



# Why do women more often intend to study abroad than men?

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## Abstract

In many Western countries, women are more likely to study abroad than men. At present, there is a lack of theory-guided empirical studies searching explanations for this pattern. We address this research gap by examining gender differences in study abroad intent among first-semester students in Germany. To derive a comprehensive theoretical framework, we draw on social role theory of sex differences, cognitive development theory, new home economics and statistical discrimination theory. Using data from the nationally representative 2010 DZHW School Leavers Survey, we test our hypotheses by estimating logistic regressions and non-linear effect decompositions. We find that women more often intend to study abroad primarily because of the gender-specific interest profiles they develop throughout their early life course: Related to their subject choice at school, women tend to acquire competences (e.g., language skills) that ease later stays abroad. To some extent, women's better educational performance during school also explains their better chances to study abroad. Once in higher education, women tend to choose fields of study in which studying abroad is considered more valuable for competence acquisition. Losing time due to studying abroad is less of an obstacle for women but—against theoretical expectations—not because of a lower labour market orientation. Finally, the expectation to interrupt the professional career for taking care of the family deters women—especially those from a low social background—from studying abroad, but not men. We do not find evidence that women understand studying abroad as a strategy to counteract this anticipated discrimination. Overall, our results underscore the particular importance of social role and cognitive development theory for explaining gender differences in the spatial mobility of students.

**Keywords** International student mobility · Study abroad · Gender inequality · Effect decomposition · Germany

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## Introduction

In today's globalised world, various gains are attributed to studying abroad.<sup>1</sup> It can positively influence students' personality development (Zimmermann et al., 2020), intercultural competences (Cubillos & Ilvento, 2013; Roy et al., 2019; Sorrenti, 2017) and professional career (Jacob et al., 2019; Liwiński, 2019; Netz & Grüttner, 2020; Waibel et al., 2018).

In meritocratic educational systems, students' socio-demographic characteristics should not determine access to the benefits of studying abroad. Yet, there is abundant evidence that students' socio-demographics strongly influence the likelihood of studying abroad. Most notably, previous research has documented that in Western countries, descending from a high social background and being female tends to increase the likelihood of studying abroad (for a literature review see Netz et al., 2020).<sup>2</sup>

While the reasons for social background differences in ISM have been extensively examined in recent years (e.g., Brooks & Waters, 2010; Lörz et al., 2016; Netz & Finger, 2016; Salisbury et al., 2009; Schnepf & Colagrossi, 2020), the often observed ISM gender gap remains "one of the enduring small mysteries of student life" (Hurst, 2019, p. 1241). However, understanding this social inequality is highly relevant for research on gender, education and migration as well as for the development of tailored study abroad policies. We intend to narrow this research gap by seeking explanations for the gender gap in study abroad intent among first-semester students in Germany.

## Research gap

Existing research on ISM mostly treats gender as a control variable. However, a few studies also seek explanations for the ISM gender gap. These studies examine students in the USA (Hurst, 2019; Salisbury et al., 2010; Shirley, 2006; Simpson & Bailey, 2020; Thirolf, 2014; Tompkins et al., 2017), the Netherlands (Van Mol, 2021), Kazakhstan (Holloway et al., 2012) and India (Sondhi & King, 2017). They have developed theoretically compelling and empirically verifiable explanations, which we acknowledge in the following sections. Nevertheless, there remains a notable research gap.

Firstly, previous studies use samples that hardly allow for generalisable conclusions. Using qualitative designs, Holloway et al. (2012), Simpson and Bailey (2020), Sondhi and King (2017) and Thirolf (2014) examine selective samples with small case numbers. The studies using *t*-test analysis focus on students at a single university (Tompkins et al., 2017) or selected higher education institutions (Shirley, 2006). The regression-based studies employ slightly larger samples but are confined to students at liberal arts colleges (Hurst, 2019; Salisbury et al., 2010). An exception is the study by Van Mol (2021), who uses data that are representative for

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<sup>1</sup> The term study(ing) abroad—which we use as a synonym to international student mobility (ISM)—refers to stays abroad that students complete during higher education, such as study periods, internships, language courses, and other study-related stays.

<sup>2</sup> Larger-scale studies on Western countries show that women in the USA (Bryant & Soria, 2015; Lingo, 2019; Luo & Jamieson-Drake, 2015; Naffziger et al., 2008; Salisbury et al., 2009; Whatley, 2017) and various European countries (Böttcher et al., 2016; Di Pietro & Page, 2008; Hauschildt et al., 2015; Lörz et al., 2016; Netz, 2015; Van Mol, 2021) are more likely to (intend to) study abroad. This female over-representation is not found in Australia (Nerlich, 2015). For other countries, such as India (Sondhi & King, 2017) and Kazakhstan (Holloway et al., 2012), we only found smaller-scale studies, which were not designed to quantify gender gaps in study abroad intent and participation, but still provide valuable theoretical explanations of corresponding gender differences.

the Netherlands. Still, we need more studies that are broadly generalisable at country level and across fields of study.

Secondly, existing research primarily examines students in the USA. Thus, studies from other countries are needed.

Thirdly, previous studies explain the ISM gender gap by theorising it as a result of one or several of the following mechanisms: gender-specific educational performance (Salisbury et al., 2010); women's interest profiles, that is, their greater interest in languages and culture and the resulting field of study choice in higher education (Hurst, 2019; Tompkins et al., 2017; Van Mol, 2021); women's interest-related tendency to select into higher education contexts and activities favouring study abroad (Salisbury et al., 2010); societal gender role expectations leading to differences in career orientation (Shirley, 2006; Simpson & Bailey, 2020; Sondhi & King, 2017; Thirolf, 2014; Van Mol, 2021) and anticipated discrimination in the labour market (Holloway et al., 2012). These studies do not discuss different possible reasons for the ISM gender gap within a comprehensive theoretical framework and thus cannot determine the relative importance of specific explanations. Moreover, they have not sufficiently acknowledged that studying abroad is the result of a process developing over time, which is shaped by beliefs, opportunity structures as well as experiences and decisions made both before and during higher education (Lörz et al., 2016). Therefore, gender differences in ISM are likely traceable to earlier stages in the students' life course. Research can thus be advanced by a more holistic theoretical framework, which integrates and augments existing theoretical explanations and uses appropriate methods to assess their relative importance.

We intend to narrow the sketched research gap by presenting an in-depth study for a Continental European country. More precisely, we develop and test explanations for the gender gap in study abroad intent among first-semester students in Germany. In the following, we derive our theoretical framework and hypotheses, which are based on a life course perspective and encompass not only students' current opportunity structures in higher education but also gender-specific prior life events and future life scripts. Based on social role theory of sex differences, cognitive development theory, new home economics and statistical discrimination theory, we hypothesise that gender differences in educational performance, interest profiles, labour market orientation and anticipated discrimination explain the gender gap in study abroad intent. Using data from the nationally representative 2010 DZHW School Leavers Survey, we test our hypotheses by estimating logistic regressions and non-linear effect decompositions. These analyses allow us to go beyond previous research by appraising the relative importance of specific explanations for the ISM gender gap.

## Theory and hypotheses

In our view, gender differences in ISM are ultimately traceable to societal gender roles. While the literature acknowledges this to some extent (Holloway et al., 2012; Hurst, 2019; Simpson & Bailey, 2020; Thirolf, 2014; Tompkins et al., 2017), we argue that elaborating this perspective substantially improves our understanding of the ISM gender gap. To do so, we use Eagly's (1987) *social role theory of sex differences* as an overarching framework. Eagly (1987) argues that sex differences in social behaviour result from the division of labour between the sexes, which leads to sex-typed skills, beliefs and role expectations. This framework can readily integrate existing empirical evidence and complementary theories to derive testable hypotheses. As we further elaborate below, these theories lead us to hypothesise

that the gender gap in study abroad intent should result from gender differences in educational performance, interest profiles, labour market orientation and anticipated discrimination.

### Educational performance

Following Eagly (1987), gender-divided labour markets lead to sex-typed skills and beliefs. As substantiated by *cognitive development theory*, sex-typed skills and beliefs, in turn, lead to gender-specific behaviour. Once children identify with one sex, they turn to activities and objects they consider suitable for their sex and avoid activities and objects they regard as appropriate for the other sex (Martin & Ruble, 2004). Inter alia, this leads girls to strive more strongly for educational merits, producing gender-specific educational performance (Kessels & Heyder, 2018). For instance, girls are more likely than boys to choose academically-oriented schools (Roisch, 2003) and to receive good school grades (Meisenberg, 2016).

