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Recent refugees' educational selectivity and its role for their children's education and language competencies in Germany

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Chapter 1 Educational selectivity and its consequences: An overview

1 Introduction

Selective migration describes the phenomenon "that migrants are not a random sample of the population at origin" (Lee, 1966: 56), which means that certain of their characteristics are systematically different from the characteristics of those who do not migrate. For instance, migrants may be selective in terms of age (e.g., Feliciano, 2008; van Dalen and Henkens, 2010; Kaestner and Malamud, 2014), health (e.g., Jasso et al., 2004; Akresh and Frank, 2008; Kennedy et al., 2015; Martinez, Aguayo-Tellez, and Rangel-Gonzalez, 2015; Ro, Fleischer, and Blebu, 2016), orientations and attitudes (e.g., Boneva and Frieze, 2001; Jaeger et al., 2010; Röder and Lubbers, 2015; Polavieja, Fernández-Reino, and Ramos, 2018; Docquier, Tansel, and Turati, 2020), or occupations (Melendez, 1994).

Maybe the most frequently studied characteristic in selective migration is education (Feliciano, 2020). Educational selectivity describes migrants' education relative[1] to the reference population in their place of origin. A common finding in many studies is that migrants are usually positively selected on education (Feliciano, 2020) – that is, they are on average better educated than the population in their place of origin. For instance, a migrant who acquired lower secondary education in their place of origin is positively selected if the majority of the origin population did not acquire educational degrees higher than lower secondary. Beyond being a phenomenon of migration, educational selectivity is also assumed to contribute to migrants' societal integration in their place of destination. Scholars assume that educational selectivity captures latent aspects such as motivation or skills. These should be beneficial for various dimensions of societal integration as positively selected migrants are expected to be more ambitious and possess greater skills (e.g., Ichou, 2014).

Around the year 2015, increased refugee migration established numerically large groups of new immigrants in the German society. This drew many researchers' attention as it promised applications of a wide range of research interests, including the desire to better understand the new migrants' educational backgrounds. Initially, it was frequently assumed that most of them possessed low educational levels (von Radetzky and Stoewe, 2016). Given the general lack of data on the new migrants' educational backgrounds, it was also unclear how their education compared to the education of those who did not migrate. Furthermore, the question of whether

[1] In this thesis, the term 'relative education' is used as a synonym for 'educational selectivity'. It takes into account the country-of-origin-specific value of education. In a narrower sense, the term 'relative education' also describes a specific measure of educational selectivity (see Ichou, 2014). In contrast, the term 'absolute education' refers to educational levels (e.g., ISCED) irrespective of the context in which they were acquired.

and to what extent educational selectivity might reflect on these migrants' societal integration in Germany was open to investigations.

This thesis aims to contribute to research on these issues. The first research question that it addresses concentrates on describing the new migrants' selectivity profiles: To what extent are refugees who recently came to Germany selected on education? The thesis' first part also addresses assumptions about the selective migration of refugees by comparing the educational selection profiles of recent refugees in Germany to those of other groups: Do refugees systematically differ from other migrants in terms of educational selection? Are refugees sorted on education, that is, do the educational selection profiles of recent refugees in Germany differ from those of recent refugees who migrated to other, less distant destinations? The second part focuses on analyzing consequences of educational selectivity. More specifically, it addresses intergenerational consequences of recent refugee parents' educational selectivity for their children in Germany. The consequences which are analyzed refer to, first, these children's educational outcomes and, second, their destination-language competencies. These outcomes are analyzed considering the peculiarity that the children of recently immigrated migrants are themselves first-generation migrants. Accordingly, the overarching research question that this thesis' second part aims to answer is whether parental educational selectivity is associated with first-generation migrant children's and adolescents' educational decisions and destination-language acquisition.

This thesis builds upon existing theoretical approaches on migration and integration. It understands refugees as a group of migrants whose migration decision and societal integration follows established mechanisms that apply to any migrant group (see Kogan and Kalter, 2020). While in the framework of this thesis it is assumed that no refugee-specific mechanisms of migration and integration exist, there are refugee-specific conditions for the mechanisms that generally explain migration and integration. Refugee migration may be modelled as a rational individual-level decision, but the often risky and uncertain conditions under which refugees migrate might have an impact on that decision and be reflected in the selectivity profiles of those who migrate. Refugees also have to deal with conditions such as an insecure legal status or the consequences of trauma experienced prior to their arrival in the place of destination, which may affect their societal integration. Such conditions might, for instance, hamper their destination-language acquisition or the educational integration of refugee children and adolescents. More importantly, recent refugees to Germany are a group of first-generation migrants. In this quality they differ from migrants with a higher generational status, especially second-generation or third-generation migrants, who did not migrate themselves but grew up in Germany, while it was their parents or grandparents who migrated, often decades ago. In contrast, the group of refugees that are this thesis' focus migrated only recently, which goes along with special conditions for their integration, such as learning the German language from

scratch or entering the German educational system laterally (Welker and Will, 2023). These are addressed more in-depth in the four studies that build the core of this thesis.

This chapter is structured in the following way: The next two sections are dedicated to the existing literature on migrants' educational selection (section 2) and on consequences of educational selectivity (section 3). Section 4 presents the contribution of the four studies that developed in the framework of this cumulative dissertation.

2 Migration and educational selectivity

2.1 Who migrates?

To assess potentially systematic differences between migrants and nonmigrants, much of the earlier research on selective migration consists in comparing their education. The theoretical perspective of these studies is frequently based on considerations which were initially made by Roy (1951) and subsequently applied to the context of migration by Borjas (1987, 1991). Following these considerations, selective migration may be explained by expected returns to education, that is, earnings. The Borjas model postulates that migrant streams are positively selected (i.e., better educated than the majority of the origin population) if the income inequality in the receiving country is greater than in the origin country as this would enable skilled individuals to realize greater returns to their education there. Vice versa, migrant streams are assumed to be negatively selected if the income distribution in the receiving country is more equal than in the origin country (Borjas, 1987). While the earlier version of this theoretical framework assumes selection on unobserved characteristics only, Borjas later extended the model to include selection on unobserved characteristics, such as education (Borjas, 1991).

Borjas' (1987, 1991) own empirical analyses mostly confirm his theoretical assumptions for a wide range of immigrant groups in the United States, as do two studies that apply the model to the case of Puerto Rico: Migrants from Puerto Rico in the United States are on average slightly negatively selected, that is, they completed less years of schooling than nonmigrants in Puerto Rico (Ramos, 1992). These migrants are on average also less educated than migrants in Puerto Rico (Ramos, 1992; Borjas, 2008). Because income is less unequally distributed in the United States than in Puerto Rico, the findings are in line with Borjas' (1987, 1991) theoretical assumptions.

A range of studies have investigated the case of selective migration from Mexico to the United States. Comparing years of schooling between migrants who moved to the United States and their non-migrating counterparts in Mexico, several studies suggest an overall negative selection of migrants (Ibarraran and Lubotsky, 2007; McKenzie and Rapoport, 2010; Fernández-Huertas Moraga, 2011; Rendall and Parker, 2014). Again, this is in line with the

Borjas model, as income inequality in Mexico is higher than in the United States. However, not all studies that investigate selective migration from Mexico find that Mexican migrants tend to be negatively selected. Two notable exceptions are the studies by Kaestner and Malamud (2014), who find that most Mexican migrants are drawn from the center of the educational distribution at origin, as well as by Chiquiar and Hanson (2005), who show evidence for an intermediate to positive educational selection of Mexican migrants. The latter conclude that this may be explained by the costs of migration, which may be relatively higher for less educated individuals (Chiquiar and Hanson, 2005).

Further evidence sheds light on differences between subgroups of migrants. In the case of Mexican migration to the United States, negative selection appears to be driven by male migrants, whereas female migrants have on average more years of schooling than nonmigrants (Fernández-Huertas Moraga, 2011). According to Orrenius and Zavodny (2005), undocumented Mexican migrants are on average not negatively selected on education. Taking into consideration the role of networks in explaining selective migration, McKenzie and Rapoport (2010) suggest that negative selection is driven by the existence of strong migrant networks, which they assume to reduce the costs of migration. In contrast, weaker migrant networks go along with more positive educational selection (McKenzie and Rapoport, 2010). Lindstrom and López Ramírez (2010) investigated educational selection among migrants from Central America to the United States with a specific focus on pioneer migrants. Their findings suggest that migrants tend to have completed more years of education than nonmigrants; however, pioneer migrants are not found to possess substantively more education than followers. Focusing on Asians as another important immigrant group in the United States, that in addition is typically expected to be highly positively selected, research confirms such expectations as the share of individuals with a college degree is higher among migrants than among the origin populations (Lee, 2015; Lee and Zhou, 2015, 2017).

Few case studies provide comparative evidence for other single-origin groups that did not or not only migrate to the United States. According to Bauer et al. (2002), Portuguese guest-workers in Germany are on average less educated than the Portuguese origin population. In contrast, two other studies suggest that emigrants from Israel (Gould and Moav, 2016) and from Denmark (Borjas, Kauppinen, and Poutvaara, 2019) tend to be positively selected on education.

Giving a global overview of the educational structure of international migrants, Docquier and Marfouk (2006) show that for most countries around the world, the share of highly skilled individuals (i.e., those who completed more than 13 years of education) is higher among emigrants than among nonmigrants (see also Docquier, Lowell, and Marfouk, 2009).

Another approach to assessing the educational selection of migrant groups consists in multivariate analyses that investigate the association between individual's educational attainment and their migration decision. Studies that apply this approach frequently find that better educated individuals are more likely to migrate (Massey, 1987) or – reversing dependent

and independent variable – that migrants are significantly better educated than nonmigrants. Liebig and Sousa-Poza (2004) use migration intentions of individuals from 23 countries as a proxy for future migration. According to their analyses, better educated individuals are more willing to migrate. In a similar vein, Tong, Persons, and Harris (2020) report that parental education is positively associated with Chinese adolescents' migration intentions. Among studies of migrants who actually realized their migration decision, positive educational selection is found for migrants from Peru (Takenaka and Pren, 2010), for internal migrants in more than 50 countries (Bernard and Bell, 2018) as well as for remigrants leaving the United States (van Hook and Zhang, 2011). Zuccotti, Ganzeboom, and Guveli (2017) show that Turkish first-generation migrants in Europe are significantly better educated than nonmigrants in Turkey. In contrast, Rendall's and Parker's (2014) multivariate findings suggest that the majority of male Mexican migrants are negatively selected.

A more direct measure to assess educational selection is the NDI, an index developed by Lieberson (1980) and applied to this specific field of research most notably by Feliciano (2005b, 2006b, 2008). This index is generated "on the basis of the percentage of immigrants with the same level of educational attainment as nonmigrants, the percentage of immigrants with more education than nonmigrants, and the percentage of immigrants with less education than nonmigrants." (Feliciano, 2005b: 138) In contrast to the previously presented approaches, the NDI allows to quantify the extent to which a migrant group is selected on education. Using this group-level measurement, Feliciano (2005b, 2006b) describes most migrant groups in the United States as positively selected on education, with the exception of Puerto Ricans, who are the only negatively selected origin group in her studies. More specifically, Feliciano also finds that Mexican migrants to the United States are a positively selected group and that the degree of positive selectivity among migrants increased over time, both among men and women (Feliciano, 2008). Lessard-Phillips, Fleischmann, and van Elsas (2014), who also apply the NDI to describe the educational selection of various migrant groups in Europe and North America, find more mixed evidence. For the United States, they find East Asian migrants to be positively selected, whereas Mexicans and Puerto Ricans are negatively selected. All immigrant groups in Canada considered in their study are positively selected, which may be due to Canadian immigration policy. For European destination countries, the authors conclude that guest-worker migrant groups are often negatively selected, whereas post-colonial as well as refugee migration is frequently associated with positive educational selection (Lessard-Phillips, Fleischmann, and van Elsas, 2014). A very recent global overview using the NDI as a measure of educational selection found that return migrant groups from 54 out of 60 countries under study are better educated than their respective birth country population (Chen et al., 2022).

A seminal advance in measuring educational selection was made by Ichou's (2014) introduction of the relative education index. In contrast to the previously existing approaches, which are blind to variation within migrant groups, the relative education approach allows for an

individual-level assessment of educational selection. This index defines a migrant's position in the educational distribution of the origin population by adding the shares of individuals in the reference population with the same or lower educational levels (for further details, see Ichou, 2014). In recent years, the measure of relative education has been used in an ever-increasing number of publications. Some of these publications serve the purpose of describing and comparing relative education profiles of different origin groups, such as migrants in France (Ichou, 2014; Ichou et al., 2017), in the United Kingdom (Luthra and Platt, 2021), or in various European destinations (Spörlein and Kristen, 2019b). These studies usually share the common finding that most migrants are positively selected on education. More importantly, one of the main benefits of this approach is that it does not display migrants as homogeneous groups, but that it allows to depict variation within each origin group. Migrant groups never consist of exclusively positively or exclusively negatively selected individuals. Instead, migrants in each origin group usually cover a wide spectrum of educational selection (Spörlein and Kristen, 2019b).

While the previously cited studies use the relative education approach for descriptive analyses, two studies deal with the relationship between relative education and migration decisions more explicitly by applying a multivariate perspective. Haddad (2020) finds a significant association between parental selectivity and migration decisions from French overseas departments to continental France. The direction of this effect, however, changes between periods in which different migration policies applied. Investigating remigration decisions as a more specific outcome, Caron and Ichou (2020) find an interaction between relative education and employment status: Positively selected migrants who are unemployed in the place of destination are more likely to remigrate than unemployed migrants who are relatively less educated.

2.2 Who migrates where?

To further investigate the phenomenon of selective migration, a range of studies extends the question of who migrates by the aspect of who migrates where. These studies analyze and compare characteristics of migrants who moved to different destinations. In the literature, this is usually referred to as sorting (e.g., Grogger and Hanson, 2011). Central theoretical considerations about sorting were made by Lee (1966), who assumed that the degree of positive selection is increased by intervening obstacles between the place of origin and the place of destination. Such intervening obstacles to migration are, for instance, geographical distance, physical barriers, and immigration laws (Lee, 1966).

Among the first empirical studies that observe systematic differences in educational levels between migrants in different destinations, Lukic and Nikitovic (2004) find that refugees from Bosnia and Herzegovina who moved to Serbia completed on average higher educational levels than both the population at origin and internally displaced persons in Bosnia and Herzegovina.

While the authors do not further investigate potential explanations, they assume that geographical distance contributed to greater educational selection among refugees who moved to Serbia (Lukic and Nikitovic, 2004).

The list of studies that compare educational indicators between migrant groups who came from the same origin country but moved to different destinations includes further research, for instance, by Cohen and Haberfeld (2007): Comparing migrants from the former Soviet Union, their findings indicate that among those who moved to the United States, higher shares had graduated from university than among those who moved to Israel. In contrast, two studies that include migrants from the former Soviet Union in Israel and Germany find no substantial differences between both groups (Cohen and Kogan, 2007; Kogan and Cohen, 2008). A comparable research design is also applied in a study by Haberfeld and Lundh (2014) about migrants from Iran. Those who moved to the United States are on average better qualified – measured by years of education and share of university graduates – than those who moved to Israel or Sweden. Based on these same three destination countries, politically persecuted persons from Argentina and Chile are on average positively selected compared to their origin population, but the group that moved to Sweden is substantially less positively selected than the groups who moved to Israel or the United States (Birgier et al., 2018). The studies that find systematic differences between migrant groups tie such differences to the same assumptions made by Borjas (1987): Greater expected returns to education may explain why better educated individuals prefer destinations such as the United States, whereas more inclusive migration and welfare policies may attract less educated migrants to countries such as Sweden. One limitation of these studies should, however, be noted: With the exception of Birgier et al. (2018), the studies mentioned in this paragraph compare indicators of educational attainment only between migrant groups or between migrants and natives in the place of destination. Because they do not include comparisons to the origin population, their findings touch only implicitly upon these migrants' educational selection.

Other studies that investigate selective migration to various destinations rely on macro-level data that include large numbers of origin groups in various destinations. Analyzing ratios of skilled vs. unskilled migrant shares, most of these studies suggest that educational selection is driven by a skill premium that migrants can expect in the place of destination (Grogger and Hanson, 2011; Belot and Hatton, 2012; Razin and Wahba, 2015). Brücker's and Defoort's (2009) study is an exception, as the authors show that migrants tend to be positively selected based on their skills even if they cannot expect a skill premium, that is, if income is more unequally distributed in the origin country than in the destination country. These macro-level studies also contribute to identifying various factors that play a role in the sorting of migrants. Geographical distance (Brücker and Defoort, 2009; Belot and Hatton, 2012), migration policies (Brücker and Defoort, 2009; Grogger and Hanson, 2011; Razin and Wahba, 2015), but also cultural aspects, such as linguistic proximity (Belot and Hatton, 2012) or a common language

of the origin and destination country (Brücker and Defoort, 2009), explain some of the differences in educational selection between migrant groups in various destinations.

Similar findings by Spörlein (2015), which are based on individual-level data about Pan-American migrants, suggest that highly educated migrants are more likely to move to destinations with greater political freedom, greater geographical and cultural distance, and with smaller co-ethnic communities. In contrast, migration costs appear to be the driving force behind the destination decisions of migrants who possess lower educational levels (Spörlein, 2015).

2.3 Recent refugees' educational selectivity

Most of the previously mentioned literature is – more or less explicitly – limited to migrants that are expected to move for economic reasons. In the past, it was a widespread expectation that in terms of selective migration, economic migrants were systematically different from other migrant groups. One of the arguments behind this reasoning is that economic migrants move to a new place to increase their economic success. Taking such an important decision is expected to reflect latent traits, such as greater ambition or entrepreneurship, which would explain positive selection on attributes such as education (Chiswick, 1978, 1999). Amongst migrant groups who move for other, non-economic reasons, refugees stand out. In comparison to economic migrants, refugees are often assumed to be on average less selected (e.g., Chiswick, 1978, 1999; Chin and Cortes, 2015) or even negatively selected (Lee, 1966) in terms of attributes such as education. These assumptions are rooted in the different character of refugees' migration decisions. It is often assumed that refugees tend to respond to push factors in their origin country rather than to pull factors in the place of destination (Lee, 1966). Push factors describe negative conditions in the place of origin that make migrants leave – for instance, political oppression, violent conflict, but also a lack of economic opportunities – whereas pull factors attract migrants to destinations – for instance, political freedom or beneficial economic conditions (Lee, 1966). Characterizing refugees as migrants for whom push factors tend to play a more important role than for other migrant groups, it is then assumed that refugees' migration decisions tend to be taken involuntarily, which would result in less or negative selection among this group (e.g., Chiswick, 1999; Lee, 1966).

Despite these theoretical considerations, empirical accounts that explicitly address refugees' educational selection have been rare for a long time (for exceptions, see Lukic and Nikitovic, 2004; Lessard-Phillips, Fleischmann, and van Elsas, 2014). In recent years, however, the research interest in the educational selection of refugees increased, especially focusing on humanitarian migrants that came from predominantly Middle Eastern countries to Europe around 2015. Two aspects soon became clear: On the one hand, many of them possess low educational levels by European standards. On the other hand, nevertheless, their educational

levels compare on average positively to their origin populations' educational levels (Buber-Ennser et al., 2016; Ichou et al., 2017).

These early findings were subsequently confirmed by further research. Descriptive analyses show that recent refugees in Germany completed on average more years of education or possessed higher educational levels than their reference groups in the place of origin (Lange and Pfeiffer, 2019; Guichard, 2020). Combining destination- and origin-specific data sources, analyses also suggest that the decision to seek refuge in Europe is associated with significantly higher educational levels (Aksoy and Poutvaara, 2021). In an extension to these studies, Hebsaker, Neidhöfer, and Pfeiffer (2021) show that recent refugees in Germany display a higher degree of intergenerational mobility than the reference population in the place of origin; that is, the improvement in years of education compared to their parents' education is greater among refugees than among the total population. While these researchers' findings tend to point in the same direction, they disagree on potential explanations. Arguments related to income inequality (cf. Borjas, 1987) are hardly applicable in the context of forced migration. Alternatively, migration costs might be a driver of selective migration as those who are better educated might be better able to cover for the costs of a long and risky migration to Europe (Lange and Pfeiffer, 2019; Guichard, 2020).

Applying the relative education approach, Spörlein and Kristen (2019b) identify substantial variation of educational selectivity within each origin group. Instead of being composed of homogeneously selected migrants, individuals in all groups under study cover the whole spectrum of educational selectivity (Spörlein and Kristen, 2019b). In a further contribution, this study addresses the longstanding assumption about systematic selectivity differences between economic migrants and refugees. The authors find no support for this assumption and argue not to overemphasize the differentiation between migrant groups in studies of selective migration: "differences between these two populations who migrate for different reasons is considerably less prominent than arguments in the literature seem to suggest" (Spörlein and Kristen, 2019b: 16).

3 Consequences of educational selectivity

The findings presented in the previous section generally emphasize that education is a central characteristic in selective migration. But the importance of educational selectivity is not restricted to migration decisions. Beyond explaining who migrates and who migrates where, selective migration has long been assumed to contribute to explaining migrants' adaptation to the destination context. Various mechanisms are assumed to drive consequences of educational selectivity. Even if they refer to different outcomes, the mechanisms which scholars assume to

be of relevance are often the same. Most prominent are probably two that stand in the tradition of human capital theory (e.g., Becker, 1964; Chiswick, 1978): Motivation and ability.

It is a longstanding assumption that educational selectivity is a proxy for latent characteristics such as ambition or motivation (e.g., Chiswick, 1978). Better educated individuals should be more motivated because reaching a relatively high level in the educational distribution of the reference population requires efforts and motivation (Chiswick, 1999). In this context, motivation is frequently used as an umbrella term under which researchers subsume a variety of unobserved characteristics such as drive for success or achievement orientation (e.g., Ichou, 2014; Feliciano and Lanuza, 2017). It is also assumed to be closely associated with – or maybe even identical to – the concept of migrant optimism (Cebolla-Boado and Nuhoğlu Soysal, 2018; Cebolla-Boado, González Ferrer, and Nuhoğlu Soysal, 2021).

From an intergenerational perspective, two channels may be assumed through which positively selected parents transmit motivational advantages to their children. On the one hand, positively selected parents might have greater ambitions for their children. For instance, they might take more ambitious educational decisions for them and be more motivated to invest in their education and competencies (Welker and Will, 2023; Welker, submitted). On the other hand, they might to some extent transmit motivational characteristics to their children (Schulz et al., 2017), so that their children themselves have greater ambitions, for instance, to pass successfully through the educational system or to acquire competencies (Welker and Will, 2023; Welker, submitted).

Educational selectivity may also be seen as an indicator of latent cognitive abilities (e.g., Ichou, 2014; Spörlein and Kristen, 2019a). Usually, absolute educational qualifications strongly reflect their holders' skill levels. However, in the case of migrants who acquired their education in different educational systems, absolute educational levels may not always be directly comparable. Educational systems differ in the skill levels that they convey. For instance, migrants who completed upper secondary education in one origin country may have a different skill level than migrants who completed the same educational level in another origin country. Individuals whose highest educational qualifications are equivalent to the same absolute educational level but who acquired these qualifications in two different educational systems may therefore have different skill levels (Spörlein and Kristen, 2019a). Instead of absolute education, educational selectivity is assumed to be a better indicator of cognitive abilities in studies that include migrants from various origin countries. The position that migrants hold in the educational distribution of their reference population may be better comparable cross-nationally.

Applying this mechanism to consequences for the next generation, positively selected parents should possess greater skills, which might go along with greater resources, such as cultural or social capital (Spörlein and Kristen, 2019a). These resources might provide better access to relevant information and helpful strategies to support their children in terms of outcomes such

as educational success or the acquisition of competencies. Furthermore, like latent motivational traits, skill advantages could to some extent be transmitted from parents to children (Schulz et al., 2017). Accordingly, the children of positively selected parents might themselves tend to have greater abilities, which should make them more efficient learners. This might, for instance, help them to succeed at school or to acquire new (observable) competencies (Welker and Will, 2023; Welker, submitted).

A third mechanism that is often used in explaining consequences in the place of destination – particularly regarding labor-market success and the next generation's education – refers to the social status that migrants had in their place of origin. Educational selectivity may be seen as an indicator of the social status that migrants held prior to migration. This is maybe best exemplified by the measure of relative education, which reflects a migrant's position in the educational distribution of the origin population. It is likely that much of migrants' behavior or habitus is guided by the position that they held in their place of origin (Ichou, 2014), especially among those who migrated recently. If migrants are positively selected, that is, if they had a high social status prior to migration, they may also be more willing to reach a high status in the place of destination.

Regarding the next generation's educational success, this assumption may be linked to and specified through the assumption of status maintenance, which posits that families want to avoid downward intergenerational mobility (Breen and Goldthorpe, 1997). In the case of recent migrants, relative status maintenance implies avoiding downward assimilation in the place of destination while for many families the point of reference is the social status held in the place of origin. First-generation migrants – particularly those who are relatively better educated – are likely to perceive social status loss in the place of destination (Engzell and Ichou, 2020). If migrant parents are unable to compensate this status loss themselves, the next generation's education may be used as a means to ensure status maintenance (Breen and Goldthorpe, 1997). Migrant parents may expect their children to attain an educational level that allows them to have a comparable or even higher social status than the parents had in the place of origin. Furthermore, migrant children may have this expectation themselves if parents transmit their habitus to them. To match their parents' pre-migration status, children with higher pre-migration social backgrounds (i.e., whose parents are positively selected on education) have to invest more and acquire greater education than children with lower pre-migration social backgrounds (i.e., whose parents are negatively selected on education) (Welker and Will, 2023).

Motivation, ability, and relative status maintenance are mechanisms usually used in studies that address individual-level educational selectivity or – if group-level measures of selectivity are used – that interpret consequences of selectivity as a composition effect of migrant groups. In studies that use group-level selectivity measures, context effects may entail further relevant mechanisms. While composition effects refer to the distribution of individual characteristics within migrant groups (e.g., if a group is positively selected on education, most of its individual

members are also positively selected), context effects attach importance to specific characteristics of groups as a whole. One mechanism which is assumed to specifically contribute to explaining consequences of group-level selectivity as a context effect is discrimination (e.g., van Tubergen, Maas, and Flap, 2004; Levels, Dronkers, and Kraaykamp, 2008; Spörlein and van Tubergen, 2014). Migrant groups may be confronted with varying degrees of discrimination and groups that are on average negatively selected on education might be more prone to being discriminated against. Because discrimination is blind to individual characteristics of migrants, this mechanism is unrelated to individual-level selectivity. Therefore, in contrast to motivation, ability, and relative status maintenance, discrimination is seen as a context effect rather than a composition effect in studies that use group-level selectivity measures.

Before looking into previous studies that address the role of educational selectivity for various outcomes, differences in the measurement of educational selectivity and their implications should briefly be mentioned. Some studies use absolute measures of education – for instance, years of education or educational levels – acquired prior to migration, which they explicitly frame as a proxy for educational selectivity (e.g., Pong and Landale, 2012; Grogger and Hanson, 2011; Kennedy et al., 2015). Using measures of absolute education as proxies for educational selectivity may be criticized because this thesis assumes that the mechanisms that drive consequences of educational selectivity are distinct from mechanisms that drive consequences of absolute educational levels. Absolute education is a suitable indicator of formal instruction. For example, higher qualifications, especially university degrees, may have signaling effects which are beneficial for migrant children's placement in higher-level secondary schools (Bol and van de Werfhorst, 2011). Some of these studies are part of the following subsections as they build on theoretical arguments that are usually made in the context of selectivity, but it is acknowledged that they apply absolute educational measures that are at best indirect indicators of educational selectivity.

Studies that use direct measures of educational selectivity may be divided into those which apply group-level measures and those which treat educational selectivity as an individual characteristic of migrants. The former approach considers the educational selectivity of origin groups in their place of destination and the consequences of these origin groups' selectivity for their individual members, whereas the latter takes into consideration that migrant groups are heterogeneously composed of individuals whose educational attainment usually covers a wide spectrum. Nevertheless, both are often expected to reflect through similar processes. When group-level and individual-level selectivity are expected to play different roles in contributing to certain outcomes, this is explicitly acknowledged in the following subsections.

The following subsections present the state of research for the most frequently investigated consequences of educational selectivity, which are also essential for migrants' adaptation to the destination context: the next generation's educational success, competencies, labor-market

outcomes, and health. Other potential consequences, such as the outcome of the asylum procedure (Kosyakova and Brücker, 2020), are rarely addressed in the literature on educational selectivity and lack systematic research.

3.1 Next generation's education

Empirically, the next generation's educational success is among the best researched consequences of educational selectivity. Because educational success is a broad concept, a range of outcomes are subsumed under this term. Existing studies presented in this section differentiate between educational expectations and aspirations, educational decisions, and educational attainment. Studies that use direct measures of educational selectivity do so by applying either group-level or individual-level measures. However, the general assumptions about the mechanisms through which educational selectivity may reflect on the next generation's educational success are usually the same for both group-level and individual-level selectivity: Motivation and ability among migrant groups or parents as well as the wish for relative status maintenance are assumed to be drivers of a positive relationship between educational success and the next generation's education (e.g., Ichou, 2014; Feliciano 2005a, 2006b).

In a range of influential studies, Feliciano applied the NDI to analyze the role of educational selectivity for migrant children's educational success in the United States (Feliciano, 2005a, 2006a, 2006b, 2018). Regarding educational attainment, her findings suggest that positive group-level selectivity is beneficial for the education of the 1.5 and second generation, measured by high-school graduation (Feliciano, 2006b) and years of schooling (Feliciano, 2006b, 2018). In Feliciano's analyses, the role of group-level selectivity is significant over and above the role of the parents' socioeconomic status. Applying the NDI approach to second-generation migrants in various Northern American and Western European destination countries, another study provides only limited evidence that educational selectivity is positively associated with the next generation's educational attainment: Group-level educational selectivity explains some variation of migrant children's chances of completing tertiary education (van de Werfhorst, van Elsas, and Heath, 2014). The latter findings are, however, based on bivariate analyses and are not confirmed in multivariate analyses. In addition, this study (van de Werfhorst, van Elsas, and Heath, 2014) as well as another study (van de Werfhorst and Heath, 2019) find that group-level educational selectivity is not significantly associated with migrant students' chances of completing upper secondary education.

Two further studies establish positive educational selectivity for various migrant groups in the United States and subsequently assume that this contributes to the next generation's educational attainment. Lee and Zhou (2015) show that among Chinese and Vietnamese immigrants in the United States the share of those that completed at least a B.A. degree is higher than among the

respective origin populations. At the same time, these immigrants' descendants possess advantages in college graduation. Without explicitly including a measure of educational selectivity in their analyses, the authors conclude that advantages in college graduation are a consequence of these groups' positive educational selectivity. Applying a similar research design, Tran et al. (2018) conclude that advantages in high school completion among Chinese, Cuban, Armenian, and Nigerian migrant descendants in the United States are a consequence of these migrant groups' positive selectivity.

The earliest contribution in analyzing the association between migrant parents' relative education and their children's educational attainment was made by Ichou (2014), who shows that relative education contributes positively to children's educational attainment in France. This association persists over and above the contribution of parental absolute education, whereas group-level educational selectivity does not appear to play a significant role (Ichou, 2014). A positive contribution of relative education to the next generation's educational attainment is also confirmed by Feliciano and Lanuza (2017), who identify a positive role of parental relative education for the number of years of education completed by migrant children in the United States. In their analyses, the contribution of parental relative education is significant beyond the contribution of parental years of education.

Educational expectations and aspirations may be seen as indicative of the education that migrant children will attain. In relation to educational selectivity, expectations and aspirations may also be an expression of unobserved characteristics such as ambition or motivation, which are assumed to be captured by selectivity measures. This assumption is supported by studies that find a positive relationship between group-level educational selectivity and educational expectations among both students and their parents (Feliciano, 2006a, 2006b) as well as by studies that find positive associations between relative education and aspirations for the next generation: Parental relative education is found to contribute to occupational aspirations among students with a migration background in Sweden (Engzell, 2019) as well as to educational aspirations among students with a migration background in Sweden and to their parents' educational expectations (Nygård, 2021). However, while group-level selectivity is beneficial beyond the parents' socioeconomic status (Feliciano, 2006a, 2006b), the two studies that investigate the role of individual-level educational selectivity are unable to show that there is a substantial contribution of educational selectivity above and beyond the contribution of absolute parental educational levels (Engzell, 2019; Nygård, 2021).

Finally, children's educational success is also determined by their educational decisions. Like for the previously mentioned educational outcomes, existing research suggests a positive contribution of parental educational selectivity for migrant children's educational decisions. The outcomes subsumed as educational decisions vary, which is partly due to the country-specific character of educational systems. Studies that use samples of students in the United States focus on these students' college enrollment. Feliciano's findings suggest that positive

group-level selectivity is beneficial for the next generation's chances of college attendance (Feliciano, 2005a, 2006b). Similarly, positive parental relative education is found to increase migrant children's chances of college attendance (Tong and Harris, 2021). However, when they include absolute education in their models, the significant contribution of relative education only holds for migrant children of the 1.5 generation, whereas it disappears for the second generation. The study's authors attribute this to potential differences in migration experience and destination-context adaptation (Tong and Harris, 2021).

