



Social integration of Syrian refugees and their intention to stay in Germany

Cyrine Hannafi^{1,2} · Mohamed Ali Marouani³ 

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Abstract

In this study, we investigate the determinants of social integration of Syrian refugees and the impact of social integration on refugees' decision to stay in Germany, using the 2016 IAB-BAMF-SOEP Refugee Survey. Our econometric strategy is based on the estimation of a simultaneous equation model for social integration, economic integration, and the decision to stay, handling endogeneity issues through an instrumental variables strategy. Our first contribution is to show that economic integration has an impact on social integration for low- and medium-educated refugees only. Furthermore, language proficiency, having a child in Germany, refugee accommodation, and the number of acquaintances from other countries have a positive impact on social integration, while age has the opposite effect. Our second main result is that social integration affects the intention to stay in Germany, whereas economic integration does not. Moreover, education, English proficiency, and the number of daughters in Germany have a negative impact on the intention to stay.

Keywords Refugees · Integration · Intention to stay · Syria · Germany

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✉ Mohamed Ali Marouani
marouani@univ-paris1.fr

Cyrine Hannafi
hannafi_cyrine@hotmail.com

¹ UMR Développement et sociétés, Paris 1 Pantheon-Sorbonne and IRD, Nogent sur Marne, France

² ERUDITE - University Paris-Est Créteil, Paris, France

³ UMR Développement et sociétés, IRD, Paris 1 Pantheon-Sorbonne, IC Migrations and ERF, 45 bis Avenue de la Belle Gabrielle, Nogent sur Marne 94736, France

1 Introduction

Social cohesion cannot be achieved if some members of a society are not, or do not feel, integrated. When immigrants and natives differ in many dimensions,¹ social integration of the former is a serious challenge. Here, our objective is to investigate the determinants of social integration of refugees and its impact on their decision to stay in the host country. The Syrian crisis showed how sensitive the issue of immigration was in rich European countries where internal political equilibria were totally shaken in favor of nationalist and populist parties (Zimmerman 2016).

Germany hosted almost 600,000 Syrian refugees between 2014 and 2016. This was, as of the time, the largest inflow of asylum seekers in a developed country since the Second World War. This German “exception” in Europe can be attributed to the leadership of the German chancellor Angela Merkel in opening the doors to refugees and the “Willkommenskultur” of the German population, which strongly believes in the obligation to support refugees (Mosel et al. 2019). According to Helbling et al. (2017), while the attitude of the German population is attributable to humanitarian and cosmopolitan behavior, it also reflects economic pragmatism given Germany’s aging society and its urgent need for skilled workers.

The first aim of this research is to study the determinants of social integration of Syrians in Germany. Prior to that, we need to define the concept of integration, relying on Berry’s (1997) dynamic approach. A migrant is integrated when they have both values and norms from their country of origin, and through exchanges and interactions with the host community. Assimilation takes place when the first component disappears. Separation occurs when interactions are limited to the migrant’s own community. The literature defines three forms of social connection: social bonds between members of the same family, ethnicity, religion, or nationality; bridges with other communities; and social links to the state’s structures (Putnam 1993; Woolcock 1998; Cheung and Phillimore 2014). Here, we focus on social integration with the host community as we think that it is the biggest challenge presently.

There has been extensive conceptual and qualitative work on refugees’ integration. However, the empirical literature on social integration has not been prolific (Cheung and Phillimore 2014). The scarcity of data and the absence of a consensus indicator to measure social integration may have discouraged scholars. Indicators of social integration include measures of self-identification by refugees and behavioral outcomes (Laurentsyeva and Venturini 2017). In contrast to social integration, economic integration is often proxied by employment and represents the most commonly researched area of integration (Constant and Massey 2002; Tomlinson and Egan 2002).

Our second aim is to investigate how integration, and particularly social integration, affects refugees’ decision to stay in the host country. Driven from their homes by push factors, refugees’ decision to stay permanently in Germany will

¹ See Constant and Zimmermann (2008) for a model of multidimensional ethnic identity.

depend on both pull and push factors. Given the scarcity of literature on refugees' return, we extend the review to papers encompassing other forms of migration. However, when analyzing our study's findings and comparing them to the literature, we differentiate between papers dealing with refugees and economic migrants to highlight the specificity of refugees' outcomes, when relevant.

In neoclassical migration theory, return migration is perceived as a decision related to the degree to which migrants' expectations are met, in terms of earnings, in the host country (Sjaastad 1962; Todaro 1976; Duleep 1994). Return migration is considered by Cerase (1974) as a "return of failure" because those who integrate well in the host country do not return. At the opposite end of the spectrum, the new economics of labor migration (NELM) perceives return migration as a "success" when people have specific income goals, such as accumulating savings and generating remittances, to diversify the sources of income in their home country household and go home once they achieve these goals (Piore 1979; Stark 1991). The empirical evidence seems to support the neoclassical migration theory, finding a negative impact of integration on the decision to return (Waldorf 1995; Constant and Massey 2002; Jensen and Pedersen 2007; De Haas and Fokkema 2011).

Both theories consider migration to be based on economic incentives. However, there are other reasons behind migration decisions. Hence, various typologies of return should each be addressed differently (Kuschminder 2017). There is no singular theory that explains return migration (Massey et al. 1993). The case of forced migration in the context of war is more problematic since return conditions and the ability of the refugees to reintegrate and contribute to development in the country of origin are among the main issues to be addressed (Black and Gent 2006; Van Houte and Davids 2008).

The aim of this study is threefold. First, we study the determinants of social integration, including aspects of economic integration. Second, we investigate the determinants of economic integration to compare our results to previous work. However, we do not deal with the impact of social integration on economic integration (Cheung and Phillimore 2014; Danzer and Ulku 2011). This is because it does not seem possible to find an instrumental variable for social integration that does not impact employment directly. For example, social networking skills are also non-cognitive skills that impact employment outcomes. Finally, we investigate the impact of social and economic integration on the intention to stay permanently in Germany.

Our econometric strategy is to estimate a simultaneous equation model for two-by-two variables of interest using the conditional mixed process method, handling endogeneity issues through an instrumental variables strategy. Our data is based on the IAB-BAMF-SOEP Refugee Survey 2016.

From a methodological point of view, to the best of our knowledge, this is the first study to estimate simultaneously social integration, economic integration, and intention to stay in an instrumental variables framework. The second contribution is to study the integration of Syrian refugees in Germany (whose displacement is a major event in recent history), while most papers focus on their impact on host countries. The third contribution is related to the novelty of some results. Among these we can cite the impact of economic integration on social integration, which holds only for low- and medium-educated refugees. Furthermore, we confirm the

absence of an effect of economic integration on refugees intention to stay, as highlighted by De Haas and Fokkema (2011), in contrast to the literature on economic migrants, that finds a positive effect. Finally, we find no effects of ethnic enclaves on social integration nor on the intention to stay. Moreover, education, English proficiency, and the number of daughters in Germany reduce the intention to stay.

2 Literature review

This literature review covers the determinants of social integration, economic integration and how both impact the intention to stay in the host country or to return to the home country. Our paper is also related to the ethnic identity literature which widely investigated the issue of integration.

2.1 Determinants of social integration

Dustmann (1996) uses the feeling of belonging to the host country as a proxy for social integration to investigate its determinants. Using a probit model analysis based on the first wave of the German Socio-Economic Panel focusing only on immigrants, the author shows that stay duration, education level, language proficiency, and family context are the main determinants of migrants' social assimilation. Moreover, the author argues that successful economic integration can in itself be a strong determinant of social integration because of increased exposure to the host society. However, he finds no empirical evidence to support this assertion and concludes that the two aspects of integration are dependent on similar determinants rather than being interdependent.

