some form of protective status (with 3 percent receiving permanent protection), while only 1 percent were legally obliged to leave the country. In contrast, for asylum seekers from Afghanistan, 66 percent were given protection statuses (with 7.6 percent of those receiving a permanent status), while 12 percent were legally obliged to leave. Moreover, the proportion of asylum seekers with a complete secure status also varies across federal states, e.g. for Afghans as of 2019: Bavaria 68 percent, Hamburg 80 percent, Berlin 68 percent.[4] This spatial inequality has been linked to the political orientation of the ruling party, with federal states governed by the largest left-wing party (SPD) being less likely to deny an application (Schneider et al., 2020). There is also considerable gender disparity, e.g., as of 2019, 59 percent of Afghan males received a positive decision compared to 81 percent of Afghan females. Whereas, the decision on an asylum application (positive or negative) is taken at the federal level by the Federal Office for Migration and Refugees (*Bundesamt für Migration und Flüchtlinge*),

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[3]All sources for official statistics are collected in appendix A. Referenced numbers are calculated by the authors.

[4]Complete secure status is described as "Annerkant Shutzstatus" in DESTATIS and includes refugee, asylum, subsidiary protection and ban on deportation cases.

the issuance of a toleration status and the enforcement of deportation orders fall mainly under the jurisdiction of federal states and lower level administrations.

Asylum seekers with a rejected application are required to leave within a maximum period of 30 days and may receive financial support if they decide to leave voluntarily. If they do not comply, they face the risk of deportation. In practice though, deportation is rarely enforced. For example, in 2019, only 391 of the nearly 25 thousand asylum seekers from Afghanistan with a legal obligation to leave Germany were returned to their home country, and 582 were sent to another European country under the Dublin-agreement. Additionally, 80 percent Afghans who are legally obliged to leave Germany benefit from a temporary suspension of deportation or toleration status (*vorübergehende Aussetzung der Abschiebung* or more simply *Duldung*). This (precarious) status is issued when obstacles to deportation exist. It is issued from a time period of a few days to a few months (usually not exceeding six months).[5] A toleration does not constitute a legal right to stay in Germany, has no guarantee of renewal and can be revoked if the initial circumstances for the Duldung issuance are no longer valid, i.e. the migrant obtains travel documents.

Except under special circumstances, foreigners who have held a toleration status for at least three months can work in Germany if they receive a job offer, can undertake a vocational course or study.[6] According to the Asylum Seekers Benefits Act (*Asylbewerberleistungsgesetz*), asylum seekers with a toleration status are entitled, during the first 15 months of their status, to receive some social assistance to cover basic needs (food, accommodation, heating, health care, household consumption goods).[7]

Circumstances under which a toleration status can be transformed into a legal (temporary) residence permit include: the completion of a qualified apprenticeship or study, or employment as a skilled worker for a two- to three-year uninterrupted period. Furthermore,

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[5]Opposing obstacles to deportations include: the right to safeguard the marital and family life or the assertion of illness-related dangers caused by deportation. A deportation is also impossible for factual reasons if travel documents are missing, the destination country refuses admission or traffic routes are interrupted. The immigration authorities also have the possibility of a discretionary tolerance for urgent humanitarian issues, personal reasons, or significant public interest (e.g. immediately upcoming surgery or the completion of a school or training year).

[6]Jobs need to be approved by the Federal Employment Agency.

[7]This assistance is provided either in kind, if living in group housing, or as cash payment if living in private housing. After 15 months under a toleration status, the migrant is entitled to the same level of social assistance as any legal resident.

in accordance with German migration law a foreigner with a toleration status may be granted a temporary residence permit for humanitarian reasons if they cannot leave the country for a longer period of time for reasons beyond their control. However, this usually requires that the foreigner holds a valid passport and has sufficiently integrated into the German society. This last condition is usually understood as showing proof of language proficiency and being able to provide for one's needs.

Within this context, the SME study included a section that was designed to understand the decision of Afghan asylum seekers to stay in Germany without the legal right to stay or exit to another country. Indeed, departure of Afghan citizens from Germany are not rare. It is estimated that over five thousand Afghans voluntarily left Germany in 2019, 1.7 thousand of which where the asylum seeker who had been denied protection. These numbers should be considered lower bounds, as migrant exits are not always registered. The survey elicited subjective expectations among Afghan migrants residing in three large German cities.

The elicited expectations can be divided into three categories: (i) subjective beliefs about population averages, (ii) subjective beliefs about individual outcomes if leaving or staying, and (iii) intention to overstay expressed as probabilistic measures. The main objective of the empirical analysis is to address three questions:

- What are the beliefs of Afghan migrants with respect to the outcome of asylum applications and other outcomes related to legal status?

- Are those beliefs malleable, in particular, the belief about the risk of deportation?

- What are the determinants of the intention to overstay? In particular, how important is the prospect of obtaining the RtS in the future?

This paper relates to the rapidly growing literature about individual subjective expectations (see, e.g., Manski, 2004), that has investigated several investment decisions and behaviours, including birth control choice (Delavande, 2008), risky sexual behaviour (Delavande and Kohler, 2016), education choice (Jensen, 2010; Attanasio and Kaufmann, 2014), choice of college major (Wiswall and Zafar, 2015), and career decisions (Van der

Klaauw, 2012). Within the literature on migration, the subjective expectation framework has been used to understand migrants' expectations about outcomes at destination (e.g. McKenzie et al., 2013; Hoxhaj, 2015). We contribute to this literature by studying the subjective beliefs of asylum seekers in relation to the decision to overstay.

This study also contributes to research on the determinants of irregular migration. Part of this literature is interested in the effect of migration policies on the flow of undocumented persons (e.g. Orrenius and Zavodny, 2003; Gathmann, 2008; Amuedo-Dorantes et al., 2013). Another stream of this research looks at the effect of individual expectations on irregular migration decisions (e.g. Mbaye, 2014; Bah and Batista, 2018). Our work is closely related to the latter, in particular to Bah and Batista (2018) who provide experimental evidence about the importance of the perceived risk of dying *en route* and the perceived chance to be regularized for the intention to migrate irregularly. Whereas most of these contributions look at economic migrants, our focus is on a population of asylum seekers who have already arrived in the host country yet face a significant risk of illegal stay.[8] To the best of our knowledge, this is the first work to look at the overstay decision of asylum seekers using a subjective expectation framework.

This research is also naturally linked to the literature on undocumented migration. This literature often looks at the effect of legal status on immigrants' outcomes, often by examining regularization changes (see a review in Fasani, 2015). Related to the present research, some papers look at the effect of legal status *prospects* on outcomes and investment.[9] We contribute to this literature by studying the decision to become illegal in the first place in a population *at risk*, but not necessarily undocumented. We can link directly elicited migrants' subjective beliefs to the decision to stay without the legal right to do so. In as much, we show the importance of individual prospects.

For a large-scale quantitative survey, focusing on a population at risk of undocumented stay is easier than focusing on a population of completely undocumented migrants. Indeed, undocumented migrants qualify as a "hard-to-reach" population (see, Tyldum

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[8]Asylum seekers with a rejected application form a large proportion of migrants with a legal obligation to leave in Germany (about 152 thousand from an estimated total of 250 thousand in 2019).

[9]For example, Devillanova et al. (2017) studies the effect of the prospect of the legal status on employment, using exogenous eligibility conditions of an amnesty program.

and Johnston, 2014). A similar approach has become common in surveys on (internal and international) migration that elicit intention to migrate from populations in source countries, e.g., Gallup World Poll (Gallup, 2018). Unlike most studies that include only categorical answer options, our research records these intentions as probabilistic measures. Moreover, we study possibilities of this decision under different hypothetical scenarios.[10]

Our work is also related to the role of information in determining migration decisions. Shrestha (2017) provides information about mortality rates during the migration journey to potential migrant workers in Nepal. Dunsch et al. (2019) and Bah et al. (2019) show a video documentary to potential irregular migrants in West Africa. In our case, we provide information about the actual proportion of deportation in the population, but do not find this information to be very effective in changing expectations. Indeed, it has only a limited effect on subsequent migration intentions.

