Do refugees converge to local culture? Evidence from German regions

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Abstract

This paper studies the adoption of local preferences and norms by refugees over time. Exploiting plausibly exogenous variation in the allocation of refugees across German regions between 2013 and 2018, we examine the path of their convergence towards local culture in the short-run. We assemble a novel data set on values, habits, and preferences for 8,000 refugees, and combine it with information on more than 34,000 locals. We find strong evidence that refugees converge asymptotically to local culture, closing the gap by 5% every year. This effect is stronger for regions that are culturally more distinct from national culture and more internally homogeneous. We also provide evidence that refugees' cultural convergence is faster where support for anti-immigrant parties is stronger, where there are more hate-crimes against refugees, and where locals are less open to diversity – patterns consistent with what we label the "threat hypothesis". While threat environments speed up refugees' efforts to assimilate to local culture, they slow down economic integration.

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1 Introduction

The dramatic increase in international migration flows has put the issue of immigrant assimilation at the front of the political debate. Adding to the movement of hundreds of millions of economic migrants, recent years have also witnessed the unprecedented rise in the number of refugees. This trend is not confined to developed economies, but is taking place in the developing world as well, as exemplified by the recent Rohingya refugee crisis, in which more than one million individuals were forced to flee Myanmar, moving to Bangladesh and other regions in South-East Asia (United Nations, 2018). A recurring theme underlying the political debate around the refugee crisis – both in the developed and in the developing world – is the concern that refugees are not able or willing to assimilate in host societies. Rising anti-immigrant parties and politicians claim that lack of assimilation represents a threat to social cohesion and to the culture of receiving countries. While this discussion is often centered around national culture, evidence suggests that individuals are concerned about the effects that refugees have on *local* communities and their values.[1] Moreover, the concern about lack of cultural assimilation is often tied to a lack of economic integration, as these two dimensions are assumed to reinforce one another.

In this paper, we examine whether such concerns correspond to reality, or, if instead, they can be attributed, at least in part, to voters' misperceptions.[2] We focus on Germany, which received more than 1.6 million refugees between 2015 and 2018, to ask if refugees converge to the culture of the local community where they settle.[3] We combine monthly-level data on refugee inflows with two different datasets. First, we use the IAB-BAMF-SOEP Survey of Refugees – a longitudinal and representative survey that collects information on socio-demographic characteristics as well as values, habits, and preferences for around 8,000 refugees. Second, since the survey is integrated into the general German Socio-Economic Panel study (SOEP) as an additional sub-sample, this allows us to measure preferences and values for more than 34,000 locals.[4]

We construct a measure of cultural similarity at the individual (refugee) level by computing the distance between the answer provided by individual refugees on a variety of questions about social and cultural preferences and the answer to such questions given by all "locals" in the years prior to the influx of refugees. We consider a variety of cultural and socioeconomic preferences, such as risk preferences, importance of leisure, and reciprocity.[5] Building on Cha (2007), we

[1] See, among others, Card et al. (2012) and Halla et al. (2017) for Europe and Enos (2014, 2016) for the US. See Hainmueller & Hopkins (2014) for a review of the literature.

[2] See Alesina et al. (2018a) for evidence on natives' mis-perceptions about immigrants across countries.

[3] We define local communities as NUTS 2 level regions. In Germany, NUTS 2 level regions correspond to the 19 *Regierungsbezirke* regions, 10 former *Regierungsbezirke* and 9 federal states *Bundesländer*.

[4] We use the term "refugee" for a local resident applying for or having received asylum status and "local" as short-hand for a local resident living in the same NUTS2 region but not applying for or having received asylum status. We acknowledge that both refugees and non-refugees are locals, the terms used are simplifying and imprecise.

[5] See Table 2 for the complete list of questions used to construct the index.

construct an index of Euclidean distance to measure the convergence of refugees to local culture over time. Intuitively, the index captures the shortest, unweighted distance between two points in the cultural space. We describe the construction of the index in more detail below.

Using this measure, we provide evidence of strong convergence towards local culture among refugees. These results are robust to the inclusion of a large set of individual characteristics (e.g. gender, age, partnership status, education and work experience upon arrival) as well as to NUTS 2 region and even district fixed effects.[6] We also verify that our results are not driven by *ex-ante selection* on the side of authorities and *ex-post sorting* on the side of refugees. Specifically, we provide evidence against the possibility that our findings may be influenced either by changes in the composition of refugees – e.g. with individuals who are more likely to converge towards local culture to move to Germany over time – or by selective internal migration – e.g. with refugees relocating to areas that are a better cultural match for them. Finally, since our measure of distance is constructed by fixing natives' preferences and beliefs at baseline, our analysis only captures changes in preferences on the side of refugees and not natives.

According to our most preferred specification, a 12-month increase in time spent in a local community – or 40% relative to the sample mean – increases cultural convergence of refugees by around 5%. Assuming a linear and constant effect, this implies that refugees would close the gap with local culture in about 20 years. Our estimates further suggest that this trend is non-linear, and the speed of convergence falls over time. Yet, the decay in assimilation rates is quantitatively very small. Exploiting the granularity of the survey data, we document that cultural convergence is more pronounced for traits that are more "malleable", such as leisure activities and interest in politics. For other traits, like religion and moral values, we find that it takes longer to close the gap with the new, local culture.

Since we are interested in convergence to the local – as opposed to national – culture, we explicitly examine the distinction between the two. In particular, we calculate the cultural distance between locals and the average national culture, and document that refugees converge more quickly in places whose culture is more "distinct" from the national average. This might be because, in areas with stronger local identity, it is easier for refugees to understand what the "relevant" social norms are. Moreover, in these areas, national identity of locals may be weaker, thereby making the distinction between Germans and foreigners less stark. In line with this observation, we also find that lower dispersion in cultural preferences among locals makes it easier for refugees to converge to local culture. This seems natural, since in a more homogeneous environment it is easier for new-comers to understand what local social norms and habits are. In addition, exposure to a set of people with similar preferences facilitates "absorbing" such norms more quickly.

[6]There are more than 400 districts in Germany.

In the second part of our paper, we investigate the local determinants of cultural assimilation. We consider two main class of mechanisms: first, the size and the economic prospects of the ethnic enclaves; second, the attitudes held by the local (native) population towards refugees and diversity more broadly. In both cases, theoretical predictions are ex-ante ambiguous. When it comes to ethnic enclaves, a larger and more homogeneous community may help refugees find a job and offer informal insurance to them, thereby favoring the integration of the foreign born (Battisti et al., 2016; Edin et al., 2003). However, a larger enclave may also reduce incentives to exert (costly) effort among refugees to leave their own values and norms. Our evidence is more consistent with the latter idea. In particular, we find that larger ethnic networks slow down the speed of assimilation, more so in regions where refugees' peers are economically integrated.

When focusing on natives' attitudes, a more open environment might encourage cultural convergence, for instance by facilitating social interactions. Similarly, natives' hostility may trigger backlash among refugees, inducing the latter to exert more effort to preserve their own culture (Abdelgadir & Fouka, 2020; Bisin & Verdier, 2001; Fouka, 2020). On the other hand, it is also possible that natives' opposition may heighten incentives to quickly converge towards local culture among refugees, who respond to (actual or perceived) threat (Fouka, 2019; Saavedra, 2018). We present results in line with the second possibility, which we term "threat hypothesis". Specifically, we find that convergence occurs faster where support for right-wing parties is *stronger*, where there are more hate-crimes against refugees, and where the degree of locals' openness is *lower*.

A potential explanation for our findings is that the threat at the local level may be particularly salient, and refugees may feel compelled to signal a local identity more strongly in order to reduce the risk of being harassed. Viewed through these lenses, the faster assimilation happening in more homogeneous communities, which are also more "different" from national culture, documented above might be due to direct or indirect pressure faced by refugees (rather than by spontaneous learning). Additionally, we conjecture that under the threat hypothesis, cultural assimilation can be interpreted as assimilation effort, rather than actual integration. While economic integration is dependent on the cooperation of the host community (employer, co-workers etc.), cultural preferences can be adjusted instantaneously by the refugee (particularly if the local culture is distinct and doesn't require interpersonal contact to be grasped and understood by the refugee). Our empirical analysis confirms this hypothesis. In threat environments (right-wing vote and hate crimes) we find large jumps in cultural convergence at the very beginning of refugees stay in Germany (assimilation effort). In these same environment economic integration happens at a much lower rate (cooperative assimilation). In line with this, we also find that other, more subtle, determinants of cultural assimilation (such as locals' openness and ethnic networks) unfold their effect linearly and consistently over time. These non-linearities give important insights into

the mechanisms of cultural versus economic assimilation, supporting the idea that in threat environments assimilation effort (especially in the beginning) is stronger while actual integration (as measured by labor market access) is reduced.

At this point, we believe that a premise is in order. We stress that our paper has no normative implications. Put differently, throughout our paper we never mean to say that refugees should assimilate culturally, or argue that the pace of convergence is "too high" or "too low". We are instead only interested in measuring whether convergence is happening, and if so, at what pace. We hope that our findings will inform policy-makers and, more broadly, the debate over the convergence of refugees to the culture and the habits of the communities where they settle. In fact, this papers calls into question whether cultural assimilation should be taken as a measure of successful integration if it is indeed induced by pressure, threat and fear of violence.

Our paper is related to different strands of the literature. First, we contribute to the broader literature on cultural transmission. In the context of migration, economists have analyzed immigration-induced changes in preferences of natives (Steinmayr, 2020; Alesina et al., 2018b; Dahlberg et al., 2012), the influence of emigrants on the cultural dynamics of the origin community (Rapoport et al., 2020; Barsbai et al., 2017) and changes in the preferences of immigrants themselves. For instance, Abramitzky et al. (2020) show that both today and in the past, immigrants gradually assimilate culturally in the United States. Our findings are larger than those documented by Abramitzky et al. (2020) in the US context, both for the early twentieth century and for the more recent period. This may be for at least two reasons. First, in our paper, we consider a more direct proxy (though not necessarily superior) for culture, constructed directly from the revealed preferences of natives and refugees. Instead, Abramitzky et al. (2020) use names chosen by immigrants for their kids to measure cultural convergence. Second, we focus on *local* culture, while Abramitzky et al. (2020) study assimilation of immigrants to *national* culture. In previous work, Abramitzky et al. (2014) document that, contrary to the common wisdom of the American Dream, European immigrants did not necessarily upgrade fast economically in the first half of the twentieth century.[7] Findings in Fouka et al. (2019) suggest that slow economic convergence was at least partly attributed to cultural discrimination from natives, which fell once African Americans arrived to cities in the US North between 1910 and 1930, as the racial classification got re-defined around the color line. We contribute to this literature by focusing on *local*, rather than national culture, and by studying the experience of refugees rather than economic migrants.

Second, our paper is related to the vast and growing literature on the economic integration of refugees in high-income countries, which has recently been summarized in Brell et al. (2020)

[7]Borjas (1985)'s seminal contribution suggested that economic convergence of immigrants to the US may be slower than originally thought, because of declining quality of more recent immigrant cohorts.

and Becker & Ferrara (2019). We complement these works by focusing on cultural, rather than economic, convergence, and by bringing in a novel dataset that allows us to track refugees' cultural and social preferences over time, testing how they change with each extra month spent in the local community. Since most interactions occur at the level of communities, focusing on this geographic level is important. Previous work was constrained by the availability of reliable data to measure culture: our novel dataset allows us to overcome this difficulty.

Third, our work connects to the literature that leverages the quasi-exogenous allocation of refugees within Germany to assess the effect of local characteristics on various outcomes. For instance, Battisti et al. (2016) focus on the allocation of refugees across German regions between 1975 and 2013 to investigate the effect of co-ethnic networks on economic success of migrants. Similarly, Bahar et al. (2019) exploit the German refugee allocation scheme to show that returning Yugoslavian refugees transfer to their home communities the industry-specific skills that they have acquired in their German host region. This paper also contributes to growing literature on the causes and consequences of the post-2015 refugee inflow to Germany and Europe (Gehrsitz & Ungerer, 2017; Battisti et al., 2019; Martén et al., 2019; Hangartner et al., 2019; Deole & Huang, 2020; Hilbig & Riaz, 2020; Giavazzi et al., 2020; Busch et al., 2020).

The remainder of the paper is structured as follows. Section 2 describes the institutional background. Section 3 presents the data, discusses the construction of our proxy for cultural distance. Section 4 describes the empirical strategy and performs a number of checks to probe its validity. Section 5 presents our main results for the trajectories of cultural assimilation of refugees. Section 6 examines the mechanisms, to test the factors that might foster or hinder cultural convergence. Section 7 concludes.

2 Institutional Background

This section will provide a brief account of the most important milestones and events of Germany's most recent episode of refugee influx and give some context for the policies that accompanied this influx, in particular the residency obligation law.

Germany is one of the main destinations for refugees in Europe. Between 2015 and 2018 alone, a total of 1.6 million asylum applications have been filed in Germany, amounting to a total of over 40% of overall applications in the European Union during that time (Eurostat, 2019). This surge in asylum applications followed the eruption of the civil war in Syria and the growing threat of the so-called Islamic State in Iraq. Starting in 2011, an increasing number of refugees fled to neighboring countries and/or started to move westward to seek protection in Europe. The movement of hundred thousands of refugees from Syria and Iraq through Turkey and the *Balkan Route*, crossing Greece, Serbia, Croatia or alternatively Hungary, rippled into an even larger and

more diverse movement of people, including asylum seekers from Albania and Kosovo.

The number of asylum applications in Germany peaked in late 2015 and was marked by Angela Merkel's highly contested decision in September of 2015 to admit refugees that were stranded in Hungary. This decision was a deviation from the Dublin Regulation, which assigns the responsibility of administering an asylum request to the country of first-entry. However, the regulation was effectively abandoned as registration and administrative capacities in Italy and Greece ached under the immigration pressure and many refugees desired to continue their journey and seek refuge in Northern Europe.