Both choosing academic schools and good grades can increase the likelihood of studying abroad: While academic schools endow students with intercultural competences for studying abroad, good grades ease access to ISM programmes and scholarships (Lörz et al., 2016). Apart from Salisbury et al. (2010), existing research has only considered gender-specific educational performance in terms of control variables (Hurst, 2019; Shirley, 2006) but not empirically tested whether it explains the ISM gender gap. We narrow this research gap by testing whether women are more likely to intend to study abroad because they tend to choose academic schools (**H1a**) and to obtain better grades at school than men (**H1b**).

### Interest profiles

Another way in which sex-typed skills and beliefs (Eagly, 1987) find their expression in gender-specific behaviour (Martin & Ruble, 2004) is the development of gender-specific interest profiles during school (Kessels & Heyder, 2018). Female students tend to be more interested in languages and culture and choose school subjects accordingly (Roisch, 2003). Relatedly, women are more likely to attend academic schools instead of vocational schools. At academic schools, they enjoy better access to first international experiences and foreign language education, which both ease stays abroad during higher education (Lörz et al., 2016). Consequently, women should be more likely to intend to study abroad because of their subject choice in school (**H2a**), which should support international experiences (stays abroad, **H2b**) and the development of competences (language skills, **H2c**) that ease studying abroad.

Gender-specific interest profiles also manifest in higher education: Women are more likely than men to choose languages and culture-related fields of study, such as the humanities and arts (Hauschildt et al., 2015). Students choosing such fields tend to be more likely to study abroad than students in STEM fields, for instance (Bandyopadhyay & Bandyopadhyay, 2015; Hauschildt et al., 2015; Luo & Jamieson-Drake, 2015; Netz, 2015). Therefore, many previous studies invoke field of study choice as a key explanation of the ISM gender gap. We test this explanation for Germany (**H3a**). To extend previous research, we also develop two further hypotheses that substantiate why a gender-specific field of study choice could lead to gender differences in study abroad intent.

Firstly, the value of studying abroad should vary across fields of study. Improving foreign language skills and getting to know other countries and cultures should be more essential in languages and culture-related fields of study than, for instance, in engineering. Consequently, we hypothesise that women are more likely to intend to study abroad because they tend to

choose fields of study in which the skills and experiences gained through studying abroad are valued very highly (**H3b**).

Secondly, languages and culture-related fields of study may offer better opportunity structures for studying abroad: In these fields, departments tend to have long-standing partnerships with host institutions abroad, and the curricula often permit or explicitly foresee stays abroad (Kim & Goldstein, 2005; Luo & Jamieson-Drake, 2015; Salisbury et al., 2010). Thus, women could be more likely to intend to study abroad because they tend to choose fields of study in higher education that provide better opportunity structures for completing stays abroad (**H3c**).

### Labour market orientation

Gender-divided labour markets lead to gender role expectations (Eagly, 1987). As specified by *new home economics* (Mincer, 1978), this has gender-specific implications for spatial mobility: While men are expected to acquire (often specific) human capital to become the main breadwinner in their family, women are expected to acquire universally applicable human capital, allowing greater spatial flexibility. Several authors have argued similarly to explain the ISM gender gap: As men are often expected to provide the main income for their family, they should care about a swift labour market entry (Salisbury et al., 2010) and thus be more worried about losing time through studying abroad (Thirolf, 2014; Tompkins et al., 2017). Hence, we hypothesise that women are more likely to intend to study abroad because they are less likely to anticipate being the main breadwinner later in life (**H4a**). Therefore, they should be less worried about losing time through studying abroad (**H4b**).

### Anticipated discrimination

Related to Eagly's (1987) aforementioned views is Arrow's (1973) *statistical discrimination theory*. It states that employers associate the female sex with productivity-decreasing features such as childbearing, childbirth and longer labour market interruptions. According to the theory, employers are therefore inclined to pay lower average wages to women. Indeed, even among the high-skilled population that we study, women tend to receive lower wages than men, which is notably related to their more substantial involvement in childcare responsibilities (Arulampalam et al., 2007; Brandt, 2012).

Against this background, existing research argues that women could use stays abroad to acquire additional human capital and/or an extra productivity signal. This could help them counteract anticipated discrimination in the labour market (Daly, 2011; Holloway et al., 2012; Sondhi & King, 2017). Consequently, we test the hypotheses that women are more likely to intend to study abroad because they face a greater possibility of employment interruptions due to family reasons (**H5a**). Women should value studying abroad to counteract resulting labour market discrimination (**H5b**).

### Intersectionality of gender and social background

Salisbury et al. (2010), Van Mol (2021) and especially Hurst (2019) have drawn attention to the intersectionality of gender and social background to explain the ISM gender gap. Hurst (2019) suggests that the ISM gender gap primarily results from women from a high social background studying abroad more frequently than both women from a low social background and men from either social background.

Drawing on the work of Bourdieu and colleagues, Hurst argues that society expects women from a high social background, in particular, to acquire cultural capital through

highbrow cultural practices. Their correspondingly framed habitus should lead to a particular interest in intercultural experiences. The gender gap in study abroad intent may thus primarily result from women from a high social background being particularly likely to intend to study abroad (**H6a**), which could be attributable to a particular interest in intercultural experiences (**H6b**).

## Data

We test our hypotheses using data from the German School Leavers Survey, which is administered by the German Centre for Higher Education Research and Science Studies (DZHW). Using stratified cluster sampling, this nationally representative panel survey invites pupils in German school classes to fill out standardised questionnaires half a year before graduation (1st wave), half a year after graduation (2nd wave) and about 3.5 years after graduation (3rd wave) from upper secondary education (see Lörz et al., 2012 for details on the research design, questionnaires and data quality).

The survey provides information on school leavers' past educational histories, current motivations, attitudes and future plans. For our analyses, we use data from the survey of the 2010 graduation cohort. This survey collected detailed information on students' ISM intentions and experiences for the first time. Moreover, it contains various variables that should explain the ISM gender gap according to our theoretical reasoning.

We employ data from the first two survey waves. We only consider respondents who participated in both waves. Furthermore, we concentrate on respondents who had either enrolled in higher education or had definite plans to do so and could name their future field of study at the time of the second wave (referred to as students in the following). Finally, we exclude students who were abroad at that time because these students had already acted on their intention to study abroad. Excluding cases with missing information, our analytical sample contains 5408 observations.<sup>3</sup>

## Variables and descriptive results

Our *dependent variable* is the definite intention to study abroad, which we synonymously call study abroad intent. In the second wave of the German School Leavers Survey, this was captured through the question “Do you intend to study abroad during your future studies or vocational education?”. Besides the option to state that students were “abroad already”, they could indicate whether they intended to study abroad using four categories: “yes, definitely”, “yes, maybe”, “don't know yet” and “no, definitely not”. To be able to estimate logistic regressions and non-linear effect decompositions, we generated a dichotomous variable from these answer options. This variable takes the value of 1 if students chose the option “yes, definitely” and the value of 0 if they chose one of the

<sup>3</sup> As a robustness check, we re-estimated our main models (Table 2) applying the weights provided by the DZHW to correct for unit non-response and selective panel attrition. Our results (available upon request) vary only marginally.

latter three categories.<sup>4</sup> At the time of the second survey, 23% of students definitely intended to study abroad.

Our *central independent variable* is students' gender, which was captured using a binary distinction (female versus male). While 25% of female students intended to study abroad at the time of the second survey, only 20% of male students intended to do so. This significant difference aligns with the above-mentioned studies showing that female students are more likely to intend to study abroad.

Following our theoretical considerations, we explain the gender difference in study abroad intent through *explanatory independent variables* that capture students' gender-specific educational performance, interest profiles, labour market orientation and anticipated discrimination. Table 1 provides information on these variables and the respective survey wave. It also presents Pearson's correlations of these variables with the dependent variable (the intention to study abroad) for both women and men. Moreover, it indicates whether the mean values of the explanatory independent variables differ statistically significantly by students' gender. If an explanatory independent variable is significantly positively or negatively correlated with study abroad intent, and if the mean values of this variable differ significantly by gender, this indicates that a variable may contribute to explaining the observed gender difference in study abroad intent. Unless we explicitly state that they are insignificant, the coefficients and differences discussed in the following text are all statistically significant.

