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SCHWERPUNKT

Integrating young refugees into VET: do German active labor market programs make a difference?

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Abstract Lateral entry into the VET system can be considered a highly promising prospect for the socio-economic integration of young refugees in Germany. With this in mind, multiple active labor market programs (ALMPs) for refugees have been launched and expanded, the best known being the ESF-BAMF program and various measures provided by the Federal Employment Agency (FEA). Using data from the IAB-BAMF-SOEP Survey of Refugees (2016–2021) (Brücker et al. 2016), this article applies a discrete-time hazard rate model ($N = 6004$) to examine whether participation in either of these ALMPs is associated with increased chances of refugees aged 18–30 transitioning to VET. The multivariate analyses indicate that participation in neither the ESF-BAMF program nor the FEA measures is associated with a significant change in the transition chances for refugees aged 18–24, yet both are associated with a significant increase in these chances for refugees aged 25–30. In view of the comparative disadvantage of older refugees in the German VET market, this result can be interpreted as a considerable success in terms of the effectiveness of the respective programs.

Keywords Refugees · Vocational education and training (VET) · Active labor market programs (ALMPs) · Program evaluation · ESF-BAMF program

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Integration junger Geflüchteter in die berufliche Ausbildung: Wie zielführend sind berufsbezogene Fördermaßnahmen in Deutschland?

Zusammenfassung Für die jungen Geflüchteten in Deutschland kann der Seiteneinstieg in das Berufsbildungssystem als höchst vielversprechende Perspektive hinsichtlich ihrer sozioökonomischen Integration erachtet werden. In diesem Kontext wurden in den letzten Jahren mehrere sogenannte a*ktive Arbeitsmarktprogramme* (ALMPs) für Geflüchtete initiiert und ausgebaut, allen voran das ESF-BAMF-Programm sowie verschiedene Maßnahmen der Bundesagentur für Arbeit. Auf Basis der Daten der IAB-BAMF-SOEP-Befragung von Geflüchteten (2016–2021) (Brücker et al. 2016) wird in diesem Beitrag mithilfe einer diskreten Ereignisdatenanalyse ($N = 6.004$) untersucht, ob die Teilnahme an einer dieser ALMPs mit einer erhöhten Übergangschance von Geflüchteten zwischen 18 und 30 Jahren in eine Berufsausbildung assoziiert ist. Aus den multivariaten Analysen geht hervor, dass die Teilnahme an beiden ALMPs mit einer signifikanten Erhöhung der Übergangschancen der 25–30-jährigen Geflüchteten assoziiert ist, nicht jedoch mit jenen der 18–24-Jährigen. Angesichts der vergleichsweise nachteiligen Chancen älterer Geflüchteter auf dem deutschen Ausbildungsmarkt, kann dieses Ergebnis als klarer Erfolg beider ALMPs gewertet werden.

Schlüsselwörter Geflüchtete · Berufliche Ausbildung · Programmevaluation · Berufsbezogene Deutschsprachförderung · ESF-BAMF-Programm

1 Introduction

The majority of the refugees[1] who came to Germany around 2015/16 were young adults: In 2016, 44% of them were aged between 16 and 30, and a further 7% had reached this age by 2021 (BAMF 2017). Since a vast majority of them have stated their desire to stay in the country permanently (Brücker et al. 2020), their occupational integration is of considerable relevance. For refugees in particular, the occupational position they attain has a significant impact on their long-term life chances, not only in terms of social security but above all with regard to their social integration in the host country (Schäfer and Dobischat 2022). Attaining a rather favorable position in the labor market in Germany generally requires one to first complete vocational education and training (VET) (Hausner et al. 2015).

The German VET system is a particularity among education systems as most other countries rely on school-based training, higher education, or on-the-job training (OECD 2014). It is the main driver of the country's characteristic occupational labor market structure and its distinct mechanisms of occupational closure. Accordingly,

[1] In the legal sense, the term *refugee* is reserved for persons who have undergone the asylum procedure and have subsequently been granted international protection status according to the 1951 UN Convention relating to the Status of Refugees (UNHCR 1951: Art. 1(A)(2)). Throughout this article, however, the term *refugee* is used in reference to all persons who have started an asylum procedure in Germany, regardless of its course or outcome.

individuals without a VET degree are five times more likely to be unemployed in Germany and earn almost 20% less over their lifetime than people with such a degree (Röttger et al. 2020; Schmillen and Stüber 2014). Furthermore, unlike the higher education system, access to VET in Germany is not formally linked to the attainment of certain educational credentials but is even open to individuals without a school-leaving certificate, a circumstance specifically advantageous to refugees (Granato and Ulrich 2014). Taking up VET can therefore be considered the most promising prospect for the socio-economic integration of young refugees in Germany.

However, the vast majority of refugees originate from countries where the VET system is either entirely unknown or not highly valued, so they often refrain from applying for a training place (Bergseng et al. 2019, p. 9). In addition, many companies consider the hiring of refugees to be rather problematic, as their level of skills and qualifications is difficult to assess and they often lack proficiency in the majority language of the host country required for the work process (OECD 2017, p. 34f). Lateral entry into the German VET system is therefore fraught with many obstacles for young refugees. Since admission to a VET program usually takes place around the age of 20 (Statistisches Bundesamt 2020), this applies in particular to refugees who are close to the age of 30 for two reasons: First, many of the refugees in this age group were no longer subject to compulsory vocational education when they arrived in Germany, which implies that they have not been enrolled in the transitional system of the German VET system, where they could have come into contact with the overall VET system and learned about the significance of such a certificate in the labor market. Second, recruiters at companies in the dual VET sector, the clearly predominant one in Germany in quantitative terms (BIBB 2022), often regard the willingness of older persons to be managed by a superior and their ability to integrate into the company's social working environment as comparatively low (Imdorf 2012).

