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Immigrant Bilingualism in the German Labour Market – Between Human Capital, Social Networks, and Ethnic Marginalisation

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Between Human Capital, Social Networks, and Ethnic Marginalisation

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Abstract

We compare the earnings of monolingual and competent bilingual immigrants in Germany. A joint discussion of language skills as human capital or social capital and theories of ethnic marginalisation leads us to expect heterogeneous returns to bilingualism. To track this potential divergence, we differentiate effects by gender, language group, immigrant density in respondents' areas of residence, and communication intensity of their occupations. Doing so reveals sizeable differences in the returns to bilingualism. We find positive effects for the largest immigrant community in Germany, the Turkish population, while other language groups do not seem to benefit from retaining their heritage language. Individuals with a Turkish migration background have higher earnings when proficient in their heritage language and German. We discuss how the size of the immigrant community and the bilingualism premium might be related and pursue two alternative explanations: Specialised labour demand due to the wide dissemination of the Turkish-speaking population in Germany and ethnic social networks that are open only to those with proficiency in the heritage language. Our data indicate that both are important but operate in gender-specific ways. Turkish bilingual men experience an earnings premium only in occupations with high communication intensity, while there is no statistical relationship for women. The social capital channel is also much more potent for men, while bilingual German-Turkish women do not seem to profit from heritage-language networks for labour market success to the same degree. We discuss differences by gender in activating social capital and cultural influences as drivers of this gap.

1 Introduction

Germany has a long history of immigration, leading to high ethnic and linguistic diversity in the population. In 2018, one-quarter of the German population (21 million people) descended from families who experienced migration (Destatis 2020). Additional linguistic heterogeneity stems from long-established ethnic minorities, like the Danish, Frisian, or Sorbian populations, and increased foreign language teaching in education. Among the German-speaking population between 18 and 64, more than 20 per cent spoke more than one language in their childhood homes (Heilmann and Grotlüschen 2020). However, the phenomenon of linguistic diversity received increased attention by policymakers only recently, and the consequences of bilingual upbringing for education and labour market outcomes in Germany are severely understudied (Gogolin 2021). The present study analyses the consequences of immigrant bilingual language skills on earnings in Germany. Since international trade and globally interwoven production processes are essential cornerstones of the German economy, the relation of language skills and labour market outcomes is of particular significance in the German context (Gazzola et al., 2018). However, the existing literature focuses on knowledge of foreign languages, e.g., as taught in school, without much consideration of language skills that result from bi- or multilingual upbringing (e.g., Stöhr 2015; Gazzola et al. 2018).

In the context of migration and education, bilingualism is often regarded as a deficiency that contributes to the reproduction of educational differences between native and migrant students instead of conceptualising these language skills as a valuable resource (Gogolin 2021). However, according to psycho-linguistic research, bilingualism benefits a variety of cognitive outcomes (Adesope et al. 2010), and bilingual students fare better than monolinguals in meta-linguistic awareness (Bialystok 2009) as well as in language learning (Hesse and Göbel 2009).

Regarding long-term labour market consequences of bilingualism, international empirical research draws ambivalent conclusions. While some studies find positive effects on employment, occupational status, and income, others find no or even negative consequences (Callahan and Gándara 2014b; Chiswick and Miller 2015). Most of these studies also lack detailed and systematic differentiation by languages, ethnic groups, and occupations. For Germany, the consequences of bilingual upbringing for employment and income have hardly been studied at all.

Judging from the existing empirical literature, the economic returns to bilingualism seem to differ by the specific languages involved. These differences could be driven by different social evaluations of languages or by their local and global dissemination. Additionally, the perceived

value of speaking different languages can depend on ethnic identity and processes of marginalisation and discrimination (Bourdieu 1977; Agirdag 2014). Furthermore, labour market returns to language skills probably differ by occupations and economic sector. In some occupations, bilingualism may plausibly enhance labour productivity (e.g., service sector jobs), while language skills may be virtually unimportant in others. Studies on labour market consequences of bilingualism often neglect these dynamics and focus on the human capital perspective, according to which bilingual language skills should, on average, increase productivity and earnings (Pendakur and Pendakur 2002).

We use rich survey data on the migrant population in Germany to contribute to the understanding of the complex relationship between immigrant bilingual language skills and earnings. In doing so, we focus on *competent bilingualism* in the spirit of Esser (2006) to avoid confounding the effects of fluency in the heritage language with linguistic deficiencies in the host country language. We define competent bilingualism as being proficient in German *and* the immigrant's heritage language. Consequently, immigrants with low proficiency in their heritage language(s) are defined as being monolingual German, even though this probably does not adequately describe their complex everyday reality. Due to our focus on labour market outcomes, we abstract from the more intricate versions of immigrant bi- and multilingualism to draw a clear comparison between those theoretically able to utilise their heritage language on the job and those that are not.

In analysing returns to bilingualism among the immigrant population, we differentiate by gender, linguistic origin, ethnic density in the migrants' area of residence, and communication intensity of their occupations. We thus hope to trace the intricate relationship between linguistic capital, ethnic identity, and labour market mechanisms that determine individual consequences of bilingualism.

In particular, we aim to answer the following research questions:

1. What is the effect of bilingualism on earnings among the immigrant population in Germany?
2. Does the effect differ by gender, by language or origin group, by share of speakers on the local level, or by communication intensity of occupations?

The rest of the paper is structured as follows: In Section 2, we discuss the labour market effects of bilingualism from a theoretical perspective, bringing together the economic human capital perspective with a discussion of social capital as well as ethnic and linguistic marginalisation

that originated in the field of sociology. In Section 3, we locate our contribution within the existing literature. Section 4 presents the data and empirical strategy. In Sections 5 and 6, we present and discuss our results. The last section concludes.

2 Theoretical Perspectives on Bilingualism in the Labour Market

In economics, it is often argued that bilingualism should generate advantages in the labour market since being able to communicate fluently in a second language is a valuable skill that is expected to be sought and rewarded by employers (e.g., Pendakur and Pendakur 2002; Chiswick 2008). However, empirical studies do not find consistent positive returns to bilingualism. Researchers from other sciences, like sociology and linguistics, often emphasise the importance of power structures and cultural identity in determining the effects of individual linguistic diversity on economic outcomes (e.g., Bourdieu 1977; Callahan and Gándara 2014a; Rydenvald 2015). We use this section to bring these two perspectives together, to provide possible theoretical explanations for the ambivalent empirical findings.

From an educational point of view, one would indeed expect positive effects of bilingualism on education and labour market outcomes since psycho-linguistic research has established positive effects of growing up bilingually on cognitive ability. While there is evidence of bilinguals having lower vocabulary skills and word comprehension in each language than monolinguals, these differences decrease in higher ages (Bialystok 2009). At the same time, cognitive abilities, like impulse and attention control, working memory, and metalinguistic awareness, appear to be stronger among bilingual speakers (Adesope et al., 2010). Overall, growing up bilingually seems to facilitate the acquisition of educational attainment through cognitive benefits (e.g., Cummins 2000; Lutz and Crist 2009; Rumbaut 2014), which should translate into productivity advantages in the labour market. In the German context, this matter is severely under-researched. However, the few existing studies seem to indicate positive, if minor, effects, for example, on math ability, the acquisition of additional foreign language skills (Edele et al. 2020), and general cognitive skills (Becker 2011).

From a human capital perspective, bilingualism could be advantageous when the second language directly increases the speaker's labour productivity (Chiswick and Miller 2015). In a globalised world characterised by high levels of international trade, global communication, high labour mobility, and communication-intensive occupations (Alarcón et al. 2014a;b), speaking a second language could benefit the labour market success. This should at least be true in occupations with high communication intensity and for widely-spoken languages (Pendakur and Pendakur 2002, 149-150; Esser 2006, 404).

Taken together, while heterogeneity is to be expected, bilingualism should generate labour market benefits through increasing speakers' productivity either by facilitating learning or through the language skill in itself, *all else equal*.^{1,2}

However, the value of any linguistic skill depends heavily on the social context in which it is utilised. Speakers of minority languages may be marginalised and experience a wage penalty instead of positive returns, even if their language skills increase productivity (Bourdieu 1977; Agirdag 2014). Critical sociolinguists, therefore, argue for the central importance of power in determining the potential worth of language skills in the labour market (Macias 2014, 17).