In an effort to curb the number of refugees, in March of 2016 the European Union (with Germany in a leading role) established a Treaty with Turkey that encouraged stricter controls by Turkish authorities at its Western shores. Under this deal, Turkey would take back refugees from Greece and in in turn be able to resettle local refugees in the European Union. This treaty in combination with the closing of the Southern Hungarian border, led to a steep decline in asylum application in Germany, which have remained relatively low (at pre-2014 levels) since then.

Despite early warning signs, such as the accumulation of refugees in Iraq and Syria's neighboring countries, as well as increasing numbers of refugees arriving at European shores, many of them continuing to move towards Northern Europe, German authorities remained ill-prepared for upcoming influx. The accommodation of hundreds of thousands refugees within a few months proved to be a major challenge for German authorities. One major tool for the distribution of refugees across States (*Bundesländer*) was the so-called *Königsteiner Schlüssel* which allocated refugees according to the State's economic capacity (tax revenues) and population numbers. States themselves could then distribute refugees across their districts, following independent but similar criteria. We show how the assignment through the *Königsteiner Schlüssel* maps onto the actual refugee numbers for all refugees distributed in the year 2016 in Figure 2 and find that the allocation closely followed the official quotas.

Typically, refugees were allocated according to availability of housing at the local level, taking into account basic demographic characteristics of the refugee (such as age, gender, family status, and country of origin). However, for the most part, the speed of refugee arrivals left no space for one on one conversations with assignment officers or in-depth analyses of the refugees' profiles. Within a short period the available refugee accommodations were filled up and local authorities had to switch to alternative means of accommodation, such as vacant houses, empty hotels, old military barracks, schools and improvised container colonies and tents (BAMF, 2018).

Beyond the initial assignment to accommodations within states, refugees, in theory, had the ability to self-relocate under certain circumstances. Persons who were still in the asylum application process or had already been rejected, were not allowed to move within the first three months of their stay in Germany. Many of the rejected asylum applicants receive a special status,

by which they are not officially refugees but whose stay in the country is tolerated (*Duldung*). Until August 2016, accepted applicants as well as persons with *Duldung* and pending applications that passed the three month mark were allowed to move freely across Germany. Economic pull factors and large secondary migration fueled the fear of parallel societies if refugees were to choose their place of residence freely. Consequently, law makers passed the *Integration Act* in summer of 2016, restricting the free movement of refugees across states for the first three years in an attempt to avoid "refugee ghettos" in big cities. Six out of sixteen states (mainly the most wealthy and population dense states, such as Bavaria, Baden-Württemberg and North Rhine-Westphalia) tightened the law further and prohibited refugees to move out of the districts they were initially assigned to.

While we will exploit the residency obligation policy in a robustness check, the introduction of this law and the exogenous allocation by authorities across regions is not crucial for our identification strategy. In contrast to most others papers that use the German refugee setting, we are less concerned about the *random* allocation and more concerned about the *consistent* allocation of refugees over time. We will show the empirical test of our identifying assumptions in the next sections and first start with a description of our data set and our main outcome variable.

3 Data sources and the measurement of cultural similarity

In this section, we will highlight the features of the novel data set on the values and attitudes of refugees between 2016 and 2018 and exploit another rich survey among non-refugees, to measure cultural convergence. We outline the statistical measure used to proxy cultural similarity between refugees and locals, we describe its features and compare it to other measures used in the literature.

3.1 The refugee survey

We make use of a unique data set with rich information and large coverage of refugees in Germany. The IAB-BAMF-SOEP-Survey of Refugees is a longitudinal, representative survey of refugees, asylum seekers, and their family members in Germany (Brücker et al., 2016). It is conducted jointly by the Institute for Employment Research (IAB), the Research Center of the Federal Office of Migrants and Refugees (BAMF FZ) and the Socio-economic Panel (SOEP) at the German Institute for Economic Research (DIW Berlin). The sampling frame of the survey is the Central Register of Foreigners in Germany, where each foreign citizen is registered by her or his legal status. The target population are individuals who arrived as asylum seekers in Germany between January 1, 2013, and December 31, 2016. The survey covers these individuals irrespective of their current legal status. The total sample covers about 8000 adult persons (18

years and older), who have been surveyed between one and three times.

The questionnaire comprises more than 400 questions regarding migration, employment and education history, personal characteristics, health status, integration measures participation, values, and attitudes. Moreover, an additional questionnaire addresses issues at the household level, e.g. housing, infrastructure and welfare benefits. Integration into the well-established and nationally representative longitudinal SOEP-study allows comparison with other population groups that are not refugees.

The rich questionnaire allows us to look at different dimensions of what we loosely call culture. One cluster of questions evolves around normal daily life and leisure activities. Another block of questions deals with attitudes and personality characteristics, locus of control, reciprocity, self-esteem, and risk aversion. The third cluster of questions addresses religion and faith, worries, satisfaction as well as political interest. We will analyze these clusters jointly as well as separately to single out the driving factors behind the convergence of values between locals and refugees.

In addition to the battery of questions on culture, we have very detailed information on socio-economic characteristics, migration history and life of the refugee in the origin country. We can use those pre-entry characteristics to validate our identifying assumption. The survey also contains information on the timing, location and overall conditions of the refugee allocation process, which helps us to identify the district to which the refugee was assigned to and check whether the refugee fell under the residency obligation. The rich data set (in combination with other data sets on district level characteristics) allows us to carefully study the mitigating factors of cultural assimilation.

Table 1 shows the main variables of interest for our analysis. In our sample the refugees' average time spent in Germany is 29.5 months. Most of the respondents of the refugee survey, about two-thirds, have gained official asylum seeker status, with 20% pending decisions and 16% rejected applicants (not in the table). The majority of respondents is Syrian, Afghan and Iraqi, making up 78% of the toal sample.

3.2 The German Socio-Economic Panel

The German Socio-Economic Panel (GSOEP) is a wide-ranging representative longitudinal study of private households in Germany. Every year since 1984, around 15,000 households and about 30,000 individuals have been surveyed in primarily face to face interviews. The refugee survey was designed in a way that matches the questions in the GSOEP and has also been sampled and administered in the same fashion. Many of the elements in the refugee survey such as questions on daily life, risk aversion, personality traits and other values are also asked in the GSOEP. The comparability of the two surveys is key since we want to avoid identifying differences in survey design rather than differences in values and attitudes. Thanks to geo-located data in the

GSOEP with information on the location of the respondent at the district level, we are able to construct a measure of local culture and match the refugee to that geographic cultural space on different levels of aggregation (district, region, and state). We also have rich information on the socio-economic status and migration background of the respondents.

Table 1 compares the different components of our measure of cultural similarity between locals and refugees. Risk preferences are lower among refugees than locals, which is in line with the literature on risk-taking adjustment after traumatic events (El Bialy et al., 2017; Ceriani & Verme, 2018). Negative reciprocity is lower among refugees while positive reciprocity is higher, pointing to the fact that social capital (reciprocity being one dimension of social capital) is higher among refugees than among locals. Satisfaction with one's health and housing situation is virtually the same across locals and refugees, while refugees engage in fewer leisure activities. Preferences for politics or political parties is lower among refugees. With regards to socio-demographic characteristics, the refugee sample is substantially younger (34 years versus 51 years on average), male (38% of the sample is comprised of women) and less educated.

In our analysis, we are interested in the effects of local culture. Specifically, we address the question of whether refugees converge towards the values and norms held by the people in the same geographic unit. In order to test this hypothesis, we need sufficient variation of locals' cultural preferences at the respective geographic unit. Here, we face a trade-off between granularity and representativeness of our data. We can observe the location of the respondent at the district level. However, some districts contain as little as 20 non-refugee respondents. We therefore refute to a higher aggregation level, which is the NUTS2 region.

Germany has 38 NUTS2 regions, which gives us a sufficient number of observation per region to reduce measurement error and at the same time highlight the relevance of local culture. Overall, the lack of representativeness is not a first order concern for our estimation since we take that as measurement error which would lead to an attenuation bias in our estimates. Detecting a non-zero result would therefore speak to the strength of the effect, which prevails despite noise. One could argue that the measurement error could not be randomly distributed across districts but be biased depending on the refugees' duration of stay and cultural proximity to locals. This seems unlikely since the GSOEP is a highly standardized and long-running survey with a pre-determined sample.

Figure 3 illustrates the importance of within country (and even within state) cultural heterogeneity. As an example, we show attitudes towards negative and positive reciprocity of non-refugees in the year 2010 (e.g. at baseline and before the entry of refugees) on the NUTS2 level. Negative reciprocity (for instance: *If someone does me a serious wrong, I will get my own back at any price at the next opportunity*) and positive reciprocity (for instance: *I make particular effort to help someone who has previously helped me*) are measured on a scale from

one to seven. We show the exact wording and questions used in Table 3. There is substantial variation across NUTS2 regions (with some regions displaying negative reciprocity as low as 2.6 and others going up to 3.5).

3.3 Other data sources

In order to control for district level characteristics, we get additional data, first, from the German Federal Statistical Office on the overall population and the number of refugees. Second, data on regional unemployment rates comes from the Federal Employment Agency (BA). These are not only important control variables but crucial mediating factors for the "ease of assimilation". We also employ data on further mediators: Data on voting-shares at the regional level comes from the Federal Election Commissioner (Bundeswahlleiter, 2020), on hate crimes against refugees from Benček & Strasheim (2016), and the (NUTS2-, region-of-origin- and time-specific) employment rate as well as median wage of immigrants from the statistics department of the Federal Employment Agency (Statistik der Bundesagentur für Arbeit, BA, 2020). In Table 2, we show summary statistics for all control and mediator variables measured either at the district or the NUTS2-level.

3.4 Measuring cultural similarity

The literature on cultural convergence or assimilation has largely focused on long-term outcomes, oftentimes comparing first and second generation migrants. Many papers have used name-giving patterns as a proxy for assimilation, scoring first names according to their commonness in the host country (Algan et al., 2013; Abramitzky et al., 2016; Saavedra, 2018; Abramitzky et al., 2020). Similarly, inter-marriage rates and naturalization have been used to describe convergence between natives and immigrants (Meng & Gregory, 2005; Bleakley & Chin, 2010; Fouka et al., 2019). The advantage of these outcomes is that they can capture behavioral changes. However, they typically only come to light many years or even decades after immigration and are typically restricted by the institutional framework (naturalization after a minimum number of years of residents or legal restrictions on inter-ethnic marriage). Attitudinal outcomes can in part overcome these restrictions. While a significant share of the literature on attitudinal convergence of immigrants focuses on the comparison between first and second generation migrants (see Verdier et al. (2012) for an overview of this approach), more recent work has exploited high frequency attitudinal data. In particular, these papers take data from the General Social Survey (GGS) or the European Social Survey (ESS) to track more-short term cultural changes and examine cultural cleavages within countries (Alesina et al., 2017; Desmet et al., 2017; Desmet & Wacziarg, 2018; Bertrand & Kamenica, 2018).

There is an array of different statistical measures that can be used to capture distance / entropy / divergence (Cha, 2007). Desmet & Wacziarg (2018) define cultural distance between two groups as the share of total heterogeneity in responses to questions in the GSS that is not attributable to within-group heterogeneity. This measure belongs to the group of "overlap measures". The authors define eleven identity cleavages (including age, education, ethnicity and other demographics) and create a cultural distance measure that predicts how two individuals from various groups picked at random would give the same response to an answer. Bertrand & Kamenica (2018) also define identity cleavages but use an inference based measure to capture cultural distance. The authors use a machine learning ensemble to determine how predictable group membership is from the variables in each data set in each year. The more accurate the assignment of individuals to one of the groups based on observables, the larger the cultural distance between those groups. Another important distance measure belongs to the group of geometric distance measures. They are derivatives of the Minkowski norms, which is written as $D_{mink}(X,Y) = \sqrt[p]{\sum_{i=1}^{n} |x_i - y_i|^p}$, with X and Y as two independent probability density functions. The Euclidean Distance is part of the Minkowski family (with $p = 2$) and one of the most widely applied measures of cultural distance (Rapoport et al., 2020; Bertrand & Kamenica, 2018; Alesina et al., 2017). It reflects the shortest, unweighted distance between two points in the cultural space. There are various additional derivatives in the Minkowski family that take into account different aspects of the distribution. For instance the Chebyshev distance increases the weight of outliers, while the Canberra distance decreases it.

For our analysis, we use the Euclidean measure to capture the cultural proximity between a single refugee and residents in the same NUTS2 region. For each question, we first calculate the pairwise differences between the refugee and all locals $x_i - y_i$, we square those differences, take the mean and finally calculate the square-root of this term to receive the Euclidean distance between the individual refugee and all individuals living in the same NUTS2 region for a specific question $D_{Eucl}(X,Y) = \sqrt[2]{\sum_{i=1}^{n}(refugee_i - local_i)^2}$. We then take the mean Euclidean distance over all questions. We invert this term to receive a cultural similarity measure[8], which we summarize in Table 1. For our heterogeneity analysis, we create the equivalent measure to capture the cultural distance between residents of the NUTS2 region and the rest of Germany (as shown in Figure 7). We calculate the Euclidean distance using the pairwise differences between the average local response and average national response to a specific question.

Since we are interested in the convergence of refugees towards the local population (e.g. assimilation), we have to "anchor" the responses of locals. In principle, a change in cultural similarity could also stem from the convergence of locals towards refugees. In order to isolate

[8]For future analyses, we will include a standardized Euclidean index and also construct an overlap measure of cultural similarity as in Desmet et al. (2017)

the effect of refugees' cultural assimilation, we use pre-treatment local culture in the calculation of the similarity index. When available, we take the locals' responses to a specific question in the year before the large influx of refugee, e.g. 2013 and refute to the closest observation year possible in case the question was not asked in 2013. The cultural dimensions used in our analysis naturally arise from the overlapping questions in the refugee and general population survey. We make no a-priori assumption about which questions best represent local culture, incorporating all questions that are both available for refugees and locals into our index. In one part of our analysis, we disaggregate the index into its thirteen sub-components to uncover the drivers of convergence.

4 Empirical strategy

In the following section, we present our empirical specification and identification strategy to argue for a plausible exogenous variation in the placement of refugees to regions. We address concerns about the non-random assignment of refugees by local authorities as well as concerns about ex-post selection of refugees across regions.

