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Overcoming barriers to service access: Refugees' professional support service utilization and the impact of human and social capital

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SOEP papers
on Multidisciplinary Panel Data Research

**Overcoming barriers to service access:
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of human and social capital**

Ellen Heidinger

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**Overcoming barriers to service access:
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the impact of human and social capital**

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Abstract

After arriving in a new country, refugees are most often dependent on professional support to reestablish their livelihood. It is however well documented that refugees face barriers when seeking access to services aimed at facilitating their settlement and integration. This study examines refugees' support service needs and their actual utilization and investigates the impact of social and human capital on support service utilization. Employing data from the IAB-BAMF-SOEP Survey of Refugees, this paper highlights the diversity of refugees' support service needs as well as large differences in utilization in eight different domains. It furthermore provides evidence for an overall positive association between predictors of human and social capital and service utilization in general and additionally reveals differences in service domains. While language proficiency is positively associated with service utilization across all service domains in the sample, previous work experience in the country of origin especially increased utilization of services related to employment and the labor market. The analyses additionally find a positive association of inter-ethnic networks, whereas intra-ethnic connections are negatively associated with service utilization across a variety of domains. These findings are especially relevant since they support the hypothesis of exclusive host community knowledge, which benefits those refugees engaging with individuals outside their own ethnic network in their efforts regarding integrational outcomes. The findings of this study accentuate the need to acknowledge the diversity in refugees' service needs as well as the barriers to service utilization that only well-equipped refugees seem to be able to overcome.

Keywords refugees | service utilization | professional support services | human capital | social capital

1 Introduction

Refugees constitute the most vulnerable of all groups of migrants. This does not only hold for challenges experienced before and during the flight but also upon arrival in the host country. Research suggests that post-migration stressors might be just as powerful as events before or during the flight when it comes to predisposing factors for psychological health problems and integration difficulties (Gorst-Unsworth and Goldenberg, 1998; Pernice and Brook, 1996). Undergone trauma, family loss or separation, deprived living conditions, cultural and language barriers, isolation, and uncertainty about the future are just some of the factors refugees have to deal with upon arrival in a new country (Ghahari et al., 2020; Steel et al., 2009). To deal with these issues and to re-establish their livelihood, refugees are oftentimes highly dependent on support and assistance, as they can only draw from a severely limited pool of formerly accumulated resources in their country of origin (Makwarimba et al., 2013; Saunders et al., 2015).

When faced with legal, financial, personal, housing, employment, health or parenting needs as an outcome from both post- as well as pre-migration stressors, professional services become important and valuable by providing support and assistance. At the same time, it is well established that refugees face barriers when seeking access to services aimed at facilitating their settlement and integration (Bajwa et al., 2017; Francis and Yan, 2016; Streitwieser et al., 2018). The sole existence of assistance does not guarantee utilization and is thereby oftentimes not sufficient to cater to refugees' needs. Examples of factors acting as barriers include missing knowledge of services available and helpful, lack of language skills, missing cultural trust or means of transportation (Gilmartin and Dagg, 2021). These barriers can hinder or even prohibit service utilization and thereby create a mismatch between service needs and service utilization. This means that not all needs can be met through the utilization of suitable services.¹

¹ This study makes use of concept definitions from the public health literature: If a certain service is *available*, then the opportunity to *access* exists. The extent to which this access is gained is dependent on the ability to *overcome barriers*, which limit the *utilization* of these services. Thus, access is measured in terms of utilization (Gulliford et al., 2002).

Prior research has explored which groups of refugees are most prone to this mismatch. Refugees with limited resources in the domains of social networks or informal support, education, labor-market experience as well as socio-economic status are more likely to be disadvantaged in the access to services compared to individuals with higher levels of these resources, which can be condensed as social and human capital (Brücker and Kosyakova, 2020; Choi et al., 2015; Nakhaie, 2018). This has been shown for resources both accumulated before (Lamba, 2003) and after arrival (Nakhaie, 2018) in a new country. The current literature has used mostly qualitative methods and focused on specific domains of needs such as medical care (Morris et al., 2009; Stephan et al., 2018), educational attainment (Bajwa et al., 2017; Streitwieser et al., 2018) or labor market participation (Lamba, 2003). We therefore still lack a comprehensive analysis of the diversity of service needs, service utilization as well as a comparison across different sociodemographic groups among the heterogeneous population of refugees.

This study addresses these issues by not only investigating refugees' service needs and actual utilization but also focusing on social and human capital as potential predictors of service utilization in a wide range of articulated needs. Employing data from the IAB-BAMF-SOEP Survey of Refugees (Brücker et al., 2016), a representative survey of the population of refugees who arrived in Germany between 2013 and 2016, provides the unique opportunity to identify the diversity in refugees service needs and differences in service utilization. This research will investigate the central hypotheses that the sole existence of support services does not guarantee utilization and that characteristics of human and social capital affect the degree of service utilization. I furthermore assume those characteristics have different effects depending on the service domain in question.

2 Support needs of refugees and the landscape of professional services in Germany

Even though it is often argued that immigrants and refugees are selected upon in the migration process (Bevelander, 2011; Guichard, 2020; Kolb et al., 2019), they make up an extremely diverse group of individuals that have different needs and requirements after arriving in a new context (Choi et al., 2015; Darawsheh et al., 2021; Pumariega et al., 2005). Therefore, previous research has often focused on specific subgroups of refugees when investigating service and support needs where it is

assumed that requirements are more similar. Choi et al. (2015), focusing on older Kurdish refugees in the United States, found needs for recreating and acculturation services such as game nights, picnics, dinner or social gatherings. Findings of a recent qualitative study on the educational experiences of refugees in tertiary education in Canada and report a need for improvement in the areas of recognition of previously acquired qualifications, professional career support and study advice (Bajwa et al., 2017). Another example stems from the Francis and Yan (2016) project on young African immigrants and refugees finding articulated needs for trustworthy and ethno-specific organizations to facilitate their integration.

Even though these findings show that specific groups identify services related to their specific situation as predominantly important, the aforementioned studies furthermore report concordant needs that are unanimous across all ages, ethnicities or SES groups. Refugees overall indicate to need services related to their legal status such as assessment and referral, support regarding their language skills and educational training or labor-market participation, guidance in negotiating the social and service and health insurance bureaucracy, assistance in finding suitable housing, transportation and child care, as well as services related to community connection and societal integration (Bajwa et al., 2017; Choi et al., 2015; Francis and Yan, 2016; Nakhaie, 2018).

2.1 Support services in Germany and their benefits

A question unaddressed is what kind of services refugees implicitly refer to when being asked about support and assistance? A widely used simplification of various types of support differentiates between formal and informal support (Cohen et al., 2000; Lipman and Longino, Jr, 1982). While the latter one entails support provided by the family and social network, this paper focuses on support services pertaining to the category of formal support. Formal, also often labelled as professional, support entails help from a person, an organization, institution or network that is trained in or dedicated to providing a specialized type of support or assistance regardless of a prior social connection. Refugee related professional support can thereby be any public or privately organized body that is dedicated to assisting with issues specifically refugees are dealing with. Examples are governmental institutions, general immigration or asylum advice services, non-profit organizations, religious or organized civil

society actors (Gluns, 2018; Lyons and Zarit, 1999). In Germany, the level and type of public assistance, which is postulated in the ‘Asylum Seekers Benefits Act’ (*Asylbewerberleistungsgesetz, AsylbLG*), is thereby dependent on the legal status as well as the location in Germany². Even though this act is issued on the federal level, the implementation is delegated to the states and further down to the municipalities. Providing accommodation, financial benefits, means of basic education and health care are the so-called mandatory and obligatory self-administrative tasks of the municipalities, while areas such as language training, supporting societal integration or further qualifications belong to the voluntary tasks, which municipalities can decide to engage in (Gluns, 2018; Schamann and Kühn, 2016). These tasks however only comprise the public contributions to support services. The second-biggest share of professional assistance in Germany stems from privately organized civil society actors such as voluntary initiatives or religious institutions (Hamann et al., 2016; Gluns, 2018). Those initiatives provide assistance and help across all domains and are, unlike public support, theoretically accessible by all refugees, regardless of their legal status. This division of resources for potential support as well as different regulations depict a complex and oftentimes confusing situation for those seeking help. Refugees might not be informed about the services legally available and who their provider is.

Utilizing the aforementioned services and opportunities for support is positively associated with refugees’ well-being and long-term integration. Maximova and Krahn (2010), investigating the health status of refugees in Alberta, Canada found that a higher number of settlement services received during the first year after arrival was associated with improvements in both mental as well as physical health status. Reviewing 64 studies on the participation in advisory and help programs as a key role in refugees’ integration and mental health, Niemi et al. (2019) supports the previous finding as participation in different dimensions such as integration courses or seeking general and legal advice at governmentally organized agencies was associated with psychosocial well-being and decreased psychological distress. Using in-depth interviews, Simich et al. (2005) corroborate this by finding

² Mainly three types of status can be differentiated: Asylum seekers, individuals who were granted an exceptional leave to remain (*Duldung*) as well as recognized refugees.

increased levels of empowerment, community and social integration, reduced acculturation stress and overall better well-being among those refugees who had access to support institutions.