To dig deeper in the mechanisms through which economic integration impacts social integration, a strand of the literature investigates the role of the workplace in non-migrants relationships with migrants. The hypothesis is that by providing contact opportunities, the workplace may favor interethnic social relationships. The results of studies dealing with the impact of the workplace are mixed. Using the European Social Survey on 21 OECD countries, Kokkonen et al. (2015) find that workplace diversity has a positive impact on interethnic friendship, particularly for low-educated workers. On the opposite, Eisnecker (2019) finds no link between employment and interethnic relationships in Germany. The author concludes that despite the large share of time migrants and non-migrants spend together at the workplace, actual relationships do not seem to result from these contact opportunities. One of the hypotheses to explain this result is the attitude toward migration that may matter more than the intensity of contacts.

Hainmueller et al. (2017) consider some proxies of refugee integration: language, perceived discrimination as a barrier to social inclusion, hobbies, membership in local clubs, reading local newspapers of the host country, and having non-immigrant friends. Exploiting the quasi-random assignment of citizenship in Swiss municipalities, they study the effects of naturalization and find that it plays a highly

significant role in social integration of immigrants, particularly for marginalized groups, and when it happens early.

Danzer and Ulku (2011) studied the impact of integration on income and the determinants of each integration component (political, social, and economic integration) for a sample of the Turkish community in Berlin. The authors use close German friends as a proxy for social integration and rely on Seemingly unrelated regressions (SUR) and Full information maximum likelihood regressions (FIML) and show that education is the common determinant of all forms of integration while local ethnic networks have a positive impact on social integration only.

Using the Dutch Survey on the Integration of Minorities, Zorlu and Hartog (2018) rely on an instrumental variable strategy to show that language proficiency plays an important role in the integration of refugees. The effect found is much higher once endogeneity is accounted for.

2.2 Determinants of economic integration

Cortes (2004) shows that labor market outcomes differ between economic immigrants and refugees. Using the Integrated Public Use Samples of the United States' Census, the author shows that refugees surpassed economic immigrants in terms of earnings, volume of work, and improvement of language skills, thanks mainly to higher rates of capital accumulation among refugees.

Using logistic regressions and the Social Position and use of Provisions by Ethnic Minorities in the Netherlands database, De Vroome and Van Tubergen (2010) show the role human capital (education and previous experience, particularly in the host country) and social capital variables play in the economic integration of refugees. Furthermore, they highlight the negative impact of the time spent in refugee accommodation; this impact is explained by the fewer opportunities to acquire education, work experience, and to a lesser extent, bridging social capital. Cheung and Phillimore (2014) investigate the impact of social capital on refugees' access to employment using logistic regressions based on the longitudinal Survey of New Refugees (SNR) in the UK. In contrast to De Vroome and Van Tubergen (2010), they find that social networks do not have a significant impact on refugees' labor market integration. Experience, pre-migration qualifications, and language are the main drivers.

Bevelander and Lundh (2007) address the determinants of regional variation in refugees' employment through logistic regressions. Based on the individual registers of Statistics Sweden for refugees they find that local labor market conditions in the host country may predict employment among refugees. Moreover, refugees have a higher probability to find jobs in lower education and skills' areas. Relying on an instrumental variable strategy² and administrative register data from Statistics Denmark, Damm (2014) investigates the impact of neighborhood quality on refugees' labor outcomes. In contrast to Bevelander and Lundh (2007), he finds that overall employment and skill levels in the area do not affect refugees' labor outcomes.

² The neighborhood of assignment is used as an instrument for the neighborhood of residence

Lochmann et al. (2019) investigate the effects of language training on immigrants labor market outcomes. They set up a regression discontinuity design based on the ELIPA³ longitudinal survey on immigrants arriving in France. They find a significant effect on labor market participation but no impact on the employability of immigrants.

2.3 Ethnic networks and integration

Constant and Zimmermann (2008) define a two-dimensional ethnic model, the Ethnosizer, which measures ethnic identity based on five objective and subjective elements including language, ethnic networks, and self-identification. Applying Poisson regressions on the German Socio-Economic Panel, they find that the model is explained by home country characteristics of the individuals before migrating to Germany. Using the same database and OLS regressions, Constant et al. (2009) show that homeownership is determined by ethnic identity, based on the attachments to the host country, regardless of the level of attachment to the home country.

A strand of the literature focuses on the negative role of ethnic enclaves in the economic integration of refugees due to low opportunities of language acquisition (Chiswick and Miller 1996; Lochmann et al. 2019). Applying linear regressions on the Multicultural Australia survey, Chiswick and Miller (1996) show that minority language concentration has a negative impact on English proficiency. Relying on an instrumental variable strategy and various Danish administrative and survey databases, Damm (2009) shows that there is a self-selection of refugees with disadvantageous characteristics in ethnic enclaves. He also finds that the negative effect of these enclaves on immigrants' human capital is more than compensated by the positive effect on job information dissemination.

2.4 Integration and intention to stay

Waldorf (1995) studies the determinants of return migration based on the MARPLAN survey on guestworkers in Germany. Using logit regressions the author shows that job and residence satisfaction have a negative and significant effect on the intention to return, whereas personal attributes do not seem to affect their decision. Using the GSOEP database, Constant and Massey (2002) implement logistic regressions and confirm that economic integration in Germany is one of the main determinants of the decision to return. They also find evidence of a significant role played by social, political, and psychological attachment to Germany in the decision to stay. Finally, they show that the strength of the social and economic links to the home country play a significant role as well, in the opposite direction. Jensen and Pedersen (2007) implement logistic regressions using the panel database from Statistics Denmark on immigrants in the country. The authors confirm the positive role of labor market integration in the decision to stay. They also find that being married

³ *Enquête longitudinale sur l'intégration des primo-arrivants*

to a citizen from the host country increases the propensity to stay in Denmark for immigrants from developing countries.

De Haas and Fokkema (2011) analyze the link between return migration and integration of four refugee groups in Italy and Spain, based on multinomial logistic regressions.⁴ Their main objective is to test the relevance of alternative theories in explaining return migration. They find that sociocultural factors matter, while work and occupational status do not. More strikingly, they find that education has a positive impact on the decision to return. This result is in line with many previous papers' findings (Jensen and Pedersen 2007; Ramos 1992; Rooth and Saarela 2007). However, other studies show negative selectivity according to human capital (Massey 1987) or no impact (Constant and Massey 2002, 2003).

3 Institutional context

The asylum procedure starts by declaring the arrival in Germany to the border authority once the asylum seeker crosses the border or to local authorities (police or immigration authority) once they enter the country. Asylum seekers are sent to an initial reception center⁵ where they are registered in the local system, the Central Register of foreigners⁶ and receive a proof of arrival that gives them the right for state benefits (accommodation, food, medical care, and pocket money for other expenses). Asylum seekers could reside in the initial reception center for up to six months according to the assignment of the center to host asylum seekers from the same country of origin. Then, they could be reallocated to another reception facility with better conditions and more private space. The distribution process is managed through a computer tool (First Distribution of Asylum Seekers, EASY) based on a quota system defined on an annual basis to ensure a fair distribution across the federal states. The whole asylum application is managed by the arrival center⁷ or an Anker facility⁸ where security and health checks are made. Moreover, the appointments for the asylum applications take place in the arrival centers in order to check for the personal documents that should be provided in the examination of the asylum procedure. Personal interviews are also conducted in order to learn more about the asylum seeker's biography, travel conditions and the motivation for the asylum application (BAMF 2021).

⁴ The data is from the survey implemented by the "Push and Pull factors of international migration" research project. The survey collects pre and post-migration information

⁵ Branch office of the BAMF (Federal Office for Migration and Refugees)

⁶ Maintained by a department of the BAMF (Federal Office for Migration and Refugees and contains the list of foreign individuals who live in Germany.

⁷ Branch office of the BAMF (Federal Office for Migration and Refugees)

⁸ The Anker facility centers exist in Bavaria, Saxony and Saarland federal states. It concentrates all authorities responsible for the asylum procedure and provides accommodations for asylum seekers, which helps for the acceleration of the process. Asylum seekers could reside in the Anker center for up to 24 months and do not have to move between an initial reception center and then other reception accommodations.

