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## Language learning: Human capital investment or consumption?

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# *Language Learning: Human Capital Investment or Consumption?*

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# Language Learning: Human Capital Investment or Consumption?\*

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## Abstract

This paper focuses on foreign language learning as human capital investment or consumption. We apply the human capital investment framework to foreign language learning and enlarge it by adding consumption motives. Based on a novel dataset collected from language course participants in 14 countries worldwide, we estimate individual and country-level determinants of the different motives for language learning and of the expected use of language skills in the labour market. We highlight possible spillovers from the consumption motive to professional use in the labour market, which emerge mostly in a “tied-mover” context. This provides guidance for targeted migration and integration policies.

*JEL classification:* C82, E21, E22, F15, F22.

*Keywords:* Language learning; new dataset; human capital investment; consumption

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## **1 Introduction**

Foreign language skills have a productive value in two different contexts. First, one can think of language skills of natives and immigrants, which are foreign relative to the main language of the country of residence. Whereas studies have found no or only very small returns to foreign language skills in the US (Saiz and Zoido 2005), high returns to those skills show up in the labour market of some European countries for immigrants (Toomet 2011; Isphording 2013) as well as for natives (Ginsburgh and Prieto-Rodriguez 2011). As the latter authors point out, these returns often depend on the relative scarcity of specific language skills. In Germany, there are large returns to expert-level English for natives and even more so for immigrants (Stöhr 2015).

Second, foreign language skills can also be viewed in the context of migration. The host country's main language is often foreign relative to the main language of the immigrants. Effects of immigrants' skills of the host country's language have been widely discussed. Researchers and policy makers alike emphasize the importance of those language skills for integration into the labour market of the host country. More specifically, language skills improve labor market outcomes of migrants by increasing earnings (see e.g. Dustmann and Soest 2001; Chiswick and Miller 1995) and employment probabilities (Dustmann and Fabbri 2003; Budría et al. 2019) and by improving occupational choices (Aldashev et al. 2009).

All this evidence can be put in the light of the human capital theory (Becker 1964; Schultz 1960). According to this theory, individuals choose the human capital that maximizes their expected net present value of income. Acquiring human capital is a costly investment which is expected to lead to monetary returns via increased wages or increased employment probabilities by increasing the individual productivity. This framework has been enlarged to include migration and therefore expected returns which can realise in the domestic and the foreign labour market (Sjaastad 1962); it can be further extended easily to comprise foreign language skills as a specific type of human capital.

When looking empirically at individuals' choices, however, the human capital model is not able to fully explain the data. Individuals often choose more education or other types than would be optimal according to the human capital theory (Oosterbeek and Webbink 1995; Oosterbeek and Ophem 2000; Canton and Jong 2005). If we ignore irrational choices, expected labour market returns do not seem to be the only determinant of those choices. One explanation for the observed patterns is that education or, broadly speaking, learning has a consumption value and generates direct utility (Schaafsma 1976; Lazear 1977; Kodde and Ritzen 1984). This consumption value can be defined as "the private, intended, non-pecuniary return to education" (see Alstadsaeter 2011). Individuals may then choose a quantity or type of education which leads to lower monetary returns than other possible choices (Alstadsaeter 2011; Arcidiacono 2004).

In this paper, we focus on foreign language learning and different motives based on learning as human capital investment or as consumption. Language learning leads to a particular form of skills that can be acquired in many different contexts, e.g. at school, universities, but also in language courses. While choices about language acquisition at school are often determined by the school curriculum or parents' preferences, participating as an adult in a language course offered by a university or a private provider is more directly related to determinants which can be linked to the human capital motive or the consumption motive.

To address the question, why people decide to acquire foreign language skills, we use survey data which we collected from language course participants at the Goethe-Institut, a German cultural institute, in 14 countries worldwide. Even though the sample is very likely not representative for the populations in the respective countries, the resulting dataset is very suitable for analysing our question of interest. To the best of our knowledge, we are the first to apply the human capital framework enlarged by adding consumption motives to foreign language learning. By doing so, we want to contribute to a better understanding of foreign language acquisition in a cross-country perspective.

We proceed in three steps: First, we present descriptive evidence on all reasons for foreign language acquisitions by countries. Based on the participants' main reasons, we build categories which we then aggregate into the human capital investment motive and the consumption motive. We use binary probit estimations to find individual and country-level determinants of the human capital investment motive. In order to identify heterogeneities, we have a closer look at subgroups based on age, gender and countries. Second, we provide descriptive evidence on a second measure – the expected probability of using the foreign language skills in a professional environment – and show that a given human capital investment motive does not necessarily match with a high probability of professional use. Therefore, we apply again binary probit estimations to study individual and country-level determinants of a professional use and identify heterogeneities in a subgroup analysis based on age, gender and countries. Last, by looking at language learning by motives, we are interested in possible spillovers from a given consumption motive to a professional use on the one hand and possible barriers that might hinder a professional use despite a given investment motive on the other hand. We find that the former case mostly emerges in a “tied-mover” context. Understanding these relations is important from a policy-point of view as it provides guidance for targeted migration and integration policies. A special focus will be on possible difference between European and non-European countries.

The remainder of the paper is structured as follows. In Section 2, we describe how the survey was conducted and present the individual characteristics of the language course participants. Section 3 provides descriptive evidence of the reasons and their distributions across countries as well as by age and gender subgroups; there, we also introduce the concepts of categories and motives. Section 4 presents estimation results for the determinants of language learning based on the human capital motive. In Section 5, we show descriptive evidence of the expected probability of professional use, present estimation results about its determinants and discuss the spillover effects. Section 6 concludes.

## **2 Survey at the Goethe-Institut**

### **2.1 Selection of countries and institutes**

The Goethe-Institut (GI) is a German cultural institute that offers language courses worldwide and is an important part of the foreign cultural policy of the German government. In addition to language courses, the GI is engaged in cultural exchange and provides information about German culture and society (Auswärtiges Amt and Goethe-Institut 2004). While the main funding is provided by the Federal Foreign Office, language courses are financed by fees (Goethe-Institut 2014). In 2019, the GI was present in 98 countries

with a total of 156 institutes (Goethe-Institut 2020).<sup>1</sup>

We selected 19 institutes in 14 countries and conducted a survey among language course participants between June and December 2018. The content of the pen and paper questionnaire included questions on socio-demographic characteristics, education, professional background, language skills, previous migration experience and future migration plans as well as questions on the reasons of learning the German language.

Table 1 gives an overview of the selected countries in the survey. It also notes the main characteristics on which we based this selection to assure a heterogeneous sample of countries according to the following characteristics: geographic distance to the German-speaking region, linguistic distance to the German language, average income (GNI/capita) level as categorized by the World Development Indicator in 2018 (World Bank 2021) and the absence (or presence) of migration barriers defined by the (lack of) freedom of movement within the European Union (EU) and the European Economic Area. The presence of a large institute measured by the number of course participants was of further importance for the selection of countries. In Indonesia and South Korea we had the opportunity to conduct the survey in more than one institute.

In order to increase participation in our survey, we undertook several measures. First, the survey was translated into the main language of each country. In India, the questionnaire was in English. Additionally, we provided English and German questionnaires upon request in every country. Second, each participant could take part in a lottery to win a free language course at the given institute (limited to one language course per country). Third, we encouraged participation in further ways, which differed between European and non-European countries. In European countries, a team member of the research project was present at the institutes for at least one unit of each course offered during a given week and handed out the questionnaire to each participant present. Most of the participants filled-in the questionnaire during the course break or after the course unit, others took it home and returned it later to the team member. In non-European countries, team members were not present in person to conduct the survey. Instead, the printed questionnaires were sent by mail to the institutes and were then distributed by the course instructors. To reduce the time and effort of the instructors and other GI officials and to minimize the probability of errors in the distribution process, we prepared envelopes for each course containing the questionnaires. In Mexico, the questionnaires were distributed during the process of course inscription for the upcoming course term.

All those measures combined resulted in high participation numbers and high response rates. In total, 6,664 language course participants submitted valid questionnaires. Table 1 gives an overview of the number of participants and the response rates by country. In European countries, the response rates ranged from 67 % to 99 %. In these countries (except the Netherlands), the response rate is based on the actually distributed number of questionnaires; in non-European countries (and the Netherlands), the response rate is based on registered course participants. The number of registered course participants is by definition equal or larger than course attendance in each unit. This leads to lower response rates in non-European institutes which can be interpreted as lower-bounds when compared to response rates in European institutes. In non-European countries, the response rates

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<sup>1</sup>For more details on language learning at the GI, see Uebelmesser et al. (2018)

Table 1: Country characteristics and response rates. GI sample

Countries	Ling. close	Geogr. close	Income (GNI/capita)	Absence of migr. barriers	Notes	Participants	Response rate
Netherlands	Yes	Yes	High	Yes	Linguistically close country	139	0.67*
Great Britain	Yes	Yes	High	Yes/No (Brexit)	Linguistically close country	480	0.88
Spain	No	Yes	High	Yes	(Recently) high-unempl. c.	611	0.83
Italy	No	Yes	High	Yes	(Recently) high-unempl. c.	371	0.86
Czech Rep.	No	Yes	High	Yes	New EU country (since 2004)	481	0.83
Poland	No	Yes	High	Yes	New EU country (since 2004)	236	0.69
Romania	No	Yes	Upper-middle	Yes	New EU country (since 2007)	327	0.87
Bosnia	No	Yes	Upper-middle	No	Close, non-EU country	270	0.99
Ukraine	No	Yes	Lower-middle	No	Close, non-EU country	782	0.93
Japan	No	No	High	No	Developed, non-Europ. country	293	0.59*
South Korea	No	No	High	No	Developed, non-Europ. country	470	0.65*
Mexico	No	No	Upper-middle	No	Emerging markets	491	0.60
Indonesia	No	No	Lower-middle	No	Developing country	883	0.55*
India	Yes/No (English)	No	Lower-middle	No	Developing country	830	0.72*

*Note:* \* Response rates based on registered course participants, not actual attendance. Income levels are categorized as by the World Development Indicator in 2018 (World Bank 2021). Languages are linguistically close if they are Germanic languages. Countries are geographically close if the country is in Europe. Absence of migration barriers are defined by freedom of movement for workers within the European Union and the European Economic Area.

ranged from 59 % to 72 %. A further exception is Mexico where the response rate (60 %) is based on the number of distributed questionnaires during the process of course inscription.

## 2.2 Individual characteristics of language course participants

The individual characteristics of language course participants are very different across countries. Table 2 shows the means by country groups (see Table A1 in the Appendix for the means by all 14 countries and Table A2 for variable descriptions). We distinguish between European countries, which are members of the EU, European countries which do not belong to the EU and non-European countries.<sup>2</sup> Of the 6,664 language course participants that took part in the survey, we exclude 2,308 observations because of missing information in the variables utilized in our analysis. Our main sample therefore contains 4,356 individuals. Among all participants 78 % are younger than 35 years. This share is higher for course participants in non-EU countries. The majority of course participants is female (59 %) and has no partner (60 %), with some variations across country-groups. While the share of partners with German as native language is very small in non-EU countries (3 %) (except Japan with 11 %), it is rather large in the EU (on average 10 %, but in particular due to Great Britain with 28 % and the Netherlands with 18 %).

The young average age of the participants might be responsible for the low share of those with children (only 13 %). This might also explain the high share of those who indicate that they are in education (43 % overall, over 50 % in non-EU countries, but only 28 % in EU countries). Most of the other participants are active in the labor market (46 %). The majority of course participants already has a university degree (64 %). In combination with those still in education, part of whom will likely receive a university degree in the

<sup>2</sup>The group of European, EU countries comprises the Netherlands, Great Britain, Spain, Italy, Czech Republic, Poland and Romania; the group of European, non-EU countries includes Ukraine and Bosnia and Herzegovina; finally Japan, Korea, Mexico, India and Indonesia belong to the group of non-European countries.

Table 2: Descriptive statistics: means of individual characteristics by country-groups

Variable	European (EU) n=1822	European (non-EU) n=683	Non- European n=1851	Total n=4356
Age: under 35 years	0.68	0.82	0.87	0.78
Gender: female	0.59	0.60	0.59	0.59
Children	0.18	0.17	0.07	0.13
No partner	0.44	0.58	0.77	0.60
Partner (native German)	0.10	0.03	0.03	0.06
Partner (other native)	0.46	0.39	0.20	0.34
Occ.: in education	0.28	0.51	0.54	0.43
Occ.: in lab. market	0.60	0.37	0.35	0.46
Other occ./no answer	0.12	0.12	0.11	0.12
University degree	0.76	0.58	0.55	0.64
Risk attitude	6.09	6.77	6.47	6.36
Patience	5.80	6.62	6.28	6.13
Intern. applic. of education	4.02	3.85	3.74	3.87
Migration intention	0.63	0.82	0.68	0.68

Notes: All variables except risk attitude, patience and international applicability of education are binary variables that take the value 1 for the indicated statement. Risk attitude is measured from 0 (risk-averse) to 11 (risk-loving). Patience is measured from 0 (very impatient) to 10 (very patient). International applicability of education is measured from 1 (none of the education is internationally applicable) to 5 (all of the education is internationally applicable).

future, the large majority of course participants is highly skilled. On average, the level of international applicability of their education as evaluated by the participants is highest in the EU with 4.02 on a scale from 1 to 5. This value is slightly smaller in non-European countries, but with much more variation between the countries ranging from a rather low international applicability in Japan (2.83) to a very high one in Mexico (4.32).

Participants in the EU are on average slightly less risk prone, but also slightly less patient. Intention to migration is quite high (overall 68%). In particular this is the case in the non-EU countries Bosnia and Herzegovina (88%), Ukraine (81%) and Mexico (80%). The opposite is the case in Japan where only 38% have migration intentions.

### 3 Reasons for language learning

In this section, we present the reasons for learning language indicated by the course participants and explain how we aggregate them into categories and ultimately into the human capital motive and the consumption motive. A special focus is on cross-country differences with a special focus on possible difference between European and non-European countries and on heterogeneities based on age and gender.



### 3.1 Categorization of reasons

In the survey among course participants at the GI all respondents have in common that they decided to learn the German language. We now examine the reasons behind this decision. First, all participants answered the following multiple-response question: *Why are you learning German?* Afterwards, participants were asked to choose the main reason among the chosen reasons.

We categorize the main reasons according to Figure 1 and use this categorization as the basis for our analysis. In a first step, we aggregate the 14 reasons presented in the questionnaire into the five categories *education*, *educational and labour migration*, *domestic labour market*, *personal reasons* and *cultural interest*. In a second step, we further aggregate these categories into the two motives *human capital investment* and *consumption good*.