2.2 Barriers to support

The existence of several *gaps and barriers* hinders or even prohibits the utilization of the aforementioned services. Similar to knowledge about refugees' service needs, research on barriers and the mismatch between needs and utilization has mostly been qualitative and focused on specific groups and services. Nevertheless, these findings can well portray the gap between current services and refugees' support needs. Regardless of the topic of interest, certain barriers are worked out unanimously across all studies. These barriers can be distinguished into three broad categories: *Cultural, structural and individual* barriers. Cultural barriers to support include a lack of trust towards the person in charge of administering assistance, which is an especially prominent finding among those refugees seeking help from a doctor or a government official (Essex et al, 2021; Kohlenberger et al., 2019). Perceived inequalities, discrimination or general cultural insensitivity are other cultural barriers that hinder the utilization of support services as pointed out by Wang and Freeland (2004). Perceiving and treating refugees as a homogenous mass and applying a "one-size-fits-all delivery model" (Francis and Yan, 2016: 82) disregards diversity in refugees' needs stemming from cultural differences and hinders respectful and trustful communication, which is especially essential in the domains of health care or the subpopulation of young refugees (Bajwa, et al., 2017; Graham et al., 2009; Kohlenberger et al., 2019; May, 2021). Structural barriers mean the uneven distribution of services and institutions across space. Being located far outside of the refugees' accommodations or communities and being inaccessible by public transportation constitutes a structural barrier towards service utilization (Graham et al., 2009; Francis and Yan, 2016; Minichiello, 2001). Additionally, services oriented to help refugees are oftentimes not well-advertised and information is not placed accessibly (Makwarimba et al., 2013). The aforementioned jungle of options and providers produces confusion and disorientation, which in return diminishes the likelihood that those in need find and utilize the services available to them (Choi et al., 2015). Obstacles on the personal level can act as barriers to support services as well. The most

prominent example constitutes the language barrier³, which often rises when refugees, shortly after their arrival in a new country, seek help for multiple needs but do not yet speak nor understand the official language of the host country (Bajwa et al., 2017; Choi et al., 2015; Makrawimba et al., 2013; Watkins et al., 2012). Language being the most prominent barrier can also be traced back to the fact that language is the single most essential factor to communicate any issues or needs one might have. Stewart et al. (2008) showed that language difficulties were the predominant factor explaining refugees support needs in the domains of job search, settlement aids and medical services. Lack of language literacy, therefore, produces needs in nearly all domains but at the same time acts as a barrier to utilize services that could assist with said needs. Lastly, cultural stigma and shame associated with seeking help can prevent doing so. Abe-Kim et al. (2007) found that stigma or fear-of-loss-of-face act as constraints to service use among Asian immigrants in the United States. Some cultural groups attribute illnesses to internal flaws and are less likely to seek health services due to associated shame (van der Velde et al., 2009).

3 The Role of Human Capital

The mismatch between service needs and utilization is largely dependent on factors facilitating or preventing utilization. Many of these facilitators can be assigned to the concepts of human and social capital. The existing literature on neighboring topics, such as the identification of service needs in general (Nakhaie, 2018), the outcome of procedures related to the legal status (Kosyakova and Brücker, 2020) or the employment experiences of the newly arrived (Gericke et al., 2018; Lamba, 2003) suggests that human and social capital are powerful predictors involving outcomes centered around the integration process of refugees. While human capital, due to a change in culture, language and the economic system, generally transfers abroad imperfectly (Soontiens and Tonder, 2014), social capital is thought to be mostly non-transferrable. In this paper, human capital is therefore assumed to be a pre-

³ Missing language proficiency on the side of the service provider is also argued to be a reversed language barrier, if the provider is neither speaking the mother tongue of the refugee nor English or any other common language (e.g., Francis and Yan, 2016).

migration resource, while social capital is made up of resources acquired after arriving in Germany (post-migration).

Human capital entails skills and knowledge that an individual acquires and uses for future returns. According to previous findings, former work experience, education, socio-economic status as well as language proficiency have shown to be suitable proxies for predicting events (Kosyakova and Brücker, 2020; Lamba, 2003).

3.1 Educational attainment and socio-economic status

Education and SES are invariably positively correlated with desirable outcomes in the aforementioned studies (Kosyakova and Brücker, 2020; Graham et al, 2009; Lamba, 2003; Nakhaie, 2018). Being highly educated is furthermore associated with a better understanding of the bureaucratic system in general (Mood, 2006) and better knowledge of existing rights and what rights and services refugees are entitled to (Abrego, 2011). SES and education positively correlate with non-cognitive skills, such as communication skills, self-efficacy, motivation or effort, as well as cognitive abilities like problem-solving, intelligence, verbal abilities and memorizing (Heckman et al., 2006). All these abilities increase the likelihood of overcoming various barriers to service utilization. Therefore, higher educational attainment and SES are positively and significantly associated with service utilization, regardless of the service domain (H1).

3.2 Language proficiency

Literacy of the host country's language is not only essential for utilizing support services but for the entire integration process. Overcoming the obstacle *language barrier*, language proficiency is positively associated with a match of service needs and utilization. Alegria et al. (2007) found increased rates of service utilization among refugees with high language proficiency. Comprehension of the administrative language, articulating needs and understanding service providers are key features of successful service utilization and therefore I propose that higher language proficiency is positively and significantly associated with service utilization, regardless of the service domain (H2).

3.3 Prior Work experience in the country of origin

Previous work experience before arriving in a new country can be a favorable asset overcoming barriers and facilitating the utilization of support services located in the area of job search. Research has shown that previous work experience is positively associated with job search success (Russell and O'Connell, 2001) and it can therefore be expected, that having worked before arriving in Germany also has a positive effect on the utilization of service related to finding employment. Furthermore, institutions assisting with finding jobs, most prominently the federal employment agency (*Jobcenter der Bundesagentur für Arbeit*), might be more tempted to help somebody with enhanced employability re-entering the labour market since previous experiences and qualifications make mediation simpler. Therefore, previous work experience in the country of origin is positively and significantly associated with service utilization in the domain of job search (H3).

4 Social capital and networks

Next to human capital, social capital is the second facilitator known to be enhancing access to support services. Following social network theory, social capital is mostly described as being mobilized through the social network and related resources. The network describes a social structure composed of the individual's ties, such as family, friends, neighbors, and acquaintances, whereas the resources portray what the person perceives to be available in terms of social support (Granovetter, 1973; Lin, 2017; Putnam, 2000). These skills, resources and knowledge can activate awareness and facilitate access to services.

Research on social capital embedded in Granovetter's weak tie theory (1973) often distinguishes between two kinds of social capital: bridging and bonding capital (Putnam, 2000). Social ties are connections among individuals used for sharing information, knowledge, feelings, and experiences. Classically, those can be weak or strong, depending on the extent and kind of exchanges and interaction between two nodes (mostly individuals). Strong ties are often established with people that share similar norms and values, such as the partner, nuclear family or closest friends, and are

characterized by high mutual trust (bonding social capital). Bridging social capital occurs within weak ties, which are connections of weak trust and reciprocal behavior as they are ties between individuals that have less in common and come from different social groups. Bridging social capital has the advantages of providing bridges to information and resources outside of the individuals' own group, which, in the case of refugees, often composes of exclusive host community knowledge. It has therefore been positively associated with resource needs in the domain of employment or housing (Gericke et al., 2018; Granovetter, 1973). Relating this to the population of newly arrived refugees, multiple studies utilize this distinction to investigate different kinds of resources of social capital in host countries (Drever and Hoffmeister, 2008; Laurence, 2011; Lewis, 2021; Li, 2004). Within these studies, bonding social capital is associated with co-ethnic contacts, such as the family and people from the same country of origin, whereas bridging social capital relates to those with a different ethnic background, such as friends or acquaintances from the host societies or any other ethnicity.

4.1 Intra-ethnic networks

Contradictory findings exist regarding the effect of family and friends from the same ethnic background on topics related to successful integration. Having a network of family and close friends was found to have a positive effect on the labor market participation of refugees (Aguilera and Massey, 2003; Drever and Hoffmeister, 2008; Gericke et al., 2018; Li, 2004). Moreover, literature on the utilization of medical services and health care has revealed the importance of the social network as a facilitator of access (Morris et al., 2009; Stephan et al., 2018). Ethnic networks are even associated with slightly reduced service needs in a sample of refugees in Canada (Nakhaie, 2018). Therefore, it can be assumed that the intra-ethnic network is also valuable when it comes to knowledge and information sharing regarding all available providers of support. Having a close network of people being in the same position, collective problem-solving of integration-related issues minimizes barriers between service needs and providers and thereby increases utilization (Ager and Strang, 2008; Choi et al., 2015; Nakhaie, 2018). Summarizing, having an intra-ethnic network is positively and significantly associated with service utilization, regardless of the service domain (H4a).

However, amongst others, Nannestad et al. (2008) have shown that being closely bonded to the intra-ethnic network, migrants are severely limited in their pool of accessible resources and information. Due to surrounding themselves with people with identical knowledge and unsolved needs, refugees might miss out on important information communicated outside their intra-ethnic sphere. Additionally, they are unable to benefit from the cultural knowledge of the host society, which is most often brought to them through contact with the majority population. Nakhaie (2018) showed that family networks increase the need for community access and integration. This can result in negative long-term effects, such as negative economic outcomes, occupational downgrading, or isolation (Allen, 2009; Cederberg, 2015). The counter hypothesis therefore states that having an intra-ethnic network is negatively and significantly associated with service utilization, regardless of the service domain (H4b).

4.2 Inter-ethnic networks

Focusing on the social network outside of the own ethnic community, having a network native to the society that one wants to integrate into can provide valuable insider information and host community knowledge (Cederberg, 2015). Recent research has shown that mentoring programs with German natives improve refugee's language skills and increases their participation in the host society overall (Krieger et al., 2020). Profiting from cultural knowledge and being able to communicate topics with friends native to the language, culture, bureaucratic system and idiocrasies can increase utilization of services in all kinds of domains. Thus, having an inter-ethnic network is positively and significantly associated with service utilization, regardless of the service domain (H5).

Additionally, following the tradition of Granovetter (1973), weak social ties have the advantage of providing information from outside spheres, which makes bridging social capital especially valuable for providing career-related information. Gericke et al. (2018), Lancee (2016) and Hartmann and Steinmann (2020) recently confirmed that having friends in the majority population increases successful labor market integration. I can hypothesize that an interethnic network can be especially helpful regarding the utilization of employment-related services and therefore, having an inter-ethnic network is positively and significantly associated with service utilization in the domain of job search (H6).