4.1 Estimating equation

The main question we want to answer with our empirical analysis is: does exposure to local culture induce a convergence of preferences, values and norms of refugees towards locals. Our main explanatory variable is exposure, which we measure as the months since assignment to a specific district. In other words, the treatment is time spent in a specific local cultural context. In Figure 4, we show the raw relationship between the Euclidean cultural similarity measure and the time spent in Germany without any controls. At first glance, we can see that similarity increases over time, which gives us some indication of the direction and magnitude of the average cultural convergence. For our fully fledged empirical analysis, we write our preferred specification as:

$$CS_{idt} = \alpha + \beta_1 exposure_{it} + \beta_2 exposure_{it}^2 + \beta_3 X'_{it} + \beta_4 Y'_{dt} + \gamma_d + \gamma_t + Q_{it} + \epsilon_{idt} \qquad (1)$$

with CS as cultural similarity of refugee i towards the local population in district d in survey year t. Exposure, our main independent variable, is measured as the months since arrival of the refugee. We also include a squared term of our main independent variable to capture non-linearity in the effect of time spent within a certain cultural environment. We can imagine that a large proportion of the convergence in values and norms happens at the beginning and slows

down over time, or alternatively, that assimilation accelerates as a initial cultural orientation has taken place. Additionally, we include a vector of time varying controls at the district level Y'_{dt}, such as district unemployment rate, population density and share of asylum seekers and at the individual level X'_{it}, including gender, age, marital status, work experience, education and country of origin. We also include district fixed effects as well as time fixed effects (interview year). We also include a vector of refugee specific time-varying dummy variables Q_{it} to account for compositional changes in the questionnaire and refugees' responses (or missing values). We cluster standard errors at the person level to account for the fact that some refugees are surveyed repeatedly, following the sampling-based clustering approach proposed by Abadie et al. (2017). In our baseline specification, we use the refugees region of assignment as the reference culture, when calculating our cultural similarity index. As not all of the refugees remain in the same NUTS2 region (about 25%), we interpret our baseline results as an Intent to Treat.

4.2 Test of identifying assumptions

In the following, we will discuss our main identifying assumptions and potential threats to a causal interpretation of our results. We begin with any potential sources of endogeneity on the side of local authorities and placement officers. In particular, we test whether allocation regimes changed over time. We then briefly discuss threats to identification coming from ex-post sorting of refugees. In addition to our Intent to Treat approach, we describe a number of empirical tests which we will present in the subsequent section on our main results.

Selection on the side of authorities

While the refugee allocation process in Germany followed specific rules, there may have been some discretion by placement officers at the state-level to match refugees with certain characteristics to specific districts. This seems plausible when it comes to observable characteristics. Young, unmarried men from the Middle East may have had a higher probability to be assigned to urban areas than, say, families from Eritrea. In our regression we are able to control for all of these characteristics.

However, the concern remains that placement officers were able to culturally match refugees to districts. While this is not generally a problem (the initial cultural distance between refugees and locals would just be lower), it would become a threat to identification if placement officers became worse over time to culturally match refugees to districts. In other words, our main dependent variable would then not capture exposure to local culture but rather the change in the quality of match over time. Empirically, this would lead to the same result: refugees that arrived a longer time ago are culturally closer to the local population. Experience gains of placement

officers and other learning effects would point in the opposite direction.

Nevertheless, we test this identifying assumption in the data. Since we do not have data on refugees' values held at entry, we refute to observable characteristics. If we find that the assignment of refugees according to observable pre-entry characteristics (that is the likelihood to be assigned to a certain district with a certain set of characteristics) did not change over time, we have strong indication that the quality of match did not change/worsen over time.

Tables 4 and 5 try to test the identifying assumption more explicitly. The limited number of observations per district makes a one by one comparison of 40 regions hardly interpretable. We need to have a sufficient number of refugees per cell (year of arrival, pre-entry characteristic and NUTS2 region) to make meaningful conclusions about potential changes in the placement policy over time. This is why we have to aggregate the geographic unit in order to reach a sufficient number of observations. We will do this in two ways: first, we group types of districts according to their classification as rural versus urban (as defined by the Federal Institute for Research on Building, Urban Affairs, and Spatial Development) and districts with low versus high unemployment rates.

Second, we aggregate the district to ten broad geographic regions. This way, we have units of observation that are spatially aggregated (e.g. states) and those that are aggregated by district structure (e.g. population density and unemployment). As mentioned before, we would like to assess whether the quality of the cultural match worsened over time. In order to do so, we make one broad assumption: the placement to locations with respect to observable characteristics at entry is a proxy for the placement to locations with respect to cultural traits. In principle, we assume that if placement officers do not change their assignment regime over time when it comes to socio-demographic characteristics, they are likely to also not change the regime when it comes to cultural characteristics.

For the identifying assumption to be violated, two things have to hold: first, placement regimes change over time and second, placement regimes change *consistently* over time. That is, exposure (measured in months since arrival) would have to map onto a consistent shift in placement strategy. If for the two aforementioned aggregation measures we do not find consistent changes in assignment probability over time, we have some indication that also at the district level placement regimes did not change.

In Table 4, we interact the year of arrival with the pre-enry characteristics (that is gender, age, work experience, and origin) to assess whether the likelihood of being assigned to an urban versus a rural district, or a high versus low unemployment district changed over time. As mentioned before, we do not worry if the overall likelihood to be assigned to a low unemployment district differs across gender, age, work experience or origin country. We control for all pre-entry characteristics and year of arrival separately (they are not reported for simplicity but an extended

Table is available upon request). The reference year is 2015. Overall, we do not find that for district types there is a systematic transformation in placement policy over time. In other words, for rural versus urban and high versus low unemployment districts, we find no evidence that the cultural match has worsened over time.

In Table 5, we show the probability of assignment to a specific state versus all other states, reporting the interaction term between pre-entry characteristics of the refugees and the year of arrival. In order to achieve sufficient observations by year and state, we have to group 16 states into 10 (combining all city states into one group, Eastern German states with low population density in another, and combine two South-Western states into a third group). Again, all pre-entry characteristics used in the interaction terms are also controlled for in the regression. The reference year in the regression is 2015.

The coefficients in Table 5 report the change in the likelihood of assignment over time, given a certain gender, age, work experience, health condition and origin country. In this analysis, we ask the following question: was the likelihood to be assigned to Berlin (relative to all other states) as a female refugee different in 2016 than in 2015? For instance, Lower Saxony is generally more likely to receive female refugees (not reported). However, the likelihood of receiving female refugees does not change over time. In places where we do find differences over time, they do not evolve consistently. For instance, in one of the most populous states, NRW, the likelihood to be assigned with respect to health conditions at entry did not consistently decrease over time. Instead, in both 2014 and in 2016 the likelihood of assignment was lower than in 2015.

Sorting on the side of refugees

An additional threat to identification could be ex-post cultural self sorting of refugees. In principle, even after refugees have been quasi randomly assigned to districts with certain cultural traits, they could then - over time - move to places that better match their preferences. We address this concern in three ways. First, we use the first assigned district, not the district of residence, and measure the cultural similarity to locals in that region. This follows the logic of an Intent to Treat and would only bias our results towards a null finding.

Second, we look for patterns in cultural selection into internal migration. We compare the cultural similarity of refugees to the region of residency, rather than the region of assignment and compare those who stayed to those who moved (about 75% of refugees stay in the region of assignment). We will show in the next section, that cultural selection into out-migration does not seem to play an important role.

Lastly, we exploit the residency obligation introduced in the summer of 2016. As mentioned in section 2, some refugees fell under the the *Integration Act* and were not allowed to move freely across Germany. We have self-reported information on whether refugees fall under this

residency obligation and can - for a subset of refugees - create a more objective measure of residency obligation that takes into account characteristics of the refugee (marital status, month of arrival etc.) to predict whether the refugee must have fallen under the residency obligation.

5 Main Results

In this section, we present our main results on refugees' cultural convergence. Next, we describe additional robustness checks and explore the dimensions along which we observe cultural convergence. We also provide evidence for the importance of local (rather than national) culture in describing assimilation paths.

5.1 Months since arrival and cultural convergence

We present our main results in Table 6. In column 1, we report the correlation between months since arrival and our cultural similarity index (CSI), absorbing survey-question composition fixed effects and controlling for months since arrival (MSA) squared. In columns 2 to 7, we then gradually introduce a more stringent set of controls. In column 2, we begin by adding survey year fixed effects, while in columns 3 and 4 we include individual-level and district-level time varying-controls. Next, columns 5 and 6 further include state and NUTS-2 region fixed effects. Finally, column 7 controls for district fixed effects, thereby comparing local convergence between refugees assigned to the same district in different months. For the remainder of the paper, we consider column 7 as our baseline specification.[9]

In all cases the coefficient on MSA is positive and statistically significant, indicating that refugees gradually converge to local culture as they spend more time in a region. The negative, albeit small, coefficient on the MSA squared term indicates that speed of assimilation slows down over time. One possible way to gauge the magnitudes of our estimates is to ask: when does the average cultural similarity between a refugee and a local equal the average cultural similarity among locals themselves?

To answer this question, we calculate the Euclidean cultural similarity index between all locals in the same region using the pairwise difference between locals, rather than that between refugees and locals. As shown in the right panel of Table 1, the average cultural similarity between refugees and locals lies at -1.74 – as expected, lower than the average distance between locals (-1.37). According to our preferred specification (column 7 in Table 6), after one year, refugees are able to close 5% of this gap. Assuming a linearity – an imperfect, but not unreasonable assumption given the very small coefficient on the MSA squared term – refugees' average culture

[9]See the full Table, where we also report coefficients on individual and district level controls, in Appendix Table A1.

fully converges to average culture of locals within 20 years.[10] Since we are not able to follow refugees for such a long time, we cannot rule out stronger non-linearities after a few years. However, the magnitude of our results is quantitatively large, and we believe that can offer us some insights about the short- to medium-run dynamics of cultural assimilation.

5.2 Mobility and cultural selection

As discussed before, one may be worried that refugees who entered the country more recently were assigned to regions where natives were culturally more similar to them. That is, our estimates would be biased if the "cultural match" between refugees and locals were to increase over time. In Section 4.2 above, we already provided evidence against this possibility. Moreover, since our empirical strategy is designed as an intent to treat, cultural selection into out-migration is unlikely to be a major concern – if anything, this should bias our results towards null.

However, to rule out remaining concerns, we investigate the issue of cultural selection into migration, presenting results in Figure 5 and Table 7. We calculate the CSI for refugees that stayed in and for those who left the region of assignment relative to locals in their region of residence (not assignment), also disaggregating the index of similarity by question. We then run a regression (including all individual-level controls) that includes a dummy for whether the refugee is a stayer or a mover. Figure 5 plots the coefficient on the dummy.

We first show out-selection without any regional fixed effects (Panel A), and then consider out-selection including NUTS2 and district fixed effects (Panels B and C). Panel C is thus the test for out-selection corresponding to our preferred specification (Table 6, column 7). In the presence of cultural selection into out-migration, one would expect a positive and significant coefficient for movers. Reassuringly, there is no evidence of cultural out-selection for the CSI. Focusing on the individual questions, the only variable along which refugees seem to select is "worries", which is – as we will see – not a driver of convergence in our results.

As an additional robustness check, in Table 7, we test whether our findings vary by the mobility status of refugees. Column 1 replicates our baseline specification (Table 6, column 7). Next, in column 2, we turn to refugees who fall under the residency obligation. Reassuringly, even in this case the coefficient is positive and, despite the substantial drop in the sample size, remains marginally statistically significant. Importantly, coefficients in columns 1 and 2 are not statistically different from each other. In columns 3 and 4, we consider separately stayer and movers: also in this case, results remain positive, quantitatively large, and statistically significant. Although the coefficient for movers is slightly larger than that for stayers, the two are not statistically distinguishable from each other.

[10]Note that all of the coefficients in the tables are multiplied by 100 for readability.

Taken together, the evidence provided in this section suggests that our results are not influenced by selection into migration (within German regions) that might be spuriously correlated with the refugee-local cultural match.

5.3 Dimensions of convergence

Our main results indicate that refugees converge to local culture as they spend more time in the region. While our index combines the questions that are available over time to measure cultural distance, in Table 8, we present results separately for the various items that compose the cultural similarity index. The confidence intervals of our coefficients are adjusted for multiple hypothesis testing, following Clarke et al. (2019); Romano & Wolf (2016, 2005a,b). We find convergence for positive reciprocity, social inclusion, leisure activities, life satisfaction and interest in politics.

We complement these results with those presented in Figure 6, which plots the change in refugees' preferences by arrival cohort, after partialling out individual controls, district level time-varying characteristics, and district fixed effects. While Table 8 can tell us something about convergence to local preferences, it cannot tell us whether this convergence comes from "above" or "below". In other words, do refugees - in absolute terms - decrease their interest in politics over time and approach the low levels of locals? Or is it the reverse case, where refugees increase interest in politics and therby approach local preferences? Combining Table 8 with Figure 6 can give us some insight into the direction of convergence. However note that Figure 6 only tells us something about the average preferences by arrival cohort, masking substantial heterogeneity across refugees. For instance, leisure activities and interest in politics increases over time, narrowing the gap between refugees and locals. Similarly, refugees feel more and more socially included over time approaching locals' higher levels of social inclusion. These trends are to be expected as refugees become more integrated into "local life" of the region.

For positive reciprocity the picture is less clear. While we observe convergence in reciprocity between refugees and locals, there is no consistent time trend across arrival cohorts. We speculate that these results may mask substantial heterogeneity in regional culture. For instance, refugees may not converge to a national average – but rather to regionally distinct – level of reciprocity. If reciprocity varies substantially across regions (as indicated in Figure 3), average cohort effects might hide this heterogeneity. Of course, this does not imply that regional culture does not play a role on other dimensions of convergence; instead, it might reflect a higher degree of heterogeneity along this dimension.

Finally, there is no evidence of convergence on "fundamental" values, such as religiosity or generalized views on whether the society is exploitative or fair. Conversely, more personal and practical dimensions, such as leisure activities, interest in politics or reciprocity seem to be the more important drivers of convergence.