The categories *education* and *educational and labour migration* include only one single reason each. *Domestic labour market* gathers all reasons that include potential advantages in the labour market of the country where the survey took place. *Personals reasons* refers to *family* and *friends* as well as *other migration*, i.e. migration which is not related to the labour market or education. The last category sums up *cultural interest* in a broad sense and includes holidays, cultural interests (films, literature,...) as well as general interests in languages.

On the basis of these categories, we group the reasons into motives. On the one hand, language learning can be an investment in human capital, i.e. language skills can be used in a productive way such that there are (expected) monetary returns to these skills. In our context, we use a broad definition of monetary returns and consider all categories which contain reasons related to the *domestic labour market* or the foreign one via *labour migration*. Additionally, learning a language can happen in the context of domestic *education* or foreign education via *educational migration*. This happens either directly by adding language skills to the human capital stock, or indirectly if language skills affect the accumulation of other human capital positively, e.g. by opening up better education possibilities in destination countries where language skills are a requirement for education.

One the other hand, language learning can be seen as a consumption good with non-monetary returns that leads to a direct increase in utility, either immediately or later. We define reasons as being related to the consumption good which belong to the categories *personal reasons* and *cultural interest*.

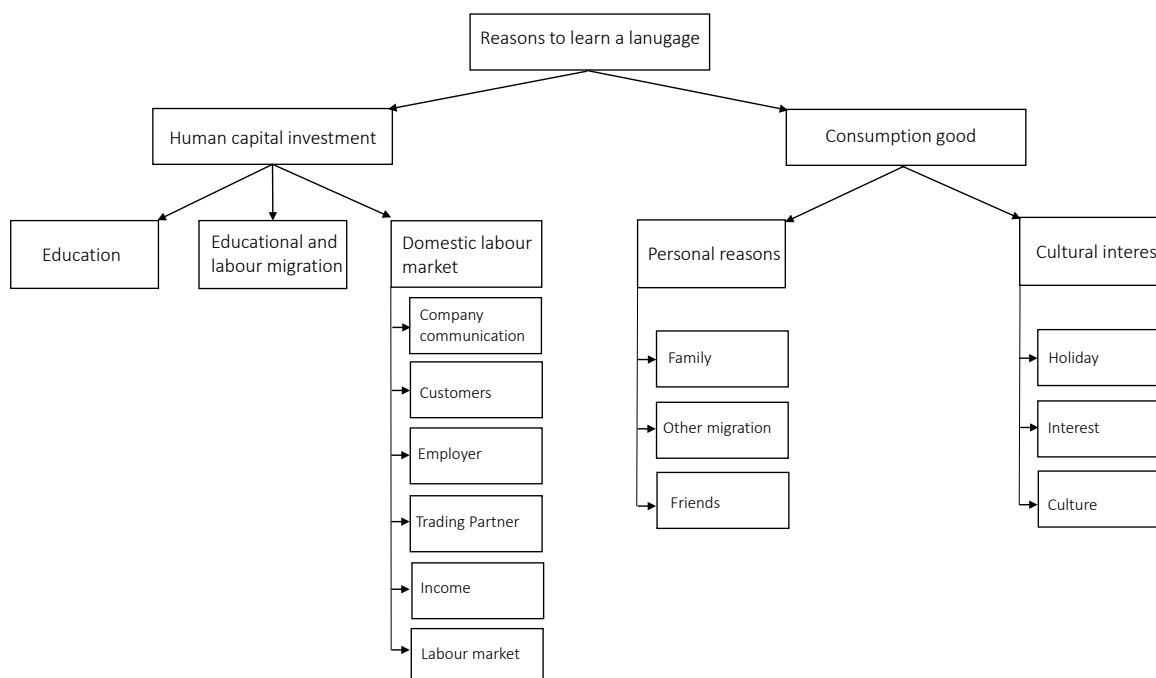
When we use motives and categories we always build on the indicated main reason. However, the question about the main reason led to a substantial number of missing data points, as not all participants indicated their main reason among their chosen reasons. An analysis of the missings shows that the significant determinants of not answering the question on the main reason do not follow a pattern. We are therefore confident that this does not imply a selection issue.<sup>3,4</sup>

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<sup>3</sup>The results are available from the authors upon request.

<sup>4</sup>In order to increase sample size, we impute categories if the respondents gave reasons that belong only to one category. We apply the same procedure for the motives if all reasons belong either to the human capital motive or the consumption motive.

Figure 1: Categorization of reasons to learn languages.



Note: See Table A3 in the Appendix for the exact wording of the question in the questionnaire and Table A4 for an overview of the abbreviated terms we use in the text and graphs for the different reasons. Note that in Japan, Bosnia and Herzegovina, Great Britain and Poland we have not distinguished between “(Possible) move to a German-speaking country for professional reasons” and “(Possible) move to a German-speaking country for other reasons”. In these cases, we have imputed the reasons by making use of the main reason for a potential move to a German-speaking country, which the respondents answered in the survey as well. The same method was applied for the category “Requirement for visa” in all surveys. In Indonesia, we split the category “Study/education/training/PhD” into “Study/education/PhD” and “(Vocational) Training”, but re-merged it for our analysis. Other reasons were categorized according to the free-text field if possible.

### 3.2 Reasons, categories and motives

In the following, we present the distribution of the main reasons, the categories and the motives. The main sample is constructed in a way that we drop all observations where we neither have information about the respondent’s main reason nor are able to impute the category or motive.

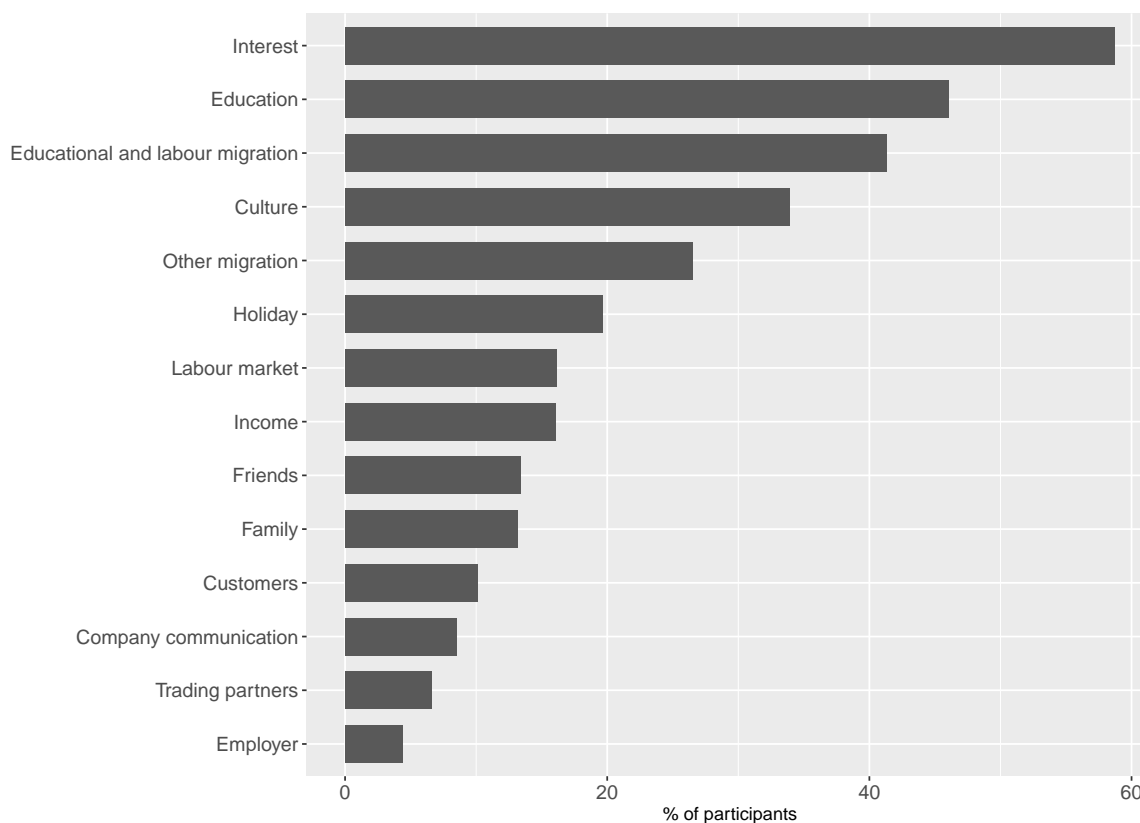
#### 3.2.1 Reasons and main reasons

Figure 2 shows the share of participants for each of the single reasons. *Interest* is top of the list chosen by 58.7% of the participants. Other frequently mentioned reasons are *Education* (46.1%) and *Educational and labour migration* (41.3%). Half of the respondents picked three or less reasons (on average 3.15 reasons) and only 25% picked more than four.

Our categorization as presented in Figure 1 does not imply that the single reasons within each category need to be correlated. Also the relevance of cross-category correlation is not obvious. Therefore, a further look is warranted. We ignore those 809 participants who only indicated one single reason for learning German and focus on those with at least two reasons. Figure 3 maps the correlation coefficients between all reasons (see Table A5 in the Appendix for the numbers and their statistical significance). We see that there is some correlation for some of our categories, while there is none for others. The correlation coefficients between all reasons range from -0.19 to 0.39.

For reasons within categories, we always find positive correlations. These are particularly

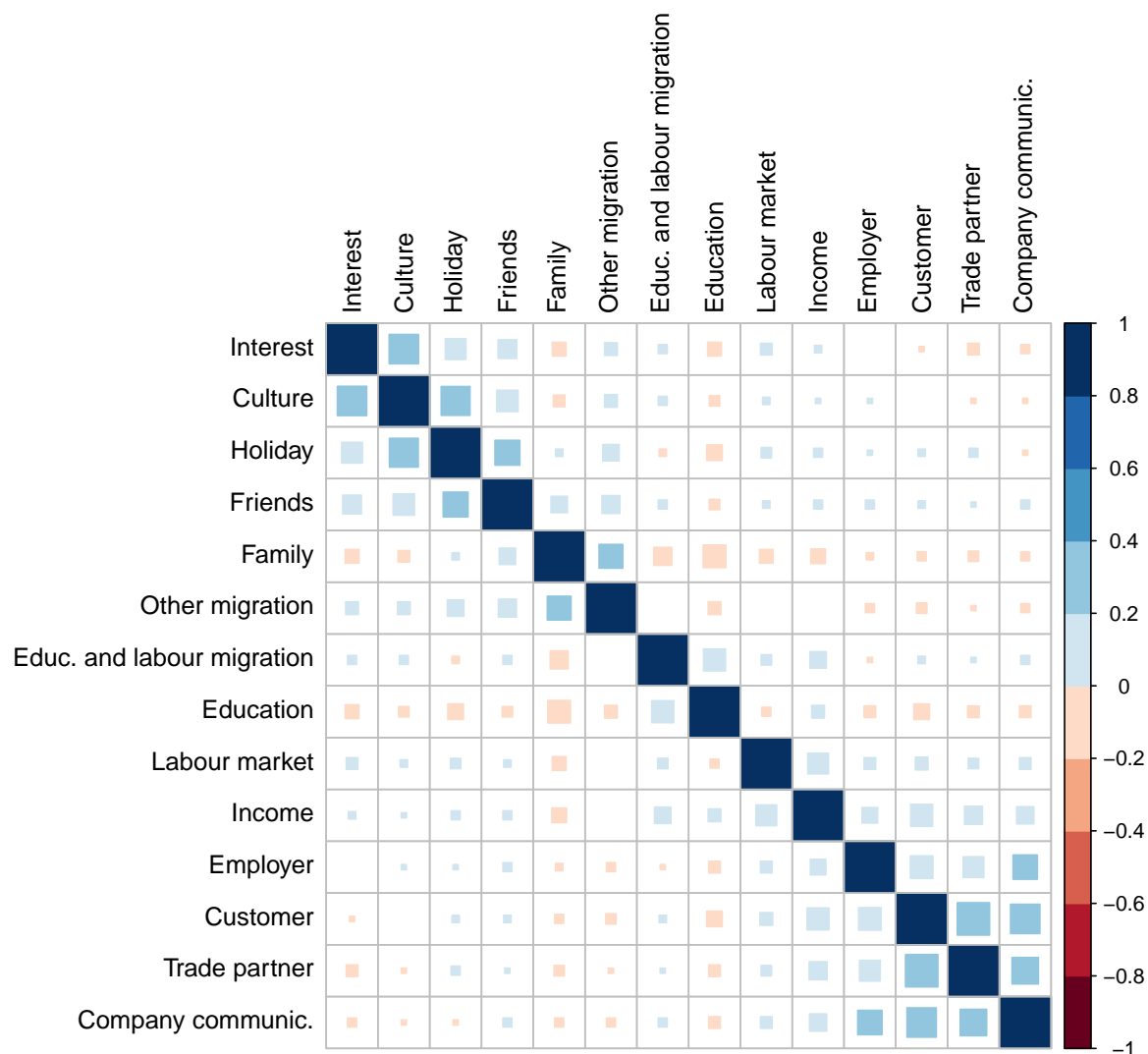
Figure 2: Reasons for learning German (n=4356).



large for reasons belonging to the *domestic labour market* and *cultural interest* categories (see the upper-left and the lower-right corner of Figure 3) and a bit less pronounced for the category *personal reasons*. At the same time, correlations are not necessarily large for reasons belonging to different categories even within the same motive. This shows for example when looking at the reason *family* and the reason *culture*. They are both part of the consumption motive; nevertheless their correlation is even negative. This holds a fortiori when considering reasons belonging to different motives. Between the category *domestic labour market*, which is part of the human capital motive, and the category *cultural interest*, which belongs to the consumption motive, and their respective reasons, there is almost no statistically significant correlation. In some cases the relationship turns negative.

It is also interesting to note that *family* is only positively correlated with *friends* and *other migration* while it is uncorrelated or even negatively correlated with all other reasons outside the category *personal reasons*. *Education* is a similar case which has only a positive and somewhat larger correlation with *educational and labour migration*. Overall, the correlations provide support for the way we aggregated reasons to categories and also to motives.

