

Refugees' willingness to invest in host-country specific skills – Evidence from a discrete-choice experiment in Germany*

Christina Felfe, Carina Hartmann, Christoph Sajons, Judith Saurer[†]

January 2022

Abstract: Successful labor market integration is crucial for the economic and social inclusion of refugees into host countries, but many refugees lack the relevant skills. In this paper, we shed light on refugees' willingness to participate in vocational training, an investment in host-country specific skills that opens doors to well-paid and stable employment. To this end, we conduct a discrete-choice experiment with 1,183 refugees in Germany. This empirical method allows eliciting an unbiased measure of refugees' willingness to participate in vocational training and identifying important barriers preventing refugees from doing so. When facing the realistic option of a training position in sectors with actual skill shortage, refugees' willingness to participate in training lies significantly below widely cited survey-based numbers. Besides the actual job profile, financial constraints as well as the length and complexity of the training program constitute important barriers for refugees to participate in training. Yet, there is no one-fits-all solution, but it is rather the option to choose among different job profiles. More flexible training schemes, in terms of length and theoretical requirements, may bring substantially more refugees into skilled labor.
JEL Codes: C93, J24, J61.

Keywords: Labor market integration, human capital, refugees, apprenticeship, discrete-choice experiment.

*We thank numerous seminar and conference participants at the University of Würzburg, the Institut für Mittelstandsforschung, the Congress of the European Economic Association, the Annual Meeting of the European Association of Labour Economists, and the Cemir Junior Workshop for Migration Economics for useful comments. Furthermore, we are grateful to the local authorities and the Ministry of Social Affairs and Integration of the state of Baden-Württemberg for their support in the data collection as well as the Mercator Foundation for funding this research under grant number 19039400.

[†] Author affiliations and contacts: Felfe (University of Würzburg, CEPR, CESifo, christina.felfe@uni-wuerzburg.de), Hartmann (University of Mannheim, hartmann@ifm.uni-mannheim.de), Sajons (University of Mannheim & Mannheim Centre for European Social Research, sajons@uni-mannheim.de), Saurer (University of Würzburg, judith.saurer@uni-wuerzburg.de)

1 Introduction

Europe has recently experienced an unprecedented inflow of refugees. Between 2014 and 2018, more than 4.2 million people filed an application for asylum in one of the then 28 EU member states [OECD, 2020]. Successful labor market integration is crucial for the long-run economic and social inclusion of refugees. [Dustmann *et al.*, 2017; Hatton, 2017]. Yet, employment rates of refugees lag largely behind those of natives and migrants, even several years after arrival to the new country of residence [Bevelander, 2016; Dustmann *et al.*, 2017]. Moreover, if working, refugees mostly do so under precarious conditions [Arendt, 2020].

Successful labor market integration requires locally applicable human capital. Refugees, however, are likely to lack thereof when arriving to the host country, mostly because they did not have the opportunity or the resources to prepare their move [Brell *et al.*, 2020; Brücker *et al.*, 2019]. In light of the high return to host country-specific human capital investment, refugees should be strongly inclined to invest in education and training. The high share of refugees stating their willingness to pursue further education or vocational training supports this notion. For instance, in Germany this share amounts to 68% [Brücker *et al.*, 2019]. Yet, there may be several reasons why refugees ultimately abstain from doing so, most prominently financial needs and the uncertainty about the length of stay [Brell *et al.*, 2020].¹ Considering that at the end of 2017 only 8% of all refugees in Germany had enrolled in further education or vocational training [Brücker *et al.*, 2019], these reasons are likely of great importance in refugees' decision-making process.²

In this study, we examine refugees' willingness to participate in vocational training and identify important barriers preventing refugees from actually doing so. Our focus lies on Germany, one of the most popular refugee destination countries worldwide and internationally renowned for its vocational training system. In Germany, vocational training combines professional practice with theory taught at school. During the 3-year training period, trainees receive a fixed salary, which allows them to finance their subsistence and cover eventual liabilities. Formal entry criteria are modest and as such do not represent major barriers for refugees. And most importantly, vocational training leads to a high-quality and respected degree opening doors for stable and well-paid jobs [Wolter and Ryan, 2011]. Vocational training thus represents a great opportunity to enhance refugees' labor market integration in Germany.

Studying refugees' motives underlying their decision to participate in vocational training is challenging. Pursuing vocational training is not a unilateral decision, but is the equilibrium outcome between refugees applying for available vacancies and employers hiring them. Administrative data on the actual number of refugees enrolled in vocational training are therefore not suitable for the objective of our study. Asking refugees directly about their willingness to participate in vocational training and the barriers preventing them from doing so, as done in standard surveys, likely overestimates the actual willingness given incomplete information about available apprenticeships and social desirability bias.

We overcome these challenges by relying on an experimental approach. Specifically, we implement a discrete choice experiment (DCE) in a large-scale survey of refugees in Germany in 2018 (the ifm Refugee

¹Upon arrival, refugees are often heavily indebted not at last due to the costs of their flight. Moreover, it is initially uncertain whether asylum will be granted, and even if it is, permission to stay may be explicitly temporary and subject to periodic reassessment with the possibility of revocation.

²Numbers are also low in other countries, such as Canada, where 22% of all adult refugees pursued further education [StatisticsCanada, 2017].

Survey). We ask the survey participants to indicate their preferred option between a concrete vocational training position and an alternative unskilled job. There are three main advantages of using a DCE. First, it allows disentangling refugees' decisions from employers' hiring decisions. This way, we can abstract from refugees' selective application behaviour and potential employer discrimination. Second, in contrast to a classical survey or a vignette study, a DCE forces participants to decide between several options and as such minimises the risk of social desirability bias. In fact, it has been shown that a forced choice approach is best in eliciting close to real decisions [Hainmueller *et al.*, 2015]. And third, by randomising key features of the vocational training position and the alternative unskilled job, we can causally identify their impact on refugees' decision to invest into human capital. Our focus lies on the financial components, such as forgone wages and post-training wages, and on the design of the training program in terms of length, schooling requirements and language support. Our results are therefore meaningful for both firms and policymakers alike.

A frequent critique of DCEs is their hypothetical nature [Mas and Pallais, 2017]. We address this critique by confronting refugees with close to real vocational training positions. Specifically, we draw upon the pool of available training positions in 2018 and use job offers for two occupations with distinct skill shortage in Germany, specifically a job offer as electrician and as elderly care nurse. Importantly, the training positions as elderly care nurse or electrician were among the most widely announced vacant training positions and as such likely to be among the actual job offers received by refugees: Moreover, we deliberately chose two gender-stereotypical occupations to fit both male and female job preferences. Doing so allows us to carefully model heterogeneity by gender. We then randomise the future monetary return to vocational training in the respective occupations (using the collectively agreed apprenticeship pay in these occupations in 2018 as baseline) and the opportunity costs of the training (i.e., usual pay in an unskilled position). We also randomly implement two highly debated policy options that allow for more flexibility in the procedure of the vocational training. Specifically we offer a short-track with reduced theory and a long-track with an additional, paid, one-year, occupation-specific language course.

Our results are as follows. First of all, when offered a concrete training position including detailed information on its costs and benefits, refugees' willingness to start vocational training lies significantly below their self-reported general willingness to do so. While 79% of all survey participants state general interest in vocational training, only 59% and 50% opt for vocational training when offered a concrete position as electrician or elderly care nurse, respectively. This difference may in part be due to the fact that refugees lack the skills and the willingness to work under the conditions requested by the occupations where skilled labor is short. For instance, an elderly care nurse needs to care for people and carry out physically demanding tasks. In our sample, only a third is willing to engage in care and less than half in physically demanding work.

Second, manipulating the costs and benefits of vocational training influences refugees' investment decision, but effect sizes are modest. Increasing the financial returns and thus the post-training salary by roughly Euro 600 or 45% (from the baseline post-training salary of Euro 1,300) increases refugees' willingness to attend vocational training by 3.9 percentage points or 7.8% (from a baseline willingness of 50%) . When being offered alternative vocational training programs, refugees' willingness to invest into training also increases only slightly: a short-track vocational training with reduced schooling increases the willingness by 3.4 percentage points or 6.8%, offering support in terms of occupation-specific language

training leaves refugees’ willingness largely unchanged.