In studies that include educational systems in Europe or in more than one destination, educational decisions often refer to the decision between academic and vocational upper secondary track. Group-level educational selectivity explains some variation of migrant children's educational decisions for an academic track in a range of destination countries (van de Werfhorst, van Elsas, and Heath, 2014; van de Werfhorst and Heath, 2019). Adopting an individual-level selectivity perspective, Engzell's (2019) analyses suggest that parental relative education is positively associated with attending an academic secondary track in Sweden. His analyses additionally control for the parents' years of schooling as an indicator for their absolute education but do not show that these are significantly associated with the outcome.

As a special case of educational decisions, Brunori, Luijkx, and Triventi (2020) analyze the role of parents' relative education for children's early dropout before completing upper secondary school in Italy. They find that positive educational selectivity decreases the likelihood of an early dropout (Brunori, Luijkx, and Triventi, 2020). This association persists while the parents' absolute education is not substantially reflected in students' dropout risk.

Overall, most research on relative education and the next generation's educational success points to a common direction: Educational selectivity tends to play a beneficial role. However, these findings are often based on analyses that do not additionally account for parents' absolute education. When analyses do account for both educational selectivity and absolute education, the picture is less unequivocal and researchers refrain from disentangling contributions of absolute education and educational selectivity.

3.2 Competencies

The acquisition of competencies is another branch of outcomes in which educational selectivity is assumed to be reflected. Besides differences in measuring educational selectivity, studies that analyze the relationship between selectivity and competencies notably differ in which and whose competencies they analyze: These may either be adults' or the next generation's competencies. They may more generally refer to cognitive competencies – frequently using student test scores in, for instance, science or mathematics – or more specifically to destination-language skills. Nevertheless, such differences are not the focus of this subsection. Instead, the focus is on understanding what might drive the potential association between educational

selectivity and the acquisition of competencies. In the literature, most scholars rely on the same mechanisms in their theoretical accounts of why educational selectivity might be beneficial for the acquisition of competencies. Following human capital theory, it is usually assumed that unobserved characteristics such as motivation and ability are central driving forces.

Two studies look into the association between relative education and skills within adult migrants. Luthra and Platt (2021) find gender-specific differences among adult migrants in the United Kingdom, with positively selected male migrants having advantages in verbal skills, whereas the associations between relative education and verbal as well as numerical skills are negative among women. Analyzing self-assessed destination-language skills, Spörlein and Kristen (2019a) show that positive selectivity reflects in a faster pace of language acquisition among newly immigrated Polish and Turkish adults in Germany, the United Kingdom, and Ireland.

Most of the existing literature on the association between educational selectivity and competencies, however, adopts an intergenerational perspective and investigates the role of selectivity for the next generation's educational achievement. In most studies, achievement is measured by student test scores, mostly in science or mathematics. One of the earlier contributions to this research interest is a study by Dronkers and de Heus (2010), in which the authors, however, only assume that migrant groups are selective on education. Based on the finding that scientific literacy is on average lower for children from certain guest-worker immigrant groups in 11 European destination countries compared to children in the respective place of origin, the authors conclude that this may be a consequence of negative selectivity among migrant parents (Dronkers and de Heus, 2010). Another indirect approach of accounting for educational selectivity is adopted by Pong and Landale (2012), who investigate the role of premigration education – framed as educational selectivity but measured in absolute terms. Their findings suggest a significant and positive contribution of parents' education for migrant children's competencies, measured by test scores covering word identification, comprehension, applied problems, and calculation (Pong and Landale, 2012).

A more explicit measure of educational selectivity calculates the difference in the average level of educational attainment between an immigrant group and the non-migrant population in the place of destination. Based on this measure, group-level educational selectivity is found to contribute to explaining migrant children's mathematical performance (Levels, Dronkers, and Kraaykamp, 2008). Levels, Dronkers, and Kraaykamp (2008) conclude that both context and composition effects contribute to explaining disadvantages in migrant children's test scores. As a potential context effects, a greater difference in the average educational attainment between a migrant community and the native population may increase the likelihood that student test scores are affected by discrimination (Levels, Dronkers, and Kraaykamp, 2008). Composition effects, on the other hand, might be effective as well. In positively selected migrant groups, parents might be more likely to be more ambitious.

Two other studies use group-level measures of educational selectivity – more precisely, the NDI measure – and their findings confirm that selectivity reflects positively in migrant children's test scores (van de Werfhorst, van Elsas, and Heath, 2014; van de Werfhorst and Heath, 2019). However, in contrast to the study by Levels, Dronkers, and Kraaykamp (2008), these latter studies refrain from interpreting consequences of selectivity as context effects. Instead, they rely on the human capital approach in explaining their findings, most notably arguing that positively selected migrant groups should possess greater motivational resources that benefit their children (van de Werfhorst, van Elsas, and Heath, 2014; van de Werfhorst and Heath, 2019).

Using the relative education approach, Engzell (2019) analyzes the role of parental educational selectivity for second-generation migrant students' skills in Sweden. The outcomes analyzed refer to test scores as well as to destination-language skills. The author finds parental relative education to be beneficial for their children's test scores, but the association is insignificant after controlling for parents' years of education (Engzell, 2019). Regarding language skills, no evidence for a positive role of parental selectivity for the destination-language proficiency of migrant children is found (Engzell, 2019). In a similar vein, research by Brunori, Luijkx, and Triventi (2020) indicates that parental educational selectivity is not significantly associated with their children being retained in secondary schools in Italy. According to the study's authors, this suggests that positively selected parents do not transmit advantages in skills to their children (Brunori, Luijkx, and Triventi, 2020).

Overall, these studies draw a mixed picture about the association between educational selectivity and the acquisition of competencies. While there is some empirical evidence that positive educational selectivity is positively associated with skills within adult migrants and that group-level selectivity is positively associated with the next generation's educational achievement, the (few) studies that look into intergenerational consequences of individual-level selectivity hardly find support for the assumption that parental selectivity contributes to their children's acquisition of competencies.

3.3 Labor-market outcomes

In the literature on educational selectivity, the most frequently analyzed outcomes related to the labor market refer to unemployment, occupational status, or earnings in the place of destination.

Studies that examine the role of educational selectivity for migrants' employment propensities at destination find that positively selected migrants are more likely to experience unemployment in Germany (Schmidt, Kristen, and Mühlau, 2022; Cohen and Kogan, 2007; Kogan and Cohen, 2008) and Italy (Brunori, Luijkx, and Triventi, 2020). While Cohen and Kogan (2007) and Kogan and Cohen (2008) only account for absolute measures of education as a proxy for educational selectivity, Schmidt, Kristen, and Mühlau (2022) as well as Brunori,

Luijkx, and Triventi (2020) show that there is a contribution of educational selectivity – measured by relative education – that goes beyond the contribution of absolute education. Although the negative association between selectivity and employment chances might to some extent be attributable to structural conditions (Cohen and Kogan, 2007; Kogan and Cohen, 2008), positively selected migrants might also be more likely to wait for a suitable job to avoid status loss in the longer term (Brunori, Luijkx, and Triventi, 2020) or have greater motivation and ability to engage in alternatives to employment (Schmidt, Kristen, and Mühlau, 2022).

Despite the negative association between selectivity and employment propensities, two of the previously mentioned studies find that educational selectivity reflects positively on the occupational status of migrants in the place of destination (Schmidt, Kristen, and Mühlau, 2022; Brunori, Luijkx, and Triventi, 2020). These advantages might be a consequence of greater motivational attributes and cognitive skills among positively selected migrants, but also be partially explained by migrants' wish for relative status maintenance (Brunori, Luijkx, and Triventi, 2020; Schmidt, Kristen, and Mühlau, 2022). In a similar vein, Min and Jang (2015) suggest that positive selectivity among Asian Americans is a source for greater resources, which contribute to the next generation's concentration in STEM and health-care occupations, while other ethnic groups in the United States are less concentrated in such prestigious occupations. In contrast, findings presented by Cohen and Kogan (2007) as well as by Kogan and Cohen (2008), who use absolute measures of education, do not show a positive relationship between pre-migration education and occupational status at destination.

Another approach to examine the consequences of educational selectivity for migrants' occupational status in the place of destination relies on the analyses of so-called community effects, using group-level measures of education. The term 'community effects' was coined in a study by van Tubergen, Maas, and Flap (2004), who posit that alongside origin and destination effects on the macro level, community effects specific to each origin group in a certain destination play a role in the labor-market integration of migrants. Their study does not explicitly look into educational selectivity but operationalizes education as the average level education of migrant groups (van Tubergen, Maas, and Flap, 2004). A more explicit measure of educational selectivity calculates the difference in the average level of educational attainment between an immigrant group and the non-migrant population in the place of destination. Based on this measure, group-level educational selectivity was found to contribute to explaining migrants' occupational status in the place of destination (Spörlein and van Tubergen, 2014). The positive role of community-level education that both studies find for migrants' occupational status is explained by the authors through both composition and context effects. If migrant groups are on average composed of better-educated individuals, motivation and ability may contribute to reaching higher-status occupations. In addition to these standard mechanisms brought forward in a human capital framework, context effects might play a role.

Most importantly, better-educated migrant groups might be less likely to be discriminated against (van Tubergen, Maas, and Flap, 2004).

A range of studies examine the role of selective migration in migrants' earnings assimilation in the place of destination and usually find that selectivity reflects positively on earnings (e.g., Picot, Hou and Qiu, 2016; Grogger and Hanson, 2011; Sweetman, 2004; Cohen and Haberfeld, 2007; Haberfeld and Lundh, 2014; Birgier et al., 2018). The standard mechanisms that are assumed to drive this relationship are ambition and ability (e.g., Cohen and Haberfeld, 2007; Haberfeld and Lundh, 2014; Birgier et al., 2018). Better educated migrants might furthermore possess better social networks (Cohen and Haberfeld, 2007). These studies have in common certain limitations as they either use absolute measures of education as a proxy for selectivity (e.g., Picot, Hou and Qiu, 2016; Grogger and Hanson, 2011; Sweetman, 2004) or only assume that migrant groups are selective on education (Hamilton, 2014). To my knowledge, no studies exist which use direct measures of educational selectivity to analyze migrants' earnings.

3.4 Health

Finally, migrants' health is sometimes assumed and found to be associated with educational selectivity, although strictly speaking health may not constitute an actual consequence of selectivity. Better educated individuals might indeed lead a healthier lifestyle, for instance, because they benefit from better working conditions, greater resources, and might make better-informed health decisions. Migrants might be able to maintain these pre-migration benefits in the place of destination (Ichou and Wallace, 2019; Luthra and Platt, 2021). However, causality may also be assumed in the opposite direction: Health might reflect in the education that an individual attains. For instance, health problems can be a barrier to acquiring good education (Ichou and Wallace, 2019; Luthra and Platt, 2021). If better educated individuals are more likely to migrate, they should also more likely be in good health. Finally, unobservable traits, such as ambition, might reflect positively on both education and health (Kennedy et al., 2015; Ichou and Wallace, 2019), resulting in both educational and health selection among migrants.

Using an absolute measure of education, Kennedy et al. (2015) find that educational selectivity is positively associated with a range of health-related outcomes, such as chronic conditions or obesity, among migrants in the United States, Canada, the United Kingdom, and Australia. As a true measure of educational selectivity, relative education is positively associated with a better self-rated health and relatively better educated migrants are also less likely to have chronic conditions and health limitations in France (Ichou and Wallace, 2019). Advantages are also found in terms of birth-related outcomes among children of relatively better educated migrants in France (Florian, Ichou, and Panico, 2021). In contrast, Luthra and Platt (2021) find no significant association between relative education and self-reported physical and mental health among migrants in the United Kingdom.

4 Contribution

In general, this thesis aims to contribute to research on the selection of recent refugees in Germany, most notably, on their educational selection. Two parts may be identified: The first part, consisting of the thesis' first and second studies (Spörlein et al., 2020; Welker, 2022), has its main focus on the description of recent refugees' educational selectivity profiles in Germany and comparisons to other migrant groups as well as to refugees in different destinations. The second part, consisting of the third and fourth studies, addresses consequences of refugees' educational selectivity for their children's education (Welker and Will, 2023) and competencies (Welker, submitted).

4.1 Describing recent refugees' educational selectivity

Given the relatively short period since refugees' arrival to Europe around the year 2015, the number of existing studies that address these migrants' educational selection is considerable (see Subsection 2.3). Nevertheless, there are research questions that these studies do not answer. As they concentrate on European destinations – mostly Germany – these studies do not give an account of sorting. It is unclear whether those refugees who migrated to more distant destinations differ systematically in their educational selection from their compatriots who moved to destinations closer to their place of origin. Previous research on sorting, on the other hand, usually focuses on economic migrants (for an exception, see Lukic and Nikitovic, 2004). Accordingly, it is unclear whether the phenomenon of sorting also applies to refugees in general and – more specifically – refugees who migrated recently. This could be highly relevant if, for instance, the costs of migration prevented less educated refugees to come to Europe.

Furthermore, although a variety of studies exist that share an interest in recent refugees' educational selectivity, their findings rely on few data sources. As the IAB-BAMF-SOEP Survey of Refugees was the first survey to provide quantitative data on recent refugees in Germany, it is also used by the majority of existing studies (Spörlein and Kristen, 2019b; Guichard, 2020; Aksoy and Poutvaara, 2021). Other datasets that were ready to use shortly after the refugees' arrival usually consist of much smaller case numbers, which makes it difficult to generalize their findings (e.g., Lange and Pfeiffer, 2019; Buber-Ennser et al., 2016). Against this background, including further data sources to increase the robustness of findings is desirable and an aim of this thesis.

This thesis' descriptive studies contribute by addressing theoretical assumptions according to which refugees' educational selectivity profiles might be systematically different from those of other migrant groups because refugees are more likely to have been forced to leave their place of origin (e.g., Lee, 1966; Chiswick 1999). In addition, these studies investigate whether educational selectivity is reflected in the sorting of refugees, that is, the destination to which

they decide to migrate. The theoretical considerations are based on the human capital model (e.g., Becker, 1964; Sjastaad, 1962) and value-expectancy theory (e.g., De Jong et al., 1983; Kalter, 2000). Building upon these approaches, both the migration decision and the destination decision may be modelled as functions of the expected costs and benefits of alternative options as well as of the probabilities to realize these options.

This first study (see Chapter 2) describes selectivity profiles of recent refugees from Syria, Afghanistan, Iraq, and Eritrea in Germany, of labor migrants in Germany, and of recent refugees from Syria in Lebanon and Jordan (Spörlein et al., 2020). Selectivity is measured on three characteristics: Education, gender, and age. We also compare the selectivity profiles of Syrian refugees in Germany, Jordan, and Lebanon, assuming that younger, male, and relatively better educated Syrians are more likely to travel the longer distance to Germany. The IAB-BAMF-SOEP Survey of Refugees, German Microcensus, and Arab Barometer represent this study's destination-specific data sources to construct the relative education index. Origin-specific reference educational distributions are generated on the basis of data from Multiple Indicator Cluster Surveys (MICS), the Eritrea Population and Health Survey, Integrated Public Use Microdata Series International (IPUMS), and the United Nations database. Density distributions are used to display all migrant groups' educational selectivity profiles.

The second study (see Chapter 3) describes educational selectivity profiles of refugees who recently migrated to Germany from Syria, Iraq, and Afghanistan and compares them to those of Syrians in Jordan and Lebanon and to those of internally displaced persons in Iraq (Welker, 2022). Although this study replicates the first study to a certain extent, it also makes contributions that go beyond. These especially refer to data-related aspects. Besides including internally displaced Iraqis as an additional origin group, using data from the ReGES project (Will et al., 2021) as a novel large-scale survey of recent refugees in Germany serves the purpose to increase the robustness of previous findings. Further destination-specific data sources used in the second study are the IAB-BAMF-SOEP Survey of Refugees, Arab Barometer for Syrians in Lebanon and Jordan, and MICS for internally displaced persons in Iraq. MICS data also serve as origin-specific sources for all groups under study. Again, educational selectivity is measured using the relative education approach. In contrast to the first study, which uses a selectivity index that is specific to gender and age, the second study relies on an index that is specific to gender, age, and origin regions.

Regarding educational characteristics, the findings of both studies suggest that many refugees possess low absolute educational levels. However, the density distributions that refer to educational selectivity show that most of these migrants are relatively better educated than the reference population in the place of origin (Spörlein et al., 2020; Welker, 2022). The density distributions that contrast educational selectivity profiles of ReGES and IAB-BAMF-SOEP respondents in the second study generally display similar patterns for the respective origin groups. This may be seen as a contribution to the robustness of results, even if the findings

suggest that each origin group in the IAB-BAMF-SOEP Survey of Refugees is on average more positively selected compared to their respective ReGES counterparts (Welker, 2022). The comparisons to migrants that travelled to less distant destinations lend only slight support that distance should on average increase positive educational selectivity. While Syrians and Iraqis in the IAB-BAMF-SOEP Survey of Refugees appear to be relatively better educated than their counterparts in Lebanon, Jordan, or Iraq, these differences are less pronounced between ReGES respondents and their counterparts who sought refuge in Middle Eastern destinations (Spörlein et al., 2020; Welker, 2022). Comparing the selectivity profiles of refugees and labor migrants in Germany in the first study made us conclude that differences between origin groups cannot be reduced to a simple classification into refugees vs. labor migrants (Spörlein et al., 2020). More importantly than between groups, selectivity varies strongly within groups. In other words, each origin group consists of varying shares of differentially selected individuals.

4.2 Analyzing intergenerational consequences of educational selectivity

While there is some research that previously addressed intergenerational consequences of educational selectivity, the existing literature usually focuses on migrant children or adolescents of the 1.5 or second generation.[2] To my knowledge, no previous studies investigate the role of parental educational selectivity for children and adolescents who are themselves first-generation migrants. This thesis' second part – consisting of the studies III and IV – aims to shed light on the role of educational selectivity for first-generation migrants. While it is assumed in the framework of these studies that the consequences for refugees may be explained by the same processes and regularities that globally apply to any migrant group, their recent arrival makes refugees an interesting case of first-generation migrants.

In the case of underage refugees for whom schooling is compulsory, their first-generation quality has important implications as most of them are lateral entrants into the educational system at destination. These have to deal with specific challenges, such as a lack of destination-language skills and an immediate adaptation to an unfamiliar school system (Welker and Will, 2023). To tackle these challenges successfully, educational selectivity might be beneficial. Focusing on the role of parents' educational selectivity for first-generation migrants' educational outcomes is particularly relevant in regards to the societal integration of recent refugees in Germany, as this numerically important migrant group is composed of high shares of school-aged children and adolescents.

The third study (see Chapter 4) examines the role of refugees' educational selectivity for their children's educational decisions in Germany (Welker and Will, 2023). We contribute to

[2] The studies by Engzell (2019) and Brunori, Luijkx, and Triventi (2020) do not explicitly specify the generational status of the migrant children whose outcomes they analyze. However, as their samples are not restricted to recent migrants, it may be assumed that most children in their samples are not first-generation migrants.

research by investigating the role of parental selectivity for young first-generation migrants who enter the German educational system laterally. Building on a theoretical model that understands integration into the educational system as the sum of investment decisions of rational individuals (Erikson and Jonsson, 1996; Breen and Goldthorpe, 1997), we assume that positively selected parents are more ambitious about having their children admitted to higher-level secondary schools. Because schooling is regulated by federal state policies in Germany, which allow for varying degrees of parental involvement, we expect that the role of parental selectivity in adolescents' school placement differs between states (Welker and Will, 2023).

We use data from the ReGES adolescent cohort and run linear probability regression models to analyze whether parents' educational selectivity reflects in adolescents' school placement. Our analytical sample consists of 1,437 adolescents. Measuring educational selectivity follows the relative education approach. Origin-specific reference educational distributions to generate the parental relative education index are based on MICS data for Syria, Iraq, and Afghanistan and IPUMS data for Iran.

Our findings suggest that parental educational selectivity is beneficial beyond parents' absolute educational levels for adolescents' higher-level school placement. The role of educational selectivity appears to be particularly pronounced in North Rhine-Westphalia und Rhineland-Palatinate. We conclude that even if the role of parental educational selectivity is limited by structural conditions such as schooling regulations for newcomer migrants on the federal-state level, there are some opportunities for parental involvement (Welker and Will, 2023).

The role of parental educational selectivity may also be of particular importance for this group's destination-language acquisition as recent migrants usually have to learn the destination language from scratch. This specificity sets them apart from migrants with a higher generational status who grow up in the place of destination. It should be all the more true for refugees, who are unlikely to invest in destination-language skills before migration. In addition, the question of whether parental selectivity contributes to migrant children's skills might also depend on the children's age. In terms of language learning, younger children are known to acquire skills in a more undirected manner, whereas adolescents need to make greater efforts to learn a new language (Esser, 2006).

The fourth study (see Chapter 5) therefore aims to answer the research question whether parental educational selectivity contributes to young refugees' destination-language skills in Germany (Welker, submitted). Its main contribution lies in investigating this intergenerational association for a group of first-generation migrants who arrived only recently and are assumed to have possessed no German language skills prior to migration. The study also looks into aspects that are frequently assumed to drive potential consequences of parental educational selectivity. Starting from a theoretical framework that models language skills as a function of exposure, efficiency, and incentives (Chiswick and Miller, 1995, 2001), it is assumed that positive parental selectivity reflects in advantages in learning efficiency that are to some extent

transmitted to children. Positively selected parents might also be more ambitious to make their children learn the new language. The latter should be particularly relevant for adolescents (Welker, submitted), who are supposed to make greater efforts to learn a new language than younger children.

Again, I use data from the ReGES study, with analytical samples of 713 children and 711 adolescents who completed German language competency tests. Like in the third study, origin-specific reference educational distributions to generate the parental relative education index as a measure of educational selectivity are based on MICS data for Syria, Iraq, and Afghanistan and IPUMS data for Iran. OLS regression models are run to analyze the association between parents' educational selectivity and children's and adolescents' German language skills.

The results are inconclusive for younger children, which may point to the importance of undirected learning among this age group. For adolescents' German language acquisition, the findings suggest that educational selectivity may to some extent be beneficial. However, this advantage is only shown by those multivariate models that include a squared term of relative education (Welker, submitted).

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Chapter 2 Selectivity profiles of recently arrived refugees and labor migrants in Germany *

Abstract

Migrant selectivity refers to the idea that immigrants differ in certain characteristics from individuals who stay behind. In this article, we describe the selectivity profiles of recent migrants to Germany with respect to educational attainment, age and sex. We illustrate how refugees differ from labor migrants, and we compare the profiles of Syrian refugees who overcame the distance to Europe to Syrian refugees who settled in the neighboring countries Lebanon or Jordan. We rely on destination-country data from the *IAB-BAMF-GSOEP Survey of Refugees*, the *Arab Barometer*, and the *German Microcensus* as well as on a broad range of origin-country data sources. Regarding sex selectivity, males dominate among refugees in Germany, while, among economic migrants, sex distributions are more balanced. Relative to the societies of origin, labor migrants are younger than refugees. At the same time, both types of migrants are drawn from the younger segments of their origin populations. In terms of educational attainment, many refugees perform rather poorly relative to German standards, but compare positively to their origin populations. The educational profiles for labor migrants are mixed. Finally, Syrians who settle in Germany are younger, more often male and relatively better educated than Syrians migrating to Jordan or Lebanon.

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1 Introduction

In a prominent contribution, Lee (1966: 56) addressed migrant selectivity by claiming that immigrants are "not a random sample of the population at origin", but differ in certain characteristics from their non-migrating equivalents who stay behind. Selectivity can reflect in a variety of attributes. Pioneer migrants, for example, are often male (e.g., Lindstrom/López Ramírez 2010); and despite increasing numbers of female migrants, men from less-developed countries still migrate more often than women (Gosh 2009). Compared to those who remain in the origin country, migrants are usually younger (e.g., Birchall 2016; Lindstrom/López Ramírez 2010) and healthier (e.g., Kennedy et al. 2015; Lu 2008; Ro et al. 2016; Weeks et al. 1999). Migration scholars, in addition, have argued that immigrants are among the most ambitious, motivated and risk-taking persons of their home countries (e.g., Bonin et al. 2006; Chiswick 1978; Polavieja et al. 2018; Portes/Rumbaut 1996).

In sociology and economics, the probably most frequently considered selectivity attribute is educational attainment (e.g., Borjas 1987; Chiswick 1999; Ichou 2014; Feliciano 2005). Educational selectivity has been shown to be relevant for immigrants' integration prospects along various dimensions. Recent empirical studies mostly point to favorable consequences of being positively selected, for example, for immigrants' labor market performance (Picot et al. 2016), for their health (Ichou/Wallace 2019), for the pace of destination-language acquisition (Spörlein/Kristen 2018) or for the second generation's educational attainment (Feliciano 2005; Feliciano/Lanuza 2017; Ichou 2014; van de Werfhorst/Heath 2018). Educational selectivity in these contributions is seen as indicative for other, usually unmeasured attributes such as a person's motivation or drive to succeed, cognitive skills or access to further resources (Engzell 2019; Feliciano 2005; Ichou 2014; Spörlein/Kristen 2019).

In this article, we aim at describing the selectivity profiles of recent immigrants with respect to three attributes: sex, age and educational attainment. Descriptions of the sex and age composition provide information on the general makeup of the contemporary migrant population. The central focus, though, is on educational attainment, as this characteristic usually is considered when addressing selectivity differences between different types of migrants and because it has been linked to immigrants' and their children's incorporation into the host societies.

In our description, we consider on the one hand refugees who recently came to Germany from Afghanistan, Eritrea, Iraq and Syria using the *IAB-BAMF-GSOEP Survey of Refugees in Germany* (Brücker et al. 2016; Kroh et al. 2016). Many of these immigrants left their home countries in times of war and violent conflict. In this regard, they differ from other refugees who flee for ideological or political reasons as well as from migrants who leave their origin countries for other purposes such as economic migrants. Even though Germany is only one of

the destinations in Europe, it is by far the largest recipient with 46 percent of the total refugee population heading for Europe between 2014 and 2018 settling there (Eurostat 2019).

On the other hand, we study how recent refugees compare to other new immigrants, who came to Germany for different reasons such as labor migrants and individuals migrating for family matters or educational purposes. Since the *German Microcensus* (GMC), which we use for this illustration, does not allow distinguishing between economic and other types of migrants, we treat them together and subsume them under the term "labor migrants". We opt for this route because there are empirical indications, which suggest that in almost all migrant groups under study labor migrants make up the largest share. At the same time, we recognize that the assumptions made for economic migrants do not always apply in the same manner to other kinds of migrants. We will get back to this issue when describing the different data sources.

Moreover, we compare the selectivity profiles of Syrian refugees who overcame the distance to Germany to those of Syrian refugees who migrated to the neighboring states Jordan and Lebanon. As will be discussed below in more detail, the longer distance to Europe could reflect in a more positive human capital selection of Syrian refugees coming to Germany compared to those settling in Jordan or Lebanon. We also expect Syrians in Germany to be younger and more often male than Syrians in the adjacent countries. For the description of Syrian refugees in Jordan and Lebanon, we use the *Arab Barometer Wave IV* (AB IV; AlKhatib et al. 2016).

The motive to migrate has been a recurring issue in debates about whether immigrants are typically drawn from the upper rather than the lower parts of the educational attainment distribution (Chiswick 1999; Feliciano 2005). The arguments brought forward in this context refer to conditions that are assumed to differ between refugees and economic migrants. In the theoretical part, we single out these arguments and link the respective reasoning to a general account of migratory behavior. In this way, we aim at illustrating how systematic variation in individual decisions about staying versus leaving as well as about the choice of a certain destination may generate distinct selectivity profiles that set apart different kinds of migrants.

For our empirical descriptions, we move away from group-based definitions of selectivity towards a definition at the individual level. Ichou (2014) introduced a measure that indicates the individual migrant's relative position in the distribution of a certain characteristic in a population. This individual-level perspective acknowledges that origin groups can consist of varying shares of differentially selected individuals. In fact, empirical findings confirm that migrant groups are often composed of individuals covering the whole selectivity spectrum rather than of individuals concentrating on one end or around a certain value of that spectrum (Spörlein/Kristen 2019).

In our empirical study, we consider migrant selectivity both relative to the population in the origin country and relative to the majority population in the destination country. Both types of comparisons are meaningful when assessing immigrants' integration prospects. The former

informs us about the relative value a certain degree has in the context of the origin country. This value varies with the prevalence of the degree in question. For example, in a society, "in which the average level of education is lower, a medium educational degree is relatively more valuable than it is in a context in which the average level of education is higher and where most individuals complete at least a medium degree" (Spörlein/Kristen 2019: 4). Hence, immigrants who do not have a high education according to the standards in the destination country may nonetheless be positively selected relative to the general population in their home countries (Lieberson 1980: 214). The latter comparison to the majority population in the destination country, in contrast, provides us with information about immigrants' relative standing in the receiving society. This location might be of special relevance in a destination country such as Germany, where educational qualifications and certificates are particularly important for individuals' labor market prospects (Bol/van de Werfhorst 2011; Breen 2005) and where ethnic inequality in the labor market is more pronounced than in other European countries (Lancee 2016; Spörlein 2018).

The empirical analyses rely on data on recent refugee and labor migrants in the destination countries as well as on the populations in their respective countries of origin. Accordingly, we use a range of data sources that allow considering different types of immigrants (i.e., refugees and labor migrants in Germany as well as Syrian refugees in Jordan and Lebanon), the reference populations in their origin and destination countries, and the selectivity characteristics of interest (i.e., sex, age and educational attainment). The various comparisons will provide us with a differentiated characterization of current migration flows.

2 Selectivity among refugees and labor migrants

The notion that the selectivity profiles of refugees differ from those of labor migrants has been discussed in the context of statements that center on the motive to migrate (Chiswick 1999; Feliciano 2005). The arguments brought forward in this context can be linked to a general account of migratory behavior that follows applications of the human capital model (Becker 1964; Chiswick 1999, Sjastaad 1962) and of value-expectancy theory (De Jong et al. 1983; Kalter 2000). The general idea is that individuals consider the costs and benefits of leaving versus staying as well as the probabilities that selecting one of these alternatives will bring about the expected returns. They eventually choose the alternative that is perceived as most promising. In the following, we discuss the various arguments raised in the literature in relation to this theoretical framework and illustrate their application to contemporary refugees. We start by considering the decision about whether to migrate and, subsequently, address the decision about where to migrate (Massey et al. 1998; Kalter 2000). Both are relevant for an account of migrant selectivity.

2.1 The migration decision and migrant selectivity

Much of the reasoning about why individuals decide to leave the place where they grew up center on the costs and benefits associated with staying versus leaving. Benefits encompass all those incentives that individuals perceive as an improvement upon their current life situation such as realizing a more favorable position on the labor market, a higher income or better chances for their offspring. They point to the so-called pull factors of migration (Lee 1966). Conversely, it is also necessary to consider conditions pushing individuals to leave such as high unemployment and pessimistic labor market prospects in the origin country or, as in the case of violent conflict and war, physical harm. In these instances, migration can alleviate the strains that push factors impose on individuals' lives.

The perceived benefits of migrating are contrasted with the costs that migration incurs. These costs include the direct expenses of travelling to the destination as well as less tangible costs such as the psychological burden of losing social networks or potential difficulties associated with settling in a culturally dissimilar context (Borjas 1987; Jasso/Rosenzweig 1990; Massey 2010).

Finally, migration can be a risky endeavor and leaving may not necessarily mean that the destination is reached or that the expected benefits can be realized in the host society. For example, migrants may not be able to find a suitable job and thus fail to achieve their aims. In the case of refugees, the dangerous nature of migration reflects in the large number of drownings in the Mediterranean Sea.

In the following, we take up this general reasoning about migratory behavior and apply it to recent refugees and labor migrants in Germany. We consider arguments that address the question why the selectivity profiles of refugees might differ from those of economic migrants. In essence, most of the answers prominently discussed in the literature boil down to the motive to migrate, and they mostly refer to *educational selectivity*.

While labor migrants voluntarily choose to leave, war and violent conflict typical for the contemporary refugee populations create conditions that impose such considerations on individuals who otherwise may not have seriously contemplated migration. Put differently, the key issue seems to be whether the decision to go elsewhere is motivation-based and hence driven largely by pull factors or whether it is based on external danger or threat and thus rather on circumstances that push individuals out of their place of origin. This reasoning does not preclude that refugees, in addition to push factors, consider pull factors and, vice versa, that labor migrants, in addition to pull factors, consider push factors.

Lee (1966: 56), in this context, argues that migrants, who base their migration decision largely on what he calls "plus factors" at destination (i.e., pull factors), tend to be positively selected compared to those who stay behind. They are under no need to go elsewhere but do so because they perceive their opportunities in the destination country and weigh the advantages and

disadvantages of staying versus leaving. Consequently, economic migrants should be relatively better educated than the population in the country of origin. In contrast, individuals who respond primarily to "minus factors" at origin (i.e., push factors) tend to be negatively selected. This line of reasoning is frequently echoed in the literature (e.g., Chiswick 1999; Feliciano 2005; Grogger/Hanson 2011; Lessard-Phillips et al. 2014). Accordingly, recent labor migrants settling in Germany should be more favorably selected on education than refugees from Afghanistan, Eritrea, Iraq and Syria.