5 Data and methods

The empirical analysis is based on the IAB-BAMF-SOEP Survey of Refugees in Germany, which monitors people seeking protection in Germany from political persecution and violent conflicts since 2016 (Brücker et al., 2016, Kroh et al., 2016).⁴ The survey is conducted by the Institute for Employment Research (IAB), the Socio-Economic Panel (SOEP) at the German Institute for Economic Research (DIW Berlin), and the Research Centre on Migration, Integration, and Asylum of the Federal Office for Migration and Refugees (BAMF-FZ). The sampling population consists of refugees who arrived in Germany between 2013 and 2016 and respondents are drawn from the Central Register of Foreign Nationals that includes all foreigners in Germany. Information on the dependent variables is only captured during the initial interview. The models are therefore built on a pooled cross-sectional sample. The sample utilizes all available waves (2016, 2017, 2018, 2019) and the initial sample contains N=8320 observations. A working sample excludes respondents that indicated to have arrived before 2013 or have an unknown arrival date (412 cases), have missing information regarding the legal status (145) and reported no service needs, met or unmet (83), at all (N=7680). Further deletion of entirely missing observations (18) in the dependent variables leads to a final sample size of N=7662.⁵ Partially missing observations in the dependent variable and all other variables of interest were imputed using multiple imputation.⁶

Additionally, eight separate subsamples per service domain are made up of respondents that indicated a need for a service in the given domain. To test the hypotheses proposed, binary logistic regressions were applied. The regression models are calculated separately per service domain.

As previously described, all proxies for human capital contain information before the arrival in Germany, whereas those variables predicting social capital are exclusive to the post-migration phase. To account for this causal hierarchy in the data, nested regression models are constructed. Predictors of

⁴ The IAB-BAMF-SOEP- Sample of Refugees in Germany is part of the German Socio-Economic Panel (SOEP) (Goebel et al., 2019). This paper uses version 36 of the SOEP. DOI: 10.5684/soep.v36eu.

⁵ For a detailed overview of sample reduction before analysis, see Appendix, [Table 4](#).

⁶ Multiple imputations were carried out using the *mice* package in R 3.5.0 (van Buuren and Groothuis-Oudshoorn, 2011). 50 alternative datasets were produced using 30 iterations. For a detailed overview of the imputed datasets per regression, see Appendix, [Table 5](#).

social capital (post-migration resources) are adjusted for predictors of human capital (post-migration resources), which themselves remain unadjusted.

5.1 Service needs and utilization

Multiple dependent variables containing information on service needs and service utilization were constructed. The basis of these are eight survey questions on the need for and utilization of professional services regarding legal advice (1), learning German (2), job search (3), education (4), recognition of qualifications (5), housing (6), medical care (7) and finances (8). Eight separate dummy variables contain information on the need for professional support in a given domain (no = 0, yes = 1) and additional eight dummy variables indicate whether or not a specific service was utilized (yes = 1, no = 0).^{7,8} For descriptive purposes, three discrete variables (min. 0, max. 8) count the number of overall service needs, the number of utilized services (met needs) and by subtracting those two calculates the number of unmet needs.

5.2 Human and social capital

Human capital is measured with four variables: Educational attainment, work experience in the country of origin, subjective socio-economic status in the country of origin and language proficiency. *Educational attainment* is a categorical measure of the highest obtained educational degree in the country of origin and differentiates between no education or less than primary education (1), primary (2), secondary (3) or tertiary education (4). *Previous work experience* is captured by a dummy variable indicating whether the respondent has ever officially worked before arriving in Germany (1 = yes, 0 = no). A categorical variable reports the *perceived socio-economic status in the country of origin* based on the subjective socio-economic status and financial situation relative to the population (1 = worse than average, 2 = average, 3 = better than average). Lastly, *language literacy* is a categorical variable

⁷ For additional details on the question phrasing and construction of the dependent and independent variables, see Appendix, [Table 9](#).

⁸ Dummy variables per service utilization are based on the corresponding subsample indicating a need for the support service. For further information, see [Table 1](#).

capturing the overall language proficiency consisting of self-reported writing, reading and reading skills on a scale from 1 = low and 2 = medium to 3 = high. Since reporting German language proficiency would causally intervene with the utilization of the support service ‘learning the German language’⁹, the variable language proficiency includes the aforementioned skills in the native language, the official language of the country and English (each, if different). According to the theory of destination-language acquisition, better literacy of the mother tongue and other languages largely contributes to easier understanding of new vocabulary, grammar and structure and an overall better acquisition of new languages (Chiswick and Miller, 2001). This approach was recently successfully employed in a study of the effect of human and social capital on asylum procedure outcomes in Germany (Kosyakova and Brücker, 2020). Assuming that the level of language proficiency has not changed since migration, all proxies for human capital exclusively contain information previous to the arrival in Germany.

Three variables proxy the respondents’ social capital. As mentioned before, capturing refugees’ social capital should distinguish between inter- and intra-ethnic networks, which provide bonding and bridging capital respectively. The number of family members in Germany and the size of the intra-ethnic network thereby cater to the first and the size of the inter-ethnic network refers to the second kind of social capital. Since the survey provides detailed information on the structural kinship network and the whereabouts of each member of the family, a variable on the *number of family members in Germany* report how many members of the nuclear family reside in Germany. The nuclear family thereby entails the partner or spouse as well as parents¹⁰. Each family member, if existent, is assigned 1 if he or she lives (i) together with the respondent in the same home, (ii) in the same city but different household, or (iii) elsewhere in Germany or 0 if he or she lives (iv) in the country of origin or (v) elsewhere abroad. The sum of family members is then divided into four categories (1 = no member of the nuclear family in Germany, 2 = one member, 3 = two members or 4 = three members). Secondly, the variables on *intra- and inter-ethnic network* size each provide four categories of network size (1 = no network, 2 = Small (1-3 persons), 3 = Medium (4-6), 4 = Large (7 or more)) constructed from a

⁹ This alternative is necessary as German proficiency is most likely an outcome of service utilization in the domain of ‘learning German’ and therefore not a suitable proxy in a cross-sectional sample.

¹⁰ Unfortunately, the question on the existence and whereabouts of siblings does not allow to differentiate the location of each individual siblings and is therefore unsuitable.

continuous measure of the number of new friends and acquaintances made since arriving in Germany. Summarizing, all proxies for social capital contain information dependent on the post-migration status.

5.3 Controls

Additional factors are likely to influence support service utilization. Legal status is a categorical variable indicating the respondent's *current legal status*¹¹ (1 = in process, 2 = recognized, 3 = tolerated, 4 = other). Since the legal right to federal services, such as support with job search or support with learning German, is dependent on the refugee's legal status¹², the access and utilization of services are not expected to be equal across all groups of legal status. Even though utilization of non-federal services is open to all refugees, these providers are often centered in bigger cities or do not have the capacities to cater for all needs and refugees. The time in Germany is measured with a categorical variable *time since arrival* (1 = less than a year, 2 = 1 – 1.5 years, 3 = 1.5 – 2 years, 4 = more than 2 years). This measure potentially affects service utilization, as it could either increase or decrease with additional years spent in Germany. The need for and utilization of support could be biggest in the beginning. On the other hand, being able to access and use services is more likely with time spent in Germany, as resources, both human and social capital, grow, which facilitate access. All models include the region of origin of the respondent (1 = Syria, 2 = Afghanistan, 3 = Iraq, 4 = African countries, 5 = Other) and age groups (1=17–25 years, 2=26–35 years, 3=36–45 years, 4 > 45 years). Lastly, gender is captured by a dummy variable (0 = male, 1 = female).

¹¹ In process = residence permission following § 55 German Asylum Act; Recognized = residence permit following § 25 Para. 1 / § 25 Para. 2 / § 26 Para. 3 / § 22 or § 23 Residence Act; Tolerated = following § 60a Residence Act; other = residence permit following § 23a or § 25 Para. 3, 4 or 5 Residence Act as well as other humanitarian reasons.

¹² Being tolerated results in either no or severely limited working permit and participation in language courses is only possible if free places are available (see paragraphs above).

6 Results

6.1 Descriptive statistics of independent variables

Results show that, on average, 27% of the respondents don't have any members of the nuclear family living in Germany and almost 57% have either the partner, mother or father living in the country ([Table 1](#)). 30% of refugees indicate to have a large network of inter- or intra-ethnic friends and more than half of the sample has either a primary, secondary or tertiary educational degree. 70% of the respondents in the sample report medium or high language proficiency and almost 65% have previous work experience. The self-reported measure of the socio-economic situation indicates that almost 75% experienced an average or better SES than the average population in the country of origin.

Table 1. Descriptive statistics of variables of interest. ^a

Variables	mean	sd	min	max
Number of nuclear family members in Germany				
None	0.276	0.447	0	1
1 member	0.566	0.496	0	1
2 members	0.114	0.318	0	1
3 members	0.044	0.206	0	1
Size of intra-ethnic network				
No network	0.220	0.414	0	1
Small	0.259	0.438	0	1
Medium	0.219	0.414	0	1
Large	0.302	0.459	0	1
Size of inter-ethnic network				
No network	0.237	0.425	0	1
Small	0.233	0.423	0	1
Medium	0.238	0.426	0	1
Large	0.293	0.455	0	1
Educational attainment				
No education	0.419	0.493	0	1
Primary education	0.231	0.422	0	1
Secondary education	0.176	0.381	0	1
Tertiary education	0.174	0.379	0	1
Language proficiency				
Low	0.303	0.460	0	1
Medium	0.412	0.492	0	1
High	0.285	0.452	0	1
Work experience in country of origin	0.649	0.477	0	1
SES in country of origin				
Worse than average	0.252	0.434	0	1
Average	0.474	0.499	0	1
Better than average	0.274	0.446	0	1

^a Further description of control variables are found in the Appendix, [Table 6](#).

6.2 The distribution of service needs and service utilization

Respondents reported an average need for 6 out of 8 services, with roughly 4 met and 2 unmet needs ([Table 2](#)). More than 90% of respondents indicated a need for support to learn the German

language. The share of those requiring help in the domains of financial support and medical care was equally high with 89% and 85% respectively. Approximately one-third of the sample has indicated to need support with the recognition of previously acquired degrees and qualifications. Investigating these needs further, I find that additional support does not only vary between service domains but also differs greatly between different levels of human and social capital predictors as well as socio-demographic characteristics.