Third, and most importantly, subgroup analysis reveals large heterogeneity in the effect of the examined measures, facilitating a tailored approach how to address the constraints prevailing for the different socioeconomic groups. For men and refugees with approved asylum the financial incentives are the most effect policy tool: an increase in post-training salary by 45% raises the willingness to start a vocational training by 5.3 and 6.6 percentage points, respectively. By contrast, women and refugees who are still waiting for their asylum decision react significantly to a reduction in the length and theoretical complexity of the training program (by 9.3 and 12.6 percentage points, respectively). Offering refugees a more flexible portfolio of training programs – including a short-track with reduced schooling, the standard track, and a long-track, which includes a one-year, paid, occupation-specific language course – has a large overall effect. Refugees’ willingness to invest in host country-specific human capital increases by 10.5% on average, with even stronger reactions for certain subgroups, such as college-educated women. The take-away insight is thus that a single measure may not suffice to induce refugees to invest in host country-specific skills, but a bundle of different training programs, addressing the needs and barriers existing for the different refugee groups, may work.

Our paper contributes to a growing literature on the economic integration of refugees (see Dustmann *et al.* [2017] and Hatton [2017] for an overview³). It sheds light on refugees’ willingness to invest in host country-specific human capital using an experimental approach. The DCE allows us to overcome limitations of traditional data sources, in particular the inseparability of demand and supply in administrative data and the social desirability bias in survey answers. Confronting refugees with a concrete choice enables us to get a more realistic picture about the sources of the apparent underinvestment of refugees in host-country specific skills and potential ways to address this problem.

The remainder of the paper is structured as follows. Section 2 sketches the theoretical arguments entering refugees’ decisions whether to invest into host-country specific human capital, derives the main hypotheses applying to the case of refugees in Germany and describes briefly the German vocational training system. Section 3 describes the data collection and the experimental design. Section 4 provides our results, focusing first on the impact of financial incentives and then the alternative schemes of vocational training. Section 5 concludes with some policy recommendations and suggestions regarding further research avenues related to the labor market integration of refugees.

2 Background

Existing knowledge on refugees’ labor market integration is still scarce. Extrapolating from studies on the integration of immigrants to the situation of refugees is doomed to fail given the stark differences between the two groups, in particular, in terms of preparedness, certainty to stay in the host-country and/or desire to return to their home country [Brell *et al.*, 2020]. Work-first policies, the integration approach that dominates in many integration destinations, push refugees into unskilled, poorly paid jobs [Arendt, 2020].

³Section II.A. describes the more closely related literature on the determinants and barriers for refugees to get access to high-quality, well-paid jobs.

There is first experimental evidence on the effectiveness of job search assistance programs offered to refugees. Battisti *et al.* [2019] evaluate a randomised control trial in which an NGO in Germany supported refugees in writing their CV and randomly referred them to trusted employers. They find that job search assistance is an effective tool to integrate and promote refugees in the host-country labor market. Caria *et al.* [2020] confirm this result for an enhanced job search assistance program in Jordan, which provided refugees with information about the interview process and the legal obligations, as well as financial and psychological support during their job search.

We focus on refugees’ willingness to invest into vocational training, a choice that opens doors for well-paid and stable jobs. We focus on all refugees, those actively searching for work – and thus the subjects in the above-cited studies – and those not (yet) actively searching for work. Our objective is to identify barriers preventing refugees from undertaking host country-specific human capital investments and to examine ways how to lift these barriers. For this purpose, we design a discrete choice experiment using training positions in industries with severe shortages in skilled labor. Moreover, we build in heavily discussed policy options meant to facilitate refugees’ participation in vocational training. Importantly, our design allows us to go beyond recent work using choice experiments to elicit refugees’ willingness to invest in education [Damelang and Kosyakova, 2021]. Specifically, our design enables us to provide valuable guidance for an evidence-based design of so-called education-first policies that are meant to act as a catalyser for refugees’ successful and sustainable labor market integration. In what follows, we briefly sketch the rationale underlying refugees’ human capital investment decisions, describe refugees’ labor market situation in Germany and outline the specificities of the German vocational training.

2.1 Refugees and Host Country-Specific Human Capital Investments

What drives refugees’ decision to invest into host country-specific human capital? People with a foreign background likely base their human capital investment decisions on aspects that go beyond the ones considered by native people. Duleep and Regets [1999] have extended the seminal human capital investment model by Becker [1962] to fit the situation of migrants. In what follows, we summarise the key takeaways of this model and apply it to the case of refugees.

First, the lower the cost of an investment, the higher the propensity to invest. In the case of human capital investments, this reasoning includes opportunity costs and thus the wages paid in alternative, unskilled jobs. Second, the higher the returns to investment, the higher the propensity to invest. As a result, the prospect of higher post-training wages likely raise the odds of starting a training. Similarly, the length of the pay-off period, that is, the duration of the time during which these higher wages are paid, matters for the decision. In the case of refugees, the pay-off period not only depends on their age at arrival, but also on the asylum decision and thus the certainty to stay. Third, if refugees possess skills that can be easily transferred and applied to the host country’s labor market, they have a lower likelihood to invest in additional education as they are likely to quickly catch up to natives even without additional education. In the absence of transferable skills, host country-specific human capital investments may require more effort, but ultimately lead to higher returns.

How do these theoretical arguments apply to the situation of refugees in Germany? From a legal perspective, refugees are allowed to join the labor market three months after arrival (during the first

three months after the asylum application they are under a work ban). Yet, only few refugees engage in the labor market. By the end of 2017⁴, 27 % of all male refugees and only 6 % of female refugees were working. Employment rates among refugees with children were even lower: among male refugees with children only 18% were employed, and among their female counterparts only 3%. Interestingly, refugees still awaiting their asylum decision are more likely to work than refugees with a positive asylum decision. However, they do so in unskilled, poorly paid jobs indicating the financial pressure on their shoulders. Refugees relying on job search assistance provided by the official employment agencies take more time to find a suitable job, but end up in more qualified, better paying positions [Brücker *et al.*, 2019].

An often-cited barrier to a stable, well-paid job is the lack of an appropriate educational and/or occupational degree. In fact, many refugees lack any formal credentials, either because they left their home country before finishing a formal degree, because they lost the documents before/during their flight or because the education system of their home country did not offer educational careers that are recognised in Germany [OECD, 2016]. The relevance of educational degrees cannot be underestimated. Brücker *et al.* [forthcoming], for instance, show that recognition of an educational degree leads to an increase of immigrants' employment prospects by 25% and their earnings' by 20%. Recognition of an occupational degree leads to a full closure of the earnings gap between immigrants and their native counterparts.

In light of the theoretical considerations and the described situation of refugees in Germany, we can formulate some hypotheses about the extent to which the costs and benefits of vocational training affect refugees' decision to undertake an investment in host country-specific human capital and how the effects may vary across refugees from different socioeconomic backgrounds. Starting with the costs, we expect that attractive financial opportunities in temporary, unskilled jobs induce refugees to decline investment opportunities and start working immediately. This might be particularly true for male refugees, in particular with family obligations and thus being traditionally the main breadwinner of the family, but also for refugees awaiting or having been declined asylum. Turning to the benefits of human capital investment, we expect the prospect for a well-paid job in the future to matter most for refugees with fewer financial constraints, and thus for male refugees without care obligations, and for refugees enjoying some certainty to stay in the host country (refugees being granted asylum). Shortening and relaxing the theoretical complexity of an educational program may remove a burden which weighs particularly heavy for female refugees with care obligations, less educated refugees and those that lack proficiency in the German language. An enhanced educational program offering language support may constitute an alternative strategy to attract refugees that lack proficiency in the German language.