Finally, this study relates to the literature on (illegal) migrants' human capital investment, such as education or language acquisition. Mukhopadhyay (2019) finds a link between the probability of deportation and the education decision of illegal migrants. Khourshed and Méango (2020) shows that Syrian refugees in Germany who expect higher economic returns from German language acquisition are more likely to invest in it. Coniglio et al. (2009) find that the willingness to return among economic immigrants in Italy is higher among skilled-migrants, because of the lower expected return of illegal migration.

The findings in this paper highlight the substantial differences in subjective beliefs across cities. Because these beliefs are important for the investment decisions of asylum seekers, cities where migrants expect a low chance of future regularization, such as Munich, might eventually have a lower absolute number of illegal migrants. However, these migrants might also acquire less skills.

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[10]A more concise discussion of the survey and the descriptive parts of the expectations module of the "Survey on Migrants' Expectations in Germany" can also be found in Méango (2020).

3 Subjective beliefs

This section provides a description of beliefs with respect to the outcome of asylum applications and other outcomes related to legal status. The survey included questions which required respondents to give subjective probabilities as a number between zero and 100.

The module on subjective expectations included a training sub-section where respondents were trained on the concept of probability. For example, respondents were asked to state how many (out of 100 Afghans) they thought could speak Dari, the most common language spoken in Afghanistan. Then the interviewer was asked to help respondents rephrase the answer in the form of a probability[11] and a counter-probability.[12] The same exercise was repeated for the proportion of Afghan migrants to Europe who came to Germany, and the proportion of Afghan migrants who obtain the right to stay in Germany. The questions are complemented with visual aids to facilitate understanding.[13]

We elicited subjective expectations on the population and the individual outcome levels. At the population level, the survey elicited respondents' beliefs with respect to the proportion of Afghans who obtain the RtS in Germany and the proportion of Afghans who were deported in the last few years. Questions were phrased as follows:

Q1. *Not all people from Afghanistan who come to Germany obtain the right to stay in Germany. Out of 100 persons from Afghanistan who arrived in Germany, how many do you think obtain the right to stay in Germany?*

Q2. *Out of 100 Afghans who arrived recently in Germany, how many do you think were deported (forcibly removed) and sent back to Afghanistan by the German authorities in the last past years?*

At the individual level, the survey elicited respondents' beliefs with respect to the chance of obtaining the RtS in Germany for the next three years, the chance of obtaining

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[11]The interviewer asked: (1) "So the percent chance that a person from Afghanistan can speak Dari is:... "

[12]The interviewer asked: (2) "It means that the percent chance that a person from Afghanistan cannot speak Dari is:... "

[13]The complete questionnaire is available under https://www.dropbox.com/sh/fb8ytdovg0scboz/AADgwGi5AQ53lsRq68dEc8Sfa?dl=0.

the RtS in three-year time conditional on first staying in Germany without the RtS, and the probability to be deported conditional on not obtaining the RtS. Specifically, respondents were presented with the following hypothetical situations:

Imagine that your current status expires.

Q3. *What do you think is the percent chance that you would obtain the legal right to stay in Germany for the next three years?*

Q4. *You are not given the right to stay in Germany. But you decide to stay in Germany for the next three years. What do you think is the percent chance that you would obtain the legal right to stay in Germany by the end of the three years?*

Q5. *You live in Germany, but you do not have the legal right to stay in Germany. What do you think is the percent chance that you would be sent back to Afghanistan within the following three years?*

In all cases, respondents had to give a probability between zero and 100.

The 3+3 year window was selected for three reasons. First, it provided a not-too-distant time-horizon within which one can form realistic expectations. Second, most protection statuses have a maximum validity of three years. Third, conversations with experts suggested that exit from a toleration status could be expected in a window of five to eight years.

	Berlin	Hamburg	Munich	Total sample
Obtain RtS. population (Q1)	46.61	53.94	35.29	45.29
	(21.21)	(19.13)	(22.55)	(22.11)
Deport. past population (Q2)	21.52	21.31	20.34	21.25
	(18.77)	(17.09)	(16.33)	(18.02)
Obtain RtS (Q3)	73.20	70.11	55.96	68.01
	(26.39)	(23.87)	(27.30)	(27.05)
Obt. RtS. after 3 yrs w/o RtS (Q4)	66.13	68.07	51.21	62.66
	(27.97)	(25.72)	(26.94)	(28.03)
Be deported if no RtS (Q5)	32.53	37.06	48.60	37.72
	(32.73)	(26.80)	(24.78)	(30.27)

Notes: Mean values calculated on non-missing observations. Berlin N=534, Hamburg N=226, Munich N=264, Total N= 1,024. Standard deviation in parentheses.

Table 3.1: Subjective beliefs by city

Table 3.1 presents the average and standard deviation for each city as well as the total sample. On average, respondents expect that around 45 out of 100 Afghans who arrived in Germany receive the RtS. This average belief is closer to the official statistics, in 2019, of positive initial application decisions (51 percent) than that of final decisions (66 percent). There is significant variation across cities with respondents in Munich displaying more pessimistic beliefs. The standard deviations are large, which also suggests a significant variation between individual beliefs. The first quartile of the sample distribution expects a probability of 30, and the third 60, see Figure 3.1a.

With respect to their own chance of obtaining the RtS if the current status were to expire, respondents expect, on average, a 68 percent chance of this occurring. Thus, we see a 22 pp expectations difference between average individual and population averages. Once more, beliefs in Munich are the most pessimistic with a 14 to 17 pp difference between it and Hamburg and Berlin respectively. Moreover, the average belief in Munich (56 percent) is slightly higher than the proportion of asylum seekers with some protection in Bavaria in 2017 (51 percent), but is 12 pp below said average in 2019 (68 percent). The average belief in Berlin is above the 2019 official proportion (73 percent vs. 68 percent), and is below in Hamburg (70 percent vs. 80 percent). Standard deviations are also large here, suggesting significant variations between individual beliefs.

Average beliefs over the chance of obtaining the RtS, conditional on overstaying for three years, are slightly lower than beliefs over own chance of obtaining the RtS, if the current status were to expire (by 6 pp, on average). Suggesting that beliefs on the future of gaining the RtS, if overstay was necessary in the first time period, are high. Nevertheless, the same city patterns persist as with the elicited chance of obtaining the RtS, with those in Munich being rather more pessimistic.

Figure 3.1 compares the distribution of answers of Q1 and Q3 (population vs. own chance). Compared to the distribution of belief about the average population, the distribution of own chance is shifted to the right. This implies that a large proportion have higher expectation to obtain the RtS compared to others in the population. More interestingly, there is a large proportion which state with certainty that they would obtain

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(a) Histogram

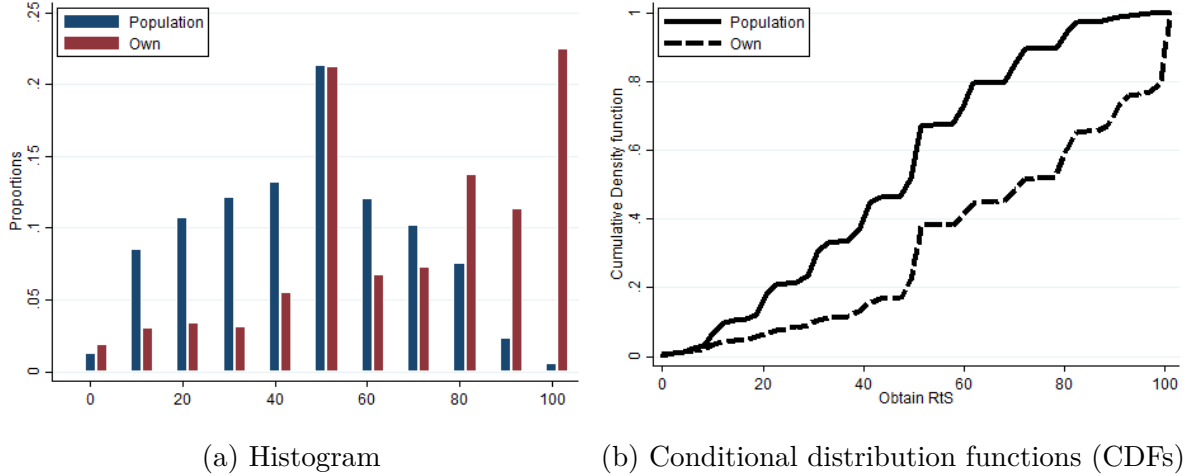(b) Conditional distribution functions (CDFs)

Figure 3.1: Chance of obtaining the legal right to stay

the RtS (around 21 percent report a 100% chance) whereas the population distribution at that level is close to zero.