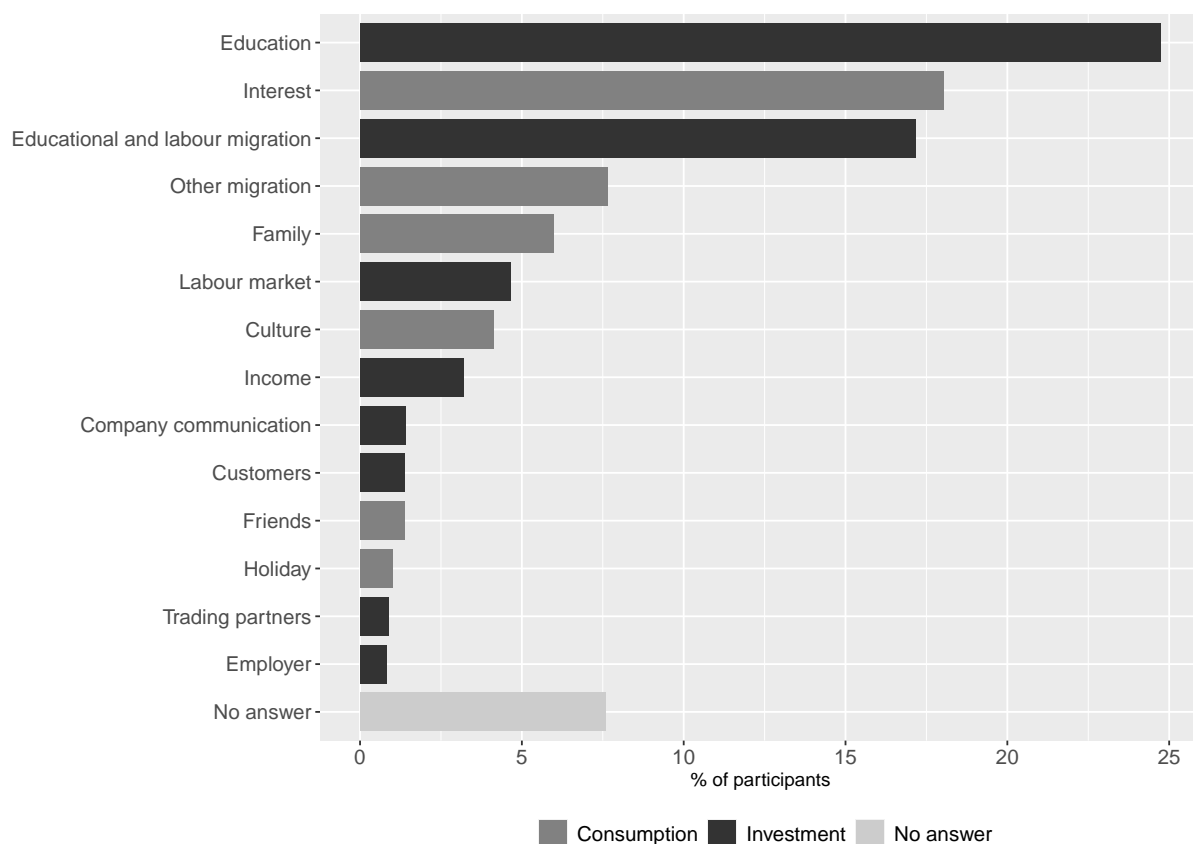
Figure 3: Correlations between reasons for learning German (n=4356).



Notes: The size of the squares indicates the size of the correlation coefficient. Red squares indicate a negative correlation, blue squares a positive correlation. For statistical significance see Table A5 in the Appendix.

We now have a look at the main reasons. Figure 4 shows their distribution in the sample. The largest group among the participants chose *education* (24.7%) as main reason, which is more than half of the respondents that indicated *education* as one of possibly more reasons for learning a language (see Figure 2). This ratio is different for *interest* which comes second as main reason: while 58.7% mentioned this as one of possibly more reasons, only 18.0% indicated it as their main reason. Both reasons related to migration jointly constitute the largest group of main reasons, while separately viewed *educational and labour migration* ranks third (17.2%) and *other migration* ranks fourth (7.6%). The relative importance of *employers* and *trading partners*, on the contrary, seems to be rather limited both as reasons in general (4.4% and 6.6%) and as main reasons (0.8% and 0.9%). In addition, there seem to be reasons which play a role in general when learning a language, but are rarely chosen as main reasons. *Holiday* (19.7% and 1.0%) and *culture* (33.9% and 4.1%) are examples for this.

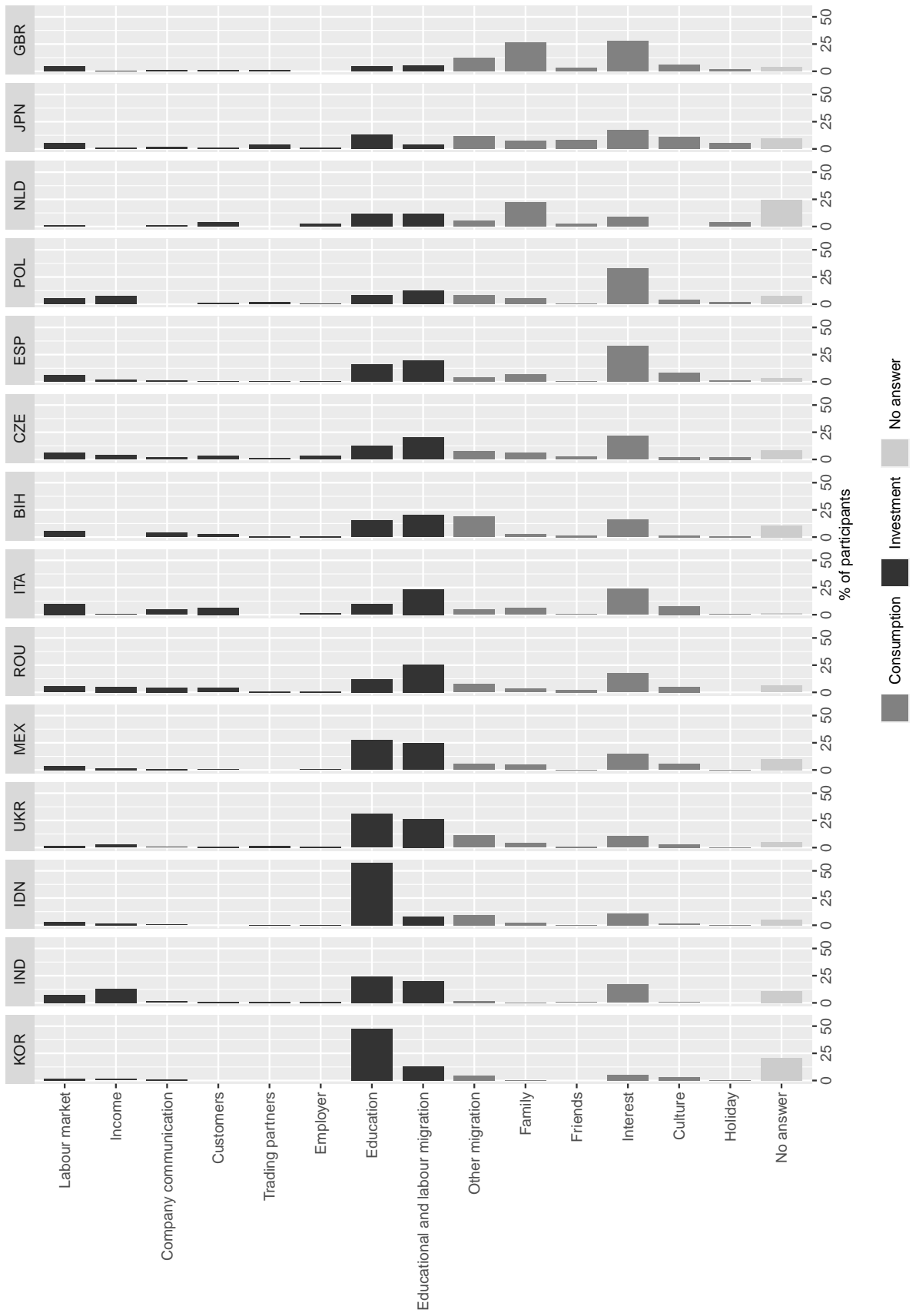
Figure 4: Main reasons for learning German (n=4356).



In Figure 5, we present an overview of the main reasons by countries and show that there is a large heterogeneity. This is in particular obvious when looking at *education* and *family*. The share of participants that indicated *education* ranges from 4.6 % to 57.2 % and the share that indicated *family* from 0.2 % to 26.8 %. This makes it evident that the overall shares are driven by only a few countries: The overall share of *family* would decrease by 2 percentage points if Great Britain was not in the sample. This is likely related to the relatively high share of participants in the British sample whose partners have German as native language (see Table A1 in the Appendix). Dropping Indonesia, the country with the highest share of *education*, would result in an even larger decline from 24.7 % to 20.0 % of the overall share.

When we take a look at the main reasons with the highest share in each country, we can see that there are four single reasons that make it to the top of at least one country. In India, Indonesia, Korea, Mexico and Ukraine, the largest share of participants indicated *education* as their main reason to study German. These countries have in common, that they are not members of the EU and their income is relatively low with Korea as an exception. The six countries where most of the participants indicated *interest* as their main reason have the opposite in common: the Czech Republic, Great Britain, Italy, Japan, Poland and Spain are the countries with the highest income in the sample, and all are members of the EU, except for Japan. In Romania and Bosnia and Herzegovina the most important main reason is *educational and labour migration* and in the Netherlands it is *family*.

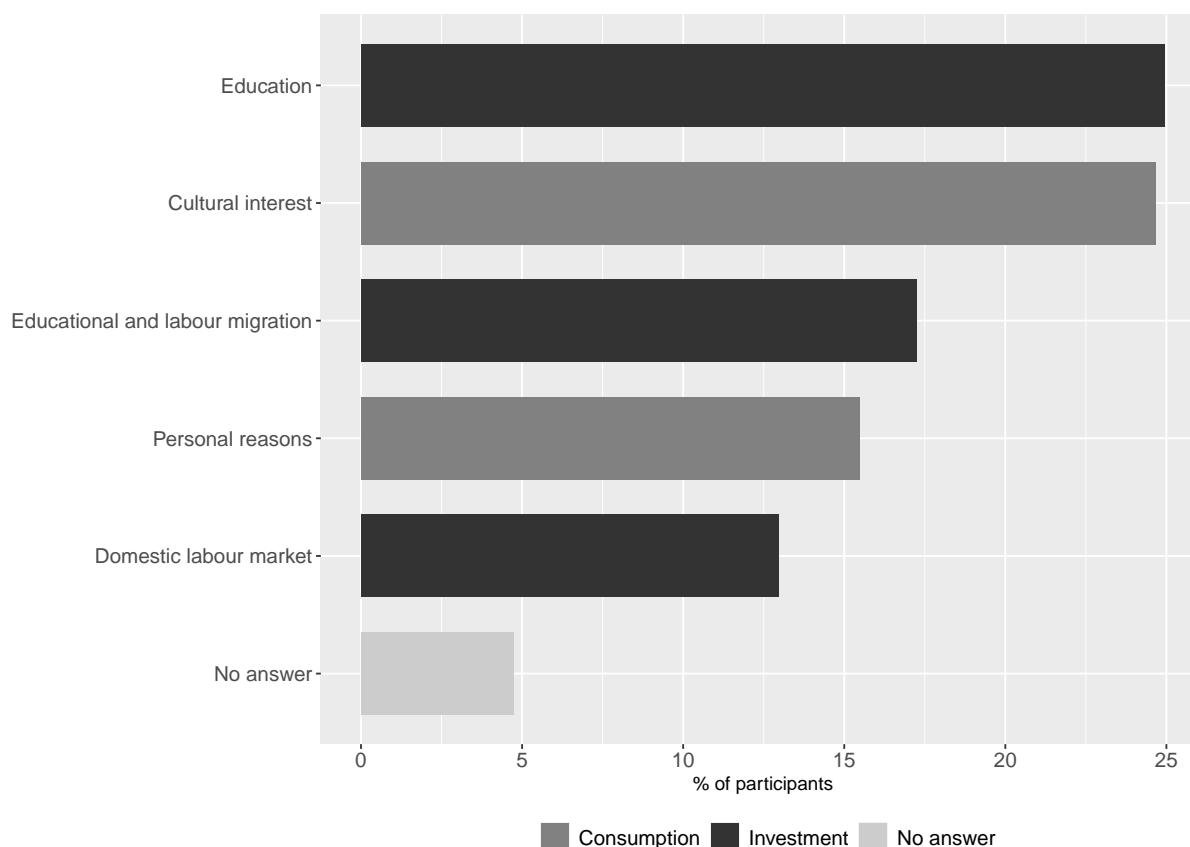
Figure 5: Main reasons for learning German by countries (n=4356).



### 3.2.2 Categories

We have categorized the 14 main reasons into the five categories *education*, *educational and labour migration*, *domestic labor market*, *personal reasons* and *cultural interest*. Figure 6 shows the share for each of the categories in the aggregated sample. One quarter of participants each indicated that either *education* or *cultural interest* was their motivation behind their decision to study German, followed by *educational and labour migration* (17.2%), *personal reasons* (15.5%) and *domestic labour market* (12.9%).

Figure 6: Categories for learning German (n=4356).



In Figure 7, we can again see the heterogeneity across countries similar to what we observed for the main reasons. For example, shares of *personal reasons* range from 2.5% in India to 42.7% in Great Britain. Also the distribution of the shares of the different categories within countries varies a lot. We find countries where the five categories are relatively evenly distributed like Bosnia and Herzegovina, the Czech Republic or Romania. The opposite is the case for India, Great Britain and Korea, where the shares for one or two categories are much larger than for the other categories.

Figure 7 mainly confirms the results of Figure 5 when looking at the most important categories for each country. This means that the main reason with the largest share often translates into the category with the largest share. That is the case for the Czech Republic, Spain, Poland, Japan and Italy, where the large share of *interest* translates into the category *cultural interest*. The same holds for Korea, Indonesia, Ukraine and Mexico with *education*, for Romania with *educational and labour migration*, and for the

Netherlands with *family* which translates into the category *personal interest*. There are only three countries, for which this pattern does not hold: Bosnia and Herzegovina, India and Great Britain.

### 3.2.3 Motives

As the final step, we focus on the two motives: human capital investment and consumption. While language learning with a main reason that is categorized as *cultural interest* or *personal reasons* is seen as a *consumption good*, a reason which belongs to the categories *education*, *educational and labour migration* or *domestic labour market* makes language learning a human capital investment. Figure 8, upper part, gives the distribution of the investment motive and the consumption motive by countries. The countries are arranged in descending order according to the share of participants indicating a main reason categorized as human capital investment. The variation across countries is large and the share of human capital investment as main motive ranges from 19.2 % to 82.1 % (and vice versa for the consumption motive).