2.2 The German Vocational Training System

We test the above-stated hypotheses in the context of the German vocational training system. This training system, also known as *Ausbildung*, offers an ideal setting to investigate refugees' willingness to invest into host country-specific human capital. The German vocational training system is well-known and internationally renowned and as such, likely to be known among refugees⁵. Moreover, entry criteria are

⁴We refer to the year 2017 as this was the year prior to our study.

⁵In the ifm Refugee Survey, described in the next section, around 60% of the participants had an idea of what the German *Ausbildung* would entail.

rather low (completed compulsory schooling or an equivalent of that). The German vocational training system is therefore well suited to enhance the labor market integration of refugees for whom tertiary education at college or university is mostly out of reach. There are distinct differences between the German vocational training system and the training system, for instance, in the Anglo-Saxon countries. We therefore sketch the German vocational training system in turn (see also Kautz *et al.* [2014] for more details).

The standard German vocational training program lasts three years and combines practical training in a firm (two thirds of the time) with theoretical learning in a centralised school (one third of the time). The firm pays the trainee a stable salary throughout the whole training period. There exists quite some variation in the collectively agreed salaries paid across occupations and in the occupations, we study in this paper, trainees receive on average 800 Euros per month. After the three-year training period, trainees need to pass a centralised exam, consisting of both a practical and a theoretical part. Successful completion grants an occupational certificate opening doors to a stable and well-paid job. An additional advantage for refugees is that acceptance to vocational training allows them to apply for an extended stay (two further years) in Germany, independently of their legal status. This regulation is also known as the *3+2 regulation*, which was designed to reduce uncertainty for both the refugees and the employers.

There are some alternative versions to the standard training program that are designed to relax some of the burdens and the challenges frequently preventing people from applying to vocational training. For instance, for some occupations there exists a shortened training program lasting two years only and leading to an assistant degree (also known as the *Helferausbildung*) [Aumüller, 2016]. Given its shorter duration and reduced theory load, this program may be particularly attractive to refugees. There are several pilot projects offering migrants and refugees an extended training program lasting four years and offering a simultaneous occupation-specific language training [Aumüller, 2016]. These projects are designed to support migrants and refugees in case of language difficulties while granting them financial independence (trainees receive their monthly compensation throughout the whole training period).

We make use of the German vocational training system and test to which extent altering its features or implementing the alternative versions of the training program induces more refugees to take up vocational training. We do so within a large dataset on refugees that arrive during the refugee crisis between 2014 and 2018, which is described in the next section.

3 Survey and Experimental Design

3.1 The ifm Refugee Survey 2018

This paper builds on a novel data set on recent asylum seekers to Germany – the ifm Refugee Survey. In 2018, the state government of Baden-Württemberg, one of the biggest and most popular refugee destination states in Germany, commissioned the ifm⁶ to provide a comprehensive overview on the labor market integration of refugees in the state. For this purpose, the ifm, or to be precise a subset of the authors of this study, requested the collaboration of the local authorities supervising the public, largely

⁶The ifm is a center for research on small and medium sized enterprises and entrepreneurship in general, located at the University of Mannheim.

centralised refugee accommodation centers. Sampling followed a two-step procedure: first, we chose two to three districts within each of the four administrative regions; second, we contacted all medium- to large-size refugee accommodation centers within these regions (hosting between 20 and 200 refugees) and asked them to support the survey. Almost all refugee accommodations agreed to collaborate with the study, with the exception of a few centers that experienced recent turnover of their residents or a turmoil due to a highly publicised dispute between refugees with African background and the police.

In agreement with the managers of the accommodation centers or the social workers in charge, we elaborated an interview schedule and advertised the survey in advance via multi-language posters in the community areas of the refugee accommodation centers⁷. A multi-ethnic, mixed-gender interviewer team, consisting of up to five men and women from various Middle Eastern and African countries, visited all refugee accommodation centers over a period of three months (Mid-April to Mid-July 2018). Interviews took place in the late afternoon and early evening to ensure participation of all residents, independently of their working status or participation in integration or language courses. Recruitment of the participants occurred in the public and community areas of the accommodation centers. The interviews were conducted as computer-assisted personal interviews (CAPI) and lasted between 25 and 60 minutes. The questionnaire was available in Arabic, Persian and English which were spoken by roughly 80% of all refugees in the sampled refugee accommodation centers. Given the feedback provided by the interviewer teams, about half of the contacted individuals agreed to participate in the survey.

The survey consisted of two parts: a traditional questionnaire and an experimental part eliciting refugees' willingness to invest in vocational training⁸. The questionnaire elicited the refugees' knowledge about the German labor market, their expectations regarding possible job offers, their language and professional skills relevant for the German labor market, their job search activities and their main problems therein. In addition, participants provided some information on their migration history, asylum process, education and professional experience accumulated in the home country.

The final sample consisted of 1,183 refugees, who answered the relevant questions and participated in the DCE. The sample resembles in many ways the population of refugees present in 2018 in Germany. Table 1 contains some descriptive statistics of our sample and compares it with the representative sample of the IAB-BAMF-SOEP survey, the most well-known refugee survey in Germany. Our sample, like the actual refugee population, is predominantly male (75.2%), the participants are on average 31.6 years old and completed on average about 9.6 years of schooling. About 45% are either married or in a relationship and have on average 1.2 children. The ethnic composition in the ifm Refugee Survey covers refugees from the Middle East, in particular from Syria (23.3%), Afghanistan (16.0%), Iraq (14.1%) and Iran (6.3%), and from Northern Africa, in particular from Gambia (12.2%). Note that this distribution differs from the ethnic composition in the IAB-BAMF-SOEP Panel, which comprises more refugees from Syria (40.7%). This difference stems from the fact that the survey was mainly conducted in centralised refugee accommodation centers. Syrian refugees tend to move faster to private households (as their asylum applications are most often approved) and are thus underrepresented in our data pool [Tanis, 2020].

⁷The posters only contained general information advertising a multi-purpose survey on the general conditions of the refugees.

⁸For details on the experiment, please refer to the next subsection.

Table 1: Comparison of the ifm Refugee Survey with the IAB-BAMF-SOEP Survey

	ifm Refugee Survey 2018 Baden-Württemberg	IAB-BAMF-SOEP 2018 Baden-Württemberg	IAB-BAMF-SOEP 2018 Germany
Personal Characteristics			
Female	0.248	0.250	0.298
Age in Years	31.6	31.0	31.8
Married/Partnership	0.448	0.415	0.475
No. of Children	1.191	1.220	1.278
Years of Schooling	9.6	9.6	9.9
<i>Country of Origin</i>			
Syria	0.233	0.407	0.426
Afghanistan	0.160	0.151	0.151
Iraq	0.141	0.096	0.102
Iran	0.063	0.009	0.026
Gambia	0.122	0.064	0.010
Nigeria	0.106	0.015	0.019
Other African Countries	0.099	0.102	0.132
Other Countries	0.076	0.156	0.134
Situation in Germany			
Years since Arrival	2.1	3.0	3.0
<i>Asylum Application</i>			
Pending	0.206	0.252	0.156
Approved	0.417	0.675	0.750
Rejected	0.369	0.073	0.093
Private Apartment	0.031	0.625	0.743
Some work in last 7 days	0.192	0.460	0.354
Number of Observations	1,183	457	4,184

NOTES: Column (1) shows the variable means of respondents in the ifm Refugee Survey, columns (2) and (3) display the means for the same variables in the IAB-BAMF-SOEP survey, for those participants living in Baden-Württemberg and for the whole country, respectively.

3.2 The Discrete Choice Experiment

We enriched the ifm Refugee Survey with a Discrete Choice Experiment (DCE) which is a choice framework designed to elicit people’s preferences. A DCE is an extension of the contingent valuation literature whereby rather than directly asking people for valuations over an attribute (the stated preference method), people are given the choice between two or more scenarios and are then asked to choose their preferred option [Mas and Pallais, 2017]. The scenarios usually vary in some attributes which allows to flexibly back out the key determinants underlying people’s choices and their latent preferences. We confront survey participants with a choice between a vocational training and an unskilled job. We vary both job positions in a number of features highlighted by the classical human capital investment theory by Becker [1962] and applied to the case of immigrants by Duleep and Regets [1999]. Most importantly, we varied the financial returns, the opportunity costs and the training format.