In recent years, numerous *active labor market programs* (ALMPs) for refugees have been launched in Germany, while existing programs have been expanded. The general objective of ALMPs is to enhance the participants' employability in the host country and thus to reduce their likelihood of being dependent on the social security system (Calmfors 1994). Two of the most important ALMPs for refugees in Germany are the so-called ESF-BAMF program, which is jointly funded by the European Social Fund (ESF) and the German Federal Office for Migration and Refugees (BAMF), and various measures provided by the Federal Employment Agency (FEA). These programs combine vocational qualification and language training with the explicit aim of improving the participants' chances of transitioning to VET and the labor market in Germany. These programs seek to inform the refugees about the importance of obtaining a VET certificate to gain a favorable position in the German labor market and actively support them in improving their language and professional skills, which are required to pursue a VET program. This should be particularly beneficial for refugees just under the age of 30, who are more likely to come into contact with the German VET system for the first time. In addition, it can be assumed that participation in an ALMP signals to would-be employers the willingness to work and socially integrate into a company and thus minimizes

potential reservations among recruiters towards them, which should increase their chances of being hired.

Although many countries have initiated ALMPs to support the occupational integration of refugees, evaluations of these programs are still limited. Moreover, even in countries with an established VET system, these programs have so far only been examined for their effectiveness in encouraging refugees to enroll in general education or in facilitating their transition to the labor market but not to VET (for Germany, cf. Brücker et al. 2019a; Brücker et al. 2020; Bonin et al. 2021). As the ESF-BAMF program and the FEA measures are the most important programs for qualifying refugees that are offered by the two separate institutions, the assessment of their effectiveness is a significant contribution to the evaluation of the educational and occupational integration of refugees in Germany. The aim of this article is to address this research desideratum and pursue the following question: *Is participation in an ALMP associated with increased chances of young refugees transitioning to VET, and does this apply to different extents for refugees of different age groups?*

In view of the predominantly young age of asylum seekers who arrived between 2013 and 2016 as well as the generally low entry age for VET (Statistisches Bundesamt 2020, Table 2.7), the analysis presented here considers only individuals aged 18–30. Refugees' transition rates to VET were estimated by means of a discrete-time hazard rate model ($n = 6004$), drawing on data from the IAB-BAMF-SOEP Survey of Refugees (2016–2021; cf., e.g., Brücker et al. 2016).

The remainder of this paper is organized as follows. Section 2 provides details on the regulations governing refugees' access to VET in Germany before moving on to discuss the structure of the ESF-BAMF program and the FEA measures. Section 3 presents the background assumptions as to how ALMP participation can be assumed to be associated with refugees' chances of transitioning to VET. However, because the mechanisms mentioned cannot be tested individually within the scope of the analyses presented in this article, this section aims to theoretically embed the assumed association and to formulate hypotheses on its direction. Section 4 presents an overview of national and international research on this issue. Section 5 elaborates on the dataset as well as on the methodological procedure of the discrete-time hazard rate model used in this article. Finally, Sects. 6 and 7 are devoted to the presentation and discussion of the estimation results.

2 Institutional framework

2.1 The VET system in Germany: on its structure and access regulations for refugees

The VET system is part of Germany's system of upper-secondary education. It is divided into three sectors: the *dual system, school-based vocational education programs*, and the *transitional system.* However, only the first two sectors provide fully qualifying VET programs and thus lead to nationally recognized VET certificates (Solga et al. 2014). To start a VET program, youths in Germany must have completed full-time compulsory education, which is usually the case when they reach

the age of 15. After completing full-time compulsory education, the trainees attend part-time compulsory vocational education typically for an additional three years (KMK 2021). Those young people who pursue vocational education but have not made the transition to one of the two fully qualifying VET sectors are assigned to the transitional sector. Here, they complete a (pre-vocational) full-time school year, although in some federal states they also have the option of completing a part-time school year or a one- to two-year full-time vocational preparation course specially designed for young refugees (Braun and Lex 2016, p. 22 f.). Participation in these training measures serves to support them in gaining vocational qualifications and thus facilitate a possibly later entry into one of the two fully qualifying VET sectors (Seeber et al. 2019b, p. 43).

Of the two fully qualifying sectors, the dual system plays the most important role, accounting for around 68% of all new entrants (BIBB 2022, p. 17). Its programs usually last two to three years and predominantly train for manufacturing, industrial, and technical occupations. They involve parallel instruction in a company and a vocational school. As selecting trainees is up to the respective companies, access to the dual VET system is not formally linked to any prerequisites such as previous educational performance or the school-leaving certificate obtained (Ludwig-Mayerhofer et al. 2019; Solga et al. 2014). Hence, the only legal requirements for refugees to access the dual system are that they do not come from a safe country of origin,[2] have been residing in Germany for at least three months,[3] and have been issued a work permit by their local foreigners office[4] (Braun and Lex 2016, p. 95). The school-based VET sector accounts for around 32% of all new entrants to one of the fully-qualifying VET sectors each year (BIBB 2022, p. 17 ff.). Its programs usually last between one and three years and predominantly train for occupations in education, healthcare, and social welfare services. With the exception of a few practical components, instruction takes place exclusively at a vocational school (KMK 2021, p. 147; Ludwig-Mayerhofer et al. 2019). Access to this sector formally requires the acquisition of a lower-secondary but de facto an intermediate secondary school-leaving certificate (Seeber et al. 2019a, p. 72 f). If there is a surplus of applicants, the available training places are allocated according to the applicants' final grades in lower-secondary education. In addition, some vocational schools require proof of a certain level of German language proficiency for admission (cf. the school regulations of the German federal states). In contrast to legal requirements for entering the dual VET sector, however, no access restrictions apply with regard to the length of stay or the possession of a work permit. Only those coming from a safe country are barred from entering this sector as well (Braun and Lex 2016, p. 95).

[2] In Germany, the following countries are currently considered safe countries of origin: the member states of the European Union, Albania, Bosnia and Herzegovina, Ghana, Kosovo, Montenegro, North Macedonia, Senegal, and Serbia (BAMF 2019b).

[3] This section discusses only access regulations that were legally in effect during the period examined in this study (2016–2021).

[4] A work permit is issued explicitly for a specific job opportunity (OECD 2017). Only around 6% of all applications are rejected (Bundesministerium des Innern und für Heimat 2023, p. 97) and generally for the reason that the employment conditions of the desired activity are less favorable than usual in the German labor market (OECD 2017).

