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**LABOUR MARKET PROFILE, PREVIOUS
EMPLOYMENT AND ECONOMIC INTEGRATION
OF REFUGEES: AN AUSTRIAN CASE STUDY**

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Abstract

In 2015, large numbers of forced migrants crossed the borders to the European Union and the influx of new arrivals has led to the important question of implications for the host societies. This article assesses the labour market profile and previous employment of the recent inflows of displaced persons, mainly coming from Syria, Iraq and Afghanistan. Moreover, sectoral unemployment rates and trends in job openings in different economic branches in the host society are compared to the profiles of the refugee population. Analyses are based on two unique datasets on displaced persons in Austria: *DiPAS* (a social survey among asylum seekers) and competence checks (information on occupational and transferable skills). Results indicate that the labour supply provided by refugees' roughly corresponds to the labour demand in Austria. In terms of a potential impact on the Austrian labour market, this match might be regarded as favourable.

Keywords

Austria, displaced persons, labour market participation, skills.

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Labour Market Profile, Previous Employment and Economic Integration of Refugees: An Austrian Case Study

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1. Introduction

The Arab Spring in 2010 evolved into a situation of civil war in many countries in the Middle East and North Africa region, most notably in Libya, Iraq, Yemen, and Syria. The turmoil has led to waves of people seeking refuge from war, terror, and persecution away from home, on a scale unprecedented since World War II. While the majority of Syrian and Iraqi refugees were displaced within their home country or to neighbouring countries, e.g. Jordan, Lebanon, and Turkey, some have been making their way to Europe (Fargues 2015), with the total of forced migrants amounting to more than a million in 2015 as well as in 2016 (IOM 2016; Eurostat 2017a). Refugees from Middle Eastern countries have been joined by those of other nationalities, such as Eritreans and Afghans.

The constant influx of refugees has sparked concerns in many countries about the potential long-term impact on the economic, social, and ethno-cultural domains of host societies. In particular, researchers have raised questions regarding the challenges and opportunities of the new arrivals for the host societies (OECD 2017a; OECD 2016b; Ceritoglu et al. 2015; Del Carpio and Wagner 2015). Given the heavy inflows of Syrian, Iraqi and Afghan refugees, consequences for the labour markets of the receiving countries are increasingly being studied (Ceritoglu et al. 2015; Del Carpio and Wagner 2015; Worbs and Bund 2016; Ichou 2016). As concerns effects for a receiving society at large and in a long-term perspective, contributions of foreigners and refugees to national budgets and to countering an aging population are being addressed (Bonin 2016; Berger et al. 2016; Stähler 2017; Prettenthaler et al. 2017).

A comprehensive and sustained assessment of the refugee population is crucial for future integration efforts. Empirical data on refugees are scarce, especially concerning their human capital and employment experiences (Refugee Council of Australia 2010; Bloch 2004). For social sciences and policy makers alike, it is relevant to gain insights into the labour market profile of displaced persons and to compare it with the absorptive capacity of the host society. This study analyses migrants' previous employment patterns, more generally their human capital, and provides a comparison to unemployment rates and trends in job openings in different economic branches in the labour market of the host country. Empirical findings on professional qualifications and skills of displaced persons are based on two unique Austrian datasets: on the one hand, the *Displaced Persons in Austria*

Survey (DiPAS), which aims to uncover the characteristics of the forced migrants who arrived in Austria in 2015. On the other hand, competence checks, conducted by the Public Employment Service Austria (AMS 2016) to capture the actual competences of refugees.

2. Previous Literature

Effective participation of refugees and asylum seekers in the labour market of the host society is widely considered to be a key indicator for successful and sustainable integration (cf. UNHCR 2013; OECD 2016a). Refugees can make a substantial contribution by bringing in new skills, creating employment, and filling employment niches. However, in most countries refugees are faced with unique barriers that impede the successful and sustainable integration process and upon arrival immigrants usually earn lower wages than their native-born peers (Clark and Drinkwater 2008). In the USA, refugees who entered the country at ages 18-45 have higher labour market participation rates after 6 years of residence than natives. However, they never attain the earning levels of U.S.-born workers (Evans and Fitzgerald 2017). The specific employment challenges faced by forced migrants, a subgroup of immigrants that includes refugees, persons under subsidiary protection, asylum seekers, and internally displaced persons (IDPs), have been studied from a variety of disciplinary angles, including sociological and economic analysis (Cortes 2004; Zetter, Griffiths and Sigona 2005; Bloch and Schuster 2002). Previous literature has identified various factors that can influence the integration of refugees in host labour markets. These can be distinguished into personal and environmental factors.

On one side, the integration success widely depends on the refugees' personal characteristics, in particular their human capital, such as their skills, competencies, employment profiles, qualifications, previous labour market experiences, and health. Although many migrants suffer from a devaluation of their qualifications and downward occupational mobility, studies have convincingly shown that refugees' educational and professional background are important determinants for a successful participation in the host labour market (Friedberg 2000; Cebulla, Daniel and Zurawan 2010; Refugee Council of Australia 2010; AMS 2016; Connor 2010; Clark and Drinkwater 2008). In particular, the national origin of an individual's human capital is a crucial determinant of its value and the success on the domestic labour market. In this regard, not only the quality of the human capital, but also its compatibility with the host labour market is crucial. For instance, host country-specific education, work experience, language proficiency, and contact with natives positively correlate with the chances of employment and occupational status (De Vroome and Van Tubergen 2010; Berman, Lang and Siniver 2003). At the same time, there must be a demand on the local labour markets for the specific human capital provided (Borjas 2003; Bevelander and Lundh 2007).

While refugees' personal characteristics are important, it is necessary to also consider the conditions of the labour markets to fully understand the integration process. These can act as both impediments and opportunities to the specific human capital of the refugee population. Among all environmental conditions, studies have emphasized the role of the

absorptive capacity of the local labour market, i.e. its ability to provide decent employment for the newly arrived (Bevelander and Lundh 2007; Glitz 2012; Desiderio 2016; Berman, Lang and Siniver 2003; Clemens and Hunt 2017). The absorptive capacity is affected by workforce supply and demand, dynamics and long-term trends of the labour market as well as other macroeconomic influences (Aiyar et al. 2016; Bonin 2016; Holler and Schuster 2016; Cully 2012).

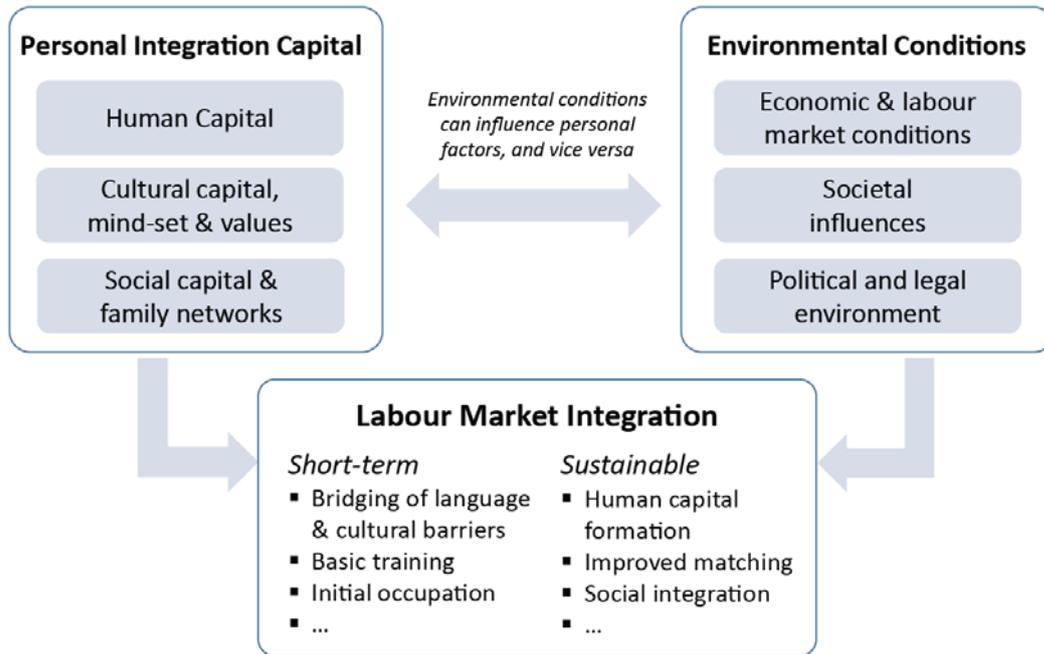
Furthermore, legal entry barriers as well as employers' willingness to employ refugees need to be considered in this context (Green and Worswick 2012). Access to the labour market is highly restricted for asylum seekers in most European countries (Shisheva, Christie and Mulvey 2013); at the same time, refugees who have officially been granted asylum status under the Geneva Convention and who enter the workforce in a European country have a higher likelihood of being overqualified for the positions they work in (Rosenberger and König 2012; UNHCR 2013; Kirilova et al. 2016). Often, local labour markets place relatively little value on the years of schooling and work experience accumulated by immigrants prior to their arrival (Ferrer and Riddell 2008). Mere employment numbers of refugees do not sufficiently reflect integration success or failure with regard to specific nationalities of the respective populations. In contrast, sustainable integration entails the formation and development of human capital, acculturation in terms of attitudes and values and equal chances employment (Röder and Mühlau 2014).

The evidence of previous studies suggests that, both characteristics of the new entrants as well as the conditions of the labour market are important. In this paper, we argue that it is crucial to analyse both sides, labour demand and supply, simultaneously and to also consider potential complementarities and interactions. Only such a holistic perspective makes it possible to fully understand how refugee movements can affect labour markets and to identify the barriers which impede the successful integration of refugees. Moreover, up until now, the question of how specific qualifications and characteristics of refugees can contribute to the labour supply in the host labour markets has mostly been unaddressed.

3. Conceptual Framework

Based on previous literature, we developed a conceptual framework, which emphasizes both the role of refugees' personal characteristics, which we refer to as *personal integration capital*, and the *environmental conditions* in the host country with a focus on the economic situation on the labour market. Accordingly, in our framework, we differentiate between 'personal integration capital' and 'environmental conditions' (Figure 1).

Figure 1: Conceptual Framework



Source: Own illustration

As concerns ‘personal integration capital’, a major factor is the aforementioned human capital, both general and specific (Friedberg 2000). In this study, we consider refugees’ educational background, qualification, labour market experiences, and language skills. In a wider sense, the factor of human capital also includes mental and physical health and personal well-being. In addition to human capital, personal integration factors also include mind-set and values, which involve personal motivation (Campbell 2014), entrepreneurial spirit (Refugee Council of Australia 2010; Bock-Schappelwein and Huber 2016), and cultural values (Hall and Zoega 2014; Antecol 2001). Thirdly, personal integration capital includes a person’s social contacts and networks, such as family context (including prospects for family reunification), informal networks, neighbourhoods, contact to autochthonous population, and new ethnic communities in the host society (Zorlu and Hartog 2015; Munshi 2003). In line with this multi-dimensional model of integration, studies suggest that integration efforts need to be customized because migrant populations are increasingly diverse in terms of family context, education, professional qualifications, and nationalities (Worbs and Bund 2016; Berger et al. 2016).