In practice, being bilingual often falls together with membership in an ethnic minority. In general, bilingualism is understood as (near) mother-tongue proficiency in two languages. For most people reaching native-like proficiency requires learning both languages simultaneously or acquiring the second language early in life (Esser 2006, 210). In most societies, about all individuals fulfilling this requirement are migrants who arrived at the destination early in life and migrants' descendants or members of other ethnic-linguistic minorities, like indigenous populations. For these groups, bilingualism could signal group membership, especially if the second language is a minority language. This signal might activate stereotypes and discrimination, leading to disadvantages in the labour market (Pendakur and Pendakur 2002, 151-152), e.g., because employers prefer hiring workers of their ethnicity or language group or because employers find it easier to assess future productivity of employees of higher cultural proximity (Becker 1957; Grin 2003, 17-18). Additionally, as Alarcón et al. (2014: 144) point out, in migration societies, proficiency in the ancestry language is often treated as a natural by-product of diverse socio-cultural environments rather than a costly acquired skill and is thus not rewarded in the labour market. On the contrary, being bilingual and thus preserving one's ancestry language could be interpreted as a sign of lower assimilation into the host country, entailing further marginalisation and discrimination.

However, knowledge of a minority language can also unlock ethnic networks and enclaves that provide access to highly segmented parts of the labour market (e.g., Agirdag 2014, 161). Intra-ethnic social contacts in the host country benefit immigrants in finding jobs and in acquiring highly paid jobs (e.g., Amuedo-Durantes and Mundra 2007). In this sense, knowledge of the

¹ Since correlations between membership in a particular language group and, e.g., educational attainment are to be expected, these factors have to be accounted for (Grin 2003, 17).

² Gazzola et al. (2018, 74) point out that bilingualism could generate advantages independent of actual productivity when employers interpret additional language skills as signals of motivation or intelligence and thus *assume* them to go along with higher productivity.

heritage language can increase immigrants' social capital by facilitating contact with the immigrant community. However, linguistic enclaves are often characterised by low wages and precarious working conditions (Chiswick 2008, 22; Xie & Gough 2011), and some scholars posit that social ties to natives are more beneficial than intra-ethnic networks (e.g., Putnam 2000; Kanas et al. 2012).

In any case, ethnic social capital can only benefit labour market success when the immigrant community is sufficiently large to provide an economically meaningful network. They might also be particularly beneficial for immigrant groups that suffer high levels of ethnic discrimination (Portes and Zhou 1993; Zhou 1997). For Germany, several studies show that people with Turkish migration backgrounds maintain especially many intra-ethnic contacts, compared to other immigrant groups (e.g., Haug 2003; Kalter 2011). This could be due to the large size of the Turkish immigrant community in Germany (see Section 4), or it could be a reaction to severe discrimination against this group (Seibert and Solga 2005).

Taking together the human capital framework and the discussion of bilingualism as social capital or as a signal of ethnicity, one would expect heterogeneous effects of bilingualism on labour market outcomes by language, migration background/ethnicity, and occupation. Since female migrants are known to be "doubly disadvantaged" in the labour market (Schiekhoff and Sprengholz 2021, 10), we would expect additional heterogeneity by gender and its interaction with migration background or ethnicity. Further differences by gender could result from occupational segregation and a higher propensity of bilingualism among female migrants (e.g., Chiswick et al. 2000; Robinson-Cimpian 2014), leading to a higher supply of bilingual labour and thus possibly lower wage premiums compared to predominantly male occupations. We will see in the next section that the equivocal findings of the empirical literature fit these expectations quite well.

3 Related Empirical Evidence

Most empirical studies of bilingualism focus on North America with Canada as a major destination country with two official languages and the United States with many Hispanic bilinguals. There is much less empirical evidence on the labour market returns to bilingualism for Europe and the rest of the world. However, the existing evidence seems to indicate that differential evaluation of language skills is a global phenomenon.

Unsurprisingly, bilingualism that involves additional official languages of the country of residence yields higher labour market returns than additional proficiency in a minority language.

Canada provides a poignant example: Several studies find higher earnings for English-French bilinguals compared to their monolingual counterparts (e.g., Chiswick and Miller 1988; Ferrer et al. 2006; Nadeau and Seckin 2010), with higher benefits for speaking English in Québec than for speaking French in the rest of the country (Christophides and Swidinsky 2010; Grenier and Nadeau 2016). However, speaking other (minority) languages additionally to English and French seems to go along with *lower* earnings on average (Nadeau and Seckin 2010).

Similar pictures emerge in other countries. For example, there are positive wage effects of fluent English skills in India (Chakraborty and Bakshi 2016) and in South Africa (Levinsohn 2007) as well as proficiency in French in Morocco (Angrist and Lavy 1997) – additionally to the respective local languages. In the Spanish region Catalonia, Cappelari and Di Paolo (2018) find positive effects of Spanish-Catalonian bilingual education on wages, but no effects on employment, working hours, and occupational choice.³ However, the report of Aldshev & Danzer (2014) of negative wage returns to Kazakh-Russian bilingualism compared to Russian monolinguals in Kazakhstan does not seem to fit this pattern of positive returns to bilingualism that involves additional official languages. Another notable exception seems to be Switzerland, where speaking Italian additionally to German and French is associated with lower labour income outside the Italian-dominant regions of the country (Grin and Sfreddo 1998).

At the same time, bilingualism that involves minority languages does not go along with an earnings premium. This is demonstrated by the cases of Bolivians who speak at least one indigenous language additionally to Spanish (Chiswick et al. 2000) and adult foreign-born bilingual men in Israel relative to their monolingual (Hebrew-only) counterparts (Chiswick and Repetto 2001). Similarly, in Great Britain, speaking any other languages additional to English does not seem associated with advantages in the labour market either. Here, Clifton-Sprigg and Papps (2021) do not find statistically significant wage differences between mono- and bilingual men, while bilingual women fare considerably worse than their monolingual counterparts. This disadvantage is not explained by ethnicity, parents' educational attainment, or other family characteristics and is concentrated in regions with high shares of non-English speakers. It is particularly pronounced for speakers of South Asian and other, less common, languages. These findings point towards further differentiation in evaluating bilingual language skills, possibly related to the local and global dissemination of the language in question and issues of ethnic identity and power relations.

³ See also Di Paolo and Raymond (2012), as well as Rendón (2007), Quella & Rendón (2012), and Blázquez and Rendón (2014) regarding Catalanian in the Spanish labour market.

Evidence on Hispanic bilinguals in the United States confirms the importance of the number and share of speakers of a given language in this context. Overall, there are no consistent positive labour market returns to speaking Spanish in addition to English, and more often than not, Spanish bilingualism is associated with a labour market disadvantage (Veltman 1983; Grenier 1984; Fry and Lowell 2003, Bleakley and Chin 2004, Shin and Alba 2009, Callahan and Gándara 2014a). English-Spanish bilinguals fare particularly badly in comparison with the white monolingual majority, which seems to indicate that Spanish is not a valued resource in the US labour market but might instead be associated with ethnic marginalisation (Alarcón et al. 2014a). However, higher returns are found in regions with higher shares of Hispanics and other Spanish speakers (Kalist 2005; Robinson-Cimpian 2014). Additional variation stems from the types of occupations that are considered. For professions with high communication intensity (like nurses), there is evidence of positive effects of bilingualism compared to monolingual English speakers. However, these effects are small and thus of limited economic importance (Saiz and Zoido 2005; Moore et al. 2014; Agirdag 2014).

Overall, analyses that systematically differentiate by language, by regional variation in shares of speakers of different languages, by occupation, and by gender while examining returns to bilingualism seem in sparse supply. The few studies that explicitly test for gender differences find significant gaps in the individual propensity to be bilingual and in the labour market effects (Robinson-Cimpian 2014; Clifton-Sprigg & Papps 2021).

In light of the clear theoretical implications about differential economic and social evaluations of languages, this seems a substantial research gap. More generally, the effects of bilingualism in European settings seem under-researched given the increasing share of inhabitants with direct or indirect migration backgrounds and the high importance of multilingualism for European policy (Katsarova 2019). Therefore, in the following, we will explore returns to bilingualism in the German labour market, focusing on heterogeneous effects along the dimensions mentioned above.

While the importance of proficiency in the destination language on immigrants' labour market outcomes is well established also for the German case (e.g., Dustmann 1994; Dustmann and van Soest 2001, 2002; Aldashev et al. 2009), to our knowledge, there exists no examination of the effect of bilingualism in the German labour market.

4 Data & Methods

We use data from 12 waves of the German Socio-Economic Panel (GSOEP) from 2007 to 2018 (SOEP v35).⁴ The GSOEP is a comprehensive, representative longitudinal survey study covering private households in Germany. Besides the wide availability of socio-demographic information, it has the additional advantage of over-sampling migrants and thus provides sufficient data for statistical analyses of the immigrant population in Germany (SOEP 2021).