5.4 Local cultural composition

As emphasized in previous sections, our key outcome captures regional – and not national – culture and preferences. However, based on the evidence presented thus far, we cannot rule out the possibility that refugees may be converging to national culture, and we may be incorrectly attributing this to local factors instead.[11] In Figure 7, we show the cultural similarity index between residents of the NUTS2 region and the rest of Germany, using the whole set of questions listed in Table 3. We find that local culture can vary substantially from the average national culture.

To assess the role of local culture, we examine the features of locals' preferences at the NUTS2 level. First, one should expect local culture to be more important when it is more distinct from national culture. In this case, refugees may assimilate to an average German culture but they should converge differentially to the distinct local culture. If local culture matters, the location of the NUTS2 region in the cultural space should determine the cultural assimilation path of refugees. To test this hypothesis, we calculate the Euclidean cultural distance between the region and the whole country.[12] We then interact it with months since arrival (MSA), and report results in Table 9, where we augment our baseline specification (Table 6, column 7) with the interaction between MSA and national-local cultural distance.[13]

In column 2, the coefficient on MSA captures the convergence to the part of local culture that is shared by the average German. More importantly for us, the coefficient on the interaction term captures the convergence to the "residual" culture, i.e. the culture that is specific to that region and distinct from the views of the average German. As it appears, both the main effect and the interaction term are positive and statistically significant. This indicates that regional cultural specifics do matter.

Next, we conjecture that local culture might matter (also) as an anchoring point. Refugees may be able to approximate the average German culture through newspapers, the media or pop culture. However, it should be easier when locals are more homogeneous in their preferences and attitudes. In contrast, when natives' preferences are more disperse, refugees may observe a "noisier" cultural signal, in turn converging at a lower rate. Column 3 of Table 9 presents results consistent with this hypothesis. Here, we calculate the dispersion of locals' attitudes in the same region over the full set of questions, and document that local cultural dispersion significantly and strongly reduces the ability of refugees to assimilate.

[11] It is of course possible that refugees simultaneously converge to German national culture, while also absorbing the local preferences of the region where they happen to reside, at least along some dimensions.

[12] In particular, we calculate the standardized pairwise differences between the average local and the average national, which we square and add over all questions before taking the square-root.

[13] We also include the interaction with the squared MSA (not shown in the table). For completeness, in column 1 of Table 9 we replicate the baseline, non-interacted, specification.

6 Local determinants of cultural convergence

Several mechanisms have been proposed in the literature that might favor or hinder the assimilation of immigrants or refugees (Lazear, 1999). Among them, two have received particular attention: the size of ethnic enclaves and natives' attitudes (possibly influenced by government policies) towards the foreign born and cultural diversity more broadly. In this section, we examine both of them, asking if and how these forces influence the trajectories of assimilation of refugees to local culture.

6.1 Refugee and immigrant community

We begin by exploring the role of ethnic networks. On the one hand, a larger and more homogeneous ethnic enclave may help immigrants find a job and offer a network of informal insurance to refugees, thereby favoring the integration of the foreign born (Battisti et al., 2016; Edin et al., 2003). On the other, it might lower incentives to exert effort to assimilate (Eriksson, 2020). Since leaving own culture is costly and learning a new language (or adapting to new norms) can require substantial effort, the presence of a larger peer group may reduce pressure to assimilate. At the same time, models of cultural transmission predict that a smaller – rather than larger – ethnic enclave might increase parents' incentives to transmit country of origin culture vertically to their offspring (Bisin & Verdier, 2001). In this case, a larger enclave might be associated with a faster assimilation trajectory.

In Table 9, we bring to the data the ambiguous predictions discussed above. Specifically, we augment our preferred specification (Table 6, column 7) by interacting MSA with a number of "mediators" that proxy for the size of the ethnic enclave as well as for the economic opportunities available to its members. In columns 1 and 2, we interact MSA with the size of the network (measured at Dec-31 of the year prior to the survey year). In column 1, we consider the share of refugees (relative to NUTS2 region population); in column 2, we focus on the share of immigrants from the same origin region.[14] In both cases, the coefficient on the interaction is negative and statistically significant, indicating that a larger share of refugees reduces cultural convergence.

These patterns are consistent with works in the literature that emphasize the potentially negative effects of ethnic enclaves on assimilation (Advani & Reich, 2015; Eriksson, 2020). Note, however, that we do not measure successful assimilation, but rather only one dimension of refugees' effort. It is still possible that, in equilibrium, other forces compensate for refugees' lower effort, allowing them to find a job more easily. It is also possible that refugees substitute effort along the cultural dimension with effort along the economic dimension (e.g. by investing

[14] We classify refugees into five origin regions: MENA, Afghanistan, former USSR, West Balkans and Sub-Saharan Africa.

in their skills).[15]

Next, in column 3, we test the role of cultural similarity within the refugee community. If peer effects were at play, one may expect a (culturally) more homogeneous immigrant community to reduce incentives to exert effort to converge to a new set of norms and values. On the other hand, if the majority of the community coordinates in order to adopt (at least some of) the values prevailing in the host society, higher cultural homogeneity might increase the pace of refugees' convergence to local culture. Possibly reflecting the net effect of the two forces just described, the coefficient on the interaction is negative, but standard errors are large and results are not statistically significant.[16]

Finally, in columns 4 and 5, we consider economic factors, interacting MSA with, respectively, the average employment and the average wage of immigrants from the same origin region residing in the same NUTS2 region (measured in the year prior to the survey year). Results indicate that in areas where the immigrant network is more integrated in the labor markets, cultural convergence is slower. One possible interpretation for these results is that in areas where refugees have an easier time finding a job – possibly through informal networks – their incentives to exert effort are lower. Another possibility is that refugees are better able to find a job in regions where natives are more open to diversity and hold less hostile attitudes. In these places, refugees may feel lower pressure to assimilate, and may thus stick to their own culture and preferences for a longer time. We return to this point below, when discussing the role of the local native environment.

In Panel B of Table 9, we explore the presence of non-linearities by estimating a quadratic specification. A priori, it is possible that the effects of ethnic enclaves or immigrants' employment prospects jump discretely at some key threshold. This is, for instance, consistent with what Advani & Reich (2015) show for the assimilation of European immigrants in the US in the early twentieth century. Conversely, if refugees adjust their efforts gradually, there should be no reason to expect non-linearities. Consistent with the latter conjecture, results for the polynomial specification do not point towards the presence of tipping point in refugees' cultural convergence. Although the coefficient on the interaction is negative and statistically significant for the overall refugee share and for immigrants' average employment (columns 1 and 4), in all other cases the estimates are noisy. Overall, these patterns are consistent with a potentially additional, non-linear effect of the factors examined in Table 9. However, our interpretation is that the mediating effects of the local refugee and immigrant community influences cultural convergence linearly.

[15] As already noted in the introduction, we do not intend to make any normative statement on whether it is desirable for immigrants to converge to local culture.

[16] In this case, the main effect becomes negative, even though it is also not statistically significant.

6.2 Natives' attitudes in the host community

Incentives to assimilate are shaped not only by the characteristics of the refugee community, but also and crucially by natives' attitudes and openness towards the foreign born. On the one hand, a more friendly and open environment might make it easier for refugees to converge culturally as this may facilitate social interactions. Similarly, lack of openness by the host community may inhibit assimilation or even cause a backlash, with refugees being more likely to preserve their own cultural norms in the presence of hostile attitudes of locals (Abdelgadir & Fouka, 2020; Bisin & Verdier, 2001; Fouka, 2020).

On the other hand, natives' opposition to refugees may heighten incentives to quickly converge towards local culture – a process we label "threat hypothesis ", and emphasized in previous work (Fouka, 2019; Saavedra, 2018). For instance, in the presence of a hostile environment, refugees may need to signal their desire to assimilate and to be part of the local, native community. Adjustments in malleable cultural spaces (such as specific kinds of leisure activities or daily interactions) can happen rather quickly. Changes in fundamental beliefs, which tend to be more sticky, and successful assimilation (e.g. labor market integration, intermarriage, etc.) might instead take more time, and in some cases depend on the barriers erected by natives to prevent assimilation. Therefore, we conjecture that if the threat hypothesis were at play, it should change refugees' effort to assimilate abruptly, and the mediating effects of these forces are likely to be non-linear.

In Table 10, we consider different proxies for natives' attitudes towards immigrants and diversity more broadly. Column 1 interacts MSA with the vote share for the 2017 AfD – a party that is well-known for its anti-immigrant rhetoric. When we focus on the linear specification (Panel A), the interaction between MSA and the AfD vote is positive and not statistically significant. However, consistent with the threat hypothesis, the coefficient becomes statistically significant when we turn to the quadratic specification (Panel B). That is, in places with higher support for a right-wing, anti-immigrant party, refugees' convergence happens more quickly.

One potential concern with results in column 1 is that the AfD vote share is measured in 2017 – i.e., after some of the refugees' inflows we observe already took place. Thus, it is possible that support for the AfD is endogenous, and determined by the arrival of refugees in the region. To address this potential issue, column 2 replicates the analysis described above considering the 2013 vote share of the NPD, an even more extreme (right-wing) party.[17] Reassuringly, results are unchanged, and if anything become even stronger. While the interaction between the NPD vote share and MSA is positive in both the linear (Panel A) and the quadratic (Panel B) specification,

[17]The policy platform of the AfD in 2013 was not concerned with migration issues. The party was only founded in February of 2013 and mainly dealt with fiscal policy at the EU level. The party was later taken over by right-wing populist that turned anti EU rhetoric into anti-immigration rhetoric.

it is statistically significant and large only in the latter case.

Next, in column 3, we turn to hate crimes perpetrated against refugees. These, to us, indicate even more directly the actual and perceived threat faced by refugees. In line with our interpretation, convergence is faster in areas with more hate crimes. As before, however, this relationship is statistically significant and quantitatively large only for the quadratic specification, possibly indicating that refugees respond to the hostile environment quickly.[18]

We further investigate the threat hypothesis of assimilation by looking at the personality traits of locals. In column 4, we use the so-called *Big Five Personality Traits* to proxy "enduring individual-level characteristics" (Gerber et al., 2011).[19] For our context, we are particularly interested in Openness to Experience since it is associated with lower right-wing authoritarianism and ethnocentrism as well es higher openness to cultural and ethnic diversity (McCrae, 1996; Butler, 2000; Jost, 2006). We take this measure as the mirror image of the right-wing vote, which captures anti-refugee sentiment and an ethno-centrist perspective. The advantage of the personality trait is that it is a-priori not a political measure, is less constrained by institutional factors than the right-wing vote share, and is rather intrinsic and less volatile within individuals. Since we measure these traits at baseline in 2013, we are not concerned that the personality structure of the local population might have been altered during our observation period.

The threat hypothesis would suggest that a more open environment should reduce refugees' urgency to converge culturally to the local average. Moreover, since this mediator should not be directly associated with "urgent threat", we expect ex-ante a linear (and not a quadratic or non-linear) relationship. Consistent with our prior, the interaction between MSA and natives' openness is negative and statistically significant for the linear specification. Instead, although the point estimate is negative, it is not statistically significant for the quadratic specification.

We have thus far interpreted results in Table 10 through the lens of the threat hypothesis. An additional implication of this framework is that refugees' labor market outcomes – a proxy for successful assimilation – should be lower in places with more discrimination and with a less welcoming environment. Indeed, our measure of cultural similarity captures refugees' *effort* rather than their *successful assimilation*, which also depends on the attitude and the actions of natives (Fouka et al., 2019).

[18]The number of events is counted as all events in the NUTS2 region between Jan-1-2014 and Dec-31-2015. To rule out concerns about possible endogeneity, we conduct robustness checks with respondents having arrived in 2016 or later. The result stays qualitatively unchanged.

[19]The Big Five are a survey-based measure of personality traits that operates under the assumption that people can understand themselves and others and are able to articulate this (McCrae & Costa Jr, 2008). This so-called lexical analysis involves gathering extensive lists of adjectives or phrases that can be used to describe enduring individual-level characteristics and subjects are then asked to rate how well each word or phrase describes themselves. Social psychologists have used these questions to identify five broad superfactors or trait domains that underlie these responses: Extraversion, Agreeableness, Conscientiousness, Emotional Stability (sometimes referred to by its inverse—Neuroticism), and Openness to Experience.

In Table 11, we replicate Table 10 using as dependent variable refugees' self-reported employment status at the time of the interview. Two results stand out. First, relative to Table 10, the relationship between employment and the interaction terms is flipped: employment probability is lower where the local environment is more hostile.[20] Second, the relationship seems to be linear; this is to be expected, since the effects of discrimination on equilibrium outcomes like employment are unlikely to be non-linear or to jump at some specific threshold. These results are, in our view, strongly consistent with the threat hypothesis we discussed above.

We conclude by noting that results in Table 11 also suggest that "pure economic" forces are unlikely to explain our findings. Specifically, it is a priori possible that refugees assimilate economically as they spend more time in their region of residence. This, in turn, facilitates their social inclusion and increases their incentives to exert effort to converge culturally. However, the patterns in Table 11 are not consistent with this explanation. Rather, they seem to indicate a substitutability – rather than a complementarity – between economic assimilation and refugees' efforts to "fit in" the local community. With this, of course, we do not mean to say that economic forces do not play any role in the process of cultural convergence. Yet, our evidence seems to suggest that they cannot be the only (perhaps, not even the main) factor.

7 Conclusion

In this paper, we study if refugees converge towards local culture as they spend more time in the host country. We exploit the quasi-random allocation of more than 1.5 million refugees to Germany between 2015 and 2018 and show that our results are neither driven by ex-ante selective allocation by authorities, nor ex-post out-selection by refugees. We measure refugees' culture and beliefs using a novel survey dataset that elicits values, habits, and preferences among more than 8,000 refugees. The dataset also reports refugees' district of residence, their arrival date, and a number of socio-demographic characteristics (e.g. partnership status, age, education, occupation prior to arrival). We complement this dataset with the German SOEP, which allows us to measure preferences and values for more than 34,000 native Germans.