A frequent critique of this experimental approach is whether it captures actual behaviour or whether the choice is only hypothetical. In case interview participants perceive the choices as fully hypothetical, participants are likely indifferent and do not possess clear preferences regarding the options [Diamond and Hausman, 1994]. We overcome this critique by designing the survey-based choice experiments with vignettes that closely resemble actual market choices [Mas and Pallais, 2017]. Specifically, we confront

refugees with close to real apprenticeship vacancies. We draw upon the pool of available training positions in 2018 and offer survey participants a hypothetical vocational training position for two alternative occupations in sectors with distinct skill shortage, specifically in the craft and the care sector. We ask them to make a decision under two scenarios: in the first scenario, they have to decide between option (A) a vocational training position in the craft sector, specifically as an electrician, and option (B) a position as an unskilled assistant in the cleaning, construction or service sector; in the second scenario, option (A) corresponds to a position as an unskilled assistant in the cleaning, construction or service sector and option (B) to a training position in the care sector, specifically as an elderly care nurse. This forced choice approach grants identification of the most important determinants of the human capital investment decisions for refugees [Hainmueller *et al.*, 2015]. Furthermore, all chosen wages are based on collectively agreed apprenticeship pay in each sector, and are thus resembling real job offers. Table 2 illustrates such a choice for the first scenario, that is, the decision between a vocational training position as an electrician or a job as an unskilled assistant. The example in the table shows our baseline scenario including a standard three-year vocational training and average wages for both the unskilled employment and the job after the completion of the vocational training. Note that we display all attributes that are subject to randomisation in bold.

Table 2: The choice setup in the DCE

<p>Option A (Baseline): A vocational training as an Electrician[Scenario 1]. The Ausbildung would start immediately and would take 3 years [Attribute 3]. During this time, you would mainly work and get your training in a company. Additionally, you would spend about 1-2 days a week at a professional school. If you do well in your job and pass all the exams, you get the official degree as "Electrician" [Related to Attribute 3] at the end. Additionally, you would obtain the right to work in this profession for at least 2 years after the completion of the Ausbildung, independent of the status of your asylum application. During the 3 years [Attribute 3] of the training, you earn 800 Euros per month. If you are allowed to work afterwards, you would be able to earn 1300 [Attribute 2] Euros per month.</p>	<p>Option B: A job as an assistant worker in a restaurant, cleaning, or construction. This job would start immediately and you would earn about 1000[Attribute 1] Euros per month.</p>
---	---

We randomly alter these vignettes in three key attributes: [Attribute 1] the salary paid by the alternative assistant position; [Attribute 2] the post-training salary; and [Attribute 3] the training scheme. Table 3 below displays the alternative values that each attribute can take.

The first two attributes are purely monetary and represent the forgone wages of taking up a vocational training position instead of an unskilled job [Attribute 1] and the financial returns to the vocational training [Attribute 2]. Attribute 3 corresponds to the type of vocational training. Our baseline scenario is the three-year standard vocational training. This program leads to the official degree as "Electrician/Elderly Care Nurse". In case the company applies for it at the labor market agency, a three year long vocational training entitles the refugee to stay and work in the company for at least another two years after completing the vocational training. This rule applies independently of the legal status of the asylum application and is known as the so-called "3+2" regulation. In order to assess the impact of the different types of vocational training, we make use of the two publicly debated policy options described

in Section 2.2 We randomly vary the between the following two tracks: a short-track with reduced schooling, which corresponds to a two year long vocational training leading to the official degree as "Assistant Electrician/Elderly Care Nurse"; a long-track with language support, which is a four year long training program and corresponds formally to the standard three-year long vocation training program preceded by a one year, paid occupation-specific language course.

Table 3: Description of the Main Treatments

	Attribute	Value	Obs.
Attribute 1	Alternative Salary	Baseline: 1000€	1,183
		Alternative 1: 1500€	1,183
Attribute 2	Post-Training Salary	Baseline: 1300€	1,206
		Alternative 1: 1900€	1,160
Attribute 3	Flexible Training Schemes	Baseline: Standard vocational training = 3 years leading to a degree as "Electrician/Elderly Care Nurse" and granting the right to stay for 2 more years;	789
		Alternative 1: Short-Track: 2 years leading to a degree as "Assistant Electrician/Assistant Elderly Care Nurse". During this time, you would work and get your training exclusively in a company;.	778
		Alternative 2: Long-Track: 4 years out of which the first year is a specialized language course ;	799

To keep the cognitive load minimal each survey participant faces two choice scenarios, one offers the choice between an unskilled job and a vocational training as electrician and another one offers the choice between an unskilled job and a vocational training as elderly care nurse. The specific values for the three attributes are randomly assigned. As shown in Table 3, the different values are roughly equally represented. Table A.1 in the Appendix provides further evidence for a successful balancing. It shows the difference in the mean values for the complete array of control values between the baseline and the alternative value of the three different attributes alternative salary, post-training salary and type of vocational training (short-track versus standard track shown in column (3) and short-track versus long-track shown in column (4)). Out of 88 comparisons, we see a total of nine cases of statistically significant differences on the 10% significance level, which is what we would expect due to the construction of the tests.

The results, which we show in the next section, are based on an individual fixed effects (FE) model with clustered standard errors at the individual level. We model refugees' decision to participate in vocational training (a dummy variable which is equal to 1 if the refugee chooses vocational training and 0 otherwise) as a function of the key attributes (alternative salary, post-training salary and the three alternative training schemes) and individual fixed effects (exploiting the fact that we ask each refugee to decide when being offered a vocational training as electrician and as elderly care nurse).

4 Results

In this section, we describe two sets of results: first, we contrast refugees' self-reported willingness to invest in vocational training with their investment decision when confronted with a concrete apprenticeship position including detailed information on the actual training modalities (see Section 4.1). In an effort to provide some explanations for this gap we shed some light on the match quality between refugees' abilities and preferences and the modalities and requirements of the actual vacancies. Second, we discuss the results of the DCE in detail, which allows us to make causal predictions to which extent changing key features of the vocational training would system impact refugees' willingness to invest in host-country specific human capital (see Section 4.2).

4.1 Subjective Willingness versus Informed Choice

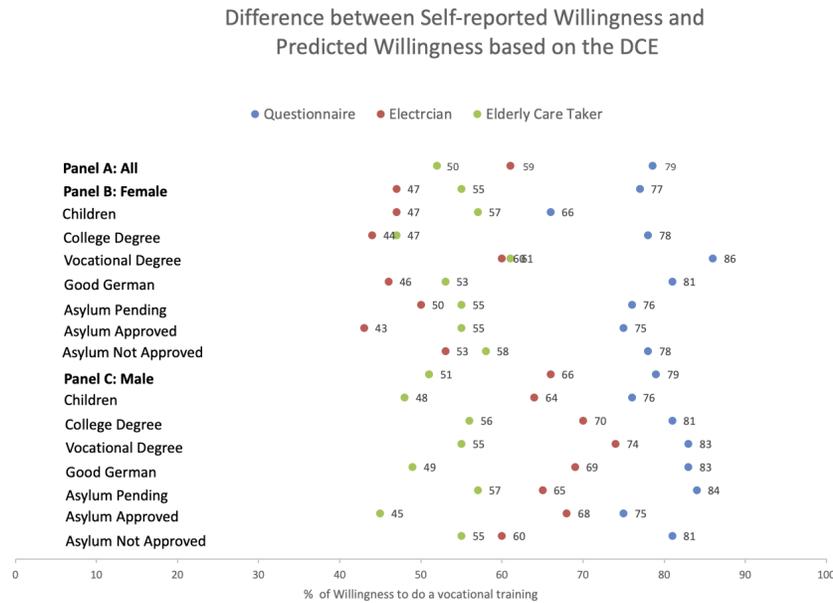
In light of the severe shortage of skilled labor in several sectors in Germany in recent years, refugees have been put forward as a potential source to tap this gap. When trusting statistics based on well-known surveys like the IAB-BAMF-SOEP refugee survey, refugees are likely to fulfil this hope: 68% state to be willing to further invest into education (own computation based on the 2018 IAB-BAMF-SOEP wave). The ifm Refugee Survey corroborates this finding: 79% of all interviewees report to be willing to take up a vocational training (see Figure 1)⁹ This fact holds true for all subgroups, male and female refugees, refugees from the different cultural backgrounds and across all education levels, and independently of their legal status.