We restrict the sample to employed individuals of working age (18-65) with indirect (second and higher generations) migration background and non-missing information in the relevant variables on earnings, language skills, and socio-demographic controls. Respondents who report being employed with zero income are excluded, as are those with poor German language skills.⁵ Our restrictions yield a total sample of 1533 observations. Since crucial characteristics of our analyses (migration background, gender, ethnicity) are time-invariant, we do not make use of the panel structure of the data but focus on the latest available observation for every respondent. For crucial information only elicited in earlier waves of the data, we transfer the values of time-invariant variables to future data waves for up to ten years. For example, if a person reported speaking and writing her heritage language well in 2008, we assume she also possessed these language skills in 2018.

We estimate a log-linear ordinary-least-squares model where the logarithm of respondents' gross monthly labour income is regressed on an indicator of being bilingual, a set of individual covariates, and controls for time trends (three five-year-band dummies).⁶ Being bilingual is defined as *speaking* and *writing* the language of origin and German "well" or "very well". We thus focus on *competent* bilingualism, in the spirit of Esser (2006), to avoid biases from differential levels of proficiency in German between immigrants that retain their language of origin and those who do not. Consequently, throughout the paper, we compare bilingual immigrants with those who report speaking and writing their heritage languages less than "well" while reporting good German skills. For simplicity, we refer to the latter group as monolingual German speakers, even though, in reality, many of them have *some* knowledge of their heritage languages. We thus identify lower bounds of any potential effects of bilingual language skills on earnings. We do not differentiate by whether German or the language of origin are respondents' first or second languages, and we do not include information on knowledge of further (foreign) language skills, e.g., as obtained in school or university.

⁴ Information on language skills is only available from 2007 onwards.

⁵ We restrict the sample to immigrants who report to speak and write German "well" or "very well".

⁶ To exclude overly influential extreme values in the earnings variable, we trim it symmetrically by two per cent.

Our identification strategy comes with the caveat of relying on self-reported language skills, which can suffer from misclassification errors (e.g., Dustmann and von Soest 2001; 2002). However, Charette and Meng (1994) demonstrate with Canadian data that while individuals with a migration background are prone to misclassification in reporting self-assessed literacy in the host country language, this reporting error does not seriously bias the results of earnings equations. Still, to mitigate any potential bias, we restrict our sample to second and higher generation immigrants. Since these individuals were born in Germany and have spent their entire educational career in the German education system, we can reasonably assume more homogeneous German fluency than immigrants of the first generation.

To identify the direct effect of bilingualism on earnings, we include a comprehensive set of covariates, differentiating between language-related controls that can potentially mediate the returns to bilingualism and socio-demographic controls.

As language-related controls, we include the population share of immigrants in the respondents' area of residence, the importance of oral communication in their occupations as a measure of communication intensity, and an indicator of the specific heritage language spoken. Unfortunately, the GSOEP does not provide direct information on languages spoken for the population in our sample. We, therefore, have to approximate this information by ethnic origin. For the large origin groups in our data, the countries of ancestry are linguistically relatively homogeneous, and we can reasonably assume respondents with these migration backgrounds speak the dominant language of the respective country of origin. This is the case for Greece and Poland (with 99% Greek and 98.2% Polish-speaking populations, respectively; The World Factbook 2021), Italy (about 94% native Italian speakers in 2012; Istituto Nazionale di Statistica 2014), and, to a lesser degree, Turkey (90% Turkish speakers; Turkish Ministry of Culture and Tourism 2021). Additionally, we subsume respondents with Spanish ancestry together with those from Spanish-speaking Latin American countries as Spanish-speaking and group together respondents from Slavic countries (excluding Poland) as "Other Slavic speakers".⁷ To ensure sufficient statistical power for meaningful comparison, we only differentiate origin/language groups with at least 50 observations in our data set.

⁷ Latin American countries in our data are Mexico, Argentina, Peru, Costa Rica, Bolivia, Columbia, Venezuela, Cuba, Ecuador, Puerto Rico, and Nicaragua. As Slavic countries, we note former Yugoslavia, Czech Republic, Russia, Macedonia, Slovenia, Slovakia, Belarus, Kosovo-Albania, Serbia, Montenegro, Ukraine, Croatia, Bosnia-Herzegovina.

The population share of immigrants is measured at the federal state level since more detailed information about respondents' residency is not provided in this version of the GSOEP data.⁸ We include the shares in categorical form – low, medium, and high shares of immigrants, where the thresholds between the categories are chosen such that they split the sample into three equal parts and the lowest category forms the reference group.

Information about communication intensity is taken from O*NET OnLine, version 20.1, an online database of task-content, skill requirements, and worker attributes in occupations. Specifically, we use the score on the importance of speaking ("Talking to others to convey information effectively") for each occupation.⁹ The database covers more than 900 occupations. Even though O*NET refers to occupations in the United States, it has previously been applied to analyses using European data (e.g. Ortega and Polavieja 2012; Hardy et al. 2018). To map O*NET data to occupational classifications in the GSOEP, we use the crosswalks provided by Hardy et al. (2018). The score varies between 2.25 ("Pressers, Textile, Garment, and Related Materials") and 4.75 ("Education Teachers, Postsecondary"), with higher values implicating higher importance of oral communication. In our sample of higher generation immigrants in the GSOEP, the values range between 2.62 (building caretaker) and 4.50 (legal adviser).

Socio-demographics include professional experience in years and its squared term, full-time versus part-time employment, occupational status, presence of a spouse/partner in the household, presence of children in the household, and gender, in the models where we do not explicitly differentiate by gender.

Most importantly, we control for educational attainment to account for general differences in education between different language groups and between monolingual and bilingual immigrants. We include two binary variables for low (below secondary) and high (above upper secondary) education levels, with secondary education as the reference group. Including these variables means that we essentially shut down any positive effects of bilingualism on acquiring other human capital as drivers of earnings differences between mono- and bilinguals, as discussed in Section 2. If we find positive effects of bilingualism on earnings, those are not determined by higher educational success. Controlling for educational attainment also plausibly

⁸ Data on immigrant shares is obtained from the German Census (Mikrozensus) in 2011 and 2019. We match the data from 2011 to observations between 2007 and 2014 and use micro census data from 2019 for all observations since 2015.

⁹ We also obtained data on the importance of writing, and both scores are highly correlated. Including the importance of writing instead of speaking leaves the main results unchanged. Alternatively, the data also offers information on the importance of foreign language skills, but this variable contains minimal variation across occupations, and we, therefore, do not use it.

rules out much of the expected effects of cognitive benefits of being bilingual. In essence, our analysis focuses on the productivity and social capital channels of potential effects of bilingualism.

Descriptives

Table 1 provides descriptive statistics on our sample's dependent and explanatory variables for mono- and bilingual men and women. First, we note that in accordance with previous studies (Robinson-Cimpian 2014; Clifton-Sprigg and Papps 2021), women are more likely to be bilingual than men: In our sample, about 54% of the second generation women (413 out of 770) report fluent heritage language skills additionally to reading and writing proficiency in German, while the respective share is 47% (359 of 763) among men. The gender difference is statistically significant at the 1%-level ($p = 0.009$).

Second, there are no differences in monthly earnings between mono- and bilingual women and men. Consequently, at least in this unconditional comparison, no positive language returns are associated with immigrant bilingualism in Germany, and neither do bilinguals experience an earnings penalty due to ethnolinguistic marginalisation unless the two opposing effects cancel each other out exactly.