The second main dimension influencing labour market integration outcomes are external or environmental conditions and integration factors. These include, first and foremost, economic factors, such as the above mentioned absorptive capacity of the host society’s labour market (Berger et al. 2016). In addition to labour market concerns, broader societal factors are relevant for integration success or failure, such as the host society’s willingness to welcome and grant partial or full labour market access to persecuted

foreigners, or the implementation of mandatory integration policies for promoting refugees' civic skills (Goodman, Wright and Wright 2015). Studies have shown that discriminatory attitudes hinder a fast and successful integration of refugees and persons under subsidiary protection (Bock-Schappelwein and Huber 2016; Worbs and Bund 2016; Berger et al. 2016). Finally, the actual legal and political environment of the host country, including aspects of the asylum seeking process and indicators of social peace and security, play a significant role for integration efforts (Bloemraad, Korteweg and Yurdakul 2008; Janoski 2010).

In our empirical analysis, we link the two central dimensions of integration, the personal and the environmental one. For the former, the main focus will be on human capital, while the remaining two factors for a refugee's personal integration capital (cultural and social capital as suggested by attitudes and values, and family and social ties respectively) will only be mentioned in passing. Paralleling the analytical emphasis on the first layer of personal integration capital, we will mainly examine labour market conditions in the host society as the key aspect for the environmental dimension of integration, while aspects of societal influences and legal or political environment will not be addressed in this paper.

Accordingly, we aim to match factors of personal integration capital in terms of respondents' educational attainment and professional qualification (as suggested by the data collected in the *DiPAS* sample and the AMS competence checks) with an overview and analysis of external labour market factors present in the host society of Austria. Beyond its relevance as a unique case study, this analysis exceeds the studied context and is applicable to other European and Western countries. As one of the EU states most heavily affected by the refugee influx from Syria, Iraq and Afghanistan in summer and fall 2015, Austria is particularly challenged to provide both fast and sustainable integration to asylum-seeking persons. In addition, Austria's labour market can serve as an example for labour trends and dynamics in the larger EU context. In addition to the analytical work, we aim to offer first insights on potential policy measures for labour market integration efforts of forced migrants.

4. Country-Specific Context

4.1. Forced Migration to Austria

Historically, conflicts and instabilities in neighbouring countries have led to peaks in refugees and asylum seekers in the 20th century in Austria. In the new millennium, the country increasingly witnessed inflows of asylum seekers due to wars and armed conflicts in the Middle East and in Asia (Figure A1 in the Appendix). In 2015, the vast majority of persons seeking refuge in Europe aimed to apply for asylum in Germany (which received almost half a million asylum applications in 2015 (BAMF 2016), and a substantial share also came to Austria in that year. Roughly 88,000 individuals applied for asylum in Austria (BMI 2016), making the country the 4th biggest receiver of asylum seekers in that year (Eurostat 2016), and corresponding to about 1% of the Austrian population. This figure is significantly lower compared to countries like Lebanon or Jordan, where refugees comprise substantially larger proportions of the population.

Despite the high inflow of displaced persons in 2015 and 2016, positive asylum decisions comprise a low share of immigration: Among the 113,100 migrants who came to Austria in 2015 (net migration), a total of 19,000 persons were refugees or persons under subsidiary protection, amounting to a share of 17% (BMI 2016; Statistics Austria 2016a). In 2016, the number of persons who were granted asylum was 22,307¹, whereas in previous years, figures were substantially lower (2014: 11,535; 2013: 4,133). Nevertheless, migration to Austria is substantial: In 2016, 18% of the residing population did not have Austrian citizenship at birth, with Germans representing the largest group of these, followed by Serbian, Turkish and Bosnian-Herzegovinian citizens (Statistics Austria 2016b).

4.2. The Austrian Labour Market

With a GDP amounting to 50,109 US\$ per capita in 2015 and 50,688 US\$ in 2016, Austria was clearly above the EU-28 average of 38,712 US\$ and 39,633 US\$, respectively, and was performing slightly better compared to its large and important neighbour Germany (48,170 US\$ in 2015 and 48,989 US\$ in 2016) (OECD 2017b). In 2016, the potential labour force² in Austria was about 4 million persons, composed of roughly 3.6 million employed persons and 425,000 without a job³. The number of employment relationships saw a slight increase (+1.5%) compared to the previous year (AMS 2017b). The growth of the potential labour force in Austria is the result of a higher participation rate of women in the labour market,

¹ Most of these persons arrived in Austria and filed their asylum applications in 2015 or earlier, given the time needed for processing the applications.

² i.e. the sum of persons being registered as unemployed and the persons being employed, not including self-employed persons.

³ In 2016, the number of unemployed persons in Austria in the yearly average amounted to about 357,313 individuals (+0.8% in comparison to 2015). If training participants are added to the registered unemployed, a total of 424,523 persons were without a job (+1.2%).

the fact that elderly persons have to remain in the labour market for a longer period of time, and as the main cause during the last years, immigration. Nearly three out of four (not self-)employed have a job in the following branches: manufacturing; public administration, defence and compulsory social security; wholesale and retail trade, repair of motor vehicles and motorcycles; human health and social work activities; construction; accommodation and food service activities; administrative and support service activities (especially personnel leasing) (BMASK 2017).

In 2016, the unemployment rate of 6.0% remained significantly below the EU-28 average (8.6%) (Eurostat 2017b). Compared with the other EU member states, Austria ranks fifth among 28 member states (together with the Netherlands and Romania) behind the Czech Republic, Germany, Malta and the United Kingdom. Although the unemployment rate of women was lower than that of men, the overall labour market situation of women (e.g. participation rate, employment situation, etc.) developed less favourably than that of men in 2016. Unemployment among young persons (15-24 year olds) was comparatively low in Austria in 2016 (AMS 2017b). Overall, about 14% of employees worked in economic sectors with a high seasonal component, namely agriculture, forestry and fishing, construction, accommodation and food service activities. These branches showed unemployment rates above the average in 2016.

Despite pessimistic forecasts for the labour market at the beginning of 2016 (AMS 2017b), the economic situation turned out to be more stable than expected. This development was caused by an economic situation more favourable than originally anticipated, and the fact that due to the length of the asylum-seeking process, fewer persons seeking asylum or subsidiary protection got their residence permits in order to receive access to the Austrian labour market.

As in other countries, foreign citizens in Austria display markedly less stable employment patterns and face a significantly higher risk of unemployment compared to native citizens (Kogan 2004; Algan et al. 2010). The proportion of non-Austrian citizens across all registered unemployed ranked at around 28% in 2016 (Huber, Horvath and Bock-Schappelwein 2017). In 2016, 25,027 recognized refugees and persons under subsidiary protection⁴ were registered as unemployed, corresponding to 6.0% of all registered unemployed in the country (AMS 2017a).

⁴ Regarding refugees and persons under subsidiary protection, it has to be mentioned that both have free access to the Austrian labour market once their application is successful. The Public Employment Service helps them to find a job, join qualification measures and receive support through career counselling. Asylum seekers, on the other hand, only gain access to the Austrian labour market under certain circumstances (for instance in order to work in special branches like agriculture and tourism three months after the asylum procedure has started).

5. Data and Methods

For studying personal integration capital, two recent data sources were crucial for our empirical analyses, namely the *Displaced Persons in Austria Survey (DiPAS)* and data stemming from competence checks by the Public Employment Service in Austria (AMS). In addition, recent findings on refugees in Germany and Austria were consulted (Brücker et al. 2016; Mitterndorfer 2017).

DiPAS, the first social survey in Europe focusing on the inflows of displaced persons in 2015, was carried out in November and December 2015. Using computer-assisted personal interviewing (CAPI) techniques, with interview languages being Arabic, Farsi/Dari and English, information on respondents, their spouses and children were collected, with a focus on human capital, values and attitudes of displaced persons (Kohlenberger et al. 2017). This paper uses information on 634 adults residing in Austria at the time of the interview. For specific analyses, information on 140 further persons (partners and adult children living abroad) is included (Table A1 in the Appendix). *DiPAS* respondents are mainly from Iraq and Syria (38% and 36% respectively), fewer from Afghanistan (16%) or other countries (10%).

By February 2017, approximately 6,000 refugees or persons under subsidiary protection had participated in competence checks. A competence check takes up to five weeks and includes several six-hour biographical interviews conducted by native-language trainers in Arabic, Farsi, and other languages. Due to partly missing variables, the current study is based on 4,312 participants residing in Vienna (Table A2). Among them, roughly two thirds arrived in Austria in 2014 or later, about a quarter between 2011 and 2013, the rest earlier or at an unspecified date (10%). Four in five had Iraqi, Syrian or Afghan nationality (Table A2).

For environmental conditions, data on the Austrian labour market were studied. These are on the one hand unemployment rates and total numbers of unemployed persons, and on the other hand job openings. The Public Employment Service Austria (AMS) provides monthly and annual statistics on job openings which are reported by private companies and official institutions. It has to be underlined, that job openings are a rough, but valuable information on labour demand, though they do not include vacancies which are filled directly by companies without official job adverts.

In a first step, previous labour market experience of displaced persons in their countries of origin was analysed, including labour market participation, occupational status, self-employment and previous occupation. In a second step, the absorptive potential of the host society's labour market is studied in terms of sectoral unemployment rates (using NACE⁵), as well as unemployed persons and job openings by occupations for the period 2007-2016. For analysing unemployment, we focused on occupations instead of economic branches

⁵ NACE, the Statistical classification of economic activities in the European Community, is abbreviated from the French: Nomenclature statistique des activités économiques dans la Communauté européenne.

(i.e. NACE), as the former are actually more meaningful in the context of skills and experiences.⁶ Third, unemployment and job openings in different occupations in Austria were compared to the profiles of the surveyed refugee population. Finally, educational attainment – an aspect crucial for work and employment in the host country – is also explored. Apart from multivariate probit regressions on participation in the labour market prior to arriving in Austria, descriptive methods are applied.