Once the application is examined on the basis of the documents provided and the personal interview, a decision is made regarding the acceptance of the asylum application by according either an entitlement to asylum,⁹ a refugee protection,¹⁰ a subsidiary protection,¹¹ or a ban on deportation¹² (NdM 2021a). However, the asylum application could be rejected if for instance, another asylum procedure is ongoing in another country or if the asylum seeker is involved in terrorist affairs or crimes. In this case, they could make an appeal against the decision.

The authorization to work is granted without any restriction for those who have an approval on their asylum application (either a refugee status, entitlement to asylum or subsidiary protection) providing the same rights as German citizens in the labor market. However, those with an ongoing application have restricted access to the job market, but can ask for permission to work from the Foreigners Office and the Federal Labor Office if they have resided in Germany since at least three months and not living in an initial reception center. For those who are obliged to stay in the initial reception center, they have the possibility to ask for a work permit after six months if they have children and nine months if they do not. However, work permit is not available for self-employment and should be asked for a specific job already found for which the employer has to fill a form in order to provide details on the offer (NdM 2021b).

We should also point out the role of German policies to integrate refugees and the facilities provided to offer them a decent life. In particular, a course organized by the BAMF is open for refugees or asylum applicants and comprises a language course covering aspects of everyday life (i.e., work, family, children, leisure, media, consumption, and social interaction) and an orientation course about the German legal system (including culture, history, social values, rights, and obligation). Participation in the integration course is mandatory for those who have already submitted their application for asylum and have access to the Benefit Act that covers basic needs. Moreover, participation is a necessary condition to get a settlement permit after 3 years of residence for those planning to remain in Germany.

⁹ Accorded to those politically persecuted by their home country because of their race, nationality or belonging to a religious or particular social or political group. The entitlement to an asylum status is only possible if the entry to Germany is direct and by plane, without passing by a safe third country. The asylum status allows for a residence permit of 3 years that could be extended if the situation does not improve. Asylum entitled have the right for family reunification, study, work and social aids.

¹⁰ Accorded for those who are persecuted because of their race, nationality or belonging to a religious or particular social or political group and whose state in their home country could not provide any form of protection for them. The refugee status is granted for those that have not directly entered Germany by plane with allowing for a residence permit of 3 years and they have the same rights as asylum entitled.

¹¹ Accorded to those that are in danger due for instance to war or human rights abuses without necessarily facing persecution. The subsidiary status is accorded for 1 year and could be extended for 2 years if the situation does not change in the home country. They have also the same rights as asylum entitled and refugees with a specific legislation for family reunification.

¹² Concerns all those who are not recognized as asylum entitled, refugee or subsidiary protection statuses but who could not be deported since they face a danger in their home country that could threaten their life such as health problems that could not be treated in the home country. The residence permit is accorded for 1 year and could be extended. They have also the same rights as asylum entitled and refugees with a specific legislation for family reunification.

Moreover, there were specific programs to help refugees integrate in the economic sphere, especially in 2015. For example, programs such as “Perspectives for refugees” and “ESF-BAMF” are dedicated to unemployed refugees. These programs help refugees in finding a job by providing information about the labor market, and the recognition of certificates and degrees. These programs also give them the opportunity to practice their skills in a company and identify their skills. The German Academic Exchange Service (DAAD) also conducts programs funded by the Federal Ministry of Education and Research (BMBF) to provide grants and scholarship dedicated to young refugees in Germany to encourage them to strengthen their potential and access higher education.

4 Data

Our survey data are from the IAB-BAMF-SOEP Refugee Survey 2016 conducted by the Institute for Employment Research (IAB), the German Institute for Economic Research (DIW Berlin) for the Socio-Economic Panel (SOEP), and the Research Centre on Migration, Integration, and Asylum of the Federal Office of Migration and Refugees (BAMF-FZ).

These survey data provide relevant information about refugees, such as their living conditions, educational status, vocational training, current occupational situations, language skills, family situations, their biographies before the conflict, social participation, link to their country of origin, and participation in integration programs. The first wave of the survey was conducted in 2016 after the number of refugees rose, particularly in 2015. A total of 4,817 adults from 3,538 households were surveyed, among refugees from many countries. In particular, the sample includes 2,212 Syrian adult refugees between 18 and 83 years old. All variables are self-reported.

The sample was collected randomly from the Central Register of Foreigners¹³ and is representative of the asylum seekers who entered Germany between 2013 and 2016, and filed an asylum application before June 2016 using appropriate weighting procedures that take into account individual characteristics (age, gender, origin country, and asylum status). People without a legal entry who did not register in the Central Register of Foreigners or those who registered later after the sampling procedure are not included in the survey since there is a delay between crossing the German border and registration by the federal authorities. Nevertheless, further sub-samples were assigned in order to take into account different time points of the Central Register of Foreigners versions. The sample includes either people for whom the asylum procedure is still ongoing, or those who were granted an entitlement to asylum, a refugee protection or a subsidiary protection, and those who have a ban on deportation.

¹³ Maintained by a department of the BAMF (Federal Office for Migration and Refugees and contains the list of foreign individuals who live in Germany.

As for the representativeness of the sample, higher sample probabilities were assigned to refugees who had already received an answer to their asylum application and were conferred with asylum protection, rather than those for whom the asylum procedure is still ongoing, or who have received a rejection and an allowance to remain in Germany temporarily. The aim of this sampling strategy is to target people who have a higher probability to remain in Germany.

In our paper, we restrict the sample to only those between 18 and 64 years old (the working age population). Moreover, as we are interested in social integration and the intention to stay in Germany, we restrict the sample to refugees who have received an asylum status or who have an ongoing application. We argue that those who have received a rejection of their asylum application (with a temporary suspension of deportation or a request to leave Germany) may behave differently, since they are remaining temporarily in Germany. Moreover, they may be less likely to attempt to integrate socially or economically (Hainmueller et al. 2017). Their intention to stay in Germany no longer reflects an individual decision, but rather the duration allowed by the authorities. Those who have received a rejection represent less than 2% of the sample. 22% have an ongoing application, 58% have been accorded a refugee status, 12% have been recognized as entitled to asylum and 6% have been accorded a different protection status. It means that about 76% of the sample is allowed to work.

The survey is retrospective. Furthermore, the data are from an individual cross section, not a panel, since all refugees were asked in 2016 about their current and past situations. Finally, we obtain a sample of 2,179 Syrian refugees in the working age population who have received an asylum status.

4.1 Dependent variables

We are interested in the determinants of economic and social integration, and their impact on the intention to stay permanently in Germany. Therefore, we define our three main variables in what follows.

The choice for the “Intention to stay permanently in Germany” variable is limited by the survey, since no direct question on the intention to return to Syria is asked. Rather, the questions are only on the intention to stay permanently in Germany, and the intended stay duration if the refugee does not intend to stay permanently. As mentioned before, both the intention to return and the intention to stay permanently in Germany are important but not necessarily associated: the intention to leave Germany could also mean the intention to move somewhere else instead of returning to Syria. Some other questions were asked for the return regarding their worries about returning to Syria, or when the refugee could return. Nevertheless, we retain the question about the intention to stay permanently in Germany: “Would you like to stay in Germany permanently?”. We construct a binary variable that takes a value of one if the respondent would like to stay permanently in Germany, and zero otherwise. We exclude from our sample those who do not answer the question on the intention to stay in Germany.

We construct the “Economic integration” variable according to employment status as a binary that takes a value of one if the respondent is currently working (including full-time, part-time, minimal, or irregular employment, and apprenticeship or undergoing occupational retraining and internship), and zero otherwise.

We consider an indicator of social integration that combines three main metrics from the literature. First, perceived discrimination is a barrier to social inclusion (Hainmueller et al. 2017). The corresponding information in the survey data is about whether an immigrant feels like an outsider. The question asked is, “How often do you feel like an outsider?”. This question is very precise and deals directly with perceived social inclusion. The variable is an ordinal with five categories running successively from 1 to 5: Very often, Often, Sometimes, Occasionally, Never. As a second metric, we consider whether the respondent watches TV, uses the internet, or reads newspapers or books in German (Avitabile et al. 2013). This variable is a dummy that takes the value one if the answer is “yes”, and zero otherwise. For the third metric, similarly to the literature, we use the number of German acquaintances an immigrant has. Precisely, we consider the variable that corresponds to the question: “How many German people have you met since your arrival in Germany with whom you have regular contact?”. As we have an ordinal variable (the level of feeling like an outsider), a continuous variable (number of German acquaintances), and a binary variable (using internet, TV, or reading newspapers in German), we construct an index of social integration with these three variables. We follow Hainmueller et al. (2017) in using a polychoric principal component analysis (PCA) and extracting the first principal component that accounts for 42.3% of the total variance. This method allows us to deal with binary, categorical, and continuous distributions.