Beliefs about the proportion of Afghans forcibly removed and sent back to Afghanistan and the chance to be deported when not obtaining the RtS are upwardly biased. On average, respondents believe that 21 percent of Afghans have been sent back to Afghanistan in the past few years, and that there is a 37.72 percent chance to be deported conditional on not obtaining the RtS. As discussed in section 2, deportation to Afghanistan is a rare event. In 2019, only 1.6 out of 100 Afghan asylum seekers with a rejected asylum application were deported.

We, therefore, look at the drivers of these beliefs. Table 3.2 presents a linear regression of the beliefs on the individual characteristics: gender, years of education, legal status, age, and city of residence. Women are more optimistic than men about the chance of obtaining the RtS, which is consistent with the fact that, proportionally, more women obtain a protection status than men. Individuals with an already secure status are more optimistic, which also aligns with the nature of their status. Older individuals appear more optimistic about the chance of obtaining the RtS and less pessimistic about the risk of being deported. Moreover, the regression analysis confirms the importance of the city of residence on the beliefs held by the respondents.

Furthermore, the survey elicited beliefs about pecuniary and non-pecuniary outcomes in Germany, dependent on the individual's legal status. Table 3.3 presents the average

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	RtS (pop.)	RtS now	Deport. (pop.)	Deport.
Female	9.28***	3.65**	5.43***	-2.71
	(1.40)	(1.79)	(1.36)	(2.05)
Years of education	-0.18	0.10	-0.15	-0.15
	(0.12)	(0.16)	(0.12)	(0.18)
Secure Status	6.42***	8.32***	-2.42*	-1.46
	(1.42)	(1.82)	(1.41)	(2.08)
Age	0.11*	0.15**	-0.11**	-0.29***
	(0.05)	(0.07)	(0.05)	(0.08)
Hamburg	14.80***	11.09***	-0.14	-10.16***
	(1.89)	(2.42)	(2.13)	(2.77)
Berlin	9.95***	16.27***	0.39	-15.82***
	(1.54)	(1.99)	(1.61)	(2.28)
Observations	1002	984	800	989
R^2	0.186	0.112	0.030	0.068

OLS coefficients shown. Standard errors in parentheses. * $p <$ 0.10, ** $p < 0.05$, *** $p < 0.01$. The sub-sample for the regression "Deport.(pop)" exclude the observation for one interviewer who did not understand/follow the instructions; Munich is the reference city.

Table 3.2: Regression analyses of subjective beliefs

expected monthly income with or without RtS.[14] With the RtS, respondents expect to earn, on average, 1,665 Euros per month. This amount is lowest in Munich (1,610 Euros), which also displays the lowest variance, and highest in Hamburg (1,727 Euros). Without RtS, respondents expect on average 1,191 Euros. Similarly, the average is lowest in Munich (1,103 Euros), and highest in Hamburg (1,383 Euros). These numbers imply an expected on average monthly return to legalization of 350 – 500 Euros, depending on the city. According to Brücker et al. (2020), the average monthly gross income of refugees who entered Germany between 2013 and 2016 was 1,863 Euros for those in a full-time occupation in 2018. The average elicited beliefs about income seem plausible as they represent between 54 percent and 89 percent of the average gross income of comparable German workforce, depending on the category considered.

Finally, the survey elicited beliefs on non-pecuniary benefits such as the (perceived) access to social services and the labour market in both the case of current legal status

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[14]The exact question was: "For each of the three situations, on average, what is the monthly income (including wage, government subsidies, etc.) that you expect you will have in the next 3 years (in Euros)? Situation 1: Legal right to stay in Germany, Situation 2: without legal right to stay in Germany. Situation 3: Outside Germany"

	Berlin	Hamburg	Munich	Total sample
Income with RtS	1666.91	1727.51	1610.59	1665.06
	(745.5)	(565.9)	(519.2)	(653.7)
Income w/o RtS	1148.26	1383.08	1103.41	1191.28
	(647.5)	(486.8)	(534.1)	(590.3)
Decr. Acc. Educ.	0.51	0.71	0.59	0.57
	(0.500)	(0.453)	(0.492)	(0.495)
Decr. Acc. lab. mrkt.	0.53	0.68	0.73	0.62
	(0.500)	(0.466)	(0.445)	(0.487)
Decr. Acc. Soc. Ass.	0.82	0.85	0.85	0.83
	(0.383)	(0.358)	(0.360)	(0.372)
Decr. Acc. health	0.44	0.72	0.58	0.54
	(0.497)	(0.449)	(0.495)	(0.499)

Notes: Mean values calculated on non-missing observations. Berlin N=534, Hamburg N=226, Munich N=264, Total N= 1,024. Standard deviation in parentheses. "Income with / and w/o RtS" average income expected in the three next years with the corresponding legal status. Distribution is trimmed at 95 percentile. "Decr. Acc." corresponds to a decrease of the perceived access from the current status to the situation w/o RtS in the corresponding domain.

Table 3.3: Subjective beliefs about further outcomes by city

and in the case of becoming irregular (not obtaining the RtS). The perceived access is measured for four key dimensions (education, social assistance, health services and the labour market) by a four-point Likert-scale.[15] Table 3.3 shows the proportion of individual who expect a decrease of their access to social services, were they not to obtain the RtS in the next years. A decrease is most often expected in regard to access to social assistance (83 percent of respondents), followed by labour market (62 percent). These proportions vary noticeably between cities but have no clear ordering.

To conclude, we find important differences in beliefs not only along individuals, but also across cities. Beliefs about the proportion of Afghans who obtain the RtS are, on average, lower than official statistics; yet, respondents are optimistic about their own chance of obtaining the RtS. The beliefs about the prevalence of deportation are noticeably higher than actual rates. Finally, individuals perceive a clear return to obtaining the RtS,

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[15]Answers were: full access, somewhat limited access, very limited access, no access at all.

both in pecuniary terms as well as for some non-pecuniary aspects, namely through access to social services and the labour market.

4   Malleability of subjective beliefs about deportation

As previously discussed, respondents overstate the probability that they would be deported by German authorities. Therefore, we included an RCT to measure the effect of information, i.e. providing an official statistic on the actual deportation probability, on migrants' beliefs. Through the RCT we are then able to test how malleable beliefs are in the face of new information. The treatment group was informed of the proportion of Afghan migrants who had been deported from Germany to Afghanistan in the past few years. The control group received no information. Our interest lies in the difference that arises in beliefs, about the future rate of deportation as well as a respondent's own chance to be deported between the treatment and the control group.[16]

The RCT section followed the training section. Respondents were asked about their perception of the proportion of deportation in the last years (Q4). Afterwards, half of the respondents, randomly selected by the survey instrument were provided with information on the actual statistics of deportation for the Afghan population in Germany in the past 3 years. More precisely, the treated group received the following information:

I *There are official statistics about the number of Afghans that were deported from Germany to Afghanistan. From December 2016 to May 2019, in total 565 Afghan were deported from Germany by the German Authorities. This means about one Afghan out of 100 Afghans who arrived in Germany since 2016.*

Respondents who received information *I* were also asked if they found this statistic reliable.[17] We then elicited subjective expectations about the perceived proportion of deportation level for the entire population in the future. This question was asked to all respondents (both in the treated and untreated groups). Lastly, we elicited subjective

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[16]A pre-analysis plan of the RCT has been registered under the AEA RCT registry (ID: AEARCTR-0004828) and can be found under the following link: https://www.socialscienceregistry.org/trials/4828.