6. Results

6.1. Previous Labour Market Participation of Displaced Persons

First, evidence from four different data sources of displaced persons arriving in Austria and Germany during the last years reveals that the overwhelming majority of men had previously participated in the labour market (81%-92%), which was less often the case among women (48%-69%) (Table 1). The fact that the descriptive results stemming from four independent data sources are very similar (partly comprising samples of a total subpopulation⁷) supports the empirical evidence of a high previous labour market participation of male forced migrants and substantial gender differences. Numbers based on competence checks are higher, especially among women: Whereas three independent data sources (*DiPAS*; asylum seekers in Salzburg; German refugees) suggest that about 50% of female forced migrants were previously participating in the labour market (48%; 50% and 51% respectively, Table 1), previous participation was higher among women participating in competence checks (69%). Presumably, women previously engaged in paid work were more likely to participate in competence checks compared to those who were never active on the labour market at all. Since competence checks are intended as a labour market integration measure at AMS, the sample does not contain persons outside of the labour force (e.g. mothers caring for children, etc.). This renders a measurable positive selection effect of female participants with previous employment experience plausible.

⁶ It is not possible to calculate unemployment rates for occupations as data on employed persons by occupations is not available. Instead, the total number of unemployed persons by occupations and distribution across occupations are analysed.

⁷ Participation rate in the survey in Salzburg, one of the nine Austrian Federal states, amounted to 94% (Mitterndorfer 2017). Such a high participation rate is close to a total and can be regarded almost as a total survey.

Table 1: Labour market participation of displaced persons in Austria and Germany prior to coming to the host country

	Men	Women	Total
Asylum seekers in/around Vienna arriving in 2015 (Austria)	90%	51%	80%
Refugees participating in competence checks (Austria)	92%	69%	88%
Asylum seekers in Salzburg by March 2016 (Austria)	81%	48%	74%
Refugees arriving 2013-2016 (IAB-BAMF-SOEP-Survey), (Germany)	81%	50%	73%

Sources: *DiPAS* (n=514); AMS competence checks (n=4,312); Mitterndorfer (2017) for asylum seekers in Salzburg (n=3,392); Brücker et al. (2016) for Germany (n=2,349)

The large sample of competence checks allows a differentiation by education and citizenship, which reveals some variation among men and remarkable differences by education among women (Table 2): Very low education (ISCED 0) is associated with a substantially lower share of previous employment among women; One in two low-educated women (ISCED 0) had ever participated in the labour market, as compared to nine in ten females with higher education (ISCED 4-6). Women from Afghanistan had much less often been active on the labour market than their peers from other countries.

Table 2: Previous labour market participation of refugees participating in competence checks in Austria, by demographic characteristics

		Men	Women
Citizenship	Iraq	94%	77%
	Syria	94%	70%
	Afghanistan	90%	53%
	Other	88%	75%
Education	ISCED 0	91%	49%
	ISCED 1	96%	54%
	ISCED 2	91%	63%
	ISCED 3	91%	65%
	ISCED 4-6	94%	92%
Age	Below 25	79%	40%
	25-29	90%	54%
	30-39	97%	74%
	40+	98%	78%
Total		92%	69%

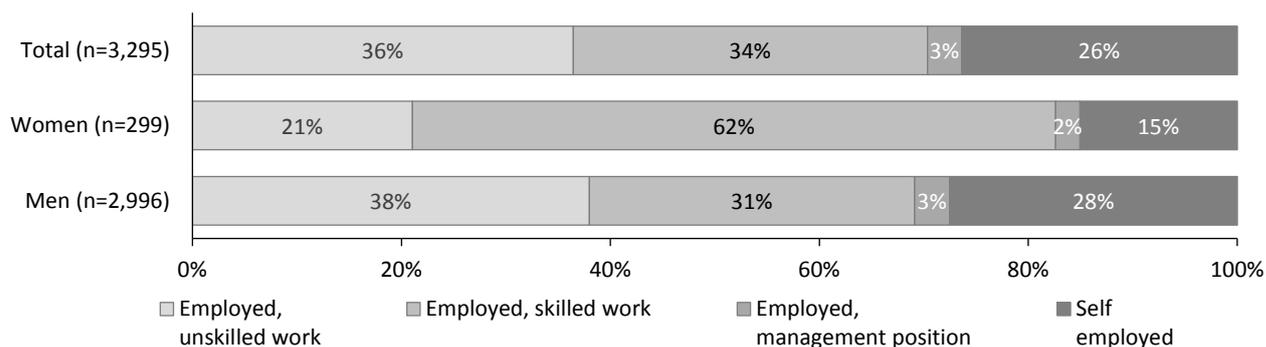
Source: AMS competence checks, 4,312 persons.

As expected, multivariate analyses indicate that – apart from gender – age is a particularly crucial factor for previous labour market experience (Table A3): with increasing

age, the share of men and women with previous labour market experience increased. Education is significantly associated with previous labour market experience among women only: Females with completed upper secondary education, and especially those with post-secondary education, more often reported previous employment than their lower educated peers. For men, education is less crucial. Citizenship turns out to be relevant to a lesser extent. In the multivariate framework, Iraqis and Syrians do not differ significantly regarding previous employment. Results for Afghans are ambivalent in the sense that participants in competence checks reported previous employment significantly less often compared to those interviewed in *DiPAS*. The same holds for Afghan women, although estimated coefficients are not significant. In addition, (mainly female) spouses left behind had been active on the labour market less often in comparison with the refugee population arriving in Austria in 2015 (Table A3).

Second, in terms of last occupational status in the country of origin, almost four out of ten men were working in unskilled positions (38%), three out of ten in skilled positions (31%), few had a management position (3%) and a substantial proportion of men were previously self-employed (28%) (Figure 2). Among women, the occupational profile was different: The majority had worked in skilled positions (62%), fewer in unskilled (21%). Management positions were rarely reported (2%) and self-employment was less frequent among women (15%). These numbers are derived from participants in competence checks. Although the share of self-employed among those ever participating in the labour market varied within the two Austrian data sources (AMS competence checks: 26%; *DiPAS*: 44%), the results indicate that forced migrants' previous activity in the labour market was frequently in the form of self-employment.

Figure 2: Last occupational status in the country of origin of refugees ever participating in the labour market who participated in competence checks, by gender



Source: AMS competence checks; 3,324 persons (excluding those whose last occupational status was "pupil or student", "family care" or "seeking a job").

Educational attainment was strongly related to employment status: Unskilled positions were frequent among low-educated, skilled or management positions among higher-educated refugees.⁸ In addition, self-employment strongly correlated with education, the

⁸ The majority of persons with low education (ISCED 0 and 1) worked in unskilled positions (47%

share of self-employed decreasing with higher educational levels. Differentiation by nationality reveals substantial heterogeneity in terms of previous occupational status: Afghans were mostly employed in unskilled labour (46%), few in skilled jobs (17%) and management positions (0%). On the contrary, previous employment patterns of persons from Iraq, Syria and other countries are much more homogenous, with slightly more persons having been employed in a skilled position than in an unskilled one (Table A4).

The third focus was placed on previous occupations. A combination of the two data sources (*DiPAS* and competence checks) reveals that occupations⁹ located within the category 'retail, logistics' were frequent (22%), followed by 'construction' (13%) and 'office, finance' (10%) (Table A5).¹⁰

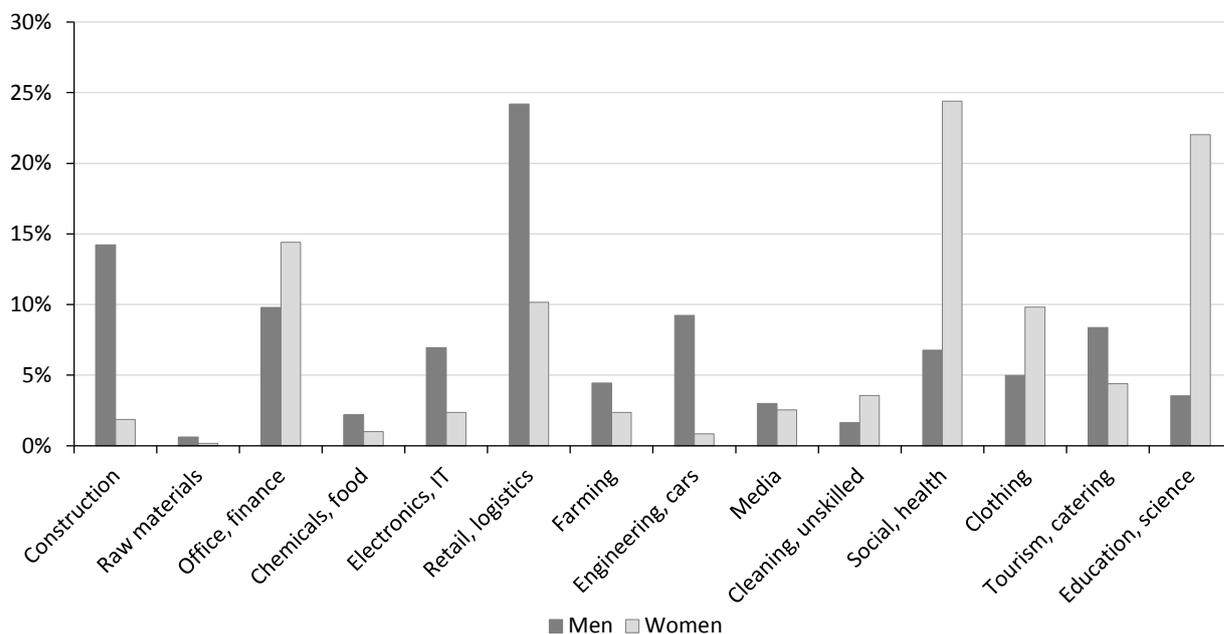
As expected, gender differences were substantial (Figure 3). Whereas men were mostly occupied in 'retail, logistics' (24%) as well as 'construction' (14%), women peaked at 'social, health' (24%) as well as 'education, science' (22%). For the latter category in particular, educational levels of female respondents must overall be higher than average, including post-secondary and academic degrees for teaching and nursing jobs. This corresponds to the overall finding that the educational attainment correlates positively with previous work experience, especially for women in the two samples.

and 48%) and only few were working in skilled positions (7% and 13%). Among persons with completed upper secondary education (ISCED 3), about the same proportions were previously employed in skilled (32%) and unskilled (30%) positions. Higher educated individuals (ISCED 4-6) predominantly worked in skilled positions (59%) or had management positions (6%).

⁹ For better readability, full names of occupational groups are hereafter abbreviated (see Table A8).

¹⁰ Although the distribution across occupational groups and gender was rather similar in the two Austrian data sources *DiPAS* and *AMS*, some differences can be identified, mainly in the categories occupied by women: The share of women previously employed in 'social, health' as well as in 'education, science' was higher in *DiPAS* than in the competence checks (difference of 12, resp. 8 per cent points). The main reason for these differences is that the two data sources comprise persons coming to Austria at different periods of time. Even though the distribution within groups of persons coming from the same country of origin have not changed much, there are strong differences between countries.