Table 1: Descriptive statistics

	Monolingual				Bilingual			
	Men		Women		Men		Women	
	Mea n	SD	Mea n	SD	Mea n	SD	Mea n	SD
Gross monthly income in Euro	2902	2808	1792	1366	2992	2608	1683	1326
Log income	.50	.92	.46	.32	.90	.12	.52	.44
Turkish	7.61	1.01	7.12	1.00	7.69	0.89	7.09	0.92
Greek	0.18	0.38	0.14	0.35	0.44	0.50	0.35	0.48
Italian	0.08	0.27	0.06	0.25	0.09	0.28	0.12	0.32
Spanish	0.15	0.36	0.15	0.36	0.13	0.34	0.12	0.33
Polish	0.04	0.20	0.04	0.19	0.04	0.21	0.04	0.19
Other Slavic	0.06	0.23	0.06	0.24	0.02	0.13	0.03	0.16
Other languages	0.16	0.37	0.13	0.34	0.11	0.31	0.14	0.35
Importance of speaking in occupation	0.34	0.47	0.41	0.49	0.18	0.38	0.20	0.40
Share of migrants: low	3.49	0.42	3.64	0.41	3.42	0.43	3.59	0.41
Share of migrants: medium	0.35	0.48	0.38	0.49	0.36	0.48	0.34	0.47
Share of migrants: high	0.22	0.41	0.22	0.42	0.27	0.45	0.25	0.43
Low education level	0.43	0.50	0.39	0.49	0.37	0.48	0.42	0.49
Medium education level	0.17	0.37	0.20	0.40	0.24	0.43	0.17	0.38
High education level	0.60	0.49	0.59	0.49	0.52	0.50	0.61	0.49
Prof. experience in years	0.24	0.42	0.21	0.41	0.24	0.43	0.22	0.41
Full time	9.96	8.76	8.46	7.64	10.4	8.40	8.77	7.31
Unskilled/ semi-skilled workers					5			
Skilled workers	0.82	0.38	0.42	0.49	0.84	0.36	0.43	0.50
Self-employed	0.12	0.33	0.13	0.33	0.16	0.37	0.13	0.34
Ordinary employees	0.18	0.39	0.03	0.16	0.18	0.38	0.02	0.13
Qualified employees	0.11	0.31	0.06	0.23	0.08	0.28	0.06	0.24
Highly qualified employees	0.20	0.40	0.33	0.47	0.21	0.41	0.36	0.48
Children in the household	0.22	0.42	0.34	0.47	0.21	0.41	0.35	0.48
Living together with partner	0.16	0.37	0.12	0.33	0.16	0.37	0.08	0.28
Years 2007-2011	0.49	0.50	0.51	0.50	0.57	0.50	0.55	0.50
Years 2012-2015	0.57	0.50	0.49	0.50	0.64	0.48	0.56	0.50
Years 2016-2018	0.13	0.34	0.13	0.33	0.13	0.33	0.11	0.31
Observations	0.31	0.46	0.29	0.45	0.38	0.49	0.32	0.47
	0.56	0.50	0.59	0.49	0.50	0.50	0.57	0.50
	404		357		359		413	

Notes: Numbers are based on respondents with indirect migration backgrounds in the GSOEP (v35) 2007-2018. Own calculations. Monolingual Germans speak and write German ‘well’ or ‘very well’ and report no or poor skills (less than ‘well’) in their heritage language. Bilinguals speak and write the heritage language ‘well’ or ‘very well’ in addition to good German skills. Bold values indicate statistically significant differences between mono- and bilinguals *within* the respective gender group.

Regarding origin groups, the Turkish community, the largest immigrant group in Germany, shows an exceptionally high propensity towards bilingualism, while Polish-Germans are under-represented among bilinguals, as are speakers of other Slavic and other (non-Slavic) languages.

Other systematic differences between mono- and bilinguals are also found among the language-related and socio-demographic control variables: Bilingual men have slightly lower education levels than their monolingual German counterparts, and they are more likely to be employed as unskilled workers, on average. This group also exhibits a higher propensity of having children in the household, and both bilingual men and women are more likely to share their home with a spouse than monolinguals.

Individuals with Turkish heritage represent the largest immigrant community in the sample: pooling across mono- and bilinguals, 28 per cent of the sample report Turkish ancestry. Following are Italians, with 15 per cent, and Polish immigrants with 4 per cent (numbers not reported in the table).

These numbers do not entirely match immigrant shares in German census data from the same time. In 2010, individuals of Turkish heritage constituted about 18.2 per cent of all persons with migration background in Germany, followed by 9.5 per cent Polish and 7.3 per cent Russian immigrants, while Italians accounted for only about 4.6 per cent of persons with migration background. In 2019, Turkish immigrants still represented the largest immigrant group in Germany while their relative share declined to 13.3% (at higher absolute numbers due to rising numbers of immigrants). Polish (10.5%), Russian (6.5%), and Italian (4.1%) immigrant shares stayed relatively stable (Destatis 2017; 2020). The differences between our sample and the census numbers illustrate the selective nature of our data set. One source of selection lies in restricting to individuals with good or very good German skills. Another reason for discrepancies in these numbers might be our focus on second-generation immigrants that effectively excludes all migration to Germany after about 1995 because most of these immigrants are not yet of childbearing age. These data features have to be kept in mind when interpreting the results of our regression analyses.

5 Results

5.1 Returns to Immigrant Bilingualism by Language and Gender

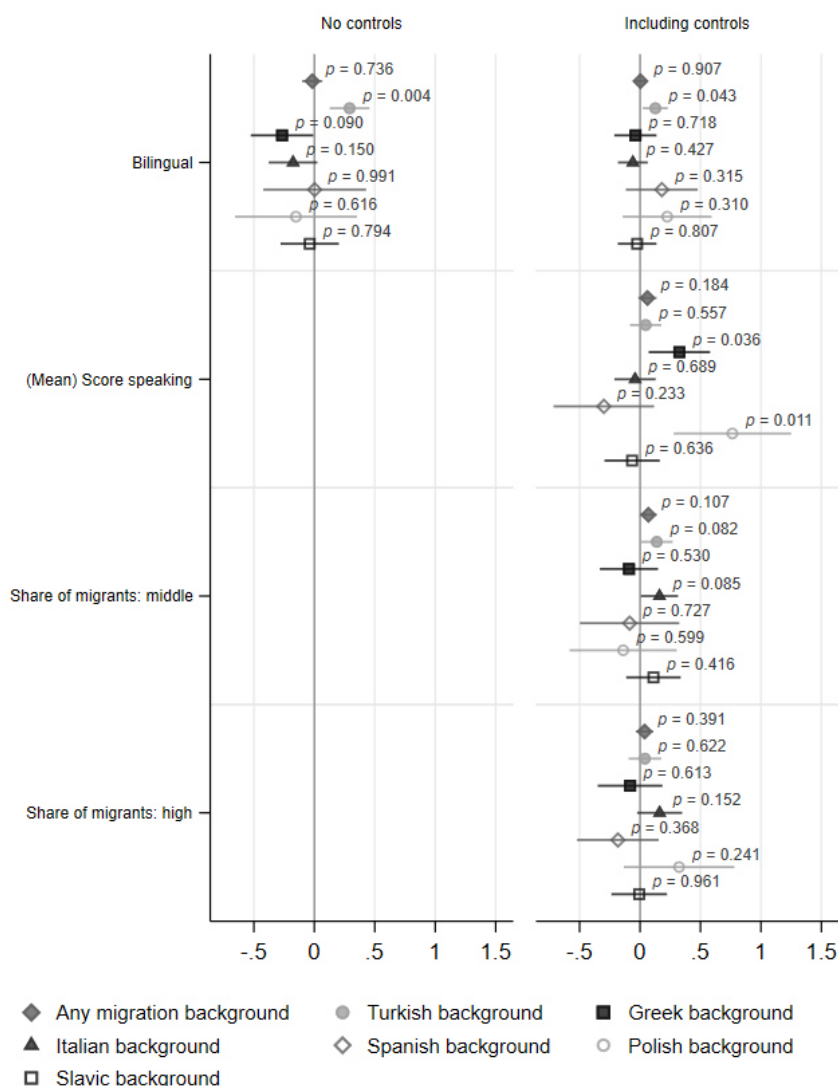
The results of our estimations are reported as coefficient plots (Jann 2014) in Figure 1. We start with the estimation using the total sample of persons with any indirect migration background on the left. We then differentiate by the four ethnic origin groups in the data set that are large

enough to allow meaningful comparison and Spanish-speaking origins and other Slavic in the remaining six panels. Reported are the coefficients of the dummy variable indicating bilingualism and those of the language-related control variables. The point estimates are labelled with their respective p-values to ease visual inspection of the results. The detailed estimation results, including coefficients of the remaining controls, are reported in Table A.1 in the appendix. Since we estimate log-linear models, all coefficients can be interpreted as percentage differences in gross monthly income.

For the bilingual dummy, two sets of coefficients are reported: The left-hand panel represents the bivariate association between bilingualism and earnings, while the panel on the right reports the estimation results from the specification including the complete set of controls. Both coefficients indicate no earnings difference between mono- and bilinguals when pooling across ethnic origins. However, when we differentiate by ethnic/language group in the remaining panels of Figure 1, we see sizeable differences between the various samples.

Turkish-Germans have significantly higher earnings when they speak and write their heritage language well additionally to speaking and writing fluently in German. Controlling for language-related and socio-demographic individual characteristics goes along with a substantially smaller difference, suggesting that some of the returns to bilingualism are moderated by these characteristics. However, even after controlling for education, professional experience, part-time work, occupational status, household structure, the share of immigrants in the area of residence, and communication intensity of the job, a sizeable earnings difference of 14 per cent in favour of bilinguals remains. The coefficients in the full specification are also positive and of similar size for Spanish-speaking and Polish higher-generation immigrants but lack statistical significance, possibly due to low precision in these relatively small samples. The conditional earnings differences are small and insignificant for Greek, Italian, and other Slavic migration backgrounds.