4.2 Independent variables included in each equation

The individual characteristics we consider as independent variables are the governorate of origin, age, gender (one for female, zero for male), marital status (one for single, zero for married), level of education (primary, secondary, and tertiary education), work experience (if the refugee has worked before), and the arrival year from (2013 to 2016).¹⁴

We have the following categories for the religion variable: no religion, Islamic-Shiite, Islamic-Sunni, Islamic-Alawite, Christian, or other religion. Religious orientation can be reflected in the behavior of a person belonging to a given religious group, thereby impacting their social and economic integration. Considering that the majority of refugees are Sunni Muslims (75%), we simplify this variable by considering a dummy for whether a Syrian immigrant is a Sunni Muslim.¹⁵

¹⁴ Note that we remove the refugees who entered Germany in 2012, as they represent a minor proportion, only 0.2% of the sample.

¹⁵ One could assume that Christian refugees may have some cultural proximity to Germans and should be treated as a differentiated group. However, we have only a low proportion of Christians in the sample (6%). We thus preferred including only the “Sunni” dummy. Nevertheless, when we include the “Christian dummy” as a robustness check, no significant coefficient is found in the estimation.

As for family networks, we consider whether the refugee has one or more of their relatives in Germany (including spouse, children, father, mother, or siblings). In order to check for the impact of having children on the intention to stay in Germany, we follow Dustmann (2003) with distinguishing between sons and daughters. We put the number of sons and daughters in Germany as covariates. Ethnic enclaves are proxied by adding the number of Syrian acquaintances and the number of acquaintances from other countries as a measure of social networks. These two variables are based on the question on the number of people from Syria or from other countries met in Germany and with whom the refugee has a regular contact.

The language variable captures German and English speaking proficiency. This is an ordinal variable with five categories from 1 to 5: Not at all, Not very well, Averagely, Well, Very well. We simplify by constructing a dummy variable that indicates whether the respondent speaks at least average German or English.

We add a variable that indicates whether the refugee lives in a refugee accommodation or in an independent accommodation (one for refugee accommodation, zero otherwise). The question about the type of accommodation corresponds to the place of residence in which the refugee spent the longest period since the arrival in Germany. There is no question on the type of accommodation where refugees currently live.

Some of the integration programs are filled out in the survey. However, we cannot include them in our model since most were implemented in 2015, and the survey was just carried out in 2016 (only a few refugees were participating in 2016). Another technical reason is that participation in these integration programs is endogenous. We need to consider the selection bias that could arise from this inclusion, especially since we have several other endogeneity issues, as we show later.

Table 1 provides descriptive statistics on the variables used. By eliminating the missing responses for all variables, we obtain a sample of a total of 2,096 observations. Almost a quarter of Syrian refugees came from Aleppo and Damascus and are female, while 46% are single. Refugees' age varies from 19 to 64 years with a mean age of 32 years. The majority of Syrian refugees arrived in 2015 (74%), while 16% arrived in 2014, 3% in 2013 and 7% in 2016. Hence, the arrival year 2015 serves as a reference modality in our estimations. As most refugees arrived in 2015, and the survey took place in 2016, shortly after their arrival, we are aware of the limits of the study in treating social and economic integration. We do not have enough hindsight to examine the impact of time spent in Germany. This can also affect their social and economic integration, and hence, their intention to stay permanently in Germany. Nevertheless, the diversity of the indicators used for social integration should help in overcoming these issues. Moreover, most refugees included in the sample have received a protection status that allows them to work.

Most refugees have a secondary educational level (73%). 30% were educated outside Syria. The majority of those included in the sample are Sunni Muslims (approximately 75%). Only 4% of the refugees are accompanied by a partner in Germany and 33% have at least one child in Germany. 16% of the refugees have at least one of their parents with them and 49% have at least one of their siblings. For ethnic enclaves, the mean number of Syrian acquaintances is approximately nine and that of acquaintances from other countries is approximately three. Roughly 65% of the

Table 1 Descriptive statistics

Variables	Mean/Median (1)	Minimum (2)	Maximum (3)
Social Integration	-.043	-1.866	14.989
Feeling outsider	4	1	5
N acquaintances German	5.634	0	50
N acquaintances same country	8.564	0	50
N acquaintances other countries	3.244	0	50
Age	32.033	19	65
Number of sons in Germany	0.94	0	7
Number of daughters in Germany	0.83	0	7
	Proportion		
Intention to stay	80%		
Employment	11%		
Aleppo	23%		
Al-Hasakah	15%		
Ar-Raqqah	2%		
As-Suwayda	1%		
Damascus	27%		
Daraa	5%		
Deir ez-Zor	4%		
Hama	4%		
Homs	5%		
Idlib	5%		
Latakia	3%		
Quneitra	1%		
Rif Dimashq	2%		
Tartus	1%		
Single	46%		
Arrival year 2013	3%		
Arrival year 2014	16%		
Arrival year 2015	74%		
Arrival year 2016	7%		
Female	25%		
Primary education	20%		
Secondary education	73%		
Tertiary education	7%		
Education abroad	30%		
Sunni	75%		
Child in Germany	33%		
Partner with	4%		
Parent with	16%		
Sibling with	49%		
English speaking proficiency	44%		

Table 1 (continued)

Variables	Mean/Median (1)	Minimum (2)	Maximum (3)
German speaking proficiency	56%		
Worked before	71%		
Refugee Accommodation	65%		
Newspapers/radio German	73%		
N	2,096		
Weight	239,582		

refugees live in a refugee accommodation. Finally, 71% of the refugees had work experience before their arrival in Germany, 44% are proficient English speakers, and 56% are proficient German speakers.

For the variables of interest, 80% of the refugees intend to stay permanently in Germany, or at least answered so on the survey. As for economic inclusion, only 11% of the refugees are currently working. This is because 74% of the refugees in the sample arrived in 2015, and were waiting for the residence permit to be able to work and search for a job. As few refugees are working, we are not able to separate each type of employment (regular, irregular, full, or part-time) to investigate heterogeneous effects and determinants. Considering social integration components, a median of four is observed for the degree of feeling like an outsider. This means that 50% of refugees have occasionally felt like being outsiders. Moreover, the mean number of German acquaintances is six. Approximately 73% of respondents use the internet, watch TV, or read newspapers or books in German.

5 Econometric and identification strategy

We simultaneously estimate the two equations of the intention to stay and of social integration, considering endogeneity, while including the set of independent variables listed before and extra instruments. Handling endogeneity issues in this estimation itself allows us to appropriately investigate the determinants of social integration.

In the second part of the analysis, we investigate the impact of economic integration (through employment) on social integration. We simultaneously estimate the social integration equation using economic integration as an endogenous explanatory variable, and an equation for economic integration while including the set of independent variables listed above and extra instruments. For the impact of economic integration on social integration, we add interactions terms with educational levels, in order to better investigate how education may affect integration. We assume that the highly educated people are more internationally orientated and work with people from various countries and hence may have lower opportunities to integrate in the German society. In contrast, the less educated are more likely to be in contact with German people, which could facilitate social interaction with them.

In the third part of the analysis, we examine the impact of economic integration on the intention to stay in Germany.

Our econometric strategy is to estimate a simultaneous equation model for each of the two dependent variables of interest using the conditional mixed process method, following Amemiya (1973), Heckman (1978), Heckman (1976), Schmidt (1978), and Wilde (2000). This model allows for an instrumental variable estimation using a system of simultaneous equations and different types of dependent variables (continuous, binary, ordinal, and multinomial), with estimations based on the normal distribution of errors. Moreover, as we have almost the same explanatory variables in each equation, it is interesting to use such models.