Figure 3: Previous occupation of displaced persons, by gender



Source: *DiPAS* and AMS competence checks; n=4,301 persons (3,711 men and 590 women).

Apart from previous economic activity and occupation, *DiPAS*-respondents were asked about their plans, intentions and expectations for life in Austria, including possible plans for employment or further education (school, university, college). The majority intended to (directly) access the labour market and search for work, but younger respondents predominantly planned to continue or complete their education (15-19 years: 71%; 20-24 years: 46% (results available on request)).

6.2. Labour Demand in Austria

Analysis of the absorptive potential of the host society in terms of unemployment on the one hand and job openings on the one hand, is an approach to quantify labour demand and supply. To this end, the labour market situation in Austria in different economic sectors was investigated.

In 2016, the unemployment rate in the EU-28 was 8.6%, while the rate for Austria was 6.0% and thus below average. During the previous ten years, unemployment increased in EU-28 as well as in Austria, from 7.2% and 4.9% respectively in 2007, with substantial variation during this period (Eurostat 2017b). In parallel to the unemployment rate calculated according to the guidelines of the International Labour Office, Austria's economy traditionally uses a national unemployment rate which is based on the number of officially registered unemployed persons.¹¹ Thereafter, the national unemployment rate amounted

¹¹ While the 'national' method is based on the number of officially registered unemployed persons,

to 9.1% in 2016 (Table A6). Rates in the NACE branches of manufacturing (5.0%), public administration, defence and compulsory social security (2.2%) as well as wholesale and retail trade, repair of motor vehicles and motorcycles (8.9%) were below average, whereas persons working in the branches of human health and social work activities (9.6%), construction (12.3%), accommodation and food service activities (17.7%), as well as administrative and support service activities (24.3%) were at a higher risk of having no paid work (see Table A6 for unemployment rates by NACE branches in the time period 2008-2016).

As mentioned above, analysis of unemployed persons by occupations is crucial in the context of skills and experiences. The annual average of unemployed persons in Austria increased from 275,000 in 2007 to 357,000 in 2016 (Figure A2). Apart from fluctuations in unemployment in branches that are more strongly influenced by overall economic cycles (e.g. construction and engineering), it is worth mentioning that the number of unemployed previously working in cleaning, housekeeping, unskilled and semi-skilled occupations has increased remarkably during the last ten years (from 54,000 in 2007 to 82,000 in 2016) and the increase was much stronger than in other branches (Figure A2).

For the distribution of unemployed persons across occupations in 2016 it turns out that 'cleaning and unskilled jobs' comprised the largest group (23%), followed by 'retail, logistics' (16%), 'tourism, catering' (13%), 'office, finance' (13%) and 'construction' (11%) (Figure A3). Occupations in the fields of 'engineering, cars' (6%), 'social, health' (6%), 'chemicals, food' (3%), 'education, science' (3%), 'media' (2%), 'farming' (2%), 'electronics, IT' (2%), 'clothing' (1%) and 'raw materials' (0%) comprised smaller shares (Figure A3). The distribution of unemployed persons across occupations varies substantially by gender: Unemployed men had more often worked in occupations related to 'construction' and 'engineering, cars' before losing their job than women, while women had more often worked in 'office, finance', 'social, health' as well as 'tourism, catering' related occupations before getting unemployed than men (Table A7).

Considering job openings in Austria during the last ten years, several useful insights can be drawn: The majority of job openings were either related to occupations in 'engineering, cars', 'tourism, catering' or 'retail, logistics', comprising 17%, 16% and 16% respectively in 2016 (Figure A4). However, many jobs in 'engineering, cars' are industry related and thus – like jobs in 'construction' – affected by economic shocks. In fact, job openings in 'engineering and cars' saw a substantial decrease during the economic and fiscal crisis in 2008 (Figure A4). Other sectors were stable or slightly growing. For instance, job openings in the areas of 'office, finance', 'tourism, catering' as well as 'education, science' were slowly increasing. Hence it can be assumed that besides the producing industries, the Austrian labour market can more easily absorb an influx of additional labour supply in these occupational fields.

the international method is based on surveys. In contrast to the Austrian methods, persons that are working more than 1 hour a week are not counted as unemployed. These differences in measurement lead to a situation where the 'national' unemployment rates are always higher than the international values.

6.3. Comparison of Labour Demand in Austria and Previous Occupations of Displaced Persons

Comparing current job openings to the occupational profiles of the surveyed refugee population reveals a rough match of distributions (Figure 4). A considerable share of refugees – more than one in five – previously worked in occupations related to ‘retail, logistics’. On the Austrian labour market, these occupations comprised a substantial proportion of job openings in 2016 (16%). About one in eight displaced persons were previously working in ‘construction’ and job openings in this domain were at a comparable level in the host country (9%).

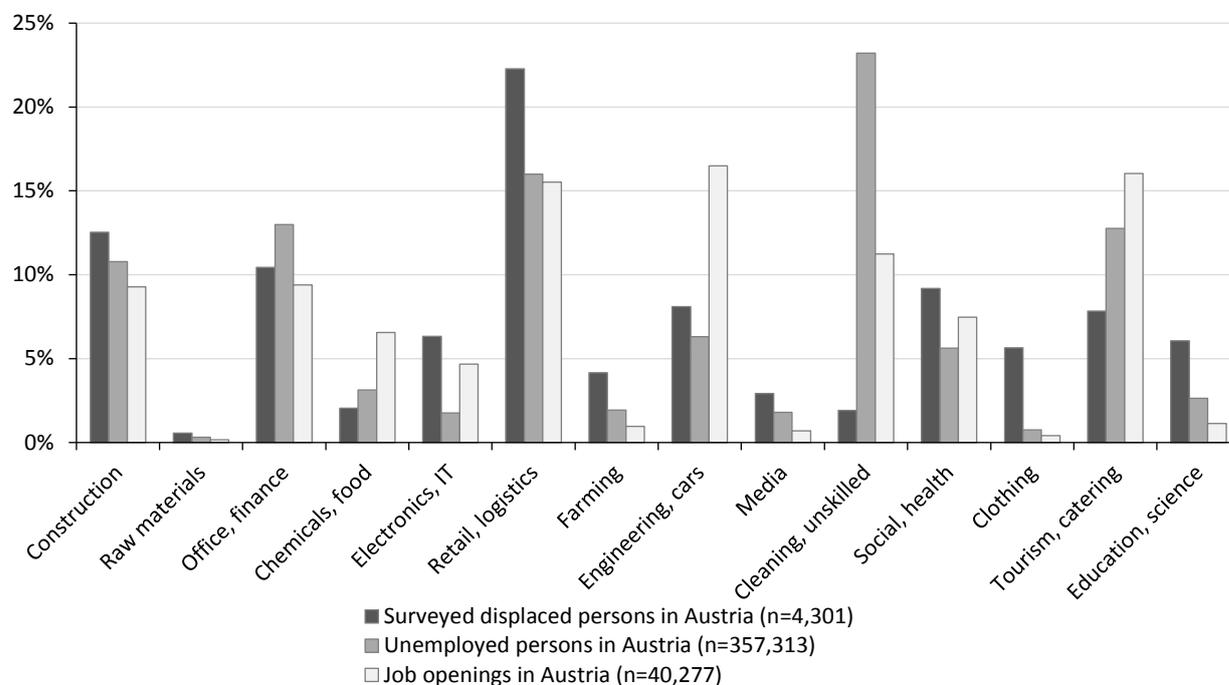
Few refugees previously worked in ‘cleaning, unskilled’ occupations, which is in line with their comparably high education. Even though these jobs constitute a rather big share of job opportunities, these also form the vast majority of the unemployed in Austria (nearly one in four), as the demand for unskilled labour in Austria has constantly been decreasing over time. On the other hand, this job group is one of few, where high-level language skills are of less importance. Thus, work in ‘cleaning, unskilled’ related occupations might be offered to refugees more often than to others – at least during settling-in periods.

Overall, results reveal that the labour supply provided by the displaced persons (interviewed in *DiPAS* and the competence checks) roughly corresponds to the labour demand in Austria for most job categories. In terms of impact for the Austrian labour market, this match might be regarded as favourable.

For instance, the highest number of job openings are related to occupations in ‘engineering, cars’, which is tightly associated with the NACE economic sector ‘manufacturing’ (C) (i.e. many actual jobs for this occupational group will be attributed to this sector, such as car mechanics or metalworkers). As the economic sector which employs the most persons in Austria (17% in 2016 – see table A10), ‘manufacturing’ has rather low unemployment rates (see Table A6) and consistently offers solid employment opportunities.

However, even the mostly favourable match between job openings and refugees’ previous occupations like in the professional groups ‘construction’ or ‘retail, logistics’ should be evaluated with caution, as a considerable number of unemployed in Austria previously worked in these professions. Though unemployment rates in the associated economic sectors (NACE) are relatively high, the main reason for high unemployment in the sector ‘construction’ (F) is the strong seasonal unemployment in this sector with 12%. Similarly, one in eight unemployed persons in Austria was previously working in a ‘tourism, catering’ related occupation in 2016, while the unemployment rate in the tightly associated economic sector (NACE I, ‘tourism, catering’) is the second highest in Austria with 18%, which furthermore is affected by high seasonal fluctuations. This indicates challenges concerning the match between labour demand and the availability of specific qualifications and/or skill sets. In addition to actual labour demand, employability is also influenced by qualifications, labour market regulations and labour market dynamics.

Figure 4: Comparison of the distributions of job openings and unemployment in Austria with previous occupations of surveyed refugee population in their country of origin



Source: AMS competence checks; *DiPAS*; AMS open positions; AMS unemployment; see Table A8 for more information on the occupations.