Eliciting refugees' willingness to start a vocational training when providing them with complete information about actual vacancies leads to very different conclusion. Figure 1 displays the predicted means resulting from the DCE when asking refugees to decide whether or not to take up a concrete apprenticeship position as electrician or elderly care nurse. The willingness drops significantly from 79% to 59% and 50% in the case of a vocational training as electrician or elderly care nurse, respectively. Splitting the analysis by gender reveals that the drop in the willingness to invest into vocational training is particularly stark for women among which only 47% report to be willing to take up a training as electrician and only marginally more (55%) to take up a training position as elderly care nurse. The status of the asylum process does not seem to play a major role, at least not on average. Among men, 66% would take up a vocational training as electrician and 51% as elderly care nurse.

There may be several factors at play why refugees' willingness to take up a vocational training position significantly drops once confronted with a concrete offer. One obvious reason is that the sector or the occupation where skilled labor is short does not fit refugees' preferred job profiles. This might be true despite the fact that more than half (57%) of all refugees state to be willing to take any job and not insist in working in a specific occupation. In fact, digging deeper into refugees' ability and/or willingness to accept the conditions and to fulfil the activities and tasks required by jobs where skilled labor is short reveals some mismatch. More specifically, looking at the BiBB Employee Survey, a cross section of roughly 20'000 employees older than 15 years providing information on their job, reveals that 88% of all

⁹Given that over 90 per cent of our respondents plan their future in Germany, an investment in host-country skills would be sensical.

Figure 1: Difference between Self-reported Willingness and Predicted Willingness based on the DCE



NOTES: Questionnaire reports means for the survey question "Would you be willing to start a vocational training?" Elderly Care Taker and Electrician report the predicted means from individual FE regressions using data from the DCE.

electricians report to engage in fine craft and to continuously solve new problems, 79% report to work with a computer. When we compare this to the answers given by the participants in the ifm Refugee Survey on whether they are able and/or willing to fulfil these job requirements this mismatch becomes clear: Here, only 57% of the interviewed state to be able/willing to engage in fine craft, 64% to be able/willing to solve new problems and only 41% to work with a computer. A similar picture arises when looking at the occupation of an elderly care nurse. In the BiBB/BAuA Survey, 99% of all individuals working as an elderly care nurse say that they are communicating and care a lot for other people, and 90% report that their job is physically strenuous. Among the participants in the ifm Refugee Survey, only 65% state that they would be able/willing to talk a lot with people, 62% would be able willing to care for other people and only 42% would be able willing to work under physically strenuous jobs. In sum, the industries with excess demand do not seem to offer the working conditions where the majority of refugees would be able willing to work.

4.2 The Determinants underlying Refugees' Investment Decision – Results from the DCE

The pressing question is how to raise refugees' willingness to invest into vocational training. In what follows, we answer to which extent varying key features of the vocational training scheme - the opportunity costs, the financial returns and the design in terms of length and theoretical requirements - influences refugees' human capital investment decision. We discuss each of the features separately and end with a discussion to which extent offering refugees with a portfolio of alternative vocational training schemes would attract more of them into vocational training.

Table 4: Difference between Activities and Tasks reported in the BiBB/BAuA Survey and the self-reported ability or willingness by ifm Refugee Survey Participants

Top 3 Activities and Tasks	BiBB/BAuA Data	ifm Refugee Survey
Panel A: Electrician	% reporting to	% being able/willing to
... engage in fine craft	88 %	56 %
... solve new problems	88 %	63 %
... work with a computer	79 %	40 %
Panel B: Elderly Care Taker		
... communicate	99 %	64 %
... take care of people	99 %	61 %
... do physically strenuous work	90 %	41 %

NOTES: BiBB/BAuA Survey: roughly 20'000 employees older than 15 years providing information on their job, specifically which abilities are needed to fulfil the job characteristics. Contrasting this with the answers by the participants in the ifm Refugee Surveys when being asked whether they are able and/or willing to fulfil certain requirements.

Costs and Benefits

We first investigate the role of forgone wages and of post-training wages. Increasing the outside wage offer by 500 Euros (which is an increase in 50% of the baseline) does not alter the share of refugees deciding against vocational training on average. In fact, the opportunity costs do not seem to be a decisive factor for any refugee, no matter their sociodemographic background. In contrast, increasing the returns to investment by 600 Euros (about 45% of the baseline), increases the willingness to invest into host-country specific human capital by roughly 4 percentage points (which is an increase by 7.8%). In other words, refugees who decide in favour of vocational training do so even if the opportunity costs of doing so are higher. In contrast, refugees who under the baseline scenario decide against vocational training, can be drawn in by raising the returns to training.

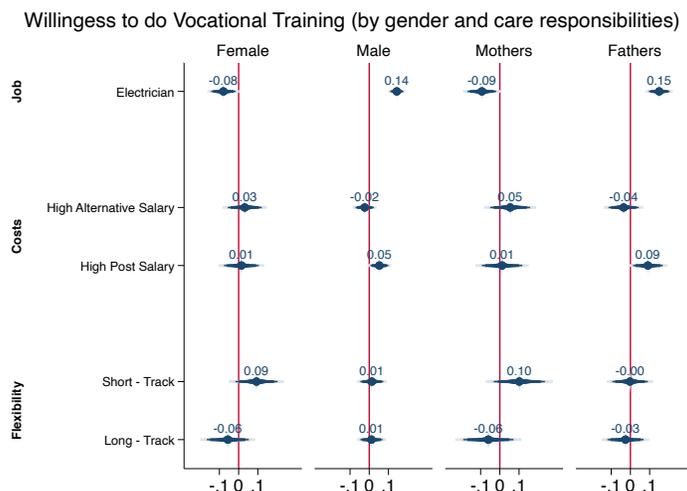
Investigating the effects on a subgroup level shows that financial returns to human capital investments matter particularly for male refugees – their willingness to take up a vocational training increases by 5.3 percentage points or 10.7% when being offered 600 Euros upon completing vocational training. In case of male refugees with children, the effect is even stronger, namely 9.1 percentage points or 18.1%. Further subgroups reacting strongly to the financial incentives are refugees granted asylum (6.6 percentage points or 13.7%) and refugees with a good command of the German language (11.0 percentage points or 22.8%).

Flexible Training Schemes

The length and the theoretical requirements likely represent severe barriers preventing refugees from investing into vocational training. Language difficulties may be a further obstacle to undertake host country-specific human capital investment. When analysing the results from our DCE on average, we do not find evidence in favour of these hypotheses.

