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Article — Published Version

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The World Economy

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Suggested Citation: Fieles-Ahmad, Omar Martin; Huber, Matthias (2022) : Learn German, Buy German? Language-learning opportunities abroad and exports, The World Economy, ISSN 1467-9701, Wiley, Hoboken, NJ, Vol. 45, Iss. 10, pp. 3031-3058, https://doi.org/10.1111/twec.13280

This Version is available at:
https://hdl.handle.net/10419/266662

Received: 27 June 2021 | Revised: 4 February 2022 | Accepted: 6 April 2022

DOI: 10.1111/twec.13280

INVITED REVIEW

The World Economy WILEY

Learn German, Buy German? Language-learning opportunities abroad and exports

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Funding information
Deutsche Forschungsgemeinschaft, Grant/Award Number: UE 124/2-1 – 27088678

Abstract

Using data on the presence of the Goethe Institutes (GI) in 134 importer countries between 1978 and 2014, we study the effect that language learning opportunities abroad have on German exports. We employ a gravity model of trade with a single exporter and use the Poisson Pseudo-Maximum Likelihood (PPML) estimator to measure the relationship of interest. To gauge the importance of potential reverse causality, we also estimate the effect that institutes have on Swiss exports. Our findings for both Germany and German-speaking Swiss cantons show that institutes do stimulate exports to GI-hosting countries but that this effect is confined to institutes offering language training services. This finding suggests that language requirements and acquisition underlie the positive link found between institutes and exports. This reading of our findings receives further support in additional explorations, where we study exports differentiated by Rauch (1999, *Journal of International Economics*, 48(1), 7) product categories to account for differing communication requirements in trading.

KEYWORDS

cultural institute, foreign trade, gravity model, language

1 | INTRODUCTION

Language skills may be an important prerequisite for and driver of international trade. By reducing transaction costs that otherwise impede trade, language skills may make trade viable or at least more profitable. Hence, the exchange of goods and services between countries may become intensified. Language-related transaction costs[1], of course, are far from uniform across goods and trading partners. They are particularly high for economic activities and exchanges that require extensive written and verbal communication (Selmier & Oh, 2013). They can also be prohibitively high, in which case trade will not be viable at all, and otherwise mutually beneficial transactions are not realised (Fidrmuc & Fidrmuc, 2016).

In this paper, we explore and test whether foreign language acquisition matters for export promotion. Specifically, using data on the openings and closings of institutes provided by the German Goethe-Institut (GI) in different countries (Uebelmesser et al., 2018), we study the effect that language learning opportunities (LLOs) provided by such institutes have on German exports to countries hosting these institutes. The GI is a German cultural institute that offers language services, information on the German culture and hosts cultural events in countries all over the world.[2] Using a single-exporter gravity model of trade, we estimate the effect that the number of such institutes in a country has on German exports to that country. Our main sample contains annual observations on 134 countries for the period 1978–2014. Our findings show a significant positive but diminishing marginal impact of institutes on trade flows to a country, that is, a non-linear effect of institutes on German exports. These results are corroborated in a battery of robustness checks.

Closest to our research are Ghosh et al. (2017), Lien and Lo (2017), Lien et al. (2012) and (2019) who show a positive relationship between the establishment of different cultural institutes (GI for Germany, Cervantes Institute for Spain, Confucius Institute for China, British Council for the United Kingdom) and trade flows. We can add two contributions to that particular strand of literature.

First, we explore and provide evidence for a particular causal pathway of this effect and also address the issue of reverse causality that may affect empirical studies in this area, as the openings and closings of cultural institutes might not be exogenous to export flows from the country that runs such institutes. We deal with this problem by estimating the effect of German institutes on Swiss exports. The German government decides jointly with the GI, but not jointly with the Swiss government or any other Swiss institution, where to establish institutes. Moreover, parties participating in the decision do not take Swiss exports into account. The decision to operate an institute is hence exogenous to Swiss export flows. We are also able to distinguish Swiss exports from German-speaking cantons and from non-German-speaking cantons. Using this information, we provide evidence that institutes stimulate exports from the German-speaking part of Switzerland but not from the non-German-speaking part of Switzerland to countries hosting these institutes.