We see three groups of countries. First, the investment motive is much more important than the consumption motive in Korea, India, Indonesia, Ukraine, Mexico and Romania. In these countries, the largest categories *education* (in Korea, India, Indonesia, Ukraine and Mexico) and *educational and labour migration* (in Romania) translate into the importance of language learning as a human capital investment. Second, the shares for investment and consumption motives are much more equal with a slight tendency towards investment in Italy, Bosnia and Herzegovina and the Czech Republic. There, the most important categories *cultural interest* (in Italy and the Czech Republic) and *personal reasons* (in Bosnia and Herzegovina), which belong to the consumption motive, are of slightly less importance than the investment motive. Third, in Spain, Poland, the Netherlands, Japan and Great Britain the consumption motive is more important than the investment motive. The most important categories *cultural interest* (in Spain, Portugal and Japan) and *personal reasons* (in the Netherlands and Great Britain) reflect this.

Before we look in more detail at the different determinants behind the different motives of the decision to learn German in Section 4, we give a first descriptive overview of the role of age and gender for the cross-country differences in Figures 8 where the middle part presents the distribution of the two motives across countries by age groups and the lower part by gender.

We start with possible differences across age groups. We see that for all countries with the exception of India, the consumption motive becomes more important for individuals older than 35 years of age compared to the full sample. In most cases, it is even more important than the investment motive. The three countries with the highest shares of the consumption motive are Great Britain, Japan and the Netherlands. It is important to note that the share of older people is relatively low in some countries (see Table A1 in the Appendix). This holds for example for India with a share of only 5 % compared to the average share of 22 % in the entire sample.<sup>5</sup>

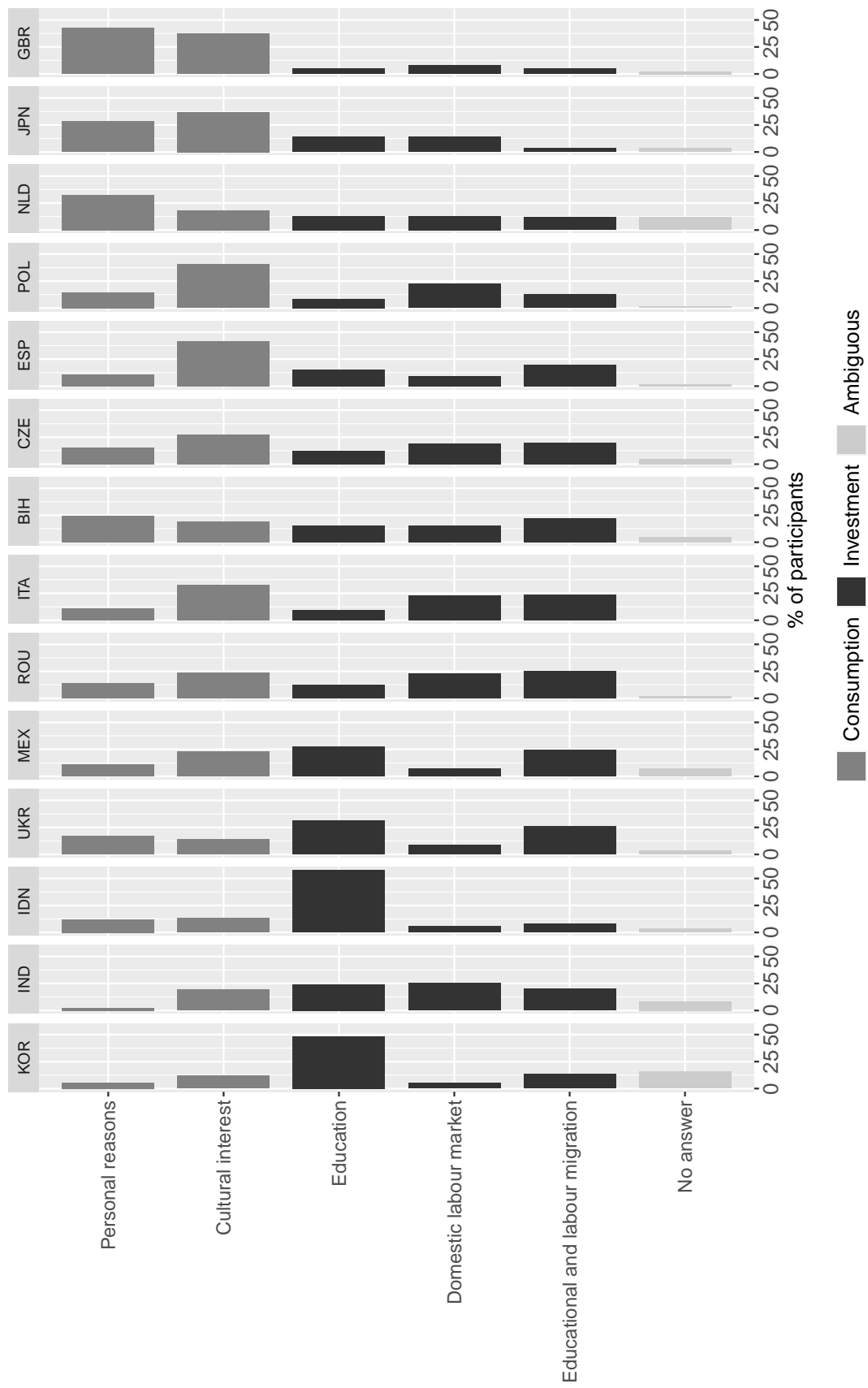
When looking at the younger age group, the general pattern is relatively close to the full

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<sup>5</sup>Shares of older people are also below average in Indonesia with 5 % and in Korea with 7 %, while in Mexico and Ukraine, the share of older participants is slightly smaller than the average with 17 %. Shares are particularly large in Japan (58 %) and Great Britain (48 %).

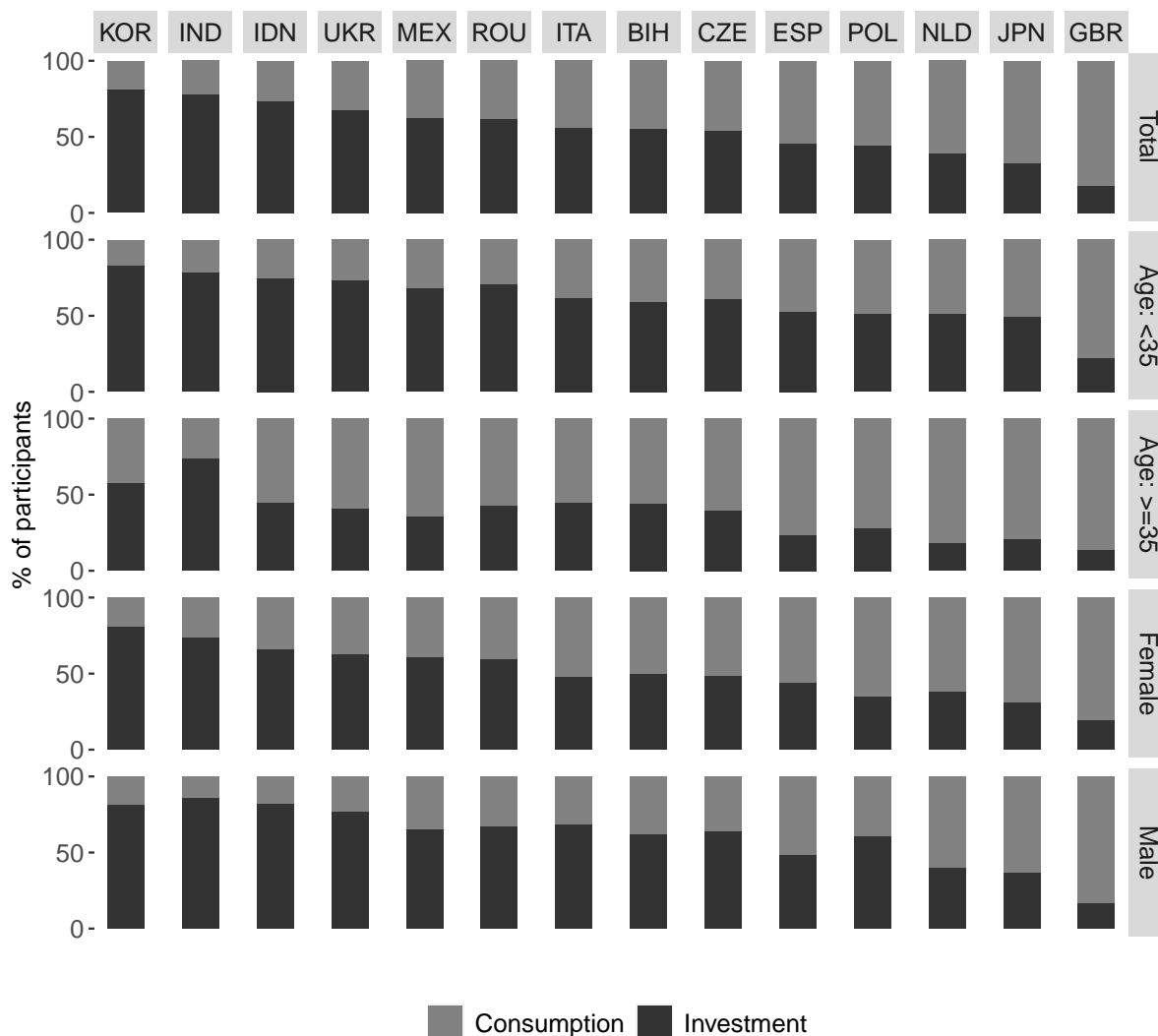


Figure 7: Categories for learning German by countries (n=4356).



sample for the three groups of countries. The investment motive dominates in most cases with the exception of Great Britain.

Figure 8: Human capital and consumption motives by countries, age and gender (n=4356).



The pattern for age cannot be transferred to gender. There are no strong differences in the distribution of the human capital motive and the consumption motive between male and female participants in most countries. If at all, the investment motive seems to be slightly more important for men. This shows up in the three countries of the second group (Italy, Bosnia and Herzegovina and the Czech Republic). Another exception is Poland, where the majority of female participants indicates consumption motives while the opposite is the case for male participants.

In contrast to age, the composition of participants with respect to gender across countries is much more homogeneous. Overall 59% of the participants are female. While the share of women is a bit larger e.g. in Japan (68%), Korea (67%) and Romania (67%), in Bosnia and Herzegovina, Great Britain, Indonesia and Mexico the shares are almost equal for

men and women.

Overall, we conclude that differences in the gender composition cannot explain much of the differences in the relative importance of the human capital motive and the consumption motive across countries. Age, however, seems to play an important role for the two motives behind the decision to learn a foreign language. The different composition of the participants in the different countries as far as their age is concerned translates – at least partially – into the observed cross-country differences of the importance of the two motives. In the next section 4, we will complement the cross-country perspective by an investigation of the within-country variation.

## 4 Determinants of the human capital motive

### 4.1 Estimation strategy

We explore individual-specific and country-specific determinants of the human capital investment motive. In particular, we are interested if the descriptive evidence found above for age and gender continues to hold after controlling for other factors. For this, we also check the robustness of our results for age and gender subgroups. We estimate the probability of the human capital investment motive via maximum likelihood method in a binary probit model:

$$Pr(\textit{investment}_i | X_i, C_i) = \alpha + \beta' X_i + \gamma' C_i + \varepsilon_i \quad (1)$$

where  $\textit{investment}_i$  takes a value of 1 if respondent  $i$  states to have a human capital investment motive and 0 otherwise.  $X_i$  represents a set of individual-specific explanatory variables of respondent  $i$  as presented in Table A2 in the Appendix.  $C_i$  captures either country-level factors or country fixed effects in order to control for heterogeneity between countries. Country-level characteristics are binary control variables that are based on the characteristics as described in Table 1 and include linguistic closeness by indicating if the official language is a Germanic language, European, non-EU countries and non-European countries (with European, EU countries as reference),<sup>6</sup> and upper-middle and high income countries (with lower-middle income countries as reference).  $\varepsilon_i$  is an idiosyncratic error term. Standard errors are heteroscedasticity robust White standard errors.

In the following, we discuss the association between the individual-specific and country-specific explanatory variables on the one hand and the probability of the human capital investment motive as the main motive versus the consumption motive on the other hand. Due to a lack of related research, our general approach and our choice of variables is guided by studies focusing on other forms of human capital investment, not language learning, based on the human capital theory (Becker 1964; Schultz 1960; Sjaastad 1962) or studies on the determinants of language proficiency of immigrants (Chiswick and Miller 2015).

It is important to note that our analysis differs from these studies in one important way: in our case, the alternative to learning for investment purposes is learning for consumption purposes, and not “no learning” at all.

### 4.2 Estimation results

We present our main results in Table 3. Column 1 includes individual-specific characteristics only. When adding country-specific controls in Column 2 via country-fixed effects and

<sup>6</sup>See Table 1 for the countries and country-groups.

Table 3: Estimation results: basic specifications

	Dependent variable: Human capital investment		
	(1)	(2)	(3)
Age: under 35 years	0.190*** (0.024)	0.131*** (0.024)	0.154*** (0.024)
Gender: female	-0.074*** (0.014)	-0.087*** (0.013)	-0.077*** (0.014)
Children	-0.019 (0.026)	-0.060** (0.026)	-0.039 (0.026)
Partner (native German)	-0.451*** (0.026)	-0.371*** (0.033)	-0.406*** (0.030)
Partner (other native)	-0.050*** (0.017)	-0.027 (0.017)	-0.031* (0.017)
Occ.: in education	0.146*** (0.021)	0.113*** (0.021)	0.134*** (0.021)
Other occ./no answer	-0.009 (0.022)	-0.009 (0.021)	-0.010 (0.021)
University degree	0.014 (0.018)	0.037** (0.018)	0.036** (0.018)
Risk attitude	0.007** (0.003)	0.003 (0.003)	0.002 (0.003)
Patience	0.011*** (0.003)	0.006* (0.003)	0.008*** (0.003)
Intern. applic. of educ.	0.029*** (0.006)	0.039*** (0.007)	0.035*** (0.007)
Migration intention	0.070*** (0.015)	0.059*** (0.015)	0.062*** (0.016)
Germanic language			-0.100*** (0.019)
European (Non-EU)			0.002 (0.029)
Non-European			0.080*** (0.020)
Upper-middle income			-0.075*** (0.024)
High income			-0.110*** (0.024)
Country FE	No	Yes	No
McFadden Pseudo R2	0.14	0.17	0.15
Percent. correctly predicted	69.7	71.6	70.2
Observations	4,356	4,356	4,356

Average marginal effects. Heteroscedasticity robust White standard errors in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01"

in Column 3 via country-specific characteristics, the goodness-of-fit measured with the McFadden Pseudo R2 and the percentage of correctly predicted observations increase. Furthermore, some variables turn insignificant, e.g. risk attitude. This hints at a large variation in risk attitude across countries which does not translate into a significant relationship within countries.