Combining the two surveys, we construct a measure of cultural distance between refugees and the average culture among natives in each German region at baseline. We then test whether refugees converge towards local culture as they spend more time in the host community. In contrast with the prevailing rhetoric, which typically emphasizes refugees' inability or unwillingness to assimilate, we show that refugees converge towards local norms and values quickly. According to our estimates, for every additional year spent in a German region, refugees close

[20]The interaction with hate crimes keeps the sign, however, loses statistical significance when restricting the sample to individuals having arrived in 2016 or later (due to possible concerns about endogeneity mentioned previously.)

approximately 5% of the gap with local culture. When compared to other settings, this represents a fairly fast convergence pace (Abramitzky et al., 2020).

We examine the heterogeneity and the mechanisms that might promote or slow down this convergence process. First, we show that when living in a more homogeneous environment, which is also more "distinct" from the national culture, refugees converge faster. This might be because they observe a more precise signal about local culture, and can thus change their habits more quickly. Another possibility is that refugees perceive a stronger threat in places that possess more distinct norms and where natives are more homogeneous. In these areas, cultural diversity may be noticed (and potentially discouraged) more quickly.

Next, we turn to the size and the characteristics of the ethnic enclave in the area where refugees live. We find that a larger ethnic enclave reduces the speed of cultural assimilation. In addition, consistent with refugees facing lower pressure to adopt local culture, their convergence is lower when the economic prospects of the community where they live in are brighter. Finally, we provide evidence that refugees converge faster in areas where hate crimes against refugees are more frequent, where locals are more likely to support anti-immigrant parties, and where they display lower openness towards diversity. These patterns suggest that threat might induce refugees to quickly converge to the local culture, perhaps in order to signal their "new identity" to natives.

As already stressed above, we emphasize that our analysis has no normative implications, and we do not take a stance on whether (or, at what pace) refugees should or should not adopt locals' culture. However, our findings can have important policy implications. In particular, they suggest that, contrary to the prevailing rhetoric of anti-immigrant parties, refugees (at least in the German context) do converge steadily towards local culture. Since we focused on short run convergence, our results probably represent a lower bound for the extent to which foreign-born individuals assimilate in receiving countries.

Our findings also suggest interesting avenues for future research. For instance, in this paper we study the extent to which refugees converge to local culture. A natural question is whether adopting local preferences and social norms can in any way "crowd out" national identity, thereby reducing assimilation to national culture. It would also be interesting to understand if and how our results differ from cultural convergence of economic migrants, for whom incentives to become culturally and socially integrated may be weaker than for refugees.

We conclude by noting that, unfortunately, the number of forcibly displaced individuals is expected to increase dramatically in the years to come, and within country diversity is likely to rise. Thus, understanding if and how cultural convergence takes place will become increasingly important not only for economists and political scientists, but also for policy-makers.

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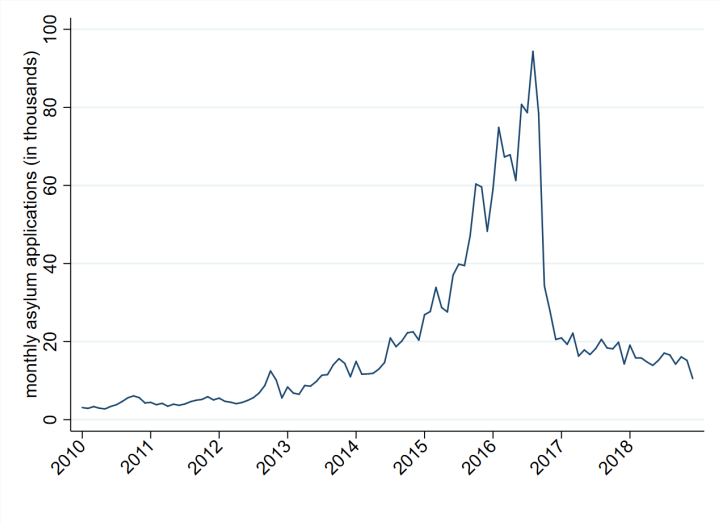
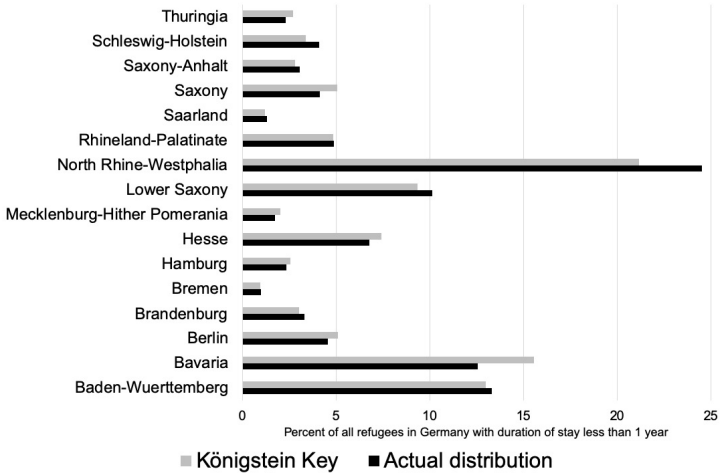
8 Graphs and Tables

Figure 1: Monthly Asylum Applications in Germany (total in thousands)



Notes: numbers are taken from Eurostat, which base their information on German statistical offices reports to them. We count adult men and women from outside the EU-28, who may have also applied for asylum in other EU countries. These are applications and not granted asylum status.

Figure 2: Comparison of refugee assignment quotas and actual refugee allocation across German states



Notes: numbers are taken from the German Statistical Office (Statistisches Bundesamt, Genesis Tab-12531-0025 and Bundesanzeiger (2016)) and shows the share of refugees assigned and actually allocated to German state in the year 2016.

Figure 3: Average Reciprocity of Locals (NUTS2-Level)

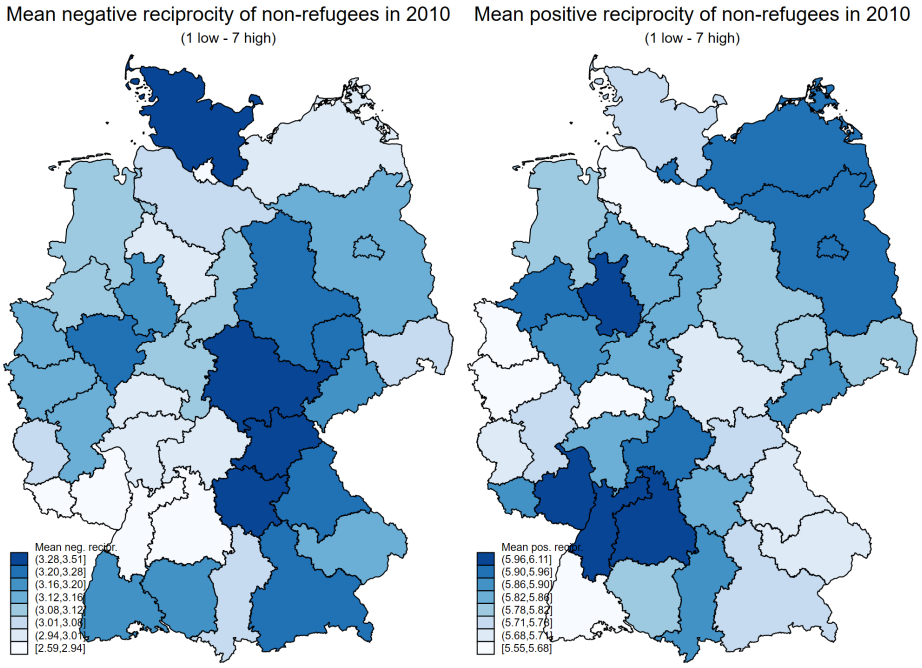
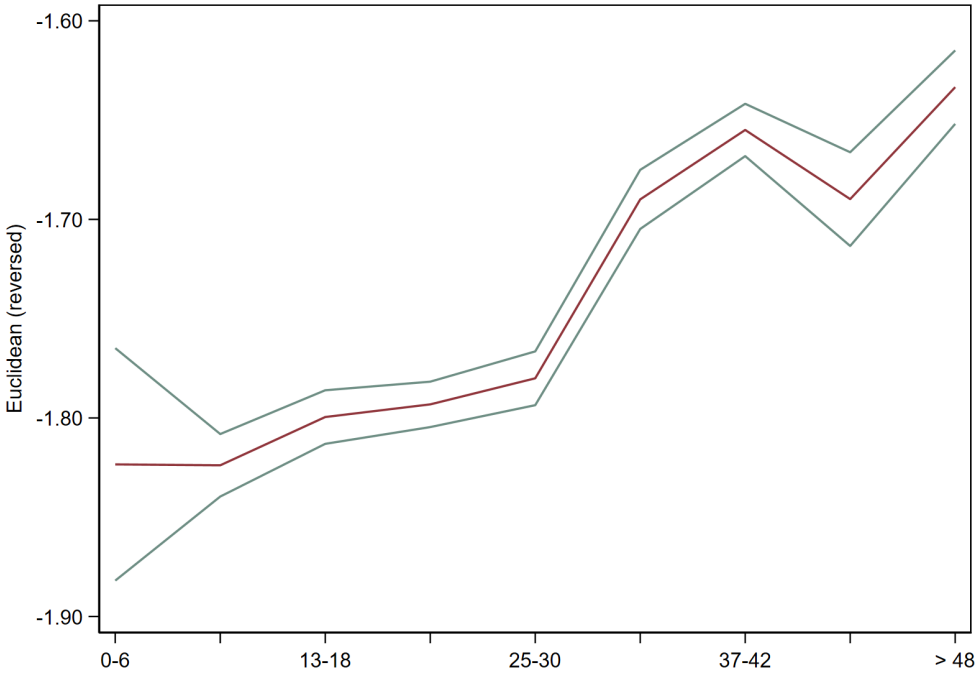
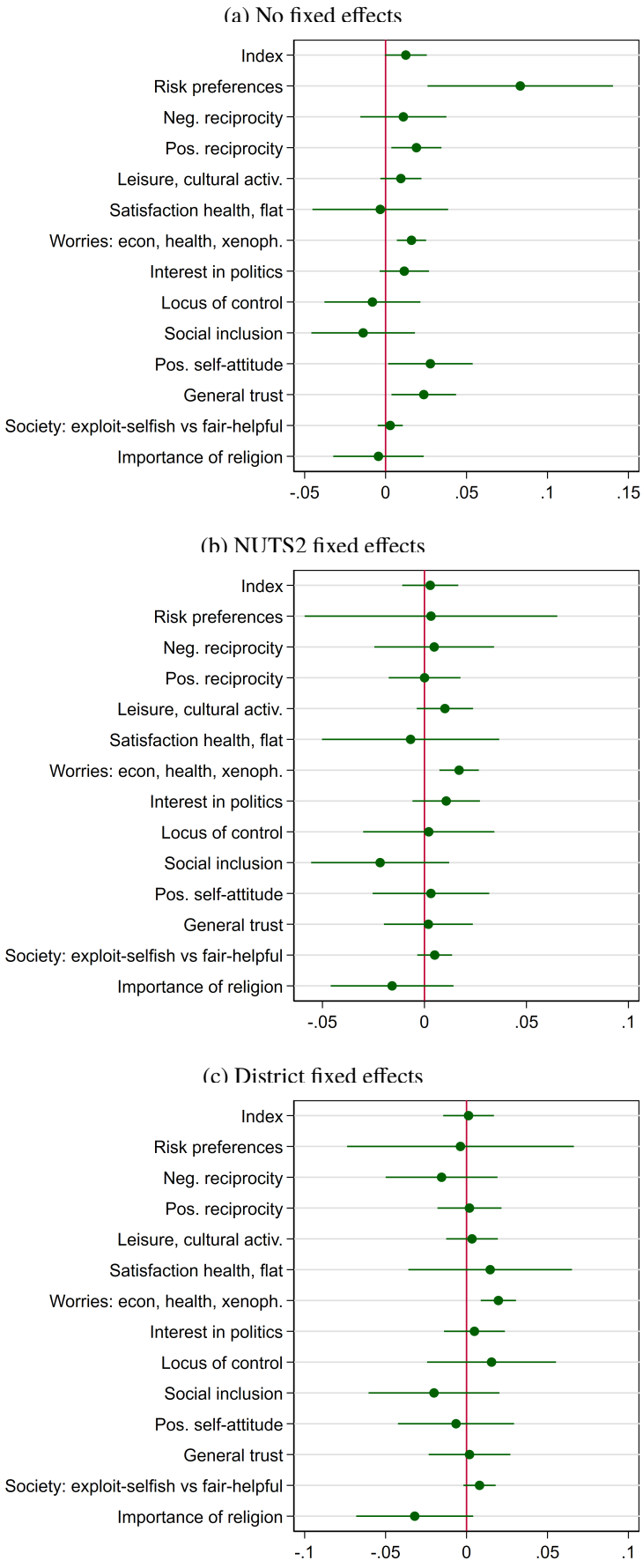


Figure 4: Cultural Similarity between Refugees and Locals over time (Index)