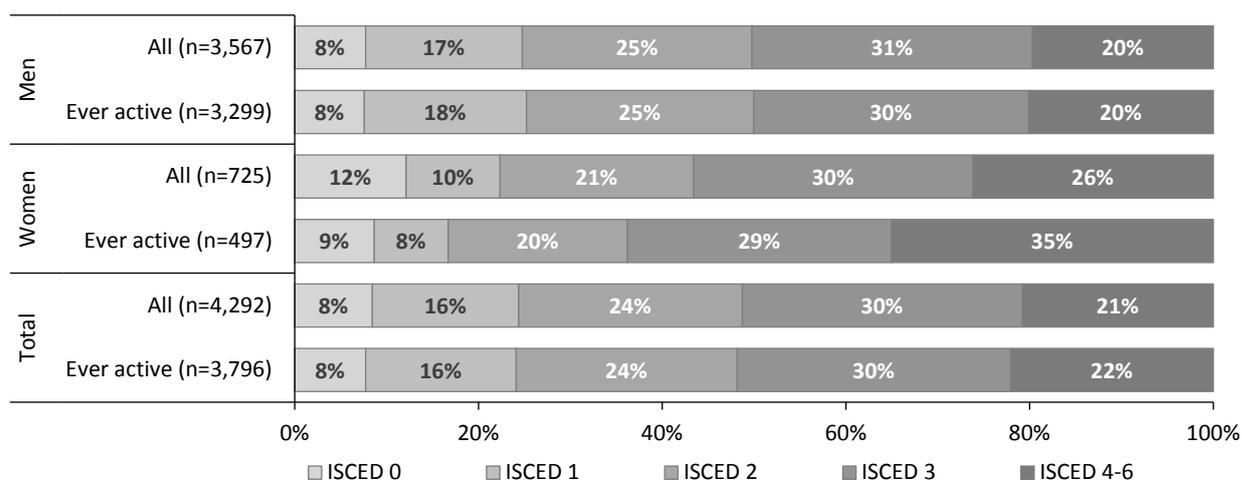
6.4. Education and Human Capital of Displaced Persons

The large sample of competence checks makes it possible to address educational differences by gender and by previous participation in the labour market. On the one hand, more than 90% of interviewed men ever participated in the labour market prior to their arrival in Austria. The educational profile of all men (irrespective of their previous employment experience) is almost identical to that of men who had been active on the labour market before (Figure 5). On the other hand, slightly more than two thirds of all women ever actively participate in the labour market. With nearly two thirds having completed at least upper secondary education (64%), they were on average higher educated than the total female population screened via competence checks. In fact, among previously employed women, a comparably high share of 35% had post-secondary education (ISCED 4-6). Moreover, women generally more often had a post-secondary education than men, irrespective of labour market participation (Figure 4). A similar trend evolved from *DiPAS* data, which were much smaller in sample size. These results are in line with other sources on refugees in Austria (Table A9).

Country-specific analyses reveal large heterogeneity, the share of respondents with no

or minimal formal education being much higher among Afghans while very low among Syrians and Iraqis (see figure A5). Furthermore, the educational attainment of Afghan women is on average much lower than that of Afghan men, as 44% have not completed primary school (vs. 26% of Afghan men). Still, on the other end, the share of Afghan women who have at least completed upper secondary education (ISCED-3 or more) is again slightly higher (22%) than that of Afghan men (17%).¹²

Figure 5: Educational attainment by gender and ever participation in the labour market



Source: AMS competence checks; 4,292 persons.

Within a broader perspective of education and human capital, language competence and knowledge of the language of the receiving country are important for employment and inclusion in the host society. It turns out that about one in two displaced persons surveyed in Austria spoke at least one language in addition to their first language. Apart from Turkish, Arabic, Persian or other local languages, between 26% and 38% spoke English¹³. The share of persons speaking English varies by country of origin (20% for Afghans vs. 32% for Iraqis), is much more strongly associated with education (6-7% for ISCED 0-1 vs. 50 % for ISCED4-6) than with country of origin.

A small minority (2%) of displaced persons spoke German, the official language in Austria, when arriving in the host country, according to the *DiPAS* survey. Since

¹² Educational levels as well as educational patterns by nationalities are similar among those participating in *DiPAS* on the one hand and in the competence checks on the other. Given the frame of the competence checks (AMS has up to now largely avoided inviting special groups of highly educated individuals like medical doctors or lawyers), results might be regarded as a rather conservative estimation of educational levels of refugees and the share of highly educated might be even slightly higher.

¹³ The lower bound is due to a more restrictive definition of knowledge of foreign language in the competence checks, which capture languages only if spoken at least at level B1.

proficiency in the German language is important not only for daily life but also for success on the Austrian labour market, German courses are part of labour market integration measures. Participants of the competence checks had been in Austria for at least half a year, the majority of them substantially longer. It turned out that among them, roughly one in ten had not yet mastered the basic level A1 (9%), while two thirds had achieved level A1 or A2 (together 70%). Furthermore, one out of six refugees had reached B1 level, while the rest had achieved B2 or higher levels (4%). As expected, the attained level in the German language is strongly related to the time spent in Austria, but again even more so to education. This can be seen even more clearly when one focusses only on those who arrived in Austria before the year 2014. Even though – irrespectively of educational level – one in three had reached German level B1 or higher, a much higher share of those with postsecondary education (three out of five) had reached at least level B1. Mastery of the German language crucial for a range of qualified jobs, which are more communication intensive.

7. Discussion and Conclusions

Although Austria witnessed a relatively high number of recent inflows of forced migrants, the comparison to the Austrian general population shows that due to the small number of positive asylum applications (i.e. formally recognized refugees and persons under subsidiary projections with full access to the labour market), the impact of recent refugee inflows on the host society's economy and labour market will remain rather small. At the same time, labour market profiles, human capital, and previous employment patterns suggest an overall solid integration potential of recent refugee populations, especially for those from Syria and Iraq. Sensibly targeted policy measures in terms of education, language competence, and additional vocational qualifications, i.e. refugees' personal integration capital, can help to boost small positive effects and support the sustained economic and socio-cultural contributions of refugees to their host country.

Analyses of previous forced migration flows to Austria, such as Prettenhaler et al. (2017), find a clear positive impact of earlier refugee cohorts on the host society's resource allocation, welfare and revenue. For the current cohort of refugees and asylum seekers, similar effects were reported for Austria's most immediately relevant neighbour Germany, including employment prospects in an overall dynamic labour market (OECD 2017a), and the contributions of refugees to the German national budget (Bonin 2016). While the recent arrivals from Syria, Iraq and Afghanistan differ from previous refugee flows to Europe in terms of cultural, socio-economic and religious background, our analysis largely suggests a similar picture.

The share of respondents with no or minimal formal education has proven to be very low, higher among Afghans while very low among Syrians and Iraqis. This discrepancy is primarily linked to the historical legacy of the countries of origin and corroborated by several other studies on the European level (AMS 2016; BAMF 2016). In line with these observations, recent evidence from Germany and France also found large national

heterogeneity among refugees and similar results for Afghans (Brücker, Rother and Schupp 2016; Ichou 2014; Ichou 2016; Ichou 2017; Johansson 2016; Worbs, Bund and Böhm 2016). The educational level of displaced persons arriving in Austria in 2015 is high compared with the average level in their country of origin (Buber-Ennser et al. 2016).

The results on educational attainment of forced migrants seem to confirm an “educated refugee effect”, comparable with the healthy immigrant effect. At the individual level, education is crucial in determining lifestyles, norms, behaviours, and attitudes, but it also relates to better skills and labour market opportunities, which subsequently leads to observable macroeconomic effects in the host country (Lutz, Butz and KC 2014; Lutz and KC 2011; Del Carpio and Wagner 2015). As higher education generally translates into higher income, the chances that more highly educated people could afford fleeing to Austria (and Europe in general) are rather high. The positive self-selection of refugee flows to Europe in terms of educational attainment of the surveyed refugee populations corresponds to a similar effect regarding previous employment experiences in high-skilled sectors.

Especially among women, education is significantly associated with previous labour market experience, which seems consistent with the notion that access to (higher) education and work experience are central strategies for women’s self-determination. In addition, our analysis revealed that it was mainly female spouses who were still left in the respective home country (or may, by now, have migrated to neighbouring countries) and who had less often been active on the labour market than their male partners, who arrived in Austria in 2015. Over a longer time horizon, these female migrants may be joining their partners, either through a regular asylum application process or through formal family reunification schemes, and thus increase the labour supply in Austria in low-skilled and/or low-paid employment. According to the location of refugees’ spouses as provided by the *DiPAS* sample, the potential for future labour supply via (formal or informal) family reunification predominately lies in less qualified jobs.

A key finding concerns the match between labour supply of refugees who have already arrived in Austria and labour demand in the host society: Comparing current job openings to the occupational profiles of the surveyed refugee population on a highly aggregated level reveals a rough match. In other words, the labour supply provided by the refugees in both the *DiPAS* sample and the competence checks roughly corresponds to the labour demand in Austria. In addition, results reveal a comparably high proportion of self-employment among forced migrants who have recently arrived in Austria. Our analysis hence corroborates international studies which show that migrants, including forced migrants and refugees, display a pronounced entrepreneurial spirit. The percentage of previously self-employed persons among immigrants typically exceeds that of the host society (Cortes 2004; Refugee Council of Australia 2010)

In terms of integration into the Austrian labour market and potential contributions of refugees to the host society, this match might be regarded as a favourable starting condition. Hence, conditions for fostering successful integration into the Austrian labour market are encouraging, but must be exploited through sensible, tailor-made policy measures (Aiyar et al. 2016; Bonin 2016; Shisheva, Christie and Mulvey 2013). For example, adults with

higher levels of educational attainment and/or concrete skills acquired through previous work experience should be supported by means of the qualification conversion process and tailored programs for obtaining recognized qualifications, particularly for those sectors where there is demand for labour, as shown in the above analysis. It is only for unqualified, adult refugees that, after basic vocational training and an accompanying literacy course, unskilled work should be considered, for example in the agricultural or construction sector, which is characterized by a high absorptive capacity. It would, in many cases, be possible – after the necessary language courses – to find unskilled short-term work for young, well-qualified refugees below their qualification level, who are clearly willing to work. Results on German language competence clearly show the need for language courses to be provided to forced migrants in Austria, including basic level and literacy courses as well as courses for higher professional qualifications.

Indeed, integration into the labour market is successful only when it does not merely strive for quick results, but aims to make use of existing qualifications and personal predispositions in order to provide sustainable integration with as few mismatches between qualification and professional occupation as possible (Rosenberger and König 2012; UNHCR 2013; Kirilova et al. 2016). At the same time, the pronounced heterogeneity of nationalities, which is corroborated by several international studies (e.g. Brücker et al. 2016, Ichou 2014, 2016, 2017, Johansson 2016, Worbs et al. 2016) must be taken into account when assessing potential effects of labour market integration of recent refugee arrivals. As younger respondents predominantly plan to continue or complete education (15-19 years: 71%; 20-24 years: 46%), this may imply substantial costs for the host society in terms of education and investment in human capital. In the long term, however, these costs may easily be compensated by contributions to the host economy (Fratzscher and Junker 2015). The slight decrease in unemployment rates in Austria since the beginning of 2017 may indeed already suggest a small, yet measurably positive impact on the economic cycle due to investments in services related to the recent refugee influx, including accommodation, counselling and health services, asylum processing, and language courses. For Germany, these public expenditures seem indeed to have reflatd the market (Fichtner et al. 2017).