2.2 The ESF-BAMF program and FEA measures

Internationally, ALMPs designed specifically for immigrants can be divided into three main categories: First, explicit *language training* that introduces basic vocabulary as well as the history, culture, and essential institutions of the host country. Second, *introductory programs* that create an individualized integration plan for immigrants to quickly enter the workforce; and third, *general programs exclusively for immigrants* that include elements such as training, subsidized private or public sector employment, job search assistance, or sanctions (Butschek and Walter 2014). The ALMPs in Germany considered in this study involve a combination of the first and third category.

The ESF-BAMF program is an initiative jointly funded by the European Social Fund and the German Federal Office for Migration and Refugees that links work-oriented German language training with measures for vocational orientation and further qualification of individuals with a migration background of any kind, not just refugees, and German as a second language. Its main objective was to facilitate immigrants' access to VET and the labor market in Germany. The program comprised two funding periods from 2007 to 2013 and 2014 to 2020 and was established permanently as a standard program nationwide in 2016 in response to the widespread positive response. Until the official expiry of the original initiative, the two program lines were therefore implemented in parallel (BAMF 2019a, pp. 4ff). Various public institutions, language course providers, private associations, and companies were commissioned to carry out the ESF-BAMF program, resulting in slight variations in course content (Lüffe and Reimann 2012). Common to all courses, however, was the total volume of 730 teaching units with a maximum duration of six months full-time and twelve months part-time. In addition, they invariably included the two components of language training for professional purposes and a qualification module. While the former imparted specialized vocabulary for oral and written communication in the workplace, the latter consisted of vocational training, such as IT and job application training, an internship, and company visits. Refugees could apply to participate in the course as early as the fourth month after their arrival in Germany, provided that they had attained at least the A1 level of language proficiency and did not come from a safe country of origin (Braun and Lex 2016, pp. 40, 95; BAMF 2019a, p. 18).

While the ESF-BAMF program generally addresses individuals with a migration background, the German Federal Employment Agency additionally offers vocational orientation and preparation measures that are specifically targeted at refugees. The quantitatively most significant of these latter measures are part of the so-called *Schemes for Activation and Integration* (SAI) based on § 45 SGB III, which aim to support young refugees in particular in making their transition to VET and employment in Germany (Bonin et al. 2021, p. 32; Dionisius et al. 2018, p. 11).[5] These measures range in duration from three to eight months and focus on skill assessment,

[5] These include, above all, the measures PerF (*Perspektiven für Flüchtlinge; Prospects for refugees*), PerjuF (*Perspektiven für junge Flüchtlinge; Prospects for Young Refugees*), PerF-W (*Perspektiven für weibliche Flüchtlinge; Prospects for Female Refugees*), KompAS (*Kompetenzfeststellung, frühzeitige Aktivie-*

vocational orientation, support in the search for a training opportunity or workplace, as well as intensive language instruction. They too are carried out by various educational providers and partly target specific subgroups of refugees such as women or adolescents (Bethscheider and Neises 2017, p. 84; Dionisius et al. 2018, p. 11). Admission is open to anyone with a refugee background who is officially registered as unemployed or seeking employment or VET; since 2019, even within the first three months after arrival in Germany. However, people from safe countries of origin are barred from enrolling in these offerings (Braun and Lex 2016, p. 33; Brussig et al. 2022, p. 5; Brücker et al. 2019b). Moreover, the capacity of the individual FEA measures has been gradually reduced in recent years and in some cases even completely discontinued (Bonin et al. 2021).

3 Theoretical background

Matching models provide the theoretical framework of the analysis below. According to these models, transitions to VET can be regarded as the result of a mutual decision-making process on the part of the potential training place applicant (self-selection) and recruiters at companies in the dual VET sector as well as at vocational schools in the secondary VET sector (gatekeeper's selection) (Logan 1996; Sørensen and Kalleberg 1981). To make the decision to apply for a training vacancy, the potential applicant needs, first and foremost, knowledge of the VET system and, second, must be aware of the benefits of a VET certificate in the local labor market. In most of the refugees' countries of origin, however, VET is either completely unknown or does not enjoy a good reputation, as socio-economic advancement there can be achieved almost exclusively through the completion of a university degree (Bergseng et al. 2019, p. 9; Schäfer and Dobischat 2022, p. 138). A lack of understanding of the German system can discourage refugees from applying for a training place in Germany. As the ALMPs under study in this article[6] comprise components such as vocational orientation, internships, and support in the search for a training opportunity or workplace, it can be assumed that the participants are familiar with the VET system in Germany and its advantages over direct labor market entry. This familiarity is likely to increase the willingness of young refugees to invest in their marketable human capital and thus to apply for a training place.

On the recruiter side, the relevant selection criteria for new trainees differ between the dual and the school-based VET sectors. In the dual VET sector, recruiters at companies are interested in hiring the highest-performing individuals to maxi-

rung und Spracherwerb; Competence Assessment, Early Activation and Language Acquisition), Kommit (*Kooperationsmodell mit berufsanschlussfähiger Weiterbildung; A Cooperation Model for Further Vocational Education*) and KomBer (*Kombination berufsbezogene Sprachförderung; Combination of Job-Related Language Training*).

[6] Since both the ESF-BAMF program and the measures provided by the FEA include language training and professional qualification modules, but exhibit considerable differences in the way these modules are implemented even within their respective program lines (cf. Section 2), there is no reason to expect differences in the strength of the association between participation in either of the two ALMPs and the transition chances of young refugees to VET.

mize company utility. According to Thurow's job competition model (Thurow 1975, 1979), recruiters thus rank training place applicants on the basis of their estimated productivity level as part of the hiring process. The higher the anticipated performance of an applicant, the better their placement in the so-called *labor queue* and the more likely they are to be hired. Signaling theory builds on this by assuming that employers use so-called *market signals* that indicate applicants' endowment with human capital, such as language proficiency and formal qualifications, to assess their prospective future performance (Spence 1974; Stigler 1962; Stiglitz 1975). With reference to Fossati and Liechti (2020), participation in an ALMP can be assumed to influence the decision of company recruiters in favor of the refugee training place applicant via two mechanisms. The first mechanism is when participation entails a *substantive effect* by de facto increasing the participant's human capital. Both the linguistic and the technical components of the programs provide refugees with marketable skills that strengthen their competitive position in the labor queue. The second mechanism is a *signaling effect* whereby participation in an ALMP signals to recruiters that a participant is disciplined and has a high work motivation. This effect should be reinforced in particular by the fact that participation in such courses is entirely voluntary in Germany. We can hence expect both mechanisms to increase the employability of refugees in the dual VET sector.