Regarding *age selectivity*, the human capital model suggests that younger individuals are more likely to migrate as they have more time left, in which they can be active on the labor market and realize the returns to their migration-related investments (Becker 1964, Chiswick 1999). In addition, younger individuals tend to be healthier and are therefore better able to cope with the strains associated with migration. Younger people are also more often single and do not yet have children, which allows them to be more flexible. The general notion therefore is that migrants are disproportionally drawn from the younger segments of the origin population (Birchall 2016; Lindstrom/López Ramírez 2010). This reasoning applies in particular to labor migrants who base their migration decision rather on pull factors. In contrast, conflict and war can force substantive parts of the population living in the afflicted regions to go elsewhere. In these instances, the age dispersion among refugees should be greater, suggesting that younger individuals will not dominate the picture in the same way as they do in other kinds of migration flows. In the extreme, when everyone has to leave, refugees will not be selected at all on age (or on any other attribute; Lee 1966: 56). Relative to their societies of origin, contemporary refugees should thus be older than labor migrants.

Regarding *sex selectivity*, the arguments raised touch upon the gender-specific division of labor. In many societies around the world, women are still mostly in charge of family matters, while men as breadwinners are expected to be active on the labor market and support their families economically. Accordingly, males are more likely to migrate than women for whom migration can be more costly given the inflexibilities associated with having and taking care of children (Stock 2012). Sex imbalances in favor of males are expected to vary with the extent to which gender-specific norms and expectations are enshrined in the society of origin. While men are expected to dominate the migration streams from more traditional societies, a more balanced picture should emerge for the migration streams from modern societies. Because contemporary refugees mostly stem from traditional societies, gender-specific norms together with societal beliefs about whether it is acceptable for women to travel on their own (Birchall 2016) may thus contribute to a composition in favor of males. However, war and imminent threat may counteract these forces. In instances where large segments of the population are pressured to leave, also females and children will migrate, though, as we will argue below, rather to a place nearby than to a distant destination.

2.2 Destination choice and migrant selectivity

Migration also involves the choice of a certain destination. Once again, individuals can be assumed to consider different alternatives such as leaving for a distant country in Europe or staying in a place close by. Migrants decide between these destinations based on assessments of the costs and benefits attached to the different alternatives as well as of the probabilities of being able to reach each of the destinations and realize the corresponding returns.

In the following, we apply this reasoning to recent Syrian refugees and argue for differences in the selectivity profiles of Syrians leaving for Europe versus Syrians leaving for an adjacent country. Important destinations for individuals who fled Syria between 2012 and 2018 have been the neighboring states Iraq, Jordan, Lebanon, and Turkey. In 2018, about 5.5 million refugees were registered in these countries (UNHCR 2019).[1] From all Syrians who arrived in Europe between 2014 and 2018, 56 percent came to Germany (Eurostat 2019). In 2018, 714.645 Syrian nationals have been listed as living there (Statistisches Bundesamt 2019).

Reaching a distant destination in Europe takes longer and in many cases is more dangerous compared to settling in a state nearby. Therefore, traveling to Germany should be associated with greater costs as well as a higher risk of making it safely there. Covering the financial expenses of a trip to Europe requires substantive funds (Brücker et al. 2016: 28) with the more educated having more resources at their disposal to cover these costs (e.g., for shelter or traveling). Moreover, in light of Germany's more prosperous economic situation, migrants might perceive the benefits of heading to this destination to be greater than the benefits of settling in one of the less affluent neighboring states (Brücker et al. 2016: 28). Assuming that individuals who have acquired more education are better prepared to realize the benefits associated with migrating to a distant location and therefore anticipate higher returns to their education, they should more often opt for this alternative compared to individuals with less education. Accordingly, in terms of *educational selectivity*, Syrian refugees in Germany should be more favorably selected on education than Syrian refugees in one of the contiguous countries.

The reasoning on *age selectivity* directly links to the arguments outlined above. That is, younger people have more time left in which they can realize the returns to their migration-related investments. They should also be healthier and more able to face the often difficult and strenuous conditions of traveling to a place farther away. Correspondingly, Syrian refugees going to Germany should be younger than those entering one of the countries nearby.

[1] Iraq: n=251.157 Syrian refugees, 0.6 percent of the total population of Iraq; Jordan: n=667.186 Syrian refugees, 6.7 percent of the total population of Jordan, Lebanon: n=968.083 Syrian refugees, 15.9 percent of the total population of Lebanon; Turkey: n=3.562.523 Syrian refugees, 4.4 percent of the total population of Turkey (for the populations of Syrian refugees in 2018, see UNHCR 2019; for the estimates of the population sizes in 2018, see United Nations, Department of Economic and Social Affairs, Population Division 2017).

Finally, in terms of *sex selectivity*, we expect pronounced differences in the sex composition of refugees to Europe versus those entering a neighboring country – with males dominating the migration stream to Germany and a more balanced picture emerging for the adjacent states. Since the journey to Europe in many cases involves danger and harm and given that women typically are more vulnerable to some of these threats (e.g., sexual assault), assessments of the likelihood of making it safely to the destination country may differ between females and males. As a result, females should rather head for a destination nearby. In addition, women's family obligations may render migration to a neighboring country more attractive, as it is easier for a family or for several people to travel there jointly (Stock 2012). It may also be less acceptable in certain contexts for females to move or travel on their own, so that if women have to leave, they may travel only shorter distances (Birchall 2016).

Taken together, we expect Syrians who settle in Germany to be younger, more often male and relatively better educated than Syrians migrating to Jordan or Lebanon.

3 Measuring selectivity

The notion of immigrant selectivity applies to a variety of different characteristics. Sometimes these features can be directly observed such as in the case of education, age or sex. At other times, the interest is in unobserved (or unobservable) attributes. In these instances, researchers rely on observable characteristics in the hope of approximating the distributions of the underlying unobserved traits. For example, educational attainment is seen as indicative for latent, oftentimes unmeasured attributes such as immigrants' motivation, their drive to succeed or cognitive competences (Engzell 2019; Feliciano 2005; Ichou 2014; Spörlein/Kristen 2019). Our measurement on educational selectivity, consequently, captures both observable and unobservable characteristics.

In prior research, selectivity has been measured in a number of different ways. Most of them can be grouped along two conceptual axes: the level of analysis (i.e., individual-level versus group-level) and the reference population (i.e., the population of the origin country versus the population of the destination country).

Until recently, group-based definitions of migrant selectivity have been the main route of assessing the extent of selectivity and of analyzing the relationship between selectivity and immigrants' integration. Two approaches of group-level definitions stand out.

The first approach relies on macro-level characteristics of the country of origin and/or destination. Empirical contributions, for instance, consider the geographic distance between the origin and the destination country (e.g., Spörlein/van Tubergen 2014; van Tubergen et al. 2004), net earning differentials between migrants and majority members in the destination country (e.g., Borjas 1987) or cross-country differences in the level of economic development (e.g.,

Cobb-Clark 1993; Levels et al. 2008). This approach is indirect in that it does not capture the selectivity attribute in question. Instead, it is usually argued that the macro-level characteristic is indicative for a specific selection of the migrant population. For example, a larger geographic distance implies greater migration costs, which the more affluent segments of the population are better able to cover. Therefore, a greater distance should be associated with a more positive selection on relevant resources.

The second group-level approach uses information on the selectivity characteristic of interest for the origin population and for the migrants from this country. Applied to educational selectivity, the index of net difference (Lieberson 1980) summarizes the share of migrants who are more educated than non-migrants of the same age-cohort, the share of migrants who are less educated, and the share of migrants with equal levels of education as the non-migrant population in the origin country within the same age range. Put differently, the index sums up how often the educational level of a migrant from a certain origin country will exceed that of a non-migrant from this country (e.g., Feliciano 2005; Lessard-Philips et al. 2014; van de Werfhorst/Heath 2018).

Both approaches treat origin groups as monolithic blocks and assign the same selectivity value to each migrant of the same origin. An obvious drawback of a group-level definition is that the characterization of a group as a whole as either positively or negatively selected usually is unable to capture the empirical distribution. That is, migrant groups are usually composed of positively and negatively selected individuals (Spörlein/Kristen 2019).

Individual-level measurements of migrant selectivity respond to this drawback of group-level approaches and specify how individual migrants compare to a reference population. A rather recent influential approach, which so far has mainly been applied to educational selectivity, positions the individual migrant in the sex- and age-specific educational attainment distribution of the origin country (Ichou 2014). It thus allows for variation in the selectivity values of immigrants of the same origin. By considering sex-specific distributions, the measure takes into account differences between females and males in their access to educational institutions in the origin country; by considering age-specific distributions, it allows incorporating changes following the educational expansion and, associated therewith, changes in the relative positional value of educational credentials over time. This selectivity measure also stays true to the original notion of immigrant selectivity by recording how migrants compare to those who stay in the country of origin (Lee 1966).

Another individual-level approach that is usually not explicitly framed as a selectivity measure refers to migrant selectivity in reference to the distribution of a certain characteristic in the population of the destination country. For example, it has been argued that particular migration flows such as those by labor migrants coming to Western Europe in the 1960s and early 1970s as well as later on their following family members were less educated than were the populations in the host societies at the time (Kalter/Granato 2007: 284). Selectivity in these instances is

framed from the perspective of the destination countries. In terms of measurement, these accounts usually rely on comparisons of absolute educational attainments obtained by immigrants and majority members.

The question of which measurement approach is most suitable certainly depends on what researchers aim to investigate. For the descriptions envisaged in our study, relative measures that locate the individual migrant within the appropriate distribution of a certain characteristic in a reference population are of key importance. In the following, we consider both: how immigrants of different origins compare to those who remain in the origin country and how they compare to the German (and for Syrians also how they compare to the Lebanese and Jordanian) majority population(s). This last comparison provides an important addition to the overall description of the composition of contemporary migrants, as educational degrees are usually assessed from the perspective of the destination society. For example, on the labor market, immigrants' educational credentials will not be judged for their relative value in the origin country, but for what these credentials mean in the destination country. In modern Western societies, in which the educational expansion is well-advanced, low and medium levels of education, despite their possibly greater value in a different societal context, generally are insufficient for gaining access to higher positions and therefore limit what immigrants will eventually achieve.

4 Data and selectivity measures

4.1 Origin- and destination-country data sources

For our descriptions of recent immigrants' selectivity profiles, we rely on a range of origin- and destination-country data sources.

For refugees in the destination countries, we consider two data sets. The first is the *IAB-BAMF-GSOEP Survey of Refugees in Germany* (Brücker et al. 2016; Kroh et al. 2016). It contains roughly 4,500 individuals aged 18 and above who arrived in Germany between 2013 and 2016. It is based on a random sample of the Central Register of Foreigners (AZR) with an oversampling of refugee groups who at the time were assumed to have a high likelihood of staying in Germany (such as Afghans, Iraqis and Syrians). In addition, women and individuals older than 30 were oversampled. The analyses using this data set are therefore based on weighted data. We consider only groups with at least 200 respondents and, accordingly, present findings for refugees from Afghanistan, Eritrea, Iraq and Syria.

For the Jordanian and Lebanese samples of Syrian refugees, we rely on the *Arab Barometer Wave IV* (AB IV). The data was collected in 2016 and 2017 and, for each country, provides information on 300 Syrian refugees aged 18 and above. The surveys are based on probability

samples of Syrians living among the general population, mainly outside of refugee camps (AlKhatib et al. 2016: 5-6; Arab Barometer Wave IV Technical Report, n. d.).

The analyses of labor migrants and their accompanying family members are based on the *German Microcensus* (GMC). The Microcensus is a yearly 1 percent household sample, in which respondents are obliged to participate. We pooled data from 7 years, covering the period from 2008 to 2014. Since we are interested in recent immigrants, we restrict the duration of stay to a maximum of five years. Moreover, we use information on nationality to distinguish between different origin groups. Similar to our proceeding for the refugee populations, we only consider migrant groups with at least 200 respondents. In total, our GMC sample covers 21 origin groups ranging from smaller groups (e.g., from Kazakhstan or Thailand) to larger, well-established groups (e.g., from Poland, Russia or Turkey).

[Table 1 about here]

All destination samples are restricted to individuals aged 15 to 64. Table 1 depicts the different refugee and labor migrant groups and the available sample sizes. It also illustrates that some of the groups that we consider as labor migrants also contain refugees. The *German Microcensus* does not allow distinguishing between refugees and labor migrants. Therefore, we rely on other data sources such as the OECD International Migration Database and Eurostat's Asylum and Managed Migration Database to obtain at least a rough estimate of the refugee populations that might be included in our labor migrant sample. As Table 1 indicates, in most cases, refugees make up only a small minority. Exceptions are Moroccans (with 9 percent refugees), Russians (with 15 percent) and Turks (with 7 percent). We decided against excluding these groups; but we keep this limitation in mind when interpreting the results. We only dropped Vietnamese migrants for whom the percentage of refugees amounts to 23.

Moreover, the Microcensus does not allow distinguishing between economic migrants, family migrants and students. Only in 2014, it included an additional question on this issue. However, the number of cases of new immigrants available for each origin group in this year is far too small (i.e., for 17 of the 21 migrant groups below 35 cases) for a sound assessment of the shares of the different types of migrants (and other data sources do not provide this information either). The distributions based on these small numbers at least suggest that migrating for economic reasons is the main motive for most origin groups.

For comparisons of recent immigrants with the majority populations in the destination countries, we use the *German Microcensus* for Germany and the *Arab Barometer Wave IV* for Jordan and Lebanon.

To depict the distributions of educational attainment, sex and age for the populations in the origin countries, we use four different data sources. The first data set, the *Integrated Public Use*

Microdata Series International (IPUMS), provides census data for a wide range of countries. Second, we rely on UNICEF's international household survey initiative, the *Multiple Indicator Cluster Surveys* (MICS), which also covers a variety of countries. In contrast to these two individual-level sources, the remaining two data sets publish only aggregate distributions. They include the *United Nations database* (UNdata) and the *Eritrea Population and Health Survey* 2010 (EPHS2010; National Statistics Office/Fafo AIS 2013: 19-20). Given that the aggregations are based on the characteristics of interests, namely, educational attainment, sex and age, they are well suited for our purposes.

4.2 Selectivity measures

In view of the variety of data sources used in this study, harmonization is an issue. There was no need for modifications for sex and little for age. The latter is categorized into ten 5-year intervals where the lowest category covers individuals aged 15 to 19 and the highest those aged 60 to 64.

For educational attainment, we rely on a variant of the 1997 *International Standard Classification of Education* (ISCED) and use the following categories: no education (ISCED 0), primary (ISCED 1), lower secondary (ISCED 2), upper secondary (ISCED 3), post-secondary non-tertiary (ISCED 4) and tertiary (ISCED 5, 6). The IAB-BAMF-GSOEP Survey of Refugees in Germany and the GMC on the destination side and the IPUMS, MICS and UNdata on the origin data side use the same or very similar classification schemes that can easily be assigned to these categories. The AB IV for the destinations countries Jordan and Lebanon, however, does not record ISCED 4, which in Syria with about 6 percent seems to be of some importance. We assume that Syrians in Jordan and Lebanon who acquired a degree that qualifies as ISCED 4 have been downgraded to ISCED 3 in the Arab Barometer. In our analyses of this data set, we may therefore slightly underestimate the degree of selectivity of Syrians.

The Eritrean origin data provides information on up to secondary education (≤ISCED 3), but little specification on the precise level attained beyond that. We therefore assigned the residual category "more than secondary" to tertiary education (ISCED 5, 6). Among the Eritrean origin population, 6 percent of males and 2 percent of females fall into this category (National Statistics Office/Fafo AIS 2013: 19-20). In the IAB-BAMF-GSOEP Survey of Refugees in Germany data on Eritrean refugees, 8 percent (n=16 of which 1 respondent was female) of all Eritreans report having attained more than ISCED 3. 12 of these 16 cases completed university, which suggests that our strategy is unlikely to grossly misrepresent the education of Eritrean refugees.

Using the harmonized data, we construct two types of selectivity measures: the first compares immigrants to their origin population (i.e., the origin-relative measure), while the second

compares immigrants to the destination population (i.e., the destination-relative measure). We consider these measurements to describe the selectivity profiles with respect to age and educational attainment (Ichou 2014). For the measure of *age selectivity*, we calculate each individual's quantile position in the sex-specific age distribution. We follow a similar approach for *educational selectivity* and specify the individual migrant's quantile position in the sex- and age-specific educational attainment distribution. Each of the four measures ranges from 0 to 1. A value of 0.6 can be interpreted as an individual being older (or more educated) than 60 percent of the origin (or destination) country population. In the context of relative education, values above 0.5 point to a positive selection, whereas values below 0.5 indicate a negative selection. The notion of "positive" or "negative" seems less suited for a description of age selectivity. As a purely distributional feature, we could apply the distinction in the same manner as for education. Correspondingly, a concentration of younger individuals among new immigrants would reflect in a negative selection. However, an immigrant composition dominated by younger individuals, in the general perception, is perceived as positive, even though this introduces an assessment to an otherwise neutral distributional account. To avoid this confusion, we refrain from using the positive/negative framing for age.

In most populations around the world, there are only small imbalances in the age-specific distributions of females and males (rarely exceeding 1 percentage point). This characterization also applies to the origin and destination populations covered in our study. For this reason, calculating relative distributions in the same way as for education and age is less meaningful. It would yield estimates that are almost identical to reporting the percentages of females or males in each age group for both the origin and the destination country. We therefore restrict our description of *sex selectivity* to one measure, which for each origin group captures the percentage of female migrants.

Table 2 and Table 3 in the Appendix provide information on absolute and relative distributions of sex, age and educational attainment separately for each immigrant group.

5 Results

In the following, we visualize the selectivity profiles of refugees and labor migrants with respect to sex, age and educational attainment. With the exception of sex, we present the findings relative to the populations in the origin and the destination country.

5.1 Sex selectivity

Figure 1 illustrates the percentage of female migrants within each origin group. Refugees to Germany cluster at the top of the figure indicating that males dominate the recent migrant flows

from these countries. Only between 20 (Eritrea) and 26 (Iraq) percent are female. By contrast, the sex composition of Syrians relocating in Jordan (Syria JO) and Lebanon (Syria LB) is balanced – with about 50 percent female migrants in both countries. These patterns are in line with the reasoning that women are more vulnerable to the threats typical for the long and dangerous journey to Europe. Their families may be reluctant to let them face these risks and rather concentrate their resources on males whom they perceive as being better prepared to deal with the challenges of migrating to a distant destination (Birchall 2016).

[Figure 1 about here]

Among labor migrants, women make up considerably larger percentages than among refugees. Overall, Figure 1 points to a mostly balanced picture for labor migrants; but there is also variation. On the lower end of the spectrum, women from the United Kingdom are underrepresented with 29 percent. A closer look at the data reveals that many of the men originating from the United Kingdom are highly educated and work in male-typical occupations (e.g., computer scientist). At the other end of the spectrum, the migration flows from Russia, Ukraine and Thailand are dominated by females. In the extreme case of Thai immigrants, only 14 percent are male. The one-sided composition of these origin groups could be related to migration for marital reasons. As statistics on binational marriages in Germany document, women from these three countries frequently marry German men (Nauck 2009).

5.2 Age selectivity

Before discussing the findings on relative age, we consider age in absolute terms for both the different migrant groups who came to Germany as well as for the populations in the various origin countries. The description for migrants is confined to individuals aged 15 to 64 rather than to the entire populations. Therefore, measures of central tendency such as the median age differ from calculations based on the complete age spectrum.[2]

Afghan, Eritrean, Iraqi and Syrian refugees to Germany are rather young. Their median age ranges between 26 (Eritrea) and 34 (Syria) years (see Table 2 in the Appendix). Despite variation, the different labor migrant groups for the most part are considerably older with median ages up to 50 years (see Table 3 in the Appendix). At the same time, the age structure of the origin populations of refugees on the one hand and of economic migrants on the other hand differ substantially. That is, contemporary refugees originate from less developed

[2] Considering that the extent of this difference varies with the overall age structure of the societies under study, we do not claim to provide a fully accurate picture. The concern rather is to illustrate the age difference between recent refugees and labor migrants and in this way to provide some context for the interpretation of selectivity in terms of relative age.

societies, in which young people make up large shares of the population, while the opposite holds for labor migrants. Economic migrants come from countries with higher levels of economic development, which are characterized by either elderly and shrinking or stationary populations, and hence, considerably fewer young people.[3] These distributions suggest that, despite refugees being younger in absolute terms than labor migrants, in origin-relative terms (i.e., in comparison to the age distribution of the population at origin), this may not necessarily be the case.

[Figure 2 about here]

For each migrant group, Figure 2 illustrates the density distributions of age – relative to the origin population (grey) and relative to the destination population (black). At the top, the graph shows the distributions for refugees. Below it depicts the distributions for the different labor migrant groups that are arranged according to their geographic location. Next to each group's name, we specify the share of migrants with destination-relative and origin-relative selectivity values greater than 0.5. These numbers inform us about the proportions of migrants who are older than half of the population in the reference country. For example, for the origin-relative description of Eritrean refugees the value of 0.46 indicates that 46 percent of the Eritreans who came to Germany are older than half of the population in Eritrea, while 54 percent are younger. The destination-relative profile, however, reveals a rather different picture with only 21 percent of Eritrean refugees being older than half of the population in Germany. Considering that the Eritrean origin population is very young, while the German population is considerably older, the discrepancy is less surprising. Hence, depending on the point of reference, a rather divergent picture emerges. We now turn to the substantive interpretation of the findings depicted in Figure 2, first focusing on differences in age selectivity between labor migrants and recent refugees and then between Syrian refugees in different destinations. In a final step, we turn to the destination-relative contrast.

Labor migrants are noticeably younger than non-migrants in the origin country. This pattern reflects in the bulk of age distributions to the left of the 0.5 reference line. Moreover, the proportion crossing the 0.5 reference line rarely exceeds 35 percent, also pointing to an age selectivity in favor of younger people. Chinese migrants are exceptional, as only 17 percent are older than half of the population in China. Taken together and in line with the theoretical considerations, recent labor migrants are largely drawn from the younger segments of the population in their origin country – even though they are older than refugees in absolute terms.

[3] *Populat*ion *Pyramids of the World from 1950 to 2100.* Retrieved (for 2013 for all countries under study) from https://www.populationpyramid.net/.

Refugees to Germany are also selective in age, but not to the same extent as labor migrants. This pattern aligns with the notion that being pushed out in times of war goes along with less selectivity than in instances, where individuals primarily respond to pull factors of migration. As argued earlier, when large parts of a population are forced to leave, age selectivity should be less pronounced or, in the extreme, completely disappear. The findings in Figure 2 attest to this consideration. That is, comparing Syrian refugees to Germany with Syrian refugees to Lebanon or Jordan, supports the assumption that refugees who head for a distant destination in Europe are more selective than refugees who leave for a neighboring country. In fact, Syrians who relocate in one of the adjacent states tend to be older than the population in Syria. That is, 55 percent of the Syrian migrants in Lebanon and 64 percent of the Syrian migrants in Jordan are older than half of the population in Syria. Strikingly, Syrian refugees in these destinations are the only two groups under study, in which more than half of its members cross the 0.5 threshold.

The characterization of refugees to Germany as less selective in terms of age compared to labor migrants, changes substantially when focusing on the distributions relative to the destination population. Comparing refugees to the German majority reveals that these migrants are considerably younger. This observation reflects in the placement of the black distributions to the left of the grey distributions. As pointed out above, the majority of Eritrean refugees rank in the bottom quartile of the German age distribution and only 21 percent cross the 0.5 threshold. This value indicates that 79 percent of the Eritrean refugees in Germany are younger than 50 percent of the German population. Afghans are another good example for this pattern. While they are on average as old as 46 percent of the Afghan population, they are only as old as 25 percent of the German population suggesting that also this group is composed of considerably younger individuals.

For labor migrants, especially for those from Western Europe/North America and Eastern Europe, there are few differences between the relative-origin and the relative-destination age distributions. This result follows from the more similar age structures typical for the origin countries and for Germany. Only for the origin groups from Africa/Middle East and Asia, we find somewhat larger deviations between the origin- and destination-relative age selectivity profiles; but these differences are still small compared to those found for refugees.

5.3 Educational selectivity

As we did for age, we first address education in absolute terms. With this step, we point to the profound differences between the educational attainment distributions of the societies under study. These disparities might otherwise go unnoticed, as they are not captured in the measures of relative education.

[Figure 3 about here]

Figure 3 presents the various absolute educational attainment distributions separately for each origin group (see also Table 2 and Table 3 in the Appendix). The first row depicts the histograms for refugees while the remaining rows refer to the different labor migrant groups. These histograms are arranged according to labor migrants' geographic origins. In addition, the rightmost panel in the last row shows the educational attainment distribution for the German reference population. To facilitate the comparison, we align the shades of the bars to denote broad educational categories: the two whitish bars indicate no and primary education, the two greyish bars lower and upper secondary education and the two blackish bars vocational and tertiary education.

The distributions for refugees are dominated by whitish bars pointing to their rather low levels of absolute education. Between 26 (Syrians) and 56 percent (Afghans) of the refugees in Germany have at most completed primary education (see Table 2 in the Appendix), while in the German reference population, the whitish bars are virtually non-existent (<3 percent). Compared to Syrian migrants in Germany, Syrian migrants in Jordan and Lebanon show a profoundly different educational composition with 44 and 58 percent of them having acquired no or only primary education, while, with 26 percent, this share is much smaller among Syrian refugees in Germany.

In contrast to the refugee populations, only few labor migrants have attained less than secondary education, especially among those hailing from Western Europe/North America. While being better educated than refugees in absolute terms, the distributions also reflect considerable variation across the various labor migrant groups, in particular regarding tertiary education. For most migrants from Western Europe/North America a university degree is typical reflecting in shares of tertiary education above 40 percent. The corresponding proportions for Eastern Europeans range between 20 and 40 percent. Only Moroccans and Turks (with 10 and 13 percent) range well below all other labor migrant groups. Among refugees, tertiary educational attainment is less common than among labor migrants. At the same time, Figure 3 points to substantive variation within the refugee population. While Iraqis with 18 percent and Syrians in Germany with 26 percent are university-educated, the respective percentages in the remaining groups are relatively small. They range between 4 (Syrians in Lebanon) and 8 percent (Afghans and Eritreans in Germany as well as Syrians in Jordan). Overall, the educational attainment profiles of refugees show a high prevalence of low levels of absolute education with the modal category being primary education (ISCED 1; 27 percent), while labor migrants on average are more educated. Their modal category is upper secondary education (ISCED 3; 34 percent), directly followed by tertiary education (ISCED 5, 6; 33 percent).

[Figure 4 about here]

How do the absolute educational profiles of migrants compare to the profiles of those who stayed behind? To answer this question, Figure 4 depicts the density distributions of migrants' educational attainment relative to the population in the respective origin country (grey) as well as relative to the population in the destination country (black). The values next to the names of the different migrant groups again denote the proportion of individuals with selectivity values above 0.5.

Although lower levels of absolute education are typical for the recent refugee populations, these migrants compare favorably to their compatriots remaining in the origin countries. For example, 75 percent of the Syrians who recently arrived in Germany are positively selected. The Afghan group provides another striking example with 66 percent being positively selected relative to the origin population. These patterns suggest that even little exposure to education – at least when viewed from the perspective of Western societies where only a minority leaves school with less than secondary education – is enough to generate profiles that reflect a favorable selection. Mirroring the findings for absolute education and in line with the theoretical expectations, Syrian refugees to Germany are more often positively selected on education (75 percent) than Syrians migrating to one of the neighboring states (59 percent in Jordan and 46 percent in Lebanon).

The corresponding picture for labor migrants is mixed and the various groups considerably differ in the degree of educational selectivity. While an overall characterization of labor migrants' selectivity profiles does not seem adequate in view of this variation, the geographic grouping, at least, allows for a cautious comparison of labor migrants from Western Europe/North America and Eastern Europe. The two remaining categories Africa/Middle East and Asia contain too few groups to be meaningfully included in this comparison. With the exception of recent migrants from Greece, immigrants from Western Europe and North America are mainly composed of positively selected migrants. For example, three quarters of all immigrants from France, Spain and the United Kingdom compare favorably to those left behind. This selection is driven by immigrants who have acquired tertiary education. Visually, this positive selection reflects in the grey peaks to the right hand side of the vertical line. This pattern sets labor migrants from Western Europe and North America apart from positively selected refugees to Germany, for whom an advantageous position in the origin country's educational distribution is driven also by lower than tertiary educational attainment.

The distributions for Eastern Europeans are indicative of a considerably less selective educational profile compared to Western European and North American immigrants. At the lower end of the spectrum are migrants from Kazakhstan with 24 percent being positively selected, while at the upper end of the spectrum are immigrants from Romania with 54 percent being positively selected. The visual illustration of the distributions in Figure 4, in addition, shows that the selectivity profiles of Eastern Europeans are more heterogeneous than the profiles of their Western European counterparts. That is, they are more equally distributed over

the whole selectivity spectrum rather than being concentrated in the upper parts, as it is typical for labor migrants from Western Europe.

Finally, we consider the additional contrast to the population in the destination country. The key finding for refugees is apparent at a glance: all groups are negatively selected compared to the respective destination population. Assessments of selectivity thus very much differ depending on the reference population considered. While the median Afghan migrant is at least as educated as are 68 percent of Afghanistan's population, the comparison of the median Afghan migrant with Germans yields a value of 2 (see Table 2 in the Appendix). This value indicates that s/he is only as educated as are 2 percent of the German population. For Eritrean refugees, a rather similar pattern emerges with a median origin-relative selectivity index of 55 and a median destination-relative index of 3. The findings on Syrian refugees in the different destinations also attest to a characterization of refugees as predominantly negatively selected. The median Syrian migrant is as educated as are 14 percent of Germany's, 11 percent of Jordan's and 6 percent of Lebanon's population.

For none of the labor migrant groups from Western Europe/North America and Eastern Europe is the difference between origin-relative and destination educational selectivity as pronounced as it is for refugees. Visually, this result reflects in largely overlapping grey and black distributions typical for these groups of economic migrants or, conversely, in the greater discrepancies in these distributions among refugees, especially at the lower end of the selectivity spectrum. It also appears in the discrepancy of the proportions of migrants that are positively selected relative to the destination versus the origin country. These differences are large among refugees (between 36 and 46 percentage points), while being much smaller among labor migrants from Western Europe/North America and Eastern Europe (between 1 and 17 percentage points). Only the profiles for migrants from Turkey, Morocco and Thailand show some resemblance to those of recent refugees.

6 Conclusions

In this article, we took up the classic notion of migrant selectivity and compared recent immigrants to individuals who remained in the country of origin. We also compared these migrants to the population at destination and, accordingly, presented a variety of selectivity profiles. Two comparisons were at the center of our account: we discussed and empirically investigated how contemporary refugees differ from labor migrants and how Syrian refugees who overcame the distance to Europe compare to Syrian refugees who settled in the neighboring states Jordan and Lebanon. Using a variety of data sources on recent migrants to Germany and on the populations in their origin countries, we presented findings on sex, age and educational attainment.

One result stands out among the many descriptions: all groups are composed of varying proportions of differentially selected individuals. The variation within groups usually is more pronounced than the variation across groups. In fact, the distributions for most migrant groups cover the whole selectivity spectrum rendering an overall characterization of a migrant group as either concentrating on one end of the spectrum (or as being positively or negatively selected) frequently inadequate. In view of this considerable within-group variation, it may not always be feasible to assess differences between refugees and labor migrants as well as between the various migrant groups within these two broad categories in a straightforward manner. In the following, we therefore turn to a cautious discussion of the various findings on recent immigrants in Germany.

Three patterns seem to stand out. First, refugee migrants are predominantly male, whereas most labor migrant groups cluster around sex-parity. Second, relative to the societies of origin, migrants are younger than individuals who stayed behind; and labor migrants are younger (relative to their origin society) than refugees. Third, in terms of educational attainment, refugees perform rather poorly relative to German standards. Nevertheless, they mostly compare positively to their origin population. For labor migrants, the picture of educational selectivity is more mixed with Western Europeans being overwhelmingly positively selected – also somewhat more favorably than refugees –, whereas the profiles for Eastern Europeans are more heterogeneous and rather indicative of a slight negative selection. However, given the broad variation within these groups, which reflects in several small peaks in the lower, medium, and upper parts of the selectivity distribution, an overall characterization seems hardly appropriate. These more heterogeneous educational profiles typical for economic migrants from Eastern Europe are not in line with the theoretical expectations, according to which, compared to refugees, labor migrants should be more favorably selected on education. In contrast, the other empirical selectivity distributions on sex and age largely follow the considerations developed earlier.

To investigate how destination choices reflect the purported differences in individuals' evaluations of the costs, benefits and probabilities associated with different destinations, we contrasted Syrian refugees who migrated to Germany with Syrian refugees who opted for one of the neighboring states. We argued that, even in dire situations, individuals may not just respond to push conditions but retain agency and – given the necessary resources – might select a destination farther away. Thus, also for refugees who are pushed out in times of war, pull factors come into play. This line of reasoning is based on the premise that migrants who overcome obstacles (e.g., geographic and/or cultural distance) are differentially selected. Our findings for Syrian refugees support this idea. Syrians who settle in Germany are younger, more often male and relatively better educated than Syrians migrating to Jordan or Lebanon.