Yet, subgroup analysis reveals that allowing for alternative training schemes attracts some refugees. Women are attracted by the short-track vocational training, which raises their odds to take up vocational training by 9.3 percentage points or 17.8%. The short-track option encourages also the more educated refugees (by 13.7 percentage points or 23%) and the refugees still awaiting their asylum decision (by 12.6

Figure 2: Difference between Gender and Care Responsibilities



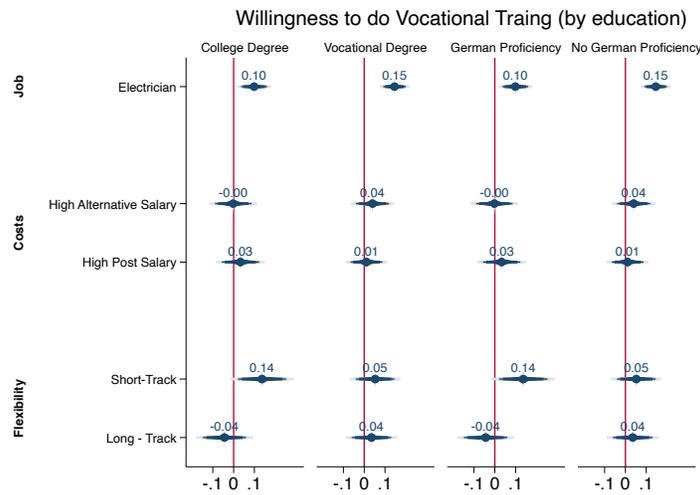
NOTES: Source: ifm Refugee Survey, own calculations; Column (1) shows FE estimation results when the sample is restricted to female participants (N = 583; constant = 0.521). Column (2) shows FE estimations results when the sample is restricted to only male participants (N = 1764; constant = 0.490). Column (3) shows FE estimations results when the sample is restricted to only mothers (N = 433; constant = 0.530) and Column (4) shows FE estimations results when the sample is restricted to only fathers (N = 703; constant = 0.466). *Electrician* denotes the choices for the vocational training in the setting where the vocational training leads to a degree as an electrician. *Higher Alternative Salary* equals to 1 if the wage in the unskilled job option increases from 1,000 Euro to 1,500 Euro. *Higher Salary After Training* equals to 1 if the returns to investment in the form of the wage after the vocational training increases from 1,300 Euro to 1,900 Euro. *Short-Track* equals to 1 if the type of vocational training in the DCE is the 2-year short-track version instead of the baseline 3-year standard training. *Long-Track* equals to 1 if the type of vocational training in the DCE is the 4-year long-track version instead of the baseline 3-year standard training.

percentage points or 24.6%).

Willingness to Invest in Case of Free Choice between Alternative Track Options

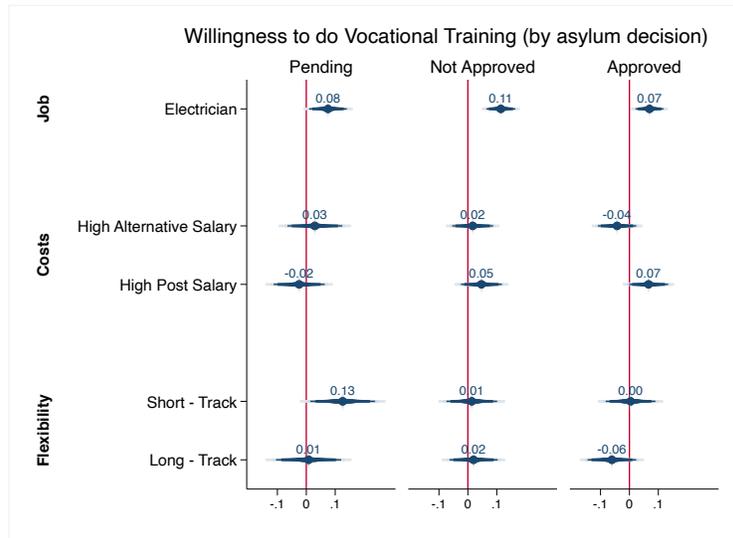
The results of the DCE allow us furthermore to make some predictions to what extent policy makers may be able to induce refugees to take up vocational training and thus to untap a potential pool of skilled labor. Specifically, we analyse refugees' willingness to invest into training when offered the standard three-year long training in contrast to their willingness when having the choice between the three alternative tracks, short-, standard- or long-track. The underlying idea here is to widen the range of training program types such that refugees can choose from a portfolio the option that suits them best. For this purpose, we predict first the willingness to do a vocational training if the participants would only have the standard option using the FE model. Then we repeat this exercise assuming that refugees would have all three potential options. As we can see in Figure 5, providing refugees with a choice between differently designed training programs raises their willingness on average by 6 percentage points or 10.5%. The leverage is, however, substantially larger in the case of women – among which 18 percentage points or 36.0% more would opt for vocational training. In the case of women with a prior educational degree or and language proficiency, the share being induced to participate in training is even higher: among women who have a college degree the share amounts to 34 percentage points or 103%, among those who completed previously

Figure 3: Difference between Education Levels



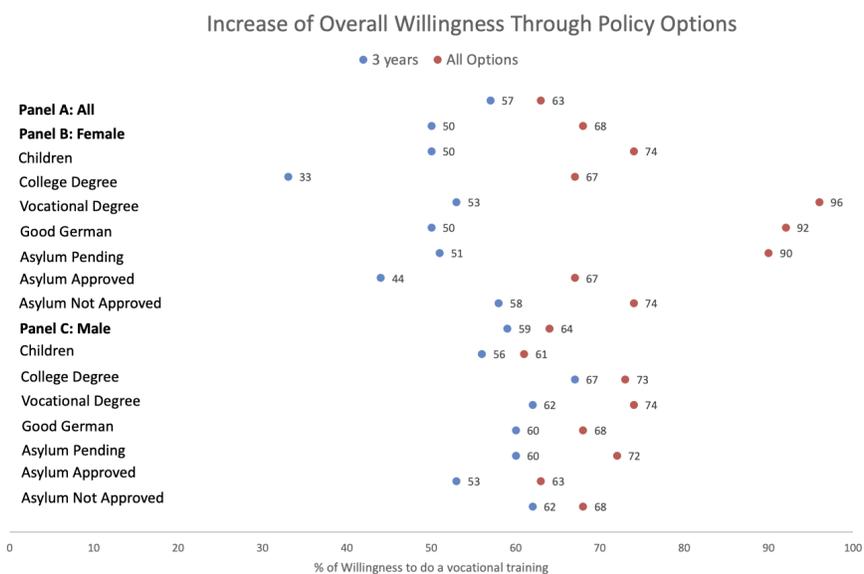
NOTES: Source: ifm Refugee Survey, own calculations; Column (1) shows FE estimation results when the sample is restricted to only college-educated participants ($N = 566$; constant = 0.498). Column (2) shows FE estimations results when the sample is restricted to only those participants with a vocational training ($N = 746$; constant = 0.509). Column (3) shows FE estimations results when the sample is restricted to participants without self-reported German proficiency ($N = 1,877$; constant = 0.507) and Column (4) shows FE estimations results when the sample is restricted to participants with self-reported German proficiency ($N = 488$; constant = 0.483). *Electrician* denotes the choices for the vocational training in the setting where the vocational training leads to a degree as an electrician. *Higher Alternative Salary* equals to 1 if the wage in the unskilled job option increases from 1,000 Euro to 1,500 Euro. *Higher Salary After Training* equals to 1 if the returns to investment in the form of the wage after the vocational training increases from 1,300 Euro to 1,900 Euro. *Short-Track* equals to 1 if the type of vocational training in the DCE is the 2-year short-track version instead of the baseline 3-year standard training. *Long-Track* equals to 1 if the type of vocational training in the DCE is the 4-year long-track version instead of the baseline 3-year standard training.

Figure 4: Difference between Legal Statuses



NOTES: Source: ifm Refugee Survey, own calculations; Column (1) shows FE estimation results when the sample is restricted to only those participants, whose asylum decision is still pending ($N = 478$; constant = 0.513). Column (2) shows FE estimations results when the sample is restricted to only those participants who got a positive asylum decision ($N = 859$; constant = 0.512). Column (3) shows FE estimations results when the sample is restricted to only those participants who got a negative asylum decision ($N = 970$; constant = 0.487). *Electrician* denotes the choices for the vocational training in the setting where the vocational training leads to a degree as an electrician. *Higher Alternative Salary* equals to 1 if the wage in the unskilled job option increases from 1,000 Euro to 1,500 Euro. *Higher Salary After Training* equals to 1 if the returns to investment in the form of the wage after the vocational training increases from 1,300 Euro to 1,900 Euro. *Short-Track* equals to 1 if the type of vocational training in the DCE is the 2-year short-track version instead of the baseline 3-year standard training. *Long-Track* equals to 1 if the type of vocational training in the DCE is the 4-year long-track version instead of the baseline 3-year standard training.