## Educational performance

We captured gender-specific educational performance prior to higher education based on the type of school attended and the final school grade. Regarding school type, we differentiated academic schools (mainly *Gymnasium*, attended by 86% of students at academic schools), which tend to offer better opportunities to learn foreign languages, and *vocational schools*, which place greater emphasis on technical skills. We reversed the scale of the final grade, so that higher figures correspond to better grades.

As illustrated in Table 1 and in line with **H1a**, graduation from academic schools correlates positively with study abroad intent among both women ( $r = 0.09, p < 0.001$ ) and men ( $r = 0.08, p < 0.001$ ). Also, women are more likely than men to graduate from academic schools (77% versus 63%). In line with **H1b**, better final grades correlate positively with study abroad intent among both women and men, and women obtain slightly better final grades than men.

## Interest profiles

Our data allow us to trace gender-specific interest profiles as well as competences developed during school and higher education. Firstly, we consider students' final examination subjects at school, which we assigned to either languages and culture or other subjects. Secondly, we control for stays abroad of more than three months completed before higher education. Thirdly, we consider students' foreign language skills before higher education and thus before potential study-related stays abroad. Students self-assessed these skills during the first survey wave on a scale from 0 *weak* to 4 *strong*.

<sup>4</sup> As a sensitivity analysis, we re-estimated our main models (Table 2) using a dummy variable which took the value of 1 if students either said "yes, definitely" or "yes, maybe", and the value of 0 otherwise. Using this alternative variable diminishes the gender gap in study abroad intent to 3% and inflates the percentage shares of this gap being explained by the single variables but leaves our main conclusions on the relevance of these variables unchanged (results available upon request).



**Table 1** Description of explanatory independent variables and their correlation with study abroad intent

Variable	Wave	Correlation with study abroad intent		Means and SD by gender	
		Female	Male	Female	Male
		intent		gender	
<b>Educational performance</b>					
H1a	1	0.09 ***	0.08 ***	0.77	0.63 ***
H1b	2	0.11 ***	0.15 ***	1.84	1.77 ***
<b>Interest profiles</b>					
H2a	2	0.08 ***	0.07 ***	0.61	0.64
H2b	1	0.19 ***	0.13 ***	59.26	38.17 ***
H2c	1	0.24 ***	0.17 ***	2.52	2.16 ***
H3a	2	0.08 ***	0.04 *	1.15	1.08
		-0.01	-0.13 ***	0.17	0.06 ***
		-0.09 ***	-0.08 ***	0.09	0.32 ***
		-0.01	0.04 *	0.18	0.27 ***
		0.13 ***	0.14 ***	0.10	0.05 ***
		-0.08 ***	-0.01	0.17	0.18
		-0.04 **	0.09 ***	0.11	0.04 ***
		0.14 ***	0.12 ***	0.18	0.08 ***
<b>Labour market orientation</b>					
H3b	2	0.14 ***	0.12 ***	3.77	3.60 ***
H3b	2	0.23 ***	0.20 ***	0.52	0.68
H3c	2	-0.18 ***	-0.19 ***	3.42	3.08 ***
H4a	1	-0.02	0.04 *	0.82	1.01
H4b	2	-0.28 ***	-0.27 ***	1.59	1.82 ***
				1.20	1.22
				2.70	2.98 ***
				0.87	0.89
				1.39	1.48 *
				1.29	1.27



Table 1 (continued)

Variable	Wave	Correlation with study abroad intent		Means and SD by gender	
		Female	Male	Female	Male
<b>Anticipated discrimination</b>					
H5a	2	-0.05 **	-0.02	2.54 <i>1.10</i>	1.56 *** <i>1.02</i>
H5b	2	0.16 ***	0.19 ***	2.86 <i>1.03</i>	2.77 ** <i>1.05</i>
<b>Control variables</b>					
H6a/b	1	0.09 ***	0.06 **	0.56	0.55
	1	-0.01	-0.01	0.16	0.15
	1	-0.06 ***	-0.05 *	19.04 <i>2.18</i>	19.27 *** <i>1.98</i>

**Notes:** The column entitled *Correlation with study abroad intent* shows the Pearson's correlations of the explanatory independent variables with the intention to study abroad. It also indicates whether the correlation coefficients for each gender are statistically significant or not. The column entitled *Means and SD by gender* shows the means and standard deviations (SD in italics) of female and male students. The last column indicates whether the mean differences are statistically significant.

Significance levels: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$   
**Data source:** 2010 DZHW School Leavers Survey,  $N=5,408$

In line with our hypotheses, all three variables positively correlate with study abroad intent among both women and men (Table 1). Moreover, women are substantially more likely to choose languages and culture as examination subjects (**H2a**), have sojourned abroad before higher education (**H2b**) and indicate that they have good foreign language skills (**H2c**).

To capture interest profiles and opportunity structures during higher education, we, firstly, control for students' actual or envisaged field of study using seven dummy variables, with languages and culture being the reference category in our multivariate models. Secondly, we capture the extent to which students consider studying abroad beneficial for improving their language skills and getting to know other countries and cultures. Thirdly, we measure the extent to which students consider organisational effort an obstacle to studying abroad. All three items were captured on scales from 0 *not at all* to 4 *very strongly*.

Broadly but not entirely in line with **H3a**, women are more likely to choose fields of study that positively correlate with study abroad intent. In line with **H3b**, women more strongly agree that studying abroad is beneficial for improving language skills and getting to know other countries and cultures, which positively correlates with study abroad intent among both women and men. Supporting **H3c**, considering organisational effort an obstacle to studying abroad negatively correlates with study abroad intent among both women and men. On average, organisational effort impedes women less than men.

### Labour market orientation

We investigate whether gender-specific labour market orientations explain the ISM gender gap using two items. Firstly, we assess the extent to which students pursue the life goal of gaining a high income (scale from 0 *do not agree at all* to 4 *totally agree*). Secondly, we assess whether students consider time loss an obstacle to studying abroad (scale from 0 *not at all* to 4 *very strongly*).

As expected, women consider a high income to be less important than men on average, and this life goal positively correlates with study abroad intent only among men (**H4a**). Moreover, anticipated time loss negatively correlates with study abroad intent among both gender, and women fear time loss due to studying abroad slightly less than men (**H4b**).

### Anticipated discrimination

To examine the role of anticipated discrimination, we consider the expected likelihood of interrupting later employment due to family reasons (scale from 0 *very unlikely* to 4 *very likely*) and the degree to which students perceive studying abroad to benefit their labour market prospects (scale from 0 *not at all* to 4 *very strongly*).

Congruent with **H5a**, women expect to interrupt later employment due to family reasons substantially more frequently than men. Against expectations, however, expecting such interruptions negatively correlates with study abroad intent—albeit only among women. In line with **H5b**, considering studying abroad beneficial for labour market prospects positively correlates with study abroad intent among both women and men, and women regard it as slightly more valuable in this respect than men.

### Control variables

Finally, all our models include three socio-demographic variables that previous research has shown to influence study abroad intent (Netz et al., 2020). These controls comprise students' social background,

which we operationalised by parents' educational attainment (high social background: *at least one parent with higher education degree*, low social background: *no parent with higher education degree*), migration background (*at least one parent born abroad* versus *no parent born abroad*) and students' age at the time of the first wave. We include these controls in all models to avoid that socio-demographic compositional differences between gender groups distort our results.

### Intersectionality of gender and social background

In line with **H6a**, our descriptive results demonstrate that stemming from a high social background correlates more strongly positively with study abroad intent among women than among men. We employ multivariate analyses to test whether this occurs because women from high social background are particularly interested in intercultural experiences (**H6b**).

### Multivariate methods

We predict study abroad intent using step-wise logistic regressions. We report effect sizes as average marginal effects (AME). In our case, AME indicate the expected change in the likelihood of intending to study abroad associated with a one-unit change in an independent variable, holding all other independent variables constant (for details see Williams, 2012).