Our theoretical reasoning focused on the comparison with the population in the origin country. Empirically, we complemented the picture with contrasting migrants to the population in the

destination country. The findings on age and educational selectivity illustrated that assessments of selectivity considerably differ depending on which reference population is chosen. While it is correct to characterize refugee migrants as disproportionately young relative to the destination country population, a divergent picture emerges relative to the origin population. In this case, they appear older. For labor migrants, in contrast, it makes little difference whether they are compared to their peers at home or to the destination population: they are composed mainly of younger individuals. Adopting a destination-relative perspective with regard to educational selectivity, we find that refugee migrants are less educated in absolute as well as relative terms, while, relative to the population in the origin country, they tend to be positively selected. Again, for labor migrants, the question of whether the origin- or the destination-country perspective is chosen makes less of a difference. Discrepancies between origin-relative and destination-relative selectivity patterns seem to be related to differences in the composition of the population in the origin and the destination country. Contemporary refugees mostly stem from less developed societies that are characterized by an expansive population structure with many young people at the bottom and by educational levels well below those typical for modern societies. Recent labor migrants in Germany, in contrast, mostly originate from countries, in which the age structure is more similar to that of the German population and in which educational attainments are indicative of a far advanced educational expansion.

Apart from characterizations of recent refugees based on the *IAB-BAMF-GSOEP Survey of Refugees*, little is known about their composition across European destinations. One exception is a study on Syrian and Iraqi refugees in Austria (Buber-Ennser et al. 2016), which reports very similar findings: migrants from both groups are on average younger and positively selected with respect to education compared to those left behind. However, the account is limited by its relatively small sample size and the use of a selectivity measure at the group level.

Overall, we would argue that refugees do not stand out as a special case in need of a special account on selectivity. Our findings rather point to the necessity to move away from broad categorizations of different groups based on migration motives and instead specify the conditions that are typical for distinct migration streams and for different groups of migrants and then consider these conditions within general models of migratory behavior.

An unresolved question arising from this study is whether origin-relative selectivity indeed captures less tangible resources and latent, often unmeasured characteristics including cognitive and other skills as well as motivational traits. It is also difficult to tell whether the positive selection on education, which we observed for recent refugees in Germany relative to those left behind, can, at least to some extent, compensate for their very low levels of absolute education. If functioning in a modern society requires more than some basic level of absolute education, the receiving countries are well advised to promote these immigrants' further educational investments, especially in the younger segments of the recently arrived immigrant population.

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Tables

Table 1: Data sources and sample sizes

Migrant group	Destination country		Origin country	
	Data and sample size	Percent refugees[1]	Data[2]	Year
Refugees	*IAB-BAMF-GSOEP Survey of Refugees (Germany)*			
Afghanistan	474		MICS	2011
Eritrea	205		EPHS	2010
Iraq	534		MICS	2011
Syria	2,065		MICS	2006
	AB IV (Jordan, Lebanon)			
	284			
	297			
Labor migrants	*German Microcensus (GMC)*	*OECD, Eurostat*		
Austria	738	~ 0	UNdata	2011
Bulgaria	878	0.4	UNdata	2011
China	1,028	3.7	UNdata	2010
Croatia	304	0.2	UNdata	2010
France	768	~ 0	IPUMS	2011
Greece	561	~ 0	UNdata	2011
Hungary	832	~ 0	UNdata	2011
Italy	867	~ 0	IPUMS	2011
Kazakhstan	257	1.5	UNdata	2010
Morocco	411	9.1	UNdata	2010
Netherlands	600	~ 0	IPUMS	2011
Poland	4,454	~ 0	UNdata	2011
Portugal	272	~ 0	UNdata	2011
Romania	1,541	~ 0	UNdata	2011
Russia	1,747	14.7	UNdata	2010
Spain	538	~ 0	UNdata	2011
Thailand	220	~ 0	UNdata	2010
Turkey	1,987	7.4	UNdata	2011
United Kingdom	516	~ 0	UNdata	2011
United States	625	~ 0	IPUMS	2010
Ukraine	513	2.7	UNdata	2001

Notes:

[1] The numbers provide an estimate of the percentage of refugees that are contained in each origin group. The percentages are derived by dividing the total number of first time asylum applicants by the total number of immigrants for the period between 2003 and 2014. Data sources are the OECD's International Migration Database: https://stats.oecd.org/Index.aspx?DataSetCode=MIG and Eurostat's Asylum and Managed Migration Database: https://ec.europa.eu/eurostat/web/asylum-and-managed-migration/data/database.

[2] EPHS (Eritrea Population and Health Survey): https://www.afro.who.int/publications/eritrea-population-and-health-survey-2010, MICS (UNICEF Multiple Indicator Cluster Survey): http://mics.unicef.org/surveys, IPUMS

(Integrated Public Use Microdata Series International): https://international.ipums.org/international/, UNdata (United Nations database): http://data.un.org/.

Figures

Figure 1: Sex selectivity (percent female migrants)

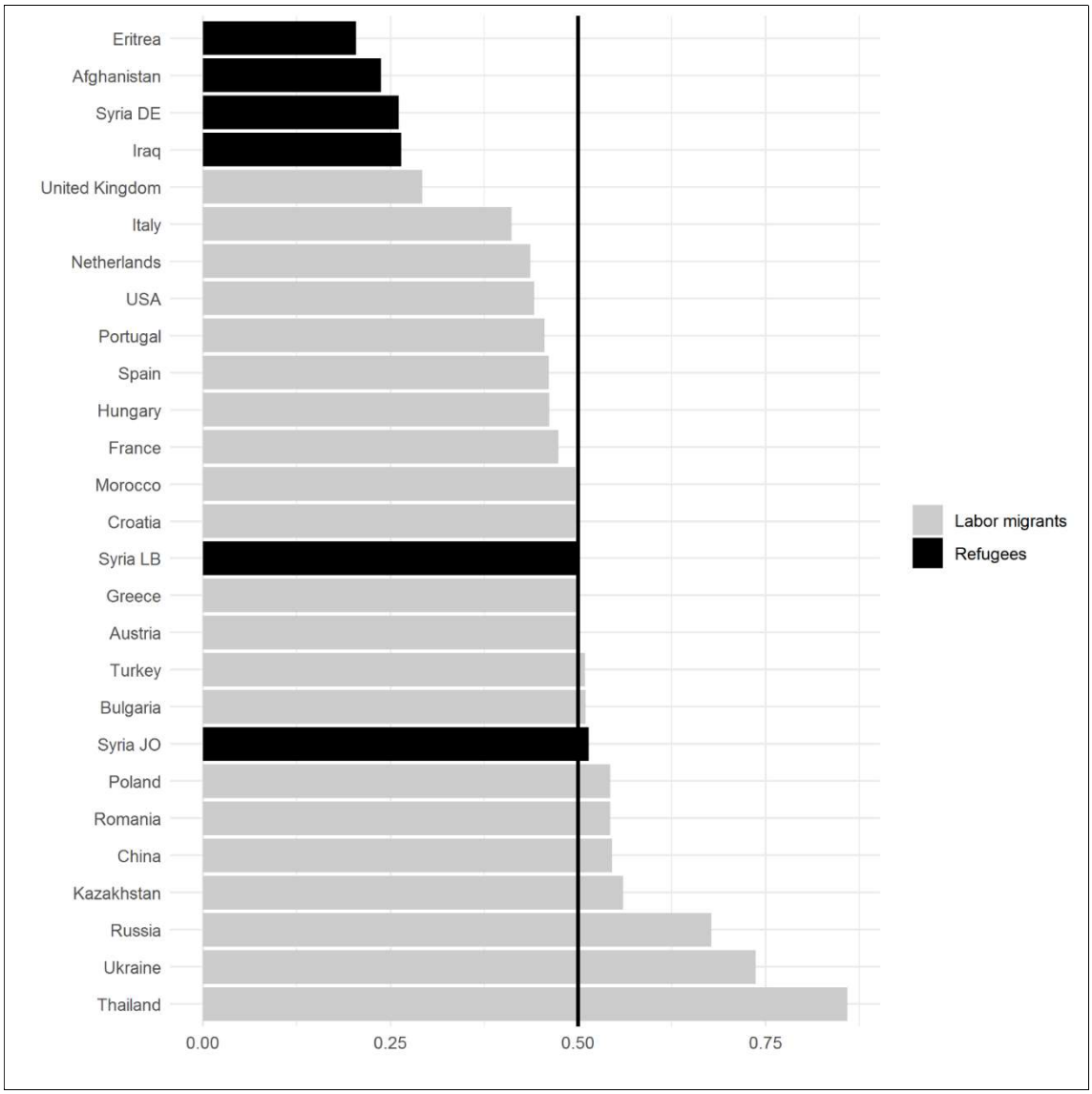
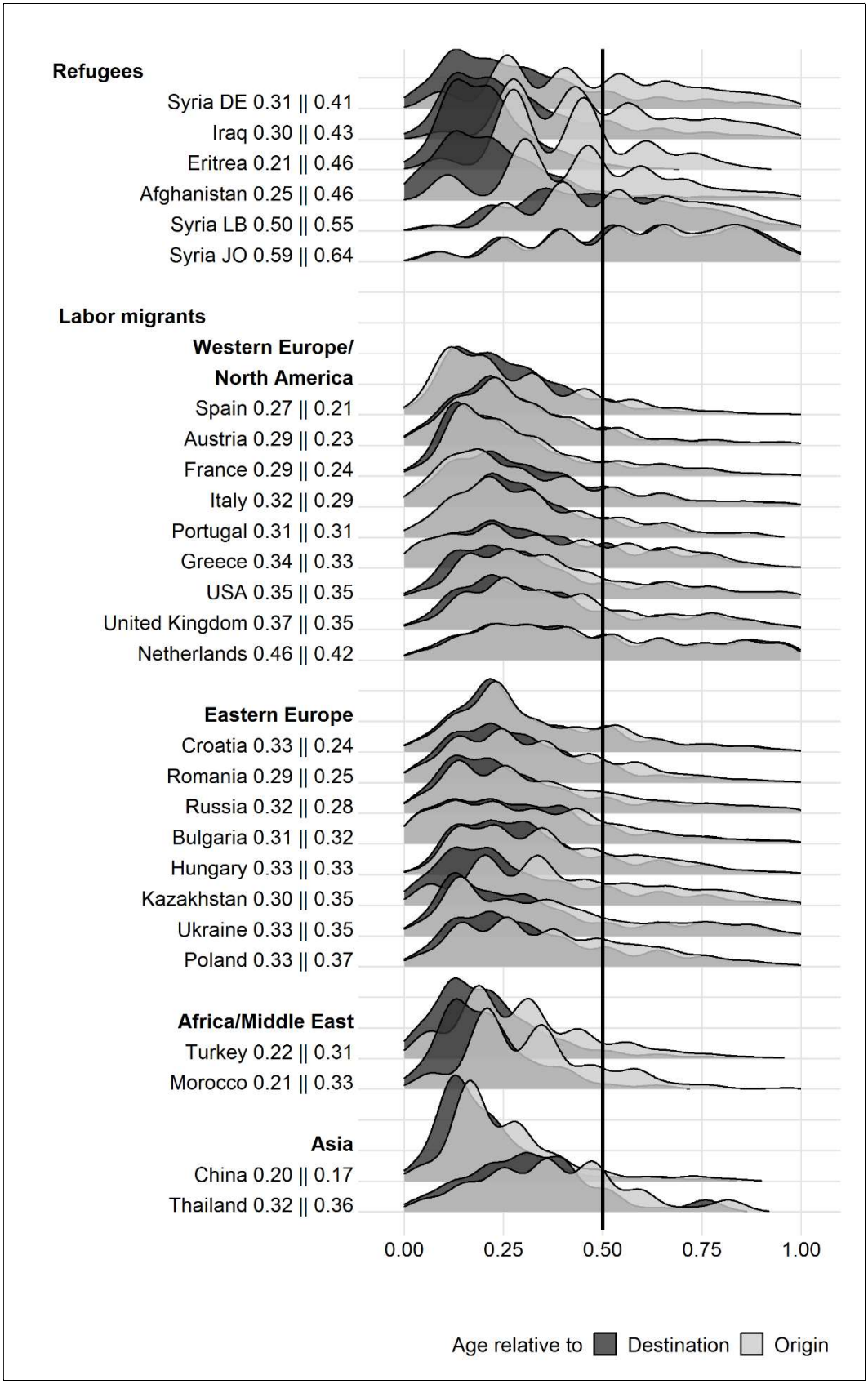


Figure 2: Age selectivity relative to the destination and the origin country



Notes: The numbers next to each migrant group's name specify the share of migrants with destination-relative and origin-relative selectivity values greater than 0.5. They indicate the proportions of migrants who are older than is half of the population in the reference country.

Figure 3: Absolute educational attainments of refugees, labor migrants, and the German majority

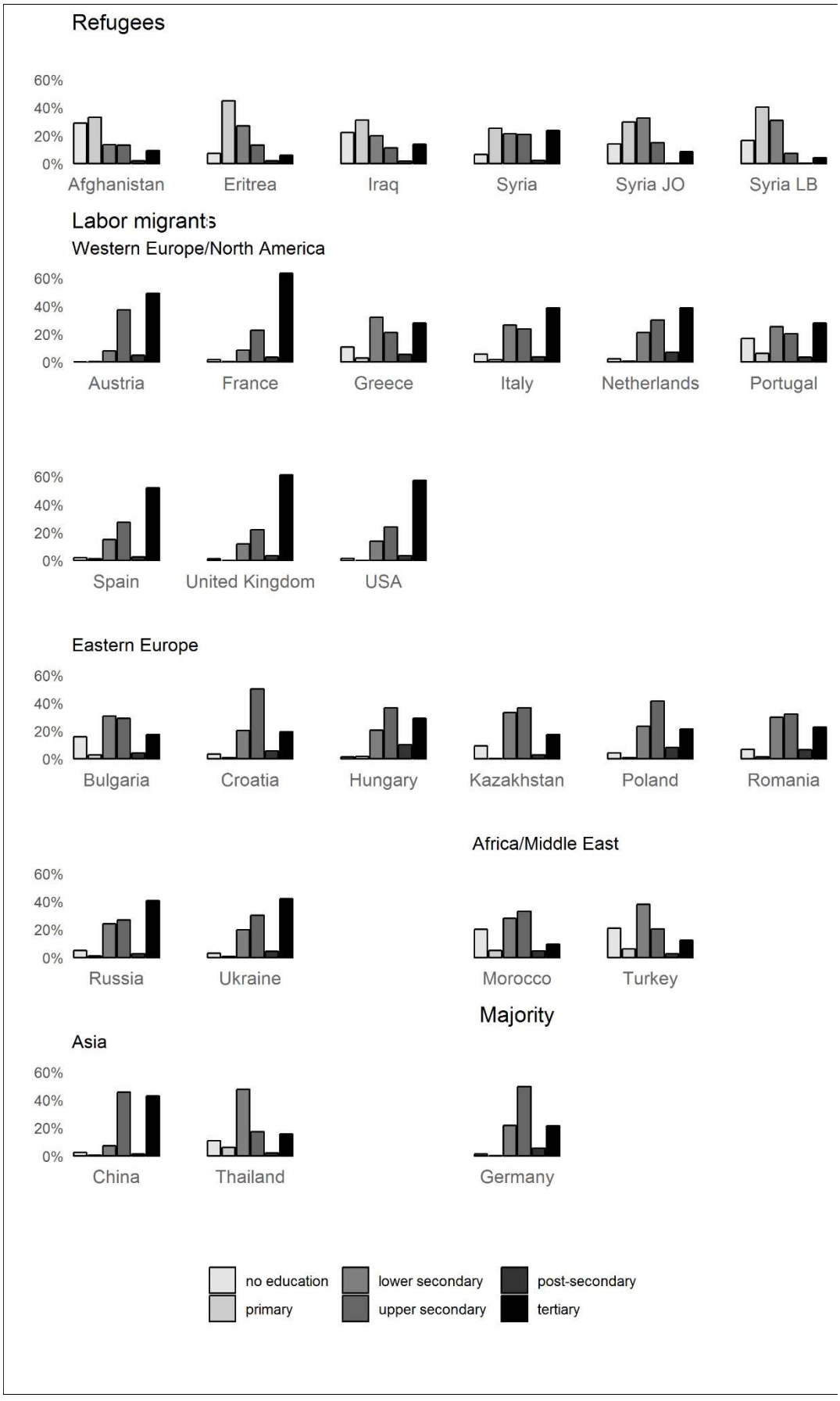
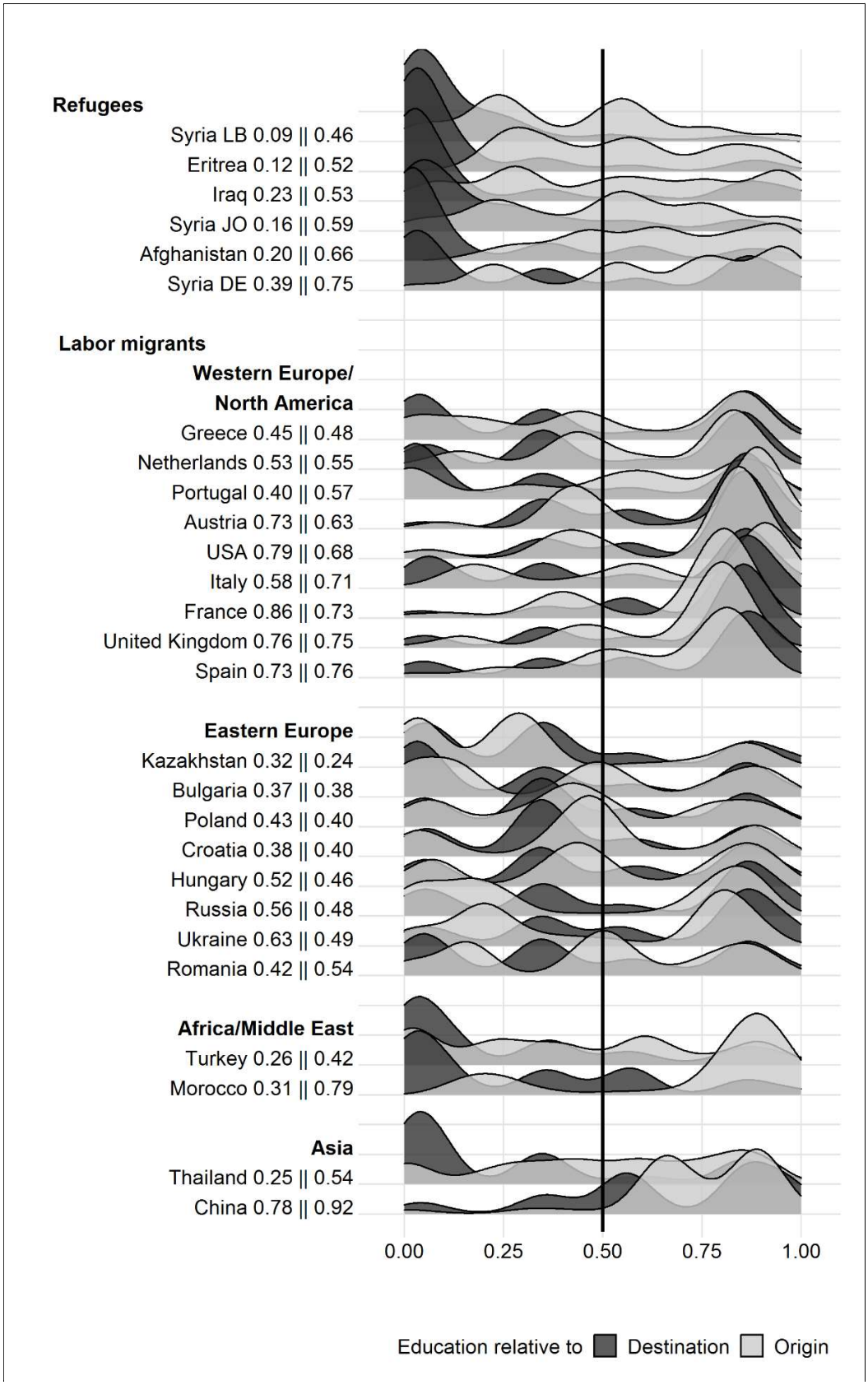


Figure 4: Educational selectivity relative to the destination and the origin country



Notes: The numbers next to each migrant group's name specify the share of migrants with destination-relative and origin-relative selectivity values greater than 0.5. They indicate the proportions of positively selected migrants.

Appendix

Table 2: Distributions for refugees

	Afghanistan			Eritrea			Iraq			Syria DE			Syria JO		Syria LB	
	n	N	%	n	N	%	n	N	%	n	N	%	N	%	N	%
Sex																
Male	294	360	76	137	164	80	336	395	74	1309	1528	74	138	49	149	50
Female	180	114	24	64	41	20	198	139	26	756	537	26	146	51	148	50
Absolute education																
ISCED 0	136	95	20	15	8	4	115	85	16	130	103	5	40	14	49	17
ISCED 1	158	171	36	92	98	48	167	171	32	523	434	21	85	30	121	41
ISCED 2	65	71	15	55	55	27	108	112	21	441	434	21	93	33	92	31
ISCED 3	63	81	17	27	27	13	61	64	12	432	496	24	42	15	22	7
ISCED 4	9	19	4	0	0	0	9	5	1	49	62	3	0	0	0	0
ISCED 5,6	43	38	8	12	16	8	74	96	18	490	537	26	24	8	13	4
		Mean	Median		Mean	Median		Mean	Median		Mean	Median	Mean	Median	Mean	Median
Age		32.64	31		27.12	26		33.42	32		34.51	34	36.26	35	34.08	31
Relative age																
Origin-relative		0.46	0.46		0.42	0.46		0.50	0.43		0.48	0.41	0.59	0.64	0.55	0.55
Destination-relative		0.25	0.22		0.21	0.22		0.30	0.22		0.31	0.22	0.55	0.55	0.50	0.50
Relative education																
Origin-relative		0.67	0.68		0.55	0.55		0.50	0.48		0.61	0.64	0.50	0.53	0.41	0.37
Destination-relative		0.17	0.02		0.14	0.03		0.20	0.03		0.34	0.14	0.23	0.11	0.15	0.06

Notes: The *IAB-BAMF-GSOEP Survey of Refugees in Germany* data are weighted due to an oversampling of females and older immigrants. While n reports the number of unweighted cases, N and the percentages (%) refer to weighted data. The values of N are derived by multiplying the total number of immigrants in each origin group with the weighted percentages of sex and absolute education. For Syrians in Jordan and Lebanon the table presents unweighted data.

Table 3: Distributions for labor migrants

	Austria		Bulgaria		China		Croatia		France		Greece		Hungary	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Sex														
Male	367	50	430	49	467	45	153	50	404	53	280	50	448	54
Female	371	50	448	51	561	55	151	50	364	47	281	50	384	46
Absolute education														
ISCED 0	0	0	151	17	25	2	10	3	14	2	60	11	14	2
ISCED 1	3	0	29	3	5	0	3	1	3	0	17	3	14	2
ISCED 2	37	5	213	24	69	7	54	18	33	4	140	25	139	17
ISCED 3	284	38	278	32	472	46	158	52	187	24	133	24	318	38
ISCED 4	38	6	40	5	13	1	18	6	0	0	34	6	91	11
ISCED 5,6	376	51	167	19	444	43	61	20	531	69	177	32	256	31
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Age	45.85	47	35.49	34	32.49	31	48.05	50	42.38	43	45.99	48	40.69	39
Relative age														
Origin-relative	0.31	0.23	0.32	0.32	0.26	0.17	0.34	0.24	0.31	0.24	0.37	0.33	0.36	0.33
Destination-relative	0.29	0.22	0.31	0.31	0.20	0.13	0.33	0.22	0.29	0.22	0.34	0.31	0.33	0.31
Relative education														
Origin-relative	0.70	0.87	0.43	0.46	0.74	0.73	0.49	0.48	0.68	0.79	0.49	0.47	0.54	0.47
Destination-relative	0.68	0.83	0.39	0.34	0.66	0.58	0.45	0.36	0.75	0.84	0.46	0.38	0.52	0.54

Table 3: continued

	Italy		Kazakhstan		Morocco		Netherlands		Poland		Portugal		Romania	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Sex														
Male	510	59	113	44	207	50	338	56	2036	46	148	54	704	46
Female	357	41	144	56	204	50	262	44	2418	54	124	46	837	54
Absolute education														
ISCED 0	0	0	25	10	87	21	14	2	199	4	48	18	113	7
ISCED 1	17	2	1	0	20	5	4	1	48	1	18	7	23	1
ISCED 2	218	25	76	30	115	28	99	17	832	19	57	21	406	26
ISCED 3	226	26	101	39	147	36	189	32	1966	44	58	21	525	34
ISCED 4	35	4	8	3	0	0	46	8	392	9	10	4	105	7
ISCED 5,6	371	43	46	18	42	10	248	41	1017	23	81	30	369	24
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Age	46.80	48	38.57	38	37.63	36	45.77	46	40.14	39	42.93	44	38.35	37
Relative age														
Origin-relative	0.32	0.29	0.41	0.35	0.33	0.33	0.46	0.40	0.37	0.37	0.32	0.31	0.33	0.25
Destination-relative	0.32	0.31	0.30	0.22	0.21	0.22	0.37	0.37	0.33	0.31	0.31	0.31	0.29	0.22
Relative education														
Origin-relative	0.65	0.76	0.33	0.28	0.73	0.86	0.58	0.61	0.47	0.43	0.51	0.58	0.49	0.50
Destination-relative	0.55	0.60	0.40	0.34	0.31	0.14	0.55	0.61	0.47	0.39	0.41	0.33	0.44	0.36

Table 3: continued

	Russia		Spain		Thailand		Turkey		Ukraine		United Kingdom		USA	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Sex														
Male	564	32	290	54	31	14	975	49	135	26	365	71	349	56
Female	1183	68	248	46	189	86	1012	51	378	74	151	29	276	44
Absolute education														
ISCED 0	81	5	11	2	29	13	430	22	16	3	7	1	10	2
ISCED 1	14	1	7	1	16	7	125	6	2	0	0	0	0	0
ISCED 2	332	19	57	11	83	38	691	35	73	14	43	8	37	6
ISCED 3	508	29	152	28	45	20	427	21	166	32	116	22	170	27
ISCED 4	55	3	15	3	5	3	57	3	25	5	18	3	0	0
ISCED 5,6	757	43	296	55	41	19	257	13	231	45	332	64	408	65
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Age	39.57	39	43.96	45	40.48	41	42.97	43	39.56	38	46.18	47	40.76	42
Relative age														
Origin-relative	0.35	0.28	0.28	0.21	0.38	0.36	0.30	0.31	0.37	0.35	0.40	0.35	0.39	0.35
Destination-relative	0.32	0.22	0.27	0.22	0.32	0.31	0.22	0.22	0.33	0.31	0.37	0.31	0.35	0.31
Relative education														
Origin-relative	0.46	0.29	0.65	0.76	0.51	0.54	0.41	0.39	0.49	0.45	0.66	0.76	0.69	0.81
Destination-relative	0.56	0.58	0.66	0.83	0.30	0.12	0.29	0.12	0.60	0.65	0.70	0.83	0.71	0.83

Chapter 3 Relative education of recent refugees in Germany and the Middle East: Is selectivity reflected in migration and destination decisions? *

Abstract

In this paper, relative education profiles of recent refugees arriving to Germany from Syria, Iraq and Afghanistan are described and compared to the profiles of Syrians in Jordan and Lebanon and of internally displaced Iraqis. Relative education describes a migrant's position in the educational distribution of the origin population. For recent refugees, relative education could be reflected in the decision of where to migrate: those who are relatively better educated may be more able to reach a distant destination. The empirical analyses use data from the project 'ReGES – Refugees in the German Educational System', the IAB-BAMF-SOEP Survey of Refugees, the Arab Barometer and Multiple Indicator Cluster Surveys (MICS). The findings suggest that on average, Syrians and Afghans in Germany and Syrians in Jordan are positively selected on education, while Syrians in Lebanon and internally displaced Iraqis appear slightly negatively selected. The findings for Iraqis in Germany show mixed evidence.

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1 Introduction

The numbers of forced migrants increased globally over the past decade. Many of these migrants are likely to stay in their countries of arrival in the long term and constitute an important part of receiving societies. Among other factors, education is known to play an essential role in migrants' integration. To assess their integration prospects, we need to know what they brought with them: What kind of education did they acquire in their countries of origin?

While education is usually referred to in absolute terms, that is, which educational qualifications an individual has attained, this type of assessment may not draw a complete picture of refugees'[1] educational background because the meaning of education is highly context-dependent. This points to a more relative character of education. For example, in a country where the average educational level is lower, an intermediate-level degree could stand for a relatively better education than in a country where most people obtain at least such type of degree (Spörlein & Kristen, 2019a). Relative education describes how a migrant's educational attainment compares to the educational distribution of the origin population.

Those who migrate are usually selected on education; they 'are not a random sample of the population at origin' (Lee, 1966, 56). Migrant groups are often better educated than the origin population (e.g. Feliciano, 2005), which is commonly described as positive educational selectivity, while negative selectivity characterizes migrant groups that are educated below the average level in their origin countries. Recent studies have moved away from treating selectivity as a group-level characteristic and have shown that migrant groups are usually composed of shares of relatively better educated as well as relatively less educated individuals (Ichou, 2014).

This paper aims to contribute to this literature by describing and comparing the profiles of relative education of recent refugees who migrated from Syria, Iraq or Afghanistan to Germany or destinations in the Middle East. Few researchers have explored educational selectivity among forced migrants in detail. Because forced migrants move for different reasons than other migrants, they may systematically differ in their relative education profiles. Some studies consider these differences in migration motivation rather implicitly by contrasting the categories of economic and political migrants (e.g. Feliciano, 2005; Lessard-Phillips et al., 2014). However, the specific conditions that make political migrants migrate can vary greatly and may reflect in specific selectivity patterns.

In one of the first contributions describing selectivity patterns within a specific refugee group, Lukic and Nikitovic (2004) found that refugees from Bosnia and Herzegovina who moved to Serbia are on average better educated than both the population at origin and internally displaced persons (IDPs) in Bosnia and Herzegovina. Contributions that explicitly focus on the selective

[1] This paper uses the term "refugee" as a collective term for all individuals seeking humanitarian protection. The notion is not limited to the strict definition of the Geneva Convention.

migration of recent humanitarian migrants coming mostly from Middle Eastern countries have notably been made by Buber-Ennser et al. (2016) for Austria and Lange and Pfeiffer (2019) for Germany. Both studies found that on average, migrants are better educated than the population at origin. Spörlein and Kristen (2019b) confirm these findings but also show that positive educational selectivity is less pronounced among recent refugees than among most other migrant groups who mainly move for economic reasons. In this paper, the educational selectivity of recent refugees from the Middle East in Germany is described using two different data sets to contribute to robust knowledge about the educational background of these groups.

Furthermore, only a few studies have considered the relation between selective migration and the selection of a certain destination in the context of forced migration. If there is a relationship between relative education and the destination where forced migrants end up, then this could be highly relevant for these migrants' societal integration. Aksoy and Poutvaara (2019) show that recent refugees in various European countries are positively selected on education and that among these European destinations, countries with economic incentives such as a high GDP per capita are more likely to attract highly educated refugees. On a more global level, individuals who are relatively better educated could have more options in terms of where to migrate. Those who reached Europe may be relatively better educated than those who sought refuge closer to their place of origin. Spörlein et al. (2020) find support for this assumption by contrasting Syrian refugees in Germany, Lebanon and Jordan. This paper aims to contribute to these findings on educational selection among short-distance and long-distance refugees by including further data sources and an additional comparison group: IDPs in Iraq.

A further contribution of this paper relates to a methodological issue. Research on educational selectivity has rarely paid attention to the regional origin of migrants (see Spörlein & Kristen, 2019a, 2019b). In less developed countries such as Syria, Iraq and Afghanistan, infrastructural conditions may be unequal across regions and lead to disparities in educational attainment. For instance, an intermediate-level degree could represent a relatively advanced education in a region where the average educational level is low because of limited opportunities. While an individual with an intermediate degree would then be relatively better educated by regional standards, this insight could be masked by a measurement of relative education that refers to the national distribution if the national average educational level is substantially higher than the regional average. In the context of forced migration, this could be particularly relevant because refugee streams often originate from specific areas. Taking regional origins into account helps render the findings of this paper more precise.

This paper is guided by the following research questions. First, how can the relative education profiles of Syrians, Iraqis and Afghans in Germany be described? In a second step, the paper includes forced migrants who sought refuge in destinations that are closer to their places of origin. How can the educational selectivity profiles of Syrians in Lebanon and Jordan and of IDPs in Iraq be described? How do they compare to the profiles of their compatriots in Germany?