Early investment in refugees' skills, language competence and qualifications seems pertinent for supporting sustainable labour market integration and, in turn, fostering positive impacts on the host society. This is also suggested by the above cited studies in the German context. Even for low-skilled jobs, good or very good knowledge of the German language was considered a necessary precondition for hiring among the surveyed employers of refugee staff members (OECD 2017). These findings mirror the insights gained by the German Federal Bank (Stähler 2017) in so far as continuous language trainings and accompanying qualification measures during employment were seen as central for achieving a positive impact of recent refugee arrivals on the German labour market. Since educational attainment is rather high overall among the surveyed population in our sample and younger age cohorts decidedly wish to complete their education before entering the work force (Buber-Ennsner et al. 2016), we conclude that a large share of forced migrants to Austria display a high awareness of the value and importance of education for a successful and fulfilled life in the new host society. Especially among Syrians and Iraqis, educational

levels rank consistently above the national average in their home countries. These are favourable starting conditions, which must be exploited sensibly and early on in the asylum application process by adequate educational offers and service delivery.

Knowledge on professional qualifications, skills and competences of the recent inflows of refugees still remains scarce, due to a lack of openly accessible, individual data (MacDonald 2015). The current study aimed to address this perceptible research gap by using unique micro-level data in Austria, thus constituting a valuable case study for one of the main host countries within Europe. Nonetheless, several limitations of our study remain: According to the conceptual framework employed for our analysis, the social and cultural capital of forced migrants, including their mind-set, values and attitudes, and family and social networks, must be considered important further dimensions of one's integration capital that directly impacts labour market integration success. A detailed elaboration of these additional dimensions, however, flies beyond the scope of the current paper. Further research may also wish to address the discrepancies between regular and forced migrants as concerns labour market profiles and human capital, as well as expected impacts on labour supply. In order to gain a more comprehensive picture on the recent inflows of forced migrants and their potential contributions to host societies across Europe, comparisons with other affected countries are pertinent and may yield important findings.

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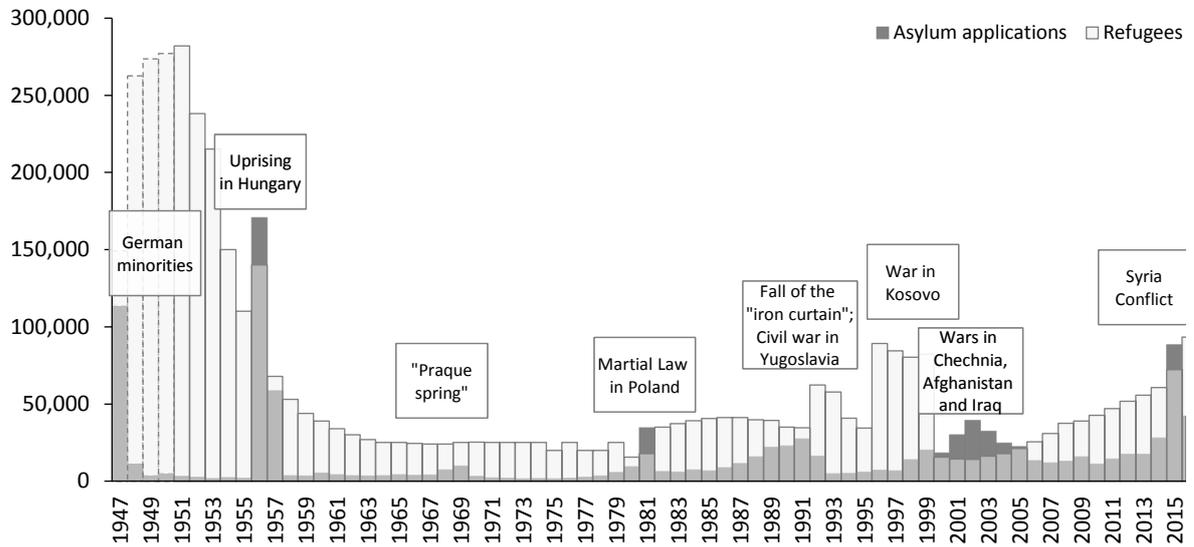
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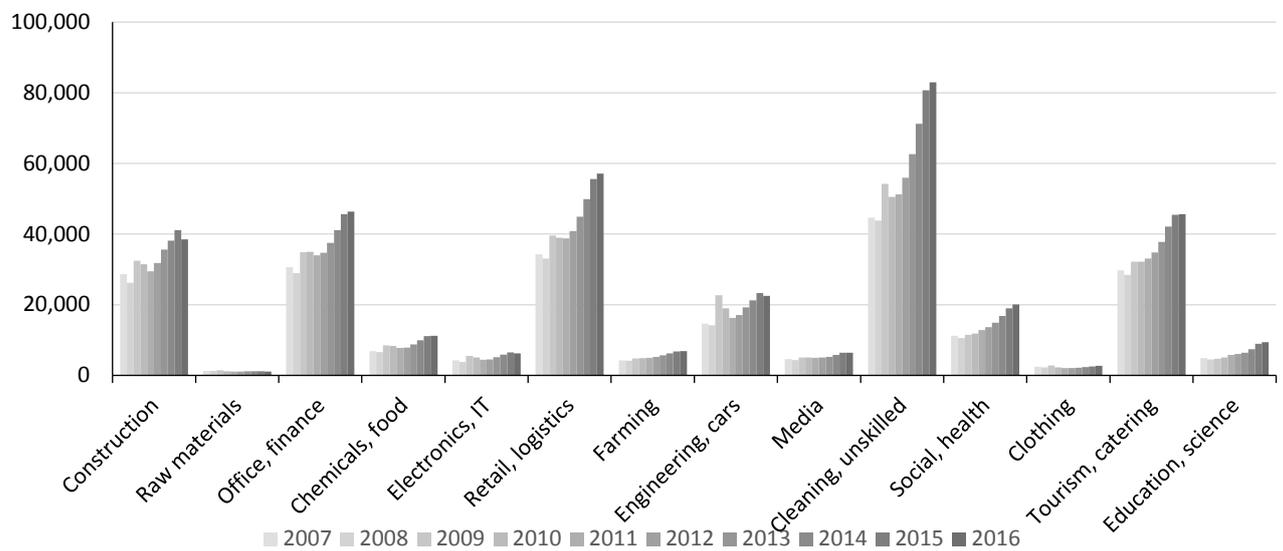
Appendix

Figure A1: Refugees, asylum applications and 'national' unemployment rate in Austria between 1947 and 2016



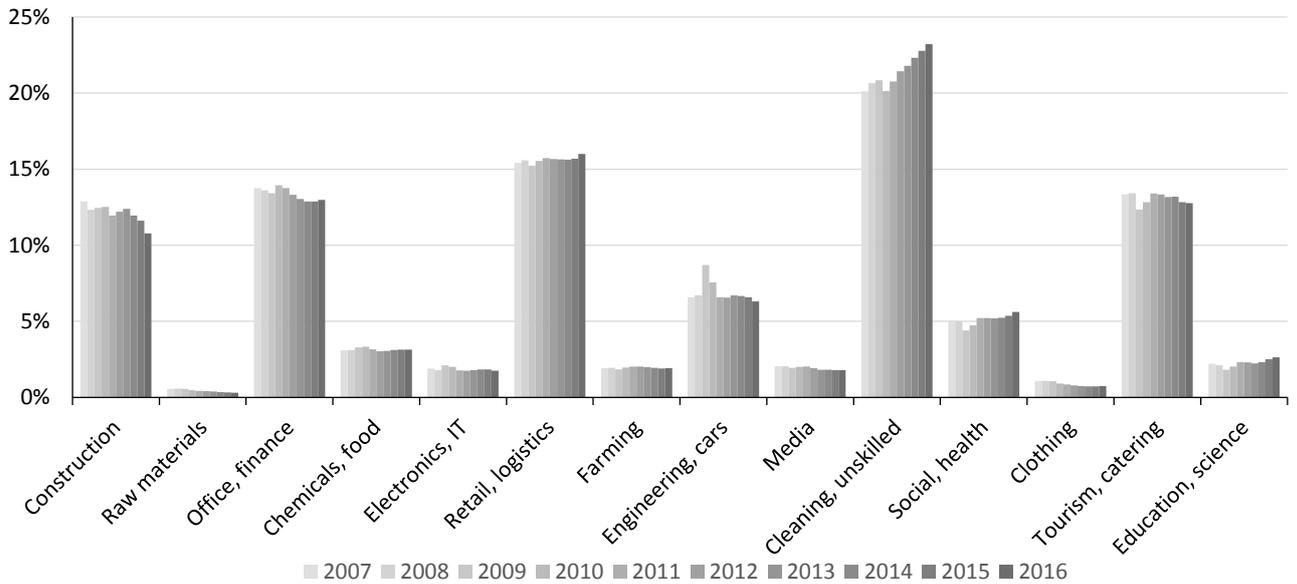
Sources: BMI Austria, Statistics Austria, UNHCR, Marik-Lebek and Wisbauer (2017).

Figure A2: Absolute numbers of unemployed persons in Austria by occupations



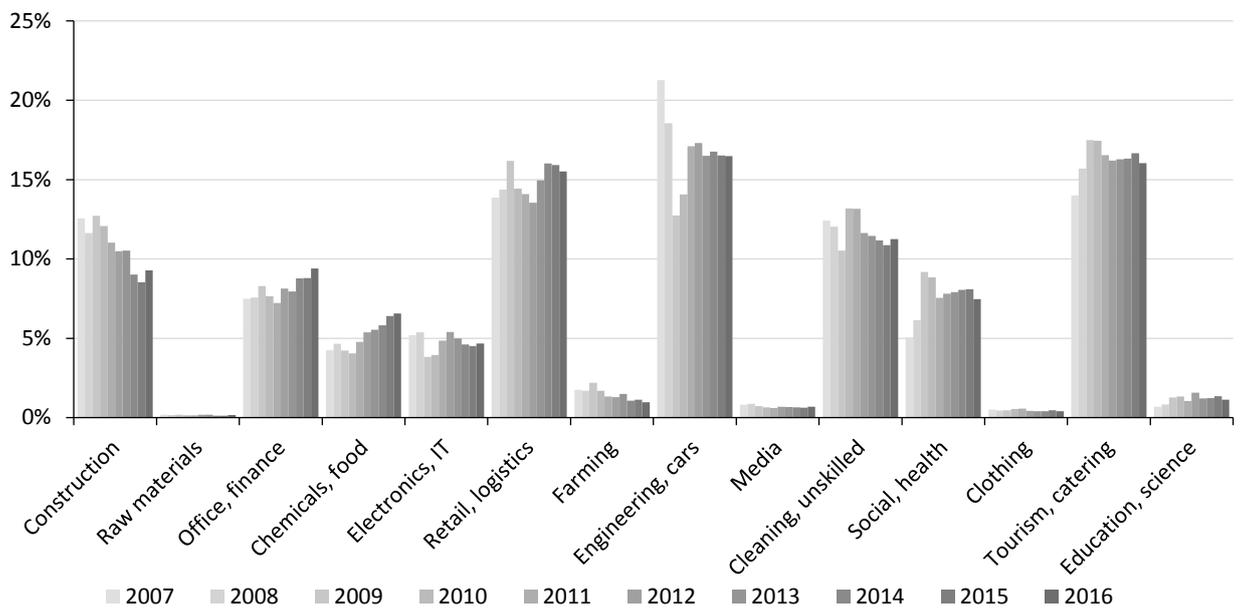
Source: AMS; see Table A8 for more information on the occupational groups.