Additionally, we perform a non-linear decomposition analysis using the technique developed by Karlson et al. (2012). Firstly, we quantify the percentage share of the gender gap in study abroad intent explained by each variable in the fully specified model—see the last column of Table 2, entitled  $D_{\text{var}}$  (%). Secondly, we indicate the percentage share of the gender gap explained by all variables included in a respective model—see the last line of Table 2, entitled  $D_{\text{total}}$  (%). We estimate all models using Stata.

### Multivariate results

In line with our descriptive analysis, the logistic regression shows that women are more likely than men to intend to study abroad by 5 percentage points (see M1 in Table 2). Although M1 includes the control variables social background, migration background and age, this difference corresponds to the bivariate findings, suggesting that compositional effects do not distort the descriptive picture.

To explain the gender gap in study abroad intent, we gradually add variables capturing students' educational performance (M2), interest profiles (M3 to M7), labour market orientation (M8) and anticipated discrimination (M9).

### Educational performance

As hypothesised, female students' higher probability of attending academic schools (**H1a**) and their slightly better final school grades (**H1b**) explain part of the gender gap in study abroad intent. Students who attended academic schools are 5 percentage points more likely to intend to study abroad. Moreover, students with the best final school grade are roughly 17 percentage points more likely to intend to study abroad than those with the worst final school grade. The

**Table 2** Determinants of study abroad intent: Results of logistic regressions (AME) and non-linear decompositions (KHB method)

	M1	M2	M3	M4	M5	M6	M7	M8	M9	D <sub>var</sub> (%)
<b>Gender</b>										
Female (ref. male)	0.05***	0.04**	0.03*	0.01	0.01	-0.02	-0.03*	-0.02	-0.01	
<b>Educational performance</b>										
H1a Type of school: academic school (ref. vocational school)	0.05***	0.05***	0.05***	0.03*	0.04**	0.04***	0.04***	0.04***	0.04***	8.92
H1b Final school grade (0 to 3.3, higher= better)	0.05***	0.05***	0.05***	0.03***	0.03***	0.03***	0.03***	0.04***	0.04***	6.18
<b>Interest profiles</b>										
H2a Examination subjects: languages and culture (ref. other subject)	0.06***	0.02	0.06***	0.02	0.01	-0.01	-0.01	-0.01	-0.01	1.82
H2b Longer stay abroad before entering higher education (ref. no such stay)	0.16***	0.16***	0.16***	0.16***	0.16***	0.13***	0.10***	0.09***	0.08***	3.44
H2c Foreign language skills (0 weak to 4 strong)	0.06***	0.06***	0.06***	0.06***	0.06***	0.05***	0.05***	0.04***	0.04***	32.05
H3a Field of study (ref. languages and culture)										8.54
Engineering/architecture					-0.07***	-0.05*	-0.05*	-0.06**	-0.06***	
Agriculture/natural and nutritional sciences					-0.09***	-0.07***	-0.08***	-0.07***	-0.08***	
Human and veterinary medicine					-0.08***	-0.07***	-0.07***	-0.08***	-0.08***	
Economics					0.07**	0.08***	0.07***	0.04*	0.03	
Arts/pedagogy/sports					-0.10***	-0.10***	-0.10***	-0.11***	-0.10***	
Law/social sciences/social services					-0.05**	-0.03	-0.04*	-0.04*	-0.04**	
H3b Studying abroad beneficial for improving language skills (0 not at all to 4 very strongly)					0.06***	0.06***	0.05***	0.04***	0.02*	8.87
H3c Studying abroad beneficial for getting to know other countries/cultures (0 not at all to 4 very strongly)					0.10***	0.10***	0.09***	0.07***	0.07***	46.48
H3c Organisational effort as an obstacle to studying abroad (0 not at all to 4 very strongly)							-0.05***	-0.03***	-0.03***	13.39
<b>Labour market orientation</b>										
H4a Life goal: high income (0 don't agree at all to 4 agree totally)								0.01	-0.01	0.17
H4b Time loss as an obstacle (0 not at all to 4 very strongly)								-0.07***	-0.06***	10.76
<b>Anticipated discrimination</b>										
H5a Probability of interrupting employment due to family (0 very unlikely to 4 very likely)									-0.02**	-28.51
H5b Studying abroad beneficial for improving labour market prospects (0 not at all to 4 very strongly)									0.04***	7.99
<b>Control variables</b>										
Educational background: at least one parent with HE degree (ref. none with HE degree)	0.07***	0.05***	0.05***	0.03*	0.03**	0.03*	0.03*	0.03*	0.03*	0.66
Migration background: at least one parent born abroad (ref. none born abroad)	-0.01	0.02	0.02	-0.03*	-0.03*	-0.03*	-0.02	-0.03	-0.03	-0.25
Age (first wave)	-0.01***	-0.01*	-0.01*	-0.01**	-0.01**	-0.01*	-0.01*	-0.01	-0.01	2.49
N	5,408	5,408	5,408	5,408	5,408	5,408	5,408	5,408	5,408	
McFadden's Pseudo R <sup>2</sup>	0.01	0.03	0.03	0.07	0.10	0.14	0.16	0.19	0.20	
D <sub>total</sub> (%)	7.09	28.09	52.09	82.57	97.93	150.97	162.19	145.90	122.99	

**Notes:** D<sub>var</sub> (%) = Part of gender difference explained by a specific variable

D<sub>total</sub> (%) = Part of gender difference explained by all variables in a model

Significance levels: \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

**Data source:** 2010 DZHW School Leavers Survey

decomposition based upon the full model shows that these two variables explain about 15% of the overall gender gap in study abroad intent.

### Interest profiles

Even when controlling for educational performance, choosing languages and culture as examination subjects is a relevant predictor of study abroad intent (M3). According to the decomposition and supporting **H2a**, the slightly higher likelihood of women to choose these fields translates into a small share of the gender gap in study abroad intent being explained by this variable (about 2%).

However, the substantially smaller and statistically insignificant coefficient of the examination subjects in M4 indicates that longer stays abroad before entering higher education (**H2b**) and especially self-assessed foreign language skills (**H2c**) mediate this effect. Choosing languages and culture as examination subjects goes along with previous stays abroad and better language skills. M4 shows that both longer stays abroad during school and the self-assessed foreign language skills are essential predictors of study abroad intent. Indeed, students with strong self-assessed foreign language skills are 24 percentage points more likely to intend to study abroad than students with weak foreign language skills. According to the decomposition, women's substantially better self-assessed foreign language skills are among the most important factors explaining the gender gap in study abroad intent (explained share: 32%), while previous stays abroad (3%) have only minor explanatory value beyond their interrelation with better foreign language skills.

M5 shows that, even after controlling for the school-related educational performance and interest profile, the students' likelihood of intending to study abroad differs notably across fields of study. While students in economics are most likely to intend to study abroad, students in arts, pedagogy and sports are least likely to study abroad. Field of study explains approximately 9% of the gender difference in study abroad intent (**H3a**).

Most field of study coefficients decrease slightly in size when controlling for students' assessment of the benefit of studying abroad for improving language skills and getting to know other countries and cultures (M6). Supporting **H3b**, the field of study effects thus seem to be partly mediated by the extent to which students value studying abroad for acquiring intercultural skills and experiences. Moreover, both variables are important predictors of study abroad intent and factors contributing to explaining the gender gap in study abroad intent. Women's substantially more positive assessment of the benefit of studying abroad for getting to know other countries and cultures explains about 46% of the gender gap in study abroad intent, which is the single highest value of all explanatory variables.

When controlling for the assessment of organisational effort as an obstacle to studying abroad, the field of study effects change only marginally (M7). Contrary to **H3c**, there is thus no evidence that opportunity structures for studying abroad differ drastically across fields of study. Yet, expecting more organisational effort due to studying abroad comes along with lower study abroad intent. Women's generally less pessimistic assessment in this respect contributes to explaining the gender gap (about 13%).<sup>5</sup>

<sup>5</sup> A stepwise decomposition model shows that the value attached to studying abroad for improving language skills and getting to know other countries and cultures as well as the assessment of organisational effort as an obstacle to studying abroad explain 42% of the field of study effects (results available upon request). While this is notable, it also implies that there are further factors mediating the field of study effects.

## Labour market orientation

While attaining a high income is less important for women than for men, this life goal does not predict study abroad intent (M7). Contradicting **H4a**, it does not contribute to explaining the gender gap. Supporting **H4b**, however, women's slightly lower fear of time loss due to studying abroad explains part of this gender gap (about 11%).