To clarify the specific conditions under which humanitarian migrants decide to move, this paper starts with an overview of the situations in Syria, Iraq and Afghanistan and how these affected refugee movements. Subsequently, theoretical elaborations evolving from Lee's (1966) description of migration push and pull factors lay the groundwork for the assumptions on refugee selectivity. While these help explain who migrates, principles from value expectancy theory (De Jong & Fawcett, 1981; Kalter, 2000) are applied to formulate assumptions on who migrates where. Relative education is measured at the individual level, defining a migrant's position in the educational distribution of the population at origin. The research design section describes this measurement in more detail and presents the data sources used. Eventually, the findings are presented, compared and discussed with regard to policy implications.

2 Situations in the origin countries

Starting in 2011, the Syrian civil war led to an exodus of Syrians. The conflict involves several actors that are usually grouped into a coalition of the government and its allies, opposition groups and Kurdish forces. After the first years of war, the terror organization Islamic State (IS) emerged as a further party to the conflict and contributed to rising numbers of refugees by conquering vast parts of the Syrian territory (EASO, 2018). Enormous numbers of those who were forced to migrate sought refuge in neighbouring countries, most importantly Jordan, with approximately 680,000; Lebanon, with approximately one million; and Turkey, with over 3.5 million registered Syrian refugees and asylum seekers in 2018. At the same time, an important share of refugees from Syria has travelled longer distances to reach safe destinations and currently constitute the largest group within the recent refugee population in Europe; for instance, approximately 580,000 Syrians have been registered in Germany (UNHCR, 2019).

As in Syria, IS also forced the migration of numerous inhabitants of Iraq (EASO, 2019b). While tensions between religious groups have resulted in violent incidents for years, the expansion of IS in parts of Iraq between 2014 and 2017 led to a strong increase in the number of internally and internationally displaced Iraqis. Although the numbers decreased after the territorial defeat of IS, UNHCR estimates suggest that there were still more than 1.8 million IDPs in Iraq in 2018. Based on the bare figures, neighbouring countries do not seem to play the same role as in the Syrian case; for instance, fewer than 70,000 Iraqi refugees and asylum seekers were registered in Jordan in 2018 and nearly 143,000 in Turkey. Germany received approximately 180,000 humanitarian migrants from Iraq (UNHCR, 2019).

The situation in Afghanistan is characterized by a long-lasting armed conflict between, on the one hand, the Afghan state and its allies and, on the other, numerous anti-governmental forces – particularly the Taliban but also IS and others (EASO, 2019a). While violent acts constitute direct threats to the daily lives of Afghans, the conflict also affects their economic situation. Many intend to leave because of unemployment, showing that humanitarian migration is not

necessarily driven by a single factor (Asia Foundation, 2018). Afghanistan has an important population of IDPs, with more than two million persons estimated to be affected, although even more Afghans have emigrated to neighbouring states. For instance, nearly one million refugees and asylum seekers have been registered in Iran, and more than 1.4 million moved to Pakistan. The number of Afghans who have sought refuge in Germany amounts to approximately 190,000 (UNHCR, 2019).

Although conditions in the countries of origin under study vary, a common pattern can be deduced: violence or the threat thereof constituted the main cause of migration for many individuals in recent years. In this respect, Syrians, Iraqis and Afghans can be described as forced migrants, even if reasons other than violence may have further contributed to the decision to leave. In terms of places of arrival, beyond Germany, Middle Eastern countries such as Lebanon, Jordan and Iraq received important shares of humanitarian migrants and can therefore be regarded as particularly well-suited cases to study the background of recent migrants.

3 Educational selectivity, forced migration and destinations

3.1 Selectivity in the context of forced migration

From a theoretical perspective, how might forced migration reflect in the selectivity profiles of those who migrate? Some authors distinguish types of migrants based on pull motivations. The ambition to maximize benefits in a destination that provides better opportunities makes people migrate (Chiswick, 1999; Lee, 1966). Migrants are then assumed to be positively selected on certain characteristics. In terms of education, they should on average be better educated than those parts of the population who do not migrate. While education is an attribute that can be directly observed by means of qualifications, it also constitutes a proxy for unobserved characteristics according to which those who are relatively better educated should also be more ambitious and more willing to take risks (Chiswick, 1999). Furthermore, a higher relative education is also posited to be a proxy for a higher social status in the country of origin (Ichou, 2014).

Individuals whose migration decision is based on such motivations are said to respond mainly to pull factors in the place of arrival and represent the typical image of an economic migrant. Their relative freedom of choice to stay or to move sets them apart from other migrant groups, particularly refugees, whose migration decision is usually triggered by different circumstances. Refugees react more strongly to push factors such as violent conflicts or threats; that is, they are pushed out of their contexts of origin rather than pulled to destinations. For this reason, scholars argue that refugees' migration decisions are less driven by personal motivation and

that positive selectivity should be less pronounced among refugees (Chiswick, 1999; Lee, 1966).

Nevertheless, this argumentation has some shortcomings because refugees are not a homogeneous group of migrants. First, each refugee stream is a consequence of specific push factors. Push factors can particularly differ in their degree of threat and in their comprehensiveness. Some push factors, such as civil wars, can prove fatal to the population, while others are less threatening and without deadly consequences. Similarly, a civil war can serve as an example of a comprehensive push factor because it affects virtually the whole population. In contrast, some push factors target specific population groups – for example, political or ethnic minorities being persecuted.

Varying threat types and degrees of conflict comprehensiveness are likely to have implications for the composition of refugee groups. The less specific the groups hit by push factors are, the more closely refugees should resemble the origin population in certain characteristics. Following humanitarian crises such as civil wars, it is unlikely that migrants who are forced to leave their homes are positively selected to a great extent (Lee, 1966).

A similar reasoning may apply to the degree of threat. A push factor with a weak degree of threat may make only some persons leave – for example, those who can afford it. The more threatening a situation becomes, the greater the number of people who are forced to leave. Therefore, we can assume selectivity to be less pronounced in situations that are characterized by strong threats. In the cases of Syria, Iraq and Afghanistan, both the degree of threat and the comprehensiveness of the respective conflicts have been high. Refugees from these countries may therefore be selective to a rather weak extent – that is, their educational distributions may be quite similar to the origin populations' distributions.

A second shortcoming of Lee's (1966) and Chiswick's (1999) contributions is that they describe an ideal-typical type of migrant. In reality, the boundaries between categories of migrants are fluid on 'a continuum between the rational choice behaviour of proactive migrants seeking to maximize net advantage and the reactive behaviour of those whose degrees of freedom are severely constrained' (Richmond, 1993, 10). While the more proactive migrants have more options with regard to both whether and where to move, those whose migration decision is more strongly characterized by reactive behaviour should have a limited scope of action. Nevertheless, because of the importance of what is at stake, one can suppose that even under circumstances that force people to react, humans reflect on their decisions of whether and where to migrate.

3.2 The relationship between educational selectivity and destinations

According to value-expectancy approaches, individuals weigh certain options before making a decision (e.g. De Jong & Fawcett, 1981; Kalter, 2000). They have subjective perceptions about

these options and attribute expected benefits, costs and realization probabilities to them. An individual's migration decision can be interpreted as a function of these determinants. In the context of migration, the options are potential destinations, including the place of origin if an individual decides not to migrate, and the realization probabilities become manifest as the probabilities of reaching these destinations.

Selectivity could then be reflected in the choice of the destination country. Positively selected migrants who mainly move for economic reasons are known to be more likely to choose destinations at a greater distance from their place of origin (Belot & Hatton, 2012) and to move to developed countries (Docquier & Marfouk, 2006). Similar patterns can be expected for forced migrants. With a greater distance, the 'difficulty of the intervening obstacles' (Lee, 1966, 56) is expected to rise. Intervening obstacles include the distance of migration itself and physical barriers that migrants encounter as they are on the move. Overcoming these obstacles entails costs. This could make Europe a realistic alternative only for a select group of refugees. Among other factors that influence their migration trajectories, the probabilities of reaching a distant destination could potentially be higher for those who have the resources to cover the high monetary costs of fleeing there – that is, who have a corresponding social status – than for those with a lower status (McAuliffe & Jayasuriya, 2016; Spörlein et al., 2020). Because social status can be approximated by relative education, those with a relatively better education are assumedly more able to migrate to distant places.

While monetary costs need to be paid for things like transportation or human trafficking, non-monetary costs are exemplified by the riskiness of the journey. Numerous forced migrants who have tried to reach Europe over the past years found themselves stuck in transit countries or died on their way. If positive educational selectivity proxies for unobserved personality traits such as ambition or the readiness to assume risk, those who are relatively better educated could be more likely to assume the risk of a long and difficult journey to Europe.

Further arguments relate to the expected benefits associated with potential destinations. More precisely, economic considerations could influence the decision of where to migrate (see Brücker et al., 2016). While economic benefits can generally be considered greater in Europe than in Middle Eastern countries, these benefits should be even greater for the better educated because monetary returns to education in Europe are expected to be higher for better educated individuals (Spörlein et al., 2020).

In a similar vein, non-monetary benefits should be greater in Europe. It is certainly true for all forced migrants that fleeing their home is primarily an attempt to meet their need for safety. This basic need may already be met in a location close to the place of origin. However, those with a higher social status in the country of origin may seek to maintain their status in the long term (Maslow, 1943). For example, relatively better educated parents could value education more than less educated persons and want their children to receive a good education. For this

reason, it may not be enough for them to be in a safe destination close to home if they do not see their higher needs met there.

Overall, the greater costs of the journey and the greater expected benefits for those who had a higher social status in their country of origin should result in profiles with positive educational selectivity among refugee groups who came to Europe. Syrians, Iraqis and Afghans in Germany are therefore expected to be relatively better educated than the population in their origin countries. In contrast, fleeing to a neighbouring country or another region within the country of origin entails a shorter and less risky trajectory. With the shorter distance, the degree of positive educational selectivity should be smaller. Therefore, Syrians in Jordan and Lebanon as well as Iraqi IDPs should be positively selected on education to a lesser extent than their compatriots in Germany.

4 Research design

4.1 Data sources

Building individual-level measures of relative education depends on the availability of both origin- and destination-specific data sources. Two sources deliver information on recent refugees in Germany: data from the project 'ReGES – Refugees in the German Educational System' and the IAB-BAMF-SOEP Survey of Refugees. The ReGES project was designed to describe and analyse the educational trajectories of underage refugees who arrived in Germany between 2014 and 2017 (Will et al., 2018a, 2018b). To obtain contextual information on the lives of these children and adolescents, their parents were also interviewed. The data from these parent interviews constitute one source on Syrian, Iraqi and Afghan refugees in Germany.

Second, the IAB-BAMF-SOEP Survey of Refugees is a household survey based on a random sample of refugees who came to Germany between 2013 and 2016 (Brücker et al., 2016; Kroh et al., 2017). Refugees with good prospects of remaining in Germany as well as women and individuals older than 30 years were oversampled. To account for oversampling, weights were applied in the analyses of the IAB-BAMF-SOEP data.[2]

While the IAB-BAMF-SOEP Survey of Refugees claims to be representative of the recent refugee population in Germany, the ReGES parents are not a random sample, for obvious reasons. With the median respondent being 40 years old, they are significantly older than the IAB-BAMF-SOEP sample, which is characterized by a median age of 28 years. This gap may be reflected in the educational levels measured in the ReGES sample. Due to educational expansion, older persons should on average be less educated. Although relative education is

[2] Although the IAB-BAMF-SOEP sample should be identical to the sample in Spörlein et al. (2020), minor deviations in terms of case numbers and educational distributions can be detected due to the use of an updated version of the data in this paper.

measured in an age-specific way, findings related to the ReGES data should be interpreted with consideration of the fact that respondents are not randomly sampled.

While it would be sufficient to use only one data source to cover the refugee groups in Germany, there are good reasons to rely on both data sets. The IAB-BAMF-SOEP Survey of Refugees is a general survey on a broad range of topics, whereas ReGES specifically focuses on educational aspects. Both surveys provide the same tools to describe educational selectivity. Nevertheless, descriptive analyses can be a first step only. Future research will have to address how educational selectivity influences various aspects of refugee integration. The ReGES data contain rich information for this purpose, particularly with regard to young refugees' integration. Second, the IAB-BAMF-SOEP Survey of Refugees is certainly the most commonly used data source on recent refugees in Germany. However, sampling a highly mobile and vulnerable group is a challenging endeavour, and given the target population's recent immigration, many of their characteristics were initially unknown. Research on recent refugees should therefore be cautious in claiming representativeness, but relying on ReGES data as a further source can help confirm findings and contribute to their robustness.

To compare the relative education profiles among Syrian refugees in Germany to those of refugees who resettled in Syria's neighbouring states, analyses are complemented by using Arab Barometer data. Its fourth wave covers subsamples of Syrian refugees who moved to Jordan or Lebanon. These migrants have in common a migration trajectory to a country that is relatively proximate to their place of origin. This sets them apart from Syrians who migrated to Germany, a distant destination. The data were collected in 2016 and are based on a random sample of Syrians living outside refugee camps (AlKhatib et al., 2016). Because refugees living in camps may systematically differ in characteristics such as education from those living outside camps, it should be kept in mind that the findings presented in the following chapter apply only to the latter, albeit numerically more important, group: in Lebanon, there are no official refugee camps; in Jordan, 79 per cent of registered Syrian refugees lived outside camps in 2016 (UNHCR, 2017).

Fourth, it is possible to identify IDPs with Iraqi Multiple Indicator Cluster Surveys (MICS) data from 2018, thereby allowing for comparisons of IDPs in Iraq and Iraqi refugees in Germany. MICS is an international household survey programme developed by UNICEF to provide comparable data on a range of indicators. The Iraq 2018 MICS was carried out based on a random sample of households (CSO Iraq et al., 2019). For each household, the data contain socio-demographic information on all household members. In this paper, the sample of analysis is restricted to persons whose main reason for moving was conflict or violence and who had lived in another part of Iraq before moving.

Further restrictions are applied to improve comparability across all destination-specific samples. Analyses cover respondents aged 18 to 64 years with a duration of stay of less than five years in the place of arrival.

To obtain reference educational distributions of the origin populations, MICS data from Syria, Iraq and Afghanistan are a suitable source (CBS et al., 2008; CSO Iraq et al., 2019; CSO Afghanistan & UNICEF, 2013).[3] Because the data contain information on respondents' region of residence, it is possible to generate distributions of educational attainment on the regional level. Region-specific measurements are important because the MICS data clearly show differences in regional educational distributions. Furthermore, all destination-specific data sets reveal that refugees' origins are not proportional to the share of each regional group in the reference population. In each country, there are a few regions from which the majority of the respective refugee group originates.

While the Iraq MICS data have been collected very recently, thereby making them an ideal source to compare those who migrated to those who did not, the Syrian and Afghan data are deemed suitable as well. Collected in 2010/2011, the Afghan data reflect educational distributions that should not have undergone major changes since then (see UIS 2020). In the case of Syria, it is obvious that the educational system suffered from the civil war, which resulted in broken educational biographies of particularly younger Syrians. This phenomenon is not captured by data collected before the war. For this reason, robustness checks were run on the data that include only Syrian refugees aged 25 years or older in the destination-specific samples. The findings prove nearly identical to those including Syrians aged 18 years or older. Because the picture remains the same, all results presented on Syrians refer to samples of individuals aged 18 or older.

An overview of all data sources is given in Table 1. As far as possible, analyses are based on weighted data. No weights exist for ReGES and the Arab Barometer. Despite the use of weights in some of the samples, it should once more be noted that it is generally difficult to ascertain the representativeness of data on groups that are characterized by recent migration and high vulnerability, which should be kept in mind for interpretation of the results.

[Table 1]

4.2 Operationalization

Relative education is measured at the individual level, determining a migrant's position in the educational distribution of the origin population (see Ichou, 2014). This measurement accounts for the idea that migrant groups are heterogeneous in composition and that selectivity varies within groups. To construct the measure, distributions of educational attainment are required for each origin country. Because there may be significant differences in the educational

[3] This paper relies on the same MICS datasets for Syria and Afghanistan as that in Spörlein et al. (2020). However, educational attainment is measured more conservatively, considering not only educational levels but also completed years of schooling. This should result in more positive relative educational distributions for Syrian and Afghan refugees.

attainment of men and women, between older and younger generations, and across regions, each distribution is specific to gender, five-year age group and region of origin. Based on these distributions, an index of relative education is generated that adds up the shares of the less educated reference population plus half of the reference population with the same educational level as the focal individual. Values may range from 0 to 1. For instance, a value of 0.65 for a 31-year-old woman from Aleppo would indicate that this person is at least as educated as 65 per cent of women aged between 30 and 34 years from this region. Individuals with an index value above 0.5 are better educated than more than half of the reference population and are commonly characterized as positively selected.

All sources except the Arab Barometer data contain information on respondents' region of origin. The measures of relative education of Syrians in Lebanon and Jordan are therefore not region specific. To compare their relative education profiles to those of Syrians in Germany, two selectivity indices are constructed for the latter: one that considers regional origins and one that is specific to gender and age groups only.

As a second exception, some cases in the other destination-specific data sets have missing values on the region-of-origin variable. In most groups, the share of these cases is negligible. However, among Iraqi IAB-BAMF-SOEP respondents, it amounts to roughly seven per cent. Because these respondents might systematically differ in terms of educational background, they are kept in the samples and assigned a value of relative education that is specific to gender and age groups only.

Note that the measurement of respondents' region of origin refers to region of birth in the case of IAB-BAMF-SOEP respondents, while ReGES respondents were asked for the region where they mainly grew up. For Iraqi IDPs, this variable refers to the region where they lived before moving to their current place of residence. This difference should be kept in mind in regards to the comparisons of the findings in the following chapter.

Finally, all data on educational attainment are harmonized. The following categories, which largely correspond to the 1997 International Standard Classification of Education (ISCED97), are distinguished: no formal education completed (equivalent to ISCED 0), primary (ISCED 1), lower secondary (ISCED 2), upper secondary (ISCED 3), post-secondary (ISCED 4) and tertiary education (ISCED 5/6).[4] Minor exceptions need to be made for two data sets. First, because the Afghan origin data do not further specify post-secondary and tertiary education, the respective levels are combined for Afghan refugees. Second, the scale used in the Arab Barometer does not provide a category corresponding to post-secondary education, and it is not

[4] In addition to an ISCED97 variable, two variables in the IAB-BAMF-SOEP data—an original and a generated variable—report the shares of respondents who have never attended school. The original variable reports higher shares of respondents who have never attended school (for Syrians, 8.7 percent in the original data vs. 6.1 percent in the generated data; for Iraqis, 23.3 vs. 19.9 percent; for Afghans, 32.5 vs. 28.7 percent), while many of these cases are coded as missing in the generated variable. In this paper, the analyses rely on the generated data, assuming that these are more reliable. However, this procedure likely underestimates the share of respondents without formal education in the IAB-BAMF-SOEP sample. This should be kept in mind for interpretation of the results.

possible to determine whether interviewers grouped respondents with post-secondary education into the next higher or lower category. Nevertheless, post-secondary education is not common in the other data sources, so the bias introduced by using the less precise Arab Barometer data should be negligible.

Measuring educational selectivity is not meaningful for individuals who acquired their highest educational degree in the destination country. While the ReGES and IAB-BAMF-SOEP data contain information on the country in which an individual acquired his or her highest education, this cannot be checked in the Arab Barometer and the Iraqi MICS data. However, because the samples are restricted to respondents with a duration of stay of less than five years in the place of arrival, it can be assumed that most of them acquired their highest educational degree prior to migration.

5 Results

Before addressing the findings on relative education in more detail, this section starts with an overview of recent refugees' absolute educational levels (see Figure 1). As seen from the two leftmost bars of each histogram, all groups have important shares of individuals who attained at most primary education. In almost all groups, the two lowest levels of educational attainment comprise more than half of the distribution. Syrians in Jordan and Germany are an exception, but even these groups are composed of high shares of individuals who acquired no formal education or only primary education.

[Figure 1]

5.1 Relative education of refugees in Germany

How does the educational attainment of refugees compare to the education of the origin population? To address this question, the selectivity profiles of Syrian refugees in Germany are compared to those of their Iraqi and Afghan counterparts who also moved to Germany. Subsequently, the findings on refugees in Middle Eastern destinations are presented and compared to those for their respective compatriots in Germany. Table 2 gives an overview of the median values of relative education of all refugee groups under study. In addition, it displays the shares of migrants who are positively selected with regard to education; that is, those who score above 0.5.

[Table 2]

Figure 2 presents region-specific density distributions of relative education. These distributions refer to all refugee groups under study with the exception of Syrians in Jordan and Lebanon. For Syrian refugees in Germany, the findings point towards substantive shares of individuals with a high relative education. Analyses based on both ReGES and IAB-BAMF-SOEP data reflect rather consistent profiles. Both density distributions are skewed to the left and show a peak on the upper end. Many of these strongly positively selected individuals have attained a tertiary degree. In the IAB-BAMF-SOEP distribution, the peak of strongly positively selected Syrians appears particularly high. The median Syrian refugee is at least as educated as 76.6 per cent of the population at origin. In comparison, the distribution of relative education among Syrians in the ReGES sample is slightly less skewed. Here, the median amounts to 66.7 per cent, pointing towards less selectivity than among Syrians in the IAB-BAMF-SOEP data. However, the overall findings from both sources suggest that most Syrians in Germany are positively selected on education and that they are the most positively selected group under study.

[Figure 2]

Afghans' relative education profiles can be characterized as bimodal, with one peak on the left-hand side and a smaller second peak on the right-hand side of each distribution. As illustrated by the gap between both peaks, only few Afghan refugees display intermediate values of relative education. There are, however, some differences between the IAB-BAMF-SOEP-based and the ReGES-based distributions. While the former displays a peak of strongly positively selected individuals that is comparable to the shape of the distribution for Syrians, the latter shows a higher peak of individuals who are relatively less educated. This is also expressed by their median relative education. The median Afghan IAB-BAMF-SOEP respondent is at least as educated as 77.9 per cent of the reference population, whereas the corresponding value based on the ReGES data is 54.3 per cent.

The density distributions of Iraqi refugees in Germany show a somewhat different pattern and can be characterized as more balanced, without extreme peaks. In this respect, they appear more similar to a random sample of the population at origin than the distributions for Syrians and Afghans. Minor differences between the IAB-BAMF-SOEP distribution, where a slight peak appears in the centre, and the ReGES distribution, which contains higher shares of relatively less educated individuals, are also reflected in the respective median values. The median Iraqi refugee is at least as educated as 58.5 per cent (IAB-BAMF-SOEP) or 47.8 per cent (ReGES) of the population at origin.

These findings show that the profiles of relative education vary between the three refugee groups in Germany. Overall, all samples except Iraqi ReGES respondents are on average relatively better educated than their respective origin populations. This speaks in favour of the

assumption that refugees who made it to Germany should on average be better educated than the origin population.

5.2 Comparing the relative education of refugees in Germany and the Middle East

How do the refugees discussed above compare to their compatriots who migrated to less distant destinations in the Middle East? In the case of Iraqi IDPs, the pattern bears some resemblance to the rather balanced distributions of Iraqi refugees in Germany, with one apparent difference. The distribution for internally displaced Iraqis includes a peak on the left-hand side, representing high shares of individuals with a relatively low education. The median IDP is as educated as 46.2 per cent of the Iraqi reference population, which is only slightly lower than the corresponding value in the Iraqi ReGES sample but more than twelve points lower than among Iraqi IAB-BAMF-SOEP respondents. Therefore, the assumption that refugees who make it to a distant destination such as Germany should on average be relatively better educated than those who move to less distant places can be supported on the basis of the available data on Iraqis.

In regards to the comparison of Syrians in Germany, Lebanon and Jordan, Figure 3 displays their density distributions. In contrast to the distributions discussed so far, these distributions are not region-specific. The findings for Syrians in Germany reveal slight differences from the corresponding region-specific distributions, but the general trend remains the same: Syrian refugees to Germany are on average positively selected. The median values of relative education differ marginally from the corresponding metrics of region-specific relative education. The median Syrian ReGES respondent is at least as educated as 63.0 per cent of the origin population. In the IAB-BAMF-SOEP data, the corresponding value is 78.9 per cent.

[Figure 3]

The patterns of relative education are somewhat different for Syrian refugees in Middle Eastern destinations. Upper-end peaks of strongly positively selected individuals can be found in neither the Jordan distribution nor the Lebanon distribution. Instead, peaks around the centre of each distribution represent high shares of slightly positively and slightly negatively selected individuals who appear to be mostly drawn from intermediate educational levels. These double peaks are particularly pronounced for Syrian refugees in Lebanon. This group's metrics are rather balanced, with the median Syrian in Lebanon being at least as educated as 49.2 per cent of the Syrian reference population. Among their compatriots in Jordan, relatively better educated individuals make up a more important share of the distribution, while the peak of negatively selected individuals is smaller. The median Syrian in Jordan is at least as educated as 63.5 per cent of the population at origin.

These findings tend to support the assumption that those Syrians who are relatively less educated are more likely to end up in destinations that are less distant from their place of origin. However, this conclusion should be made cautiously, keeping in mind that the impossibility of disaggregating by region of origin in the Arab Barometer data could veil more precise findings. Moreover, the findings on Syrians in Jordan show that even refugees with a shorter trajectory can be positively selected. They are less positively selected than Syrians in the IAB-BAMF-SOEP sample, but their metrics are comparable to those of Syrians in the ReGES sample.

6 Conclusion

This paper aimed to explore whether forced migration reflects in specific patterns of educational selectivity and whether differences in selectivity profiles can be found between refugee groups in different destination countries: Syrians, Iraqis and Afghans in Germany, Syrians in Lebanon and Jordan, and Iraqi IDPs. Although it is not possible to draw general conclusions on refugees' educational background, several patterns can be observed. First, most refugees – particularly those who migrated to Germany – are relatively better educated than their non-migrating compatriots. Syrian refugees in Germany appear the most positively selected group, while there are also important shares of positively selected individuals among Afghans in Germany. For Iraqi refugees in Germany, the evidence is mixed.

With regard to refugees in Middle Eastern destinations, the evidence should be interpreted particularly cautiously because of the low case numbers in the Arab Barometer subsamples and because only three, quite specific, comparison groups have been explored in this paper. While Iraqi IDPs and Syrians in Lebanon are composed of higher shares of negatively selected individuals than their respective compatriots in Germany, this is not necessarily true for Syrians in Jordan. However, their distributions of relative education suggest different selectivity patterns than for Syrian refugees in Germany. Additional large-sample data sources that include a greater number of refugee groups could contribute to a more solid picture of the differences between long- and short-distance refugees.

Implications for both origin and receiving countries arise from the finding that refugees are often relatively better educated than the origin population. Origin countries appear to experience an exodus not only in quantitative but also qualitative terms – usually referred to under the keyword 'brain drain' – which could be a burden for these societies' future. In receiving societies, most refugees experience status loss (Engzell & Ichou, 2020). Losing the social status that they had prior to migration could become a source of frustration for them, even more so as integration into the receiving society is a long and often slow process. Policymakers should be aware of this challenge and provide newcomers and their children with the necessary tools to compensate for status loss.

Second, the positive findings on refugees' relative education should not veil the fact that all refugee groups under study are characterized by high shares of low absolute education – that is, many refugees have acquired no formal education or completed only primary education in the place of origin. However, education is an important factor for successful integration, particularly in a country such as Germany, where success on the labour market depends heavily on certificates (Bol & van de Werfhorst, 2011). Policymakers in receiving countries should incentivize educational investments among newcomers – particularly those with low educational levels – to improve these persons' integration prospects.

Finally, it is important to keep in mind that there is a great deal of variation within the refugee groups. Each group is composed of varying shares of positively as well as negatively selected individuals. Variation within groups may have consequences because education is an important baseline from which refugees start their integration. For instance, those individuals who are relatively better educated may have better preconditions to adapt to a life in a new context because they might be more motivated, more competent, or more likely to behave according to the subjective social status that they brought with them from their origin country (Ichou, 2014). Future research will have to analyse the consequences of relative education on refugees' integration prospects – particularly for those who came to their places of arrival only recently and still stand at the beginning of the integration process. Furthermore, the perspective of refugees themselves is highly relevant. What kind of value do they attribute to their educational background? This could likely affect their decisions on both migration and societal integration in the place of arrival.

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Tables

Table 1: Data sources

Country	Refugee group	Data source	Survey year	Sample size
Destination-specific data				
Germany	Syrians	ReGES	2018	2,290
		IAB-BAMF-SOEP	2016	2,048
	Afghans	ReGES	2018	259
		IAB-BAMF-SOEP	2016	474
	Iraqis	ReGES	2018	377
		IAB-BAMF-SOEP	2016	523
Iraq	Iraqis	MICS	2018	3,977
Jordan	Syrians	Arab Barometer	2016	232
Lebanon	Syrians	Arab Barometer	2016	191
Origin-specific data				
Syria	-	MICS	2006	62,948
Afghanistan	-	MICS	2010/2011	51,894
Iraq	-	MICS	2018	74,167

Table 2: Metrics of educational selectivity

Refugee group	**Data source**	**Median relative education**	**Positively selected individuals (%)**
Region-specific measurement			
Syrians in Germany	ReGES	0.667	59.9
	IAB-BAMF-SOEP	0.766	74.8
Afghans in Germany	ReGES	0.543	52.5
	IAB-BAMF-SOEP	0.779	68.3
Iraqis in Germany	ReGES	0.478	48.3
	IAB-BAMF-SOEP	0.585	59.4
Iraqi IDPs	MICS	0.462	43.9
Non-region-specific measurement			
Syrians in Germany	ReGES	0.630	59.1
	IAB-BAMF-SOEP	0.789	75.9
Syrians in Jordan	Arab Barometer	0.635	62.9
Syrians in Lebanon	Arab Barometer	0.492	49.7

Figures

Figure 1: Absolute educational attainment in percent (0: no formal education completed; 1: primary; 2: lower secondary; 3: upper secondary; 4: post-secondary; 5: tertiary)