Alternative estimations, such as probit and ordinary least squares (OLS), for separate equations can be also used to answer similar questions to ours. However, assuming linearity with binary data could lead to biased and inconsistent estimators (Horrace and Oaxaca 2006).

As we have mentioned before, we need to add extra instruments in both social and economic integration equations to handle the endogeneity of social and economic integration variables. The systems of equations to estimate in each part of the analysis are as follows:

$$\begin{cases} Intentiontostay_i^* = \beta_{01} + \beta_{11}.Socialintegration_i + \gamma_1.Controls_i + \epsilon_{1i} \\ Socialintegration_i = \beta_{02} + \gamma_2.Controls_i + \delta_1.Instrument_{1i} + \epsilon_{2i} \end{cases} \quad (1)$$

$$\begin{cases} Socialintegration_i = \beta_{03} + \beta_{12}.Employment_i^* + \gamma_3.Controls_i + \epsilon_{3i} \\ Employment_i^* = \beta_{04} + \gamma_4.Controls_i + \delta_2.Instrument_{2i} + \epsilon_{4i} \end{cases} \quad (2)$$

$$\begin{cases} Intentiontostay_i^* = \beta_{05} + \beta_{13}.Employment_i^* + \gamma_5.Controls_i + \epsilon_{5i} \\ Employment_i^* = \beta_{06} + \gamma_6.Controls_i + \delta_3.Instrument_{2i} + \epsilon_{6i} \end{cases} \quad (3)$$

where $\beta_{01}, \beta_{02}, \beta_{03}, \beta_{04}, \beta_{05}$, and β_{06} are constants to estimate; β_{11}, β_{12} , and β_{13} are the coefficients associated with the endogenous explanatory variables in the equations of interest; and $\gamma_1, \gamma_2, \gamma_3, \gamma_4, \gamma_5$, and γ_6 are vectors to estimate, including the coefficients associated with the control variables listed before. δ_1, δ_2 , and δ_3 are the coefficients of the instruments used in the social and economic integration equations to satisfy the identification assumption. $Intentiontostay_i^*$ and $Employment_i^*$ are the latent variables for the intention to stay and the employment status dummy variables, respectively. $Socialintegration_i$ is the continuous variable that corresponds to the social integration indicator constructed, where $i = 1, ..2096$. Finally, $\epsilon_{1i}, \epsilon_{2i}, \epsilon_{3i}, \epsilon_{4i}, \epsilon_{5i}$, and ϵ_{6i} are centered error terms with multivariate normal distribution. The estimation is based on reproducing, for each system of equations, the reduced form from the system, computing the likelihood for a given observation i from the joint density for each of the two variables of interest, and then maximizing the log-likelihood function for all the observations to obtain the coefficients estimated. The instruments are presented thereafter.

We use the social norm of reciprocity of someone’s response to a positive or negative action by someone else (Fehr and Schmidt 2006; Perugini et al. 2003) as

an instrument for social integration. The survey contains several questions about reciprocity. We construct an index from several negative reciprocity actions that respond to the degree of agreement about the statements: “If someone insults me, I will insult him.”, “If someone does me a serious wrong, I will get my own back at any price at the next opportunity”, and “If somebody puts me in a difficult position, I will do the same to them”. Specifically, each variable is an ordinal with seven categories running successively from 1 (“I totally disagree”) to 7 (“I totally agree”). We also use the polychoric PCA from these statements and extract the first principal component to construct the negative reciprocity index. The identification strategy is that this variable will directly and negatively affect social integration since reciprocity strongly impacts social connections and their sustainability (Phillimore et al. 2018). Moreover, it deals directly with refugees’ social behavior, which does not directly impact their intention to stay permanently; it only affects the outcome variable through its impact on social integration. The rationale behind the exogeneity of the instrument is that reciprocity is an “internalized social norm” (Perugini et al. 2003), a personality characteristic (Hahn et al. 2019) that would take time to be impacted by the host social environment. Since the survey has been conducted after 1 year of the arrival of the majority of Syrian refugees, we strongly believe that their responses to the reciprocity questions reflect their pre-migration social norms.

As a robustness check, we used another instrument, based on the sociability level of German people in the same county of residence in which the refugee resides. The variable is ordinal with seven categories running successively from 1 (“Does not apply”) to 7 (“Applies fully”) and it responds to the degree of agreement about the statements: “I am sociable”. This information is based on a sample of German people from the SOEP data that were questioned in 2013, before the massive arrival of Syrian refugees in 2015, to avoid potential endogeneity issues on the answer about the sociability level.¹⁶ We take the median of the sociability level in each county as an instrument for each refugee from the corresponding county residence. The level of German sociability could facilitate social integration of refugees since sociability improves the interaction with refugees (Stöhr and Wichardt 2019). We find similar results as those obtained using the reciprocity instrument.

Moreover, we propose the rate of employed Syrian refugees in the same county and sector in the employed Syrian refugees from the same county of residence, as instrument for economic integration. The sector of activity is that of the last job before the arrival to Germany for refugees having a previous experience. For those that did not have previous experience, we compute the rate of the employed Syrian refugees from the same county that have no experience before in the employed Syrian refugees from the same county. This variable reflects labor demand in the same sector of activity and county of residence, which impacts positively the employment probability. This instrument does not directly impact social integration nor the intention to stay permanently in Germany, it only reflects the labor market situation, in particular for Syrian refugees. This variable is directly computed from the sample,

¹⁶ One would assume that German people could perceive themselves as not sociable after the massive arrival of refugees.

since no extra information (especially about the county of residence) is provided for the whole sample of refugees, nor is any external information available about this indicator at the county level.

For an individual i , having a work experience in the sector j (or no experience) and living in a county k , the instrument for economic integration is computed as follows:

$$Instrument_{2ijk} = \frac{\sum_i (Employed_{ijk})}{\sum_i (Employed_{ik})}, i = 1, \dots, 2096 \quad (4)$$

As our conditional mixed process model is based on non-linear estimations since both the intention to stay and employment variables are binary, we do not have the possibility to conduct statistical tests for the instruments' validity apart from testing for the level of significance of the first stage estimation (the endogenous variable equation in our cmp model). The only way to conduct statistical tests for instruments' validity is to make a linear estimation for each system of equations using two stage least square and then test for instruments' validity using the F first stage statistic that reports the explanatory power of the excluded instrument.¹⁷

Finally, we cluster the standard errors at the household-level (1560 households). Most decisions of different individuals in the same refugee household are not independent of each other, particularly for the intention to stay in Germany. Moreover, as the data is retrospective and the survey is an individual cross section rather than a panel, we are not able to conduct fixed effects panel estimations. Nevertheless, controlling for German county fixed effects provides similar estimation results.

6 Results

Table 2 reports the estimation results of the first system of equations of both social integration and the intention to stay equations (columns (1) and (2), respectively) and those of the second system of equations (social integration and employment) in columns (3) and (4). Table 3 shows the impact of economic integration on the intention to stay in Germany.

6.1 Determinants of social integration

The results on the determinants of social integration are reported in column (2) of Table 2. First, the instrument used has a negative coefficient at the 1% level of significance. This indicates that negative reciprocity negatively impacts refugees' social integration because it deals directly with their social behavior. This result is consistent with Phillimore et al. (2018) on the importance of reciprocity for developing and sustaining social connections. In terms of instruments' relevance,

¹⁷ According to Staiger and Stock (1997), for a single endogenous variable, if the F statistic is more than 10, it means that the weakness of the instruments is rejected and that they are valid.