[17]The answers were a binary yes/no.

expectations on own deportation probability, conditional on not obtaining the RtS, after a few questions. The flow-chart of the experiment can be found in Figure B.1 in Appendix B.

Table 4.1 presents the average treatment effect of the information treatment on beliefs of future deportation in the population as well as on own probability of deportation, conditional on not obtaining the RtS.[18] As a placebo, beliefs about past proportion of deportations are also displayed. This belief was elicited prior to the treatment and shows that the randomization worked reasonably well in each city. It also shows that these expectations are very high, 20 pp larger than the true value, in the population.

	Treated	Non-treated	TE	p-value
Berlin (N=532)				
Deport.past (population)	20.80	22.51	-1.71	0.31
Deport.next 3 yrs (population)	19.24	27.25	-8.01	0.00
Be deported (if no RtS)	32.02	31.04	0.98	0.73
Stay w/o RtS	71.29	67.10	4.19	0.19
Hamburg (N=135)				
Deport.past (population)	20.62	22.21	-1.59	0.60
Deport.next 3 yrs (population)	27.65	23.35	4.30	0.34
Be deported (if no RtS)	30.97	28.78	2.19	0.65
Stay w/o RtS	66.36	61.73	4.63	0.39
Munich (N=162)				
Deport.past (population)	21.52	18.65	2.87	0.26
Deport.next 3 yrs (population)	19.33	29.88	-10.55	0.00
Be deported (if no RtS)	43.89	47.21	-3.32	0.42
Stay w/o RtS	53.34	52.60	0.75	0.88

Note: P-value calculated for a t-test on the non-missing values.

Table 4.1: Treatment effects by city

The results of the experiment imply that there may be some movement beliefs regarding the population but not on the individual level. In the control group, expectations about future deportations are high. Respondents in Hamburg expect an increase in the rate of deportation in the next few years. Receiving the information treatment leads to a decrease in expected number of deported in the future in Berlin and Munich, -8pp and -11pp respectively. However, these expectations remain rather high, in comparison to

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[18]We exclude the observations related to one interviewer from whom it was found later during the fieldwork that he did not understand/follow the instructions of the RCT in Hamburg. N decreases in Munich as the treatment was introduced a few weeks after the beginning of the fieldwork.

official statistics (less than 1 percent). In Hamburg, where the lowest probabilities in the control group are given, the information treatment does not seem to affect average beliefs. If anything, it suggests a confirmation bias. Non-parametric equality of median tests and regressions controlling for individual characteristics and interviewer fixed effects yield qualitatively similar results.

A limitation of the above results is that the measured effects could be a result of an "enumerator demand effect". That is respondents provided lower answer because the interviewer corrected them a few seconds before. However, expectations about one's own deportation are elicited a few minutes after the provision of information and should not suffer from this bias. Furthermore, we find that intention to overstay (see next section) is slightly higher in the treatment group, but the difference is not statistically significant. All in all, elicited expectations do not differ between treatment and control group on the individual level. Therefore, it seems that the information has only limited importance for individual beliefs. Appendix C provides additional evidence of this finding by calculating the importance of the provided information in a Bayesian-updating model. In summary, beliefs about the risk of deportation are upwardly biased in the population and do not seem to respond to the provision of official statistics.[19]

5 Intention to stay

In this section we focus on the last question posed in this study, what are the determinants of the intention to overstay in Germany. We investigate its relation with subjective beliefs about the chance of obtaining the RtS in the future, the perceived chance of deportation and the outcomes in the presence of no RtS.

The survey elicited the intention to overstay in Germany with the following questions:

Q6 *How many more years would you like to stay in Germany?*

Q7 *What do you think is the percent chance that you would stay in Germany for the*

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[19]The question about trust in the information does not seem to convey meaningful information. Whether an individual states that he trusts the information or not appears uncorrelated with the difference between the stated belief about past and future deportation rates.

next 3 years?

Q8 *Imagine that your current status expired. You are not given the right to stay in Germany for the next 3 years. What do you think is the percent chance that you would decide to stay in Germany for the next 3 years?*

5.1 Descriptive statistics

Around three quarters of the respondents reported that they would like to stay forever in Germany. Of the remaining quarter, 57 percent would like to stay until conditions in the home country improve, 9 percent would stay less than 10 years, and 17 percent for 10 to 30 years. The distribution is very similar across the three cities. Hence, we find that the willingness to stay in Germany for a long time is rather high for *Q6*.

Turning our attention to the distributions of *Q7* and *Q8* we find a corresponding picture. Table 5.1 presents the average for the whole sample, and by city, for the answers to *Q7* and *Q8*; while Figure 5.1 presents conditional density functions (CDF) of *Q7* and *Q8* by city.

	Berlin	Hamburg	Munich	Total sample
Stay in DE (Q7)	85.51	85.38	76.17	83.07
	(22.66)	(21.32)	(27.76)	(24.12)
Stay w/o RtS (Q8)	69.75	69.90	48.73	64.36
	(32.59)	(26.29)	(28.33)	(31.53)

Notes: Mean values calculated on non-missing observations. Berlin N=534, Hamburg N=226, Munich N=264, Total N= 1,024. Standard deviation in parentheses.

Table 5.1: Intention to stay in DE by city (I)

The reported chance of staying in Germany for the next three years is high, with a mean of 83.07 percent chance. A large proportion of the population (46.9 percent) reports a 100 percent chance to stay in the next three years. The average chance is lowest in Munich, 76.17 percent. Indeed, the CDF of Munich is first-order stochastically dominated by the two other cities. Consequently, respondents in Munich are the most pessimistic about their chance to stay. This is consistent with their more pessimistic beliefs about the chance of obtaining the RtS and the chance to be deported if not obtaining the RtS.
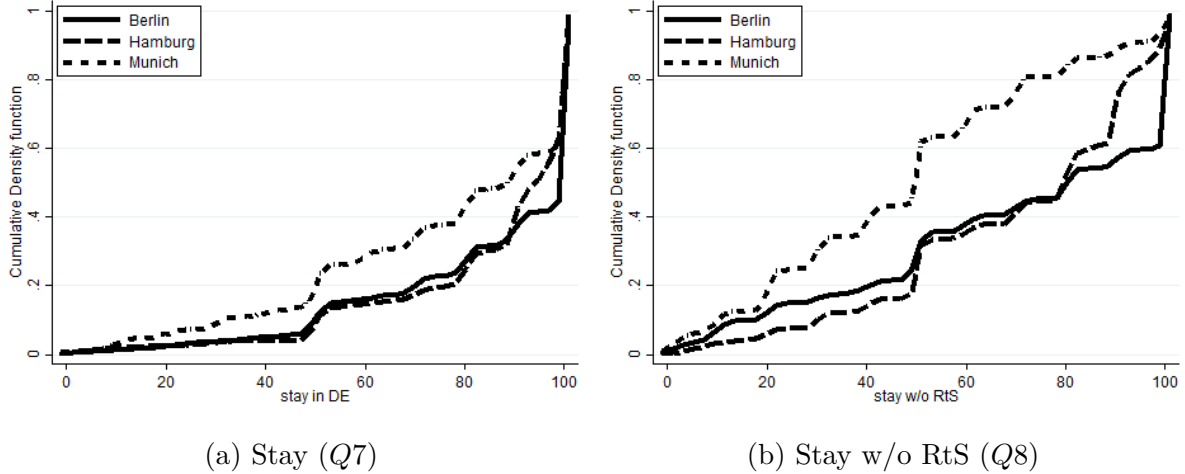
|(a) Stay ($Q7$)|(b) Stay w/o RtS ($Q8$)|

Figure 5.1: CDFs of intention to stay and intention to stay conditional on not receiving the RtS by city

The intention to stay without RtS is 19 pp lower than the unconditional probability of the intent to stay. Fewer respondents state a 100 percent chance to stay (24.72 percent), of which 80 percent live in Berlin. Once again, Munich's CDF is markedly dominated by the CDFs of the two other cities. The difference between the averages is about 21 pp. Nearly 40 percent of residents in Berlin report a 100 percent chance to stay in the case of receiving no RtS.