Figure A3: Distribution of unemployed persons in Austria by occupations



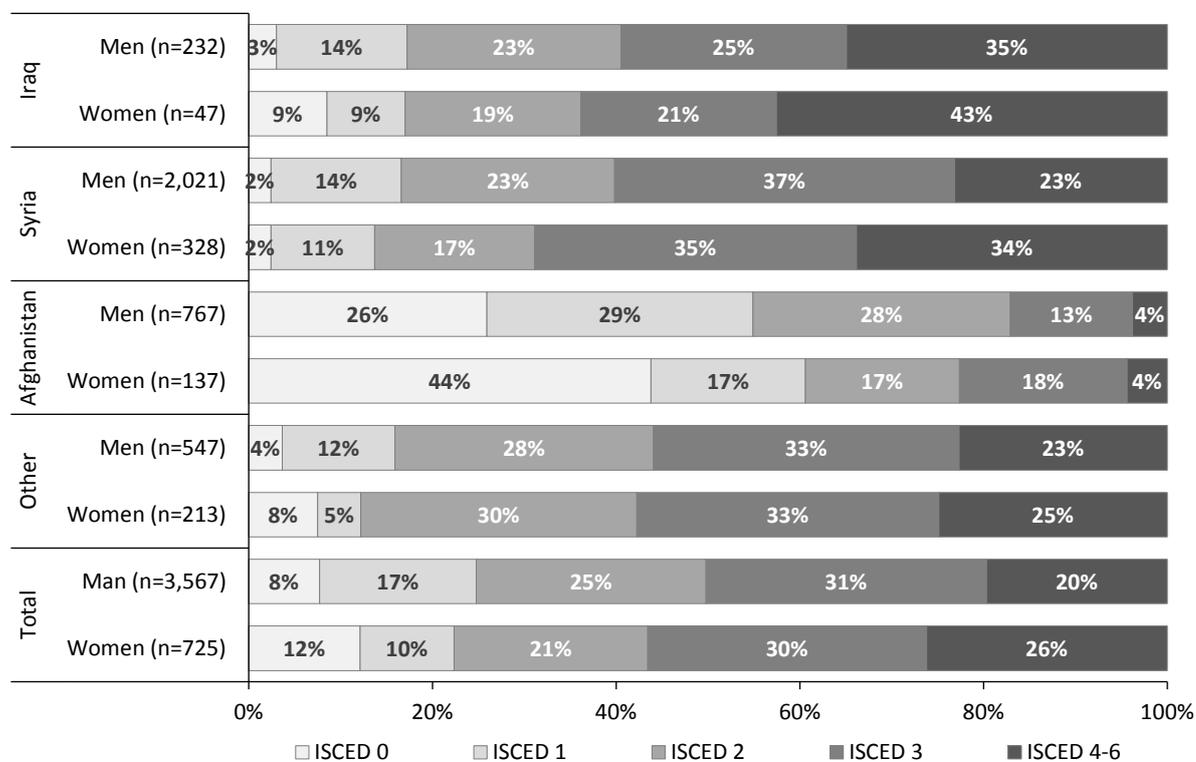
Source: AMS; see Table A8 for more information on the occupational groups.

Figure A4: Job openings in Austria by occupations



Source: AMS; job openings according to online database; see Table A8 for more information on the occupations.

Figure A5: Educational attainment of persons participating in AMS competence checks, by citizenship and gender



Source: AMS competence checks; 4,292 persons.

Table A1: Characteristics of all records included in *DiPAS*

	In Austria	Abroad	Total	In Austria	Abroad	Total
Gender						
Men	469	19	488	74%	14%	63%
Women	165	121	286	26%	86%	37%
Citizenship						
Iraq	236	57	293	37%	41%	38%
Syria	223	56	279	35%	40%	36%
Afghanistan	111	25	136	18%	18%	18%
Other ¹	64	2	66	10%	1%	9%
Age						
Below 24	163	53	216	26%	38%	28%
25-29	154	19	173	24%	14%	22%
30-39	193	39	232	30%	28%	30%
40+	124	29	153	20%	21%	20%
Mean age				31 years	31 years	31 years
Education						
No formal education	41	9	50	6%	6%	6%
Some primary education	56	13	69	9%	9%	9%
Completed prim. or lower secondary	252	58	310	40%	41%	40%
Completed upper secondary	132	23	155	21%	16%	20%
Post-secondary education	153	37	190	24%	26%	25%
Ever actively participated in the labour market						
Yes	508	52	560	80%	37%	72%
No	124	88	212	20%	63%	27%
No answer / refusal	2	0	2	0%	0%	0%
Total	634	140	774	100%	100%	100%
Respondents only						
Foreign language skills						
Yes	268			52%		
No	246			48%		
Total	514					100%

¹: The majority had Iranian citizenship (47 persons).

²: Among the 514 respondents were 237 men aged below 30 year, 182 men aged 30+, 34 women aged below 30 and 61 women aged 30+.

Source: *DiPAS*; 774 persons.

Table A2: Characteristics of persons participating in competence checks

	Absolute	Relative
Gender		
Men	3,587	83%
Women	725	17%
Citizenship		
Iraq	279	6%
Syria	2,361	55%
Afghanistan	911	21%
Other	761	18%
Age		
Below 25	770	18%
25-29	977	23%
30-39	1,478	34%
40+	1,087	25%
Education		
ISCED 0	363	8%
ISCED 1	683	16%
ISCED 2	1,045	24%
ISCED 3	1,309	30%
ISCED 4-6	892	21%
Unknown	20	0%
IT knowledge		
None	1,334	31%
Basic	1,574	37%
Medium	604	14%
Advanced	779	18%
Unknown	21	0%
German language skills		
None	407	9%
Level A	3,023	70%
Level B	857	20%
Level C	19	0%
Ever actively participated in the labour market		
Yes	3,806	88%
No	506	12%
Total (n)	4,312	

Source: AMS competence checks; 4,312 persons.

Table A3: Logistic regression for previously actively participating in the labour market among displaced persons

	Sample of participants of competence checks in Vienna			Sample of displaced persons residing in Austria			Sample of displaced persons residing in Austria and their partners abroad		
	All	Men	Women	All	Men	Women	All	Men	Women
Gender									
Men (Ref.)	0			0			0		
Women	-2.24***			-2.74***			-2.73***		
Citizenship									
Iraq (Ref.)	0	0	0	0	0	0	0	0	0
Syria	0.06	0.17	-0.23	0.30	0.26	0.35	0.26	0.25	0.27
Afghanistan	-0.43	-0.65+	-0.31	0.95*	0.99+	0.95	0.90**	1.23*	0.63
Other	-0.53*	-1.16***	0.04	1.14*	2.02+	0.36	1.01*	2.05+	0.34
Age									
Below 24 (Ref.)	0	0	0	0	0	0	0	0	0
25-29	0.78***	1.10***	0.36	0.88**	0.78*	1.11+	1.19***	0.84*	1.70***
30-39	1.94***	2.59***	1.32***	1.71***	1.88***	1.96**	1.75***	1.89***	1.97***
40+	2.19***	3.04***	1.56***	1.82***	2.05**	1.99**	2.03***	2.20***	2.18***
Education									
No formal education (Ref.)	0	0	0	0	0	0	0	0	0
Some primary education	0.68**	0.63*	0.42	-0.44	-0.27	-0.76	-0.08	0.22	-0.47
Completed prim. or lower secondary education	0.23	-0.32	0.71*	0.69	1.27	0.21	0.97*	1.80*	0.33
Completed upper secondary	0.22	-0.55+	0.95**	0.83	0.45	1.45+	1.12*	0.98	1.28+
Post-secondary education	0.78***	-0.88**	2.46***	1.36*	0.55	2.64**	1.87***	0.99	2.32***
Place of residence									
In Austria (Ref.)							0	0	0
Abroad							-0.74**	-1.37+	-0.88**
Constant	1,30***	1,82***	-1,11*	0.42	0.41	-2.56**	0.03	-0.11	-2.64**
Pseudo R ²	0.1939	0.1609	0.1487	0.2562	0.1256	0.1907	0.3451	0.1395	0.2412
N	4,292	3,567	725	634	469	165	774	488	286

Remark: Positive coefficients indicate a higher probability of previous labour market participation.

Significance: + p<0.10; * p<0.05; ** p<0.01; *** p<0.001.

Source: AMS competence checks; DiPAS.

Table A4: Previous occupation status of displaced persons by citizenship and gender

Gender	Citizenship	Employed, unskilled work	Employed, skilled work	Employed, management position	Self employed	N
Men	Iraq	34%	33%	5%	28%	205
	Syria	34%	33%	4%	29%	1,732
	Afghanistan	54%	19%	0%	26%	622
	Other	33%	41%	5%	22%	437
Women	Iraq	24%	65%	0%	12%	17
	Syria	16%	69%	3%	13%	147
	Afghanistan	41%	34%	0%	24%	29
	Other	23%	58%	3%	16%	106
All	Iraq	33%	35%	5%	27%	222
	Syria	32%	36%	4%	28%	1,879
	Afghanistan	54%	20%	0%	26%	651
	Other	31%	44%	4%	21%	543

Source: AMS competence checks; 3,295 persons active on the labour market in their country of origin.

Table A5: Previous occupation by gender

	Men	Women	Total
Construction, ancillary construction trades, wood, building technology	14%	3%	13%
Mining, raw materials, glass, pottery, stone	1%	0%	1%
Office, marketing, finance, law, security	10%	14%	10%
Chemicals, bio-technology, food, plastics, environment	2%	1%	2%
Electrical engineering, electronics, telecommunication, IT	7%	2%	6%
Retail, logistics, transport	24%	10%	22%
Farming, gardening, forestry	4%	2%	4%
Engineering, automobiles, metal	9%	1%	8%
Media, graphics, printing, art, handicraft	3%	3%	3%
Cleaning, housekeeping, unskilled and semi-skilled occupations	2%	4%	2%
Social affairs, health, cosmetics	7%	24%	9%
Textiles and clothing industries, fashion, leather	5%	10%	6%
Tourism, hospitality industry, recreation industry	8%	4%	8%
Science, education, research and development	4%	22%	6%

Source: DiPAS and AMS competence checks; n=4,301 persons (3,711 men and 590 women).