Figure 1: Returns to bilingualism in different origin-language groups



Notes: The figure reports coefficients with associated 90%-confidence intervals and p-values from estimating earnings equations among different origin samples among higher generation immigrants in the GSOEP (v35). Own estimations. Dependent variable is log monthly gross earnings. “Including controls” additionally controls educational attainment, professional experience in years and its squared term, full-time versus part-time employment, occupational status, presence of a spouse/partner in the household, presence of children in the household, and gender.

Looking at the remaining coefficients in the lower part of Figure 1, we see a significant positive effect of working in an occupation requiring frequent communication for Greek and Polish immigrants. The effect is zero or insignificant for the other origin groups. The effect of immigrant population density is small and mostly statistically insignificant across all ancestries.

Figure 2 further differentiates the effect of bilingualism by gender. It plots the difference in earnings between monolingual and bilingual higher generation immigrants by ethnic origin for women and men separately. The plotted marginal effects result from log-linear regression models similar to those underlying the point estimates in Figure 1, but now interacting the female dummy with the bilingualism indicator. We see that women generally receive lower returns to bilingual language skills than men. This is also true for German-Turkish women, resulting in Turkish men being the only group with statistically significant earnings differences. While men with Turkish ancestry in our data have about 18 per cent higher earnings when they speak and write their heritage language additionally to German, the difference is somewhat smaller (about 12 per cent) for women and lacks statistical significance. However, the larger variance in the female sample could also stem from the smaller sample size ($N = 198$ compared to $N = 235$ for Turkish ancestry men). The point estimates are even more prominent for Spanish and Polish speaking men but still lack statistical significance due to large confidence intervals. For Spanish and Polish women, the estimated returns to bilingualism are almost zero but with similar variances.

These estimates suggest sizeable returns to bilingualism for higher generation (male) immigrants of Turkish ancestry that are not explained by the higher educational success of bilinguals but no statistically significant returns for other origin groups.

The relatively high Turkish-language premium could be driven by either demand- or supply-side mechanisms related to the immigrant community's size. Since people with Turkish migration background represent the largest immigrant group in Germany by far, Turkish may be so widely spread in Germany that employers reward knowledge of this language because it increases labour productivity in occupations with a high frequency of interaction with the Turkish speaking population (i.e., the demand channel). Alternatively or additionally, the sizeable Turkish community might represent a valuable network that increases labour market outcomes (supply channel). Knowledge of the Turkish language could then provide speakers with a pathway into that network by facilitating intra-ethnic contacts, as discussed in Section 2.

However, since we find smaller and statistically insignificant earnings returns for bilingual Turkish women, the underlying mechanisms might operate in a gender-specific way. Note that the gender differences are not driven by differences in work hours, considering that our estimations control part-time work.

In the following sections, we further utilise the available information in our data set to test the importance of supply and demand-side mechanisms in explaining the large earnings returns to Turkish-German bilingualism and explore the gender imbalance in these returns.

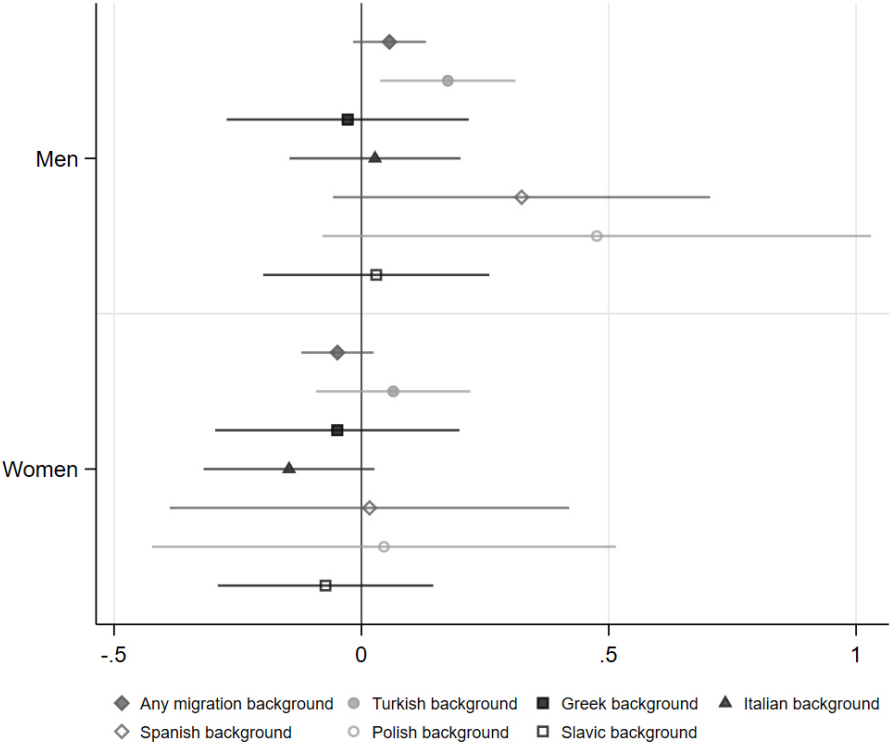


Figure 2: Bilingualism premium by origin and gender

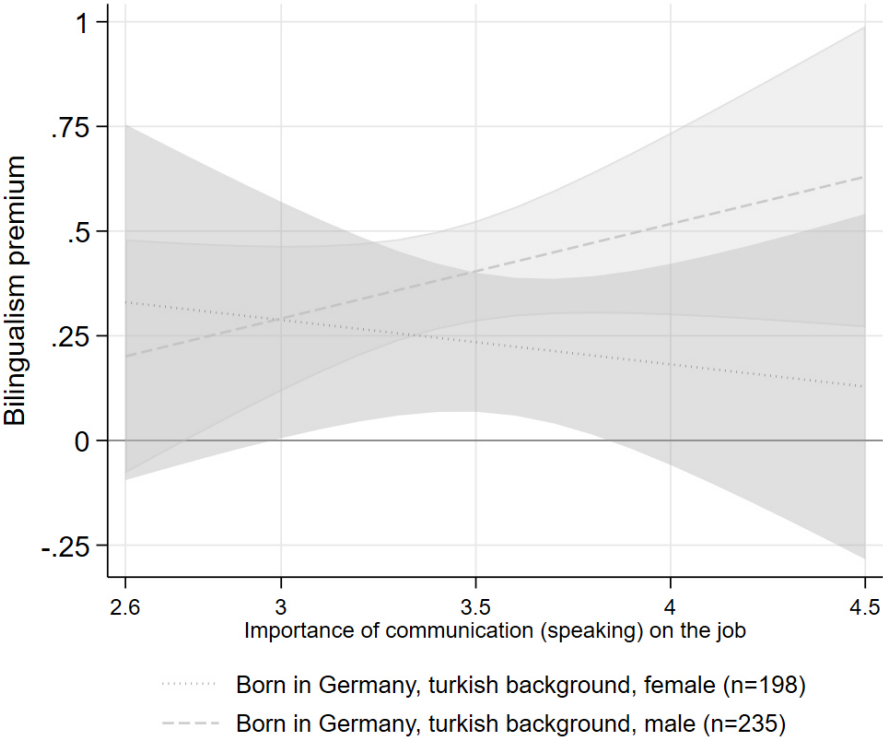
Notes: The figure reports per cent differences in monthly gross earnings between monolingual and bilingual higher generation immigrants, resulting from estimating earnings equations among different origin samples in the GSOEP (v35) by gender and associated 90%-confidence intervals. Own estimations. All specifications include controls for educational attainment, professional experience in years and its squared term, full-time versus part-time employment, occupational status, presence of a spouse/partner in the household, presence of children in the household, communication intensity of respondents' occupations, and share of migrants in their federal states of residence.

5.2 Labour Market Productivity of Turkish Bilingualism

To test whether the positive returns to Turkish-German bilingualism might be driven by specialised labour demand, we investigate whether the effect differs by communication intensity of occupations and the population density of Turkish immigrants in respondents' regions of

residence. If there is a demand for Turkish-speaking labour that drives the positive earnings differences between mono- and bilingual men with Turkish migration backgrounds, the effect should be concentrated in occupations that involve frequent communication. It should be more pronounced in regions with high numbers of Turkish-speaking inhabitants unless, in these regions, the higher demand is counteracted by an equally high supply of Turkish-speaking labour.

Figure 3: Bilingual premium by importance of communication in occupations



Notes: The figure reports per cent differences in monthly gross earnings between monolingual and bilingual higher generation Turkish immigrants for differing levels of importance of speaking in their occupations by gender, resulting from estimating earnings equations in the GSOEP (v35), and associated 90%-confidence intervals. Own estimations. All specifications include controls for educational attainment, professional experience in years and its squared term, full-time versus part-time employment, occupational status, presence of a spouse/partner in the household, presence of children in the household, and share of migrants in their federal states of residence.