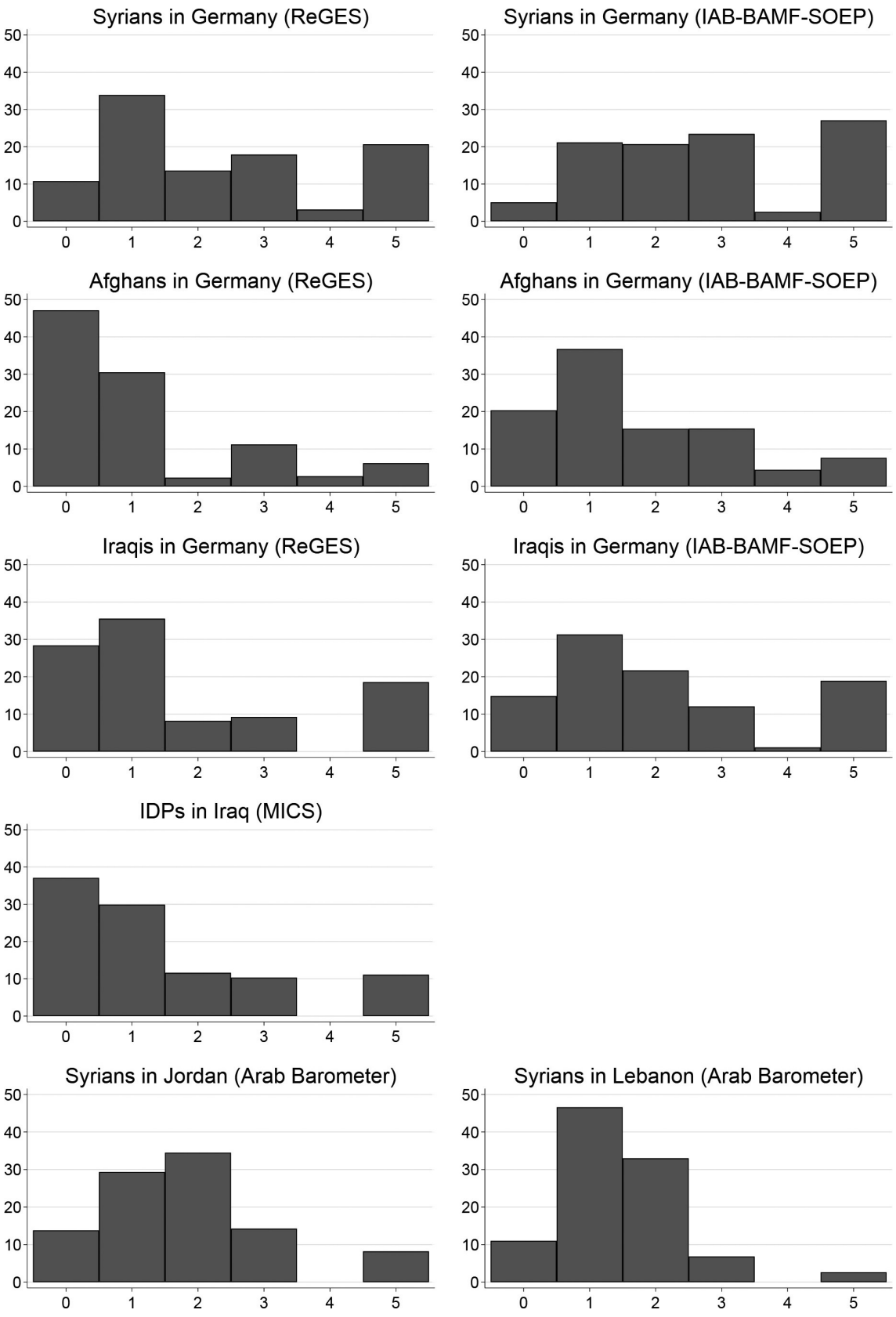


Figure 2: Density distributions of region-specific relative education

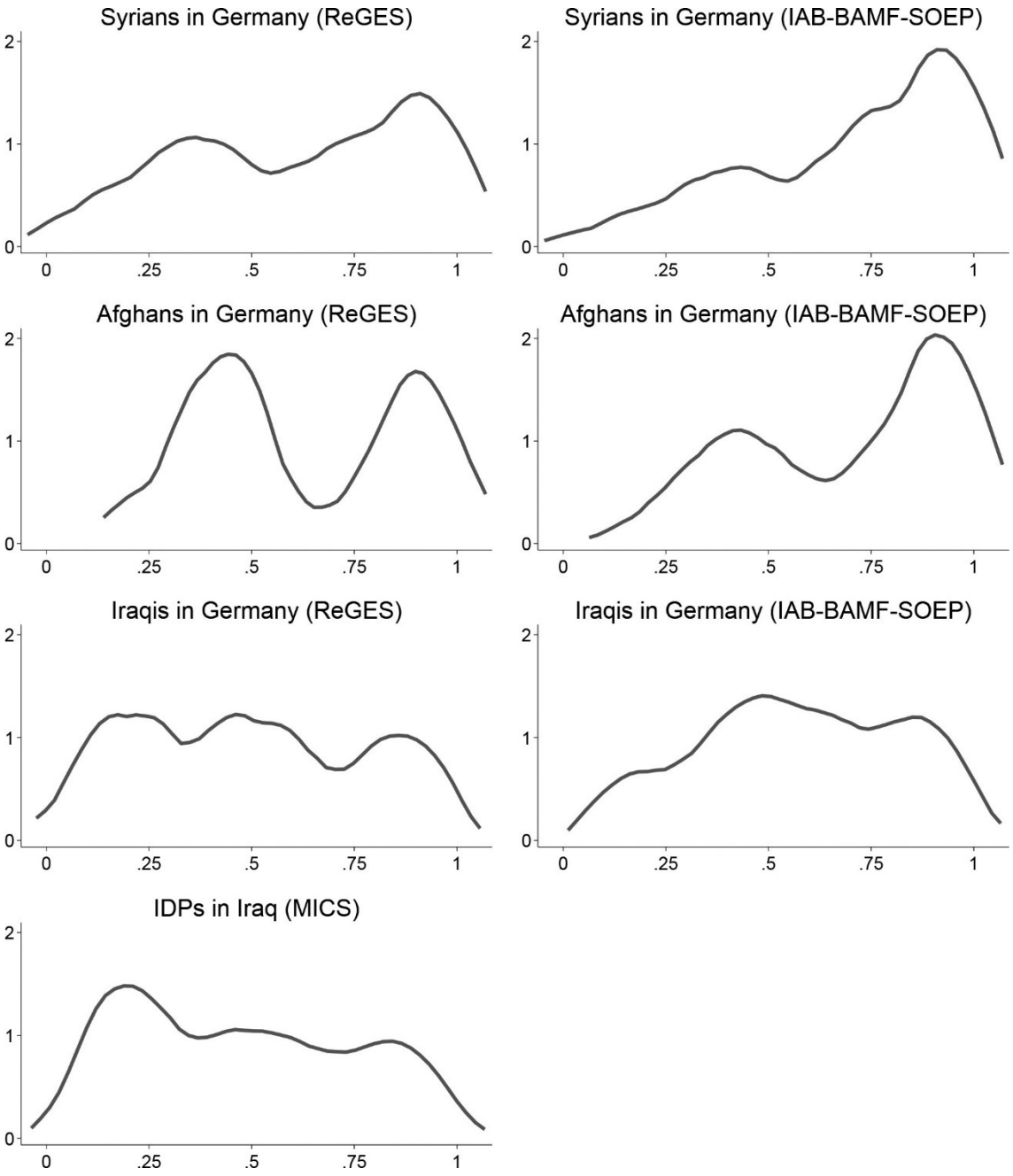
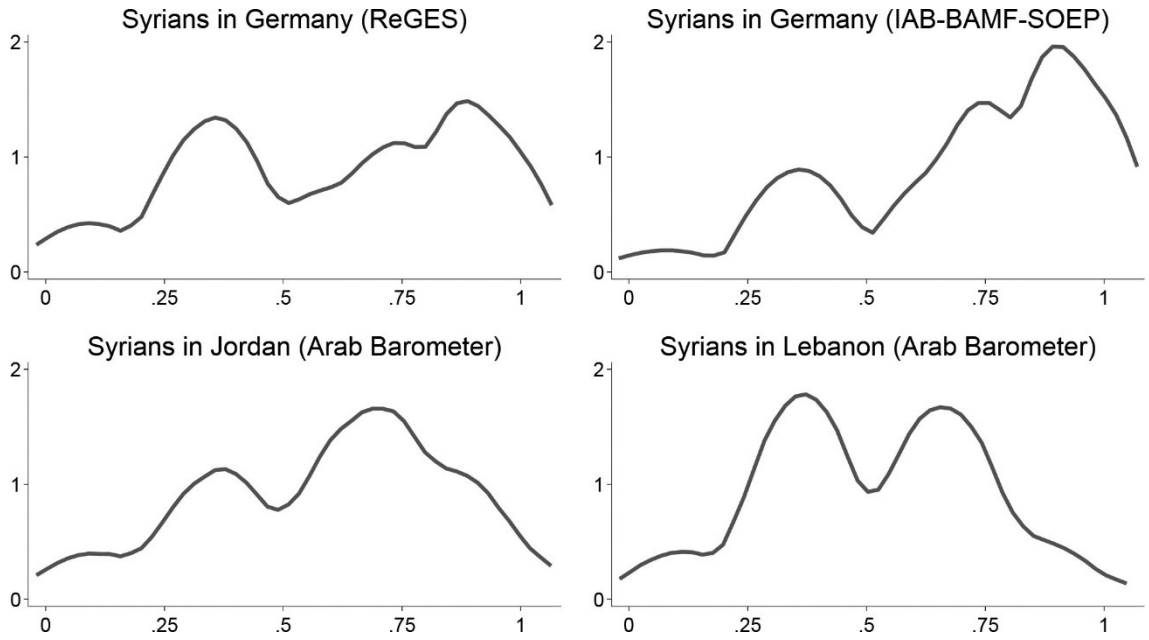


Figure 3: Density distributions of non-region-specific relative education



Chapter 4 The role of recent refugees' educational selectivity in their children's educational decisions in Germany *

Abstract

This paper uses the example of newly arrived refugees to examine the role of recent migrants' educational selectivity in their children's educational decisions in Germany. Building on a theoretical model that understands participation in the educational system as the sum of investment decisions of rational individuals, we assume that positively selected parents are more ambitious about having their children admitted to higher-level secondary schools. The role of parental educational selectivity should be particularly pronounced in federal states in which school administrations allow for greater parental involvement. We use data from the first and second face-to-face interviews of the Refugees in the German Educational System (ReGES) project, with an analytical sample of 1,437 adolescents who came to Germany from Syria, Iraq, Afghanistan, and Iran between 2014 and 2017. To generate a household-level index of educational selectivity, we furthermore rely on various country-of-origin-specific data that we aggregate as reference educational distributions. We run linear probability regression models to analyze the role of parents' educational selectivity in adolescents' school placement. Our findings suggest that parental educational selectivity is beneficial beyond parents' absolute educational levels for adolescents' higher-level school placement. Among the five German federal states represented in our analytical sample, the role of parental selectivity is particularly pronounced in two federal states in which parents are provided with greater possibilities to become involved in their children's educational decisions.

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1 Introduction

There is increasing academic interest in the role of migrants' educational selectivity in their children's educational success. It is frequently assumed that educational selectivity contributes above and beyond migrant parents' absolute education to the next generation's educational success. While absolute education captures the level of formal instruction that an individual acquired, for example, in the form of educational levels achieved (e.g., ISCED), educational selectivity – or, in other words, relative education – takes into account the country-of-origin-specific value of education and is assumed to proxy latent aspects such as motivation or ability. Indeed, a range of studies suggest that educational selectivity is beneficial for the next generation's educational attainment (e.g., Ichou 2014; Feliciano and Lanuza 2017), aspirations (e.g., Engzell 2019), and educational decisions (e.g., Tong and Harris 2020; Brunori, Luijkx, and Triventi 2020). These studies focus primarily on migrant children who were born in the receiving country and are therefore second-generation migrants. We aim to contribute to quantitative research by analyzing the link between parents' educational selectivity and the educational participation of children who, like their parents, are themselves first-generation migrants.

We do so by using the example of newly arrived refugees[1] in Germany. The arrival of many families with school-aged children in the course of recent refugee immigration gives us the opportunity to examine the integration of a sufficiently large group of first-generation migrant students who are admitted to the German school system as lateral entrants. We understand integration as the inclusion of individuals into the social systems of a society and focus on the dimension of structural integration in this paper. Structural integration describes the placement of individuals in the institutional and economic systems of a society (Esser 2000) – in our case, the placement of migrant adolescents in educational institutions in Germany. Although we refer to a sample of refugees, we believe that our findings generally apply to first-generation migrants. Previous research found that mechanisms discussed in the context of social and ethnic educational inequality also help explain the educational success of refugees (e.g., Schipolowski et al. 2021; Will and Homuth 2020), even if some individual preconditions or opportunity structures may be systematically different for refugees.

We focus on a highly relevant educational decision – enrollment in higher-level secondary school – and aim to answer the following research question: What role does immigrant parents' educational selectivity play for first-generation migrant adolescents' school placement in Germany? Successful integration into the educational system is vital because it not only determines their educational outcomes, such as the degrees that they will likely complete, but also affects their chances in later life. In Germany, migrants of school age are assigned to school

[1] This paper uses the term 'refugees' as a collective term for all individuals seeking humanitarian protection. The notion is not limited to the strict definition of the Geneva Convention.

types immediately after their arrival or after a relatively short time in the place of destination. In this respect, school placement can be seen as an early integration outcome. Because the German educational system is strictly organized according to tracks, assignments to a particular school type significantly influence the subsequent educational trajectories of young students, not least because subsequent changes of school tracks are extremely difficult.

We assume that family background, as indicated by parents' educational selectivity, can to some extent help explain the school placement of migrant children who enter the educational system laterally. To our knowledge, the role of immigrant selectivity has thus far not been taken into account to explain the integration of first-generation migrants into the secondary level of school, neither for refugees nor other migrant groups. We assume that the mechanisms by which selectivity contributes to explaining the educational decisions of immigrant children are identical for refugees and other first-generation immigrants. We will explicitly point out when we expect differences that relate to the specific situation of refugees.

The paper is structured as follows: Section 2 gives a brief overview of the current state of the research on the role of educational selectivity, with a particular focus on consequences for migrant children's educational outcomes. Theoretical considerations are presented in Section 3. We model integration into the educational system as rational choice decisions and link this model to mechanisms that are expected to explain the role of educational selectivity in migrants' societal integration. Section 4 describes the research design and the data. To analyze the role of parents' educational selectivity for children's placement in higher-level secondary school, we run linear probability regression models. Descriptive and multivariate findings are presented and discussed in Section 5.

2 Overview of the research

It is well established that parental education is essential for children's education (e.g., Erikson and Jonsson 1996). This finding also holds for migrants (e.g., Kristen and Granato 2007; Brinbaum and Cebolla-Boado 2007) and, more particularly, the group of refugees who migrated to Germany in recent years (Schipolowski et al. 2021; Will and Homuth 2020). Most of the previous studies share an understanding of parents' educational background in terms of absolute degrees. However, the value of education is highly context dependent, particularly among migrants. Consider two individuals who obtained their highest educational qualifications in two different countries. Although these two qualifications may be equivalent to the same (absolute) educational level – for example, higher education – their relative value is conditioned by the position that they convey to their holders in the respective reference population. While higher education is common in many countries, it may be attained only by a minority in other countries, thus making it relatively more valuable in the latter case because the share of less educated individuals in the population is greater there.

In studies that include migrants from different origin countries, such differences are overlooked if only absolute levels of education are accounted for. In the context of international migration, it is particularly relevant to evaluate an individual's educational attainment relative to the context in which it was achieved because migrants are usually selected on education, with the better educated often being more likely to migrate (Feliciano 2005b; Spörlein et al. 2020). This finding is essential as a descriptive contribution, and it is consequential for migrants' integration into the host society in various dimensions.

Among the consequences of educational selectivity, outcomes that refer to the next generation's education may be the best empirically confirmed. Previous research analyzed the role of educational selectivity for the second generation's educational attainment (Ichou 2014; Feliciano and Lanuza 2017; Feliciano 2006b, 2018; van de Werfhorst, van Elsas, and Heath 2014) as well as for a range of educational outcomes that influence children's later educational attainment, such as expectations and aspirations (Engzell 2019; Nygård 2021; Tong and Harris 2021; Cebolla-Boado, González Ferrer and Nuhoğlu Soysal 2021; Feliciano 2006a, 2006b) and educational decisions (Engzell 2019; Tong and Harris 2020; Brunori, Luijkx, and Triventi 2020; van de Werfhorst, van Elsas, and Heath 2014; van de Werfhorst and Heath 2019; Feliciano 2005a, 2006b).

Overall, these studies point to a positive contribution of educational selectivity to their children's education. Among the studies that specifically deal with consequences for educational decisions, findings suggest that educational selectivity is positively associated with second-generation migrant adolescents' chances of attending an academic secondary track (Engzell 2019; van de Werfhorst and Heath 2019; van de Werfhorst, van Elsas, and Heath 2014). For the United States, educational selectivity is found to increase migrant children's chances of college enrollment (Tong and Harris, 2021; Feliciano 2005a, 2006b). As a special case of educational decisions, Brunori, Luijkx, and Triventi (2020) analyze the role of parents' educational selectivity in their children's school dropout and find that positive educational selectivity decreases the likelihood of an early dropout.

Some of these studies measure selectivity on the group level, comparing the educational levels of a migrant group – for instance, Turks in Germany – to those of the origin population (e.g., Feliciano 2005a, 2006a; van de Werfhorst and Heath 2019), while others investigate the role of individual-level (i.e., parental) educational selectivity (e.g., Ichou 2014; Engzell 2019). Our paper applies the latter approach because it accounts for variation within migrant groups, which is essential for our research interest in investigating the consequences of parental selectivity. Despite using different measures, most cited studies share assumptions about mechanisms that might explain positive consequences of educational selectivity for the next generation's education. Three mechanisms are frequently considered to play a role: motivation, relative status maintenance, and skills.

First, parental educational selectivity could play a role in children's educational outcomes because selectivity is supposed to be a proxy for unobserved motivational attributes. According to this reasoning, better educated individuals should be more ambitious (Chiswick 1999). In this context, motivation is frequently used as an umbrella term under which researchers subsume aspects such as drive for success or achievement orientation (e.g., Ichou 2014; Feliciano and Lanuza 2017). Positively selected parents might have greater ambitions for their children's education and pass motivational attributes down to their children so that their children have greater ambitions themselves.

Second, educational selectivity reflects an individual's position in the educational distribution of the origin society and can be seen as an indicator of the social status that migrants hold prior to migration. Positively selected migrants are assumed to have occupied a higher social rank in the place of origin. This premigration status may also be relevant in the place of destination because much of migrants' behavior may be guided by the position they hold in their societies of origin (Ichou 2014; Feliciano 2005a). This expectation is particularly important in the context of the next generation's educational success in the place of destination because education is an essential means to maintain a family's social status across generations.

Third, some researchers see educational selectivity as an indicator of cognitive skills (Ichou 2014; Spörlein and Kristen 2019a). These could result in greater resources, such as cultural or social capital (Spörlein and Kristen 2019a), which might give positively selected migrants better access to relevant information and helpful strategies to support their children. Skill advantages could also be transmitted to their children (Schulz et al. 2017) so that the children of positively selected parents should themselves have greater abilities for success.

While the previously mentioned studies analyze the role of educational selectivity for educational outcomes among students who mostly spent all or most of their childhood in the destination country, we focus on refugee adolescents as a group of first-generation migrants who immigrated to Germany at school age. The mechanisms that drive the intergenerational consequences of educational selectivity should also apply to first-generation migrants. However, certain conditions under which they participate in the educational system in the place of destination are specific for this group. Most importantly, they entered the German educational system laterally instead of starting their school career in the place of destination.

3 Educational selectivity and adolescent educational decisions

3.1 Modeling migrant families' educational behavior

In the following subsection, we link the mechanisms that we expect to drive the consequences of educational selectivity to a general model that explains educational behavior. This model understands integration into the educational system as the sum of investment decisions of

rational individuals. Expected costs and benefits and the probabilities of realizing different options determine individuals' educational behavior (Breen and Goldthorpe 1997; Erikson and Jonsson 1996; Esser 1999). Educational outcomes are shaped by individual motivation, resources, and institutional opportunities and restrictions (Diehl, Hunkler, and Kristen 2016). In our study, adolescents are the central individuals of interest, but context persons – most importantly parents, who influence their children's educational behavior and partially make educational decisions for them – can be equally relevant actors.

Families can anticipate a range of benefits from investments in their children's education. Education is a precondition for success later in life (Breen and Goldthorpe 1997; Erikson and Jonsson 1996). Families with greater cultural resources may be particularly aware of the benefits of education (Bourdieu and Passeron 1990). Positively selected families are expected to possess greater cultural resources and attribute greater value to education.

However, investments in education generate costs (Breen and Goldthorpe 1997; Erikson and Jonsson 1996). Higher-level secondary education usually lasts longer, and it is more uncertain whether children will successfully complete this path compared to shorter and less demanding educational trajectories. Parents with a greater propensity to delay gratification may be more likely to opt for more demanding school types for their children (Erikson and Jonsson 1996). Educational selectivity is frequently seen as a proxy for such motivational resources (Spörlein and Kristen 2019a); therefore, positively selected families may be more willing to have their children admitted to higher-level secondary school.

Further nonmonetary costs can arise from the desire for status maintenance, which posits that parents and children want to avoid downward intergenerational mobility (Breen and Goldthorpe 1997). For recent migrants, the social status they have in the place of origin is assumed to be more relevant than their current status in the place of arrival (Ichou 2014). Families may want to avoid downward assimilation and want their children to attain an educational level that allows them to have a comparable or even higher social status than their parents had in the place of origin. To match their parents' premigration status, children of migrants who are better educated based on the standards of the origin country are expected to have to invest more in education than children of migrants who are relatively less educated.

The status attainment assumption can furthermore be linked to the assumption that migrants who are positively selected on education should also be positively selected on motivational attributes: Higher-status families might have higher educational aspirations than lower-status families (Erikson and Jonsson 1996). Aspirations may be seen as an expression of motivational characteristics through which parental educational selectivity might reflect on children's educational decisions. Migrant parents with higher premigration status might also be more motivated to make investments, for instance, in destination-language acquisition, which should ultimately foster their children's educational success in the destination country. Additionally, parents' motivational attributes are resources that may, at least partially, be transmitted to their

children and influence their children's behavior. Accordingly, children of positively selected parents might themselves have higher aspirations, be willing to invest more, and make more ambitious educational decisions (Ichou 2014).

Based on these theoretical considerations, we propose our first hypothesis:

H1: Children from positively selected households have a higher likelihood of higher-level secondary school placement.

3.2 Migrant-specific conditions in the German educational system

Specific structural conditions for newcomers could moderate how parents' educational selectivity is reflected in their children's educational success. School-aged immigrants generally have the right and the obligation to attend school in Germany, but regulations at the federal state level specify the organization of lateral entrants' integration into the school system (Massumi et al. 2015). In many federal states, new immigrants are usually initially taught in separate classes for new immigrants. While these classes in some federal states (e.g., Bavaria and Saxony) are especially established at lower-level school types, regulations in other federal states attribute more weight to previous educational experiences and individual achievements when newcomers are assigned to a school type (see Will and Homuth 2020).

This consideration of individual experiences and achievements is usually accompanied by greater opportunities for parents to exert influence. For instance, regulations in Rhineland-Palatinate explicitly point out the responsibilities of parents (Ministerium für Bildung 2017). Parental involvement is also referenced in regulations in North Rhine-Westphalia and Hamburg (Ministerium für Schule und Bildung des Landes Nordrhein-Westfalen 2018; Behörde für Schule und Berufsbildung Hamburg 2018). In such contexts, positively selected parents could be more persistent in trying to have their children admitted to higher-level school types. We therefore derive another hypothesis with regard to the school placement of newly arrived immigrants who enter the educational system laterally, focusing on the potentially more important role of educational selectivity in some federal states:

H2: The role of parental educational selectivity in higher-level school placement is particularly pronounced in federal states that allow for greater involvement of parents in their children's school placement.

4 Research design

4.1 Destination-specific data source

Our analyses rely on data from the Refugees in the German Educational System (ReGES) project, which provides longitudinal data on the educational trajectories of young refugees who came to Germany between 2014 and 2017. Children and adolescents living with at least one parent were sampled using a multistage design. First, five of the 16 federal states in Germany were selected: Bavaria, Hamburg, North Rhine-Westphalia, Rhineland Palatinate, and Saxony. These five states vary according to various macrolevel indicators relevant for the integration of immigrants, such as unemployment rates or experience with immigrant integration, as well as in their way of integrating newly arrived immigrants into schools. Based on the general population registers of the municipalities that were selected within these five federal states, target persons who fulfilled the criteria (e.g., age, nationality, and date of arrival) were sampled (for further details, see Steinhauer, Zinn, and Will 2019).

The adolescent participants were surveyed a total of seven times between 2018 and 2020 at intervals of five months on average (for further information, see Will et al. 2021). At the time of the sampling, they were 14 to 16 years old and were assumed to be at the end of the first stage of secondary schooling. To obtain richer contextual information on the adolescents' family background, their parents were also interviewed at the first measurement time on various topics, such as their highest educational degree in the place of origin. If the parents did not want to take part, the adolescents themselves were asked some questions about their family backgrounds. Our analyses focus on data from two waves. Most variables – particularly those related to family background – were measured at the first face-to-face interview. The second face-to-face interview, conducted approximately one year after the first face-to-face interview, is the source of a range of variables that refer to the destination context, including our outcome variables.

Our analytical sample consists of adolescents who completed valid interviews in the first and second face-to-face waves and for whose parents we have the necessary information on educational background. Because measuring educational selectivity depends on the availability of origin-specific datasets (see subsection 4.2), our sample is restricted to the four largest groups in the ReGES study: Syrians, Iraqis, Afghans, and Iranians. We additionally exclude students who did not transition into regular classes. In Germany, recent migrants are often enrolled in special newcomer classes. Such classes may be set up in various types of schools. Attendance of newcomer classes at a certain type of school can influence the type of school that a student will attend after transferring to a regular class but by no means determine the later school type. Thus, analyzing the educational placement of students who did not enter regular classes would be associated with many uncertainties. We further exclude one case for which information about

the attended school type is missing. This procedure results in an analytical sample of 1,437 adolescents in 1,310 families.

4.2 Operationalizing educational selectivity

Measuring educational selectivity first and foremost requires information on the educational degrees that parents acquired in their place of origin. In the ReGES project, the respondents were asked for their highest country-of-origin-specific educational qualification. Subsequently, each qualification was coded according to the internationally comparable ISCED97 classification (see UNESCO Institute for Statistics 2012).

The information on absolute educational levels is then used to calculate an index of educational selectivity, following the relative education approach (Ichou 2014). The central objective of this approach is to determine a migrant's position in the educational distribution of a certain reference population. In our study, the reference population is equivalent to the population of the origin country where refugee parents grew up and acquired their education.

To generate reference educational distributions for the origin groups that we consider, four large-scale datasets serve as sources. The datasets for Syria, Iraq, and Afghanistan were collected under the Multiple Indicator Cluster Surveys (MICS) program (CBS et al. 2008; CSO Iraq et al. 2019; CSO Afghanistan and UNICEF 2013). We rely on the data from the most recent survey years for each origin country, which are 2006 for Syria, 2010/2011 for Afghanistan, and 2018 for Iraq. The Iranian data are a two percent public use sample of the 2011 National Population and Housing Census (Minnesota Population Center 2020).

Before aggregating the microdata into educational distributions, we dropped all observations without valid information on educational attainment. Because average educational levels may systematically differ between men and women, older and younger generations, and wealthier and poorer regions within an origin country, we generate educational distributions that are specific to gender, five-year age group, and subnational region of origin.[2] For this reason, cases with missing values for gender, age, or region are also excluded. With these restrictions, the origin-specific data sources account for 54,525 individuals in Afghanistan, 66,851 in Syria, 78,493 in Iraq, and 1,115,084 in Iran.[3]

[2] We rely on a region-of-origin-specific measurement of relative education, which has been found to measure educational selectivity more accurately than a country-of-origin measurement if migrants' origins concentrate on few subnational regions of a country and if wealth is unequally distributed between subnational regions of a country (see Spörlein and Kristen 2019b). Both aspects apply to the origin groups considered in this paper.

[3] These large case numbers allow us to divide the data into gender-, age-, and region-specific groups that mostly are sufficiently large to serve as reference for the generation of the relative education index. In few cases, for which the size of the reference group is below 50 individuals, we ran plausibility checks by comparing the region-specific selectivity index to an index that is not region specific. Because the latter is only specific to age groups and gender for each origin country, it consists of larger reference groups. The plausibility checks revealed no substantial deviations between both indices among these cases, so we consistently use the region-specific index for all cases.

Based on the respective origin-specific educational distribution, the relative education of a ReGES respondent is calculated by adding the shares of the reference population with lower educational levels plus half of the reference population with the same educational level as the respondent.[4] All values of relative education range on a continuum between 0 and 1. For instance, a value of 0.6 indicates that an individual is at least as educated as 60 percent of the origin population of the same gender, age group and subnational region of origin. Individuals with a relative education value above 0.5 are better educated than half of the reference population and therefore characterized as positively selected, whereas values below this threshold indicate negative selectivity.

We expand the measurement of relative education in one essential aspect. Looking at individual-level relative education would be of limited informative value for the analyses of intergenerational processes, where it is not sufficient to consider the background of only one parent. We therefore operationalize educational selectivity as the highest relative education in the household, that is, the highest relative education of the responding parent or his or her partner.

In addition to the measurement of relative education, our multivariate models include the highest educational level completed in the household (HISCED) as a measurement of parents' absolute education prior to migration. The HISCED variable is recoded and includes the following categories: primary school or below (HISCED 0-1), lower secondary school (HISCED 2), upper secondary (HISCED 3) and postsecondary education (HISCED 4-6).

4.3 Further explanatory and outcome variables

The multivariate models contain further variables that could generally explain variation in migrants' school placement. Control variables include adolescents' age in years (at the time of sampling), gender, legal status (insecure vs. secure), number of months since they arrived in Germany, and extent to which they have a place to retreat. Additionally, the potential experience of traumatizing events before or during migration could hamper students' educational integration (Qureshi et al. 2011). We account for this by including an indicator of PTSD risk, measured with a scale assessing ten symptoms. We recoded the scale score into a binary variable: respondents who reported three or fewer symptoms are considered to be at low risk, whereas those who reported four or more symptoms are considered to have at least a medium PTSD risk. For further details on the scale, see Boillat and Chamouton (2013). In addition, we control for whether the parents participated in the first interview.

[4] Because we generate a relative education index that is specific to gender, age group, and origin region, this information is required not only for the origin population but also for the ReGES parents. Adolescents whose parents did not participate in the ReGES study were not asked about their parents' age. To avoid excluding these cases, their mothers' and fathers' age is approximated by the average age of the mothers or fathers for whom this information is available, who come from the same origin country, and whose children have the same age.

Because we expect state-level differences in students' school placement, dummy variables represent the five federal states in which the ReGES study was conducted. To examine our second hypothesis, which posits that the role of parental educational selectivity in higher-level school placement is particularly pronounced in federal states that allow for greater parental involvement, we include interactions for the federal states and the highest relative education in the household in the multivariate models referring to school placement. While in Bavaria and Saxony, schooling for new immigrants is initially primarily provided in less-demanding school types, parents are expected to play a more important role in school type assignment in Hamburg, North Rhine-Westphalia and Rhineland-Palatinate.

In addition, we include some variables that could be associated with both the outcome variable and parental educational selectivity: adolescents' educational aspirations, their German language skills, and their school performance in the place of origin. Educational aspirations are often related to educational outcomes (e.g., Dollmann 2017) and may be expressions of motivational attributes, which are supposedly captured in the measure of relative education (Ichou 2014). We therefore consider adolescents' idealistic aspirations. These are included as a dummy variable that distinguishes between aspirations to acquire a qualification that allows one to attend university vs. aspirations for lower degrees. German language skills have been found to be acquired more quickly by adolescents from positively selected refugee families (Welker submitted). Similarly, these should be positively associated with the likelihood of attending higher-level secondary schools because greater skills may increase chances of entering more demanding school types (e.g., Stanat and Edele 2016). However, it should be emphasized that language skills are not just a prerequisite of schooling. Causality may also run in the opposite direction: Attending higher-level secondary school may result in better German skills if students enrolled in more demanding school contexts have a steeper learning curve. Thus, we believe that it is important to include a measure of German skills in our analyses, but at the same time, we will refrain from interpreting potential effects causally because better language skills might also be a consequence of being enrolled in higher-level secondary school. In the ReGES study, German language competency tests were conducted to assess adolescents' destination-language skills. We rely on sum scores of the Peabody Picture Vocabulary Test (PPVT; Lenhard et al. 2015), which assessed the adolescents' receptive German vocabulary at the time of the first interview. As an indicator of adolescents' educational experience, we consider their school performance in the place of origin, which was reported by the parents or self-assessed by those adolescents whose parents did not participate in the survey. The performance assessments range on a scale from 0 to 100 and are centered on the country-of-origin mean for the multivariate analyses. This variable should be associated not only with adolescents' school placement in Germany but also with parents' relative education, as we expect students' origin-specific performance to reflect their parents' relative education. This may be related to motivational attributes, social status prior to migration, or transmitted cognitive skills.

To obtain information on our outcome variable, that is, school-type placement, adolescents were asked about their educational episodes in Germany. Secondary schools in Germany can be summarized as follows: higher-level secondary schools grant students a degree of direct access to university education, whereas intermediate-level and lower-level secondary schools usually prepare students for vocational training. In addition, there are school types that join more than one track, such as combined schools for lower-level and intermediate-level tracks and comprehensive schools that integrate all three tracks. Given the age range of the ReGES sample, schooling was no longer mandatory for some adolescents at the time of the second face-to-face interview. For these students, undergoing vocational training or vocational preparation are alternatives to transitioning into upper secondary school. We operationalize school placement as a dummy variable: students at higher-level secondary schools vs. all other adolescents, including those who had already left the general school system.

For a descriptive overview of all variables, see Table 1. Missing values are multiply imputed (m = 25) using predictive mean matching on all independent variables except our central independent variable, that is, parental educational selectivity, and all variables necessary to generate the index of educational selectivity (i.e., parents' absolute education, gender, age, origin country, and origin region). All missing values resulted from item nonresponse, which we expect to be missing at random. We estimate linear probability models with robust standard errors for both outcomes.

[table 1]

5 Results

5.1 Descriptive analyses

To gain an overview of our central explanatory variable, Figure 1 displays the density distribution of the ReGES household highest relative education. The distribution is skewed to the left, representing the high shares of refugees who are positively selected on education. The median relative education of this analytical sample is 0.78, which expresses that the relatively best educated parent of the median household is at least as educated as 78 percent of the population of the place of origin. Despite its skewness, the distribution covers the whole spectrum from negative to positive selectivity.

[figure 1]

Examining the relation between relative and absolute education, we find that both measures are strongly correlated (Spearman's rho = 0.86). In some respects, this is a limitation to exploring the respective roles of both measures in the multivariate analyses, but we nonetheless believe that it is important to include both for several reasons. Most importantly, educational degrees, which are measured by absolute levels, could have some kind of signaling effect (Bol and van de Werfhorst 2011) that is not reflected in the measure of relative education, whereas latent aspects such as motivational resources should be better captured by the measure of relative education. In addition, the value of (absolute) educational level strongly differs between migrants from different origin countries. This may best be illustrated by an example: According to the origin-specific data that we use to generate the relative education index, approximately 19.3 percent of the Syrian population completed secondary or higher levels of education, while comparable levels of education were completed by only 8.7 percent of the Afghan population (CBS et al. 2008; CSO Afghanistan and UNICEF 2013). Therefore, having at least a secondary degree is of greater value in Afghanistan than in Syria. This origin-specific value of education is only considered in the measure of relative education.

[figure 2]

Figure 2 depicts the density distributions of relative education by HISCED level and origin group (except for households from Iran, which are too few cases to be presented separately). Particularly among lower levels of absolute education, the households cover a wide range of the relative education index and strongly overlap with other HISCED categories. This applies to all three origin groups displayed in the figure but is most striking in the case of Afghans, among whom even low absolute levels such as primary education can result in highly positive educational selectivity. There are important differences in regard to households where at least one parent completed lower secondary education (HISCED 2): While among Afghan households, a lower secondary degree already results in extremely positive educational selectivity, the picture is more nuanced among Iraqi and Syrian households, where lower secondary degrees cover a wider range on the selectivity index. However, the graph also shows that among all three origin groups, households where at least one parent completed postsecondary or higher education are concentrated in an extreme peak at the upper end of the relative education scale. This suggests that the latter are a highly select group within the sample.