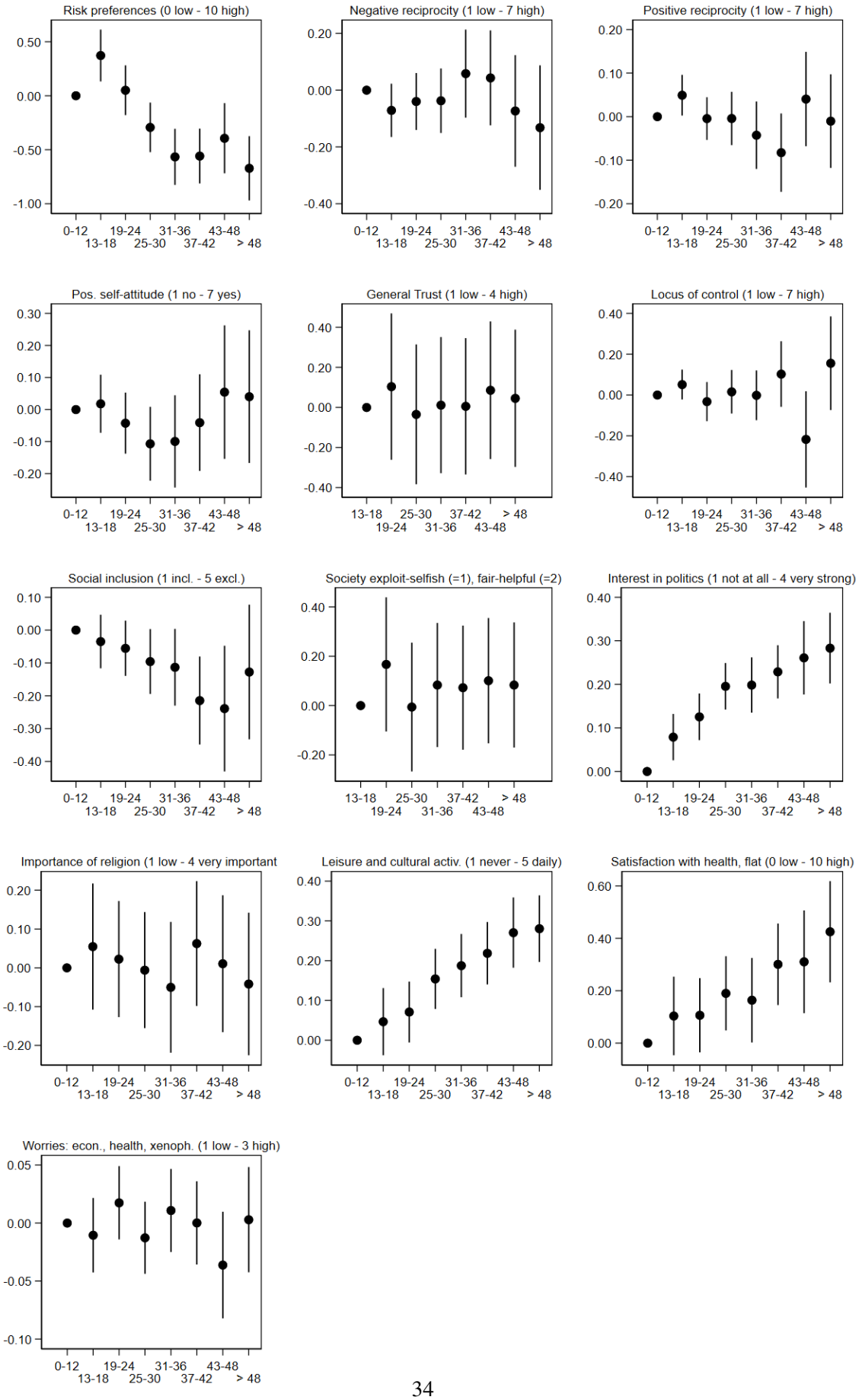
Notes: Inverse Euclidean distance over time. Upper and lower line denote the 95 % confidence interval.

Figure 5: Out-selection: cultural similarity of movers relative to stayers



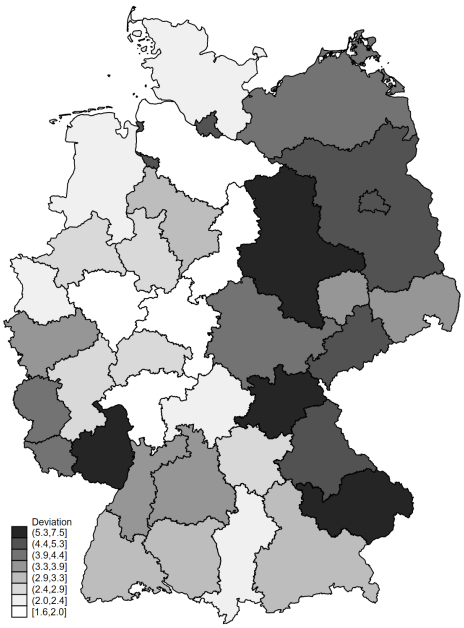
Notes: all figures include individual-level controls as in our main regression (col. 6, 7 in Table 6). Euclidean distance is reversed so that a less negative value on the Y-axis corresponds to a lower distance. Bars denote the 95 % confidence interval. Distance relative to first (current) region for stayers (movers). Movers live in another NUTS-2 region at the time of the interview than they were assigned to. The figure shows the coefficients of a dummy variable indicating *stayers* (=0) and *movers* (=1) in a regression of the Euclidean distance of refugees to locals residing in the same NUTS2 region. (a) does not include any geographic FE, (b) includes NUTS2 FE, (c) includes district FE.

Figure 6: Refugee outcomes over time since arrival (conditional)



Notes: spikes denote the 95 % confidence intervals. The figure shows the coefficients of a factor recoded version of *months since arrival)* in a regression of refugee outcomes on the same set of remaining covariates as in our main regression (col. 6, 7 in Table 6)Source: IAB-BAMF-SOEP Survey of Refugees 2016-2018.

Figure 7: Euclidean distance between regional and national culture



Notes: This map shows the difference between local and national culture at the NUTS2-level. We calculate the difference as the Euclidean distance between mean deviations of residents of the NUTS2 region from whole Germany. The selection of questions is equivalent to the Euclidean index between refugees and locals.

Table 1: Descriptive Statistics - Survey Data

	mean	sd	N	min	max	mean	sd	N	min	max
			Refugees					Locals		
Outcomes										
Euclidean cultural similarity	-1.74	0.31	12,798	-5.03	-0.86	-1.37	0.26	22,335	-3.74	-0.59
Risk preferences (0 low - 10 high)	3.93	(3.42)	12,230	0	10	4.54	(2.38)	264,479	0	10
Negative reciprocity (1 low - 7 high)	1.76	(1.26)	6,471	1	7	2.92	(1.43)	43,309	1	7
Positive reciprocity (1 low - 7 high)	6.68	(0.62)	6,597	1	7	5.83	(0.93)	43,326	1	7
Positive self-attitude (1 disagree - 7 agree)	6.29	(1.19)	6,403	1	7	5.58	(1.31)	43,521	1	7
General trust (1 low - 4 high)	2.18	(0.59)	3,442	1	4	2.35	(0.54)	70,636	1	4
Locus of control (1 low - 7 high)	4.46	(0.86)	3,921	1	7	4.59	(0.72)	43,515	1	7
Social inclusion (1 incl. - 5 excl.)	2.57	(1.09)	6,823	1	5	2.02	(0.76)	52,246	1	5
Society exploit-selfish (=1), fair-helpful (=2)	1.57	(0.43)	3,331	1	2	1.50	(0.42)	70,278	1	2
Interest in politics (1 not at all - 4 very strong)	1.66	(0.87)	12,640	1	4	2.32	(0.83)	257,533	1	4
Importance of religion (1 low - 4 very important)	3.02	(1.01)	5,123	1	4	2.12	(0.97)	24,341	1	4
Leisure and cultural activ. (1 never - 5 daily)	1.77	(0.63)	8,346	1	4.3	2.05	(0.68)	145,145	1	5
Satisfaction with health, flat (0 low - 10 high)	7.20	(2.10)	12,797	0	10	7.17	(1.63)	273,576	0	10
Worries: econ., health, xenoph. (1 low - 3 high)	1.68	(0.48)	12,725	1	3	1.94	(0.47)	278,792	1	3
Individual-level controls										
Months since arrival to Germany	29.54	(16.21)	12,798	0	392					
Age (in years)	34.36	(10.68)	12,772	18	93	51.08	(18.55)	247,013	17	105
Gender: female	0.38	(0.49)	12,798	0	1	0.51	(0.50)	260,278	0	1
Years of work exp. before arrival	7.44	(9.42)	12,028	0	51					
Finished educ. (refugees: before arrival): No	0.45	(0.50)	12,738	0	1	0.11	(0.31)	272,665	0	1
with school leaving certificate	0.24	(0.43)	12,738	0	1	0.01	(0.10)	272,665	0	1
with secondary school leaving certificate	0.32	(0.46)	12,738	0	1	0.88	(0.33)	272,665	0	1
No Partner	0.33	(0.47)	12,798	0	1					
lives in household	0.58	(0.49)	12,798	0	1					
elsewhere in Germany	0.01	(0.11)	12,798	0	1					
not in Germany	0.06	(0.24)	12,798	0	1					
Nationality: Germany	0.00	(0.00)	12,798	0	0	0.91	(0.29)	271,010	0	1
Syria	0.52	(0.50)	12,798	0	1	0.00	(0.02)	271,010	0	1
Afghanistan	0.13	(0.34)	12,798	0	1	0.00	(0.02)	271,010	0	1
Iraq	0.13	(0.34)	12,798	0	1	0.00	(0.03)	271,010	0	1
Africa	0.08	(0.27)	12,798	0	1	0.00	(0.05)	271,010	0	1
West Balkan	0.02	(0.16)	12,798	0	1	0.01	(0.10)	271,010	0	1
Poland	0.00	(0.00)	12,798	0	0	0.00	(0.07)	271,010	0	1
Turkey	0.00	(0.00)	12,798	0	0	0.02	(0.14)	271,010	0	1
Italy	0.00	(0.00)	12,798	0	0	0.01	(0.10)	271,010	0	1
Other	0.11	(0.32)	12,798	0	1	0.05	(0.21)	271,010	0	1

Table 1 shows descriptive statistics including mean, standard deviation, number of observation, minimum and maximum values for all survey variables, including the Euclidean cultural similarity index and all it's components for both locals and refugees. Data come from German Socio-Economic Panel and the IAB-BAMF-SOEP refugee survey. Descriptive stats for locals (right panel) are weighted.

Table 2: Descriptive Statistics - Other Data Sources

	mean	sd	N	min	max
District-level controls					
Unemployment rate	5.69	(2.40)	12,798	1.2	14.3
Population density	999.58	(1171.05)	12,798	37	4,777
Share of refugees	2.26	(1.07)	12,798	0.18	13.00
Mediator variables (at NUTS2-level):					
Local-national cultural distance (Euclidean)	0.46	0.21	12,798	0.20	1.35
Local cultural dispersion (within-region sd)	0.78	0.02	12,798	0.74	0.83
Right-wing vote (AfD 2017) (percentage)	12.30	4.52	12,798	7.80	29.66
Right-wing vote (NPD 2013) (percentage)	1.25	0.70	12,798	0.50	3.65
Hate crimes against refugees (per 100k inhabitants)	1.95	2.23	12,798	0.16	12.70
Locals' openness (Big-5, 1 low - 7 high)	4.56	0.15	12,798	4.25	4.91
Share of refugees	2.09	0.50	12,798	1.14	4.24
Refugees' cultural similarity	-1.74	0.12	12,798	-1.94	-1.45
Employment rate of immigrants from origin region	17.11	6.60	11,269	1.30	54.19
Gross wage of immigrants from origin region (Euro)	1122	217	12,095	426	1826

Table 2 shows descriptive statistics including mean, standard deviation, number of observation, minimum and maximum values for all non-survey data. Unemployment rate is measured in the month of the interview, population density and the share of refugees is available at the end of the survey year. N denotes person-year observations, differences is due to different survey periods and missing values. Descriptive stats for locals (right panel) are weighted.

Table 3: Survey Questions used for Aggregate Euclidean Index

Outcome Variables			Survey Year	
Category	Question	Answer	Refugees	Locals
Risk	In general, are you someone who is ready to take risks or do you try to avoid risks?	0 risk averse - 10 fully prepared to take risks	2017	2012
Positive Reciprocity	If someone does me a favour, I am willing to reciprocate it	1 Absolutely does not apply - 7 Fully applies	2017	2010
	I make particular effort to help someone who has previously helped me.	1 Absolutely does not apply - 7 Fully applies	2017	2010
	I am prepared to incur costs myself to help someone who has previously helped me.	1 Absolutly does not apply - 7 Fully applies	2017	2010
Negative Reciprocity	If someone does me a serious wrong, I will get my own back at any price at the next opportunity.	1 Absolutely does not apply - 7 Fully applies	2017	2010
	If somebody puts me in a difficult position, I will do the same to them.	1 Absolutely does not apply - 7 Fully applies	2017	2010
	If someone insults me, I will insult them.	1 Absolutely does not apply - 7 Fully applies	2017	2010
Leisure Activities	How often do you go to eat or drink in a cafe, restaurant or bar?	1 Never - 5 Daily	2017	2013
	Artistic and musical activities (painting, music, photography, theater, dance)	1 Never - 5 Daily	2017	2013
	Taking part in sports	1 Never - 5 Daily	2017	2013
	Going to sporting events	1 Never - 5 Daily	2017	2013
	Going to the cinema, pop concerts, dance events, clubs	1 Never - 5 Daily	2017	2013
	Going to cultural events such as opera, classical concerts, theater, exhibitions	1 Never - 5 Daily	2017	2013
Satisfaction	How satisfied are you currently with your life in general?	0 Completely dissatisfied - 10 Completely satisfied	2017	2012
	How satisfied are you with your current health?	0 Completely dissatisfied - 10 Completely satisfied	2017	2012
	How satisfied are you in general with your current living arrangements?	0 Completely dissatisfied - 10 Completely satisfied	2017	2012
Worries	Are you worried about your own economic situation?	1 No, no worry - 3 Yes, big worry	2016, 2017, 2018	2012
	Are you worried about your health?	1 No, no worry - 3 Yes, big worry	2016, 2017, 2018	2012
	Are you worried about xenophobia and racial hatred in Germany?	1 No, no worry - 3 Yes, big worry	2016, 2017, 2018	2012
Politics	Once spoken in general terms: How interested are you in politics	1 Not at all - 4 Very strong	2016, 2017, 2018	2012
Locus of Control	How my life goes depends on me	1 Absolutely does not apply - 7 Fully applies	2016	2010
	Compared to other people, I have not achieved what I deserve	1 Absolutely does not apply - 7 Fully applies	2016	2010
	What a person achieves in life is above all a question of fate or luck	1 Absolutely does not apply - 7 Fully applies	2016	2010
	If a person is socially or politically active, he/she can have an effect on social conditions	1 Absolutely does not apply - 7 Fully applies	2016	2010
	I frequently have the experience that other people have a controlling influence over my life	1 Absolutely does not apply - 7 Fully applies	2016	2010
	One has to work hard in order to succeed	1 Absolutely does not apply - 7 Fully applies	2016	2010
	If I run up against difficulties in life, I often doubt my own abilities	1 Absolutely does not apply - 7 Fully applies	2016	2010
	The opportunities that I have in life are determined by the social conditions	1 Absolutely does not apply - 7 Fully applies	2016	2010
	Inborn abilities are more important than any efforts one can make	1 Absolutely does not apply - 7 Fully applies	2016	2010
	I have little control over the things that happen in my life	1 Absolutely does not apply - 7 Fully applies	2016	2010
Social Inclusion	How often do you miss the company of other people?	1 Never - 5 Very often	2016-2018 (Bio)	2013
	How often do you feel left out?	1 Never - 5 Very often	2016-2018 (Bio)	2013
	How often do you feel socially isolated?	1 Never - 5 Very often	2016-2018 (Bio)	2013
Self Attitude	I have a positive attitude towards myself	1 Absolutely does not apply - 7 Fully applies	2016-2018 (Bio)	2010
Trust	People can generally be trusted	1 Not at all - 4 Fully agree	2018	2013
	Nowadays you can't rely on anyone	1 Not at all - 4 Fully agree	2018	2013
	If you are dealing with strangers, it is better to be careful before trusting them	1 Not at all - 4 Fully agree	2018	2013
Egoistic society	Do you believe that most people would use you if they had the chance or that they would try to be fair to you?	1 exploit - 2 fair	2018	2013
	Would you say that people usually try to be helpful or that they only pursue their own interest?	1 own interest - 2 helpful	2018	2013
Religion	How important is faith and religion to you?	1 Not important at all - 4 Very important	2017, 2018	2016