In the school-based VET sector, training places at vocational schools are allocated in accordance with the school regulations of the federal states exclusively on the basis of the school-leaving certificate obtained and, depending on the program, the grade point average achieved in certain school subjects.[7] In some federal states, however, proof of a certain level of German language proficiency is required for applicants who are non-native speakers of German (cf. the school regulations of the German federal states). Only when there is such a language requirement can we expect participation in an ALMP for refugees to have a *substantive effect*, on account of the language training that they provide, which should increase the chances of young refugees to enter school-based vocational training. Since it can thus be assumed that participation in an ALMP increases both the willingness of young refugees to apply for a training place and their chances of being chosen as a trainee, this suggests the following hypothesis:

Hypothesis 1 Participation in an ALMP is associated with increased chances of young refugees transitioning to VET compared to those who have not participated.

At the same time, it can be assumed that the effect of participation in an ALMP on refugees' chances of transitioning to VET will vary by age group. Younger refugees are likely to have a two-fold advantage when it comes to their chances of entering VET. The first one is that refugees who arrived in Germany before their 18th birthday are routinely integrated into the transitional sector of the German VET system, as described in Sect. 2.1. There, they acquire knowledge about that system

[7] In some federal states, additional criteria are applied in the event of access demand, such as the applicant's previous waiting time for a training place or personal circumstances for which a delayed start of VET would mean an exceptional hardship (cf. the school regulations of the German federal states).

and most likely also come to understand the significance of a VET certificate for a favorable labor market position in Germany. The second advantage is that recruiters at companies in the dual VET sector, which clearly provide the large majority of training places (BIBB 2022), have been observed to prefer hiring younger trainees who they believe to be easier to manage and socially integrate into the company (Imdorf 2012). On this basis, one can assume that, even without having participated in an ALMP, younger refugees are not only more likely to apply for a training place than older ones, they can also be expected to receive a better placement in the labor queue and thus to stand higher chances of being hired.

Now, it could be hypothesized that participation in an ALMP will further enhance the competitive advantage of younger refugees. This would correspond with the so-called *Matthew effect*, which refers to the cumulative gain in advantages accruing from an already more favorable starting position of a certain group of people (Benda et al. 2019; Perc 2014). Conversely, however, it would also seem plausible to assume that younger refugees might already exhibit comparatively good transition chances on their own, so that they would not derive much additional benefit from participating in an ALMP. This would correspond with the so-called indirect *deadweight effect* of ALMPs, which suggests that resources are spent on the training of individuals who would in fact have comparatively good chances of finding a job or training without such support (Brown and Koettl 2015). Older refugees, on the other hand, should benefit all the more from participating, as these programs often introduce them to the German VET system and its importance for professional qualification. In addition, one can assume that the *signaling effect* of ALMP participation might indicate to recruiters at companies in the dual VET sector that older training place applicants who participate are particularly highly motivated to work and thus reduce their reservations towards them. Accordingly, participation in an ALMP should lead to reducing the two disadvantages that older refugees face compared to younger ones in the search for a training place and thus result in a comparatively greater increase in their chances of transitioning to VET:

Hypothesis 2a Participation in an ALMP is associated with a stronger increase in the transition chances to VET for younger refugees compared to older ones.

Hypothesis 2b Participation in an ALMP is associated with a stronger increase in the transition chances to VET for older refugees compared to younger ones.

4 Data and methods

4.1 Data and sample

The empirical analyses are based on the IAB-BAMF-SOEP Survey of Refugees, an ongoing longitudinal household survey launched in 2016 (Brücker et al. 2018; Kühne et al. 2019). It is conducted annually among asylum seekers in Germany between 2013 and 2019 (Steinhauer et al. 2022) and is representative of this population. The data consists of four subsamples that were drawn from the Central Register of For-

eign Nationals (*Ausländerzentralregister*, AZR). It includes over 6700 households and provides information at the individual and household level on various topics such as socio-economic background, education and career pathways, migration history, and integration-specific characteristics.

As the focal point of this article is the transition to vocational education and training, the initial sample was restricted to individuals who were of appropriate age to start a VET program. Nearly 98% of all new entrants into the German VET system were between 15 and 30 years of age, while 72% were between the age of 18 and 30 (Statistisches Bundesamt 2020, Table 2.7). In the IAB-BAMF-SOEP survey, however, individuals under the age of 18 were presented with an alternative questionnaire in which a large amount of information relevant to the analyses was omitted, including information on participation in the ALMPs under investigation. For the empirical analyses, the sample was therefore restricted to individuals between the ages of 18 and 30. Furthermore, those individuals were excluded who (1) stated that they arrived in Germany before 2013 or whose year of arrival was missing (117 observations), (2) had already obtained a VET degree abroad that was recognized in Germany (232 observations), and (3) were still attending school at the time of the survey (450 observations). The resulting final sample ultimately consisted of 6004 people.

4.2 Time axis, destination state, and independent variables

Since the IAB-BAMF-SOEP dataset does not allow one to distinguish between transitions to the dual and the school-based VET sector, the destination state of the empirical analyses is defined as a transition to VET in general. Transitions to the transitional sector were not considered, as participation in this sector does not result in the attainment of a nationally recognized VET certificate (cf. Sect. 2). Any other known labor force status was defined as a non-transition to VET. The empirical analyses focused on the transition rate, i.e. the *hazard rate*, until the time of entry into the VET system. Since VET programs in Germany usually start on the 1st of August or September (Federal Institute for Vocational Education and Training 2018, p. 64), the analyses used the annual VET status of the respondents for the estimations. The period of observation spanned six years (2016–2021) with a maximum of six observation points (i.e., five *single spells*) per person. The total number of spells in the dataset amounts to 13,088; the average number of spells per person amounts to 2.33.