We now turn to the description of our outcome variable. Students at higher-level secondary schools make up 14.3 percent of the relevant analytical sample. Other students were mostly enrolled in intermediate-level schools (19.6 percent), followed by comprehensive (16.7 percent), lower-level (16.2 percent), and combined secondary school types (12.6 percent). A small share of 4.5 percent were enrolled in other, not further specified schools. The remainder of the sample (16.1 percent) had left the general educational system and were mostly receiving vocational training or vocational preparation at the time of the second interview. Differentiating

by adolescents' school type, the median household has a relative education index of 0.90 among students at higher-level secondary schools. In contrast, the median relative education index is 0.73 for households of students who did not attend higher-level secondary school. This gap of 17 percentage points suggests that children from positively selected families have greater chances of attending higher-level schools.

5.2 Multivariate analyses

In the following subsection, we present the findings of our multivariate analyses of the role of parental educational selectivity for young refugees' school placement (Table 2). The first model includes the measure of parental relative education and controls (Model 1). Relative education is positively associated with adolescents' chances of attending higher-level secondary school. Adolescents from families where at least one parent is at the top of the relative education distribution have a 24.8% greater chance of attending higher-level secondary school than (hypothetical) adolescents whose parents are at the bottom of the relative education index. Because the first model does not include the measure of absolute education, the size and strength of the association between relative education and school placement are likely overestimated. Turning to the covariates included in this model, we especially see that macrolevel factors have some importance as rather strong differences exist between federal states. Compared to adolescents in Bavaria, their counterparts in three other federal states – Hamburg, Rhineland-Palatinate, and North Rhine-Westphalia – have substantially greater chances of being enrolled in higher-level secondary schools. The latter federal states are the same for which we expect a greater role of parental selectivity. We will get back to this finding in more detail in Model 5, where we additionally consider interactions between federal states and parental selectivity. Among the other controls, gender and PTSD risk appear to play some role, with males and adolescents with a medium or high PTSD risk being less likely to attend higher-level schools.

[table 2]

Before running a model that includes both relative and absolute parental education, we take a closer look at the role of absolute education (Model 2). As expected, there is a positive relationship between absolute parental education and the outcome. This association can be found for adolescents whose parents attained upper secondary education – these have an 8.1% greater chance of attending higher-level secondary school – and is even stronger for children whose parents attained postsecondary or higher education and who have a 15.3% greater chance of higher-level secondary school placement, compared to adolescents whose parents completed at most primary education. Besides the measure of absolute education, this model contains the

same covariates as the previous model. The strength and size of these covariates' association with the outcome are almost identical in both models.

As we include both relative and absolute parental education in one model (Model 3), the association between relative education and adolescents' school placement is indeed reduced but remains significant. Keeping absolute parental education constant, adolescents from a perfectly positively selected household still have a 12.3% greater chance of attending higher-level secondary school compared to adolescents from a perfectly negatively selected household. At the same time, the parents' absolute educational levels matter: children whose parents attained postsecondary or higher education have 9.6% greater chances of attending a higher-level school. However, in contrast to the previous model, parental upper secondary education is no longer significantly associated with the outcome, and the association between higher than secondary parental education and the outcome is weaker. We assume that both in regard to relative and absolute education, parts of the diminished associations are caused by the strong correlation between both measures. These findings nevertheless suggest that both absolute and relative parental education play a role in adolescents' educational decisions, which supports our first hypothesis: educational selectivity is beneficial for first-generation migrants' enrollment in higher-level secondary schools, over and above the contribution of the parents' absolute educational levels. However, we also acknowledge that the model explains only a rather small share of variation (Adj. R2 = 0.0568) in these adolescents' higher-level secondary school attendance. Regarding the covariates, their associations with the outcome variable are comparable in strength and size to the previous models.

Model 4 additionally considers the adolescents' educational aspirations, their German skills, and their school performances at origin, which might potentially be drivers of the association between educational selectivity and adolescents' school placement. All three variables are positively associated with placement in higher-level secondary schools. Compared to the previous model, the variation explained by this model increases slightly by – after all – more than two percentage points, which underlines the role of aspirations, language skills, and previous school performances in adolescents' school-type attendance. The importance of previous school performances is in line with regulations in many federal states that stipulate previous educational experience as a basis for the decision of which school type an adolescent is admitted to. We assumed that educational aspirations, language skills, and school performance at origin may be associated not only with the outcome but also with educational selectivity: Children from positively selected families may have greater aspirations, which translates into a greater likelihood of being enrolled in higher-level secondary school. Additionally, they may have performed better at school in their place of origin and have advantages in acquiring German language skills. This may explain why parental relative education no longer plays a significant role in this model and why the size of its association with the outcome is further reduced compared to Model 3. However, the reduction of the association with the outcome applies not only to relative education but also to absolute

education, as parental postsecondary or higher education is no longer significantly associated with adolescents' school placement. As far as our controls are concerned, PTSD risk is no longer significantly associated with the outcome.

To examine our second hypothesis, which posits that the role of parental educational selectivity in higher-level school placement is particularly pronounced in federal states that provide more freedom of choice, we consider interactions of parental selectivity and the federal states in Model 5. As mentioned above, the previous models show that students in some federal states have significantly greater chances of attending higher-level schools. Compared to Bavaria, this applies to all other federal states in the sample except Saxony. By including interactions, we aim to analyze these association in more depth. These results reveal a significant contribution of selectivity in two states. In North Rhine-Westphalia and Rhineland-Palatinate, greater chances of attending higher-level secondary school, which we saw in the previous models, are significantly associated with educational selectivity. In other words, first-generation migrant children from positively selected families in these two federal states have a greater likelihood of being enrolled in higher-level secondary schools than their counterparts in Bavaria, for whom we supposed that schooling regulations provide only a few opportunities for parental involvement. In North Rhine-Westphalia and in Rhineland-Palatinate, students from positively selected households have a substantially greater chance of attending higher-level secondary schools. This finding supports hypothesis H2 for two of the three federal states for which we expected a more pronounced role of parental selectivity. In contrast, we cannot confirm our hypothesis for Hamburg, for which we also expected greater possibilities of parental involvement. The greater chances of Hamburg students attending higher-level secondary school, which we see in the previous models, do not appear to be driven by educational selectivity but by other factors. Regarding our covariates, we still see an effect of gender, with males having substantially lesser chances to attend higher-level schools. School performances at origin, educational aspirations and German skills are farther positively associated with the adolescents' school placement in Germany. However, this full model still explains only a rather small share of variation (Adj. R2 = 0.0797), which we acknowledge to be a limitation to our analyses.

6 Conclusion

In this paper, we focused on the intergenerational role of migrants' educational selectivity, more precisely in regard to their descendants' educational participation in Germany. Using a sample of young refugees who entered the German educational system laterally and who are themselves first-generation migrants, we analyzed whether and to what extent their parents' relative education is reflected in their school placement. We assumed that their parents' educational selectivity could be beneficial for these adolescents' educational decisions. The data that we

used to answer our research questions were particularly suited to test our hypotheses. The ReGES data not only contain information on the school placement of a large number of newly immigrated adolescents but also detailed information on the parents, which makes it possible to create a comparatively differentiated index of relative education.

Our findings lend some support to our hypotheses on young immigrants' school placement: We see a positive relationship between relative education and attendance of a higher-level secondary school in the bivariate analyses and the multivariate models, which only loses its significance when we additionally control for mechanisms that might contribute to explaining this relationship. This is in line with previous research, which shows a similar role of parental educational selectivity for the educational success of 1.5- or second-generation migrants. Although first-generation migrants face specific conditions that accompany their integration into the educational system in Germany, the intergenerational transmission of education also plays an essential role in these young migrants' educational success.

We also see that the role of parental selectivity is particularly pronounced in North Rhine-Westphalia and Rhineland-Palatinate. We assumed that this is because regulations in these federal states provide students and their parents with more freedom of choice in the school placement decision and therefore enable the mechanisms assumed to be related to relative education to unfold better. However, our analyses show no comparable findings for Hamburg, although we assumed that families could also have more leeway in assigning newly arrived immigrants to a type of school there. Analyses that build on our findings and take a closer look at school enrollment processes in North Rhine-Westphalia and Rhineland-Palatinate might provide clues as to how the relative educational background of parents may be taken into account in a supportive manner in this context. However, it becomes clear that mechanisms of educational selectivity can hardly be effective if there is no leeway for young people and parents when making educational decisions. This is all the more regrettable because the resources, such as unobserved cognitive and socioemotional skills, associated with parents' educational selectivity can positively contribute to their descendants' educational success and their integration into the educational system. In order to utilize these resources, it would be advisable to provide families with opportunities of involvement in their children's educational decisions. The federal states should review their schooling regulations and consider giving families more say and, thus, the possibility to unfold the potential of positively selected migrants.

Our findings also show that parents' absolute educational levels are positively associated with their children's school placement in Germany. Overall, our results attest to the general importance of parental educational background – both absolute and relative – in this matter. The highly relevant role of family background has important implications, considering the fact that being assigned to a particular type of secondary school strongly predetermines students' subsequent educational trajectories. Integrating newcomer students into a highly stratified educational system, such as in Germany, makes it all the more important to support immigrant parents in enrolling their adolescent descendants. If better educated families are more likely to

have their children enrolled in higher-level schools, additional support might especially be necessary for less educated families, in which children benefit less from the intergenerational transmission of advantages. Additional support should be given in order to ensure that recent migrant children have equal chances regardless of their family background.

Parents are usually the most important figures for underage students and are therefore normally involved in all decisions about their educational careers. However, migrants who only arrived recently in their place of destination may not always possess all the necessary information to make such important decisions. Therefore, it is important to support newly arrived immigrants and their parents – irrespective of their educational background – to help them make informed decisions. Furthermore, while it is to be assessed positively that migrants of school age have the right and obligation to attend school soon after their arrival in Germany, early decisions about the school type that newcomers attend should not be irreversible. The permeability of different school tracks plays an important role here and is perhaps even more important for newly arrived students than for students who have spent their entire school career in the host country.

A limitation of our findings on higher-level secondary school placement may be stated in regard to the low level of variation that our multivariate models explain. In addition to parents' relative and absolute education, other factors for which we do not control appear to be decisive for young migrants' school placement. Some of this variation is likely explained by structural conditions. We assumed that school-type decisions of recent refugees who entered the German educational system laterally are only to some extent genuinely taken by these refugee adolescents and their parents. Their scope of decision-making takes place within a framework of regulations and is influenced by decisions made by school authorities (Will et al. 2022). In addition, it can be assumed that influences at the municipal level (e.g., support potential, existing schools) also play an important role. In our paper, we specifically focused on intergenerational aspects of educational selectivity on educational decisions, barely scratching the surface of the importance of structural conditions for this matter.

Finally, while our findings suggest some evidence for a significant role of educational selectivity on early integration outcomes that goes beyond the role of absolute parental educational levels, it is also conceivable that the benefits of positive selectivity come into play more strongly with a longer duration of stay. For instance, a longer duration of stay in the place of destination has been found to be relevant in explaining better labor market outcomes of positively selected migrants (Schmidt, Kristen, and Mühlau 2021). Future research should therefore also examine the potential consequences of parents' educational selectivity on the medium- and long-term integration of newcomer students into the educational system and the labor market at the destination.

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Figures

Figure 1: Density distribution of the highest relative education in the household (N = 1,437).

Notes: Source: ReGES parent and adolescent data (wave 1).

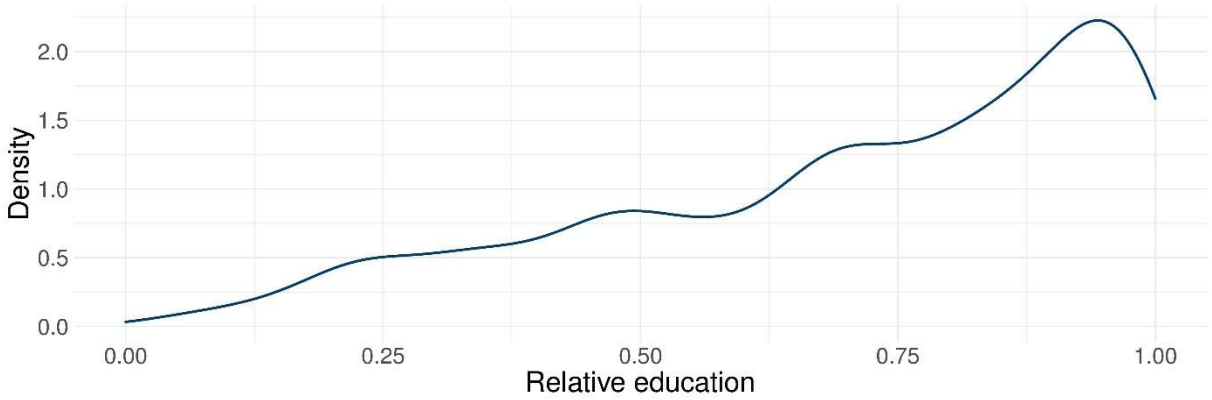
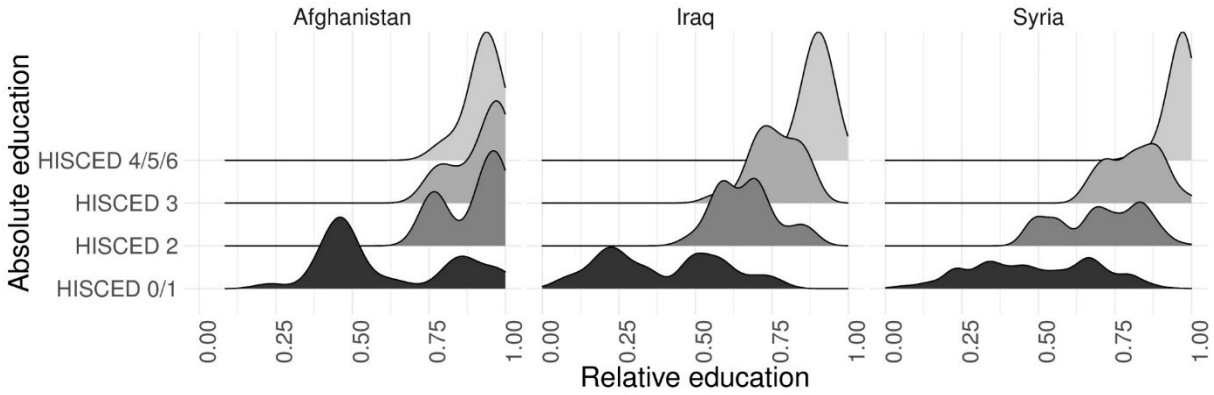


Figure 2: Density distributions of the highest relative education in the household by HISCED level and origin group (Afghanistan: n = 89; Iraq: n = 167; Syria: n = 1,157).

Notes: Because of the few cases from Iran (n = 24), density distributions are not displayed for this origin group. Source: ReGES parent and adolescent data (wave 1).



Tables

Table 1: Descriptive sample characteristics (N = 1,437)

Notes: Values displayed in this table are based on nonimputed data. Source: ReGES parent data (wave 1) and adolescent data (waves 1 and 4).

Variables	N/n	Freq/mean	SD	Range
Higher-level secondary school placement				
higher-level secondary school	206	14.34		
other school type or out of school	1,231	85.66		
Total	1,437	100.00		
Highest relative education in household	1,437	0.71	0.24	0.04; 1.00
Highest absolute education in household				
HISCED 0/1	558	38.83		
HISCED 2	188	13.08		
HISCED 3	284	19.76		
HISCED 4/5/6	407	28.32		
Total	1,437	100.00		
Gender of adolescent				
female	643	44.75		
male	794	55.25		
Total	1,437	100.00		
Age of adolescent				
14 years	576	40.08		
15 years	488	33.96		
16 years	373	25.96		
Total	1,437	100.00		
Months since immigration to Germany	1,437	29.86	8.84	3; 53
Legal status of adolescent				
insecure	378	27.17		
secure	1,013	72.83		
Total	1,391	100.00		
PTSD risk				
low risk	1,133	87.56		
medium or high risk	161	12.44		
Total				
Place to retreat				

no	206	14.50		
rarely	186	13.09		
sometimes	445	31.32		
most of the time	584	41.10		
Total	1,421	100.00		
Parental participation in wave 1				
no	364	25.33		
yes	1,073	74.67		
Total	1,437	100.00		
Federal state				
Bavaria	161	11.20		
Hamburg	103	7.17		
North Rhine-Westphalia	885	61.59		
Rhineland-Palatinate	194	13.50		
Saxony	94	6.54		
Total	1,437	100.00		
School performance at origin (centered on country mean)	1,427	0.00	26.13	-75.85; 38.80
Educational aspirations of adolescent				
qualification that allows to attend university	1,075	75.23		
other	354	24.77		
Total	1,429	100.00		
German language skills (PPVT sum score)	906	92.02	31.50	3; 206

Table 2: Linear probability models of adolescents' higher-level secondary school placement

Notes: Robust standard errors in brackets. * p<0.05, ** p<0.01, *** p<0.001. Source: ReGES parent data (wave 1) and adolescent data (waves 1 and 4).

	Model 1	Model 2	Model 3	Model 4	Model 5
Highest relative education in household	0.248***		0.123*	0.101	-0.047
	[0.036]		[0.056]	[0.055]	[0.070]
Highest absolute education in household (ref: HISCED 0/1)					
HISCED 2		-0.008	-0.034	-0.042	-0.042
		[0.022]	[0.025]	[0.025]	[0.025]
HISCED 3		0.081**	0.041	0.027	0.025
		[0.025]	[0.032]	[0.031]	[0.031]
HISCED 4/5/6		0.153***	0.096**	0.066	0.062
		[0.024]	[0.036]	[0.036]	[0.036]
Gender of adolescent (ref: female)	-0.049**	-0.046*	-0.046*	-0.039*	-0.039*
	[0.018]	[0.018]	[0.018]	[0.018]	[0.018]
Age of adolescent	0.013	0.011	0.012	0.013	0.013
	[0.011]	[0.011]	[0.011]	[0.011]	[0.011]
Duration of stay in Germany in months	-0.002	-0.001	-0.001	-0.002	-0.002
	[0.001]	[0.001]	[0.001]	[0.001]	[0.001]
Legal status of adolescent (ref: insecure)	-0.032	-0.034	-0.035	-0.038	-0.038
	[0.022]	[0.022]	[0.022]	[0.022]	[0.022]
PTSD risk	-0.052*	-0.051*	-0.050*	-0.036	-0.037
	[0.024]	[0.024]	[0.024]	[0.024]	[0.024]
Place to retreat	0.000	-0.001	-0.000	-0.002	-0.003
	[0.009]	[0.009]	[0.009]	[0.009]	[0.009]
Parental interview completed	-0.009	-0.019	-0.017	-0.021	-0.021
	[0.022]	[0.022]	[0.022]	[0.022]	[0.022]
Federal state (ref: Bavaria)					
Hamburg	0.175***	0.173***	0.173***	0.156***	0.131
	[0.042]	[0.042]	[0.042]	[0.043]	[0.113]
Rhineland-Palatinate	0.100***	0.108***	0.104***	0.103***	-0.083
	[0.030]	[0.030]	[0.030]	[0.030]	[0.084]
North Rhine-Westphalia	0.112***	0.108***	0.108***	0.096***	-0.022
	[0.022]	[0.021]	[0.021]	[0.021]	[0.045]
Saxony	0.056	0.065	0.060	0.053	-0.118
	[0.034]	[0.034]	[0.034]	[0.034]	[0.083]
School performance at origin				0.001**	0.001**
				[0.000]	[0.000]
Educational aspirations of adolescent				0.069***	0.070***
				[0.017]	[0.017]
German skills of adolescent (PPVT)				0.001*	0.001*
				[0.000]	[0.000]
Interaction: Relative education * Hamburg					0.029

					[0.173]
Interaction: Relative education * Rhineland-Palatinate					0.260*
					[0.128]
Interaction: Relative education * North Rhine-Westphalia					0.171*
					[0.075]
Interaction: Relative education * Saxony					0.244
					[0.141]
Constant	-0.207	-0.075	-0.134	-0.230	-0.131
	[0.176]	[0.176]	[0.177]	[0.179]	[0.182]
Observations	1,437	1,437	1,437	1,437	1,437
Adjusted R2	0.0490	0.0548	0.0568	0.0796	0.0797

Chapter 5 Intergenerational consequences of educational selectivity: Is parental relative education associated with young refugees' destination-language acquisition in Germany? *

Abstract

This paper analyses the role of parental educational selectivity for young migrants' destination-language acquisition in Germany. Starting from a theoretical framework that models language skills as a function of exposure, efficiency, and incentives, it is assumed that positive parental selectivity reflects in advantages in learning efficiency that are to some extent transmitted to children. Positively selected parents might also be more ambitious to make their children learn the new language. The latter should be particularly relevant for adolescents, who are supposed to make greater efforts to learn a new language than younger children. I use data from the study "ReGES – Refugees in the German Educational System", with analytical samples of 713 children and 711 adolescents who completed German language competency tests. OLS regression models are run to analyse the association between parents' educational selectivity and children's and adolescents' German language skills. While the results are inconclusive for younger children, the findings suggest that educational selectivity is beneficial for adolescents' German language acquisition. This relationship appears to be partially driven by greater cognitive skill levels among adolescents from positively selected families, whereas motivational aspects do not appear to play a relevant role.

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1 Introduction

Mastering the language that is spoken in the place of destination is a key condition for migrants to manage their lives after arrival. In the case of young migrants, destination-language skills are, for instance, vital to succeed in school and helpful to make new friends. The parents' educational background is known to play a crucial role for young migrants' destination-language acquisition: While children from better-educated families have advantages in learning a new language, difficulties are to be expected for those whose parents have low educational levels (Esser, 2006). In the context of recent humanitarian migration to Europe, many of those who came possess low educational levels. For instance, more than one in two Afghan refugees in Germany completed at most primary education (Spörlein et al., 2020). Low levels of education may be a barrier to learning a new language if they are accompanied by low levels of literacy (Baier et al., 2020).

However, even if they possess low educational levels, many recent refugees belonged to the better educated parts of the society in their place of origin. This points to the relative value of education, which is specific to a migrant's place of origin. For instance, in a country where the majority of people completed at most primary education, a secondary degree is of greater value than in a country where most people completed secondary or higher levels of education (Spörlein and Kristen, 2019). The education that an individual attained relative to the educational distribution of the origin population therefore is an indicator of educational selectivity[1] (Ichou, 2014). Educational selectivity is assumed to be a proxy for latent resources such as ambition or cognitive skills, because reaching a certain position in the educational distribution may be linked to such aspects. Because it is assumed to capture different facets than absolute education, educational selectivity may be beneficial beyond absolute educational qualifications for migrants' destination-language acquisition.

Empirical evidence on the role of educational selectivity for the acquisition of language skills is scarce. To the author's knowledge, two studies investigate this relationship among adult migrants. Using a sample of Polish and Turkish migrants in Germany, the United Kingdom, and Ireland, Spörlein and Kristen (2019) find that positive educational selectivity reflects in a faster pace of language acquisition. In contrast, Luthra's and Platt's (2021) findings on the role of educational selectivity for verbal skills among adult migrants in the United Kingdom show mixed evidence for men and women.

When intergenerational consequences of educational selectivity are addressed in the literature, researchers have so far mostly been interested in the next generation's educational success. For instance, children to positively selected parents have been found to take more ambitious

[1] The terms "relative education" and "educational selectivity" are used interchangeably in this paper. In contrast, the term "absolute education" refers to educational levels (e.g., ISCED), irrespective of these levels' country-of-origin-specific value.

educational decisions (e.g., Tong and Harris, 2021; Engzell, 2019). Educational selectivity also contributes positively to the next generation's educational attainment (Ichou, 2014; Feliciano and Lanuza, 2017).

Some studies that investigate consequences of educational selectivity for children's competencies rely on community-level measurements of educational selectivity. Instead of looking into parental educational selectivity, their underlying assumption is that the community context of an origin group in a place of destination plays a role for migrant children's acquisition of competencies. These studies suggest a positive association between community-level educational selectivity and student test scores (van de Werfhorst, van Elsas, and Heath, 2014; van de Werfhorst and Heath, 2019). While student test scores often refer to mathematics or science instead language competencies, for the purpose of this paper it may be assumed that the acquisition of competencies – whether language or other – usually follows similar processes. In contrast to studies using a group-level approach, Engzell (2019) measures educational selectivity on the family level and finds no evidence for a positive role of selectivity for second-generation migrant adolescents' competencies – neither for their cognitive test scores nor for their language proficiency – in Sweden.

In this paper, I focus on the research question whether parental educational selectivity is relevant for the destination-language acquisition of young refugees who recently migrated to Germany. Even if the mechanisms of destination-language acquisition among refugees are the same that apply to any migrant group (e.g., Kogan and Kalter, 2020; Kosyakova et al., 2021), recent refugees are a particularly well-suited group to analyse the acquisition of destination-language skills. Not only are they an important group of first-generation migrants, but refugee migration is largely unplanned, which may lead to assume that most refugees did not possess German skills prior to migration. This allows to analyse their early period of destination-language acquisition, which is central for further learning success (Stevens, 1999).

Beyond analysing the mere association between parental educational selectivity and language skills of a group of first-generation migrants, this paper also contributes by investigating what drives potential advantages in learning a new language among children from positively selected families. Educational selectivity might be beneficial for young migrants' language acquisition because positively selected parents may have greater ambitions to put them into contexts of structured exposure to the destination-specific language, such as language training. Their children might also have advantages in terms of learning efficiency if parents transmit greater cognitive skill levels.

Two specific age groups are considered in this paper: children aged 4 to approximately 6 years and adolescents aged 14 to 16 years. The role of educational selectivity might be particularly relevant for the latter because a critical threshold for language acquisition is reached around the age of 12 years, after which it is more difficult to learn a language (Esser, 2006). If parental educational selectivity is linked to latent characteristics such as ambition, having positively

selected parents might be particularly advantageous for adolescents, who need to make greater efforts than younger children to acquire a new language.

I rely on a dataset from the project "ReGES – Refugees in the German Educational System" (Will et al., 2021). This data source provides rich information on the trajectories of young refugees who came from Syria, Iraq, Afghanistan, or Iran to Germany in the course of increased humanitarian migration around the year 2015. Besides the survey programme, language tests were conducted in the ReGES study to assess children's and adolescents' German competencies. Including objective measures of language competencies is a further aspect that makes the data particularly valuable for the research endeavour pursued in this paper.

2 Educational selectivity and young migrants' language acquisition

Beyond the absolute educational qualifications that migrants possess, educational selectivity is advantageous for various dimensions of societal integration (e.g., Ichou, 2014; Feliciano and Lanuza, 2017; Schmidt et al., 2021). Such advantages are assumed to be driven by usually unobserved characteristics, such as motivational resources or cognitive competencies.

First, it is usually assumed that individuals who are selected on education are also selected on attributes relating to motivation or ambition (e.g., Chiswick, 1999; Feliciano and Lanuza, 2017). Having attained a high educational rank in the place of origin is supposed to go along with certain characteristics, such as higher orientations towards achievement (e.g., Feliciano and Lanuza, 2017; Spörlein and Kristen, 2019). In the place of destination, such resources are expected to be beneficial for migrants. Those who are positively selected on education may, for instance, be more motivated to invest in the acquisition of destination-language skills.

Second, educational selectivity may be seen as an indicator of cognitive abilities (e.g., Ichou, 2014; Spörlein and Kristen, 2019). Usually, absolute educational qualifications strongly reflect their holders' skill levels. However, educational systems differ in the skill levels that they convey. Individuals whose highest educational qualifications are equivalent to the same absolute educational level (e.g., upper secondary education), but who acquired these qualifications in two different educational systems may have different skill levels (Spörlein and Kristen, 2019). That is because educational systems are of unequal quality. For this reason, educational selectivity – in other words, a migrant's position in the educational distribution of the origin population – may be a better indicator of cognitive abilities than absolute educational levels in studies that include various origin groups.

From an intergenerational perspective, both greater cognitive and non-cognitive resources among positively selected individuals may be partially transmitted to their children (Schulz et al., 2017). Accordingly, these may themselves tend to possess greater ambitions and cognitive skills, which may be beneficial for acquiring new skills, such as destination-language skills.

To discuss the question how parents' educational selectivity might reflect on their children's destination-language acquisition, this paper applies a human capital framework that models language skills as a cumulative function of investments in language acquisition (Chiswick and Miller, 1995, 2001; Esser, 2006). From this perspective, differences in skill levels between individuals are attributed to variation in exposure, efficiency, and incentives. Exposure refers to the extent to which an individual is in contact with the destination-specific language; that is, the amount of time and the intensity to which the language is used in the individual's presence (Chiswick and Miller, 1995). Efficiency reflects the degree of skills improvement during a given amount of exposure. Individuals differ in their pace of acquiring destination-language skills because some are more efficient and hence learning quicker than others. For instance, this may apply to individuals who possess greater cognitive skills (Chiswick and Miller, 2001). Incentives form an individual's motivation to learn the destination-specific language (Chiswick and Miller, 2001).

Several theoretical links between parental educational selectivity and children's language acquisition may be established. First, based on the assumption that educational selectivity is associated with cognitive skills, it may be easier for positively selected migrants to learn a new language. That is, they may be quicker and more efficient learners (Spörlein and Kristen, 2019). If such advantages exist within individuals, they may also be transmitted to the next generation. The children of positively selected individuals may themselves tend to possess greater skill levels as they benefit from resources transmitted by their parents (Schulz et al., 2017). Accordingly, they might be more efficient learners and progress more quickly in acquiring destination-language skills.

Second, greater ambitions among positively selected migrants may result in greater exposure to the destination-specific language. Positively selected parents may be more motivated to invest in their children's language learning and to put their children into contexts where the destination-specific language is used, thus increasing their exposure to the language spoken in the place of destination. Just like cognitive skills, motivational resources may be partially transmitted to the next generation (see Schulz et al., 2017) and children from positively selected families may tend to be more ambitious and engage more strongly in learning the new language.

Among recent refugees, who are less likely than other migrant groups to have acquired destination-language skills prior to migration, structured contexts of exposure are an important setting in which investments into language learning are made (Kristen and Seuring, 2021). For young migrants, opportunities of structured exposure are essentially provided by the educational system. In regards to preschool-aged children, attending preschool is known to be beneficial for migrant children's German language skills (Klein and Becker, 2017; Seuring and Will, 2022). Although access to preschool facilities is partially limited by supply, the majority of refugee children attend such institutions soon after their arrival in Germany (Homuth et al., 2021). What might make a difference is the amount of hours that children spend there as well as how quickly after their arrival refugee parents managed to obtain a place for their children.

Both aspects should increase children's exposure to German and might be driven by educational selectivity. It may be assumed that positively selected parents are more perseverant and enrol their children in preschool institutions sooner after their arrival as well as to a greater amount of hours.

For adolescents, the school context should play a central role. In the stratified educational system of Germany, school types may contribute to students' exposure to the destination language in varying degrees. Students who attend more demanding schools may have to deal with greater destination-specific language requirements in their classroom and among their peers than students in less demanding school contexts. Attending a more demanding school may result in a steeper learning curve and greater language skills. However, it should be pointed out that language acquisition is not just a consequence of schooling. While schools constitute an important learning context that fosters destination-language skills, the school type that students attend can also be a consequence of their language skills. Greater destination-language proficiency increase chances to enter more demanding school types and to succeed there (e.g., Stanat and Edele, 2016). To be able to do so, educational selectivity might be beneficial because positively selected parents may have greater ambitions for their children. They may invest more in language learning to increase their children's chances for success. Attending a more demanding school might then be an expression of greater motivation and aspirations in positively selected families. Higher aspirations might go along with greater investments in language learning.

Participating in language training represents another important and efficient option for investments in language acquisition (Hoehne and Michalowski, 2016). Among underage migrants, German language training is usually provided in the school or preschool context (Seuring and Will, 2022). Language training increases both the amount and intensity of structured exposure to the destination language. Following the assumption that they are more strongly driven by ambition, positively selected parents may make greater investments in their children's language acquisition. Because language training is a direct opportunity for such investments, children from positively selected families may be more likely to participate in language training.

While a higher motivation to invest in destination-language acquisition should be beneficial for all language learners, differences may be expected between children and adolescents. Researchers agree that with a greater age, individuals need to make greater efforts to become proficient in a new language (e.g., Stevens, 1999; Esser, 2006). Empirical findings unequivocally point to a critical threshold, which children pass at the age of approximately 12 years (Esser, 2006). Below this threshold, learning a new language is substantially easier and similar to learning the native language, which children acquire rather passively and as an "unintended by-product of other activities" (Esser, 2006: ii). With an increasing age, language learning is more strongly driven by active behaviour, which makes deliberate investment decisions to acquire skills more important. Acquiring destination-language skills through

intentional investments requires "considerable effort and motivation" (Esser, 2006: ii). If active investments gain in importance as children grow older, it may be assumed that the arguments relating to a greater motivation among positively selected families also become relatively more important with an increasing age. The benefits of positive educational selectivity might then be brought to bear more strongly among adolescents, who supposedly have to make greater efforts than younger children to acquire language skills.