Table 2. Descriptive statistics on service need domains and utilization.

	mean	sd	min	max
Total number of service needs	5.511	1.747	1	8
Total number of met service needs	3.556	1.671	0	8
Total number of unmet service needs	1.955	1.899	0	8

Domains of service needs	Indication of service need n^a (% of total sample^b)	Utilization of service n (% of subsample)
Medical care	6342 (84.55)	5830 (91.93)
Financial situation	6676 (88.92)	6131 (91.73)
Learning German	6835 (91.04)	4938 (72.18)
Search for housing	6304 (83.71)	4298 (68.24)
Legal advice	3984 (55.12)	2094 (52.61)
Education, vocational training	3515 (47.63)	1753 (49.91)
Job search	3710 (50.89)	1226 (29.95)
Recognition of qualifications	2528 (34.56)	811 (32.07)

^a Subsample size for each indication of a service need.
^b The total sample size for each service domain including only complete cases can be found in the Appendix, [Table 5](#).

Turning to the actual utilization of professional support services, services in the domains of medical care and finances rank highest, with .91 and .92 respectively. On average, less than 10% of refugees in the sample that indicated to need support in these domains did not utilize a corresponding service. The share of those having utilized support in the domains of job search and the recognition of previously acquired degrees and qualifications is very low with, on average, 3 out of 10 respondents. This shows that not only the needs for additional support are distributed unequally across domains, but actual utilization is also dependent on the domain of service. This becomes even more apparent when

investigating the characteristics of predicting variables.¹³ For example, disentangling the utilization of services in the domain of job search, with an overall utilization of 0.3, among different levels of language proficiency, it becomes apparent that those with high language proficiency report an overall higher utilization (0.39) than those with low language proficiency (0.19). Those having reported a perceived socio-economic status higher than the population in the country of origin, indicate successful service utilization in the domain of legal advice twice as often (0.41) as those reporting a worse SES relative to the population in the country of origin (0.22). Overall, those scoring lower on predictors of human and social capital as well as socio-demographic characteristics report actual service utilization less often than those with higher levels of the predicting variables.

6.3 Findings on service utilization by domain

[Table 3](#) shows the average marginal effects and standard errors of a binary logistic regression for each professional support service separately. The binary dependent variable *service utilization* depicts whether or not the service in a certain domain was utilized. Each model consists of a subsample including respondents that have reported the need for assistance in the respective category. The average marginal effect thereby depicts the average change in the probability to utilize a given support service by a given unit change in a predictor variable.

¹³ For a detailed overview of service needs and utilization by predicting and control variables (row percentages), see Appendix, [Table 7](#).

Table 3. Association between 8 domains of service utilization and predictors (Nested logistic regression with AME and S.E.).^a

DV: Utilization in the domain of	Model 1		Model 2		Model 3		Model 4	
	Legal advice		Learning German		Job search		Education	
	AME	(S.E)	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)
Educational attainment (ref. no education)								
Primary education	0.052**	(0.022)	0.045**	(0.015)	0.055**	(0.020)	0.031	(0.023)
Secondary education	0.030	(0.025)	0.049**	(0.017)	0.033	(0.024)	0.015	(0.026)
Tertiary education	-0.001	(0.027)	0.097***	(0.019)	0.035	(0.025)	-0.040	(0.028)
Language proficiency (ref. low)								
Medium	-0.014	(0.020)	0.036**	(0.013)	0.021	(0.020)	0.036	(0.023)
High	0.012	(0.025)	0.085***	(0.017)	0.071**	(0.024)	0.055*	(0.026)
Work experience in country of origin (ref. no)	0.027	(0.021)	0.032*	(0.014)	0.093***	(0.022)	-0.002	(0.021)
SES in country of origin (ref. below average)								
Average	0.031	(0.020)	0.012	(0.016)	0.030	(0.020)	0.017	(0.021)
Above average	0.031	(0.023)	0.017	(0.013)	0.056*	(0.022)	0.036	(0.025)
<i>Nagelkerke R²</i>		<i>0.032</i>		<i>0.099</i>		<i>0.110</i>		<i>0.0810</i>
<i>McFadden R² (adj.)</i>		<i>0.008</i>		<i>0.054</i>		<i>0.055</i>		<i>0.0343</i>

Number of family members in GER (ref. none)								
1 member	0.044*	(0.019)	-0.021	(0.013)	-0.017	(0.018)	-0.030	(0.021)
2 members	0.073*	(0.031)	0.033	(0.021)	-0.005	(0.027)	0.058*	(0.028)
3 members	0.063	(0.042)	-0.037	(0.028)	-0.012	(0.038)	0.000	(0.042)
Intra-ethnic network size (ref. no network)								
Small	-0.041	(0.024)	-0.026	(0.015)	-0.034	(0.023)	-0.046	(0.026)
Medium	-0.001	(0.025)	0.013	(0.016)	-0.051*	(0.024)	-0.061*	(0.027)
Large	0.040	(0.024)	-0.001	(0.016)	-0.064**	(0.022)	-0.023	(0.025)
Inter-ethnic network size (ref. no network)								
Small	0.041	(0.024)	0.094***	(0.015)	0.061*	(0.025)	0.047	(0.027)
Medium	0.035	(0.024)	0.140***	(0.015)	0.114***	(0.024)	0.120***	(0.026)
Large	0.141***	(0.023)	0.178***	(0.015)	0.198***	(0.023)	0.159***	(0.025)
<i>Nagelkerke R²</i>		<i>0.059</i>		<i>0.135</i>		<i>0.141</i>		<i>0.105</i>
<i>McFadden R² (adj.)</i>		<i>0.021</i>		<i>0.074</i>		<i>0.070</i>		<i>0.045</i>
<i>N</i>		<i>4418</i>		<i>6989</i>		<i>4082</i>		<i>3797</i>

Table 3. continued

DV: Utilization in the domain of	Model 5		Model 6		Model 7		Model 8	
	Recognition of qualifications		Search for housing		Medical care		Financial situation	
	AME	(S.E)	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)
Educational attainment (ref. no education)								
Primary education	0.029	(0.028)	0.057***	(0.017)	0.023*	(0.010)	0.006	(0.010)
Secondary education	0.081**	(0.028)	0.006	(0.019)	0.017	(0.012)	-0.011	(0.011)
Tertiary education	0.134***	(0.027)	-0.001	(0.020)	0.030*	(0.013)	0.027*	(0.013)
Language proficiency (ref. low)								
Medium	0.016	(0.029)	-0.037*	(0.015)	0.004	(0.009)	-0.005	(0.009)
High	0.123***	(0.030)	-0.024	(0.019)	-0.018	(0.011)	-0.022	(0.011)
Work experience in country of origin (ref. no)	-0.019	(0.023)	-0.012	(0.016)	-0.008	(0.010)	-0.006	(0.010)
SES in country of origin (ref. below average)								
Average	0.064*	(0.027)	0.005	(0.015)	0.005	(0.009)	0.011	(0.009)
Above average	0.030	(0.025)	-0.011	(0.017)	-0.003	(0.010)	-0.011	(0.010)
Nagelkerke R ²		0.171		0.048		0.051		0.031
McFadden R ² (adj.)		0.088		0.021		0.025		0.010

Number of family members in GER (ref. none)								
1 member	-0.049*	(0.022)	0.098***	(0.014)	0.016	(0.009)	0.023**	(0.009)
2 members	0.004	(0.031)	0.093***	(0.022)	0.027	(0.014)	0.013	(0.013)
3 members	-0.009	(0.043)	0.132***	(0.032)	0.032	(0.020)	0.042*	(0.021)
Intra-ethnic network size (ref. no network)								
Small	-0.096***	(0.028)	-0.012	(0.018)	-0.017	(0.010)	0.001	(0.010)
Medium	-0.043	(0.028)	0.004	(0.018)	-0.005	(0.011)	0.014	(0.011)
Large	-0.046	(0.026)	-0.005	(0.018)	0.004	(0.011)	0.009	(0.011)
Inter-ethnic network size (ref. no network)								
Small	0.052	(0.030)	0.041*	(0.017)	0.024*	(0.010)	-0.001	(0.011)
Medium	0.065*	(0.029)	0.084***	(0.017)	0.035***	(0.010)	0.003	(0.011)
Large	0.096***	(0.028)	0.117***	(0.017)	0.068***	(0.011)	0.015	(0.011)
Nagelkerke R ²		0.186		0.071		0.073		0.036
McFadden R ² (adj.)		0.092		0.033		0.036		0.009
N		2876		6435		6503		6830

Note: Average marginal effects; Standard errors are shown in parentheses; Results of control variables not shown; * p <.05, ** p <.01, *** p <.001.

^a Nested models: Social capital predictors are adjusted for human capital predictors (Indicated by dashed line; full models in the Appendix, [Table 8](#)).

I hypothesized that additional educational attainment and a higher SES are positively associated with service utilization, regardless of the service domain (H1). Seven out of eight models provide evidence for this hypothesis. All domains, except for services related to education, such as the search for schools, higher education institutions or further training courses, are positively and significantly associated with educational attainment. This effect could only partially be found for socio-economic status, namely in the domains of job search and the recognition of qualifications. While controlling for all other variables in the model, having had an SES above average in the country of origin is associated with increased probability of service utilization in the domain of job search and the recognition of qualifications (5.6%, 6.4%). These results are statistically significant. Therefore, H1 can only partially be supported by the findings.

H2 states that higher language proficiency is also positively associated with service utilization, regardless of the service domain. Four domains of professional support services support this hypothesis. Having high or medium language skills compared to low skills is significantly associated with an increased probability of service utilization in the domains of learning German (8.5%), job search (7.1%), education (5.5%) and the recognition of qualifications (12.3%). Surprisingly, having a medium compared to a low language literacy is negatively associated with utilizing housing-related support services by 3.7 percentage points. Therefore, H2 can also be partially supported.

The last hypothesis on the positive relationship between predictor of human capital and service utilization pertains to the positive association between previous work experience in the country of origin and service utilization in the domain of job search (H3). Compared to refugees with no work experience in their country of origin, those with experience have an increased probability of utilizing services in the area of search for work (9.3%). This finding is statistically significant and therefore supports H3.