The explanatory variables, *participation in the ESF-BAMF program* and *participation in FEA measures*, were generated as dummy indicators that specify whether an individual had taken part in an ALMP in the year of the survey. The variable *participation in FEA measures* includes whether the respondents participated in one of the individual course types PerF, PerjuF, PerF-W, or KompAS. Due to the small number of individuals in the dataset who stated that they had participated in one of these measures, it was not possible to examine whether their participation in one of these measures was associated with their transition chances to VET individually. The interaction variable *age group* was also generated as a dummy indicator, encompassing the two values 18–24-year-olds and 25–30-year-olds. Since only around

10% of 18–30-year-olds starting a VET program in Germany were over 25 years of age (Statistisches Bundesamt 2020, Table 2.7), the group of 25–30-year-old refugees in particular can be assumed to be comparatively disadvantaged in their chances to transition to VET, which captures the intent of Hypotheses 2a and 2b. Furthermore, the analyses controlled for those variables that can be expected to influence both participation in an ALMP and the transition to VET. In addition to socio-demographic factors (age at arrival, gender, country of origin), these include their endowment with human capital (level of education, work experience in the country of origin, participation in a German language course) and characteristics of their living situation in Germany (period of arrival in Germany, residence title, children under 14 years of age, type of household, current health) (cf., e.g., Ortlieb et al. 2020). A description of the explanatory, interaction, and control variables is presented in Table 1.[8] On average, around 17% of the values of the independent variables are missing. These missing values were multiply imputed using iterated chained equations ($m = 100$) (White et al. 2011). The proportion of imputed values is also reported in Table 1.[9]

4.3 Analytical strategy

Since VET programs usually start on the 1st of August or September of the year (Federal Institute for Vocational Education and Training 2018, p. 64) and can be described as a qualitative transition from one state to another, the statistical analyses used discrete-time hazard rate models. These models consider a population of individuals to be *at risk* of transitioning to a pre-defined destination state, in this case VET. Their probability of experiencing this transition within a specific time period, provided that they have not already experienced it sooner, is referred to as the *hazard rate function*. When conditioning on a $K \times 1$ vector of explanatory variables $\mathbf{x}_{it}$, the hazard rate is defined as $Pr\,[T_i = t | T_i \geq t, \mathbf{x}_{it}]$. Here, T represents the discrete random variable that indicates the time period t when a transition to VET occurred for individual i. The hazard rate can be specified as a logistic regression function: $\log h_{it} = \alpha_t + \beta' \mathrm{x}_i + u$, where β is a vector of coefficients and α a constant that can remain unspecified. In this way, the parameter estimates are analogous to those of Cox's proportional hazards model (Allison 1982; Singer and Willett 1993).

To account for heteroskedasticity, robust standard errors were used for all estimations.

Six models were estimated: Hypothesis 1 was tested in Models 1 to 4. Models 1 and 2 show the direct association between participating in the ESF-BAMF program (Model 1) and in FEA measures (Model 2) and the transition chances of young

[8] The variables *proficiency in the German language* and *contact with people of the majority population* were not controlled for, as these variables can be assumed to mediate the relationship between ALMP participation and the transition to VET. As an explicit aim of the ALMPs examined in this article is to improve the participants' German language proficiency, which in turn increases their chances of having frequent contact with people from the majority population, controlling for these variables would underestimate the aforementioned relationship. However, participation in the BAMF language and integration course was controlled for to account for the German language proficiency acquired without ALMP participation to the greatest possible extent.

[9] The results from the non-imputed analyses can be made available upon request to the author.

Table 1 Descriptive statistics. Source: IAB-BAMF-SOEP Survey of Refugees (2016–2020). Own calculations

	Values	Share/Mean	*N*	%imp
Explanatory variables				
ESF-BAMF program	0 (not participated)	89.81	9.670	23.1
	1 (participated)	10.19	1.097	
FEA measures	0 (not participated)	93.04	8.580	34.2
	1 (participated)	6.96	642	
Interaction variable				
Age group	0 (18–24 years)	55.09	7.715	–
	1 (25–30 years)	44.91	6.289	
Control variables				
Age at arrival	10–30	20.8	12.898	7.9
Gender	0 (male)	58.23	8.154	–
	1 (female)	41.77	5.850	
Period of arrival in Germany	1 (before 2015)	20.20	2.606	7.9
	2 (in 2015)	58.47	7.542	
	3 (after 2015)	21.32	2.750	
Country of origin	1 (Syria)	51.34	7.190	–
	2 (Afghanistan)	11.73	1.642	
	3 (Iraq)	14.33	2.007	
	4 (Somalia/Eritrea)	8.70	1.218	
	5 (other)	13.90	1.947	
Residence title	1 (temporary residence permit)	18.13	1.686	33.6
	2 (Temporary suspension of deportation)	6.08	565	
	3 (Residence permission)	75.79	7.046	

Table 1 (Continued)

	Values	Share/Mean	*N*	%imp
Level of education	1 (primary education)	41.15	4.179	27.5
	2 (lower secondary education)	26.59	2.700	
	3 (upper secondary & post-secondary non-tertiary education)	19.25	1.955	
	4 (tertiary education)	13.01	1.321	
Work experience in the host country	0 (no)	54.16	4.398	42.0
	1 (yes)	45.84	3.723	
Participation in a German language course (including the general integration course) since arrival in Germany	0 (no)	25.81	2.768	23.4
	1 (yes)	74.19	7.956	
Children under 14 years of age	0 (no)	64.73	9.065	–
	1 (yes)	35.27	4.939	
Type of household	0 (private household)	76.36	10.636	0.5
	1 (collective accommodation)	23.64	3.293	
Current health	1 (bad)–5 (very good)	4.27	9.397	32.9

.*Note:* Descriptive statistics in Table 1 (share/mean, *N* and the percentage of imputed values (%imp)) refer to person-years (spells) in the analytical sample of refugees aged 18 to 30

refugees to VET. In Models 3 and 4, this association is again presented for the ESF-BAMF program (Model 3) and FEA measures (Model 4) but this time with the addition of the selected control variables. Hypothesis 2a and 2b were tested in Models 5 and 6, in which the interaction effect between participating in the ESF-BAMF program (Model 5) and in FEA measures (Model 6) and the respective age group of the individuals is shown with regard to their transition chances to VET.