To test these conjectures, we first inspect the earnings differences between monolingual and bilingual Germans with Turkish migration backgrounds for differing levels of communication intensity in their occupations. Figure 3 illustrates gross monthly earnings differences in per-

cent by gender, conditional on other language-related and socio-demographic controls, for differing levels of importance of communication in respondents' occupation as measured by the score of *the importance of speaking* in the O*NET online database (see Section 4).

We see that Turkish men working in occupations requiring frequent oral communication experience higher positive returns to bilingual language skills than those in occupations where communication is less important. The effect is slightly negative for women, but the slope is not statistically significantly different from zero. These findings indicate that Turkish language skills might increase male labour productivity in communication-intensive occupations. However, at this point, it is unclear why this should only be the case for men and not for women.

This leads to the question: What are the occupations of the female and male respondents with Turkish roots? Table 2 lists the ten highest and ten lowest-paid occupational groups among these respondents in our data, differentiated by gender.¹⁰ From the table, we see quite some overlap in female and male jobs, both in occupations with high and low earnings, as indicated by the occupations printed in bold. Nevertheless, there are also clear distinctions: In occupations of males, engineering, manufacturing, and related fields are more often represented, while service jobs are over-represented among the female occupations. Comparing between the lowest and highest paid jobs, it seems that communication is rather vital in both women's high (e.g., administration and legal professionals) and low-level jobs (e.g., hairdressers, shop salesperson). At the same time, among male occupations, the highly paid jobs (e.g., legal professionals and sales agents) are more communication-intensive than the lowly paid ones (e.g., protective services, painters). This is also supported by the average score of communication intensity as measured by the O*NET item *importance of speaking*: While the average score is very similar for women's high and low paid occupations (3.84 and 3.87, respectively), it is higher among male highly paid jobs (3.75) than among the lowest-paid occupations of men (3.38). It seems that women's returns to bilingualism do not rise with higher communication intensity because communication is essential at all levels of female jobs compared to male-dominated occupations.

It is possible that the higher returns to bilingualism in communication-intensive male jobs are not generated by the use of the Turkish language on the job. However, it seems possible that, e.g., legal or administrative professionals or medical doctors can utilise their language skills when dealing with many Turkish-speaking clients. An alternative explanation would be that

¹⁰ Listed are "minor groups" at the three-digit level of the International Standard Classification of Occupations (ISCO 08). For the regression analyses, we use the more detailed four-digit level.

bilingual men generally possess better verbal skills in both languages, which leads to selection into jobs requiring frequent verbal interactions. In any way, bilingual Turkish men seem to have a productivity advantage in communication-intensive occupations reflected in higher earnings.

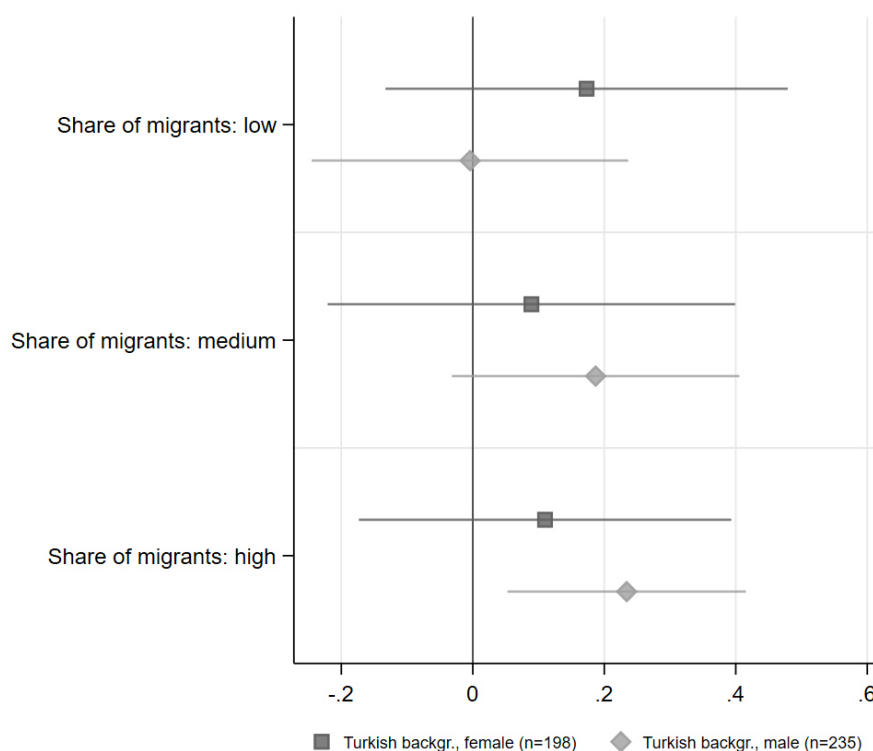
As mentioned before, another way of testing whether a specialised demand for Turkish-speaking labour generates the bilingualism premium for men of Turkish ancestry is to investigate the relationship between the earnings differences between mono- and bilinguals and regional variation in the size of the Turkish immigrant community. Figure 4, therefore, plots earnings differentials between these two groups in per cent while differentiating between three levels of immigrant population density in respondents' federal states: low (less than 3%), medium (3-5%), and high (above 7%) population shares of Turkish immigrants.

Table 2: Highest and lowest-paid occupations of German-Turkish women and men

	Occupations of females	Occupations of males
Best paid occupations	Administration professionals	Legal professionals
	Legal professionals	Engineering professionals
	Professional services managers	Sales and purchasing agents and brokers
	Waiters and bartenders	Life science professionals
	Medical doctors	Medical doctors
	Manufacturing, mining, construction, and distribution managers	Administration professionals
	Electrical equipment installers and repairers	Rubber, plastic and paper products machine operators
	Sales and purchasing agents and brokers	Shop salespersons
	Finance professionals	Physical and engineering science technicians
	Engineering professionals	Software and applications developers and analysts
Worst paid occupations	Other clerical support workers	Material-recording and transport clerks
	Other teaching professionals	Sheet and structural metal workers, moulders and welders, and related workers
	Hotel and restaurant managers	Blacksmiths, toolmakers and related trades workers
	Client information workers	Social and religious professionals
	Sales and purchasing agents and brokers	Architects, planners, surveyors and designers
	Shop salespersons	Waiters and bartenders
	Legal, social and religious associate professionals	Painters, building structure cleaners and related trades workers
	Other sales workers	Shop salespersons
	Hairdressers, beauticians and related workers	Sports and fitness workers
	Retail and wholesale trade managers	Protective services workers

Notes: Listed are the ten best and worst paid occupations of female and male Germans with Turkish migration backgrounds in our sample. Data: GSOEP v35. Bold typesetting indicates jobs that are represented both among female and male jobs. Own analyses.

Figure 4: Bilingualism premium by Turkish migrant density



Notes: The figure reports per cent differences in monthly gross earnings between monolingual and bilingual higher generation Turkish immigrants for differing levels of populations shares of Turkish immigrants at the federal state level by gender, resulting from estimating earnings equations in the GSOEP (v35), and associated 90%-confidence intervals. Own estimations. All specifications include controls for educational attainment, professional experience in years and its squared term, full-time versus part-time employment, occupational status, presence of a spouse/partner in the household, presence of children in the household, and communication intensity of respondents' occupations.

Again, we see substantial differences by gender. For men, we find a general trend of higher returns to bilingualism the larger the share of Turkish immigrants in the federal state. For females, we do not find any statistically significant bilingualism premium regardless of the size of the Turkish community on the federal state level.

The fact that higher shares of Turkish immigrants go along with larger returns to bilingualism is also reconcilable with the bilingualism premium being generated by positive network effects from Turkish language skills. If heritage language skills provide access to intra-ethnic enclaves and networks to individuals with Turkish migration backgrounds, these effects should be more prominent the more sizeable the immigrant community. Language skills activating valuable

social capital might also help explain the gender differences in the returns to German-Turkish bilingualism since there is evidence that women profit less from social capital for labour market success than men (e.g., Bolibar 2020). Therefore, in the next section, we explore additional information provided in the GSOEP data to confirm whether Turkish immigrants in Germany profit from ethnic networks for labour market outcomes and whether there are gender differences in the efficacy of intra-ethnic social capital in this group.

5.3 Turkish Language Skills and Social Capital

To investigate whether social capital is a crucial factor for the bilingual earnings premium of individuals with Turkish migration background, we make use of a set of questions in the GSOEP that ask respondents about how they found their current jobs (see Kalter 2011 for earlier work with GSOEP data on social capital and labour market outcomes of Turkish immigrants). Table 3 shows the shares of monolingual and bilingual women and men who report having found their jobs through friends or family by origin.¹¹

Among the Turkish respondents, 44% of males and 34% of females report having found their jobs through one of these channels. The difference is driven by bilinguals with Turkish backgrounds; among monolinguals it is much smaller and not statistically significant. Women with Turkish migration backgrounds are actually less likely to have found their jobs through family or friends when they are fluent in Turkish. Female Turkish immigrants may benefit more from their German-speaking network than from Turkish-speaking social contacts. Possibly, the monolingual women are more assimilated in the native German community and therefore have more extensive inter-ethnic networks. In any case, bilingual women do not seem to benefit from intra-ethnic social capital to the same degree as their male counterparts do.