To test **H4a** and **H4b** more precisely, we additionally interacted the latter two variables (results available upon request). Theoretically, the more students care about attaining a high income, which is our proxy of the expectation to become the main breadwinner, the more they should fear time loss due to studying abroad, because this would lead to foregone earnings due to a later labour market entry. However, the interaction effect is insignificant. Thus, our multivariate results do not support these assumptions.

## Anticipated discrimination

In the full model (M9), a greater expectation to interrupt later employment due to family reasons slightly negatively correlates with study abroad intent. A more positive assessment of the labour market benefits of studying abroad positively correlates with study abroad intent. In line with **H5b**, women's slightly more positive assessment of the labour market benefits of studying abroad explains part of the gender gap in study abroad intent (about 8%). Women's substantially higher self-assessed likelihood of interrupting employment due to family reasons is an even more crucial explanatory factor (about -29%). As the negative leading sign shows, however, the over-representation of women among those with study abroad intent would be even more considerable if they expected to interrupt their career as seldom as men. While this does not support **H5a**, it points to a potential gender inequality that would go unnoticed when merely trying to explain the gender gap in study abroad intent through gender-specific interest profiles, as many previous studies have done.

To test **H5a** and **H5b** more precisely, we additionally interacted the latter two variables (results available upon request). Theoretically, the greater the expectation to interrupt later employment due to family reasons, which is our proxy for anticipated discrimination, the more beneficial should students consider studying abroad for improving their labour market prospects. This should constitute a counteraction of the anticipated discrimination. However, the interaction term is insignificant, which does not support our assumptions.

It is interesting to note that—given existing empirical studies—we have only formulated hypotheses on why women should be more likely to intend to study abroad. However, the fact that the coefficient for women becomes negative in some models, and that—consequently—our decomposition explains more than 100% of the initially observed gender gap of 5 percentage points, indicates that there are also mechanisms that influence women's study abroad intent more negatively than men's. With women's greater expectation of interrupting their later employment, we could empirically identify an important factor narrowing this gender gap. However, the remaining negative coefficient for women and the explained share of more than 100% in M9 suggest that further factors affect study abroad intent negatively particularly among women.

## Intersectionality of gender and social background

Additionally, we tested the hypothesis by Hurst (2019) that the ISM gender gap is primarily a result of women from a high social background studying abroad because of their particular

interest in intercultural experiences. To do so, we re-estimated our main models separately for students from a high and from a low social background. In line with Hurst (2019) and **H6a**, we find that the gender gap in study abroad intent is larger among students from a high social background than among those from a low social background. While women have greater intent to study abroad in both social strata, the gender effect is statistically significant only in the case of students from a high social background, and twice as high (see Tables 3 and 4 in the appendix).

However, we do not find that a disproportionately greater interest in intercultural experiences explains the particularly high study abroad intent of women from a high social background (**H6b**). Indeed, the (statistically insignificant) gender gap among students from a low social background is also notably explained by their school-subject and field of study choice, their better self-assessed foreign language skills and their perceived value of studying abroad in terms of getting to know other countries and cultures.

Yet, a vital difference is that the expectation to interrupt later employment due to family reasons constrains women from a low social background substantially more. Thus, rather than an exceeding interest in intercultural experiences, fewer constraints due to traditional labour-market-related gender roles seem to explain why women from a high social background are so inclined to study abroad. The smaller influence of traditional gender roles among high-background students also becomes visible regarding time loss as an obstacle to studying abroad: It explains only a minimal share of the gender gap among high-background students, but an important share among low-background students. This suggests that men are more oriented towards a swift labour market entry than women in the low-background group.

## Discussion and conclusion

### Main findings and contributions

Studies from various Western countries have shown that women are more likely to (intend to) study abroad than men. To advance research trying to explain this gender gap, we have developed a comprehensive theoretical framework based on social role theory of sex differences, cognitive development theory, new home economics and statistical discrimination theory. This framework has allowed us to systematically integrate and augment existing explanations of the ISM gender gap. To test this framework, we have conducted an analysis of the gender gap in study abroad intent among first-semester students in Germany. To generate findings that are generalisable at country level and across fields of study, we have used data from the nationally representative 2010 DZHW School Leavers Survey. By estimating logistic regressions and non-linear effect decompositions, we have appraised the relative importance of the theoretically derived explanations of the gender in study abroad intent.

In line with the initially recapitulated body of evidence, we found that women are more likely to intend to study abroad than men. Our analysis suggests that gender-specific interest profiles are key for explaining the ISM gender gap. However, gender-specific educational performance, labour market orientation and anticipated discrimination also explain this gap.

Regarding the domains of educational performance and interest profiles, our results align with the social role theory of sex differences and with cognitive development theory. We found that female students' higher probability of attending academic



schools (**H1a**) and their slightly better final school grades (**H1b**) explain part of the gender gap in study abroad intent.

Women's substantially better self-assessed foreign language skills (**H2c**) are among the most important factors explaining the gender gap in study abroad intent. These skills seem to partially result from women's greater inclination to choose languages and culture as examination subjects (**H2a**) and to complete stays abroad during school (**H2b**).

Once in higher education, women tend to choose fields of study that are related to studying abroad (**H3a**). The observed field of study effects are partly mediated by the extent to which students value studying abroad for acquiring language skills and intercultural experiences (**H3b**). Women's substantially more positive assessment of the benefit of studying abroad for getting to know other countries and cultures is the single most important reason for the gender gap in study abroad intent. The fact that this finding only marginally depends on the field of study choice supports the view that women generally have more intercultural attitudes than men (Kim & Goldstein, 2005).

Against expectations, we did not find that field of study differences in opportunity structures contribute to explaining the gender gap in study abroad intent (**H3c**). Instead, women's generally less pessimistic assessment of organisational effort related to stays abroad contributes to explaining the gender gap in study abroad intent.

Regarding labour market orientation, we found only partial support for our hypothesis derived from new home economics and existing studies (e.g., Tompkins et al., 2017). Losing time due to studying abroad is less obstructive for women (**H4b**), but—unlike hypothesised (**H4a**)—not because they are less likely to expect to be the main breadwinner later in life.

The hypothesis derived from statistical discrimination theory is also only partially supported. As expected, we found that women's slightly more positive assessment of the labour market benefits of studying abroad explains part of the gender gap in study abroad intent (**H5b**). Contradicting **H5a**, we also found that women's substantially higher self-assessed likelihood of interrupting employment due to family reasons actually narrows the gender gap. This latter finding does not support the view that women understand studying abroad as a strategy to counteract anticipated discrimination. Rather, it lends support to human capital theory (Becker, 1993): Women's tendency to comply with their societal gender role, e.g., by expecting a discontinuous working life due to family responsibilities, could lower their incentive to study abroad, as investments that are unlikely to pay off should not be made.

In line with Hurst (2019), we found that the gender gap in study abroad intent is larger among students from a high social background than among those from a low social background (**H6a**). However, a particular interest in intercultural experiences cannot explain the high study abroad intent of high-background women (**H6b**). Indeed, intercultural interests and experiences also play a notable role in explaining the gender gap among students from a low social background. Yet importantly, the expectation to interrupt later employment due to family reasons constrains women from a low social background substantially more. In addition, fearing time loss due to studying abroad explains a much larger share of the gender gap among low-background students than among high-background students. Thus, rather than an exceeding interest in intercultural experiences, fewer constraints due to traditional gender roles seems to explain why women from a high social background are so inclined to study abroad.

Overall, our results underscore the relevance of social role and cognitive development theory for explaining gender differences in the spatial mobility of students. In line with previous research examining inequalities in ISM (Lörz et al., 2016; Salisbury et al., 2010), our findings also highlight the importance of adopting a life course perspective: The gender gap in study

abroad intent is largely traceable to gender roles that find their expression in the development of gender-specific interest profiles and experiences prior to entering higher education.

### Limitations and further research

Our study has several data-related limitations, which offer directions for further research. Firstly, we expected the value of studying abroad to differ across fields of study (**H3b**). Unfortunately, our data did not contain a direct measure of the field-of-study-specific value of studying abroad. Therefore, we could only perform an indirect test by examining whether students' assessment of the value of studying abroad for gaining language skills and intercultural experiences mediates the field of study effects.