5 Results

During the six-year observation period, 811 out of 6004 individuals in the sample transitioned to VET, amounting to almost 14% of the sample. This is equivalent to an incidence rate of approximately 38 persons per 1000 individuals. Figure 1a, b show the survival functions for the transition to VET of persons who have and have not participated in the ESF-BAMF program or in measures provided by the FEA. It appears that those individuals who participated in one of the two ALMPs tended to enroll in VET more frequently and more quickly than those who did not. However, whereas the confidence intervals for those individuals who did and those who did not participate in the ESF-BAMF program do not overlap over the entire period, they do slightly overlap in the last year of the observation period in the case of the FEA measures.

Table 2 reports the estimated coefficients from the discrete-time hazard rate models. Models 1 and 2 show the direct association between ALMP participation and the transition chances of young refugees to VET. Here, the findings of the Kaplan-Meier survival functions confirm that participation in the ESF-BAMF program is related to a substantial increase in the chances of young refugees taking up VET (with significance at the 0.1% level). Participation in FEA measures also exhibits a positive association in this respect, which is significant at the 5% level.

Controlling for the assumed confounders in Models 3 and 4 slightly reduces the strength of the association between the transition chances of young refugees to VET and participation in the ESF-BAMF program, but it remains significant at the 5% level. The association of the chances of transitioning with participation in the FEA measures is likewise reduced, in this case to the 10% level. The analysis therefore confirms Hypothesis 1 for the ESF-BAMF program but not for the FEA measures.

Next, Hypothesis 2a and 2b were tested in Models 5 and 6 by additionally including the interaction effect between ALMP participation and the age group of the individuals. The multivariate analyses have found participation in the ESF-BAMF program and FEA measures to be associated with a greater increase in the chances of transitioning to VET for older refugees but not for younger ones. This finding is significant at the 5% level in both cases. The predicted log hazard ratios of being at risk of taking up VET depending on ALMP participation are presented graphically for the two age groups of 18–24-year-olds and 25–30-year-olds in Fig. 2a, b.[10] It becomes apparent that the transition chances of younger refugees to VET do

[10] It must be emphasized that it is unfortunately not currently possible to display the confidence intervals of the combined imputed datasets. The confidence intervals illustrated in the figures correspond to the last

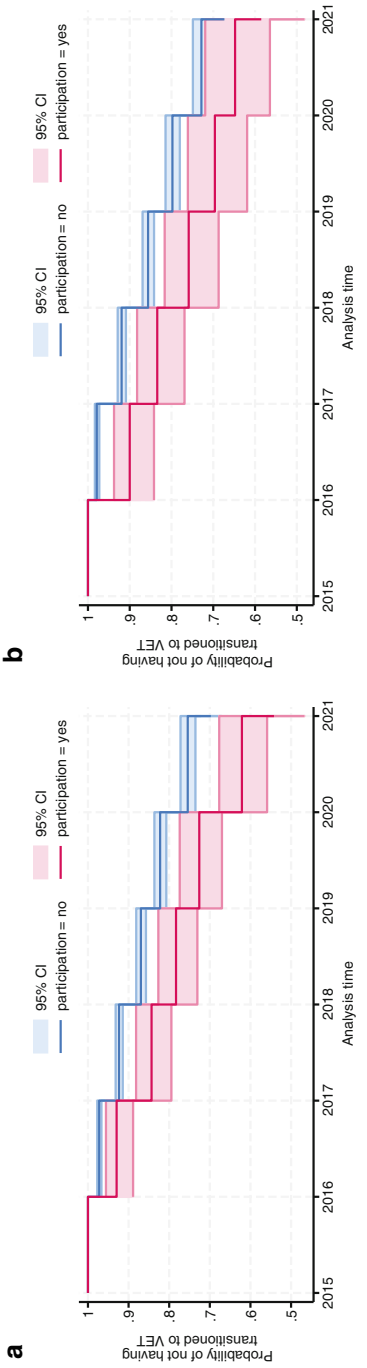

Fig. 1 **a**, **b** Kaplan-Meier survival functions

Table 2 Discrete-time models for the transition of young refugees aged 18 to 30 to vocational education and training (VET). Source: IAB-BAMF-SOEP Survey of Refugees (2016–2021). Own calculations

	Main effects models		Main effects models with covariates		Interaction effects models	
	ESF-BAMF program	FEA measures	ESF-BAMF program	FEA measures	ESF-BAMF program	FEA measures
Period	*Model 1*	*Model 2*	*Model 3*	*Model 4*	*Model 5*	*Model 6*
2016	–2.542*** (0.091)	–2.542*** (0.091)	–2.375*** (0.285)	–2.377*** (0.285)	–2.339*** (0.286)	–2.354*** (0.286)
2017	–2.412*** (0.076)	–2.386*** (0.076)	–2.131*** (0.294)	–2.115*** (0.293)	–2.097*** (0.294)	–2.088*** (0.294)
2018	–2.189*** (0.087)	–2.150*** (0.085)	–1.953*** (0.300)	–1.931*** (0.298)	–1.921*** (0.299)	–1.906*** (0.299)
2019	–2.218*** (0.101)	–2.183*** (0.100)	–1.979*** (0.300)	–1.960*** (0.299)	–1.952*** (0.300)	–1.932*** (0.300)
2020	–2.192*** (0.090)	–2.155*** (0.090)	–1.972*** (0.303)	–1.947*** (0.302)	–1.942*** (0.303)	–1.921*** (0.302)
2021	–2.143*** (0.130)	–2.104*** (0.129)	–2.109*** (0.312)	–2.092*** (0.312)	–2.084*** (0.312)	–2.068*** (0.313)
Independent variables						
Participation in an ALMP Yes	0.421*** (0.112)	0.290* (0.147)	0.348** (0.122)	0.281+ (0.161)	0.174 (0.152)	0.040 (0.199)
Age group (ref. 18–24 years) 25–30 years	–	–	–0.615*** (0.093)	–0.609*** (0.093)	–0.695*** (0.102)	–0.675*** (0.098)
Participation in an ALMP*Age group	–	–	–	–	0.477* (0.243)	0.674* (0.308)
Control variables						
Gender (ref. male) Female	–	–	–0.172 (0.112)	–0.181 (0.112)	–0.173 (0.112)	–0.189+ (0.112)
Period of arrival in Germany (ref. before 2015) In 2015	–	–	–0.321** (0.104)	–0.313** (0.104)	–0.322** (0.104)	–0.311** (0.104)
Period of arrival in Germany (ref. before 2015) After 2015			–0.416** (0.130)	–0.406** (0.130)	–0.412** (0.130)	–0.411** (0.130)