Before focusing on the individual-specific characteristics, we take a closer look at the country-specific characteristics in Column 3. The probability of the investment motive decreases when the language spoken in the country is a Germanic language (i.e. English in Great Britain and India, and Dutch in the Netherlands) in comparison to a non-Germanic language. Considering that English is almost worldwide a Lingua Franca and the most spoken foreign language in the world, the benefits of learning a foreign language seem to be rather small. This also holds to a certain extent for Dutch which allows its speakers an easier access to English (and also German).

Further, we categorize the countries into three groups based on their geographic distance to Germany, but also on the absence or presence of migration barriers: one group consists of European countries close to Germany which are members of the EU and for which migration restrictions are non-existent. The second group are European countries which are not members of the EU. The geographic distance to Germany is still rather small, but migration to Germany, Austria and also Switzerland is much more restricted. Similar migration restrictions hold for the third group of non-European countries. In addition,

the geographic distance to German-speaking countries is much larger. For the latter group of countries the probability of human capital investment motives is significantly larger than for European countries, both in and outside the EU. This can be related to several reasons. First, language skills are often a prerequisite for legal migration to German-speaking countries from non-EU (or non-European) countries. This makes it more likely for language course participants to acquire language skills for investment purposes, as we saw in Figure 8. Second, geographic proximity, which is given for European EU and non-EU countries can be a proxy for two other measures: cultural proximity and a larger existing migrant stock in German-speaking countries due to migration flows in the past. Both make the consumption motive of language learning more likely for these countries. There are thus possible explanations for the observed differences between non-European and European (EU or non-EU) countries.

Finally, the country-wide income level plays an important role: participants from upper-middle and higher income countries are on average less likely to learn German for investment motives. The higher the average income level the more likely participants have the means to see learning a foreign language as a consumption good and not as a way to reap monetary benefits. Obviously, there is a large overlap between EU countries and high-income countries (see also Table 1) which is reflected in the results here.

On the individual level, there are only few differences between Columns 2 and 3. As there is a higher goodness-of-fit in Column 2 with country-fixed effects, we use that specification for the discussion of the results in the following and for the estimations by age and gender subgroups in Table 4.

In the human capital theory, age is an important factor with a negative effect on human capital investment. To say it differently, the older the individual the less time there is to recoup the investment and benefit from it. Analogously, the older the participant in a language course, the less time for the returns to realize. In addition, the costs of learning a language increase with age as the required effort increases. This can be seen in the literature on the language acquisition of immigrants in their host country (see the three Es in Chiswick and Miller 2015, (especially the “E” standing for “efficiency”). It provides an explanation for the 13.1 % point increase in the probability of investment motives for younger age groups in the main sample; this relationship is also robust within gender subsamples.

Female participants have on average a lower probability of the investment motive than male participants. The incentives likely depend on the potential benefits. The situation of women on the labour market is often worse in terms of labour market participation and wages. Furthermore, in the migration context women are more likely to be the tied mover who joins the male labour migrant with a lower, a priori own probability of labour market participation. This relationship is stronger for the younger age group.

Having a native German partner reduces the probability of the investment motive in comparison to singles and those with a partner with another native language. The size of the average marginal effect is 37.1 % point in the main sample and thus almost three times as large as the age effect of the younger-age group. A native German partner increases the opportunities where the consumption aspect of German language skills seems to be more likely, e.g. communication with their partners and their families as well as with friends.

This relationship is robust within all subsamples.

The probability of the investment motive is larger by 11.3% point for course participants in education compared to those who are in the labour market. Being used to study likely decreases the cost of acquiring language skills by increasing the efficiency of learning. Furthermore, foreign language skills might increase the productivity of other skills in a complementary way and therefore positively affect the overall benefits of this human capital investment. Not surprisingly, this relationship does not hold for participants in the older age group. Having a university degree increases the probability of the investment motive. This is mainly driven by younger course participants. International applicability of education makes it more likely that opportunities on the foreign and domestic labour market emerge where language skills lead to benefits. The results point towards a robust positive relationship with the probability of having investment motives.

Human capital investment is a risky endeavour as the benefits are not certain. However, risk attitude is not significantly related to the probability of the investment motive in the main specifications once we control for country-fixed effects (or country characteristics). Looking at the subsamples, we find a positive relation only for the older age group. Patience is an important characteristic with regard to human capital investments, where benefits realize much later – if they realize at all. Therefore, a positive correlation between patience and the probability of having an investment motive is not a surprise. However, this seems to be only due to male participants.

Last but not least, migration intention is positively associated with the probability of the investment motive. This stresses the role of investment-related migration in contrast to consumption-related migration. This correlation seems to be due to males and younger participants. Both groups are more likely to be migrants with a labour-market focus.

Figure A3 graphically displays the results by country-groups. At first glance, the coefficients and their level of significance look very similar. A closer look reveals some differences, however. The investment motive in Germanic countries is not correlated to the age group and neither to the degree of international applicability of education, differently from all the other groups. Focusing on country-groups by income and geographic closeness or ease of movement, respectively, we find a large similarity between lower-middle income countries and non-European countries. Also upper-middle and high income countries share many similarities. These are also the only two groups where a university degree is positively and significantly related to the investment motive.

Table 4: Estimation results: age and gender subsamples

	Dependent variable: Human capital investment			
	(1) female	(2) male	(3) age: < 35 years	(4) age: ≥ 35
Age: under 35 years	0.115*** (0.032)	0.147*** (0.036)		
Gender: female			-0.096*** (0.015)	-0.054* (0.029)
Children	-0.083** (0.036)	-0.034 (0.038)	-0.015 (0.045)	-0.057* (0.032)
Partner (native German)	-0.365*** (0.038)	-0.379*** (0.064)	-0.407*** (0.045)	-0.257*** (0.034)
Partner (other native)	-0.029 (0.022)	-0.026 (0.026)	-0.024 (0.019)	-0.019 (0.035)
Occ.: in education	0.131*** (0.028)	0.090*** (0.031)	0.144*** (0.022)	0.365 (0.270)
Other occ./no answer	-0.003 (0.028)	-0.006 (0.032)	0.062** (0.026)	-0.117*** (0.034)
University degree	0.037 (0.024)	0.041 (0.027)	0.061*** (0.020)	-0.058 (0.055)
Risk attitude	0.003 (0.004)	0.003 (0.005)	-0.001 (0.004)	0.015** (0.006)
Patience	0.003 (0.004)	0.010** (0.004)	0.004 (0.003)	0.010 (0.006)
Intern. applic. of educ.	0.034*** (0.009)	0.047*** (0.010)	0.039*** (0.008)	0.039*** (0.013)
Migration intention	0.039* (0.020)	0.086*** (0.024)	0.053*** (0.018)	0.060* (0.031)
Country FE	Yes	Yes	Yes	Yes
McFadden Pseudo R2	0.15	0.21	0.12	0.15
Percent. correctly predic.	69.1	74.8	71.31	70.1
Observations	2,572	1,784	3,395	961

Average marginal effects. Heteroscedasticity robust White standard errors in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## 5 Professional use of German

Apart from the reasons behind their decision to learn German, participants also indicated the probability of using their foreign language skills in a professional environment. More precisely, they answered the question “How likely is it that you will use your German language skills in your job?” on a scale from 1 (very unlikely) to 5 (very likely). Foreign language skills have a productive value if opportunities arise to use them in a professional environment, independent from the main reason behind the decision to learn a language. In Section 3, we showed that the reasons for learning are very diverse and refer to different motives. However, for given motives the probability of using the language skills in a job is not always clear ex-ante, as this is very much driven by opportunities.

For illustration, let us look at the two migration related reasons *educational and labour migration* and *other migration* where the probability of a professional use might diverge. *Other migration* belongs to the consumption motive (see Figure 1), but might nevertheless lead to a professional use. Think about individuals who migrate as tied movers. At first, the reason to acquire foreign language skills follows from a consumption motive, because the skills facilitate communication within the family or partnership. Only later, the tied movers might consider to enter the labour market and make use of the foreign language skills also in a professional environment. We interpret this as a spillover effect from the consumption motive. On the other hand, individuals might prepare for *educational migration* by learning a foreign language with the only purpose of acquiring other skills abroad before returning to their home country. In this case, there is no professional use despite a given investment motive.

In order to identify what makes the use of German language skills in the labour market more likely we estimate its determinants and try to identify potential spillovers from

the consumption motive in Section 5.2. Before, we present descriptive evidence on the heterogeneity of the probability of professional use of German by countries and subgroups.

### **5.1 Descriptive evidence**

The probability of using German in the labour market is on average quite high with 3.68 on a scale from 1 to 5. As shown in Figure A1 in the Appendix, the distribution in the overall sample is left-skewed with a median of 4 and the mode of 5 indicated by 36.9 % of the participants. In the following we aggregate the five point scale to the binary variable “Professional use of German” where values 1 to 3 are aggregated to “unlikely” and values 4 and 5 to “likely”.

Around 60 % indicate that they will likely use German in the labour market and 40 % that they will likely not do so. These shares can be expected if one assumes that those with investment motives also indicate a high probability of professional use, and those with consumption motives give a low or medium probability. We take this as the benchmark for our comparison, when investigating the heterogeneity of responses across countries and subsamples in the following. Deviations can be interpreted as spillover effects or they can be due to multiple reasons for language learning among which only one is indicated as main reason. In Section 5.2, we try to shed more light on that.

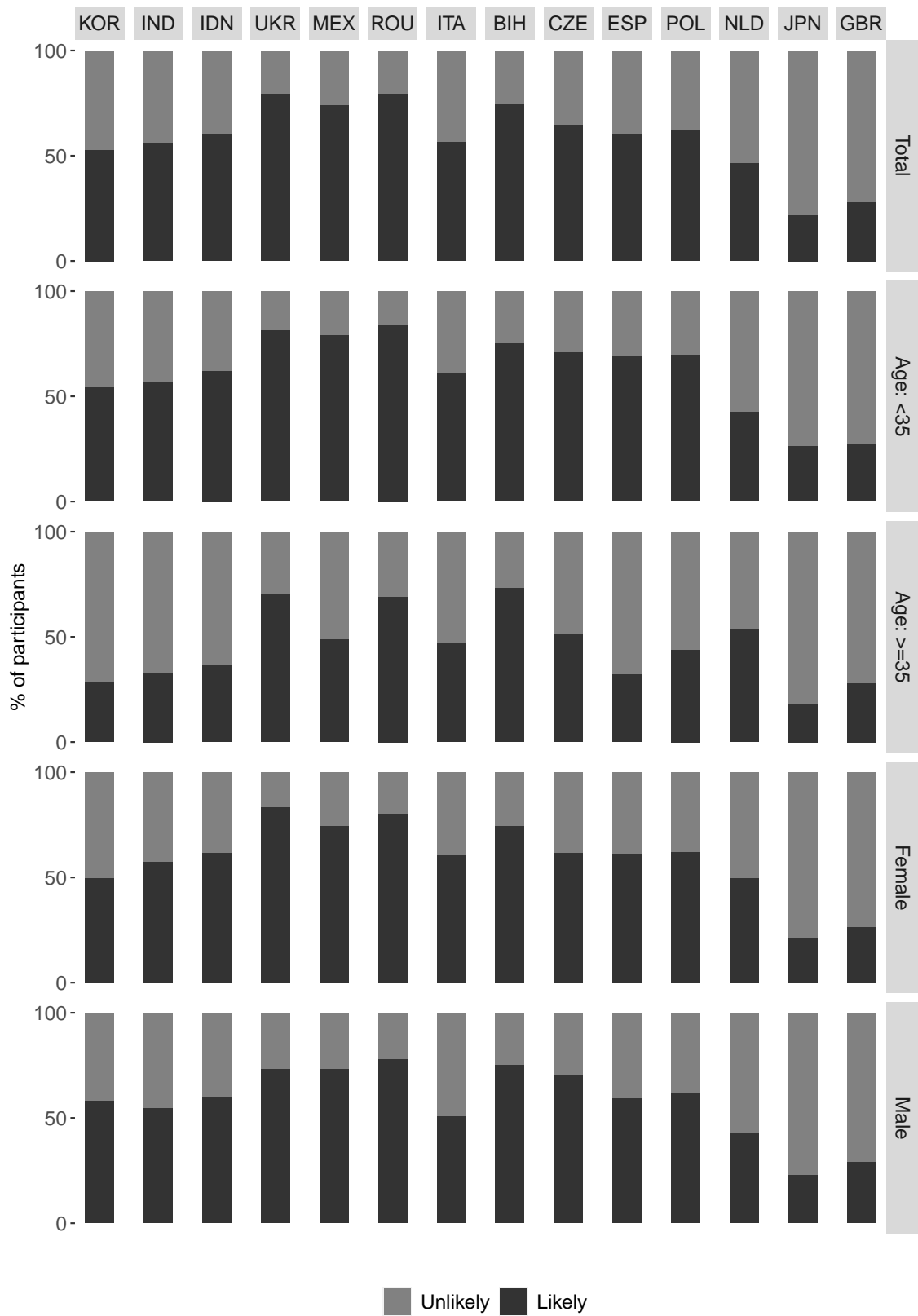
The distribution again varies across countries as presented in Figure 9, upper part. Remember that the countries are ordered by their share of the human capital investment motive with the country with the highest share, i.e. Korea, at the very left and the country with the lowest share, i.e. Great Britain, at the very right (see also Figure 8.) In the group of countries with a very high share of the human capital investment motive, we also expect a very high share of participants that indicate a high probability of using German in the labour market. In Korea, India and Indonesia, however, this share is much smaller than we expect and also smaller than in Ukraine, Mexico and Romania, where participants indicate the highest probability of a professional use compared to all other countries.

A similarly mixed picture emerges for the next group of countries. In Italy, the share is smaller than expected, while it is larger in Bosnia and Herzegovina (75 %) and the Czech Republic (65 %). The last group of countries, when we follow the grouping used before, includes two countries with Spain and Poland, where we expect the share of those with a high probability to be smaller than 50 %, while it is actually around 60 %. The same holds on a somewhat lower level for the Netherlands and Great Britain, while the probability of professional use is smaller in Japan than expected. There seem to be factors at play that hinder those with a human capital investment motive to think that they will be able to use German in a work-related context, and which vice versa make those with the consumption motive expect a professional use of their foreign language skills. Before we examine in detail possible determinants with binary probit regressions, we again look at the distributions by age and gender and by motive.