Of interest is that reported alternative destinations, should one decide to exit Germany, are very diverse. The top three countries mentioned are France (14 percent), Canada (11 percent) and the United Kingdom (8 percent). 40 percent of respondents mentioned a European country other than Germany, while only 7 percent identified returning to Afghanistan.

5.2 Determinants of the intention to stay without the right to stay

In looking at the determinants of the intention to overstay without the RtS we look at three aspects, namely:

(i) individual characteristics: gender, skill level, age, legal status, time since arrival in the EU and city of residence;

(ii) subjective beliefs about legal status and deportation: chance of obtaining the RtS if staying for three years without the RtS, chance to be deported conditional on not obtaining the RtS;

(iii) expected outcomes in Germany: monthly expected income without the RtS, and the wage return from obtaining a legal status – that is the difference between the income with the RtS and the income without the RtS – as well as indicators of the perceived access to social service without the RtS.[20]

Table 5.2 displays the result of two specifications, where the control variables are introduced progressively. We estimate the relation by first using an ordinary least squares (OLS) specification and then a least absolute deviation (LAD) specification. We utilize the second specification in order to address a limitation of OLS regarding extreme values.

The first specification (OLS(1) and OLS(2)) is a linear regression of the stated chance of stay without RtS on the control variables. In this specification, gender, legal status security and the city of residence of the respondent are the main individual characteristics explaining the intention to stay. Women have higher intention to stay (4 to 5 pp), while respondents with a precarious legal status have on average a 6 pp lower intention to stay. The effect of the city of residence is sizable even when controlling for other individual characteristics and subjective beliefs. In comparison to Munich, those in Berlin and Hamburg have significantly higher intention to overstay. Significant results, for the most part, hold across specifications.[21]

The perceived chance of obtaining the RtS if one overstays has a statistically and economically significant effect on intention to overstay. One point increase in the belief of obtaining the RtS increases the intention of overstaying by 0.44 pp. That is, a one-standard-deviation increase (+28.4 pp) from the mean increases intention to stay by 12.51 pp (=28.44 × 0.44). Subjective beliefs about deportation have a weaker effect. A one-standard-deviation increase (+30.5 pp) from the mean decreases intention to overstay by 2.44 pp.

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[20]Each indicator variable is equal to one if the individual expect a full access or a somewhat limited access and zero otherwise.

[21]Hamburg loses significance in the LAD(2) specification with controls.

	OLS (1)	OLS (2)	LAD (1)	LAD (2)
Female=1	4.60**	4.23**	1.40*	1.52***
	(2.06)	(1.97)	(0.28)	(0.19)
Low-skilled	-1.91	-1.35	0.84	0.85
	(1.98)	(1.93)	(0.15)	(0.12)
Age	0.18**	0.03	1.01*	1.01*
	(0.08)	(0.07)	(0.01)	(0.00)
Secure status	6.42***	5.87***	1.62***	1.51***
	(2.15)	(2.08)	(0.26)	(0.21)
Years since arrival	-1.68**	-1.00	0.82*	0.90*
	(0.81)	(0.82)	(0.09)	(0.06)
Hamburg	18.15***	10.45***	3.93***	1.11
	(2.57)	(2.43)	(0.63)	(0.13)
Berlin	19.97***	11.08***	5.06***	1.69**
	(2.30)	(2.52)	(1.73)	(0.43)
Obt. RtS. after 3 yrs w/o RtS (Q4)		0.44***		1.04***
		(0.04)		(0.00)
Be deported if no RtS (Q5)		-0.08**		0.99***
		(0.04)		(0.00)
Income w/o RtS (in 100 EUR)		0.49***		1.06***
		(0.16)		(0.01)
Wage return to legal status (in 100 EUR)		0.27		1.03*
		(0.20)		(0.02)
Acc. educ. (w/o RtS)=1		0.30		1.06
		(1.93)		(0.12)
Acc. lab. market (w/o RtS)=1		2.19		1.03
		(2.09)		(0.13)
Acc. soc. ass. (w/o RtS)=1		-1.16		0.92
		(2.04)		(0.12)
Acc. health (w/o RtS)=1		5.94***		1.37**
		(2.22)		(0.20)
Constant	46.17***	18.08***	0.92	0.08***
	(4.26)	(5.61)	(0.46)	(0.03)
Observations	980	826	980	826
R^2	0.114	0.317		

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Coefficients of LAD(1) and LAD(2) in exponentiated form.

Table 5.2: Regression analyses of intention to stay w/o RtS

Expectations about income in Germany without RtS have a statistically and economically significant effect on intention to overstay. A 100 Euro (0.16 sd) increase from the mean of expected income increases the intention to overstay by 0.49 pp. However, income returns to regularization have a weaker effect. Perceived access to health services seems to be an important determinant of the decision to stay without the RtS. Those who expect a full or somewhat limited access to health care are more willing to overstay (by 5.9 points).

The second specification is a least-absolute deviation estimation of the log-odds of the chance to stay without RtS on the same control variables in the OLS specification (LAD (1) and LAD (2) in Table 5.2). As argued by Blass et al. (2010), this specification is more robust to extreme observations (0 and 100) and rounding.[22] The coefficients are exponentiated to ease interpretation as they yield the change in odds ratio. For example, the last column (LAD (2)) suggests that women have 52 percent (1.52 -1) higher odds of staying than men, whereas respondents with a secure legal status have 51 percent (1.51 -1) higher odds of staying than their counterparts with a precarious legal status. Furthermore, a one point increase in the perceived chance of obtaining the RtS, if one overstays, increases the odds by 4 percent. In this specification, the Hamburg indicator is no longer significantly different from zero after inclusion of subjective beliefs, although its magnitude is relatively large. Berlin maintains its significance albeit at a lower significance level.

The conclusions of both specifications are similar and point to the importance of subjective beliefs in the decision to overstay. In particular, they stress the importance of perceived chance of becoming regularized in the future. We have interpreted the above results as causal effects for ease of exposition. However, there may exist unobservable characteristics influencing both the intention to overstay and individual subjective beliefs, e.g., individual traits, or private information, as suggested by Wiswall and Zafar (2015). Thus, it is more accurate to talk about association between variables.

The next section further investigates the effect of the expected chance of obtaining the RtS on the intention to overstay by exploiting within-individual variations; hence allowing

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[22]Extreme values are replaced with slightly larger/lower ones: 0 by 0.1 and 100 by 99.9.

us to interpret causal effects.

5.3   Causal effects

To gauge the effect of the expected chance of obtaining the RtS on the intention to overstay, the respondents were presented with hypothetical scenarios about the chance of regularization. The survey includes the following questions:

Q9, Q10, Q11. *Imagine that your current status expired. You are not given the right to stay in Germany, but if you stay you will obtain with q% chance the right to stay in Germany at the end of the 3 years. What do you think is the percent chance that you would then decide to stay in Germany for the next 3 years?*

The parameter q was varied to take value 1, 50 and 99. All respondents received all three questions. The order of question was randomly assigned by the survey instrument.

|	Berlin	Hamburg	Munich	Total sample
stay if q=1 (Q9)	70.04	56.02	37.07	58.61
	(35.05)	(32.83)	(32.35)	(36.47)
stay if q=50 (Q10)	85.55	74.55	66.46	78.14
	(22.96)	(22.36)	(25.88)	(24.97)
stay if q=99 (Q11)	95.80	89.94	91.02	93.26
	(13.55)	(16.12)	(18.15)	(15.64)

Notes: Mean values calculated on non-missing observations. Berlin N=534, Hamburg N=226, Munich N=264, Total N= 1,024. Standard deviation in parentheses.