¹¹ Among the possible answers to this question, three could be interpreted as relating to network effects: “Through friends or acquaintances”, “Through family members”, and “Through co-workers”. We combine those three options into a dummy variable that indicates whether the respondent reports to have found their job through one of these channels.

Table 3: Shares of respondents finding their jobs through social networks

		Total	Monolin- gual	Bilingual	Diff	Observa- tions
Any migration background	male	0.41	0.37	0.46	<i>-0.91</i>	531
	female	0.32	0.30	0.34	-0.04	544
Turkish back- ground	male	0.44	0.39	0.46	-0.08	152
	female	0.34	0.42	0.31	0.10	138
Polish back- ground	male	0.30	0.28	0.40	-0.12	23
	female	0.38	0.32	0.57	-0.26	26
Other Slavic background	male	0.35	0.36	0.32	0.04	78
	female	0.26	0.15	0.33	<i>-0.18</i>	78

Notes: Own calculations with data from SOEP v35. Reported are shares of persons with migration background that report to have found their current jobs through friends or family by ethnic origin and by gender. Bold typesetting indicates statistically significant gender difference within origin-language skill- group at the 90% level. Italic typesetting indicates statistically significant difference between monolinguals and bilinguals within origin-gender group at the 90% level.

Interestingly, an earlier study by Drever and Hoffmeister (2008: 438) that uses data from the GSOEP as well came to the same conclusion concerning job search strategies of Turkish immigrants in Germany: Men make use of social networks to a higher degree than women do, but in their data, similar to ours, the sample size is too small to reach definitive conclusions. Unfortunately, many studies that explicitly investigate the influence of social networks on immigrants' labour market outcomes in Germany restrict their analysis to male migrants (e.g., Kanas et al. 2012; Lancee 2012, 2016). Lancee and Hartung (2012) find no gender differences in the effects of intra- and inter-ethnic social capital on the duration of unemployment among first-generation Turkish immigrants in Germany. However, international research suggests that social capital can be a less powerful resource for immigrant women than for men (e.g., Gilbertson 1995; Bolibar 2020). Nonetheless, there is also ample evidence for the importance of host country contexts and community effects in moderating the influence of ethnic networks, hence generalising from other contexts might lead to erroneous conclusions.

A possible explanation for why German-Turkish women do not profit from Turkish-speaking networks to the same degree as men could lie in cultural attitudes concerning the gendered division of labour. According to recent data by the World Economic Forum (WEF 2021), Turkey scores relatively low in an international comparison of gender equality in economic participation, educational attainment, health, and political empowerment (rank 133 of 156). In the 2017 – 2020 wave of the World Values Survey (WVS), 51% of Turkish respondents agreed to

the statement "When jobs are scarce, men should have more right to a job than women", compared to, for example, 30% in Albania, 2.2% in Denmark, 7.7% in Germany, 25.4% in Italy, and 23.1% in Poland (WVS 2021). When comparing among immigrants in Germany, about 15% of individuals with Turkish migration background agree to the above statement. While this constitutes dramatically lower agreement compared to Turkish residents, it is still far higher than the share agreeing among native Germans without migration background (5%) and also more than twice as high as among other immigrant groups, like Polish and Italian immigrants (own calculations based on data from the ESS Round 8). From these numbers, it seems possible that Turkish women do not benefit from ethnic networks to the same degree as men because even in the Turkish community in Germany, the norm against female labour market participation prevails.

To test this conjecture, we look at the ethnic network of the respondents with Polish and other Slavic migration backgrounds in our sample, as sizeable immigrant groups in Germany with relatively progressive gender norms compared to Turkey (Poland ranks 75th in the WEF ranking from 2021). As shown in Table 3, the numbers seem to fit the notion that gender gaps in the utilisation of ethnic social capital might be related to gender norms. Among the persons with Polish or other Slavic migration backgrounds, bilingualism seems to benefit women's labour market networks more than men's, if anything.

Of course, this is somewhat circumstantial evidence for the influence of gender norms with limited external validity. An additional mechanism could lie in gender differences in the quality of social networks. Networks tend to be relatively gender-homogeneous. If men hold better qualified, more highly paid, or more prestigious jobs, on average, it is possible that men's social networks provide more or better job opportunities, on average, compared to women's networks.

The interaction of linguistic and social capital and gender differences in their returns clearly warrant further research.¹²

6 Discussion

Our analyses indicate that for most immigrant groups in Germany, fluency in the heritage language is not associated with higher earnings, on average, conditional on sound knowledge of German. Bilingualism either does not raise average worker productivity, at least not above and

¹² See also the discussion of gender differences in social networks by Bilecen and Seibel (2021).

beyond educational attainment, or heritage language skills signal ethnic identity and therefore cause marginalisation and discrimination that counteract potential productivity effects. However, we also do not find indications of adverse effects of bilingualism on earnings. There is virtually no difference in the earnings of bilinguals and monolinguals when we pool across immigrant backgrounds.

On the contrary, we find higher earnings for bilinguals than German monolinguals for the largest immigrant community in Germany, people with Turkish migration backgrounds. Among German-born men with Turkish migration backgrounds, bilinguals earn 39 per cent more than their monolingual German counterparts. When controlling for education, other important socio-demographics, and language-related information, the difference is still sizeable, with 18 per cent higher earnings for bilinguals. For females, bilingualism also seems to go along with higher monthly earnings, but not in a statistically significant way.

We utilise the comprehensive information provided by the GSOEP to try and differentiate between different possible channels that could drive the bilingual premium for (male) Turkish background individuals. In particular, we explore two alternative channels: specialised labour demand due to many Turkish-speaking people in Germany that necessitate Turkish-language personnel in certain jobs, and network effects, i.e., Turkish language skills providing access to ethnic networks.

Both explanations find some support in our data but in gender-specific ways. Turkish-German bilingualism seems to foster intra-ethnic networks for the labour market success of men since bilingual Turkish men are more likely to have found their current job through friends or family than their monolingual counterparts. However, among women, no such benefit of bilingual language skills is visible in our data. Similarly, we see a higher bilingual premium in federal states with larger shares of Turkish immigrants in the population – But only for men. As reasons for these gender differences, we discuss gendered patterns of the quality and realisation of social capital for labour market success and cultural norms against female employment. In addition, occupational segregation seems to play a role as the bilingual premium for Turkish men is more considerable when they work in occupations with high communication intensity, but the same is not true for women. At the moment, we cannot say whether the increased bilingual premium in these jobs is caused by the use of Turkish on the job or by selection into communication-intensive jobs due to higher general communication skills among bilinguals, independent of languages used on the job.

Higher general communicative skills of bilinguals also match the findings from educational research that bilinguals have higher cognitive skills and higher success in language learning (e.g., Edele et al. 2020), as discussed in Section 2. However, the observable part of these benefits should be captured by the controls for educational attainment included in our regression models. Since the earnings differences between bilingual Turkish-Germans and their monolingual German-speaking counterparts are conditioned on, among others, educational attainment, they should be driven either by productivity differences that are unrelated to the level of education or by bilingualism enhancing ethnic social networks.

A critical characteristic of the Turkish community in Germany must be considered when interpreting these results: People of Turkish ancestry have lower average earnings than individuals with other migration backgrounds. In our sample, the earnings of German-Turkish men are about 13 per cent lower than the mean value of all men with migration backgrounds, and only German-Polish men earn even less. Against this background, the bilingual language premium observed for Turkish men seems less of a real advantage compared to other language groups. Instead, it might rather work towards counteracting other disadvantages, for example, caused by ethnic occupational segregation or discrimination. For example, the more active use of ethnic social networks among people of Turkish ancestry may be a reaction to their unfavourable standing in the labour market.

The results of this paper come with three possible caveats: First, our measure of *competent bilingualism* relies on self-reported language skills and these are known to be threatened by misclassification bias. Regarding fluency in the host country language, we mitigate this problem by relying on second and higher generation immigrants who were born and went to school in Germany and for whom we can thus assume relatively homogeneous German skills. For knowledge of the heritage language, we have no way of ruling out misclassification error in our data. If part of the misclassification on language skills in the destination language is caused by social desirability bias due to the interview situation, this should not play a major role in reporting heritage language skills. In any case, since we find no or positive effects of bilingualism on earnings, our results are unlikely to be driven by misclassification in the language information unless respondents who share some other unobserved characteristic that goes along with higher labour market productivity systematically over-report their competency in the heritage language or respondents with low productivity regularly under-report their heritage language skills. We cannot think of a plausible reason why this should be the case.