Figure 9, middle part, shows that the pattern for the younger age group closely follows the pattern for the total sample. This does not hold for older participants. In the non-European countries Korea, India, Indonesia and Mexico the share of older participants who indicate a low likelihood of using German in the labour market exceeds those who indicate a high likelihood. This stands in contrast to the overall sample. On the contrary, in the European countries where the share of the human capital investment motive is predominant (Ukraine



Figure 9: Use of German on the labour market by countries, age and gender.



and Romania), the pattern is similar among both age groups. While the same holds for Bosnia and Herzegovina, the share of a low likelihood for the older age group is larger in Italy and the Czech Republic. Finally, in the countries where consumption motives are predominant the likelihood of using German in the labor market has a negative association with age in Spain and Poland, but not in Japan, Great Britain and the Netherlands. This emphasizes the role of age for the likelihood of using German in the labour market. On the contrary, there seems to be no or – in some countries (Italy, Korea, Netherlands) only a small – relationship between gender and the likelihood of using German in the labour market (Figure 9, lower part).

At the beginning, we assumed as a benchmark that there is a perfect relationship between having a human capital investment motive and a high likelihood of using German in the labour market. The graphical analyses above provided some evidence that there is no perfect correlation between those two variables. Figure A2 shows, however, that there is indeed a positive correlation between those two. In all countries, the share of those who have human capital investment motives is larger among the participants with a high likelihood for professional use than among the participants with a low likelihood. We can see that the correlation is, in particular, strong in Mexico, Japan and Great Britain, as different motives lead to very different probabilities of professional use. On the contrary, the correlation is very weak in Korea, India and Indonesia; there is hardly a difference in the indicated probability of professional use between those with an investment motive and those with a consumption motive.

In the following section, we will investigate the determinants of this imperfect relationship, or to put it differently, we want to understand what makes participants with investment motives to abstain from indicating a high likelihood of using German in the labour market, and what creates spillovers from the consumption motive to the labour market.

## **5.2 Determinants of professional use of German**

### **5.2.1 Estimations strategy**

We explore individual-specific and country-specific determinants of the professional use of German. As in Section 4.1, we examine if the descriptive evidence we have seen for age and gender is robust also after controlling for other relevant factors. Furthermore, we check the robustness of the results for age and gender subgroups. Additionally, we focus on reasons behind language learning as an additional determinant and as the basis for a further subgroup analysis. For this, we estimate the probability of having a high probability of professional use of the German language in a binary probit model via maximum likelihood method:

$$Pr(use_i | X_i, C_i) = \alpha + \beta' X_i + \gamma' C_i + \varepsilon_i \quad (2)$$

where  $use_i$  takes a value of 1 if respondent  $i$  states a high probability for professional use of German and 0 otherwise.  $X_i$  represents a set of individual-specific explanatory variables of respondent  $i$  as used before in Section 4.2 and presented in Table A2 in the Appendix.  $C_i$  are either country-level factors or country fixed effects to control for heterogeneities across countries. Country-level characteristics are binary control variables that are based on the characteristics as used in Section 4.2 and described in Table 1.  $\varepsilon_i$  is an idiosyncratic error term. Standard errors are heteroscedasticity robust White standard errors.

In the following, we discuss the association between the individual-specific and country-

Table 5: Estimation results: basic specifications

	Dependent variable: Professional use of German			
	(1)	(2)	(3)	(4)
Investment		0.191*** (0.016)		0.200*** (0.016)
Domestic labour market			0.054** (0.025)	
Educational and labour migr.			0.005 (0.023)	
Personal reasons			-0.163*** (0.026)	
Cultural interest			-0.176*** (0.022)	
Age: under 35 years	0.083*** (0.023)	0.056** (0.022)	0.050** (0.023)	0.070*** (0.022)
Gender: female	0.017 (0.014)	0.034** (0.014)	0.034** (0.014)	0.040*** (0.014)
Children	-0.036 (0.026)	-0.025 (0.026)	-0.027 (0.026)	-0.012 (0.025)
Partner (native German)	0.027 (0.032)	0.083*** (0.030)	0.094*** (0.032)	0.058* (0.029)
Partner (other native)	0.030* (0.018)	0.037** (0.017)	0.035** (0.018)	0.032* (0.017)
Occ.: in education	0.115*** (0.021)	0.092*** (0.021)	0.105*** (0.021)	0.100*** (0.021)
Other occ./no answer	0.026 (0.022)	0.027 (0.022)	0.031 (0.022)	0.022 (0.021)
University degree	-0.008 (0.019)	-0.015 (0.018)	-0.008 (0.019)	-0.010 (0.018)
Risk attitude	0.018*** (0.003)	0.017*** (0.003)	0.017*** (0.003)	0.016*** (0.003)
Patience	0.005* (0.003)	0.004 (0.003)	0.004 (0.003)	0.005* (0.003)
Intern. applic. of education	0.049*** (0.007)	0.042*** (0.007)	0.042*** (0.007)	0.044*** (0.007)
Migration intention	0.085*** (0.016)	0.073*** (0.016)	0.074*** (0.017)	0.072*** (0.016)
Germanic lang.				-0.131*** (0.020)
European (Non-EU)				-0.012 (0.031)
Non-European				-0.162*** (0.019)
Upper-middle income				0.083*** (0.023)
High income				-0.127*** (0.024)
Country FE	Yes	Yes	Yes	No
McFadden Pseudo R2	0.13	0.15	0.15	0.11
Percent. correctly predicted	68.6	70.8	70.8	70.6
Observations	4,356	4,356	4,150	4,356

Average marginal effects. Heteroscedasticity robust White standard errors in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01\*

specific explanatory variables and the probability of a professional use of German and compare the results to the determinants of human capital investments in Section 4.

### 5.2.2 Estimation results

We present our main results in Table 5. Column 1 includes the same individual-specific characteristics and country fixed effects as in Table 4, Column 2 additionally adds the investment motive dummy and Column 3 includes dummies for the categories *educational and labour migration*, *domestic labor market*, *personal reasons* and *cultural interest* with *education* as reference category instead of the investment dummy. Column 4 re-estimates Column 2 with country characteristics instead of country fixed effects.<sup>7</sup>

When adding the investment motive in Table 5, Column 2 and categories in Column 3, the goodness-of-fit measured with the McFadden Pseudo R2 and the percentage of correctly predicted observations improves. Furthermore, some variables turn significant, e.g. being female or having a native German partner. As we expected, having an investment motive increases the probability of a professional use of German significantly by 19.1 % points. Categories that belong to the consumption motive are negatively associated compared to the reference category *education*, which belongs to the investment motive. Within the investment categories, the category *domestic labour market* is significantly more correlated

<sup>7</sup>Note that the sample is slightly smaller in Columns 3 due to the imputation of the categories as described in Section 3.1.

than the reference category *education*, i.e. individuals that indicate a reason that refers to the domestic labour market are more likely to have a high probability of professional use of German in comparison to those who indicate reasons which are part of the *education* category and also of the *educational and labour migration* category.

When including country characteristics instead of fixed effects, the coefficients for individual characteristics remain qualitatively unchanged. The dummy for Germanic language is negative and similar to the relationship with the human capital investment motive (cf. Table 4.2). The same holds for European, non-EU countries, for which the relationship is insignificant, and high-income countries, which show a positive relationship. Non-European countries, on the contrary, show now a negative and significant correlation, while it was positive in the specification for the human capital motive (see Table 4.2). While on average, respondents from non-European countries are more likely to indicate a human capital investment motive, they, at the same time, assess the probability of a professional use of German to be lower than respondents from the reference group of European, EU countries. The same pattern can be seen, when comparing lower- and upper-middle income countries where the lower-middle income countries, which constitute the reference group, are more likely to have an investment motive, but less likely to professionally use German.

The results for individual characteristics are mainly in line with previous results on the human capital investment motive (see also Table A7 for subgroups by age and gender), but there are three important differences. First, the relationship between being female and the probability of a professional use of German now turns positive and significant, but only among the younger individuals. Second, while having a partner with German as native language is associated negatively with the investment motive, we find for the professional use of German a positive and significant relationship, but more pronounced – once again – among younger respondents. Third, risk attitude becomes positive and significant, while the coefficient was not significantly different from zero in the investment motive specification. This result is not there for older respondents, however.

These three individual characteristics – female gender, partner with German as native language and risk attitude – are important determinants for spillovers from a consumption motive to a professional use of German (see Table 6). Focusing on Column (3), being in the younger age group, female and with a native German partner as well as being still in education where the international applicability of education is high (but without a university degree) leads to a higher probability of a professional use of German, when the main motive of language learning is consumption. We further include in this specification if the respondent indicated a least one reason that we categorize as an investment reason, which is positively related to the likelihood of a professional use of German.

Table 6: Estimation results: subsamples consumption/investment

	Dependent variable: Professional use of German			
	(1)	(2)	(3)	(4)
	consumption good	hum. capital investment	consumption good	hum. capital investment
Age: under 35 years	0.119*** (0.031)	-0.052 (0.033)	0.084*** (0.030)	-0.052 (0.033)
Gender: female	0.033 (0.023)	0.027 (0.017)	0.044** (0.022)	0.027 (0.017)
Children	-0.004 (0.034)	-0.038 (0.044)	0.013 (0.033)	-0.038 (0.044)
Partner (native German)	0.100*** (0.038)	0.037 (0.090)	0.118*** (0.036)	0.036 (0.090)
Partner (other native)	0.035 (0.027)	0.038* (0.022)	0.024 (0.027)	0.038* (0.022)
Occ.: in education	0.113*** (0.035)	0.097*** (0.026)	0.091*** (0.035)	0.097*** (0.026)
Other occ./no answer	0.021 (0.031)	0.054* (0.030)	0.039 (0.030)	0.054* (0.030)
University degree	-0.055* (0.031)	0.011 (0.023)	-0.063** (0.030)	0.011 (0.023)
Risk attitude	0.013** (0.005)	0.019*** (0.004)	0.011** (0.005)	0.019*** (0.004)
Patience	0.0005 (0.005)	0.006* (0.004)	-0.0001 (0.004)	0.006* (0.004)
Intern. applic. of education	0.053*** (0.010)	0.031*** (0.009)	0.049*** (0.010)	0.031*** (0.009)
Migration intention	0.077*** (0.024)	0.069*** (0.020)	0.049** (0.023)	0.069*** (0.020)
Other investm. reason			0.214*** (0.024)	0.001 (0.018)
Country FE	Yes	Yes	Yes	Yes
McFadden Pseudo R2	0.08	0.15	0.08	0.18
Percent. correctly predicted	72.4	70.0	72.4	71.2
Observations	1,821	2,535	1,821	2,535

Average marginal effects. Heteroscedasticity robust White standard errors in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01"

Overall, it seems that while language learning has a larger consumption value for younger women with a native German partner, who might be considered “tied-movers”, a professional use of German language skills is not unlikely. This holds especially if the investment motive plays a role as well (even though not the main one).

With respect to the different country-groups, some patterns emerge (see Figure A4). First, Germanic countries stand out as individual characteristics there mostly do not play a role when it comes to the professional use of German language skills. Second, European, EU countries and upper-middle and high-income countries are very similar and the same can be said about European, non-EU and non-European countries, lower-middle income countries and to a certain extent for the group of non-Germanic countries. Especially being young and female and having a native German partner is of importance in the latter groups of countries and not in the former ones adding more insights to this observation.

## 6 Conclusion

While the productive value of language skills has been shown in previous literature, our contribution is to highlight that it is not enough to focus on the human capital aspect of language learning. To get the full picture, we enlarge the human capital framework by adding the consumption motive for foreign language learning. Based on a new dataset collected from language course participants in 14 countries worldwide, we analyse language learning in a cross-country perspective.

Our results show that the group of language learners is heterogeneous within and between countries. From the perspective of German-speaking countries, two points of interest emerge: First, human capital motives are particularly interesting for course participants in the context of trade as well as educational and labour migration. Policy measures

targeting this group, such as subsidies for foreign language learning or, in general, more language-learning opportunities, should therefore be one focus.

Second, there are possible spillovers from the consumption motive to a professional use of German in the labour market, which might be of interest for policy-makers as well. These spillovers are particularly relevant for those who indicate *other migration* as their main reason. This group mostly comprises younger women with a native German partner, who might be considered “tied-movers”. Even though the consumption motive is the main reason to learn a foreign language, a professional use of the language is not unlikely. As a consequence, policy measures aiming at this group not only support their social, but also their economic integration in Germany.

The immigration-related regulations of recent years in Germany can be viewed in the context of our findings: The “A1 requirement” for family reunification, which became effective in Germany in 2007, introduced the requirement that spouses from non-EU countries must have basic knowledge of German at the A1 level before being granted a visa to live in Germany with their partners. By establishing a minimum level of language proficiency of migrants, this regulation lies the basis for the spillover effects from language learning for consumption reasons to an application of the acquired skills in the labour market. In contrast to this, the new Skilled Immigration Act effective since 2020 has a clear focus on language learning as human capital investment. It facilitates access of skilled workers from third countries to the German labour market and, by doing so, reduces uncertainty related to the returns of investing in the language of the destination country (see Uebelmesser et al. 2021, for an analysis about the consequences for language learning based on macro data). Overall, the two policies address the two different motives: the consumption motive in the former case and the investment motive in the latter case. Due to the spillover effects identified above, they foster language learning in the migration context and lead to better integrated individuals.

While language learning related to migration is of importance, we need to keep in mind that there are also reasons for language learning in the absence of any migration intention both for investment or consumption purposes. Only when considering all, do we get the full picture.