Turning to the claims of a positive association between predictors of social capital and service utilization, I first proposed that the relationship between the intra-ethnic network and service utilization might be either positive (H4a) or negative (H4b). This network is proxied by two sets of variables, namely the number of close family members in Germany as well as the size of unrelated (non-related?) intra-ethnic friends. Results show that these two groups of networks are differently associated with service utilization. On the one hand, having additional members of the nuclear family residing in

Germany is positively and significantly associated with an increased probability of service utilization in the domains of legal advice, financial advice and search for housing. Having the partners as well as both parents living in the same country is associated with an increased probability of utilizing services related to housing by 13 percentage points. On the other side, however, the findings show that a larger intra-ethnic network is associated with a decrease in utilization in several domains. These results provide support for both competing hypotheses and calls for a detailed interpretation of differences in the mechanisms of intra-ethnic networks on different service domains.

Lastly, H5 and H6 propose a positive association between an increased inter-ethnic network and support service utilization regardless of the service domain as well as especially in the domain of job search. Model 3 provides support for H6, since having either a small, medium or large network of friends and acquaintances with a different ethnic background compared to none is positively and significantly associated with utilization of services in the domain of search for work. The effect size increases with increasing network size and is significant across all categories. Additionally, the fact that the association between a bigger inter-ethnic network and service utilization is positive and statistically significant supports H5 in all domains except for one. For example, compared to refugees with no friends or acquaintances from a different ethnic background, refugees with seven or more friends have an increased probability to utilize housing and accommodation-related services (12%), medical care services (7%) or services providing legal advice (14%).

7 Discussion

The aim of this paper was threefold – to examine refugees professional support service needs and actual utilization across eight different service domains and a broad range of socio-economic and -demographic characteristics (1), to investigate if predictors of social and human capital are associated with refugees' support service utilization (2) and whether this association differs concerning specific service domains (3). Using pooled data from all available waves of the IAB-BAMF-SOEP Survey of Refugees (2016-2019), it has become clear that the articulated support service needs of refugees do not only differ greatly between service domains but are also diverse with respect to different characteristics

describing resources acquired before and after migrating to Germany. Additionally, the same can be said for the reported actual utilization of said services. Utilization rates differ highly between domains and overall, those scoring lower on socio-economic and -demographic characteristics report successful utilization less often. Overall, this study supports previous findings on the multitude and diversity of identified needs (Choi et al., 2015; Pumariega et al., 2005). Refugees in the sample indicated to have, on average, service needs in 6 out of the 8 presented domains. Across the entire sample, 4 of these needs were met by utilizing a suitable support service, while on average 2 needs remain unmet. Differentiating these by domain, the lowest identified rate of utilization was 30% with needs related to job search and the recognition of degrees and qualifications. This is also in line with Choi et al. (2015) finding high rates of underutilization. This paper further provides evidence that human and social capital are in general beneficial for overcoming barriers to support services but highly differ when investigated separated by domain. Especially high language proficiency was associated with an increase in service utilization in nearly all domains. Assuming that the chosen proxy for better language skills, which was knowledge of the mother tongue as well as English, translates into the easier acquisition of the German language, this finding is in line with previous evidence on language literacy, depending on the level, can be either the biggest barrier as well as the strongest facilitator (Alegria et al., 2007; Makrawimba et al., 2013; Stewart, 2008; Watkins et al., 2012). While additional educational attainment was positively associated with service utilization across almost all domains, previous work experience was found to be especially helpful in overcoming barriers to support services in the domain of job search. This provides support for the aforementioned assumption that having already worked in the country of origin equips an individual with knowledge of where to find and access help to re-enter the labor market.

Access to services on job search was additionally facilitated by an inter-ethnic network. Having connections to those outside of the sphere of refugees such as Germans or migrants from other countries provides information and exclusive host community knowledge on services that assist with finding employment. This is in line with previous evidence on the matter (Gericke et al., 2018; Lancee, 2016). Overall, having friends from the own ethnic background was associated with hindering the utilization, while a network of inter-ethnic connections facilitates service utilization. This underlines the widely stated and supported assumption that stepping outside of the refugee-sphere is associated with an

accelerated and overall more successful social and economic integration (e.g. Cederberg, 2015). Bridging social capital thereby acts as a structural link transmitting exclusive cultural knowledge (Nakhaie, 2018).

Lastly, the family plays an important role not only in maximizing service utilization general but especially in facing specific service domains. Choi et al. (2015) found the family to be important for providing living accommodations as well as money. Transferring this direct help to indirect assistance with receiving external help, this study found identical evidence. Family is positively associated with service utilization especially in the domains of housing and finances. Bonding social capital, in line with the stress reduction model (Hirayama et al., 1993), strengthens the co-ethnic support network, increases coping skills, reduces the stress of migration and helps with finding necessary services (Nakhaie, 2018).

All in all, the findings of this study accentuate the need to acknowledge the diversity in refugees' service needs as well as the barriers to service utilization. The current system, as complex and multi-layered it might seem, provides access exclusively to the well-educated and well-connected. Providing results for Germany like these can assist in the program development and design of services concerned to cater for those in need. The results particularly highlight the need for the implementation of language-sensitive measures, such as additional translators. Drawing on the positive influence of inter-ethnic networks, the extension of culture-specific programmers, as suggested by Francis and Yan (2016) can maximize service utilization by increasing trust, eliminating the language barrier and providing community support.

Some limitations to the present study should be noted. A causal relationship between predictors of social capital and utilization of services cannot be established. While predictors of human capital are pre-migration resources, social capital is based upon the number of family members in Germany and the size of the intra-and inter-ethnic network. It might as well be the case that the access to legal services concerned with family reunion increases the likelihood of additional family members entering Germany. A similar mechanism could be an increased network of friends through utilizing German language courses or other organized support groups. Additionally, the measure of service needs does not provide information on the intensity and frequency of service needs nor does it give additional

information on the kind of service provider utilized. It is furthermore unknown, whether a service was not utilized due to the described and investigated lack of certain resources or due to the non-existence of services in the daily space of the respondent. Because of the described multi-layered structures of public and private service institutions across Germany, the study was not able to include this information.

Despite these limitations, this paper illustrates not only the broad differences in refugees' service needs and service utilization across domains but also the gap between them and sheds light on how different predictors of human and social capital facilitate service utilization in certain domains.

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Appendix

Table 4. Deletion of missing observations to retain working sample.

Deletion step	Retained N	% of initial sample
Initial refugee sample (restriction= 1 st observation)	8320	100
Date of arrival missing	8066	96.95
Arrival before 2013	7943	95.47
Date of interview before date of arrival	7908	95.05
Year of birth missing	7906	95.03
Legal status missing	7763	93.31
Information on all 8 service domains missing	7745	93.09
No indication of service need	7662	92.09

Table 5. Multiple imputation on the dependent variables. ^a

	Complete cases in each subsample (Employed in descriptive analysis)	Missing cases/ Cases imputed using multiple imputation	Imputed dataset ^b (Employed in inferential analysis)
Legal advice	3984	434	4418
Learning German	6835	154	6989
Job search	3710	372	4082
Education, vocational training	3515	282	3797
Recognition of qualifications	2528	348	2876
Search for housing	6304	131	6435
Medical care	6342	161	6503
Financial situation	6676	154	6830

^a Complete cases in each subsample are conditioned on the indication of a service need in the given domain.

^b All independent and control variables were included as predictors in the imputations.

Table 6. Descriptive statistics of control variables.

Variables	mean	sd	min	max
Age				
17 – 25	0.298	0.457	0	1
26 – 35	0.312	0.463	0	1
36 – 45	0.234	0.424	0	1
46 and older	0.156	0.363	0	1
Female	0.406	0.491		
Time since arrival				
Less than a year	0.143	0.350	0	1
1 – 1.5 years	0.286	0.452	0	1
1.5 – 2 years	0.248	0.432	0	1
2 years or longer	0.323	0.468	0	1
Legal status				
In process	0.272	0.445	0	1
Recognized	0.626	0.484	0	1
Tolerated	0.059	0.235	0	1
Other	0.044	0.205	0	1
Region of origin				
Syria	0.511	0.500	0	1
Afghanistan	0.131	0.337	0	1
Iraq	0.139	0.346	0	1
African countries	0.090	0.286	0	1
Other countries	0.130	0.336	0	1
Survey year				
2016	0.546	0.498	0	1
2017	0.369	0.482	0	1
2018	0.052	0.223	0	1
2019	0.033	0.180	0	1

Table 7. Row percentages of need for and utilization in 8 domains.