Table 2 Estimation results (Social integration indicator)

Variables	Intention to Stay (1)	Social Integration (2)	Social Integration (3)	Employment (4)
Social integration	0.666*** (0.153)			
Employment			0.021 (0.435)	
Employment*Primary			0.361** (0.168)	
Employment*Secondary			0.272* (0.158)	
Employment*Tertiary			0.380 (0.324)	
Female	-0.088 (0.101)	-0.045 (0.057)	-0.010 (0.057)	-0.359* (0.188)
Age	0.001 (0.005)	-0.009*** (0.003)	-0.007** (0.003)	0.020** (0.009)
Single	-0.405*** (0.136)	-0.079 (0.071)	-0.087 (0.075)	0.103 (0.198)
Arrival year 2013	0.154 (0.221)	-0.105 (0.123)	-0.172 (0.143)	1.214*** (0.258)
Arrival year 2014	-0.127 (0.104)	-0.003 (0.071)	-0.044 (0.073)	0.647*** (0.155)
Arrival year 2016	0.364* (0.198)	-0.164 (0.108)	-0.152 (0.101)	-0.370 (0.452)
Secondary	-0.562*** (0.116)	0.146*** (0.051)	0.161*** (0.056)	-0.066 (0.191)
Tertiary	-0.384** (0.176)	-0.059 (0.090)	0.032 (0.118)	-0.060 (0.268)
Education abroad	-0.167* (0.093)	0.140** (0.063)	0.114* (0.064)	-0.052 (0.153)
N sons	-0.012 (0.037)			
N daughters	-0.075* (0.038)			
Child in Germany		0.100* (0.057)	0.140** (0.063)	-0.470*** (0.174)
N acquaintances same country	0.002 (0.006)	-0.002 (0.008)	-0.003 (0.008)	-0.009** (0.004)
N acquaintances other countries	-0.016** (0.008)	0.029*** (0.008)	0.029*** (0.008)	0.023*** (0.004)
English speaking proficiency	-0.336*** (0.094)	0.145** (0.059)	0.151** (0.064)	0.276* (0.148)
German speaking proficiency	-0.160	0.377***	0.372***	0.456***

Table 2 (continued)

Variables	Intention to Stay (1)	Social Integration (2)	Social Integration (3)	Employment (4)
	(0.115)	(0.057)	(0.060)	(0.169)
Worked before	0.017 (0.110)	0.073 (0.067)	0.108 (0.078)	1.086*** (0.259)
Refugee Accommodation	-0.109 (0.087)	0.113** (0.044)	0.119** (0.051)	-0.152 (0.139)
Negative reciprocity		-0.144*** (0.025)		
Rate same sector same county				2.671*** (0.211)
Instruments' validity				
Fisher first stage		26.89***		690.39***
Observations	2,096	2,096	2,096	2,096

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table reports the estimation results of the first system of equations of both social integration and the intention to stay permanently in Germany equations (columns (1) and (2)) using as an instrument for social integration the negative reciprocity index. The results of the second system of equation are given in columns (3) and (4) using as an instrument for economic integration the rate of the employed Syrian refugees from the same sector and county in the employed Syrian refugees at the same county of residence. Regions controls are not reported in the table and also insignificant variables in the four equations are removed from the table (partner or parent or sibling in Germany and Sunni variable). Robust standard errors in parentheses

the F statistic reported in column (2) shows that the negative reciprocity indicator is valid (more than 10).

For the control variables, age has a negative impact on social integration. Dustmann (1996) finds similar results and argues that the ability to adapt to a new environment decreases with age.

The coefficient of the level of education variable shows that those who have a secondary education level are more integrated socially than those who have a primary educational level. Moreover, those who were educated abroad are more likely to be socially integrated. These findings are in line with many studies that show the positive impact of education on social integration (Dustmann 1996; Danzer and Ulku 2011; De Vroome and Van Tubergen 2010).

Furthermore, having a child in Germany increases the social integration of refugees. Dustmann (1996) find the same result with having a child in the same host country, especially if they attend school in Germany, which can increase the feeling of belonging to Germany (the measure of social assimilation).

Moreover, the number of acquaintances from other countries increases social integration. Social networks facilitate social integration in the host society. Another explanation is that Syrian refugees can learn from the experiences of other immigrants to successfully integrate into the German society.

Both English and German speaking proficiency have positive and highly significant impacts on social integration. This provides supporting evidence of

Table 3 Estimation results (Employment and intention to stay)

Variables	Intention to Stay (1)	Employment (2)
Employment	-0.048 (0.059)	
Female	-0.106 (0.113)	-0.356*
Age	-0.002 (0.006)	0.021**
Single	-0.546*** (0.130)	0.115 (0.201)
Arrival year 2013	0.189 (0.251)	1.205*** (0.257)
Arrival year 2014	-0.148 (0.119)	0.642*** (0.154)
Arrival year 2016	0.289 (0.215)	-0.378 (0.450)
Secondary	-0.528*** (0.124)	-0.071 (0.190)
Tertiary	-0.432** (0.184)	-0.063 (0.268)
Education abroad	-0.098 (0.101)	-0.054 (0.152)
Sunni	-0.077 (0.105)	-0.211 (0.148)
N sons	-0.004 (0.042)	
N daughters	-0.072* (0.044)	
Child in Germany	-0.441** (0.181)	
N acquaintances same country	-0.002 (0.003)	-0.009** (0.004)
N acquaintances other countries	0.006 (0.005)	0.023*** (0.004)
English speaking proficiency	-0.259** (0.102)	0.278* (0.148)
German speaking proficiency	0.128 (0.101)	0.459*** (0.169)
Worked before	0.135 (0.132)	1.094*** (0.259)
Refugee Accommodation	-0.046 (0.094)	-0.154 (0.138)
Rate same sector same county	2.672*** (0.211)	

Table 3 (continued)

Variables	Intention to Stay (1)	Employment (2)
Instruments' validity		
Fisher first stage		694.92***
Observations	2,096	2,096

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

The table reports the estimation results of the third system of equations of both economic integration and the intention to stay permanently in Germany equations (columns (1) and (2)) using as an instrument for economic integration the rate of the employed Syrian refugees from the same sector and county in the employed Syrian refugees at the same county of residence. Regions controls are not reported in the table and also insignificant variables in the two equations are removed from the table (partner or parent or sibling in Germany and Sunni variable). Robust standard errors in parentheses

the positive impact of language courses on social integration. This result is in line with the literature on the role of the host country's language proficiency (Zorlu and Hartog 2018; Dustmann 1996; Cheung and Phillimore 2014). Finally, the residence in a refugee accommodation also has positive effects. The duration of stay in a refugee accommodation enables more exchanges and contacts with other refugees from other countries. This is a form of social connection (Putnam 1993; Woolcock 1998), and strongly impacts integration into the German society.

The second part of the analysis deals with the impact of economic integration on social integration (column (3) of Table 2). The first result is that the impact of economic integration on social integration is nonsignificant. This result is similar to Dustmann (1996), who finds no empirical support to an impact of economic integration on social integration. However, when we interact the employment variable with the level of education, we find significant positive impacts only for low-educated (at the 5% level) and medium-educated (at the 10% level) refugees. This result confirms our hypothesis that highly educated people are more internationally orientated and work with people from various countries and hence may have lower opportunities to integrate in the German society. In contrast, the low- and medium-educated are more likely to be in contact with German people, which allows for social interactions with them. This result confirms the findings of Kokkonen et al. (2015) who highlight a stronger impact of the workplace on low-educated workers.

6.2 Determinants of economic integration

Here, we focus on the results reported in column (4) of Table 2 to investigate economic integration's determinants proxied by the employment dummy variable. This equation is estimated in the second system of simultaneous equations where we show the impact of economic integration on social integration (reported in the previous section).

Consider the equation of economic integration as measured by employment status. The ratio of the number of employed people in the same sector in a given county to the total number of employed people in this county is positively and significantly related to economic integration. We argue that this may be because of strong labor demand in the same sector of activity between Syrian refugees of the same county, i.e., a high rate of employed people in the same county and sector would reflect high labor demand, thereby increasing the probability to find a job. The value of the F statistic validates the “relevance” of the instrument.