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## **A Online Appendix**

Table A1: Descriptive statistics: means of individual characteristics by countries

Variable	BIH n=(132)	CZE n=(329)	ESP n=(476)	GBR n=(347)	IDN n=(559)	IND n=(444)	ITA n=(218)	JPN n=(216)	KOR n=(292)	MEX n=(340)	NLD n=(77)	POL n=(143)	ROU n=(232)	UKR n=(551)	Total n=(436)
Age: under 35 years	0.74	0.69	0.77	0.52	0.95	0.97	0.68	0.42	0.93	0.83	0.64	0.7	0.69	0.83	0.78
Gender: female	0.51	0.63	0.57	0.51	0.52	0.61	0.6	0.68	0.67	0.53	0.55	0.63	0.66	0.62	0.59
Children	0.21	0.24	0.11	0.2	0.05	0.04	0.14	0.25	0.03	0.08	0.18	0.17	0.24	0.17	0.13
No partner	0.51	0.35	0.62	0.34	0.79	0.94	0.4	0.37	0.91	0.64	0.38	0.43	0.42	0.6	0.6
Partner (native German)	0.03	0.05	0.05	0.28	0.03	0	0.05	0.11	0	0.04	0.18	0.03	0.02	0.03	0.06
Partner (other native)	0.46	0.59	0.33	0.38	0.18	0.06	0.55	0.52	0.09	0.33	0.44	0.55	0.56	0.37	0.34
Occ.: in education	0.39	0.29	0.42	0.06	0.62	0.75	0.33	0.15	0.66	0.31	0.23	0.29	0.26	0.54	0.43
Occ.: in lab. market	0.45	0.62	0.43	0.77	0.3	0.19	0.53	0.62	0.2	0.59	0.65	0.64	0.65	0.35	0.46
Other occ./no answer	0.16	0.09	0.14	0.17	0.08	0.06	0.13	0.24	0.15	0.1	0.12	0.07	0.09	0.11	0.12
University degree	0.64	0.68	0.7	0.96	0.34	0.6	0.71	0.87	0.45	0.71	0.71	0.73	0.75	0.56	0.64
Risk attitude	6.95	5.65	6.36	5.53	6.99	6.61	6.93	5.26	5.62	6.94	6.4	5.9	6.25	6.73	6.36
Patience	6.8	5.59	5.87	5.33	6.1	6.58	6.14	6.22	6.22	6.26	5.77	5.83	6.34	6.58	6.13
Intern. applic. of educ.	3.93	3.88	4.18	4	3.83	3.77	3.92	2.83	3.52	4.32	3.99	3.99	4.01	3.83	3.87
Migration intention	0.88	0.63	0.56	0.71	0.73	0.68	0.67	0.38	0.65	0.8	0.64	0.6	0.63	0.81	0.68

Table A2: Variable description: individual characteristics

Variable name	Type	Description
Age: under 35 years	Binary	Indicates whether participant is under 35 years, based on age group according to the ranges: <i>under 18, 18 to 24, 25 to 34, 35 to 49, 50 to 64, 65 and older.</i>
Female	Binary	Indicates if respondent is female.
No partner	Binary	Indicates if respondent has no partner.
Partner: native German	Binary	Indicates if respondent has a partner with German as native language.
Partner: other native	Binary	Indicates if respondent has a partner with other native languages than German.
Children	Binary	Indicates whether respondent has any children.
University degree	Binary	Indicates whether respondent has an university degree based on highest educational qualification: <i>no university degree (no degree, school diploma which cannot lead to higher education, school diploma which can lead to higher education), university degree below PhD, PhD.</i>
Occ.: in education	Binary	Indicates whether respondent's main occupation is in education based on the category on main occupation: <i>pupil, student, student apprentice/(unpaid) trainee or apprentice.</i>
Occ.: in labor market	Binary	Indicates whether respondent's main occupation is in labor market based on the category on main occupation: <i>employee/civil servant with non-highly skilled job, employee/civil servant with highly skilled job, self-employed graduate (lawyer, doctor, ...)/freelance, other self-employed.</i>
Occ.: other/no answer	Binary	Indicates whether respondent's main occupation is not answered or other based on the category on main occupation: <i>unemployed, housewife/househusband, retiree or other.</i>
Risk attitude	Numerical (0-10)	Measures respondents' willingness to take risks ( <i>"Would you describe yourself as someone who tries to avoid risks (risk-averse) or as someone who is willing to take risks (risk-prone)?"</i> ) on a 11-point scale from 0 for <i>"risk-averse"</i> to 10 for <i>"risk-prone"</i> .
Patience	Numerical (0-10)	Measures respondents' self-reported patience ( <i>"Would you describe yourself as an impatient or a patient person in general?"</i> ) on a 11-point scale from 0 for <i>"very impatient"</i> to 10 for <i>"very patient"</i> .
International applicability of education	Numerical (1-5)	Measures respondents' self-evaluated international applicability of education ( <i>"If you work abroad, you may be able to use only some of your acquired skills there. How much of your education or professional skills do you think you can use abroad? "</i> ) on a 5-point scale from 1 for <i>"none"</i> to 5 for <i>"all"</i> .
Migration intention	Binary	Indicates whether respondent has no migration intention ( <i>"I would not move to another country under any circumstances"</i> or <i>"In principle, I would move to another country, but I have not thought about it in the last 12 months"</i> ), or migration intention ( <i>"I have been thinking about moving to another country in the last 12 months, but have n specific plans."</i> , <i>"I am planning a move to another country."</i> or <i>"I already have a date for my planned move to another country."</i> ).

Table A3: Question on (main) reasons for learning German.

**Why are you learning German? Multiple choices possible.**

- Study/education/training/PhD
- Internal company communication
- German-speaking trading partners
- German-speaking customers
- Higher income in the [country]
- Requirement/support of the employer
- Other considerations regarding career/labour market in [country]
- Requirement for visa
- Partner or family
- Social environment/friends
- (Possible) move to a German-speaking country for professional reasons
- (Possible) move to a German-speaking country for other reasons
- Holiday
- Culture (film, literature,...)
- Interest in languages
- Other: [free-text]

**Look at your answers and circle the main reason why you are learning German.**

Table A4: Overview of responses and reasons

Reason	Responses
Education	Study/education/training/PhD
Company communication	Internal company communication
Trading partners	German-speaking trading partners
Customers	German-speaking customers
Income	Higher income in the [country]
Employer	Requirement/support of the employer
Labour market	Other considerations regarding career/labour market in [country]
Family	Partner or family
Friends	Social environment/friends
Educational and labour migr.	(Possible) move to a German-speaking country for professional reasons
Other migration	(Possible) move to a German-speaking country for other reasons
Holiday	Holiday
Culture	Culture (film, literature,...)
Interest	Interest in languages

Table A5: Correlation coefficients

	Interest	Culture	Holiday	Friends	Family	Other migrat.	Educ., labour migration	Educat.	Labour market	Income	Employer	Customer	Trade partner
Interest	0.32***												
Culture	0.16***	0.31***											
Holiday	0.13***	0.17***	0.23***										
Friends	-0.07***	-0.05***	0.02	0.10***									
Family	0.06***	0.06***	0.10***	0.12***	0.21***								
Other mig.	0.03*	0.03**	-0.02	0.03*	-0.12***	0.00							
Educ., lab. mig.	-0.07***	-0.04**	-0.09***	-0.04***	-0.19***	-0.06***	0.18***						
Education	0.05***	0.02	0.04***	0.02	-0.07***	0.00	0.04***	-0.03**					
Lab. market	0.02	0.01	0.03**	0.03*	-0.08***	0.00	0.10***	0.06***	0.16***				
Income	0.00	0.01	0.01	0.03**	-0.02	-0.03**	-0.01	-0.05***	0.05***	0.09***			
Employer	-0.01	0.00	0.02	0.02	-0.03**	-0.04**	0.02	-0.09***	0.06***	0.18***	0.19***		
Customer	-0.05***	-0.01	0.03*	0.01	-0.04**	-0.01	0.01	-0.05***	0.04***	0.12***	0.16***	0.39***	
Trade partner	-0.03*	-0.01	-0.01	0.03*	-0.03*	-0.03*	0.03**	-0.05***	0.05***	0.11***	0.22***	0.32***	0.26***
Company communic.													

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table A6: Estimation results: country characteristics

	Dependent variable: Human capital investment							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Germanic	Non-Germ.	Lower-middle income	Upper-middle income	High income	European (EU)	European (non-EU)	Non-European
Age: under 35 years	0.075 (0.047)	0.132*** (0.027)	0.176*** (0.056)	0.150** (0.059)	0.166*** (0.029)	0.112*** (0.031)	0.119* (0.066)	0.102** (0.044)
Gender: female	-0.052* (0.027)	-0.094*** (0.016)	-0.125*** (0.021)	-0.063* (0.035)	-0.108*** (0.020)	-0.067*** (0.022)	-0.074** (0.034)	-0.119*** (0.020)
Children	-0.061 (0.058)	-0.063** (0.030)	0.011 (0.047)	-0.034 (0.065)	-0.012 (0.034)	-0.086** (0.037)	-0.084 (0.061)	0.011 (0.045)
Partner (nat. German)	-0.387*** (0.056)	-0.336*** (0.046)	-0.504*** (0.081)	-0.434*** (0.092)	-0.489*** (0.035)	-0.296*** (0.036)	-0.302*** (0.104)	-0.446*** (0.066)
Partner (other native)	0.00003 (0.040)	-0.024 (0.019)	-0.032 (0.031)	-0.110*** (0.041)	-0.061*** (0.023)	0.003 (0.024)	0.001 (0.039)	-0.049 (0.030)
Occ.: in education	0.127*** (0.046)	0.116*** (0.023)	0.123*** (0.036)	0.118** (0.050)	0.116*** (0.031)	0.115*** (0.034)	0.078 (0.050)	0.214*** (0.033)
Other occ./no answer	-0.016 (0.043)	-0.004 (0.025)	0.074** (0.036)	0.004 (0.054)	0.045 (0.029)	-0.053 (0.034)	-0.055 (0.053)	0.061* (0.032)
University degree	0.005 (0.037)	0.026 (0.020)	0.034 (0.029)	0.108** (0.049)	0.058** (0.027)	0.023 (0.032)	0.0004 (0.041)	0.011 (0.027)
Risk attitude	0.003 (0.007)	0.002 (0.004)	0.007 (0.006)	-0.003 (0.008)	0.004 (0.005)	0.002 (0.005)	-0.001 (0.009)	-0.008 (0.005)
Patience	0.006 (0.006)	0.007** (0.003)	0.006 (0.005)	0.011 (0.007)	0.007* (0.004)	0.003 (0.004)	0.003 (0.007)	0.006 (0.005)
Intern. applic. of educ.	0.021 (0.013)	0.042*** (0.008)	0.042*** (0.011)	0.054*** (0.018)	0.046*** (0.009)	0.034*** (0.011)	0.030* (0.017)	0.056*** (0.010)
Migration intention	0.074** (0.029)	0.067*** (0.018)	0.043* (0.026)	0.154*** (0.043)	0.074*** (0.021)	0.045* (0.023)	0.068 (0.047)	0.118*** (0.022)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	868	3,373	704	1,554	2,098	1,822	683	1,851

Average marginal effects. Heteroscedasticity robust White standard errors in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01"

Table A7: Estimation results: subsamples by age and gender

	Dependent variable: Professional use of German			
	(1) female	(2) male	(3) age: <35 years	(4) age: ≥ 35
Investment	0.177*** (0.020)	0.221*** (0.026)	0.143*** (0.018)	0.361*** (0.033)
Age: under 35 years	0.066** (0.029)	0.043 (0.035)		
Gender: female			0.033** (0.016)	0.017 (0.029)
Children	-0.023 (0.034)	-0.036 (0.041)	-0.001 (0.048)	0.006 (0.032)
Partner (native German)	0.069* (0.036)	0.101* (0.052)	0.097*** (0.035)	0.037 (0.051)
Partner (other native)	0.012 (0.022)	0.067** (0.028)	0.070*** (0.020)	-0.061* (0.034)
Occ.: in education	0.085*** (0.026)	0.100*** (0.033)	0.116*** (0.022)	-0.105 (0.164)
Other occ./no answer	0.031 (0.027)	0.024 (0.037)	0.059** (0.027)	0.001 (0.035)
University degree	-0.020 (0.023)	-0.016 (0.030)	0.0003 (0.020)	-0.048 (0.047)
Risk attitude	0.016*** (0.004)	0.019*** (0.005)	0.019*** (0.004)	0.007 (0.007)
Patience	0.002 (0.004)	0.008* (0.005)	0.003 (0.003)	0.011* (0.006)
Intern. applic. of educ.	0.047*** (0.009)	0.034*** (0.010)	0.042*** (0.008)	0.040*** (0.012)
Migration intention	0.054*** (0.020)	0.101*** (0.025)	0.061*** (0.018)	0.113*** (0.031)
Country FE	Yes	Yes	Yes	Yes
McFadden Pseudo R2	0.16	0.15	0.12	0.23
% correctly predicted	71.2	70.7	70.1	74.5
Observations	2,572	1,784	3,395	961

Average marginal effects. Heteroscedasticity robust White standard errors in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01"

Table A8: Estimation results: country characteristics

	Dependent variable: Professional use of German							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Germanic	Non-Germanic	Lower-middle income	Upper-middle income	High income	European (EU)	European (non-EU)	Non-European
Investment	0.207*** (0.044)	0.204*** (0.017)	0.139*** (0.028)	0.182*** (0.038)	0.236*** (0.023)	0.211*** (0.024)	0.130*** (0.035)	0.194*** (0.027)
Age: under 35 years	-0.056 (0.051)	0.072*** (0.026)	0.115** (0.056)	0.063 (0.049)	0.029 (0.029)	0.029 (0.030)	0.036 (0.053)	0.125*** (0.047)
Gender: female	-0.002 (0.034)	0.042*** (0.016)	0.063*** (0.024)	0.034 (0.032)	0.012 (0.021)	0.028 (0.022)	0.101*** (0.031)	0.015 (0.023)
Children	-0.025 (0.067)	-0.022 (0.029)	0.008 (0.054)	0.012 (0.051)	-0.050 (0.037)	-0.058 (0.036)	0.027 (0.048)	-0.009 (0.056)
Partner (native German)	0.030 (0.062)	0.124*** (0.038)	0.252*** (0.043)	0.047 (0.101)	0.064 (0.039)	0.053 (0.040)	0.151*** (0.050)	0.194*** (0.060)
Partner (other native)	0.0002 (0.053)	0.024 (0.019)	0.096*** (0.032)	0.015 (0.037)	0.017 (0.025)	0.024 (0.025)	0.017 (0.036)	0.069** (0.032)
Occ.: in education	0.067 (0.051)	0.104*** (0.023)	0.162*** (0.036)	0.117*** (0.044)	0.057* (0.031)	0.057* (0.032)	0.089** (0.044)	0.160*** (0.035)
Other occ./no answer	-0.048 (0.058)	0.046* (0.024)	0.078* (0.045)	0.054 (0.045)	-0.003 (0.030)	-0.019 (0.032)	0.026 (0.050)	0.091** (0.038)
University degree	0.031 (0.043)	0.003 (0.020)	0.010 (0.031)	-0.034 (0.045)	-0.016 (0.028)	-0.043 (0.030)	-0.009 (0.033)	0.033 (0.031)
Risk attitude	-0.004 (0.008)	0.017*** (0.004)	0.016** (0.007)	0.020*** (0.007)	0.017*** (0.005)	0.016*** (0.005)	0.026*** (0.008)	0.014** (0.006)
Patience	-0.004 (0.007)	0.005 (0.003)	-0.003 (0.005)	0.003 (0.007)	0.009** (0.004)	0.005 (0.005)	0.004 (0.006)	0.002 (0.005)
Intern. applic. of educ.	0.008 (0.015)	0.041*** (0.007)	0.041*** (0.013)	0.024 (0.015)	0.049*** (0.010)	0.040*** (0.010)	0.051*** (0.013)	0.037*** (0.012)
Migration intention	-0.033 (0.038)	0.068*** (0.018)	0.080*** (0.028)	0.081** (0.040)	0.060*** (0.022)	0.061*** (0.024)	0.184*** (0.045)	0.048* (0.025)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	813	3,202	670	1,479	2,001	1,774	658	1,718