Figure 5: Willingness to Invest in a Standard Training versus When Offered a Portfolio



NOTES: Predicted means from FE regressions by subgroups if either there would be only the option of 3 years vocational training (blue) or the possibility of 2, 3 or 4 years of vocational training (red).

a vocational training it corresponds to 43 percentage points or 81%, and among those who are proficient in German to 42 percentage points or 84%. The latter results are particularly important, as women in general, and women with a migrant background in general, are still underrepresented in the labor market.

5 Conclusion

Effective and sustainable labor market integration constitutes a crucial aspect for the economic and social integration of refugees into host countries. Additional benefits accrue, if refugees can be motivated to invest into host-country specific skills allowing them to work in occupations with severe shortages of skilled labor. This study investigates refugees' willingness to invest in vocational training, an investment into host-country specific skills that opens doors to well-paid and stable employment. We do so by introducing a discrete choice experiment (DCE) into a large survey of recent refugees. The DCE confronts participants with the decision to either start vocational training or to work in an alternative unqualified job. This experimental approach stands in contrast to simple self-reports of one's own willingness to take up vocational training, as it allows to minimise social desirability, to mimic real market transactions, and to elicit the impact of changing the actual costs and benefits of investing into human capital.

Our study generates two important insights. Refugees' self-reported willingness to invest in vocational training decreases significantly when confronted with a realistic offer, specifically a job offer in a sector where skilled labor is short and where refugees face a realistic chance to find work. The relatively lower willingness to start a vocational training can be explained by an insufficient match between the skills and tasks required by the sectors with excess labor demand and the skills offered by refugees and their expectations under which conditions they would like to work. Second, changing the modalities, in particular the costs and the benefits of vocational training, increases only modestly refugees' willingness to invest in host-country specific human capital. Nevertheless, several subgroups may be substantially more likely to start a vocational training when being able to choose among a set of vocational training programs, in particularly educated women.

In summary, offering a larger variety of training schemes seems to be a promising way to increase refugees' willingness to start a vocational training. In particular, shorter and less complex vocational training programs have the potential to remove major obstacles preventing refugees from investing in host country-specific human capital. Yet, before drawing final conclusions how to successfully integrate refugees into the host country's labor market, we still need to understand the willingness of firms to consider refugees for vocational training. To understand the main barriers preventing firms from hiring refugees and how policies should be designed to improve the match between refugees and firms.

References

- ARENDT, J. N. (2020). Labor market effects of a work-first policy for refugees. *Journal of Population Economics*, pp. 1–28.
- AUMÜLLER, J. (2016). Arbeitsmarktintegration von Flüchtlingen: bestehende praxisansätze und weiterführende empfehlungen.
- BATTISTI, M., GIESING, Y. and LAURENTSYEVA, N. (2019). Can job search assistance improve the labour market integration of refugees? evidence from a field experiment. *Labour Economics*, **61**, 101745.
- BECKER, G. S. (1962). Investment in human capital: A theoretical analysis. *Journal of Political Economy*, **70** (5, Part 2), 9–49.
- BEVELANDER, P. (2016). Arbeitsmarktintegration von Flüchtlingen. *IZA World of Labor*.
- BRELL, C., DUSTMANN, C. and PRESTON, I. (2020). The labor market integration of refugee migrants in high-income countries.
- BRÜCKER, H., GLITZ, A., LERCHE, A. and ROMITI, A. (forthcoming). Occupational recognition and immigrant labor market outcomes. *Journal of Labor Economics*, **3**.
- BRÜCKER, H., CROISIER, J., KOSYAKOVA, Y., KRÖGER, H., PIETRANTUONO, G., N., R. and SCHUPP, J. (2019). Geflüchtete machen fortschritte bei sprache und beschäftigung. *IAB-Kurzbericht*, **3**.
- CARIA, S., KASY, M., QUINN, S., SHAMI, S., TEYTELBOYM, A. *et al.* (2020). An adaptive targeted field experiment: Job search assistance for refugees in jordan.
- DAMELANG, A. and KOSYAKOVA, Y. (2021). To work or to study? postmigration educational investments of adult refugees in germany—evidence from a choice experiment. *Research in Social Stratification and Mobility*, **73**, 100610.
- DIAMOND, P. A. and HAUSMAN, J. A. (1994). Contingent valuation: is some number better than no number? *Journal of economic perspectives*, **8** (4), 45–64.
- DULEEP, H. O. and REGETS, M. C. (1999). Immigrants and human-capital investment. *American Economic Review*, **89** (2), 186–191.
- DUSTMANN, C., FASANI, F., FRATTINI, T., MINALE, L. and SCHÖNBERG, U. (2017). On the economics and politics of refugee migration. *Economic Policy*, pp. 497–550.
- HAINMUELLER, J., HANGARTNER, D. and YAMAMOTO, T. (2015). Validating vignette and conjoint survey experiments against real-world behavior. *Proceedings of the National Academy of Sciences*, **112** (8), 2395–2400.
- HATTON, T. (2017). Refugees and asylum seekers, the crisis in europe and the future of policy. *Economic Policy*, **32** (91), 447–496.
- KAUTZ, T., HECKMAN, J. J., DIRIS, R., TER WEEL, B. and BORGHANS, L. (2014). Fostering and measuring skills: Improving cognitive and non-cognitive skills to promote lifetime success.

- MAS, A. and PALLAIS, A. (2017). Valuing alternative work arrangements. *American Economic Review*, **107** (12), 3722–59.
- OECD (2016). *Making integration work: Refugees and others in need of protection*. OECD Publishing.
- (2020). International migration outlook 2020. *OECD Publishing*.
- STATISTICSCANADA (2017). Education in canada: Key results from the 2016 census.
- TANIS, K. (2020). *Entwicklungen in der Wohnsituation Geflüchteter*. BAMF Kurzanalyse 05/2020.
- WOLTER, S. C. and RYAN, P. (2011). Apprenticeship. In *Handbook of the Economics of Education*, vol. 3, Elsevier, pp. 521–576.

Table A.1: Balancing tests regarding the randomly assigned attribute values

	Post-Training Salary	Alternative Salary	3 vs. 2 Year Training	3 vs. 4 Year Training
<i>Socio-economic Characteristics</i>				
Female	-0.006	-0.012	0.02	0.009
Under 25	-0.018	0.014	0.022	0
25-35	-0.022	0.013	0.03	-0.0261
35-45	0.049**	-0.013	-0.042**	0.012
Over 45	-0.009	-0.013	-0.013	0.013
Married	0.034*	-0.018	0.016	-0.01
Children	0.029*	-0.019	0.008	0.01
College Degree	0.008	-0.021	0.009	0.035*
Vocational Degree	0	-0.019	-0.018	-0.029
Willingness Further Education	0	-0.01	-0.023	0.007
Full-time Work	-0.003	-0.038	0.029	-0.049
Search for Vocation	-0.004	0.005	0.005	0.004
German Proficiency	0.01	-0.024*	-0.02	0.038**
Arrived after 2015	0.008	-0.003	0.004	0.003
<i>Legal Status</i>				
Asylum Decision Pending	-0.006	0.02	-0.017	0.016
Asylum Decision Approved	0.051**	-0.012	-0.021	0.038
<i>Origin</i>				
Origin Middleeast	-0.002	-0.02	-0.011	0.015
Origin Africa	-0.008	0.017	0.019	-0.03
<i>Region of Residence</i>				
Karlsruhe	-0.007	-0.02	0.027	-0.025
Stuttgart	0.024	0.012	0.023	0.007
Tuebingen	-0.001	-0.01	-0.015	0
Freiburg	-0.016	0.019	-0.035*	0.018

NOTES: The table shows the different means between participants who are assigned to the specific treatments and who are not; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$ shows if the differences are significantly different from one another.