To sum up the theoretical assumptions, migrant parents' educational selectivity could be beneficial for their children's destination-language acquisition in different ways: Selectivity might reflect in efficiency advantages because positively selected parents may transmit greater cognitive skill levels to their children. It might furthermore reflect in greater exposure to the destination language because parents may be more ambitious to make their children learn the new language. Also, their children may themselves be more ambitious to do so. Because learning a language demands increasing efforts as children grow older, advantages related to greater motivational attributes among positively selected families should be particularly relevant for adolescents.

3 Research design

3.1 Data

This paper uses data from the study "ReGES – Refugees in the German Educational System", which traces the educational trajectories of two cohorts of young refugees who immigrated to Germany between 2014 and 2017. The target children and adolescents were sampled through a multi-stage design. In a first step, five German federal states were selected that vary in aspects such as their experience in integrating migrant groups: Bavaria, Hamburg, North Rhine-Westphalia, Rhineland Palatinate, and Saxony. Across these federal states, 120 municipalities were sampled by probability proportional to size sampling. From these municipalities' general population registers, all children and adolescents were selected that met certain criteria regarding nationality, age, and date of arrival. To make sure that the target individuals met all sampling conditions – most importantly, having come to Germany in the context of recent humanitarian migration and living there with at least one parent – the interviewers conducted a screening prior to the first interview (for further details, see Steinhauer, Zinn, and Will, 2019).

At the time of the sampling, the children in the younger cohort were mostly 4 to 6 years old and did not yet attend primary school. Their parents were interviewed in seven waves between 2018 and 2020. The second cohort focuses on adolescents who were 14 to 16 years old and enrolled in secondary school when the sample was drawn. Their parents were interviewed in the first wave and the adolescents themselves were interviewed in seven waves from 2018 to 2020.

Adolescents could also participate in the study if their parents did not want to take part (for further details, see Will et al., 2021).

In addition to the destination-specific ReGES data, origin-specific data are required to obtain the reference educational distributions of the origin populations and to generate the index of parental educational selectivity. Large-scale surveys conducted under the Multiple Indicator Cluster Surveys (MICS) programme constitute the reference sources for Syria (CBS et al., 2008), Iraq (CSO Iraq et al., 2019), and Afghanistan (CSO Afghanistan and UNICEF, 2013). In the case of Iran, a 2 percent sample of the 2011 national census is used (Minnesota Population Center, 2020).

3.2 Variables

The dependent variable measures German language competencies. In the course of the ReGES study, the children and adolescents performed two German language competency tests. The Peabody Picture Vocabulary Tests (PPVT) assessed the children's and adolescents' receptive vocabulary (Lenhard et al., 2015), while the Test for Reception of Grammar (TROG) examined their understanding of grammatical structures (Fox-Boyer, 2016). Both PPVT and TROG were conducted twice: The first measurement took place in wave 1 and the second, approximately two years later, in wave 7. The administration of both PPVT and TROG follows a standardized computer-based procedure (for further details, see Lenhard et al., 2015; Fox-Boyer, 2016). Based on the number of correct answers given by a respondent, a sum score is generated for each test. For this paper's multivariate analyses, the results from both tests are combined in one measure. This requires that the sum scores of both PPVT and TROG are standardized before calculating the average of both scores.

The central explanatory variable is the parents' educational selectivity. Measuring educational selectivity follows the relative education approach, whose idea is to determine an individual's position in the educational distribution of the origin population (Ichou, 2014). As a first step, this approach requires information about the parents' highest origin-specific educational qualifications. This information was gathered in a detailed manner from the participating parents or from the adolescents if their parents did not wish participate in the study. In a next step, this information needs to be harmonized with the information about educational attainment available in the four origin-specific datasets. The harmonized educational levels are differentiated in as much detail as the origin-specific data allow for and entail the following categories: no formal education completed, primary, lower secondary, upper secondary, and higher education. Operationalizing educational selectivity furthermore requires information about gender, age[2], and subnational origin region both for the parents in the ReGES data and

[2] Adolescents whose parents did not participate in the study were not asked about their parents' age. Their mothers' and fathers' age is approximated by the average age of the mothers or fathers for whom this information is available, who come from the same origin country, and whose children have the same age.

the individuals in the four origin-specific datasets. In a next step, the individual-level information about educational attainment from the four origin-specific samples is aggregated into age-, gender and region-specific educational distributions[3], which are then linked to the individual-level ReGES data (for further information, see Welker, 2022). Ultimately, the refugee parents' relative education is calculated by adding the shares of the reference population with lower educational levels plus half of the share with the same educational level. A value of 0.75 on the relative education index indicates that an individual is at least as educated as 75 percent of the population in the origin region that have the same gender and are in the same five-year age group. Individuals who achieve a relative education above 0.5 are better educated than half of the origin population, which indicates positive educational selectivity. Because this paper is interested in intergenerational consequences, the measure of educational selectivity reflects the highest relative education in the household; that is, of the responding parent or partner.

Besides educational selectivity, the multivariate analyses include a measure of absolute education, relying on the highest ISCED level (UNESCO Institute for Statistics, 2012) in the household. Some categories of the HISCED variable are conflated because of few families where the parents completed no formal education (HISCED 0), at most postsecondary education (HISCED 4), or a master's degree (HISCED 6). This results in the following categories: at most primary (HISCED 0/1), lower secondary (HISCED 2), upper secondary (HISCED 3), and postsecondary education (HISCED 4/5/6). Although absolute and relative education are correlated, there are reasons to include both. Various latent aspects such as motivational attributes are captured by educational selectivity. Absolute educational degrees, on the other hand, are central because they allow to assess how much formal instruction was acquired. Many parents in the sample possess low absolute educational levels, which often go along with low literacy[4]. This might be disadvantageous not only for the parents themselves but also for their children, who might receive less support in acquiring destination-language skills.

Further measures centre on the children's and adolescents' participation in structured exposure. For the younger cohort, this especially comprises two measures of preschool attendance. First, the amount of hours that children currently spend in preschool per week, and second, the duration in months until they started attending for the first time after their arrival in Germany. For children who never attended preschool, this variable adopts the number of months since they immigrated to Germany.

[3] All origin-specific datasets consist of sufficiently large case numbers to generate region-specific reference groups for the relative education index. In few cases, however, reference groups comprise less than 50 individuals (1.8 percent of each cohort, respectively). For these cases, plausibility checks were run comparing the region-specific to a country-specific selectivity index, which consists of larger reference groups because it is only specific to age groups and gender for each origin country. Because no substantial deviations were found, the region-specific index is used for all cases.

[4] While it would have been desirable to include the parents' literacy as a more direct indicator, this information is not available for adolescents whose parents did not participate in the study.

For adolescents, the attended school type is relevant. In Germany, students from lower-level secondary school (named *Mittelschule* in most federal states) and intermediate-level secondary school (*Realschule*) usually make a transition into vocational training after having obtained a degree, while higher-level secondary school (*Gymnasium*) prepares students for an academic track. Some additional school types combine lower-level and intermediate-level track or all three tracks. In the multivariate models, school types differentiate between lower-level, intermediate-level, higher-level, and other secondary schools.

Participation in specific opportunities of German language training is included as a binary variable. Although the duration and amount of language training might be of relevance, these measures display too little variation as most children and adolescents did not receive such training. The variable measuring participation in language training slightly differs between cohorts. For the younger cohort, it refers to current participation in language training because no information about past participation is available. Given their age, it may be assumed unlikely that these children attended additional language training in the past. For the adolescent cohort, the variable measures whether they participated in German language training currently or in the past.

To account for the assumption that positively selected parents transmit a greater learning efficiency to their offspring, the analyses include a measure of the children's and adolescents' cognitive skills. This measure captures the dimension of figural reasoning, which was assessed in the framework of a domain general cognitive functions tests (Lang et al., 2014). For each cohort, the test scores are standardized.

Irrespective of their parents' educational selectivity, some refugee children's and adolescents' success in learning may be impacted by PTSD risk (Qureshi et al., 2011). PTSD among refugees may most notably be triggered by potentially traumatizing events before or during migration. This is accounted for by controlling for PTSD risk in the multivariate analyses. The scale used in the ReGES questionnaires assesses ten symptoms (Boillat and Chamouton, 2013) and is recoded into a binary variable: Children and adolescents with less than four symptoms are at low risk, whereas four or more symptoms are considered at least a medium PTSD risk.

Further covariates include the children's or adolescents' gender, age at immigration in months, and months since immigration to Germany. An additional variable in the adolescent-related models controls for whether the parents participated in the survey or whether all information was provided by the adolescents (for a descriptive overview, see Appendix A).

3.3 Analytical strategy

OLS regression models are run to analyse the role of parental educational selectivity for their descendants' German skills. Most variables were measured in the first wave. However, at the time of the first interview, many children and adolescents had lived in Germany only for a few

months, which may have been too short for significant differences between their destination-language competencies to become manifest. For this reason, analysing their language competencies in wave 7, that is, approximately two years later, should yield better insights. While the survey design would also have enabled longitudinal analyses, the actual sample sizes speak against it. Because missing values on the language test scores were not imputed, including only participants with test scores in both waves would reduce the number of valid observations. This is mainly due to a mode switch to telephone interviews following the outbreak of the coronavirus pandemic during wave 7, which did not allow to carry on with language tests.

The analyses only include cases with valid values on both PPVT and TROG sum scores as well as parental educational selectivity. The selectivity index is generated for all cases that provided HISCED information and, because of the availability of origin-specific data sources, come from Syria, Iraq, Afghanistan, or Iran.

Another sample restriction is imposed by the PPVT design, which included a trial phase in order to ascertain that the respondents fulfil the minimum requirements for participation. Those who did not pass the trial phase were excluded from the test and are hence not part of the analytical sample. In wave 7, this applies to 24 children and 11 adolescents. The language skills of refugee children and adolescents might be overestimated when only looking at those who passed the trial phase. However, this bias should be less critical for multivariate analyses because the remaining cases still cover almost the whole range of achievable PPVT sum scores. Additional analyses show that parental educational selectivity is not significantly associated with exiting the PPVT after the trial phase.

After excluding cases without valid educational selectivity values or German language test scores in wave 7, the analytical samples consist of 713 children and 711 adolescents. Missing values on all other variables are multiply imputed using predictive mean matching (m = 25). All missing values result from item nonresponse and are assumed to be missing at random.

4 Results

4.1 Children‘s language acquisition

Starting with multivariate findings for the younger cohort, model 1.1 includes the control variables and the parents’ absolute education only (see table 1). As expected, the educational background contributes positively to children’s German language competencies. Children with at least one parent who acquired post-secondary education score substantially higher German language skills compared to children whose parents completed at most primary education.

[insert table 1]

To investigate the contribution of educational selectivity, model 1.2 considers the highest relative education in addition to the highest absolute education in the household. There is no significant association between parental relative education and children's German competencies. However, the significant role of parental absolute education, which was found in the previous model, neither persists in this model. This may partly be due to the strong correlation between the measures of relative and absolute education. Model 1.3 additionally includes the squared term of the highest relative education to investigate a potentially non-linear relationship. The results show, however, that the squared relative education term is not significantly associated with the outcome variable either. Based on models 1.2 and 1.3, an additional effect of relative education that goes beyond the positive role of absolute tertiary education observed in model 1.1 cannot be asserted.

Even if the association between parental educational selectivity and children's German competencies is insignificant for this cohort, the following models consider the children's cognitive skills and their participation in structured contexts of exposure to assess how these constructs are related to children's German competencies. Model 1.4 adds the children's test scores in reasoning to the multivariate analyses. These are not significantly associated to their German language skills. Because educational selectivity does not play a significant role in this model, we cannot either assess whether relatively better-educated parents transmit certain skill-related advantages.

Finally, model 1.5 focuses on investments in structured exposure. While there is no evidence for an additional contribution of language training for children's German proficiency, preschool attendance is highly beneficial for children's German language skills. This applies both to the amount of hours that children spent in preschool per week and to their starting date: A shorter period between immigration to Germany and the beginning of preschool attendance is associated with significantly better German skills, as is a greater amount of hours spent in preschool. Compared to the previous models, this model also explains more variation in refugee children's destination-language skills, which is another strong indicator that participating in structured exposure is highly beneficial for migrant children's destination-language acquisition. Again, however, it is not possible to establish a link to parental educational selectivity and the findings do not show any support for the assumption that positively selected parents are more ambitious to increase their children's structured exposure to the German language.

4.2 Adolescents' language acquisition

The next section presents the findings for the adolescent cohort. As in the previous section, the first model (2.1) includes the control variables and the parents' absolute education only (see table 2). It shows a positive relationship between parents' absolute education and adolescents' German skills. Adolescents with at least one parent who acquired upper secondary education

or post-secondary education have German competency advantages over adolescents whose parents completed primary education at most.

[insert table 2]

The next models investigate whether the parents' relative education contributes over and above absolute education to adolescents' German skills. Model 2.2 adds the relative education index, which does not change the findings from the previous model substantively. Relative education displays no significant impact beyond absolute education. The size of the associations between absolute educational levels and adolescents' German skills are slightly reduced in this model, but remain significant. Model 2.3 additionally considers the squared term of relative education because of a potentially non-linear relationship between parental relative education and adolescents' German competencies. The positive associations of upper secondary and post-secondary parental education remain significant in this model, but an additional contribution of relative education becomes apparent here, suggesting that both parental educational selectivity and absolute education are beneficial for adolescents' German acquisition. Both the simple and the squared term of relative education show significant associations with the outcome. The negative coefficient of the simple term of relative education suggests that the relationship is u-shaped. That is, adolescents whose parents are at the upper or lower end of the selectivity index tend to have higher German skills than adolescents whose parents are at the centre of the selectivity index. However, it is not clear how robust this finding is for families from the lower end of the selectivity index, since relatively few parents in the sample possess very low relative education. For families who come from the upper spectrum of the selectivity index, however, it may be stated that selectivity is associated with better German skills among adolescents and that this advantage tends to increase exponentially with a higher relative education.

To investigate potential explanations of the positive association between educational selectivity and German competencies, model 2.4 analyses the role of the adolescents' cognitive skills. The model reveals a positive association between cognitive skills and German competencies that is large in size: An increase by one unit on the scale of reasoning skills results in an increase of almost 0.2 units on the standardized German skills score. At the same time, the impact of relative education is reduced in this model. This suggests that positively selected parents might partially transmit certain skill-related advantages to their adolescent children, which may make them more efficient learners that acquire German skills at a faster pace.

Finally, the role of structured exposure is considered in model 2.5. Compared to students who attend lower-level secondary schools, students from all other school types have significantly better German skills. The association is particularly strong for higher-level students. In terms of language training, the model shows no significant association with language proficiency. The positive contribution of educational selectivity persists in this model and the size of the

association is not reduced compared to model 2.3. In contrast to the theoretical assumptions, these findings suggest no evidence that positively selected families are more ambitious to invest in their children's language acquisition through structured exposure in the educational system or in language training.

5 Conclusion

This paper focused on the research question whether parental educational selectivity contributes to recent refugee children's and adolescents' destination-language acquisition in Germany. Building on theoretical assumptions that linked educational selectivity to both greater exposure and efficiency in learning a new language, German language competencies of 713 children and 711 adolescents were analysed. These young first-generation migrants arrived in Germany between 2014 and 2017 and came from Syria, Iraq, Afghanistan, or Iran.

For the younger cohort, the findings are inconclusive. While children from families where at least one parent acquired post-secondary education have better German skills, this advantage is not found for children from positively selected families. The advantage related to higher absolute education disappears as both relative and absolute education are included in the analyses. According to the existing literature, younger children acquire language skills mainly through undirected learning (Esser, 2006), which should make motivational attributes captured by educational selectivity less relevant for their language acquisition. However, it is also possible that the correlation between absolute and relative education prevents further insight.

In contrast, the parents' educational selectivity matters beyond their absolute educational levels for the language acquisition of adolescents. This advantage grows particularly strongly among families who are at the upper end of the selectivity index. The positive contribution of educational selectivity to adolescents' German skills is to some extent explained by greater cognitive skills. This finding suggests that positively selected parents partially transmit some advantages in learning efficiency to their children.

In line with theoretical expectations, the findings suggest that the role of parental educational selectivity gets more important as children grow older. This was assumed to be driven by the greater need for ambitions and efforts in the language acquisition of young migrants that passed the age threshold of approximately 12 years. While the findings do not contradict the assumption, it should be acknowledged that this paper's analytical design is not suited to deliver hard evidence for this phenomenon. Children's and adolescents' language skills were analysed in separate models with partly different variables. In addition, this paper finds no evidence for the assumed impact of motivational resources. School types, which may be seen as a consequence of educational aspirations, hence motivational resources, are associated with adolescents' German language skills. However, school types appear to be unrelated to educational selectivity, which prevents any conclusion on whether assumed greater

motivational resources among positively selected families act as drivers of adolescents' language acquisition.

Moving beyond the specific research interest in the intergenerational role of educational selectivity, the findings confirm the benefits of participation in structured exposure for first-generation migrants' destination-language acquisition (e.g., Seuring and Will, 2022; Koyakova et al., 2021; Kristen and Seuring, 2021). Among young migrants, preschools and schools play a vital role in conveying destination-language skills as these contexts are able to ensure both a sufficiently large amount and intensity of language exposure for newcomer migrants.

Limitations may be stated in regards to the case numbers, which were restricted by the outbreak of the coronavirus pandemic during data collection. While the samples are sufficient for cross-sectional analyses, larger analytical samples would have been desirable to increase the robustness of results and to be able to conduct longitudinal analyses. Analysing migrants' language acquisition longitudinally enables interpretations of changes, that is, of the progress that migrants make. This might be particularly relevant in the context of the argument that positively selected migrants possess greater learning efficiency, which should make them quicker learners. Potential limitations due to selective dropout should also be discussed, as the analyses rely on data that were collected in a longitudinal design. In fact, the ReGES study saw the likelihood of participation of better-educated families increase by each wave (Heinritz and Will, 2021). Nevertheless, by absolute numbers, a sufficiently large amount of families with a low educational background participated in each wave, including wave 7 (Heinritz and Will, 2021). While it is important to be aware of selective dropout as a potential source of issues in any longitudinal survey, it should be acknowledged that it does not represent a serious limitation to the quality of the data used in this paper.

This paper aimed to shed light on certain aspects through which selectivity is expected to be beneficial for destination-language acquisition. While the findings deliver insight into some aspects, they are far from drawing a comprehensive picture. Further aspects are theoretically conceivable. For instance, positively selected migrants might possess a greater ambition to use media in the destination-specific language or to establish contacts with the majority population. Whether such investments contribute to further explaining the relationship between educational selectivity and language skills may constitute an interesting question for future research.

Future research may also tackle another question of great importance. While this paper analysed refugees' language skills after a relatively short period in the place of destination, the role of educational selectivity in the medium and long term is yet to be known. It is possible that motivational attributes that are expected to be related to selectivity become more important over time (see also Schmidt et al., 2021), while other aspects such as refugee support by volunteers likely diminish. This might be particularly relevant for the acquisition of language skills, because learning a new language is a long-term endeavour. Initial curiosity and quick progress in the early stages may soon be replaced by daily grind and slower progress. Then, motivational

attributes that are expected to be reflected in educational selectivity might be helpful to carry on.

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Tables

Table 1: OLS regression models of children's German competencies

Notes: Robust standard errors in parentheses. * p<0.05, ** p<0.01, *** p<0.001. Source: ReGES waves 1 and 7.

	Model 1.1	Model 1.2	Model 1.3	Model 1.4	Model 1.5
Parents' highest absolute education (ref: HISCED 0/1)					
HISCED 2	0.127	0.017	0.016	0.014	0.009
	(0.078)	(0.095)	(0.095)	(0.095)	(0.093)
HISCED 3	0.075	-0.090	-0.101	-0.094	-0.136
	(0.094)	(0.127)	(0.132)	(0.131)	(0.131)
HISCED 4/5/6	0.308***	0.079	0.046	0.072	-0.053
	(0.077)	(0.142)	(0.179)	(0.182)	(0.180)
Parents' highest relative education		0.403	0.220	0.246	0.155
		(0.216)	(0.686)	(0.687)	(0.671)
Parents' highest relative education (squared)			0.187	0.143	0.274
			(0.651)	(0.653)	(0.646)
Cognitive skills (reasoning)				-0.036	
				(0.037)	
Months until beginning of preschool attendance					-0.016***
					(0.004)
Hours per week in preschool attendance					0.007**
					(0.002)
German language training					0.116
					(0.067)
Gender (ref: female)	-0.184**	-0.180**	-0.179**	-0.185**	-0.184**
	(0.060)	(0.060)	(0.060)	(0.060)	(0.059)
Age at immigration in months	0.027***	0.027***	0.027***	0.027***	0.028***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Medium or high PTSD risk (ref: low)	-0.313	-0.336*	-0.337*	-0.343*	-0.373*
	(0.167)	(0.166)	(0.166)	(0.166)	(0.151)
Duration of stay in Germany in months	0.039***	0.039***	0.039***	0.039***	0.045***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-2.138***	-2.311***	-2.272***	-2.272***	-2.329***
	(0.246)	(0.251)	(0.296)	(0.296)	(0.302)
Observations	713	713	713	713	713
Adjusted R2	0.155	0.158	0.157	0.157	0.208

Table 2: OLS regression models of adolescents' German competencies

Notes: Robust standard errors in parentheses. * p<0.05, ** p<0.01, *** p<0.001. Source: ReGES waves 1 and 7.

	Model 2.1	Model 2.2	Model 2.3	Model 2.4	Model 2.5
Parents' highest absolute education (ref: HISCED 0/1)					
HISCED 2	0.175	0.149	0.175	0.141	0.144
	(0.096)	(0.104)	(0.105)	(0.104)	(0.105)
HISCED 3	0.317***	0.275*	0.219	0.137	0.189
	(0.093)	(0.113)	(0.111)	(0.109)	(0.110)
HISCED 4/5/6	0.616***	0.558***	0.330*	0.207	0.294*
	(0.077)	(0.126)	(0.145)	(0.141)	(0.144)
Parents' highest relative education		0.124	-1.969*	-1.702*	-2.035*
		(0.209)	(0.871)	(0.850)	(0.861)
Parents' highest relative education (squared)			1.925*	1.731*	1.957**
			(0.754)	(0.730)	(0.739)
Cognitive skills (reasoning)				0.218***	
				(0.036)	
School type (ref: lower-level)					
Intermediate-level					0.226*
					(0.101)
Higher-level					0.498***
					(0.099)
Other					0.213*
					(0.089)
German language training					0.097
					(0.067)
Gender (ref: female)	0.118	0.119	0.113	0.113	0.099
	(0.064)	(0.064)	(0.064)	(0.062)	(0.063)
Age at immigration in months	-0.002	-0.002	-0.003	-0.003	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Parental participation in wave 1	-0.079	-0.073	-0.086	-0.046	-0.085
	(0.069)	(0.070)	(0.070)	(0.069)	(0.069)
Medium or high PTSD risk (ref: low)	-0.130	-0.131	-0.123	-0.073	-0.134
	(0.109)	(0.109)	(0.108)	(0.102)	(0.105)
Duration of stay in Germany in months	0.023***	0.023***	0.022***	0.022***	0.024***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Constant	-0.591	-0.629	-0.035	-0.038	-0.433
	(0.631)	(0.639)	(0.663)	(0.647)	(0.672)
Observations	711	711	711	711	711
Adjusted R2	0.136	0.136	0.144	0.197	0.173

Appendix

Appendix A: Descriptive sample characteristics

Notes: Values displayed in this table are based on non-imputed data. TROG sum scores are not comparable between cohorts because the adolescents received a shorter version of this test. Source: ReGES waves 1 and 7.

	Cohort 1 (children)				**Cohort 2 (adolescents)**			
Variable	**Observations**	**Mean/frequency**	**SD**	**Range**	**Observations**	**Mean/frequency**	**SD**	**Range**
PPVT sum score	713	84.28	27.69	2; 171	711	106.12	33.05	3; 203
TROG sum score (wave 7)	713	46.44	14.94	6; 81	711	36.59	5.38	9; 48
PPVT & TROG standardized average score	713	0.03	0.87	-2.63; 2.24	711	0.04	0.91	-3.70; 2.51
Parents‘ highest relative education	713	0.65	0.27	0.04; 1.00	711	0.71	0.25	0.04; 1.00
Parents’ highest absolute education								
HISCED 0/1	285	39.97			268	37.69		
HISCED 2	118	16.55			91	12.80		
HISCED 3	115	16.13			129	18.14		
HISCED 4/5/6	195	27.35			223	31.36		
Total	713	100.00			711	100.00		
Gender								
Female	359	50.35			316	44.44		
Male	354	49.65			395	55.56		
Total	713	100.00			711	100.00		
Age at immigration in months	713	39.52	13.71	3; 107	711	161.93	14.06	126; 205
Months since immigration to Germany	713	28.21	8.86	4; 53	711	29.27	9.31	3; 53
PTSD risk								
Low risk	637	95.50			578	89.20		
Medium or high risk	30	4.50			70	10.80		

Total	667	100.00			648	100.00		
Parental participation in wave 1								
No					208	29.25		
Yes					503	70.75		
Total					711	100.00		
Cognitive skills (reasoning)	544	0.00	0.97	-2.30; 1.71	491	0.06	0.99	-2.47; 1.93
Hours per week in preschool attendance	711	19.50	14.37	0; 49				
Months until beginning of preschool attendance	695	16.59	9.51	0; 50				
School type								
Lower-level					133	18.81		
Intermediate-level					159	22.49		
Higher-level					152	21.50		
Other					263	37.20		
Total					707	100.00		
German language training (current)								
No	517	74.28						
Yes	179	25.72						
Total	696	100.00						
German language training (current or past)								
No					268	37.85		
Yes					440	62.15		
Total					708	100.00		

Chapter 6 Conclusion

This thesis emerged in the aftermath of increased refugee migration to Germany around the year 2015. It aimed to contribute to the understanding of the newcomers' educational backgrounds by shedding light on their educational selectivity. First, their educational selectivity profiles were described. Then, intergenerational consequences of their educational selectivity were analyzed.

Investigating educational selectivity from a descriptive point of view is insightful because relative education – in contrast to absolute education – takes into account the origin-specific value of migrants' education. For this reason, the two studies that build the first part of this thesis gave a descriptive account of recent refugees' educational selectivity. They also addressed theoretical assumptions about refugee selectivity and sorting. Although the findings suggest that the majority of recent refugees are positively selected on education, a maybe more central conclusion that should be drawn from these descriptive analyses is that no origin group under study is composed of homogeneously selected individuals (Spörlein et al., 2020; Welker, 2022). Previous research was often unable to quantify the extent of educational selection (e.g., multivariate analyses of the association of education and migration) or used group level measures of educational selection (e.g., the NDI), which do not consider the heterogeneous composition of migrant groups. In this thesis, applying the relative education approach allowed to place each individual migrant on a continuum of educational selection, which showed that the shares of positively and negatively selected migrants vary strongly within each group. This finding not only applies to the educational selection profiles of refugees in Germany, but also to the profiles of other groups such as labor migrants or refugees in other destinations. It may therefore be concluded that in terms of educational selection, refugees are not a specific migrant group that differs systematically from other migrant groups.

From an analytical point of view, educational selectivity is assumed to contribute beyond absolute educational levels to various outcomes of migrants' societal integration in the place of destination. This contribution is assumed to be driven by latent characteristics such as motivational or cognitive resources, which should be greater among positively selected migrants. In the second part of the thesis, potential consequences of refugees' educational selectivity were investigated for their children's educational success and language acquisition in the place of destination. Previous studies addressing intergenerational consequences of educational selectivity usually applied their research to samples of 1.5- or second-generation migrants, who grew up mostly or solely in the destination country. In contrast, this thesis analyzed consequences of educational selectivity for first-generation migrants. The recentness of their migration goes along with specific conditions. Most importantly, their destination-language acquisition was in an early stage and they were lateral entrants into the educational

system in Germany. It is important to emphasize that it is such first-generation characteristics, not their refugee quality, that made the families analyzed in the third and fourth paper a distinct and relevant migrant group to study. Using the ReGES data as a sample of recently arrived first-generation migrant children and adolescents allowed to analyze consequences of parental educational selectivity for their early educational integration and their early German language acquisition.

Despite the existence of first-generation migrant conditions, parental educational selectivity was found to have some importance for migrant adolescents in Germany. For those who come from positively selected families, educational selectivity is beneficial beyond the parents' absolute educational levels for their enrollment in higher-level secondary schools (Welker and Will, 2023). This finding is in line with previous research that suggests a substantial role of educational selectivity for the educational success of migrant descendants with a higher generational status. This thesis contributes to the literature by suggesting that the role of parents' educational selectivity for their descendants' educational success is not substantially different for migrant adolescents who migrated themselves than for migrant descendants who were born in the place of destination or spent most of their childhood growing up there.

Regarding these adolescents' German language acquisition, the findings show no linear association with their parents' relative education but potentially suggest a nonlinear association (Welker, submitted). The robustness of these findings is, however, limited by rather small case numbers, particularly at the lower end of the educational selectivity distribution. Younger refugee children were not found to have selectivity-related advantages for their German language acquisition. While this is in line with the theoretical expectation that the learning behavior of younger children should resemble a rather undirected process (Esser, 2006), this expectation was not directly tested in the study. Given the overall inconclusiveness of previous findings on the role of individual-level educational selectivity for the next generation's competencies, it may not come as a surprise that this thesis joins the literature in finding only very limited support in this matter.

On a more general level, however, the findings suggest that the family background is essential for children's educational success and language acquisition. The analyses conducted in the third and fourth studies show that irrespective of educational selectivity, the parents' absolute educational levels usually play an important role. Advantages are particularly pronounced for those children and adolescents whose parents completed higher education. While it is theoretically justified to include both absolute and relative education in multivariate analyses, it is difficult to disentangle effects of relative and absolute education. This limitation is rooted in the construction of the relative education index, which involves migrants' absolute educational levels. Generating the relative education index on the basis of absolute educational levels results in a strong correlation between individuals' absolute and relative education if both measures are included in multivariate analyses. In the third and fourth studies, this may to some extent have prevented a clear disentanglement of effects of absolute and relative education.

This is not only a measurement issue but it also complicates drawing a clear conclusion from findings that show that both relative and absolute parental education are beneficial for the next generation's education and competencies. While it should be uncontroversial that such findings emphasize the necessity of supporting migrant children whose parents acquired low absolute and/or relative education, conclusions for children from better educated households may differ, depending on whether one focuses on consequences of absolute or relative education. If absolute education has a signaling effect (Bol and van de Werfhorst, 2011) which, for instance, makes teachers take decisions that influence migrant children's educational success based on their parents' education, these findings would require that such effects are extenuated in order to avoid that children from families with lower educational backgrounds are discriminated against. On the other hand, if relative education is a proxy of motivational and cognitive resources that parents transmit to their children, then it is neither desirable nor meaningful to counteract such effects. In the scope of this thesis, this issue cannot be solved.

Further limitations that came up in the framework of this thesis should be disclosed. The arrival of large numbers of migrants around the year 2015 in Germany resulted in a variety of surveys to collect important information about the newcomers. Subsequently, researchers managed relatively soon to draw a picture about those who came here. Research on educational selectivity, however, requires not only destination-specific data but also origin-specific information. The scarcity of valid data from some origin countries is a challenge for any research endeavor that requires origin-specific information. The most obvious example in the framework of this thesis is probably Syria, for which the most recent usable data sources date back to the 2000s. Understandably, the Syrian civil war and its consequences made the collection of valid data impossible in vast parts of the country after 2011. In other countries, such as Iraq, more recent datasets exist. However, a question mark needed to be put on some of these data sources' quality as their documentation available online was tenuous. This thesis relies only on origin-specific data sources that were accompanied by a trustworthy documentation. In addition, these data sources were thoroughly checked for plausibility. Comparing the individual-level survey data to other data sources, most importantly, aggregate educational distributions from the national statistical offices, revealed no substantial peculiarities. For this reason, the selected origin-specific data sources were deemed appropriate for the purpose of this thesis.

The role of parental educational selectivity for these young refugees' later lives represents a source for future research questions. Over time, the role of selectivity may potentially change and gain or lose in importance, not only because the children and adolescents grow older but also because of an increasing duration of stay in the place of destination. For instance, advantages of adolescents from positively selected families in terms of destination-language skills may pay off more strongly over time and reflect in further advantages in these adolescents' course of life. While previous research suggests that the benefits of (positive) educational selectivity grow more important for adult migrants' labor-market success with a

longer duration of stay (Schmidt, Kristen, and Mühlau, 2022), other selectivity-related outcomes, most notably for the next generation, have so far not been taken into account in this context.

Irrespective of the role of their family background, future research will have to accompany these young refugees' societal integration in the medium to long term. Given the relatively short amount of years that passed since the arrival of the refugees that were in this thesis' center of interest, the analyses naturally focused on early outcomes of educational and linguistic integration. It remains yet to be known which educational qualifications those young migrants who are still passing through the educational system will acquire, how their German language skills will develop in the long term, and how both their education and their language skills will define their chances in their later lives.

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