Average marginal effects. Heteroscedasticity robust White standard errors in parentheses. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01"



Figure A1: Professional use of German: 1=very unlikely, 5=very likely. (n=4356)

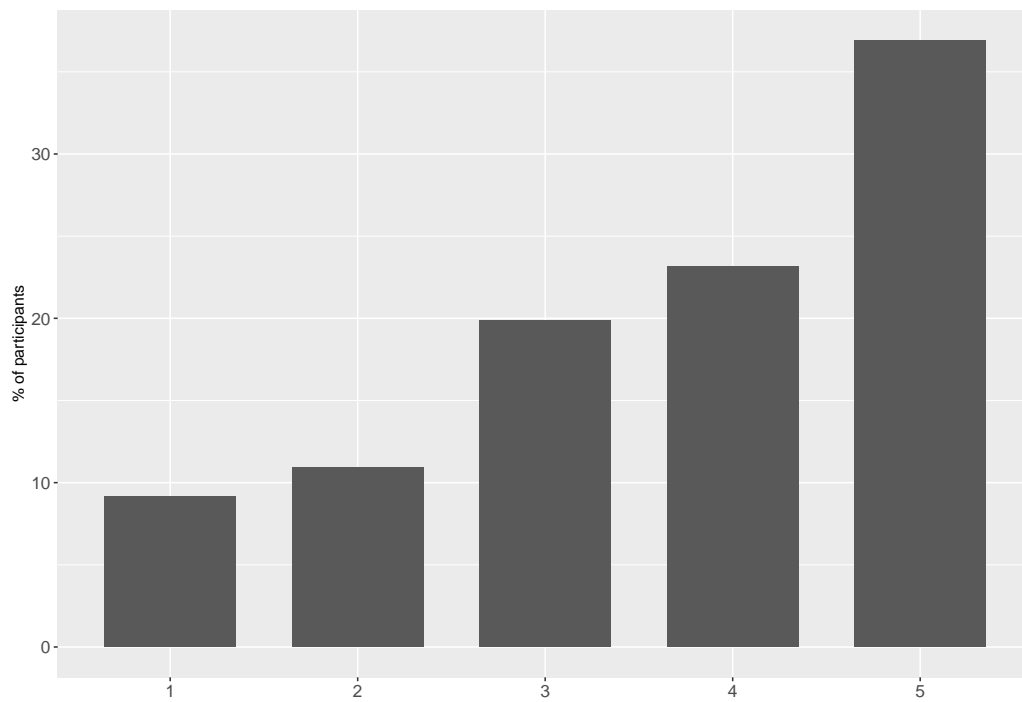


Figure A2: Use of German on the labour market by countries and economic motive.

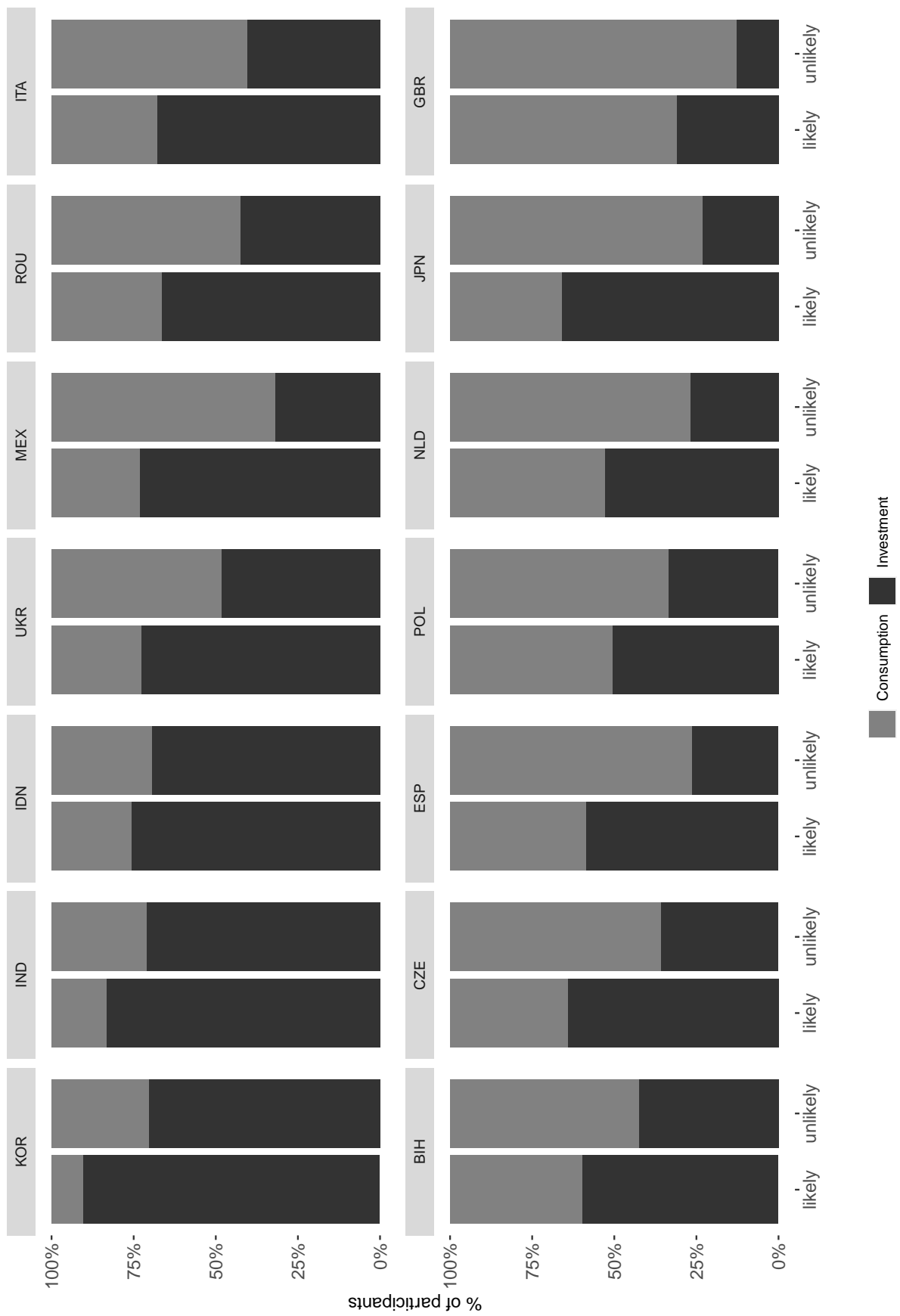
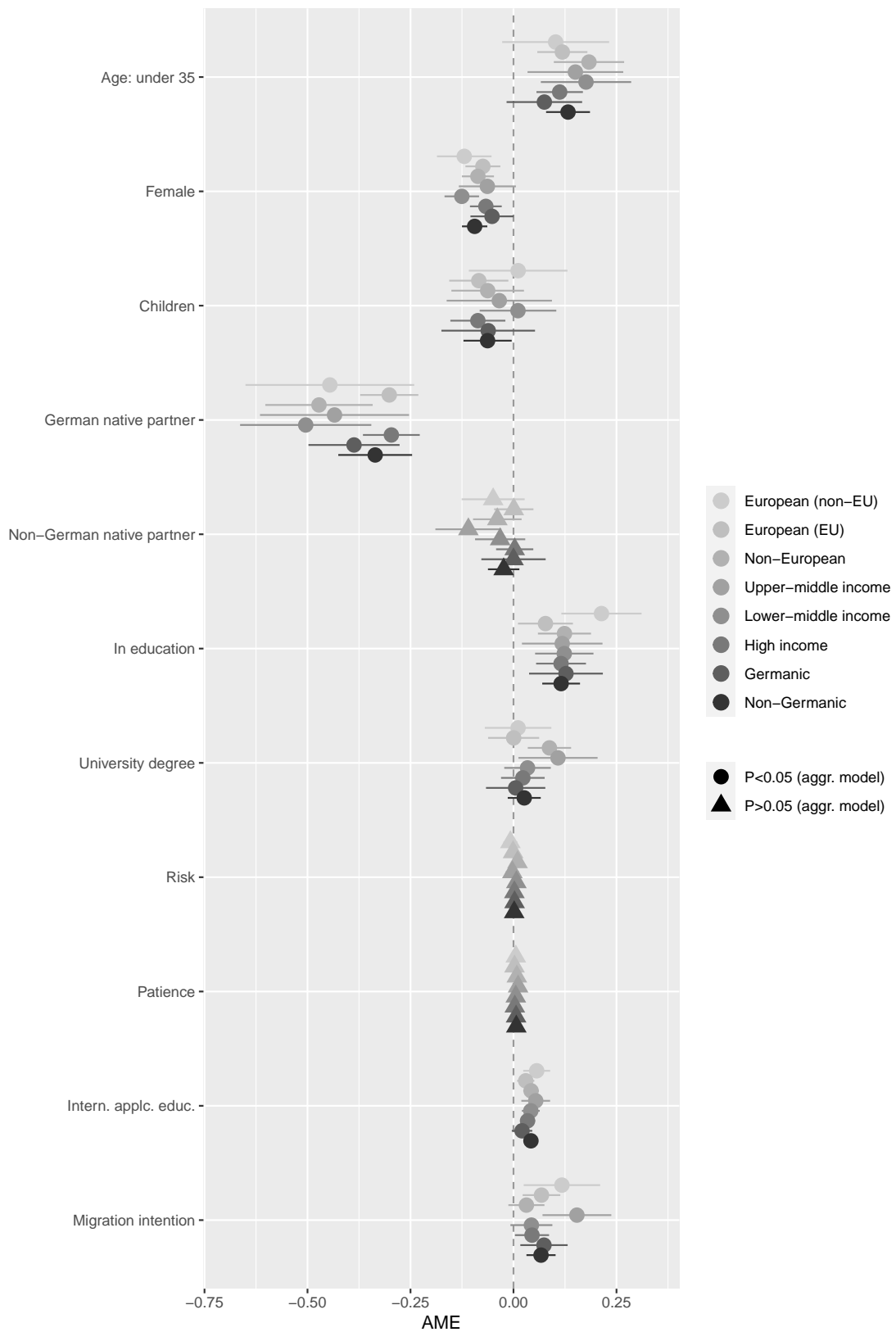
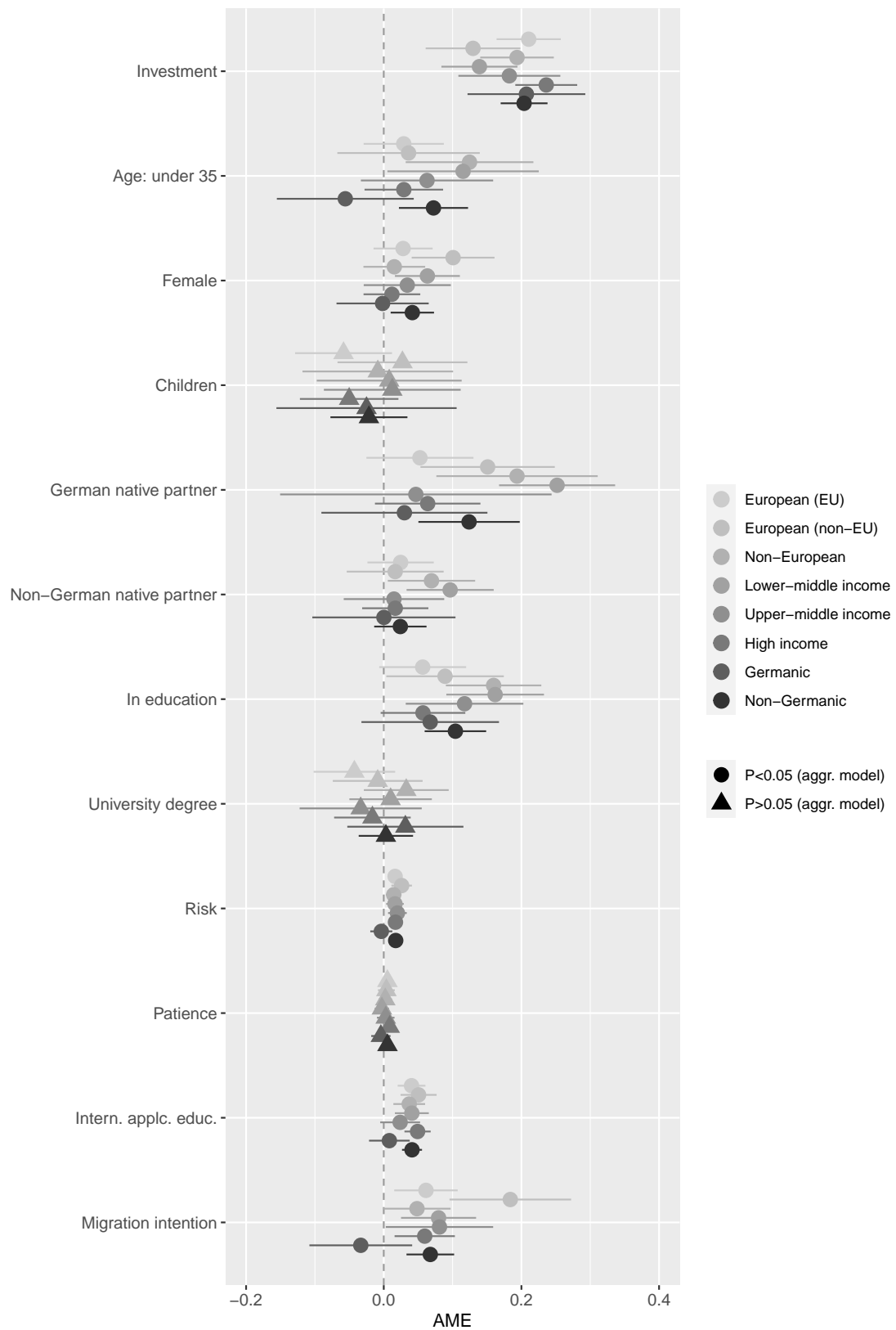


Figure A3: Average marginal effects and 95 % CI for estimations with country group subsamples according to country characteristics.



Notes: Dependent variable is human capital investment. Shapes according to the p-values of the aggregated model in Table 3 Column 2. For detailed estimation results, see Table A6 in the Appendix.

Figure A4: Average marginal effects and 95 % CI for estimations with country characteristics subsamples.



Notes: Dependent variable is professional use of German. Shapes according to the p-values of the aggregated model refers to Table 5 Column 3. For detailed estimation results see Table A8 in the Appendix.

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