Table 5.3: Intention to stay in DE by city (II)

Table 5.3 presents the averages of answers to questions *Q9* to *Q11* for the whole sample and by city. Figure 5.2 represents the CDFs of these three questions by city. Intention to overstay is very large when $q = 99$, the given average is 93.26 percent chance. The CDFs in this case are highly-skewed to the right, where 68 percent of the sample answer 100, and close to 90 percent gave answers between 75% or above. This pattern is very consistent across all cities. Berlin has the highest proportion of "100%" answers. The average intention to overstay drops by about 15 pp when $q = 50$. The magnitude of this change depends strongly on the city: Berlin -10 pp, Hamburg -15 pp and Munich
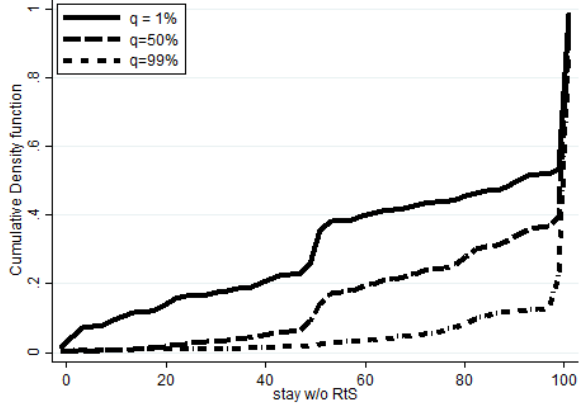
(a) CDFs - Berlin
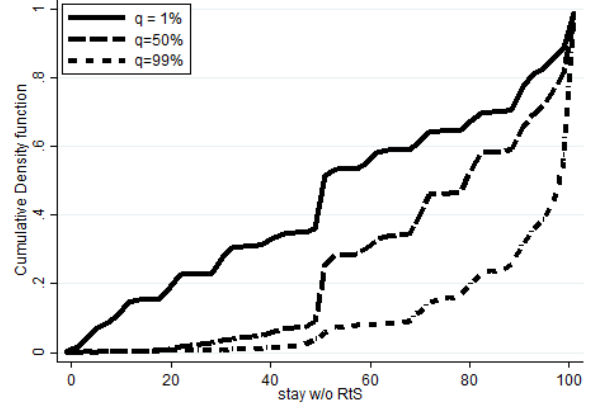
(b) CDFs - Hamburg
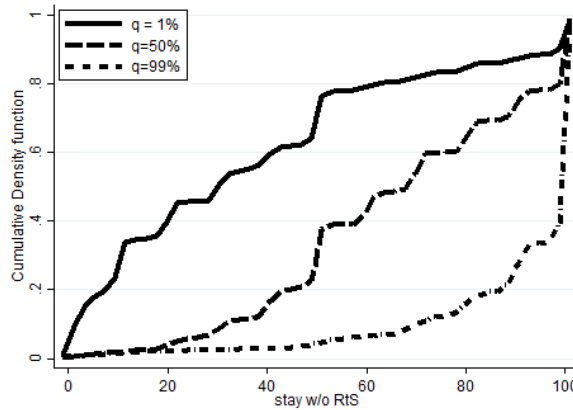
(c) CDFs - Munich

Figure 5.2: Intention to stay w/o RtS by city for $q = 1, 50, 99$

-25 pp. While the distribution is more spread for $q = 50$, still 42 percent of the sample answered 100, and close to 90 percent give answers of 45% or above. Even when $q = 1\%$, 30 percent of the sample answered 100%. Of those, 80% reside in Berlin. The drop in the average intention to overstay from the case where $q = 99$ is on average 35 pp. Again, the magnitude of this change differs strongly by city: Berlin -26 pp, Hamburg -34 pp and Munich -54 pp. Hence, we see that Munich residents appear less willing to stay when there is almost no chance to be regularized. The difference in intention to overstay between Berlin and Munich is about 33 pp. Hence, the chance of obtaining the RtS three years ahead appears to have a significant effect on the intention to stay without RtS.

We create a "pseudo-panel" by eliciting these subjective expectations under several hypothetical scenarios. We observe for each individual a vector: $((1, p_i(1)), (50, p_i(50)), (99, p_i(99)), (q_i, p_i(Q_i$ where $p_i(q)$ denotes the intention to stay without the RtS when the chance of obtaining

the RtS three years ahead is q.[23] To calculate the elasticity of interest, we use fixed-effects methodologies to purge the bias from individual-specific unobserved characteristics. We, therefore, estimate the following models:

$$
\begin{aligned}
p_i(q) &= \beta q + \tau_i + u_{iq}, \ q = 1, 50, 90, Q_i \ \text{(Linear FE)} \\
\log\left(\frac{p_i(q)}{1 - p_i(q)}\right) &= \beta q + \tau_i + u_{iq}, \ q = 1, 50, 90, Q_i \ \text{(LAD FE)}
\end{aligned}
$$

The first specification (Linear FE) uses the elicited intention to overstay as the dependent variable, whereas the second specification (LAD FE) uses a log-odd transformation of it. τ_i represents individual fixed-effect that captures observed and individual specific characteristics, and u_{iq} is a measurement error. Regressions are conducted for each city as well as the entire sample.

	Berlin	Hamburg	Munich	All
Linear FE				
Obt. RtS. after 3 yrs w/o RtS	0.27***	0.33***	0.52***	0.35***
	(0.01)	(0.02)	(0.02)	(0.01)
LAD FE				
Obt. RtS. after 3 yrs w/o RtS	1.02***	1.02***	1.05***	1.02***
	(0.00)	(0.00)	(0.00)	(0.00)
Observations	2023	898	1013	3934

Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Coefficients of LAD FE in exponential form. LAD FE for Berlin presents the results of a quantile regression at the first quartile instead of the median.

Table 5.4: Regression of intention to stay without RtS

Table 5.4 presents the estimates of the coefficient β. Due to the larger presence of extreme value observations, the LAD FE does not converge for the Berlin sub-sample. Instead, we present the result for a quantile regression at the first-quartile.

The linear FE estimation implies that a one-point increase in the perceived chance of obtaining the RtS increases the intention to overstay by 0.35 pp. That is, a one-standard-deviation increase from the mean raises the intention to overstay by 9.95 pp ($=28.44 \times 0.35$). This effect is stronger in Munich than in the other cities. The same increase from the mean raises intention to overstay by 14.78 pp, against 9.39 pp in Hamburg and 7.68 pp

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[23]Q_i corresponds to the answer to $Q5$, and $p_i(Q_i)$ to the answer to question $Q8$.

in Berlin. Similarly, the LAD FE estimation implies double the increase of the odds of overstaying in Munich as in the two other cities.

We can further measure the importance of the chance of obtaining the RtS by the option-value ratio:

$$\rho_i = \frac{\hat{p}_i(Q_i) - \hat{p}_i(0)}{\hat{p}_i(Q_i)} \tag{5.1}$$

where $\hat{p}_i(Q_i) = \hat{\beta}Q_i + \tau_i$. Here, ρ measures the increase in the intention to overstay that is due to the chance of obtaining the RtS in the future. The larger ρ_i, the more the intention to overstay is driven by the option to be regularized.
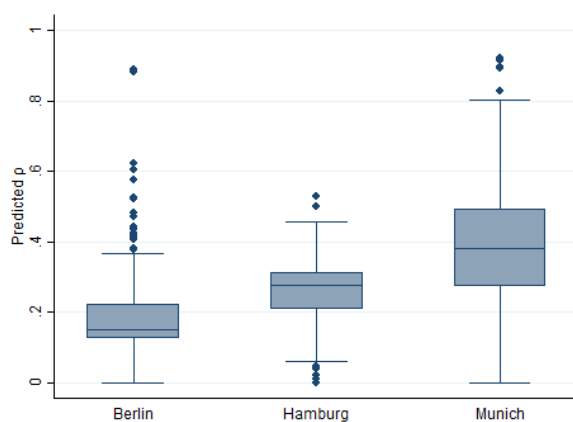

Figure 5.3: Box plot ρ by city

Figure 5.3 presents a box plot of the distribution of ρ in the population, by city. We see that the option of regularization drives a sizable part of the intention to overstay. The interquartile interval ranges from 0.12 to 0.22 for Berlin, that is, the option to be regularized explains 12 percent to 22 percent of the intention to overstay, of the middle half of the population in this city. This interval is $[0.21, 0.31]$ for Hamburg, and $[0.27; 0.49]$ for Munich. In Munich, the option to be regularized explains half of the intention to overstay for one quarter of the population. These findings illustrate the importance of the perceived chance of obtaining the legal right to stay on the ultimate decision to overstay.