The second drawback of our data is the fairly small sample size, especially in the interaction analyses that break the sample down to several smaller cells. Nevertheless, the fact that we find statistically significant and economically meaningful effects even in this small sample speaks towards the high relevance of the discovered effects. However, we cannot conclusively rule out effects of bilingualism for the less sizeable language groups, like the Spanish-speaking men, where we found no *statistically* significant effects but large point estimates due to limited statistical power.

Third, our sample is selected on German language skills. While focusing on competent bilingualism allows more direct identification of the effects of bilingual skills and avoids level differences in German proficiency between mono- and bilinguals as well as between different heritage language groups, this specific characteristic of the data has to be considered when interpreting the results. However, among individuals with indirect migration background, this restriction leads to the exclusion of only about three per cent of the sample so that we are reasonably confident that the results can be generalised to the population in question. In future research, measuring language skills with standardised instruments instead of relying on self-reported proficiency would allow expanding the analysis to first-generation immigrants and ruling out any misclassification bias with certainty.

Lastly, we would like to discuss briefly whether null or (statistically insignificant) adverse effects of bilingualism among certain origin groups (e.g., Italian women) in this setting might be driven by discrimination or other, more subtle, ways of marginalisation. In short, with the information available to us, we cannot say conclusively. Since we compare bilinguals and monolinguals *within* ethnic origin groups, we can rule out that null or negative effects are caused by discrimination against specific immigrant groups, e.g., the Polish-background population. However, employers may interpret immigrants retaining their heritage language as signals of lower assimilation into the host society and therefore discriminate against this group. If this were the case, individuals could hide their bilingual language skills when applying for a job if they were aware of these mechanisms.

7 Conclusion

In this paper, we investigate the returns to bilingual language skills among immigrant populations in Germany. By focusing on competent bilingualism, i.e., fluency in both German and the heritage language, we abstract from cases where retaining the heritage language goes along

with lower linguistic and possibly cultural, social, and economic integration into the host country.

We take account of the differential assessment of language skills due to differences in labour market productivity and due to ethnic marginalisation through differentiating the returns to bilingualism by language or ethnic group membership, the local dissemination of languages, and the communication intensity of occupations.

Our findings indicate that most immigrant groups do not benefit from retaining their heritage language concerning earnings. Second and higher generation immigrants of Turkish ancestry form the critical exception to this rule with sizeable returns to bilingualism for this sub-sample. We also find meaningful gender differences: While females are more likely to have bilingual language skills, men's earnings returns are higher.

Regarding channels of the bilingual earnings premium, we discuss linguistic capital unlocking ethnic networks and productivity differences due to occupational sorting. Our findings indicate that both play important roles for the bilingual language premium among Turkish males. In contrast, Turkish females do not benefit from heritage-language networks for labour market outcomes and do not generate larger returns to bilingualism in communication-intensive occupations. Our empirical design abstracts from most of the potential effects of bilingualism on productivity through cognitive benefits and human capital acquisition.

Overall, bilingual language skills including immigrants' heritage languages do not seem to be a particularly valued resource in the German labour market. However, positive effects can materialise for certain immigrant groups through social networks, in jobs requiring frequent communication, and possibly through general verbal communication skills.

Our findings align with the results of earlier studies while expanding the literature by adding important aspects that previously remained neglected: In particular, we point out the importance of the size of the language group and differentiate its effect on the bilingualism premium into demand and supply-side mechanisms. Furthermore, we emphasise gender differences in these relationships.

The gender differences shown point towards crucial policy implications of our research: Besides differences in the realisation of social capital, women seem to profit less from bilingual language skills due to occupational segregation. Communication-intensive occupations seem to be relatively prestigious professions among males, like legal advisers. At the same time, women's occupations that require frequent communication are less prestigious and include jobs like

hairdresser. Women might be able to realise higher returns to bilingual language skills if they worked in similar occupations as men.

Some questions remain open at this point. First, while we discussed possible explanations, we cannot definitely conclude on the reasons for the identified gender differences. Second, we do not know whether Turkish bilinguals actually use their heritage language skills in their occupations or whether positive earnings effects are instead driven by unobserved differences in general communication skills when those are not reflected in observed educational attainment. Third, there may be similar effects for other language groups that we cannot identify due to low statistical power. Overall, more research into the linguistic capital of immigrant populations in Germany, for example, using more specialised data sets, seems a worthwhile future endeavour.

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Appendix

Table A. 1: Complete regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Any back-ground	Turkish back-ground	Greek back-ground	Italian back-ground	Spanish back-ground	Polish back-ground	Slavic back-ground
Bilingual	0.004 (0.032)	0.127** (0.063)	-0.038 (0.105)	-0.059 (0.075)	0.180 (0.177)	0.225 (0.218)	-0.024 (0.097)
Importance speaking, score	0.061 (0.046)	0.046 (0.079)	0.326** (0.153)	-0.041 (0.103)	-0.299 (0.247)	0.764** (0.289)	-0.066 (0.138)
Medium share of migrants	0.069 (0.043)	0.139* (0.080)	-0.091 (0.145)	0.161* (0.093)	-0.086 (0.244)	-0.139 (0.263)	0.111 (0.136)
High share of migrants	0.038 (0.044)	0.040 (0.082)	-0.082 (0.161)	0.162 (0.113)	-0.183 (0.201)	0.323 (0.272)	-0.007 (0.139)
Low educational level	-0.197*** (0.044)	-0.190*** (0.070)	-0.272 (0.171)	-0.399*** (0.109)	-0.292 (0.275)	0.069 (0.256)	-0.164 (0.135)
High educational level	0.310*** (0.046)	0.230*** (0.088)	0.281** (0.134)	0.289*** (0.102)	0.586** (0.235)	0.755** (0.327)	0.115 (0.133)
Professional experience in years	0.043*** (0.006)	0.047*** (0.014)	0.053** (0.021)	0.015 (0.014)	0.053 (0.037)	0.015 (0.034)	0.067*** (0.017)
Professional experience in years, squared	-0.001*** (0.000)	-0.001 (0.001)	-0.001* (0.001)	-0.000 (0.000)	-0.001 (0.001)	0.000 (0.001)	-0.002*** (0.001)
Part time employment	-1.089*** (0.039)	-1.148*** (0.071)	-0.946*** (0.135)	-0.951*** (0.097)	-1.099*** (0.209)	-1.142*** (0.232)	-1.203*** (0.120)
Occupational status = Skilled workers	0.424*** (0.069)	0.363*** (0.114)	-0.029 (0.294)	0.587*** (0.158)	0.527 (0.403)	0.880** (0.415)	0.351* (0.201)
Occupational status = Self-employed	0.169** (0.078)	0.207 (0.136)	-0.442* (0.262)	0.688*** (0.201)	1.063** (0.486)	-0.019 (0.705)	0.565** (0.235)
Occupational status = Simple employees	0.060 (0.056)	-0.026 (0.092)	-0.408** (0.202)	0.414*** (0.139)	-0.019 (0.362)	-0.118 (0.315)	-0.017 (0.157)
Occupational status = Qualified employees	0.407*** (0.062)	0.274** (0.107)	-0.252 (0.233)	0.612*** (0.146)	0.624 (0.391)	0.134 (0.416)	0.463*** (0.177)
Occupational status = Highly qualified employees	0.502*** (0.079)	0.432*** (0.147)	-0.088 (0.301)	0.812*** (0.181)	0.628 (0.401)	-0.117 (0.502)	0.719*** (0.228)
Female	-0.037 (0.037)	0.020 (0.066)	-0.232* (0.133)	-0.140 (0.090)	0.060 (0.190)	0.200 (0.208)	0.087 (0.110)
Children in the household	0.020 (0.035)	-0.069 (0.061)	0.029 (0.113)	0.189** (0.084)	-0.092 (0.190)	-0.073 (0.216)	-0.057 (0.108)
Living together with partner	0.122*** (0.038)	-0.068 (0.069)	0.233* (0.129)	-0.015 (0.095)	-0.137 (0.225)	0.334 (0.205)	0.118 (0.119)
Constant	6.816*** (0.163)	6.925*** (0.280)	6.407*** (0.540)	7.182*** (0.367)	7.921*** (0.840)	4.155*** (1.056)	7.179*** (0.507)
Observations	1,533	424	135	213	62	61	206
R-squared	0.627	0.654	0.666	0.687	0.776	0.742	0.656

Notes: Dependent variable is log monthly gross earnings; Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1; All models include three five-year-band dummies to control for time trends