Secondly, we had to operationalise the expectation to become the main breadwinner later in life using the life goal of attaining a high income. While we believe this is a viable proxy to test **H4a**, a more precise measure might lead to a greater relative importance of the labour market orientation for explaining the ISM gender gap.

Thirdly and similarly, our data only allowed us to indirectly test whether women are more likely to intend to study abroad because they value it in counteracting discrimination in the labour market (**H5a** and **H5b**). We would prefer an item directly capturing the value of studying abroad for counteracting discrimination.

Fourthly, panel data would be valuable that include information on study abroad intent and its predictors and follow students from very early on in their life courses throughout higher education. On the one hand, such data would allow us to trace more explicitly how sex-typed skills and beliefs, the resulting gender-specific educational performance, competences and interest profiles, as well as labour market preferences and expectations develop over time—and how these explain gender-specific study abroad intent. On the other hand, such data would allow us to use methods for longitudinal data analysis that can better approximate causal effects.

Finally, our results are likely to be specific for Germany. Although we believe that our theoretical framework is applicable in other countries as well, the country-specific social structures have to be taken into account. Especially in more patrifocal countries (Sondhi & King, 2017), which have so far not been examined using quantitative designs, women might be less likely to (intend to) study abroad, and other explanatory mechanisms, such as labour market orientation and anticipated discrimination, could play a larger role than in Germany.

Our study also points to new questions for further research. We have examined gender differences in study abroad intent. Future research could additionally apply our theoretical framework to examine gender differences in the completion of stays abroad.<sup>6</sup> Combining our framework with recently developed models of the relationship between study abroad intent and behaviour (e.g., Kim & Lawrence, 2021), future studies could also investigate whether and why there are gender differences in the likelihood of abandoning an initial study abroad intention and in developing a study abroad intention during the course of the studies.

Further research could also use more nuanced concepts of gender. Most existing studies use a binary distinction. By considering students' sexual orientation and gender identity, gender differences in study abroad intent and behaviour may become visible that remain unobserved

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<sup>6</sup> A first analysis of data from the third wave of the 2010 DZHW School Leavers Survey shows that 22% of female students have studied abroad at 3.5 years after entering higher education, as opposed to 17% of male students. This 5-percentage-point difference is statistically significant at the 0.001 level—thus justifying a further analysis of gender differences in study abroad behaviour based on our data.

using a binary understanding (Bryant & Soria, 2015). In a first step, this requires that surveys comprehensively capture students' sexual orientation and gender identity.

Following Salisbury et al. (2010), Hurst (2019), and Van Mol (2021), we have demonstrated the value of an intersectional perspective. Future research could examine the intersection between gender and social background in more depth. It could additionally investigate the intersection of further student characteristics, such as gender and migration background. Recent evidence suggests that the prevalence of traditional gender roles strongly varies by immigrants' provenience and generational status (Röder & Mühlau, 2014). This could explain why Salisbury et al. (2010) find that the effect of gender on study abroad intent differs by students' ethnicity. We suggest that differences in educational performance, interest profiles, labour market orientation and anticipated discrimination might explain these intersectional variations.

Moreover, the role of significant others deserves more attention. For instance, parents may differently support study abroad intent and behaviour depending on students' gender. First evidence suggests that male students receive more financial support for studying abroad from their parents (Hurst, 2019). Parents' gender also seems to matter, as mothers' educational attainment more strongly predicts study abroad participation than fathers' educational attainment (Van Mol, 2021). More knowledge on how students' peers and their gender exacerbate or attenuate gender differences in ISM would also be relevant. Indeed, Salisbury et al. (2010) suggest that influential peer interactions keep men from studying abroad more often than women. Furthermore, evidence on how academic staff and non-academic staff influence the ISM gender gap would be valuable. In particular, it should be studied how significant others may facilitate or impede a gender-specific translation of study abroad intent into actual behaviour.

One may also ask whether women and men envisage and complete different types of stays abroad. For instance, first evidence suggests that in European higher education, the gender gap is less pronounced in internships abroad than in temporary enrolments and language courses (Hauschildt et al., 2015). We are also not aware of studies on gender differences in host country choice. Considering the importance of gender roles for study abroad decision-making and that safety concerns are more relevant for women's host country choice than for men's (Lee, 2014), it is plausible to hypothesise that women are less likely to choose host countries with fragile institutions and patrifocal social structures.

A further crucial question is whether gender influences what and how (much) students learn abroad. One prominent facet to examine is the acquisition of language skills. In this respect, recent evidence from Italy suggests that women's language skills improve more than men's during exchange semesters abroad (Sorrenti, 2017).

Finally, the nascent debate on heterogeneous labour market effects of studying abroad (e.g., Netz & Grüttner, 2020) should be extended to gender: Does studying abroad influence female and male careers in a similar manner? If not, what explains gender-specific returns to studying abroad?

This latter aspect has particular implications for research on gender segregation in higher education. Recent research illustrates that gender-specific interest profiles are associated with subject choices in school and higher education that can explain female disadvantages in the professional career (Barone & Assirelli, 2020). Yet, we have shown that the same female-specific interest profiles are crucial for understanding the over-representation of women among those intending to study abroad. Future research should thus examine whether studying abroad is an educational option that alleviates gender inequality in the labour market—or whether this female advantage does not translate into higher labour markets returns, for instance, due to women entering specific labour market segments and positions, assuming more childcare responsibilities or facing discrimination.

# Appendix

**Table 3** Determinants of study abroad intent: Results of logistic regressions (AME) and non-linear decompositions (KHB method), high social background

	M1	M2	M3	M4	M5	M6	M7	M8	M9	D <sub>var</sub> (%)
<b>Gender</b>										
Female (ref. male)	0.06***	0.05**	0.04*	0.02	0.02	-0.01	-0.01	-0.01	-0.01	-0.01
<b>Educational performance</b>										
H1a Type of school: academic school (ref. vocational school)	0.06**	0.05**	0.05**	0.03	0.05*	0.04*	0.04*	0.04*	0.04*	5.46
H1b Final school grade (0 to 3.3, higher=better)	0.09***	0.09***	0.09***	0.05***	0.06***	0.06***	0.06***	0.07***	0.07***	10.30
<b>Interest profiles</b>										
H2a Examination subjects: languages and culture (ref. other subject)	0.06***			0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.58
H2b Longer stay abroad before entering higher education (ref. no such stay)				0.18***	0.18***	0.14***	0.12***	0.10***	0.09***	4.71
H2c Foreign language skills (0 weak to 4 strong)				0.06***	0.06***	0.04***	0.05***	0.04***	0.04***	22.74
H3a Field of study (ref. languages and culture)										17.40
Engineering/architecture					-0.05	-0.02	-0.02	-0.03	-0.03	
Agriculture/natural and nutritional sciences					-0.09***	-0.06*	-0.07**	-0.06*	-0.06*	
Human and veterinary medicine					-0.10***	-0.09***	-0.09***	-0.10***	-0.09***	
Economics					0.10	0.11	0.10	0.08	-0.06	
Arts/pedagogy/sports					-0.10***	-0.11***	-0.11***	-0.11***	-0.11***	
Law/social sciences/social services					-0.04	-0.02	-0.02*	-0.02*	-0.03	
H3b Studying abroad beneficial for improving language skills (0 not at all to 4 very strongly)					0.07***	0.06***	0.06***	0.05**	0.03	9.05
H3b Studying abroad beneficial for getting to know other countries/cultures (0 not at all to 4 very strongly)					0.12***	0.12***	0.11***	0.09***	0.09***	44.00
H3c Organisational effort as an obstacle to studying abroad (0 not at all to 4 very strongly)					-0.05***	-0.04***	-0.04***	-0.04***	-0.04***	9.28
<b>Labour market orientation</b>										
H4a Life goal: high income (0 don't agree at all to 4 agree totally)								0.01	-0.01	-3.18
H4b Time loss as an obstacle (0 not at all to 4 very strongly)								-0.06***	-0.06***	5.98
<b>Anticipated discrimination</b>										
H5a Probability of interrupting employment due to family (0 very unlikely to 4 very likely)										
H5b Studying abroad beneficial for improving labour market prospects (0 not at all to 4 very strongly)										
<b>Control variables</b>										
Migration background: at least one parent born abroad (ref. none born abroad)	0.01	0.03	0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-0.03	-1.22
Age (first wave)	-0.02***	-0.01	-0.01	-0.01*	-0.01*	-0.01*	-0.01*	-0.01*	-0.01*	1.06
N	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004	3,004
McFadden's Pseudo R <sup>2</sup>	0.00	0.03	0.03	0.07	0.10	0.15	0.17	0.20	0.21	
D <sub>total</sub> (%)	5.16	27.26	43.97	71.23	91.68	133.37	139.80	124.53	109.89	