Table 2 (Continued)

	Main effects models		Main effects models with covariates		Interaction effects models	
	ESF-BAMF program	FEA measures	ESF-BAMF program	FEA measures	ESF-BAMF program	FEA measures
Country of origin (ref. Syria) Afghanistan	–	–	0.376** (0.135)	0.367** (0.135)	0.378** (0.135)	0.370** (0.135)
Country of origin (ref. Syria) Iraq			0.183 (0.128)	0.172 (0.129)	0.181 (0.128)	0.168 (0.129)
Country of origin (ref. Syria) Somalia/Eritrea			–0.176 (0.155)	–0.177 (0.155)	–0.181 (0.155)	–0.175 (0.154)
Country of origin (ref. Syria) Other			0.339* (0.135)	0.330* (0.134)	0.343* (0.135)	0.327* (0.135)
Residence title (ref. temporary residence permit) Temporary suspension of deportation	–	–	–0.265 (0.206)	–0.279 (0.205)	–0.268 (0.207)	–0.280 (0.205)
Residence title (ref. temporary residence permit) Residence permission			–0.056 (0.128)	–0.049 (0.127)	–0.062 (0.128)	–0.055 (0.127)
Level of education (ref. primary) Lower secondary education	–	–	1.627*** (0.107)	1.643*** (0.107)	1.628*** (0.107)	1.642*** (0.107)
Level of education (ref. primary) Upper secondary & post-secondary (non-tertiary) education			0.880*** (0.133)	0.906*** (0.132)	0.884*** (0.133)	0.903*** (0.132)
Level of education (ref. primary) Tertiary education			0.760*** (0.161)	0.786*** (0.161)	0.759*** (0.162)	0.776*** (0.162)
Work experience in the country of origin (ref. no) Yes	–	–	–0.071 (0.096)	–0.067 (0.096)	–0.070 (0.095)	–0.072 (0.096)
Participation in an integration/language course (ref. no) Yes	–	–	–0.695*** (0.091)	–0.689*** (0.091)	–0.691*** (0.091)	–0.684*** (0.091)
Partner Yes	–	–	–0.281+ (0.144)	–0.272+ (0.145)	–0.276+ (0.144)	–0.261+ (0.145)
Children under 14 years of age (ref. no) Yes	–	–	–1.109*** (0.157)	–1.119*** (0.157)	–1.095*** (0.157)	–1.115*** (0.157)
Type of household (ref. private household) Collective accommodation	–	–	–0.230* (0.104)	–0.235* (0.104)	–0.230* (0.104)	–0.229* (0.104)
Current health	–	–	0.093* (0.047)	0.088+ (0.047)	0.090+ (0.047)	0.087+ (0.047)

$N = 8594$. Imputed data, $m = 100$. Robust standard errors in parentheses.
$^{+}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$; log hazard ratios.

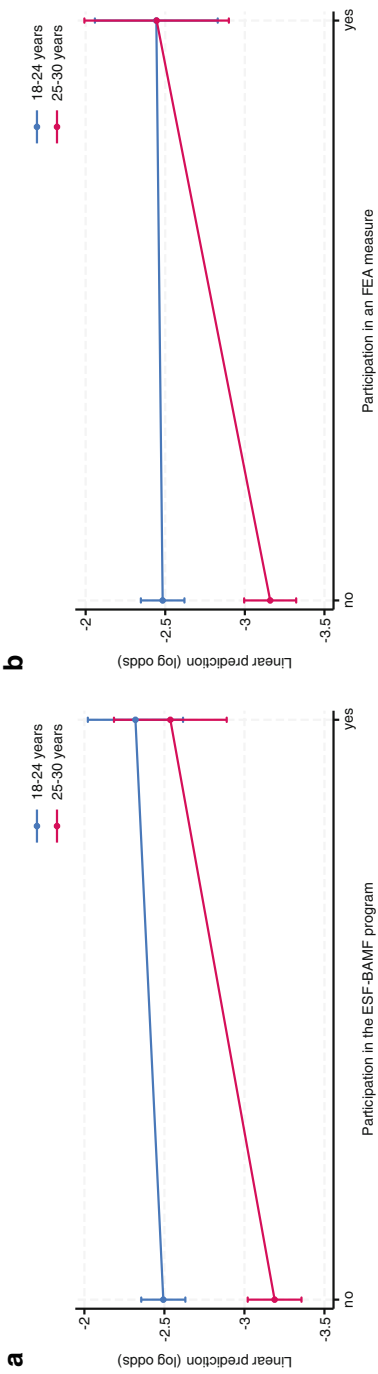

Fig. 2 **a**, **b** Predicted log hazard ratios of being at risk of transitioning to vocational education and training (VET) in dependency of ALMP participation and the respective age group

not increase substantially after participating in an AMLP, whereas those of older refugees do. This confirms Hypothesis 2b.