Table 4: Probability of assignment to district type by pre-entry characteristic

	Urban vs. Rural Districts				**High vs. Low Unemployment District**			
Pre-entry variable	gender	age	work exp.	origin	gender	age	work exp.	origin
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
*variable**2014	-2.59	-0.19	-0.11	-6.08	0.00	0.00	0.01	0.44
	(3.73)	(0.17)	(0.19)	(4.21)	(0.26)	(0.01)	(0.01)	(0.28)
*variable**2016	-3.67	-0.12	0.17	-1.97	0.42	0.02*	0.02	0.47
	(4.91)	(0.22)	(0.24)	(5.15)	(0.28)	(0.01)	(0.02)	(0.30)
Person-Observations	6,509	6,509	6,509	6,509	6,509	6,509	6,509	6,509
R2 adjusted	0.001	0.001	0.001	0.003	0.005	0.005	0.004	0.005

Table 4 shows test of identifying assumption by district type. Year 2015 (year with highest refugee influx) omitted. Cols 1-4: Prob. of being allocated to an urban relative to a rural district. Cols 4-8: Probab. of being allocate to high vs. low unemployment district. Classification of district-types is based on density and distribution of population within the district. For more information see: Federal Institute for Research on Building, Urban Affairs and Spatial Development. Estimation-Method: OLS probability model (weighted), cross-sectional, 1 observation per person. Standard errors clustered at household level. Dependent variable * 100. * p<0.10, ** p<0.05, *** p<0.01.

Table 5: Probability of Assignment to State by Pre-Entry Characteristic

Pre-Entry Variable		gender (1)	age (2)	work exp. (3)	origin (4)
SH-HH-BR	*variable**2014	0.73	0.07	0.23	1.21
		(2.90)	(0.14)	(0.16)	(3.82)
	*variable**2016	5.02	0.07	-0.04	2.39
		(3.83)	(0.15)	(0.16)	(4.07)
Low. Sax.	*variable**2014	1.03	0.03	0.10	3.62
		(3.03)	(0.16)	(0.17)	(3.35)
	*variable**2016	-2.21	0.07	0.14	3.43
		(3.26)	(0.16)	(0.19)	(3.63)
NRW	*variable**2014	-2.56	-0.34*	-0.29	-3.19
		(4.82)	(0.20)	(0.22)	(4.69)
	*variable**2016	-3.44	-0.11	0.22	-4.72
		(5.04)	(0.22)	(0.27)	(4.64)
Hesse	*variable**2014	-0.85	-0.01	-0.13	3.51
		(2.77)	(0.14)	(0.13)	(3.27)
	*variable**2016	0.67	0.06	-0.05	0.31
		(2.01)	(0.08)	(0.09)	(2.04)
RP-SRL	*variable**2014	-0.76	-0.10	-0.08	-5.58***
		(1.91)	(0.09)	(0.10)	(2.13)
	*variable**2016	-1.82	-0.16*	-0.14	-5.62**
		(2.19)	(0.09)	(0.09)	(2.39)
Ba-Wue	*variable**2014	-0.57	0.05	0.03	-2.77
		(2.08)	(0.10)	(0.13)	(2.39)
	*variable**2016	-1.76	-0.15	-0.10	-1.14
		(3.03)	(0.12)	(0.17)	(3.22)
Bav.	*variable**2014	6.13**	0.18	0.01	0.61
		(3.02)	(0.13)	(0.13)	(2.84)
	*variable**2016	2.67	0.08	-0.00	-3.48
		(3.41)	(0.13)	(0.15)	(3.60)
BER	*variable**2014	0.46	-0.02	-0.05	-1.29
		(0.98)	(0.04)	(0.04)	(1.13)
	*variable**2016	-1.51	0.02	0.01	0.10
		(1.23)	(0.05)	(0.06)	(1.69)
BRB-MHP	*variable**2014	0.60	0.08	0.03	-2.27
		(1.37)	(0.05)	(0.09)	(1.59)
	*variable**2016	3.31	0.13	0.06	0.63
		(2.11)	(0.09)	(0.11)	(2.27)
SA-SAA-TH	*variable**2014	-4.20	0.07	0.14	6.14
		(3.93)	(0.18)	(0.15)	(3.91)
	*variable**2016	-0.92	-0.01	-0.11	8.11*

Federal-States with small number of cases are consolidated based on geographic neighborhood: SH-HH-BR: Schleswig-Holstein - Hamburg - Bremen, RP-SRL: Rhineland-Palatinate - Saarland, BRB-MHP: Brandenburg - Mecklenburg-Hither Pomerania, SA-SAA-TH: Saxony - Saxony-Anhalt - Thuringia. Estimation-Method: OLS probability model (weighted), cross-sectional, 1 observation per person. Standard errors clustered at household level. Dependent variable * 100. Pre-entry variables are also controlled for in the regression (not reported). Reference year is 2015. Reference nationality is non-Syrian. Standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

Table 6: Cultural convergence: months since arrival and cultural similarity to locals

	Dep. Var.: Euclidean Cultural Similarity Index						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Months since arrival	0.135***	0.129***	0.128***	0.129***	0.133***	0.135***	0.148***
	(0.033)	(0.033)	(0.033)	(0.033)	(0.032)	(0.031)	(0.032)
Months since arrival, squared	-0.001***	-0.001***	-0.000***	-0.000***	-0.000***	-0.000***	-0.001***
(MSAS)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Controls							
Individual-level	No	No	Yes	Yes	Yes	Yes	Yes
District-level	No	No	No	Yes	Yes	Yes	Yes
Fixed Effects							
Composition	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Survey year	No	Yes	Yes	Yes	Yes	Yes	Yes
Federal-State	No	No	No	No	Yes	No	No
NUTS-2	No	No	No	No	No	Yes	No
District	No	No	No	No	No	No	Yes
Person-Year Observations	12,798	12,798	12,798	12,798	12,798	12,798	12,798
Person Observations	6,937	6,937	6,937	6,937	6,937	6,937	6,937
R2 adjusted	0.191	0.191	0.207	0.209	0.233	0.240	0.260

Table 6 shows our main results, successively introducing control variables at the individual and district level as well as fixed effects for the survey year and geographic fixed effects. We also include composition fixed effects that account potential changes in the survey questionnaire over time. We also report the squared term for months since arrival (MSAS). Cultural similarity measured as the inverse Euclidean distance to non-refugees in the NUTS2 region that the refugee was assigned to. The index includes: risk, reciprocity, leisure and cultural activities, satisfaction, worries, political interest, social inclusion, self-attitude, trust, egoistic-fair society, religious importance. Individual controls include: gender, age, age squared, partnership (no partner, partner lives in household, elsewhere in Germany or not in Germany), years of work experience at entry and level of education at entry. District-level time-varying controls include: unemployment rate, population density and share of asylum seekers in district. Coefficients and SE multiplied by 100 for presentation. Positive coefficients indicate a reduction in cultural distance. Standard errors in parentheses clustered at person-level. $^{+}$ $p < 0.15$, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Cultural convergence and mobility.

	Dep. Var.: Euclidean Cultural Similarity Index			
	All	**Res. obl.**	**Stayers**	**Movers**
	(1)	(2)	(3)	(4)
Months since arrival	0.148***	0.125*	0.140***	0.183**
	(0.032)	(0.075)	(0.036)	(0.084)
Controls				
Individual-level	Yes	Yes	Yes	Yes
District-level	Yes	Yes	Yes	Yes
MSAS	Yes	Yes	Yes	Yes
Fixed Effects				
Composition	Yes	Yes	Yes	Yes
Survey year	Yes	Yes	Yes	Yes
District	Yes	Yes	Yes	Yes
Person-Year Observations	12,798	3,902	9,645	3,153
Person Observations	6,937	2,909	5,328	1,738
R2 adjusted	0.260	0.296	0.270	0.268

Table 7 shows our baseline specification by mobility. Cultural similarity measured as the inverse Euclidean distance to non-refugees 1) in the NUTS2 region that the refugee was assigned to 2) in the NUTS2 region that the refugee was assigned to for the sub-sample of refugees falling under the residency obligation 3) in the NUTS2 region that the refugee was assigned to for the sub-sample of refugees who still live in the assigned region 4) in the NUTS2 region of residence for the sub-sample of refugees who moved outside of the assigned region. The index, control variables and fixed effects are the same as in our preferred specification in Table 6 column 7. Coefficients multiplied by 100 for presentation. Positive coefficients indicate a reduction in cultural distance. Standard errors in parentheses, clustered at person-level. $^{+}$ $p < 0.15$, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Cultural convergence by question

	Dep. Var.: Euclidean Cultural Similarity						
	(1) **Risk**	(2) **Rec-Neg**	(3) **Rec-Pos**	(4) **Self-Att.**	(5) **Trust**	(6) **Locus**	(7) **Soc-Incl**
Months since arrival	0.047	0.069	0.113***	0.093	-0.016	-0.076	0.288***
	(0.149)	(0.069)	(0.037)	(0.079)	(0.094)	(0.074)	(0.083)
Person-Year Observations	12,230	6,471	6,597	6,403	3,442	3,921	6,823
Person Observations	6,761	6,471	6,597	6,403	3,442	3,921	6,823
R2 adjusted	0.078	0.114	0.249	0.077	0.099	0.054	0.059
	(8) **Ego-Fair-Soc**	(9) **Polit**	(10) **Relig**	(11) **Active**	(12) **Satisf**	(13) **Worries**	
Months since arrival	-0.026	0.143***	0.073	0.239***	0.223*	-0.040	
	(0.031)	(0.047)	(0.082)	(0.040)	(0.107)	(0.027)	
Person-Year Observations	3,331	12,640	5,123	8,346	12,797	12,725	
Person Observations	3,331	6,881	5,123	5,320	6,936	6,904	
R2 adjusted	0.058	0.088	0.122	0.117	0.041	0.053	
Controls							
Individual-level	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District-level	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSAS	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects							
Composition	No	No	No	No	No	No	No
Survey year	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 8 shows our baseline specification by question. Cultural similarity measured as the inverse Euclidean distance to non-refugees in the NUTS2 region that the refugee was assigned to. The index, control variables and fixed effects are the same as in our preferred specification in Table 6 column 7 (except dummies for outcome-index composition, as we are looking at specific questions). Coefficients multiplied by 100 for presentation. Positive coefficients indicate a reduction in cultural distance. Standard errors in parentheses, clustered at person-level. $^{+}$ $p < 0.15$, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.Statistical significance levels adjusted for multiple hypotheses testing by controlling the familywise error rate (FWER) using the Romano-Wolf procedure (Clarke et al., 2019; Romano & Wolf, 2016, 2005a,b).