	Legal advice	Learning German	Job search	Education
Overall need for service:	3984/7662 = 0.52	6835/7662 = 0.89	3710/7662 = 0.48	3515/7662 = 0.46
Overall utilization of service:	2094/3984 = 0.53	4938/6835 = 0.72	1226/3710 = 0.33	1753/3515 = 0.50

Need (N) and utilization (U) by variables:

	N (of 3984)	U (of 2094)	N (of 6629)	U (of 4769)	N (of 3642)	U (of 1146)	N (of 3435)	U (of 1675)
Educational attainment								
No education	0.54	0.48	0.89	0.66	0.46	0.26	0.41	0.46
Primary education	0.57	0.55	0.93	0.73	0.53	0.35	0.51	0.53
Secondary education	0.53	0.52	0.90	0.75	0.52	0.34	0.51	0.51
Tertiary education	0.52	0.51	0.93	0.81	0.54	0.36	0.55	0.46
Language proficiency								
Low	0.53	0.49	0.88	0.65	0.46	0.26	0.38	0.45
Medium	0.55	0.50	0.92	0.71	0.50	0.30	0.45	0.49
High	0.54	0.53	0.93	0.79	0.55	0.38	0.60	0.51
Work exp. in country of origin								
No	0.51	0.50	0.88	0.68	0.33	0.24	0.47	0.53
Yes	0.56	0.51	0.93	0.74	0.59	0.34	0.47	0.47
SES in country of origin								
Below average	0.57	0.48	0.89	0.68	0.50	0.27	0.46	0.45
Average	0.54	0.52	0.92	0.72	0.49	0.31	0.48	0.49
Above average	0.53	0.52	0.92	0.75	0.51	0.36	0.47	0.52
Family members in GER								
None	0.61	0.47	0.94	0.74	0.58	0.31	0.54	0.47
1 member	0.53	0.52	0.90	0.70	0.47	0.30	0.41	0.45
2 members	0.45	0.56	0.91	0.79	0.46	0.36	0.63	0.62
3 members	0.50	0.56	0.89	0.70	0.47	0.35	0.49	0.52
Intra-ethnic network size								
No network	0.53	0.48	0.88	0.67	0.46	0.30	0.42	0.48
Small	0.54	0.46	0.91	0.69	0.50	0.30	0.46	0.46
Medium	0.54	0.51	0.92	0.75	0.47	0.31	0.46	0.47
Large	0.56	0.57	0.93	0.76	0.55	0.33	0.53	0.53
Inter-ethnic network size								
No network	0.51	0.44	0.87	0.58	0.44	0.20	0.37	0.40
Small	0.51	0.48	0.91	0.70	0.45	0.25	0.43	0.43
Medium	0.56	0.48	0.92	0.76	0.51	0.32	0.50	0.51
Large	0.59	0.60	0.94	0.80	0.58	0.42	0.56	0.55
Age								
17 – 25	0.54	0.50	0.92	0.76	0.49	0.35	0.62	0.57
26 – 35	0.57	0.52	0.92	0.70	0.53	0.30	0.46	0.42
36 – 45	0.54	0.51	0.91	0.71	0.50	0.32	0.41	0.47
>45	0.51	0.50	0.89	0.71	0.47	0.27	0.32	0.44
Gender								
Male	0.58	0.50	0.93	0.76	0.61	0.34	0.52	0.48
Female	0.49	0.52	0.88	0.66	0.34	0.25	0.40	0.50
Time since arrival								
Less than a year	0.54	0.40	0.90	0.60	0.49	0.14	0.47	0.36
1 – 1.5 years	0.53	0.50	0.91	0.71	0.49	0.27	0.47	0.49
1.5 – 2 years	0.54	0.50	0.92	0.77	0.49	0.33	0.46	0.48
2 years or longer	0.55	0.57	0.90	0.74	0.53	0.41	0.48	0.54

Table 7. continued

Legal status								
In process	0.69	0.46	0.93	0.66	0.56	0.28	0.51	0.38
Recognized	0.47	0.54	0.91	0.76	0.47	0.35	0.45	0.55
Tolerated	0.78	0.49	0.85	0.55	0.60	0.19	0.50	0.32
Other	0.49	0.46	0.89	0.65	0.48	0.29	0.51	0.47
Region of origin								
Syria	0.48	0.53	0.92	0.75	0.48	0.32	0.46	0.53
Afghanistan	0.62	0.45	0.92	0.67	0.51	0.32	0.49	0.45
Iraq	0.55	0.48	0.89	0.72	0.49	0.26	0.47	0.47
African countries	0.63	0.51	0.94	0.75	0.53	0.34	0.50	0.47
Other	0.69	0.52	0.88	0.64	0.57	0.32	0.47	0.40
Survey year								
2016	0.56	0.49	0.91	0.68	0.52	0.31	0.47	0.47
2017	0.52	0.53	0.91	0.77	0.47	0.29	0.47	0.50
2018	0.49	0.59	0.88	0.80	0.51	0.44	0.55	0.58
2019	0.57	0.47	0.89	0.68	0.57	0.39	0.46	0.46
<hr/>								
	Recognition of qualifications		Search for housing		Medical care		Financial situation	
Overall need for service:	2528/7662 = 0.33		6304/7662 = 0.82		6342/7662 = 0.83			
Overall utilization of service:	811/2528 = 0.32		4298/6304 = 0.68		5830/6342 = 0.92		6676/7662 = 0.87 6121/6676 = 0.92	
<hr/>								
Need (N) and utilization (U) by variables:								
	N (of	U (of	N (of	U (of	N (of	U (of	N (of	U (of
	2502	789)	6095	4122)	6134	5597)	6485	U (of 5896)
<hr/>								
Educational attainment								
No education	0.22	0.19	0.84	0.67	0.85	0.90	0.89	0.91
Primary education	0.33	0.26	0.83	0.72	0.87	0.92	0.90	0.91
Secondary education	0.43	0.35	0.83	0.67	0.82	0.92	0.87	0.89
Tertiary education	0.60	0.45	0.87	0.66	0.83	0.93	0.89	0.92
Language proficiency								
Low	0.21	0.19	0.83	0.69	0.86	0.91	0.90	0.92
Medium	0.32	0.25	0.84	0.67	0.84	0.92	0.89	0.91
High	0.53	0.43	0.83	0.67	0.81	0.91	0.89	0.90
Work experience in country of origin								
No	0.27	0.35	0.81	0.70	0.85	0.92	0.89	0.92
Yes	0.38	0.30	0.85	0.67	0.84	0.91	0.89	0.90
SES in country of origin								
Below average	0.31	0.22	0.83	0.67	0.85	0.91	0.91	0.90
Average	0.34	0.31	0.84	0.68	0.84	0.92	0.88	0.92
Above average	0.38	0.39	0.85	0.68	0.84	0.91	0.89	0.90
Family members in GER								
None	0.39	0.34	0.82	0.58	0.84	0.90	0.89	0.89
1 member	0.33	0.27	0.86	0.71	0.86	0.91	0.90	0.92
2 members	0.35	0.43	0.77	0.70	0.78	0.92	0.86	0.91
3 members	0.35	0.38	0.81	0.74	0.78	0.93	0.90	0.93
Intra-ethnic network size								
No network	0.30	0.33	0.84	0.67	0.84	0.91	0.88	0.90
Small	0.32	0.26	0.84	0.67	0.84	0.90	0.90	0.90
Medium	0.34	0.33	0.85	0.68	0.86	0.92	0.89	0.92
Large	0.39	0.34	0.83	0.67	0.84	0.93	0.89	0.91

Table 7. continued

Inter-ethnic network size									
No network	0.25	0.23	0.83	0.62	0.84	0.88	0.89	0.91	
Small	0.32	0.30	0.83	0.66	0.83	0.90	0.88	0.90	
Medium	0.36	0.33	0.84	0.69	0.84	0.92	0.89	0.91	
Large	0.42	0.35	0.85	0.72	0.86	0.94	0.90	0.91	
Age									
17 – 25	0.37	0.40	0.79	0.63	0.81	0.91	0.87	0.91	
26 – 35	0.38	0.30	0.86	0.66	0.84	0.92	0.91	0.91	
36 – 45	0.32	0.27	0.85	0.72	0.87	0.92	0.90	0.91	
>45	0.27	0.23	0.87	0.71	0.87	0.90	0.89	0.91	
Gender									
Male	0.39	0.32	0.84	0.65	0.83	0.91	0.89	0.90	
Female	0.28	0.30	0.84	0.72	0.86	0.92	0.89	0.92	
Time since arrival									
Less than a year	0.36	0.24	0.82	0.61	0.85	0.91	0.89	0.91	
1 – 1.5 years	0.36	0.31	0.85	0.67	0.86	0.92	0.90	0.91	
1.5 – 2 years	0.34	0.32	0.86	0.65	0.85	0.91	0.87	0.89	
2 years or longer	0.32	0.36	0.82	0.73	0.82	0.90	0.89	0.92	
Legal status									
In process	0.38	0.20	0.85	0.63	0.87	0.90	0.92	0.89	
Recognized	0.33	0.39	0.84	0.70	0.83	0.92	0.88	0.92	
Tolerated	0.36	0.12	0.86	0.64	0.88	0.87	0.92	0.91	
Other	0.30	0.24	0.76	0.66	0.87	0.91	0.89	0.89	
Region of origin									
Syria	0.36	0.37	0.84	0.69	0.82	0.92	0.88	0.92	
Afghanistan	0.33	0.25	0.81	0.61	0.91	0.89	0.92	0.89	
Iraq	0.30	0.24	0.84	0.67	0.84	0.91	0.89	0.91	
African countries	0.28	0.22	0.85	0.65	0.87	0.91	0.88	0.90	
Other	0.37	0.25	0.84	0.69	0.86	0.92	0.91	0.90	
Survey year									
2016	0.36	0.31	0.84	0.70	0.83	0.90	0.87	0.90	
2017	0.32	0.31	0.85	0.64	0.89	0.94	0.93	0.93	
2018	0.34	0.37	0.73	0.73	0.76	0.90	0.87	0.90	
2019	0.30	0.39	0.72	0.60	0.66	0.69	0.73	0.84	

Reading example: Pertaining to professional support services in the domain of legal advice, 3984 out of 7662 respondents, which equals 52%, indicated to need a service. Of those 2094 (53%) were able to utilize a service in said domain. Further differentiating this by variables, 54% of the respondents without any educational degree indicated to require a service in the domain of legal advice. 49% of those indicated to have utilized service in this domain.

Table 8. Association between 8 domains of service utilization and predictors (full models).