6 Discussion

In summary, we find that Afghan asylum seekers are, on average, pessimistic about the proportion of asylum seekers that are granted the refugee status in Germany compared to actual national statistics. However, they are optimistic about their individual chances. There is considerable heterogeneity in individual subjective beliefs. In particular, beliefs differ greatly by the city of residence. Moreover, Afghan asylum seekers have upwardly biased expectations about the risk of deportation. Providing information about the actual proportion of deportation does not have a sizable effect on those beliefs.

In turn, subjective beliefs shape the intention to stay in Germany without the RtS. The intentions to overstay are, on average, relatively high. The possibility of regularization in the future explains more than 20 percent of these intentions for one half of the population. Here, as before, the elasticity of the intention to overstay to the perceived chance of being regularized differ significantly by the city of residence. Asylum seekers residing in Munich are considerably less willing to overstay when the chance of obtaining the legal right to stay decreases.

To pinpoint the origin of this discrepancy across cities is beyond the scope of our study. Possible reasons might include selection of migrants into cities, different information in the network, and/or factors related to local government.

However, it is unlikely that selection of migrants on individual characteristics could explain completely these findings. First, the initial distribution of asylum seekers is, more or less, randomized across federal states, especially in the case of countries of origin with large number of asylum seekers, such as in the case of Afghanistan. Second, the city-effect is sizable even when controlling for a large set of observable characteristics. Moreover, different information might circulate in the network at the city level, and thus further research should be done to elicit source, content and transmission of information within local networks.

In our opinion, the political positioning of the local governments with respect to migration issues might also be an important factor explaining the city differences in subjective beliefs and intention to overstay. At the time of the survey, the parliament of

Bavaria was governed by a centre-right party (CSU). This party has advocated a harder line on migration. It had been openly critical of the political decision of the federal government during the so-called refugee-crisis of 2014 and 2015 and campaigned for an upper limit of 200 thousand asylum seekers per year. Bavaria is one of the two states (the other being Saxony) that regularly deports people to Afghanistan who are neither Islamist threats nor criminals.[24] It is not unlikely that this positioning has created more pessimism among asylum seekers about their future prospect of regularization and stay. If so, our results suggest that deterrence policies might reduce the intention to overstay.

However, one should keep in mind that deterrence policies might also have unintended consequences, for example on integration investments of asylum seekers. A precarious legal status creates institutional barriers for a migrant's integration in the host society. For example, it increases local firms' cost of hiring by creating uncertainty about the length of a work contract. Furthermore, economic literature has pointed out the importance of subjective expectations on human capital investments in several domains. In particular, the prospect of staying in a host country is often cited as a key determinant of language acquisition in migrants: the more likely the stay, the higher the returns of the host country language, and therefore, the higher the investments, see Chiswick and Miller (2015).

We suggest that dampened prospects for acquiring the RtS might lead to an under-investment in German language in Munich compared to the other two cities. A standard mediation analysis illustrates this point clearly. The independent variable, or treatment, is the residence status (equals 1 if residing in Munich, and 0 otherwise). The dependent variable is the language level of the asylum seeker, as assessed by the interviewer at the end of a short conversation in German about the weather. Respondents with higher test scores showed better German language proficiency. The mediator, in this analysis, is the prospect of obtaining the RtS ($Q4$). We control for gender, number of years of education, age and age squared, current legal status and number of months in Germany/EU. These aspects have all been identified in the literature as influencing language skills (Adserà and

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[24]See for example: Spiegel (2017), last accessed on October 15, 2020 "Obergrenze! Obergrenze?" https://www.spiegel.de/politik/deutschland/csu-wahlprogramm-bayernplan-ein-bisschen-obergrenze-a-1158350.html.

Pytliková, 2015; Chiswick and Miller, 2015). We also include the estimated residual term u_i from equation (5.1) to mitigate concerns about unobserved characteristics, that would influence treatment, mediator and dependent variable, in the regressions. Details of the intermediate regression are collected in appendix D.

Effect	Mean	[95% Conf.	Interval]
Total Effect	-0.41	-0.59	-0.23
ACME	-0.06	-0.11	-0.01
Direct Effect	-0.35	-0.52	-0.16
% of Tot Eff mediated	0.15	0.10	0.27

Table 6.1: Results of the mediation analysis

Table 6.1 displays the results of the mediation analysis. We find that the total effect is significantly negative (-0.41) and economically sizable (0.30 sd of the language score). This suggests that respondents in Munich have, on average, poorer language skills than their counterparts in Berlin and Hamburg. The total effect can be decomposed in the mediated effect (-0.06) attributable to lower average beliefs in Munich and the direct effect (-0.35), attributable to other factors at the city level, e.g., differential access to German language class. Therefore, as much as 15 percent of the language skill gap between Munich and the other two cities can be explained by lower prospects of regularization in Munich.

These results put into perspective the consequences of a political strategy of deterrence (*Abschreckung*), which aims at decreasing future opportunities for acquiring a legal right to stay to avoid creating so-called pull-effects. Intention to overstay of those already present are relatively high. Given that deportation rates are low, it is likely that a large part of asylum seekers will remain in Germany, irrespective of their status. However, a precarious legal status creates institutional barriers for their integration. Moreover, the low prospects of regularization might deter them *ex ante* from human capital investments that are key for their integration. In sum, although a deterrence strategy might lead to a slightly lower number of illegal stayers; these stayers would in turn attain less skills.

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Appendix

A   Sources and additional official statistics

Sources of official statistics used in this analysis are accessible online, here:

1. Eurostat: First instance decisions on applications by citizenship, age and sex - annual aggregated data (rounded).URL: https://ec.europa.eu/eurostat/databrowser/view/MIGR_ASYDCFSTA__custom_55039/default/table?lang=en.

2. Statistisches Bundesamt, DESTATIS, URL: https://www-genesis.destatis.de/genesis/online

   - Code 12531-0008: Persons seeking protection: Germany, reference date, sex, category of protection status/protection status, country groups/citizenship.
   - Code 12531-0026: Persons seeking protection: Länder, reference date, sex, category of protection status/protection status, country groups/citizenship.

3. Deportations and departure statistics from the German federal government:

   - 2014 - Deutscher Bundestag, Drucksache 18/4025.URL: http://dipbt.bundestag.de/extrakt/ba/WP18/649/64916.html
   - 2015 - Deutscher Bundestag, Drucksache 18/7588.URL: http://dipbt.bundestag.de/extrakt/ba/WP18/717/71788.html
   - 2016 - Deutscher Bundestag, Drucksache 18/11112.URL: http://dipbt.bundestag.de/extrakt/ba/WP18/794/79434.html
   - 2017 - Deutscher Bundestag, Drucksache 19/800.URL: http://dipbt.bundestag.de/extrakt/ba/WP19/2312/231225.html
   - 2018 - Deutscher Bundestag, Drucksache 19/8201.URL: http://dipbt.bundestag.de/extrakt/ba/WP19/2436/243665.html
   - 2019 - Deutscher Bundestag, Drucksache 19/18201.URL: http://dipbt.bundestag.de/extrakt/ba/WP19/2589/258926.html

4. Compiled statistics on deportations by origin country, state (*Länder*) responsible of the deportation and year of deportation:

   Bundeszentrale für Poltische Bildung, URL: https://www.bpb.de/gesellschaft/migration/flucht/zahlen-zu-asyl/265765/abschiebungen-in-deutschland.