Table 9: Local cultural composition

	Dep. Var.: Euclidean Cultural Similarity Index		
mediator variable	**baseline**	**local-national cultural distance**	**local cultural dispersion**
	(1)	(2)	(3)
Months since arrival	0.148***	0.148***	0.139***
	(0.032)	(0.032)	(0.032)
Months since arrival * *mediator*		0.067***	-0.121***
		(0.024)	(0.024)
Controls			
Individual-level	Yes	Yes	Yes
District-level	Yes	Yes	Yes
MSAS	Yes	Yes	Yes
Fixed Effects			
Composition	Yes	Yes	Yes
Survey year	Yes	Yes	Yes
District	Yes	Yes	Yes
Person-Year Observations	12,798	12,798	12,798
Person Observations	6,937	6,937	6,937
R2 adjusted	0.260	0.260	0.262

Table 9 shows baseline specifications with interaction between our main exogeneous variable, months since arrival (MSA) and other mediating variables at the local level. All specifications also include months since arrival squared and the interaction term between months since arrival squared and the mediating variable (not reported). Column 1 reports our baseline specification. In column 2, we measure the local-national cultural distance as the standardized Euclidean distance between residents of NUTS2-region and residents of all of Germany over the same set of questions listed in Table 3. In column 3, we interact MSA with the standard deviation in responses to the same set of questions by locals at the NUTS2 level. Standard errors in parentheses, clustered at person-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 10: Local heterogeneity and cultural convergence - refugee and immigrant community

	Dep. Var.: Euclidean Cultural Similarity Index				
	share of refugees (1)	**immigrants from origin region** (2)	**refugees' cult. similarity** (3)	**employment of immigrants** (4)	**wage of immigrants** (5)
Panel A: Linear specification					
Months since arrival	0.049**	0.120***	0.059***	0.103**	0.114***
	(0.021)	(0.042)	(0.020)	(0.042)	(0.032)
Months since arrival * *mediator*	-0.066***	-0.041*	-0.018	-0.052**	-0.007
	(0.019)	(0.022)	(0.021)	(0.022)	(0.021)
Person-Year Observations	12,798	11,269	12,798	11,269	12,095
Person Observations	6,937	6,092	6,937	6,092	6,524
R2 adjusted	0.260	0.260	0.272	0.260	0.260
Panel B: Polynomial specification (2nd order)					
Months since arrival	0.152***	0.293***	0.157***	0.179	0.271***
	(0.033)	(0.111)	(0.034)	(0.112)	(0.086)
Months since arrival * *mediator*	-0.135***	0.086	-0.013	-0.205**	-0.154**
	(0.028)	(0.082)	(0.028)	(0.091)	(0.076)
Person-Year Observations	12,798	11,269	12,798	11,269	12,095
Person Observations	6,937	6,092	6,937	6,092	6,524
R2 adjusted	0.261	0.260	0.273	0.260	0.260
Controls					
Individual-level	Yes	Yes	Yes	Yes	Yes
District-level	Yes	Yes	Yes	Yes	Yes
Fixed Effects					
Composition	Yes	Yes	Yes	Yes	Yes
Survey year	Yes	Yes	Yes	Yes	Yes
District	Yes	Yes	Yes	Yes	Yes

Table 10 shows baseline specifications with interaction between our main exogeneous variable, months since arrival (MSA) and other mediating variables at the local level focusing on characteristics of refugees and immigrants in the same NUTS2 region. All specifications in Panel A include MSA but not MSAS. Panel B also includes the interaction term between months since arrival squared (MSAS) and the mediating variable (not reported). In column 1, we use the share of refugees over the total population in the NUTS2 region of assignment. In column 2, we use the share of immigrants residing in the NUTS2 region of assignment from the same origin region. We define origin region along 5 categories: MENA, Sub-Saharan Africa, West Balkans, former USSR, and Afghanistan. In column 3, we calculate from our survey sample the average cultural similarity of all refugees assigned to the same NUTS2 region. In column 4 and 5, we take the employment rate and log wage of all immigrants from the same origin region residing in the assigned NUTS2 region. Standard errors in parentheses, clustered at person-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 11: Local heterogeneity and cultural convergence - native host community

	Dep. Var.: Euclidean Cultural Similarity Index			
	right-wing vote (AfD 2017)	**right-wing vote (NPD 2013)**	**hate crimes against refugees**	**openness (Big Five)**
	(1)	(2)	(3)	(4)
Panel A: Linear specification				
Months since arrival	0.056***	0.057***	0.057***	0.055***
	(0.020)	(0.021)	(0.021)	(0.020)
Months since arrival * *mediator*	0.021	0.023	0.031	-0.041**
	(0.018)	(0.019)	(0.025)	(0.018)
Person-Year Observations	12,798	12,798	12,798	12,798
Person Observations	6,937	6,937	6,937	6,937
R2 adjusted	0.260	0.260	0.260	0.260
Panel B: Polynomial specification (2nd order)				
Months since arrival	0.171***	0.171***	0.172***	0.155***
	(0.035)	(0.034)	(0.034)	(0.033)
Months since arrival * *mediator*	0.094***	0.098***	0.126***	-0.036
	(0.028)	(0.028)	(0.032)	(0.027)
Person-Year Observations	12,798	12,798	12,798	12,798
Person Observations	6,937	6,937	6,937	6,937
R2 adjusted	0.261	0.261	0.261	0.261
Controls				
Individual-level	Yes	Yes	Yes	Yes
District-level	Yes	Yes	Yes	Yes
Fixed Effects				
Composition	Yes	Yes	Yes	Yes
Survey year	Yes	Yes	Yes	Yes
District	Yes	Yes	Yes	Yes

Table 11 shows baseline specifications with interaction between our main exogenous variable, months since arrival (MSA), and other mediating variables at the local level focusing on political and socio-psychological features of the non-refugee community in the same NUTS2 region. All specifications in Panel A include MSA but not MSAS. Panel B also includes the interaction term between months since arrival squared (MSAS) and the mediating variable (not reported). In column 1, we use the district-level vote share for the anti-immigration party AfD in the year 2017. In column 2, we take the extreme right party NPD in the year 2013. In column 3, we use geo-located hate crimes against refugees between 2014 and 2015 from Benček & Strasheim (2016). In column 4, we use the Big Five component "openness to experience" as an average of locals in the NUTS2 area. Standard errors in parentheses, clustered at person-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 12: Local heterogeneity and economic integration

	Dep. Var.: employed at time of interview			
	right-wing vote (AfD 2017)	**right-wing vote (NPD 2013)**	**hate crimes against refugees**	**openness (Big Five)**
	(1)	(2)	(3)	(4)
Panel A: Linear specification				
Months since arrival	0.494***	0.492***	0.491***	0.490***
	(0.044)	(0.043)	(0.044)	(0.043)
Months since arrival * *mediator*	-0.061**	-0.065**	-0.064**	0.001
	(0.027)	(0.028)	(0.025)	(0.038)
Person-Year Observations	12,799	12,799	12,799	12,799
Person Observations	6,938	6,938	6,938	6,938
R2 adjusted	0.170	0.170	0.170	0.169
Panel B: Polynomial specification (2nd order)				
Months since arrival	0.824***	0.818***	0.816***	0.811***
	(0.051)	(0.052)	(0.054)	(0.057)
Months since arrival * *mediator*	-0.031	-0.028	-0.059*	0.009
	(0.034)	(0.036)	(0.034)	(0.052)
Person-Year Observations	12,799	12,799	12,799	12,799
Person Observations	6,938	6,938	6,938	6,938
R2 adjusted	0.176	0.176	0.176	0.175
Controls				
Individual-level	Yes	Yes	Yes	Yes
District-level	Yes	Yes	Yes	Yes
Fixed Effects				
Composition	No	No	No	No
Survey year	Yes	Yes	Yes	Yes
District	Yes	Yes	Yes	Yes

Table 12 shows baseline specifications with interaction between our main exogenous variable, months since arrival (MSA), and other mediating variables at the local level focusing on political and socio-psychological features of the non-refugee community in the same NUTS2 region. All specifications in Panel A include MSA but not MSAS. Panel B also includes the interaction term between months since arrival squared (MSAS) and the mediating variable (not reported). In column 1, we use the district-level vote share for the anti-immigration party AfD in the year 2017. In column 2, we take the extreme right party NPD in the year 2013. In column 3, we use geo-located hate crimes against refugees between 2014 and 2015 from Benček & Strasheim (2016). In column 4, we use the Big Five component "openness to experience" as an average of locals in the NUTS2 area. Standard errors in parentheses, clustered at person-level. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A1: Cultural Convergence on NUTS-2 level (Euclidean): Index

	(1) Base	(2) +syear	(3) +ind-ctr	(4) +reg-ctr	(5) +bula-fe	(6) +nuts2-fe	(7) +distr-fe
Months since arrival	0.135***	0.129***	0.128***	0.129***	0.133***	0.135***	0.148***
	(0.033)	(0.033)	(0.033)	(0.033)	(0.032)	(0.031)	(0.032)
Months since arrival, squared	-0.001***	-0.001***	-0.000***	-0.000***	-0.000***	-0.000***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SOEP-syear: 2017 (ref. 2016)		-1.092	-2.180	-1.799	0.005	-0.595	-0.130
		(13.568)	(13.058)	(13.272)	(13.012)	(13.042)	(13.406)
2018		5.122	4.903	5.351	5.080	5.256	3.205
		(5.150)	(5.117)	(5.102)	(5.150)	(5.174)	(5.266)
Female (ref. male)			-3.624***	-3.591***	-3.746***	-3.709***	-3.765***
			(0.643)	(0.641)	(0.624)	(0.617)	(0.612)
Age			-0.077	-0.077	-0.022	-0.049	-0.025
			(0.150)	(0.149)	(0.147)	(0.146)	(0.145)
Age, squared			-0.001	-0.001	-0.002	-0.002	-0.002
			(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Partner: lives in HH (ref. no partner)			0.092	0.017	0.415	0.482	0.457
			(0.725)	(0.725)	(0.703)	(0.701)	(0.709)
lives elsewhere in Germany			3.588*	3.481*	3.520*	3.640*	4.574**
			(2.096)	(2.096)	(2.078)	(2.077)	(2.130)
not in Germany			-3.481***	-3.623***	-3.307***	-3.279***	-3.161**
			(1.261)	(1.259)	(1.220)	(1.216)	(1.243)
missing			-0.751	-1.157	-1.577	-1.232	-1.296
			(2.094)	(2.098)	(2.054)	(2.036)	(2.055)
Years of work experience			0.032	0.033	0.017	0.015	-0.010
before immigration			(0.045)	(0.044)	(0.044)	(0.043)	(0.042)
Some school leaving certificate			3.812***	3.859***	3.449***	3.528***	3.320***
(ref. none)			(0.694)	(0.694)	(0.673)	(0.671)	(0.672)
Secondary certificate			6.606***	6.595***	6.952***	7.185***	7.350***
			(0.640)	(0.637)	(0.619)	(0.615)	(0.612)
District-1st unemployment-rate,				0.537***	0.241	0.240	-2.018***
interview-date				(0.127)	(0.198)	(0.218)	(0.759)
District-1st population density,				-0.001***	-0.000	0.000	-0.055**
interview-date				(0.000)	(0.000)	(0.000)	(0.026)
District-1st population share of				0.202	0.402+	-0.348	-0.321
asylum-seekers, interview-date				(0.260)	(0.276)	(0.324)	(1.275)
Outcome-Index composition	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Origin country	No	No	Yes	Yes	Yes	Yes	Yes
Federal-State	No	No	No	No	Yes	No	No
NUTS-2	No	No	No	No	No	Yes	No
District	No	No	No	No	No	No	Yes
Person-Year Observations	12,798	12,798	12,798	12,798	12,798	12,798	12,798
Person Observations	6,937	6,937	6,937	6,937	6,937	6,937	6,937
R2 adjusted	0.191	0.191	0.207	0.209	0.233	0.240	0.260

Coefficients and SE multiplied by 100 for presentation. Positive coefficients indicate a reduction in cultural distance.Standard errors in parentheses clustered at person-level. $^{+}$ $p < 0.15$, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.Index includes: risk, reciprocity, leisure and cultural activities, satisfaction, worries, political interest, social inclusion, self-attitude, trust, egoistic-fair society, religious importance.All specifications control for a regressions constant.

Table A2: Cultural Convergence on NUTS-2 level (Euclidean): Robustness with Canberra index

	(1) Base	(2) +syear	(3) +ind-ctr	(4) +reg-ctr	(5) +bula-fe	(6) +nuts2-fe	(7) +distr-fe
Months since arrival	0.021***	0.021***	0.021***	0.021***	0.020***	0.020***	0.021***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Months since arrival, squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SOEP-syear: 2017 (ref. 2016)		-0.465	-0.704	-0.641	-0.223	-0.293	-0.143
		(1.378)	(1.407)	(1.443)	(1.388)	(1.335)	(1.325)
2018		0.012	-0.113	-0.077	-0.051	-0.060	-0.386
		(0.786)	(0.783)	(0.781)	(0.791)	(0.793)	(0.809)
Female (ref. male)			-0.661***	-0.657***	-0.665***	-0.666***	-0.669***
			(0.104)	(0.104)	(0.101)	(0.100)	(0.099)
Age			0.024	0.023	0.035	0.030	0.038+
			(0.025)	(0.025)	(0.024)	(0.024)	(0.024)
Age, squared			-0.000+	-0.000+	-0.001**	-0.001*	-0.001**
			(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Partner: lives in HH (ref. no partner)			-0.071	-0.090	-0.029	-0.018	0.007
			(0.118)	(0.118)	(0.114)	(0.113)	(0.115)
lives elsewhere in Germany			0.595*	0.564*	0.510+	0.510+	0.669**
			(0.333)	(0.332)	(0.327)	(0.328)	(0.341)
not in Germany			-0.709***	-0.738***	-0.704***	-0.698***	-0.695***
			(0.199)	(0.200)	(0.194)	(0.195)	(0.199)
missing			-0.244	-0.323	-0.411	-0.354	-0.299
			(0.337)	(0.338)	(0.327)	(0.322)	(0.327)
Years of work experience			0.004	0.005	0.002	0.001	-0.003
before immigration			(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Some school leaving certificate			0.657***	0.665***	0.604***	0.630***	0.603***
(ref. none)			(0.112)	(0.111)	(0.107)	(0.106)	(0.107)
Secondary certificate			1.172***	1.168***	1.210***	1.257***	1.294***
			(0.104)	(0.103)	(0.100)	(0.099)	(0.099)
District-1st unemployment-rate,				0.067***	0.060*	0.051	-0.245**
interview-date				(0.021)	(0.032)	(0.036)	(0.122)
District-1st population density,				-0.000***	-0.000	0.000	-0.010**
interview-date				(0.000)	(0.000)	(0.000)	(0.004)
District-1st population share of				0.060	0.039	-0.055	0.092
asylum-seekers, interview-date				(0.044)	(0.045)	(0.052)	(0.201)
Outcome-Index composition	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Origin country	No	No	Yes	Yes	Yes	Yes	Yes
Federal-State	No	No	No	No	Yes	No	No
NUTS	No	No	No	No	No	Yes	No
District	No	No	No	No	No	No	Yes
Person-Year Observations	12,798	12,798	12,798	12,798	12,798	12,798	12,798
Person Observations	6,937	6,937	6,937	6,937	6,937	6,937	6,937
R2 adjusted	0.175	0.174	0.193	0.195	0.223	0.230	0.250

Coefficients and SE multiplied by 100 for presentation. Positive coefficients indicate a reduction in cultural distance.Standard errors in parentheses clustered at person-level. $^{+}$ $p < 0.15$, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.Index includes: risk, reciprocity, leisure and cultural activities, satisfaction, worries, political interest, social inclusion, self-attitude, trust, egoistic-fair society, religious importance.All specifications control for a regressions constant.