Table A6: National unemployment rates in Austria 2008-2016, by NACE sections

NACE	Abbreviated Name	2008	2009	2010	2011	2012	2013	2014	2015	2016
A	Farming	7.7%	9.3%	9.1%	7.9%	8.3%	8.6%	9.0%	9.4%	9.7%
B	Mining	11.8%	11.3%	7.1%	6.6%	7.1%	7.5%	6.7%	7.2%	7.2%
C	Manufacturing	3.6%	5.7%	4.7%	3.9%	4.0%	4.4%	4.8%	5.1%	5.0%
D	Energy	0.9%	1.0%	1.0%	1.1%	1.1%	1.3%	1.4%	1.4%	1.5%
E	Water, waste	4.7%	5.9%	5.2%	4.6%	4.9%	5.6%	6.1%	6.6%	6.6%
F	Construction	9.0%	11.2%	11.2%	10.2%	10.7%	11.9%	12.4%	13.3%	12.3%
G	Trade, repair	6.0%	7.1%	6.9%	6.6%	6.8%	7.4%	8.1%	8.8%	8.9%
H	Transport, storage	5.4%	7.0%	6.7%	6.3%	6.7%	7.3%	7.7%	8.2%	8.2%
I	Tourism, catering	14.0%	15.7%	15.3%	15.2%	15.2%	16.0%	17.3%	18.0%	17.7%
J	Information	4.7%	5.6%	5.7%	5.2%	5.0%	5.3%	5.7%	6.1%	5.9%
K	Finance, insurance	1.9%	2.4%	2.5%	2.4%	2.4%	2.6%	2.9%	3.1%	3.2%
L	Real Estate	4.8%	5.5%	5.5%	5.3%	5.2%	5.9%	6.6%	7.2%	7.2%
M	Science, technology	4.5%	5.6%	5.5%	5.2%	5.3%	5.7%	6.3%	6.9%	6.5%
N	Administration, service	16.3%	21.1%	19.0%	18.3%	19.8%	21.3%	23.1%	25.1%	24.3%
O	Public, defence	1.4%	1.5%	1.6%	1.7%	1.7%	1.9%	2.1%	2.3%	2.2%
P	Education	3.5%	4.1%	4.2%	4.6%	4.8%	5.2%	6.0%	6.8%	6.8%
Q	Health, social	5.3%	5.7%	6.1%	6.3%	7.0%	7.9%	8.7%	9.6%	9.6%
R	Arts, recreation	9.3%	10.7%	11.0%	10.6%	10.8%	11.5%	12.5%	13.9%	13.9%
S	Other services	6.2%	6.8%	6.8%	6.8%	6.8%	7.2%	7.9%	8.9%	9.1%
T	Household, subsistence	8.6%	8.7%	9.4%	9.8%	10.0%	10.9%	12.2%	12.4%	13.0%
U	Extraterritorial	7.1%	7.2%	7.6%	9.1%	8.8%	9.2%	8.4%	10.2%	9.6%
	Total	5.9%	7.2%	6.9%	6.7%	7.0%	7.6%	8.4%	9.1%	9.1%

Source: own computations, based on AMS data on employment and unemployment.

Remark: Due to lack of data on number of employed persons, unemployment rates by NACE cannot be calculated for 2007.

Table A7: Share of unemployed in Austria in 2016, by gender and occupations

Occupation	Men	Women	Total
Construction	18.3%	0.7%	10.8%
Raw materials	0.5%	0.0%	0.3%
Office, finance	8.5%	19.0%	13.0%
Chemicals, food	4.3%	1.5%	3.1%
Electronics, IT	2.9%	0.2%	1.8%
Retail, logistics	14.0%	18.7%	16.0%
Farming	2.3%	1.4%	1.9%
Engineering, cars	10.4%	0.8%	6.3%
Media	1.9%	1.7%	1.8%
Cleaning, unskilled	22.1%	24.7%	23.2%
Social, health	3.6%	8.4%	5.6%
Clothing	0.6%	1.0%	0.8%
Tourism, catering	9.3%	17.3%	12.8%
Education, science	1.3%	4.4%	2.6%
Total	204,458	152,855	357,313

Source: AMS.

Table A8: Overview of different occupations

Occupation categories	Abbreviated aggregate categories
Construction, ancillary construction trades, wood, building technology	Construction
Mining, raw materials, glass, pottery, stone	Raw materials
Office, marketing, finance, law, security	Office, finance
Chemicals, bio technology, food, plastics, environment	Chemicals, food
Electrical engineering, IT, electronics, telecommunication	Electronics, IT
Retail, logistics, transport	Retail, logistics
Farming, gardening, forestry	Farming
Engineering, automobiles, metal	Engineering, cars
Media, graphics, printing, art, handicraft	Media
Cleaning, housekeeping, unskilled and semi-skilled occupations	Cleaning, unskilled
Social affairs, health, cosmetics	Social, health
Textiles and clothing industries, fashion, leather	Clothing
Tourism, hospitality industry, recreation industry	Tourism, catering
Science, education, research and development	Education, science

Table A9: Educational level of refugees, stemming from recent survey in Austria

AMS competence checks								
	No formal education	Primary education	Compulsory education	Matura ¹	University studies		Sum	Number of respondents
Syria	2%	12%	24%	37%	25%		100%	2,728
Iraq	4%	13%	26%	24%	33%		100%	331
Afghanistan	25%	25%	30%	15%	5%		100%	1,401
DiPAS								
	No formal education	Some primary education	Completed primary or lower secondary	Completed upper secondary	Post-secondary education		Sum	Number of respondents
Syria	2%	5%	40%	26%	27%		100%	211
Iraq	1%	8%	46%	15%	31%		100%	240
Afghanistan	25%	21%	24%	19%	10%		100%	107
Survey in 2016 in the Austrian federal province of Salzburg								
	No formal education	1-4 years of schooling	5-8 years of schooling	9-12 years of schooling	University degree		Sum	Number of respondents
Syria	8%	2%	20%	45%	25%		100%	665
Iraq	5%	3%	21%	44%	27%		100%	499
Afghanistan	29%	17%	27%	24%	4%		100%	1,013
Survey in 2016 in four Austrian federal provinces (Vienna, Lower Austria, Upper Austria, Burgenland)								
	No formal education	Primary education	Secondary education	Higher education	University studies (not completed)	University degree	Sum	Number of respondents
Syria	6%	11%	31%	22%	10%	21%	100%	397
Iraq	5%	9%	35%	24%	5%	22%	100%	176
Afghanistan	28%	9%	23%	24%	10%	5%	100%	296

¹: Matura is the Austrian expression for general qualification for university entrance.

Sources: AMS (2017a), Buber-Ennser et al. (2016), Mitterndorfer (2017), Kohlbacher et al. (2017).

Table A10: Employment in Austria 2008-2016, by NACE sections

NACE	Abbreviated name	2008	2009	2010	2011	2012	2013	2014	2015	2016
A	Farming	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	0.7%	0.7%
B	Mining	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
C	Manufacturing	18.4%	17.6%	17.3%	17.3%	17.3%	17.2%	17.1%	16.8%	16.6%
D	Energy	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%
E	Water, waste	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
F	Construction	7.5%	7.5%	7.4%	7.4%	7.4%	7.3%	7.2%	7.1%	7.1%
G	Trade, repair	15.6%	15.7%	15.6%	15.6%	15.6%	15.6%	15.5%	15.5%	15.4%
H	Transport, storage	5.9%	5.8%	5.6%	5.5%	5.4%	5.4%	5.4%	5.4%	5.4%
I	Tourism, catering	5.4%	5.5%	5.6%	5.6%	5.7%	5.8%	5.8%	5.9%	5.9%
J	Information	2.2%	2.2%	2.2%	2.2%	2.3%	2.4%	2.4%	2.5%	2.5%
K	Finance, insurance	3.7%	3.7%	3.6%	3.5%	3.5%	3.5%	3.4%	3.4%	3.3%
L	Real Estate	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%	1.2%
M	Science, technology	4.3%	4.4%	4.4%	4.6%	4.6%	4.7%	4.7%	4.7%	4.8%
N	Administration, service	5.3%	4.9%	5.2%	5.5%	5.5%	5.4%	5.5%	5.5%	5.7%
O	Public, defence	15.9%	16.2%	16.2%	16.0%	16.1%	16.1%	16.0%	16.0%	16.0%
P	Education	2.5%	2.7%	2.8%	2.8%	2.9%	2.9%	3.0%	3.0%	3.0%
Q	Health, social	6.5%	6.9%	7.0%	7.0%	6.9%	6.9%	7.0%	7.2%	7.3%
R	Arts, recreation	0.9%	1.0%	1.0%	1.0%	1.0%	1.0%	1.1%	1.1%	1.0%
S	Other services	2.6%	2.6%	2.7%	2.6%	2.6%	2.6%	2.6%	2.6%	2.7%
T	Household, subsistence	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
U	Extraterritorial	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Number of employed	3,280,701	3,232,487	3,257,771	3,321,712	3,369,391	3,390,653	3,414,468	3,447,669	3,501,328

Source: own computations, based on AMS data on employment.

Working Papers

Beaujouan, Eva and Caroline Berghammer, *The Gap between Lifetime Fertility Intentions and Completed Fertility in Europe and the United States: A Cohort Approach*, VID Working Paper 12/2017.

Philipov, Dimiter, *Rising Dispersion in Age at First Birth in Europe: Is it related to Fertility Postponement?* VID Working Paper 11/2017 and Human Fertility Database Research Report 2017-005.

Lima, Everton E. C., Kryštof Zeman, Mathias Nathan, Ruben Castro and Tomáš Sobotka, *Twin Peaks: The Emergence of Bimodal Fertility Profiles in Latin America*, VID Working Paper 10/2017 and Human Fertility Database Research Report 2017-004.

Goujon, Anne, Sandra Juraszovich and Michaela Potancoková, *Religious Denominations in Vienna & Austria: Baseline Study for 2016 - Scenarios until 2046*, VID Working Paper 9/2017.

Winkler-Dworak, Maria, Eva Beaujouan, Paola Di Giulio and Martin Spielauer, *Union Instability and Fertility: A Microsimulation Model for Italy and Great Britain*, VID Working Paper 8/2017.

Testa, Maria Rita and Francesco Rampazzo, *Intentions and Childbearing*, VID Working Paper 7/2017.

Al Zalak, Zakarya and Anne Goujon, *Assessment of the data quality in Demographic and Health Surveys in Egypt*, VID Working Paper 6/2017.

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