**Notes:** D<sub>var</sub> (%) = Part of gender difference explained by a specific variable

D<sub>total</sub> (%) = Part of gender difference explained by all variables in a model

Significance levels: \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

**Data source:** 2010 DZHW School Leavers Survey

**Table 4** Determinants of study abroad intent: Results of logistic regressions (AME) and non-linear decompositions (KHB method), low social background

	M1	M2	M3	M4	M5	M6	M7	M8	M9	D <sub>var</sub> (%)
<b>Gender</b>										
Female (ref. male)	0.03	0.02	0.01	-0.01	-0.02	-0.04*	-0.05**	-0.04*	-0.03	
<b>Educational performance</b>										
H1a Type of school: academic school (ref. vocational school)	0.04*	0.04*	0.04*	0.03	0.03*	0.04*	0.03*	0.04*	0.04*	13.67
H1b Final school grade (0 to 3.3, higher=better)	0.05***	0.05***	0.05***	0.02	0.02	0.02	0.03	0.04**	0.03**	2.98
<b>Interest profiles</b>										
H2a Examination subjects: languages and culture (ref. other subject)	0.07***	0.07***	0.07***	0.03*	0.01	0.01	0.01	0.01	0.01	12.24
H2b Longer stay abroad before entering higher education (ref. no such stay)				0.13***	0.13***	0.10**	0.10**	0.08**	0.08**	1.01
H2c Foreign language skills (0 weak to 4 strong)				0.07***	0.06***	0.05***	0.05***	0.04***	0.04***	41.70
H3a Field of study (ref. languages and culture)										25.28
Engineering/architecture					-0.10***	-0.08**	-0.07**	-0.08***	-0.09***	
Agriculture/natural and nutritional sciences					-0.10***	-0.08***	-0.08***	-0.09***	-0.09***	
Human and veterinary medicine					-0.05	-0.03	-0.03	-0.04	-0.04	
Economics					-0.08***	-0.08***	-0.08***	-0.10***	-0.09***	
Arts/pedagogy/sports					-0.06*	-0.05	-0.05*	-0.06**	-0.07**	
Law/social sciences/social services					0.05**	0.05**	0.05**	0.04*	0.02	4.13
H3b Studying abroad beneficial for improving language skills (0 not at all to 4 very strongly)					0.07***	0.07***	0.07***	0.05***	0.05***	54.71
H3b Studying abroad beneficial for getting to know other countries/cultures (0 not at all to 4 very strongly)					-0.05***	-0.03***	-0.03***	-0.02***	-0.02***	25.67
H3c Organisational effort as an obstacle to studying abroad (0 not at all to 4 very strongly)										
<b>Labour market orientation</b>										
H4a Life goal: high income (0 don't agree at all to 4 agree totally)								0.01	-0.01	0.65
H4b Time loss as an obstacle (0 not at all to 4 very strongly)								-0.07***	-0.07***	31.74
<b>Anticipated discrimination</b>										
H5a Probability of interrupting employment due to family (0 very unlikely to 4 very likely)										
H5b Studying abroad beneficial for improving labour market prospects (0 not at all to 4 very strongly)										
<b>Control variables</b>										
Migration background: at least one parent born abroad (ref. none born abroad)	-0.01	0.01	0.01	-0.04	-0.03	-0.03	-0.02	-0.02	-0.03	1.64
Age (first wave)	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01	-0.61
N	2,404	2,404	2,404	2,404	2,404	2,404	2,404	2,404	2,404	
McFadden's Pseudo R <sup>2</sup>	0.01	0.01	0.01	0.06	0.08	0.11	0.13	0.18	0.20	
D <sub>total</sub> (%)	4.59	21.80	67.95	100.26	133.33	203.73	217.70	200.51	181.06	

**Notes:** D<sub>var</sub> (%) = Part of gender difference explained by a specific variable

D<sub>total</sub> (%) = Part of gender difference explained by all variables in a model

Significance levels: \* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001

**Data source:** 2010 DZHW School Leavers Survey

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## Declarations

**Research ethics** The results presented in this article do not allow for disclosure of the survey participants' identities. Participation in the survey was voluntary. Participants' confidentiality was protected.

**Conflict of interest** The authors declare that they have no conflicts of interest.

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## References

- Arrow, K. (1973). The theory of discrimination. In O. Ashenfelter & A. Rees (Eds.), *Discrimination in labor markets* (pp. 3–33). Princeton University Press.
- Arulampalam, W., Booth, A., & Bryan, M. (2007). Is there a glass ceiling over Europe? Exploring the gender pay gap across the wage distribution. *ILR Review*, *60*(2), 163–186. <https://doi.org/10.1177/001979390706000201>.
- Bandyopadhyay, S., & Bandyopadhyay, K. (2015). Factors influencing student participation in college study abroad programs. *Journal of International Education Research*, *11*(2), 87–94. <https://doi.org/10.19030/jier.v11i2.9189>.
- Barone, C., & Assirelli, G. (2020). Gender segregation in higher education: An empirical test of seven explanations. *Higher Education*, *79*(1), 55–78. <https://doi.org/10.1007/s10734-019-00396-2>.
- Becker, G. (1993). *Human capital: A theoretical and empirical analysis, with special reference to education* (3rd ed.). University of Chicago Press.
- Böttcher, L., Araújo, N., Nagler, J., Mendes, J., Helbing, D., & Herrmann, H. (2016). Gender gap in the ERASMUS mobility program. *PLOS ONE*, *11*(2), e0149514. <https://doi.org/10.1371/journal.pone.0149514>.
- Brandt, G. (2012). *Vereinbarkeit von Familie und Beruf bei Hochschulabsolvent(inn)en*. HIS.
- Brooks, R., & Waters, J. (2010). Social networks and educational mobility: The experiences of UK students. *Globalisation, Societies and Education*, *8*(1), 143–157. <https://doi.org/10.1080/14767720903574132>.
- Bryant, K., & Soria, K. (2015). College students' sexual orientation, gender identity, and participation in study abroad. *Frontiers: The Interdisciplinary Journal of Study Abroad*, *25*(1), 91–106. <https://doi.org/10.36366/frontiers.v25i1.347>.
- Cubillos, J., & Ilvento, T. (2013). The impact of study abroad on students' self-efficacy perceptions. *Foreign Language Annals*, *45*(4), 494–511. <https://doi.org/10.1111/j.1944-9720.2013.12002.x>.
- Daly, A. (2011). Determinants of participating in Australian university student exchange programs. *Journal of Research in International Education*, *10*(1), 58–70. <https://doi.org/10.1177/1475240910394979>.
- Di Pietro, G., & Page, L. (2008). Who studies abroad? Evidence from France and Italy. *European Journal of Education*, *43*(3), 389–398. <https://doi.org/10.1111/j.1465-3435.2008.00355.x>.
- Eagly, A. (1987). *Sex differences in social behavior: A social-role interpretation*. Lawrence Erlbaum Associates.
- Hauschildt, K., Gwosc, C., Netz, N., & Mishra, S. (2015). *Social and economic conditions of student life in Europe. Eurostudent V 2012–2015*. W. Bertelsmann Verlag. <https://doi.org/10.3278/6001920bw>.