We also examine other factors that impact economic integration. Females have a lower chance of working compared to males. The probability of finding a job decreases with the year of arrival. Those who arrived in 2013 and 2014 are more likely to find a job than those who arrived in 2015. This result is supported by most studies dealing with the impact of stay duration on economic integration (Cheung and Phillimore 2014; Danzer and Ulku 2011). In contrast to the literature that shows the role of education in economic integration (De Vroome and Van Tubergen 2010; Danzer and Ulku 2011), educational levels do not seem to have significant impacts on economic integration.

Moreover, we find that people from Syria who have at least one child in Germany are less likely to work. This is because parents may have less time to search for a job as they must care for the children. Furthermore, their expectations in terms of job and income are higher because they would like to provide enough resources for their children. One would assume that the presence of a partner with children could help to find a job especially for men when the wife could take care of them. However, in our sample, a very low proportion of people have their partner in Germany (only 4%). Moreover, less than 1% of people (men or women) that have children in Germany (at least one child) are without their partner. Hence, the sample contains either males of females with children without a partner, which makes it difficult to find a job.

The number of acquaintances from other countries also has a positive impact on the probability of finding a job whereas ethnic enclaves given by the number of Syrian acquaintances decrease the probability to work due to low opportunities of language acquisition (Chiswick and Miller 1996; Lochmann et al. 2019).

Moreover, the results show that work experience matters for the probability to find a job. This variable has a positive coefficient which is significant at the one percent level. Finally, German speaking proficiency is also beneficial for finding a job (Chiswick and Miller 1996; Cheung and Phillimore 2014; Lochmann et al. 2019).

6.3 Determinants of the intention to stay in Germany

Social integration has a significantly positive impact on refugees' intention to stay (column (1) of Table 2). However, from column (1) of Table 3, we see that economic integration has no significant impact on the intention to stay in Germany.

Therefore, it is social integration that matters for the decision to stay permanently in Germany. The employment status of refugees has an indirect impact on the intention to stay, through social integration, and for low- and medium-educated refugees only. In a way, this finding supports the Neoclassical theory on how integration success increases the incentives to stay in the host country. However, in contrast with the literature on economic migrants (Waldorf 1995; Constant and Massey 2002; Jensen and Pedersen 2007) that finds a negative impact of economic integration on return incentives, our results are in line with those of De Haas and Fokkema (2011) who find no impact of employment on return migration of refugees. The reason is that while economic migrants left their countries seeking for new economic opportunities abroad, refugees were forced migrants, fleeing unbearable living conditions. This population has gone through various traumatic events and may be more sensitive to the social integration dimension (Hahn et al. 2019).

For the other controls in the intention to stay equation, we only interpret the results in column (1) of Table 2 using the aggregate indicator of social integration. Those of Table 3 are just reported to check for the impact of employment on the intention to stay. The results in column (1) of Table 2 show that being single decreases the intention to stay permanently in Germany. This result is in line with the findings of Massey and Espinosa (1997) who found that being married reduces the odds of return migration among Mexican migrants in the US.

The results also show that those who came in 2016 have higher intention to stay compared to those who came in 2015. Negative and significant coefficients for all educational levels are observed. This means that the more educated the refugees are, the less they would like to stay permanently in Germany.

This result is in line with most previous findings (De Haas and Fokkema 2011; Jensen and Pedersen 2007; Ramos 1992; Rooth and Saarela 2007) and in contrast to some other papers that show negative selectivity according to human capital (Massey 1987) or no impact (Constant and Massey 2002, 2003). The explanation behind is that the most educated people may have better English skills and qualifications, allowing them for moving to other countries. Moreover, the results show that the Syrian refugees who have received an education outside of Syria are less likely to stay. This result is also explained by better opportunities abroad for these refugees.

Moreover, we also find that the number of daughters in Germany decreases significantly the intention to stay probability, while there is no significant effect of the number of sons. Following the same model specification used by Dustmann (2003), this result is consistent with his findings that show a positive impact of children on the return decision of families with a higher share of daughters among Turkish immigrants in Germany. This result is explained by the preferences of parents for preserving traditions of female offspring. Furthermore, the number of acquaintances from other countries decreases the incentives to stay permanently.

Finally, proficiency in English speaking decreases the intention to stay in Germany. This could be because people who speak English have higher language learning abilities, which gives them the flexibility to move to other countries.

7 Conclusion

This study investigated the determinants of social integration of Syrian refugees and its impact on their intention to stay permanently in Germany using the IAB-BAMF-SOEP Refugee Survey 2016. Social integration is proxied by an index composed of three variables, mixing subjective and objective measures of social integration (the level of feeling like an outsider, the number of German acquaintances, and the possibility of using the internet, watching TV, or reading newspapers or books in German). We also studied the determinants of economic integration, and its impact on social integration and the intention to stay in Germany. The econometric strategy was based on the estimation of a simultaneous equation model for social integration, economic integration, and the decision to stay, handling endogeneity issues through an instrumental variables strategy.

Despite the rich data about Syrian refugees in Germany, we are aware of the limits of the study in treating social and economic integration. This is because the survey was conducted 1 year after the arrival of most refugees. We do not have enough hindsight to examine the impact of time spent in Germany. This can also affect refugees' integration, and hence, their intention to stay permanently in Germany. Moreover, the low proportion of working people does not allow us to distinguish between the different types of employment and thus to highlight heterogeneous effects and determinants. Nevertheless, this data constitutes the most relevant available data on Syrian refugees in Germany that could help address issues of integration and the intention to stay.

Our first main result is that economic integration has an impact on social integration for low- and medium-educated refugees only. The other main determinants of social integration are the level of education, proficiency in speaking the language of the host country, being accompanied by a child, and the number of acquaintances from other countries. Older refugees have more difficulties in integrating socially with the native population while residing in a refugee accommodation improves the capacity to integrate socially.

Moreover, our results show a significant positive impact of social integration on the intention to stay permanently in Germany while no significant impact was found for employment. This latter result is in line with previous papers on refugees and in contrast with the literature on the integration of economic migrants.

Integration policies mostly focus on economic integration. However, the results of this study show that social integration is another important dimension of the integration process that the German government and other relevant social actors should consider for the well-being of refugees during their stay in Germany.

This study shows that economic integration may not be the key for successful integration of refugees in the long run toward addressing Germany's labor shortages. The reason may be that refugees and economic migrants differ in their motives of mobility. Refugees have gone through various traumatic events and may be more sensitive to the social integration dimension. Programs should be focused on how to better integrate refugees in the German society, and assisting them in building a new life and a new "home" where they can stay permanently.

However, we must differentiate here between low- and medium-educated refugees on one side and high-educated refugees on another side. For the former, employment facilitates social integration and has thus an indirect impact on the incentives to stay. For the latter, it does not and thus more focus has to be put on social integration aspects if the objective is to keep this category of refugees in the host country.

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Declarations

Conflict of interest The authors declare no competing interests.

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References

- Avitabile C, Clots-Figueras I, Masella P (2013) The effect of birthright citizenship on parental integration outcomes. *The Journal of Law and Economics* 56(3):777–810
- Berry JW (1997) Immigration, acculturation, and adaptation. *Applied Psychology* 46(1):5–34
- Black R, Gent S (2006) Sustainable return in post-conflict contexts. *International Migration* 44(3):15–38
- Cerese FP (1974) Expectations and reality: a case study of return migration from the United States to Southern Italy. *International Migration Review* 8(2):245–262
- Cheung SY, Phillimore J (2014) Refugees, social capital, and labour market integration in the UK. *Sociology* 48(3):518–536
- Chiswick BR, Miller PW (1996) Ethnic networks and language proficiency among immigrants. *Journal of Population Economics* 9(1):19–35
- Constant AF, Massey DS (2002) Return migration by German guestworkers: Neoclassical versus new economic theories. *International Migration* 40(4):5–38
- Constant AF, Massey DS (2003) Self-selection, earnings, and out-migration: A longitudinal study of immigrants to Germany. *Journal of Population Economics* 16(4):631–653
- Constant AF, Zimmermann KF (2008) Measuring ethnic identity and its impact on economic behavior. *Journal of the European Economic Association* 6(2–3):424–433
- Constant AF, Gataullina L, Zimmermann KF (2009) Ethnosing immigrants. *Journal of Economic Behavior & Organization* 69(3):274–287