DV: Utilization in the domain of	Legal advice				Learning German			
	Model 1		Model 2		Model 3		Model 4	
	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)
Educational attainment (ref. no education)								
Primary education	0.052**	(0.022)	0.038	(0.021)	0.045**	(0.015)	0.035*	(0.015)
Secondary education	0.030	(0.025)	0.016	(0.025)	0.049**	(0.017)	0.035*	(0.017)
Tertiary education	-0.001	(0.027)	-0.007	(0.027)	0.097***	(0.019)	0.086***	(0.019)
Language proficiency (ref. low)								
Medium	-0.014	(0.020)	-0.015	(0.020)	0.036**	(0.013)	0.027*	(0.013)
High	0.012	(0.025)	-0.004	(0.025)	0.085***	(0.017)	0.060***	(0.017)
Work exp. in country of origin (ref. no)	0.027	(0.021)	0.025	(0.021)	0.032*	(0.014)	0.030*	(0.014)
SES in country of origin (ref. below average)								
Average	0.031	(0.020)	0.031	(0.020)	0.012	(0.016)	0.013	(0.013)
Above average	0.031	(0.023)	0.024	(0.023)	0.017	(0.013)	0.004	(0.015)
Family members in GER (ref. none)								
1 member			0.044*	(0.019)			-0.021	(0.013)
2 members			0.073*	(0.031)			0.033	(0.021)
3 members			0.063	(0.042)			-0.037	(0.028)
Intra-ethnic network size (ref. no network)								
Small			-0.041	(0.024)			-0.026	(0.015)
Medium			-0.001	(0.025)			0.013	(0.016)
Large			0.040	(0.024)			-0.001	(0.016)
Inter-ethnic network size (ref. no network)								
Small			0.041	(0.024)			0.094***	(0.015)
Medium			0.035	(0.024)			0.140***	(0.015)
Large			0.141***	(0.023)			0.178***	(0.015)
Age (ref. >45)								
17 – 25	0.011	(0.027)	-0.010	(0.027)	0.048**	(0.018)	0.018	(0.018)
26 – 35	0.036	(0.025)	0.025	(0.025)	-0.009	(0.016)	-0.020	(0.016)
36 – 45	0.014	(0.026)	0.002	(0.026)	0.015	(0.017)	0.004	(0.017)
Female (ref. male)	0.020	(0.020)	0.030	(0.020)	-0.074***	(0.013)	-0.057***	(0.013)
Time since arrival (ref. less than a year)								
1 – 1.5 years	0.085**	(0.026)	0.075**	(0.026)	0.088***	(0.016)	0.083***	(0.016)
1.5 – 2 years	0.070*	(0.028)	0.055*	(0.028)	0.113***	(0.018)	0.101***	(0.018)
2 years or longer	0.162***	(0.026)	0.140***	(0.026)	0.120***	(0.017)	0.107***	(0.017)
Legal status (ref. recognized)								
In process	-0.052	(0.020)	-0.058**	(0.020)	-0.062***	(0.014)	-0.074***	(0.014)
Tolerated	-0.044	(0.032)	-0.054	(0.032)	-0.146***	(0.024)	-0.151***	(0.023)
Other	-0.050	(0.041)	-0.044	(0.041)	-0.061*	(0.025)	-0.065**	(0.025)
Region of origin (ref. other)								
Syria	0.001	(0.026)	0.001	(0.026)	0.058**	(0.018)	0.062***	(0.018)
Afghanistan	-0.056	(0.030)	-0.066*	(0.030)	0.038	(0.021)	0.043*	(0.021)
Iraq	-0.012	(0.031)	-0.018	(0.030)	0.080***	(0.021)	0.080***	(0.021)
African countries	-0.011	(0.035)	0.005	(0.035)	0.095***	(0.025)	0.103***	(0.025)
Survey year (ref. 2016)								
2017	0.039*	(0.018)	0.047*	(0.018)	0.068***	(0.012)	0.074***	(0.012)
2018	0.029	(0.040)	0.019	(0.040)	0.091**	(0.028)	0.093***	(0.028)
2019	-0.090*	(0.045)	-0.090*	(0.045)	-0.023	(0.030)	-0.020	(0.030)
N	4418		4418		6989		6989	
Nagelkerke R ²	0.032		0.059		0.099		0.135	
McFadden R ² (adj.)	0.008		0.021		0.054		0.074	

Table 8. continued

DV: Utilization in the domain of	Job search				Education			
	Model 5		Model 6		Model 7		Model 8	
	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)
Educational attainment (ref. no education)								
Primary education	0.055**	(0.020)	0.046*	(0.020)	0.031	(0.023)	0.027	(0.023)
Secondary education	0.033	(0.024)	0.018	(0.024)	0.015	(0.026)	0.013	(0.026)
Tertiary education	0.035	(0.025)	0.025	(0.025)	-0.040	(0.028)	-0.038	(0.027)
Language proficiency (ref. low)								
Medium	0.021	(0.020)	0.013	(0.020)	0.036	(0.023)	0.027	(0.023)
High	0.071**	(0.024)	0.050*	(0.023)	0.055*	(0.026)	0.028	(0.026)
Work exp. in country of origin (ref. no)								
SES in country of origin (ref. below average)								
Average	0.030	(0.020)	0.029	(0.019)	0.017	(0.021)	0.013	(0.021)
Above average	0.056*	(0.022)	0.053*	(0.022)	0.036	(0.025)	0.031	(0.024)
Family members in GER (ref. none)								
1 member			-0.017	(0.018)			-0.030	(0.021)
2 members			-0.005	(0.027)			0.058*	(0.028)
3 members			-0.012	(0.038)			0.000	(0.042)
Intra-ethnic network size (ref. no network)								
Small			-0.034	(0.023)			-0.046	(0.026)
Medium			-0.051*	(0.024)			-0.061*	(0.027)
Large			-0.064**	(0.022)			-0.023	(0.025)
Inter-ethnic network size (ref. no network)								
Small			0.061*	(0.025)			0.047	(0.027)
Medium			0.114***	(0.024)			0.120***	(0.026)
Large			0.198***	(0.023)			0.159***	(0.025)
Age (ref. >45)								
17 – 25	0.122***	(0.025)	0.105***	(0.026)	0.119***	(0.030)	0.082**	(0.031)
26 – 35	0.058*	(0.024)	0.051*	(0.024)	-0.006	(0.030)	-0.015	(0.029)
36 – 45	0.066**	(0.025)	0.060*	(0.025)	0.034	(0.031)	0.027	(0.031)
Female (ref. male)								
	-0.042*	(0.020)	-0.030	(0.020)	0.024	(0.020)	0.035	(0.020)
Time since arrival (ref. less than a year)								
1 – 1.5 years	0.171***	(0.029)	0.164***	(0.029)	0.121***	(0.027)	0.116***	(0.027)
1.5 – 2 years	0.229***	(0.031)	0.211***	(0.030)	0.100***	(0.030)	0.089**	(0.030)
2 years or longer	0.296***	(0.029)	0.271***	(0.029)	0.174***	(0.029)	0.151***	(0.029)
Legal status (ref. recognized)								
In process	-0.043*	(0.020)	-0.054**	(0.019)	-0.135***	(0.021)	-0.143***	(0.021)
Tolerated	-0.174***	(0.037)	-0.183***	(0.037)	-0.199***	(0.040)	-0.202***	(0.040)
Other	-0.015	(0.039)	-0.013	(0.038)	-0.052	(0.040)	-0.049	(0.039)
Region of origin (ref. other)								
Syria	-0.025	(0.025)	-0.008	(0.025)	0.050	(0.030)	0.059*	(0.029)
Afghanistan	0.002	(0.030)	0.013	(0.029)	0.026	(0.034)	0.031	(0.034)
Iraq	-0.037	(0.030)	-0.034	(0.030)	0.049	(0.034)	0.047	(0.034)
African countries	-0.006	(0.034)	0.009	(0.034)	0.018	(0.039)	0.038	(0.039)
Survey year (ref. 2016)								
2017	-0.054**	(0.017)	-0.049**	(0.017)	-0.012	(0.019)	-0.012	(0.019)
2018	0.031	(0.034)	0.043	(0.033)	0.002	(0.038)	0.007	(0.038)
2019	0.010	(0.039)	0.022	(0.039)	-0.106*	(0.049)	-0.110	(0.049)
N	4082		4082		3797		3797	
Nagelkerke R ²	0.110		0.141		0.0810		0.105	
McFadden R ² (adj.)	0.055		0.070		0.0343		0.045	

Table 8. continued

DV: Utilization in the domain of	Recognition of qualifications				Search for housing			
	Model 9		Model 10		Model 11		Model 12	
	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)
Educational attainment (ref. no education)								
Primary education	0.029	(0.028)	0.025	(0.028)	0.057***	(0.017)	0.051**	(0.017)
Secondary education	0.081**	(0.028)	0.073**	(0.028)	0.006	(0.019)	0.001	(0.019)
Tertiary education	0.134***	(0.027)	0.129***	(0.027)	-0.001	(0.020)	-0.001	(0.020)
Language proficiency (ref. low)								
Medium	0.016	(0.029)	0.013	(0.029)	-0.037*	(0.015)	-0.039*	(0.015)
High	0.123***	(0.030)	0.112***	(0.030)	-0.024	(0.019)	-0.039*	(0.019)
Work exp. in country of origin (ref. no)	-0.019	(0.023)	-0.018	(0.023)	-0.012	(0.016)	-0.014	(0.016)
SES in country of origin (ref. below average)								
Average	0.064*	(0.027)	0.029	(0.024)	0.005	(0.015)	0.002	(0.015)
Above average	0.030	(0.025)	0.063*	(0.026)	-0.011	(0.017)	-0.018	(0.017)
Family members in GER (ref. none)								
1 member			-0.049*	(0.022)			0.098***	(0.014)
2 members			0.004	(0.031)			0.093***	(0.022)
3 members			-0.009	(0.043)			0.132***	(0.032)
Intra-ethnic network size (ref. no network)								
Small			-0.096***	(0.028)			-0.012	(0.018)
Medium			-0.043	(0.028)			0.004	(0.018)
Large			-0.046	(0.026)			-0.005	(0.018)
Inter-ethnic network size (ref. no network)								
Small			0.052	(0.030)			0.041*	(0.017)
Medium			0.065*	(0.029)			0.084***	(0.017)
Large			0.096***	(0.028)			0.117***	(0.017)
Age (ref. >45)								
17 – 25	0.179***	(0.032)	0.158***	(0.033)	-0.065***	(0.020)	-0.067***	(0.020)
26 – 35	0.088**	(0.031)	0.084**	(0.030)	-0.044*	(0.018)	-0.052**	(0.018)
36 – 45	0.054	(0.033)	0.056	(0.033)	0.007	(0.020)	-0.009	(0.019)
Female (ref. male)	-0.027	(0.020)	-0.014	(0.021)	0.064***	(0.015)	0.056***	(0.015)
Time since arrival (ref. less than a year)								
1 – 1.5 years	0.070*	(0.029)	0.071*	(0.029)	0.059**	(0.019)	0.051**	(0.019)
1.5 – 2 years	0.068*	(0.032)	0.065*	(0.032)	0.071***	(0.020)	0.058**	(0.020)
2 years or longer	0.117***	(0.031)	0.114***	(0.031)	0.138***	(0.020)	0.112***	(0.020)
Legal status (ref. recognized)								
In process	-0.130***	(0.024)	-0.138***	(0.023)	-0.065***	(0.015)	-0.068***	(0.015)
Tolerated	-0.219***	(0.052)	-0.211***	(0.052)	-0.084**	(0.027)	-0.094***	(0.027)
Other	-0.086	(0.048)	-0.079	(0.048)	-0.034	(0.030)	-0.044	(0.030)
Region of origin (ref. other)								
Syria	0.039	(0.030)	0.047	(0.030)	-0.010	(0.021)	-0.010	(0.021)
Afghanistan	0.026	(0.038)	0.031	(0.038)	-0.059*	(0.024)	-0.058*	(0.024)
Iraq	-0.019	(0.038)	-0.018	(0.038)	-0.009	(0.024)	-0.015	(0.024)
African countries	-0.041	(0.048)	-0.039	(0.048)	-0.031	(0.028)	0.001	(0.028)
Survey year (ref. 2016)								
2017	-0.020	(0.021)	-0.019	(0.020)	-0.078***	(0.014)	-0.077***	(0.014)
2018	0.009	(0.041)	0.013	(0.041)	-0.048	(0.032)	-0.054	(0.031)
2019	0.050	(0.052)	0.046	(0.052)	-0.186***	(0.035)	-0.200***	(0.035)
N	2876		2876		6435		6435	
Nagelkerke R ²	0.171		0.186		0.048		0.071	
McFadden R ² (adj.)	0.088		0.092		0.021		0.033	