- Holloway, S., O'Hara, S., & Pimlott-Wilson, H. (2012). Educational mobility and the gendered geography of cultural capital: The case of international student flows between Central Asia and the UK. *Environment and Planning A*, 44(9), 2278–2294. <https://doi.org/10.1068/a44655>.
- Hurst, A. (2019). Class and gender as predictors of study abroad participation among US liberal arts college students. *Studies in Higher Education*, 44(7), 1241–1255. <https://doi.org/10.1080/03075079.2018.1428948>.
- Jacob, M., Kühnert, M., & Rodrigues, M. (2019). Labour market returns to graduates' international experience: Exploring cross-country variation in Europe. *European Sociological Review*, 35(4), 491–505. <https://doi.org/10.1093/esr/jcz022>.
- Karolson, K., Holm, A., & Breen, R. (2012). Comparing regression coefficients between same-sample nested models using logit and probit: A new method. *Sociological Methodology*, 42(1), 286–313. <https://doi.org/10.1177/0081175012444861>.
- Kessels, U., & Heyder, A. (2018). Geschlechtsunterschiede. In D. Rost, J. Sparfeldt, & S. Buch (Eds.), *Handwörterbuch Pädagogische Psychologie*. Beltz.
- Kim, H., & Lawrence, J. (2021). Who studies abroad? Understanding the impact of intent on participation. *Research in Higher Education*. <https://doi.org/10.1007/s11162-021-09629-9>.
- Kim, R., & Goldstein, S. (2005). Intercultural attitudes predict favorable study abroad expectations of U.S. college students. *Journal of International Education*, 9(3), 265–278. <https://doi.org/10.1177/1028315305277684>.
- Lee, C.-F. (2014). An investigation of factors determining the study abroad destination choice: A case study of Taiwan. *Journal of Studies in International Education*, 18(4), 362–381. <https://doi.org/10.1177/1028315313497061>.
- Lingo, M. (2019). Stratification in study abroad participation after accounting for student intent. *Research in Higher Education*, 60(8), 1142–1170. <https://doi.org/10.1007/s11162-019-09545-z>.
- Liwiński, J. (2019). Does it pay to study abroad? Evidence from Poland. *International Journal of Manpower*, 40(3), 525–555. <https://doi.org/10.1108/IJM-11-2017-0305>.
- Lörz, M., Netz, N., & Quast, H. (2016). Why do students from underprivileged families less often intend to study abroad? *Higher Education*, 72(2), 153–174. <https://doi.org/10.1007/s10734-015-9943-1>.
- Lörz, M., Quast, H., & Woisch, A. (2012). *Erwartungen, Entscheidungen und Bildungswege. Studienberechtigte 2010 ein halbes Jahr nach Schulabschluss*. HIS.
- Luo, J., & Jamieson-Drake, D. (2015). Predictors of study abroad intent, participation, and college outcomes. *Research in Higher Education*, 56(1), 29–56. <https://doi.org/10.1007/s11162-014-9338-7>.
- Martin, C., & Ruble, D. (2004). Children's search for gender cues: Cognitive perspectives on gender development. *Current Directions in Psychological Science*, 13(2), 67–70. <https://doi.org/10.1111/j.0963-7214.2004.00276.x>.
- Meisenberg, G. (2016). Gender differences in school achievement across cultures: An analysis of results from PISA 2000–2012. *Mankind Quarterly*, 57(2), 227–251. <https://doi.org/10.46469/mq.2016.57.2.5>.
- Mincer, J. (1978). Family migration decisions. *Journal of Political Economy*, 86(5), 749–773. <https://doi.org/10.1086/260710>.
- Naffziger, D., Bott, J., & Mueller, C. (2008). Factors influencing study abroad decisions among college of business students. *International Business: Research, Teaching and Practice*, 2(1), 39–52.
- Nerlich, S. (2015). Students from Australian universities studying abroad: A demographic profile. *Australian National University*, 57(1), 52–59.
- Netz, N. (2015). What deters students from studying abroad? Evidence from four European countries and its implications for higher education policy. *Higher Education Policy*, 28(2), 151–174. <https://doi.org/10.1057/hep.2013.37>.
- Netz, N., & Finger, C. (2016). New horizontal inequalities in German higher education? Social selectivity of studying abroad between 1991 and 2012. *Sociology of Education*, 89(2), 79–98. <https://doi.org/10.1177/0038040715627196>.
- Netz, N., & Grüttner, M. (2020). Does the effect of studying abroad on labour income vary by graduates' social origin? Evidence from Germany. *Higher Education*. <https://doi.org/10.1007/s10734-020-00579-2>.
- Netz, N., Klasik, D., Enrich, S., & Barker, M. (2020). Socio-demographics: A global overview of inequalities in education abroad participation. In A. Ogden, B. Streitwieser, & C. Van Mol (Eds.), *Education abroad: Bridging scholarship and practice* (pp. 28–42). Routledge.
- Röder, A., & Mühlau, P. (2014). Are they acculturating? Europe's immigrants and gender egalitarianism. *Social Forces*, 92(3), 899–928. <https://doi.org/10.1093/sf/sot126>.
- Roisch, H. (2003). Die horizontale und vertikale Geschlechterverteilung in der Schule. In M. Stürzer, H. Roisch, A. Hunze, & W. Cornelißen (Eds.), *Geschlechterverhältnisse in der Schule* (pp. 21–52). VS Verlag für Sozialwissenschaften. [https://doi.org/10.1007/978-3-322-90921-3\\_2](https://doi.org/10.1007/978-3-322-90921-3_2).



- Roy, A., Newman, A., Ellenberger, T., & Pyman, A. (2019). Outcomes of international student mobility programs: A systematic review and agenda for future research. *Studies in Higher Education, 44*(9), 1630–1644. <https://doi.org/10.1080/03075079.2018.1458222>.
- Salisbury, M., Paulsen, M., & Pascarella, E. (2010). To see the world or stay at home: Applying an integrated student choice model to explore the gender gap in the intent to study abroad. *Research in Higher Education, 51*(7), 615–640. <https://doi.org/10.1007/s11162-010-9171-6>.
- Salisbury, M., Umbach, P., Paulsen, M., & Pascarella, E. (2009). Going global: Understanding the choice process of the intent to study abroad. *Research in Higher Education, 50*(2), 119–143. <https://doi.org/10.1007/s11162-008-9111-x>.
- Schnepf, S., & Colagrossi, M. (2020). Is unequal uptake of Erasmus mobility really only due to students' choices? The role of selection into universities and fields of study. *Journal of European Social Policy, 30*(4), 436–451. <https://doi.org/10.1177/0958928719899339>.
- Shirley, S. (2006). *The gender gap in post-secondary study abroad: Understanding and marketing to male students*. University of North Dakota.
- Simpson, J., & Bailey, L. (2020). Men's experiences in short-term study abroad: Masculinity, temporality, and vulnerability. *Gender and Education*. <https://doi.org/10.1080/09540253.2020.1735312>.
- Sondhi, G., & King, R. (2017). Gendering international student migration: An Indian case-study. *Journal of Ethnic and Migration Studies, 43*(8), 1308–1324. <https://doi.org/10.1080/1369183X.2017.1300288>.
- Sorrenti, G. (2017). The Spanish or the German apartment? Study abroad and the acquisition of permanent skills. *Economics of Education Review, 60*, 142–158. <https://doi.org/10.1016/j.econedurev.2017.07.001>.
- Thirolf, K. (2014). Male college student perceptions of intercultural and study abroad programs. *Journal of Student Affairs Research and Practice, 51*(3), 246–258. <https://doi.org/10.1515/jsarp-2014-0026>.
- Tompkins, A., Cook, T., Miller, E., & LePeau, L. (2017). Gender influences on students' study abroad participation and intercultural competence. *Journal of Student Affairs Research and Practice, 54*(2), 204–216. <https://doi.org/10.1080/19496591.2017.1284671>.
- Van Mol, C. (2021). Exploring explanations for the gender gap in study abroad: A case study of the Netherlands. *Higher Education*. <https://doi.org/10.1007/s10734-020-00671-7>.
- Waibel, S., Petzold, K., & Rüger, H. (2018). Occupational status benefits of studying abroad and the role of occupational specificity – A propensity score matching approach. *Social Science Research, 74*, 45–61. <https://doi.org/10.1016/j.ssresearch.2018.05.006>.
- Whatley, M. (2017). Financing study abroad: An exploration of the influence of financial factors on student study abroad patterns. *Journal of Studies in International Education, 21*(5), 431–449. <https://doi.org/10.1177/1028315317697798>.
- Williams, R. (2012). Using the margins command to estimate and interpret adjusted predictions and marginal effects. *The Stata Journal, 12*(2), 308–331. <https://doi.org/10.1177/1536867X1201200209>.
- Zimmermann, J., Greischel, H., & Jonkmann, K. (2020). The development of multicultural effectiveness in international student mobility. *Higher Education*. <https://doi.org/10.1007/s10734-020-00509-2>.

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