- Cortes KE (2004) Are refugees different from economic immigrants? some empirical evidence on the heterogeneity of immigrant groups in the United States. *Review of Economics and Statistics* 86(2):465–480
- Damm AP (2009) Ethnic enclaves and immigrant labor market outcomes: Quasi-experimental evidence. *Journal of Labor Economics* 27(2):281–314
- Damm AP (2014) Neighborhood quality and labor market outcomes: Evidence from quasi-random neighborhood assignment of immigrants. *Journal of Urban Economics* 79:139–166
- Danzer AM, Ulku H (2011) Determinants of integration and its impact on the economic success of immigrants: A case study of the Turkish community in Berlin. *Kyklos* 64(3):342–365
- De Haas H, Fokkema T (2011) The effects of integration and transnational ties on international return migration intentions. *Demographic Research* 25:755–782
- De Vroome T, Van Tubergen F (2010) The employment experience of refugees in the Netherlands. *International Migration Review* 44(2):376–403
- Duleep HO (1994) Book Review: *Labor Economics: Immigration and the work force: Economic Consequences for the United States and Source Areas*, vol 47. SAGE Publications Sage CA, Los Angeles, CA
- Dustmann C (1996) The social assimilation of immigrants. *Journal of Population Economics* 9(1):37–54
- Dustmann C (2003) Children and return migration. *Journal of Population Economics* 16(4):815–830
- Eisnecker PS (2019) Non-migrants' interethnic relationships with migrants: the role of the residential area, the workplace, and attitudes toward migrants from a longitudinal perspective. *Journal of Ethnic and Migration Studies* 45(5):804–824
- Fehr E, Schmidt KM (2006) The economics of fairness, reciprocity and altruism-experimental evidence and new theories. *Handbook of the Economics of Giving, Altruism and Reciprocity* 1:615–691
- Hainmueller J, Hangartner D, Pietrantuono G (2017) Catalyst or crown: Does naturalization promote the long-term social integration of immigrants? *American Political Science Review* 111(2):256–276
- Heckman JJ (1978) Dummy endogenous variables in a simultaneous equation system. *Econometrica* 46(4):931–959
- Horrace WC, Oaxaca RL (2006) Results on the bias and inconsistency of ordinary least squares for the linear probability model. *Economics Letters* 90(3):321–327
- Jensen P, Pedersen PJ (2007) To stay or not to stay? out-migration of immigrants from Denmark. *International Migration* 45(5):87–113
- Kokkonen A, Esaiasson P, Gilljam M (2015) Diverse workplaces and interethnic friendship formation—a multilevel comparison across 21 OECD countries. *Journal of Ethnic and Migration Studies* 41(2):284–305
- Laurentsyeva N, Venturini A (2017) The social integration of immigrants and the role of policy—a literature review. *Intereconomics* 52(5):285–292
- Lochmann A, Rapoport H, Speciale B (2019) The effect of language training on immigrants' economic integration: Empirical evidence from France. *European Economic Review* 113:265–296
- Massey DS (1987) Understanding Mexican migration to the United States. *American Journal of Sociology* 92(6):1372–1403
- Massey DS, Espinosa KE (1997) What's driving Mexico-US migration? a theoretical, empirical, and policy analysis. *American Journal of Sociology* 102(4):939–999
- Massey DS, Arango J, Hugo G, Kouaouci A, Pellegrino A, Taylor JE (1993) Theories of international migration: A review and appraisal. *Population and Development Review* 19(3):431–466
- Perugini M, Gallucci M, Presaghi F, Ercolani AP (2003) The personal norm of reciprocity. *European Journal of Personality* 17(4):251–283
- Phillimore J, Humphris R, Khan K (2018) Reciprocity for new migrant integration: resource conservation, investment and exchange. *Journal of Ethnic and Migration Studies* 44(2):215–232
- Piore MJ (1979) *Birds of passage: migrant labor and industrial societies*. Cambridge University Press, Cambridge
- Rooth D-O, Saarela J (2007) Selection in migration and return migration: Evidence from micro data. *Economics Letters* 94(1):90–95
- Sjaastad LA (1962) The costs and returns of human migration. *Journal of political Economy* 70(5, Part 2):80–93
- Staiger D, Stock JH (1997) Instrumental variables regression with weak instruments. *Econometrica* 65(3):557–586
- Stark O (1991) *The migration of labor*. Blackwell, Oxford

- Tomlinson F, Egan S (2002) From marginalization to (dis) empowerment: organizing training and employment services for refugees. *Human Relations* 55(8):1019–1043
- Van Houte M, Davids T (2008) Development and return migration: from policy panacea to migrant perspective sustainability. *Third World Quarterly* 29(7):1411–1429
- Waldorf B (1995) Determinants of international return migration intentions. *The Professional Geographer* 47(2):125–136
- Wilde J (2000) Identification of multiple equation probit models with endogenous dummy regressors. *Economics Letters* 69(3):309–312
- Woolcock M (1998) Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society* 27(2):151–208
- Amemiya T (1973) Regression analysis when the dependent variable is truncated normal. *Econometrica: J Econom Soc*, 997–1016
- BAMF (2021) The stages of the german asylum procedure: An overview of the individual procedural steps and the legal basis
- Bevelander P, Lundh C (2007) Employment integration of refugees: The influence of local factors on refugee job opportunities in sweden. IZA Discussion Papers 2551, Institute of Labor Economics (IZA)
- Hahn E, Richter D, Schupp J, Back MD, Donnellan B, Visser B (2019) Predictors of refugee adjustment: The importance of cognitive skills and personality. *Collabra: Psychol* 5(1)
- Heckman JJ (1976) Simultaneous equation models with both continuous and discrete endogenous variables with and without structural shift in the equations. *Studies in Nonlinear Estimation*, Ballinger
- Helbling M, Schoen A, Zindler A, Kossatz D, Frieß H-J, Stavenhagen L, Kiefer KK, Negrea N, Gray E, Grimm R, et al (2017) Attitudes towards national identity, immigration, and refugees in germany. *More in Common*
- Kuschminder K (2017) Reintegration strategies. In: *Reintegration strategies*. Springer, New York, pp 29–56
- Mosel I, Smart C, Foresti M, Hennessy G, Leach A (2019) Public narratives and attitudes towards refugees and other migrants: Germany country profile. ODI. Diakses dari <https://www.odi.org/sites/odi.org.uk/files/resource-documents/12970.pdf>
- NdM (2021a) Residence permits for refugees. <https://handbookgermany.de/en/rights-laws/asylum/right-of-residence.html>. Accessed 10 Dec 2021
- NdM (2021b) Work permit for refugees. <https://handbookgermany.de/en/work/work-permit.html>. Accessed 10 Dec 2021
- Putnam R (1993) The prosperous community: Social capital and public life. *The American prospect*, 13 (Spring), vol. 4. Available online: <http://www.prospect.org/print/vol/13>. Accessed 7 Apr 2003
- Ramos F (1992) Out-migration and return migration of Puerto Ricans. In: *Immigration and the workforce: Economic consequences for the United States and source areas*. University of Chicago Press, pp 49–66
- Schmidt P (1978) Estimation of a simultaneous equations model with jointly dependent continuous and qualitative variables: The union-earnings question revisited. *Int Econ Rev*, 453–465
- Stöhr T, Wichardt PC (2019) Conflicting identities: Cosmopolitan or anxious? appreciating concerns of host country population improves attitudes towards immigrants. IZA Discussion Papers 12630, Institute of Labor Economics (IZA)
- Todaro MP (1976) Internal migration in developing countries. International Labour Office
- Zimmerman KF (2016) Refugee and migrant labor market integration: Europe in need of a new policy agenda. princeton university and unu-merit draft. In: *EUI conference on the integration of migrants and refugees*, september, pp 29–30
- Zorlu A, Hartog J (2018) The impact of language on socioeconomic integration of immigrants. IZA Discussion Papers 11485, Institute of Labor Economics (IZA)