6 Discussion

Lateral entry into the VET system can be considered a highly promising prospect for the socio-economic integration of young refugees in Germany. In this respect, however, they face significant obstacles because of their frequent lack of knowledge of the German VET system as well as uncertainty among companies about their skills and qualifications. This applies in particular to refugees aged just under 30, who have generally had fewer opportunities to familiarize themselves with the German VET system and are often considered by recruiters in the dual sector to be comparatively difficult to manage and integrate into the company's social working environment (Imdorf 2012). In recent years, numerous *active labor market programs* (ALMPs) for refugees have been initiated and expanded in Germany, in which participants are informed about the importance of obtaining a VET degree for achieving a favorable position in the labor market and are actively supported in acquiring language and professional skills that are necessary for entering both VET and the labor market. The two best-known of these programs are the so-called ESF-BAMF program, which is jointly funded by the European Social Fund (ESF) and the German Federal Office for Migration and Refugees (BAMF), and the various measures provided by the Federal Employment Agency (FEA). Although they represent the main programs provided by these two separate institutions for this purpose, their effectiveness in supporting refugees' integration into the VET system has not yet been evaluated. To close this gap, the study presented in this article has examined whether participation in one of these ALMPs is associated with increased chances of refugees aged 18–30 taking up VET. It has also analyzed whether participation in one of the programs is associated with a stronger increase in the respective chances for older refugees compared to younger ones.

The multivariate analyses indicate that the association between participation in either of the two ALMPs and young refugees' chances of taking up VET is significantly positive, both directly and after controlling for the assumed confounders. Furthermore, participation in both the ESF-BAMF program and in an FEA measure is related to a stronger increase in the transition chances to VET for older refugees compared to younger ones. While participation in neither one of the two programs is associated with a significant change in the transition chances for refugees aged 18–24, both are associated with a significant increase in these chances for refugees aged 25–30. This is most likely due to the fact that younger refugees already exhibit comparatively good chances of enrolling in VET on their own, as is evident from the results, so that they do not derive much additional benefit from participating in an ALMP (cf. Brown and Koettl 2015). By participating in one of the two programs, older refugees, by contrast, appear to be able to significantly reduce their compara-

imputed dataset, in this case the 100th. It is, however, rather unlikely that these confidence intervals differ substantially from those of the other imputed datasets.

tive disadvantage that arises from their lack of knowledge about the German VET system and the reservations frequently harbored by recruiters at companies in the dual VET sector regarding their operational fit (cf., e.g., Bergseng et al. 2019; Imdorf 2012). The fact that both participation in the ESF-BAMF program and in an FEA measure is associated with a significant increase in the transition chances to VET of older refugees in particular, who have a clear disadvantage in this respect, can be interpreted as a success in terms of the effectiveness of the respective programs, as the completion of VET is generally an essential prerequisite for a beneficial labor market position in Germany (Hausner et al. 2015).

The findings of this article demonstrate that a general expansion of ALMPs for refugees would be very beneficial. Yet, while many preparatory training measures in Germany are explicitly targeted at refugees unter the age of 25 (Braun and Lex 2016), the results indicate that it would be worthwhile to further extend such measures to older refugees or even to initiate measures specifically geared to this group. As is evident from the results, the typical age limits for starting a VET program in Germany do not appear to apply to the same extent to people with a refugee background. Therefore, the integration of refugees from their mid-20s into the VET system would not only significantly improve their own socio-economic prospects in the host country but also tap human capital resources for the German labor market that would otherwise remain insufficiently utilized. The latter aspect gains particular importance against the backdrop of the increasingly acute shortage of skilled workers in Germany (Bundesagentur für Arbeit 2024). The finding that ALMPs which combine language training and vocational qualification appear to promote the integration of those refugees in particular into the German VET market who have comparatively poor labor market prospects should not only be relevant to countries with comparable VET systems but in principle to all countries currently facing the challenge of integrating a rather large number of refugees into education and employment.

6.1 Limitations

One weakness of the empirical analyses in this article concerns the fact that the individual measures provided by the FEA had to be combined into one variable due to the lack of sufficient case numbers. It is, however, conceivable that the individual measures exhibit a significant variance regarding the strength of their association with the transition chances of young refugees to VET (cf. Bonin et al. 2021).

Moreover, on the basis of the IAB-BAMF-SOEP dataset, it was not possible to differentiate in the dependent variable whether a transition had ocurred to the dual or the school-based VET sector. Since the almost exclusive criterion for admission to the school-based sector is the applicant's school-leaving certificate and, in some programs, their grade point average in certain school subjects, ALMP participation can be assumed to increase refugees' chances of taking up a school-based VET program primarily by familiarizing them with the German VET system and therefore making them more inclined to apply for a training place. In addition, ALMP participation is likely to exert a *substantive effect* by improving the participants' proficiency in the German language, which in some federal states must reach a certain level to

access the secondary VET sector (cf. the school regulations of the federal states). However, in view of the clearly defined admission criteria in the school-based VET sector, ALMP participation cannot be expected to have a *substantive effect* in terms of encouraging the additional acquisition of professional qualifications or a *signaling effect* that increases the participants' chances of obtaining a training place, as is the case in the dual sector. Accordingly, the association between ALMP participation and refugees' transition chances to the dual VET sector could be assumed to be stronger than that to the school-based VET sector. Further research on more elaborate data is required to clarify whether this is indeed the case. Similarly, it is not possible to examine on the basis of this dataset which training profile or segment of the VET system the refugees have transitioned to. This too remains a research question for follow-up studies.

Next, the information provided by the IAB-BAMF-SOEP dataset unfortunately does not allow one to examine the exact mechanisms by which ALMP participation is associated with refugees' chances of enrolling in VET. This leaves a highly relevant research question for future studies to pursue.

Additionally, no conclusions can be drawn on the basis of the given data as to how long a person had participated in the respective program and whether they had completed it. Yet, even if some people in the sample participated only for a short time, it can be expected that the presumed mechanisms of ALMP participation—that is, the enhanced willingness of the young refugees to apply for a training place as well as their de facto increase in human capital and its respective signaling effect—will still come into play, albeit naturally to a lesser extent. Hence, this limitation should not distort the results to any major extent.

Lastly, it can be assumed that it may take several years for young refugees to make a lateral entry into the VET system in Germany, both with and without ALMP participation. In view of the short observation period covered by this article, it therefore seems likely that the empirical analyses have underestimated both the transition rate and the association of ALMP participation with the transition chances of young refugees to VET. To obtain a more realistic assessment of their respective chances and the role of ALMP participation in this context, further studies with more observation points are required in the years to come. Likewise, it would be a relevant question for future follow-up studies to investigate whether the refugees actually complete the VET program that they transitioned to.

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