Table 8. continued

DV: Utilization in the domain of	Medical care				Financial situation			
	Model 13		Model 14		Model 15		Model 16	
	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)	AME	(S.E.)
Educational attainment (ref. no education)								
Primary education	0.023*	(0.010)	0.019	(0.010)	0.006	(0.010)	0.005	(0.010)
Secondary education	0.017	(0.012)	0.013	(0.012)	-0.011	(0.011)	-0.013	(0.011)
Tertiary education	0.030*	(0.013)	0.028*	(0.013)	0.027*	(0.013)	0.027*	(0.013)
Language proficiency (ref. low)								
Medium	0.004	(0.009)	0.003	(0.009)	-0.005	(0.009)	-0.005	(0.009)
High	-0.018	(0.011)	-0.028*	(0.011)	-0.022	(0.011)	-0.023*	(0.011)
Work exp. in country of origin (ref. no)	-0.008	(0.010)	-0.009	(0.010)	-0.006	(0.010)	-0.006	(0.010)
SES in country of origin (ref. below average)								
Average	0.005	(0.009)	0.003	(0.009)	0.011	(0.009)	0.011	(0.009)
Above average	-0.003	(0.010)	-0.008	(0.010)	-0.011	(0.010)	-0.013	(0.010)
Family members in GER (ref. none)								
1 member			0.016	(0.009)			0.023**	(0.009)
2 members			0.027	(0.014)			0.013	(0.013)
3 members			0.032	(0.020)			0.042*	(0.021)
Intra-ethnic network size (ref. no network)								
Small			-0.017	(0.010)			0.001	(0.010)
Medium			-0.005	(0.011)			0.014	(0.011)
Large			0.004	(0.011)			0.009	(0.011)
Inter-ethnic network size (ref. no network)								
Small			0.024*	(0.010)			-0.001	(0.011)
Medium			0.035***	(0.010)			0.003	(0.011)
Large			0.068***	(0.011)			0.015	(0.011)
Age (ref. >45)								
17 – 25	0.004	(0.011)	-0.005	(0.012)	0.002	(0.012)	0.003	(0.012)
26 – 35	0.015	(0.011)	0.010	(0.011)	-0.003	(0.011)	-0.004	(0.011)
36 – 45	0.013	(0.011)	0.007	(0.011)	-0.003	(0.012)	-0.006	(0.012)
Female (ref. male)	0.011	(0.009)	0.013	(0.009)	0.015	(0.009)	0.013	(0.009)
Time since arrival (ref. less than a year)								
1 – 1.5 years	0.013	(0.012)	0.009	(0.012)	0.019	(0.011)	0.018	(0.011)
1.5 – 2 years	-0.015	(0.012)	-0.022	(0.012)	0.004	(0.012)	0.001	(0.012)
2 years or longer	0.006	(0.012)	-0.003	(0.012)	0.027*	(0.012)	0.021	(0.012)
Legal status (ref. recognized)								
In process	-0.014	(0.009)	-0.018	(0.009)	-0.023**	(0.009)	-0.024**	(0.009)
Tolerated	-0.049***	(0.015)	-0.052***	(0.015)	0.000	(0.017)	-0.001	(0.017)
Other	-0.019	(0.017)	-0.021	(0.017)	-0.030	(0.016)	-0.032	(0.016)
Region of origin (ref. other)								
Syria	-0.014	(0.013)	-0.013	(0.013)	0.012	(0.012)	0.010	(0.012)
Afghanistan	-0.032*	(0.014)	-0.032*	(0.014)	-0.008	(0.014)	-0.009	(0.014)
Iraq	-0.021	(0.015)	-0.021	(0.015)	0.008	(0.014)	0.007	(0.014)
African countries	-0.010	(0.017)	-0.002	(0.017)	0.002	(0.016)	0.006	(0.016)
Survey year (ref. 2016)								
2017	0.043***	(0.009)	0.046***	(0.009)	0.038***	(0.009)	0.039***	(0.009)
2018	-0.006	(0.017)	-0.008	(0.017)	-0.021	(0.016)	-0.023	(0.017)
2019	-0.119***	(0.015)	-0.124***	(0.015)	-0.062***	(0.018)	-0.065***	(0.018)
N	6503		6503		6830		6830	
Nagelkerke R ²	0.051		0.073		0.031		0.036	
McFadden R ² (adj.)	0.025		0.036		0.010		0.009	

Note: Average marginal effects; Standard errors are shown in parentheses. * p <.05, ** p <.01, *** p <.001.

Table 9. Construction and coding of dependent and independent variables.

Variable	Coding	Items in questionnaire (SOEP Group, 2020)
Dependent variables – Service needs and utilization		
Sum of all service needs	Scale from 1 to 8 summing up all indicated service needs (answering original item with 1 or 2)	<i>If you are new to a country, it is sometimes difficult to manage in different situations. The following questions are about whether, since your arrival in Germany, you have received help from authorities in various areas. Have you received help regarding:</i>
Sum of met service needs	Scale from 0 to 8 summing up all met service needs (answering item with 1)	
Sum of unmet service needs	Scale from 0 to 8 summing up all unmet service needs (answering item with 2)	
1. Utilized service on legal advice 2. Utilized service on learning German 3. Utilized service on job search 4. Utilized service on education 5. Utilized service on recognition of degrees 6. Utilized service on housing 7. Utilized service on medical care 8. Utilized service on financial situation	8 dummy variables indicating whether help in certain domain was received (Requirement: Indicated need, answering item with 1 or 2) 0 = No, 1 = Yes	<ol style="list-style-type: none"> 1. Legal advice 2. Learning German 3. Job search 4. Education 5. Recognition of degrees 6. Housing 7. Medical care 8. Financial situation <p><i>Responses:</i></p> <ol style="list-style-type: none"> 1: Yes, I received help 2: No, I needed help but did not receive any 3: No, I did not need any help
Independent variables – Proxies for human capital		
Educational attainment	Categorical variable constructed based on the CASMIN classification scheme 1 = Less than primary school 2 = Primary education 3 = Secondary education 4 = Tertiary education	<i>What is the highest school-leaving qualification that you have?</i>
Language proficiency	Sum-scale constructed and condensed into 3 categories based on 9 questions (1 “Not at all” to 5 “Very well”) 1 = Low 2 = Medium 3 = High	<i>How well can you speak/ read/ write in your native language/ official language/ English?</i>

Table 9. continued

Previous work experience in country of origin	Dummy variable 0 = No 1 = Yes	<i>What was the last job you had in your country of origin?</i> <i>Response= [open response] or never worked before</i>
SES in country of origin	Categorical variable constructed on self-reported information on economic or income situation relative to others before migration 1 = Below average 2 = Average 3 = Above average	<i>When you think about the time before the crisis or the conflict in your country of origin, how would you rate your economic (income) situation at that time compared to the situation of others in your country?</i> 1= Well above average 2= Above average 3= Average 4= Below average 5= Well below average
Independent variables – Proxies for human capital		
Members of nuclear family in Germany	Categorical variable constructed on summed-up number of family members residing in Germany 1 = None 2 = 1 members 3 = 2 members 4 = 3 members	<i>Questions on</i> 1. <i>Existence of partner</i> 1.1 <i>Residence of partner</i> 2. <i>Existence of mother</i> 2.1 <i>Residence of mother</i> 3. <i>Existence of father</i> 3.1 <i>Residence of father</i> <i>Residence responses:</i> 1. <i>Same accommodation</i> 2. <i>Diff. accommodation, same city</i> 3. <i>Elsewhere in Germany</i> 4. <i>In country of origin</i> 5. <i>Elsewhere abroad</i>
Size of inter-ethnic network	Categorical variable constructed on summed-up number of new friends and acquaintances 1 = No network 2 = Small (1-3 persons) 3 = Medium (4-6) 4 = Large (7 or more)	<i>How many people from your country of origin have you met since your arrival in Germany with whom you have regular contact?</i>
Size of intra-ethnic network	Categorical variable constructed on summed-up number of new friends and acquaintances 1 = No network 2 = Small (1-3 persons) 3 = Medium (4-6) 4 = Large (7 or more)	<i>How many German people/ people from other countries have you met since your arrival in Germany with whom you have regular contact?</i>