Table A.2: Effects of Determinants of the Willingness of Vocational Training - Panel- OLS vs. FE

	(1) OLS (cluster)	(2) FE (cluster)
Jobs		
Electrician	0.0883*** (0.0153)	0.0881*** (0.0153)
Costs		
Higher Alternative Salary	-0.00370 (0.0204)	-0.00817 (0.0216)
Higher Salary after Training	0.00883 (0.0204)	0.0393* (0.0214)
Flexibility		
Short - Track	0.0105 (0.0248)	0.0335 (0.0269)
Long - Track	-0.0250 (0.0248)	-0.0163 (0.0262)
Constant	0.525*** (0.0255)	0.502*** (0.0243)
Observations	2369	2369
R^2	0.009	0.033

NOTES: Column (1) shows OLS estimation results with standard errors clustered on the individual level. Column (2) shows FE estimations. The dependent variable is equal to 1 if participants chose the vocational training over the unskilled job in the DCE. *Electrician* denotes the choices for the vocational training in the setting where the vocational training leads to a degree as an electrician. *Higher Alternative Salary* equals to 1 if the wage in the unskilled job option increases from 1,000 Euro to 1,500 Euro. *Higher Salary After Training* equals to 1 if the returns to investment in the form of the wage after the vocational training increases from 1,300 Euro to 1,900 Euro. *Short-Track* equals to 1 if the type of vocational training in the DCE is the 2-year short-track version instead of the baseline 3-year standard training. *Long-Track* equals to 1 if the type of vocational training in the DCE is the 4-year long-track version instead of the baseline 3-year standard training. Standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.01

Table A.3: Effects of Determinants of the Willingness of Vocational Training (by gender and care responsibilities)

	(1) female	(2) male	(3) mothers	(4) fathers
Jobs				
Electrician	-0.0794** (0.0322)	0.143*** (0.0171)	-0.0933** (0.0378)	0.150*** (0.0273)
Costs				
Higher Alternative Salary	0.0319 (0.0446)	-0.0236 (0.0242)	0.0539 (0.0523)	-0.0353 (0.0399)
Higher Salary after Training	0.0143 (0.0457)	0.0526** (0.0239)	0.0118 (0.0532)	0.0908** (0.0391)
Flexibility				
Short - Track	0.0927* (0.0555)	0.0135 (0.0303)	0.101 (0.0675)	-0.00213 (0.0466)
Long - Track	-0.0564 (0.0554)	0.0115 (0.0293)	-0.0598 (0.0663)	-0.0256 (0.0477)
Constant	0.521*** (0.0492)	0.490*** (0.0275)	0.530*** (0.0586)	0.466*** (0.0455)
Observations	583	1764	433	703
R^2	0.051	0.080	0.066	0.097

NOTES: Column (1) shows FE estimation results when the sample is restricted to female participants. Column (2) shows FE estimations results when the sample is restricted to only male participants. Column (3) shows FE estimations results when the sample is restricted to only mothers and Column (4) shows FE estimations results when the sample is restricted to only fathers. The dependent variable is equal to 1 if participants chose the vocational training over the unskilled job in the DCE. *Electrician* denotes the choices for the vocational training in the setting where the vocational training leads to a degree as an electrician. *Higher Alternative Salary* equals to 1 if the wage in the unskilled job option increases from 1,000 Euro to 1,500 Euro. *Higher Salary After Training* equals to 1 if the returns to investment in the form of the wage after the vocational training increases from 1,300 Euro to 1,900 Euro. *Short-Track* equals to 1 if the type of vocational training in the DCE is the 2-year short-track version instead of the baseline 3-year standard training. *Long-Track* equals to 1 if the type of vocational training in the DCE is the 4-year long-track version instead of the baseline 3-year standard training. Standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.01

Table A.4: Effects of Determinants of the Willingness of Vocational Training (by education)

	(1) college	(2) vocation	(3) bad German	(4) good German
Jobs				
Electrician	0.0985*** (0.0314)	0.146*** (0.0276)	0.0713*** (0.0172)	0.163*** (0.0337)
Costs				
Higher Alternative Salary	-0.00201 (0.0443)	0.0398 (0.0403)	-0.00301 (0.0241)	-0.0433 (0.0485)
Higher Salary after Training	0.0328 (0.0455)	0.0108 (0.0387)	0.0216 (0.0241)	0.110** (0.0472)
Flexibility				
Short - Track	0.137** (0.0589)	0.0526 (0.0471)	0.0408 (0.0296)	-0.00314 (0.0646)
Long - Track	-0.0441 (0.0526)	0.0351 (0.0481)	-0.00765 (0.0290)	-0.0503 (0.0609)
Constant	0.498*** (0.0503)	0.509*** (0.0431)	0.507*** (0.0270)	0.483*** (0.0564)
Observations	566	746	1877	488
R^2	0.074	0.079	0.022	0.111

NOTES: Column (1) shows FE estimation results when the sample is restricted to only college-educated participants. Column (2) shows FE estimations results when the sample is restricted to only those participants with a vocational training. Column (3) shows FE estimations results when the sample is restricted to participants without self-reported German proficiency and Column (4) shows FE estimations results when the sample is restricted to participants with self-reported German proficiency. The dependent variable is equal to 1 if participants chose the vocational training over the unskilled job in the DCE. *Electrician* denotes the choices for the vocational training in the setting where the vocational training leads to a degree as an electrician. *Higher Alternative Salary* equals to 1 if the wage in the unskilled job option increases from 1,000 Euro to 1,500 Euro. *Higher Salary After Training* equals to 1 if the returns to investment in the form of the wage after the vocational training increases from 1,300 Euro to 1,900 Euro. *Short-Track* equals to 1 if the type of vocational training in the DCE is the 2-year short-track version instead of the baseline 3-year standard training. *Long-Track* equals to 1 if the type of vocational training in the DCE is the 4-year long-track version instead of the baseline 3-year standard training. Standard errors in parentheses; * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table A.5: Effects of Determinants of the Willingness of Vocational Training (by decision)

	(1) pending	(2) approved	(3) not approved
Jobs			
Electrician	0.0751** (0.0329)	0.114*** (0.0254)	0.0693*** (0.0245)
Costs			
Higher Alternative Salary	0.0296 (0.0482)	0.0166 (0.0359)	-0.0429 (0.0338)
Higher Salary after Training	-0.0247 (0.0449)	0.0470 (0.0359)	0.0661* (0.0343)
Flexibility			
Short - Track	0.126** (0.0570)	0.0135 (0.0445)	0.00383 (0.0437)
Long - Track	0.00793 (0.0572)	0.0197 (0.0423)	-0.0608 (0.0428)
Constant	0.513*** (0.0571)	0.512*** (0.0386)	0.487*** (0.0389)
Observations	478	859	970
R^2	0.044	0.050	0.034

NOTES: Column (1) shows FE estimation results when the sample is restricted to only those participants, whose asylum decision is still pending. Column (2) shows FE estimations results when the sample is restricted to only those participants who got a positive asylum decision. Column (3) shows FE estimations results when the sample is restricted to only those participants who got a negative asylum decision. The dependent variable is equal to 1 if participants chose the vocational training over the unskilled job in the DCE. *Electrician* denotes the choices for the vocational training in the setting where the vocational training leads to a degree as an electrician. *Higher Alternative Salary* equals to 1 if the wage in the unskilled job option increases from 1,000 Euro to 1,500 Euro. *Higher Salary After Training* equals to 1 if the returns to investment in the form of the wage after the vocational training increases from 1,300 Euro to 1,900 Euro. *Short-Track* equals to 1 if the type of vocational training in the DCE is the 2-year short-track version instead of the baseline 3-year standard training. *Long-Track* equals to 1 if the type of vocational training in the DCE is the 4-year long-track version instead of the baseline 3-year standard training. Standard errors in parentheses; * p<0.1, ** p<0.05, *** p<0.01