5. Short explanation of the toleration status:

   Bundeszentrale für Poltische Bildung, URL: https://www.bpb.de/gesellschaft/migration/kurzdossiers/233846/definition-fuer-duldung-und-verbundene-rechte?p=all

		Germany	Berlin	Hamburg	Bavaria
2016	Open status	68%	71%	48%	67%
	Recognized	27%	24%	48%	26%
	Denied	5%	5%	4%	7%
2017	Open status	41%	42%	24%	41%
	Recognized	51%	52%	72%	51%
	Denied	8%	6%	5%	9%
2018	Open status	30%	29%	18%	30%
	Recognized	61%	62%	76%	61%
	Denied	9%	8%	7%	9%
2019	Open status	22%	20%	13%	21%
	Recognized	66%	68%	80%	68%
	Denied	12%	12%	7%	10%

Source: Authors' calculation from DESTATIS. Recognised is category "Annerkant Schutzstatus" which according to source includes those recognised with refugee, asylum, subsidiary protection and national ban protection statuses.

Table A.1: Distribution of status among Afghan migrants by German federal states and year
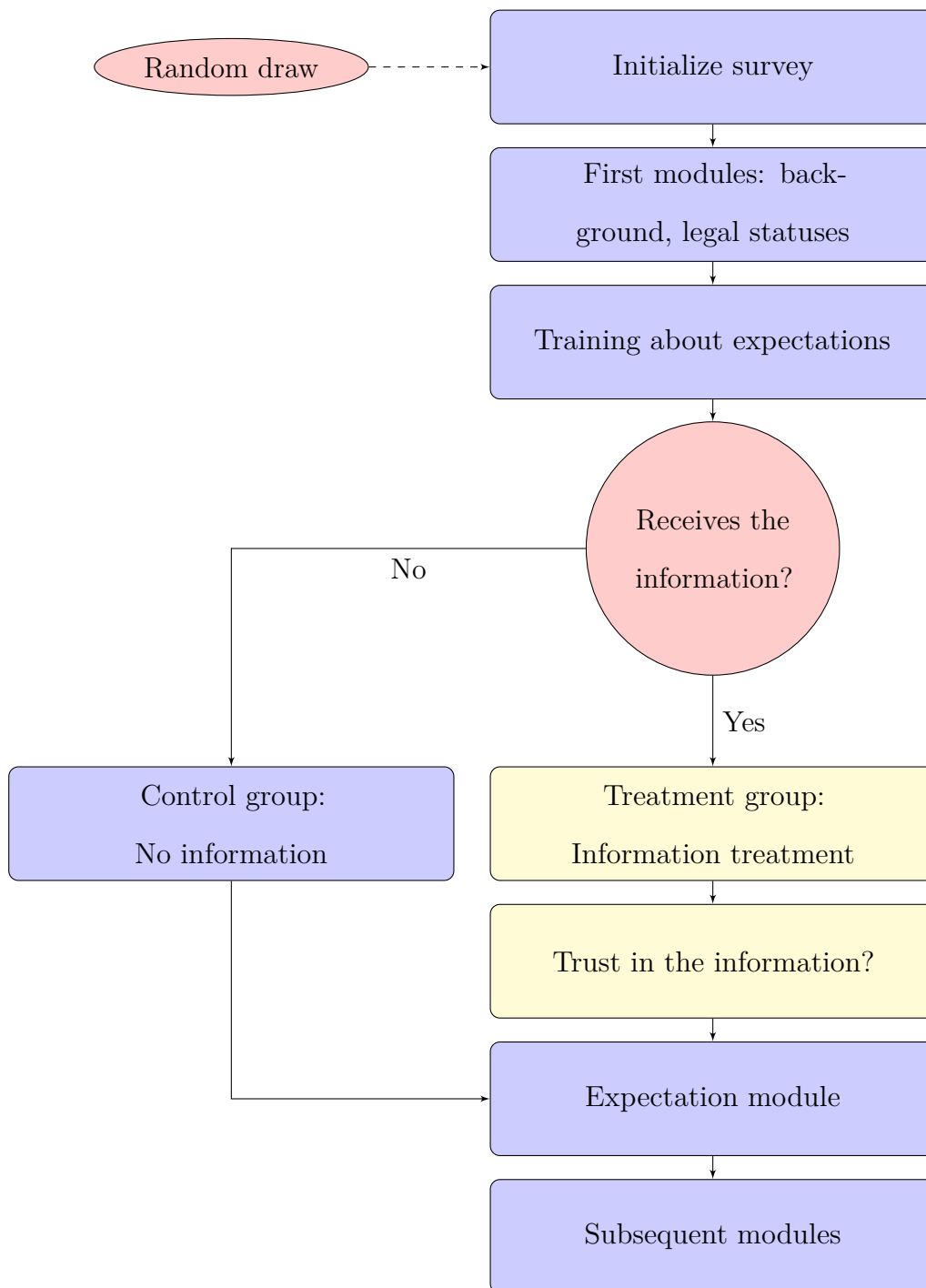
B Flow chart of RCT

Figure B.1: Flow-Chart of the survey design

C Value of the information using a Bayesian-updating model

Following Zafar (2011), we can calculate the value of the information provided in the RCT using a Bayesian-updating model on the probability of a binary event (deportation or no deportation). Define:

$$X_{t+1}^{with\ info} = \eta X_{t+1}^{w/o\ info} + (1-\eta)(I - X_t) \tag{C.1}$$

where $X_{t+1}^{with\ info}$ is the belief about the deportation at time $t+1$ once the information is received, $X_{t+1}^{w/o\ info}$ the similar belief that would have been held without the information, X_t the belief held about deportation at time t, and I is the content of the information. The parameter η measures the relative importance of the new information compared to previous information for forecasting the proportion of deportation in the future. Denote $\bar{A}$ the population average of a variable A, we can derive an expression of η as:

$$\eta = \frac{\bar{X}_{t+1}^{with\ info} + \bar{X}_t - I}{\bar{X}_{t+1}^{w/o\ info} + \bar{X}_t - I} \tag{C.2}$$

Because information is provided randomly, the average expectation of the treated provides an expression for $\bar{X}_{t+1}^{with\ info}$. Similarly, the average expectation of the untreated provides an expression for $\bar{X}_{t+1}^{w/o\ info}$. We report $R = 1/\eta - 1$ as our measure of the importance of the information.

All cities	Berlin	Hamburg	Munich
0.141	0.274	-0.130	0.206

Table C.1: Parameter R by city

Table C.1 shows the estimated value of R for the whole sample and in each city. It confirms that the information is of relatively low importance in general. The information is of largest importance in Berlin. Moreover, when distinguishing between sub-groups of the population, see Table C.2, we find that the information is significantly more important for men, and those with poor German. However, the importance of the information is not

necessarily larger for people with already more erroneous beliefs (above median beliefs).

Men	Women	Stab.Stat.	Prec.Stat.	High-sk.	Low-sk.
0.220	0.156	0.189	0.185	0.182	0.208
Short stay	Long stay	Poor Germ.	Good germ.	X_t Below med.	X_t Above med.
0.206	0.185	0.228	0.171	0.196	0.180

Table C.2: Parameter R by characteristic

D Mediation analysis

	Obt. RtS	Lang. score
Munich resident	-0.16***	-0.35***
	(0.02)	(0.09)
Secure status	0.06***	0.23***
	(0.02)	(0.09)
Female	0.01	-0.19**
	(0.02)	(0.08)
Age	-0.00	-0.11***
	(0.00)	(0.02)
Age squared	0.00	0.00***
	(0.00)	(0.00)
Years since arrival	-0.00	0.24***
	(0.01)	(0.03)
Years of education	0.00	0.05***
	(0.00)	(0.01)
Residual u	0.00***	0.00
	(0.00)	(0.00)
Obtain RtS		0.40**
		(0.16)
Constant	0.70***	3.74***
	(0.07)	(0.37)
Observations	879	879
R^2	0.212	0.320

Notes: Mediation analysis using linear models. Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table D.1: Intermediate regressions for the mediation analysis in Table 6.1