Second, whilst Ghosh et al. (2017), Lien and Lo (2017), Lien et al. (2012) and (2019) see cultural institutes as a way of increasing soft power (Nye, 2004), we further investigate language as a channel which facilitates communication and therefore reduces transaction cost. The results for

[1]The importance of transaction costs for economic activity and market exchanges more generally was first recognized and studied by Coase (1937) in the 1930s (Williamson 1985).

[2]In this paper, we maintain the following convention: when referring to the association of the Goethe-Institut we use the abbreviation "GC". When talking about specific branches of the GC abroad, we refer to them as 'institutes'.

Switzerland already provide some suggestive evidence that language might function as a mechanism facilitating increased trade flows. Additionally, by distinguishing between institutes that offer language services and those that do not, we show that language services are the driver of the results by distinguishing between institutes that offer language services, and those that do not. Furthermore, we use Rauch's (1999) product categories in the categorisation of our export flow data to account for the different needs for communication and different search costs when trading certain products. Whilst homogeneous goods are traded on an organised exchange where only little communication is needed, differentiated goods do not have reference prices and a certain degree of communication between the trading entities is required. We find that there is no significant association between the number of institutes and the export of homogeneous goods, whilst the export of differentiated goods increases with the number of institutes present in the country. We conclude that language is the relevant channel.

Concerning the literature on language and trade, our findings provide further and more general evidence for the importance of acquired language skills for international trade flows. This is of potential policy relevance, as acquired language skills (but not the sharing of a common language or linguistic distance) can be targeted and manipulated by policy as a means of export promotion. An investigation of heterogeneous effects shows that trade-promoting effects are largest when initial trade barriers are high.

The paper is organised in the following way. Section 2 gives background information on the literature on language in the context of international trade and on the GI. Section 3 describes the data and outlines our estimation strategy. In Section 4, we show our results for German and Swiss exports, and we demonstrate that language is the driver of the results by distinguishing exports according to the Rauch (1999) product categories. Section 5 concludes.

2 | BACKGROUND

2.1 | Language and international trade

As trading is an act that heavily depends on written and verbal communication, language plays an integral part in facilitating economic interactions between trading partners (Selmier & Oh, 2013). Trade frictions caused by linguistic differences can be analysed in the transaction cost framework, since such frictions represent the costs of using the market (e.g. costs for contracting and safeguarding) (Williamson, 1981). Apart from mere communication, language also functions as a carrier of cultural and social norms. Not only does this function of language potentially enhance trust between trade partners, but it could also shape preferences for certain (cultural) goods (Disdier et al., 2010; Egger & Toubal, 2016). Language as a component of these transaction costs has been used in various applications of gravity models explaining international trade patterns. Most studies make use of binary indicators of language commonality, that is, common official languages or common native languages, as well as measures for fractional spoken language overlap, such as commonly spoken languages (Egger & Toubal, 2016). In a meta-analysis, Egger and Lassmann (2012) collect coefficients for common languages (official or spoken) and provide an estimate which implies a 44% increase in trade flows between countries due to a common language.[3] Helpman et al. (2008), in turn, estimate a common language to increase the probability of bilateral trade between two countries by 10%.

[3]Head and Mayer (2014) provide comparable effects in a similar analysis of trade costs.

Deviating from the dichotomous common-language perspective, measures of linguistic proximity facilitate a more fine-grained analysis of the impact of communication difficulty on trade between countries. Popular measures for linguistic proximity consist of cardinal measures that make use of the level that languages share on a language family tree (Adserà & Pytliková, 2015; Guiso et al., 2009) or of continuous scales that express lexicographic and/or phonetic similarities, such as the Levenshtein distance as used by Isphording and Otten (2013). A continuous measure of linguistic proximity allows for the calculation of elasticities in the context of the gravity model of trade. Isphording and Otten (2013) find that a 1 percentage point increase in the Levenshtein distance leads to a significant decrease in trade by about 0.6%. However, these concepts are not free of criticism. A major disadvantage of these indices is the necessity of symmetric linguistic distances between languages, which implies a similar difficulty in foreign language acquisition that goes both ways (Van der Slik, 2010).

The majority of the previously mentioned measures (apart from commonly spoken languages) that frequently enter gravity models of trade are time invariant and often not policy-relevant variables. In reality, however, there are several ways to alleviate the language barrier between two trading partners: migration (Melitz & Toubal, 2014; Rauch & Trindade, 2002), automated translation (Brynjolfsson et al., 2019) or foreign language acquisition (Fidrmuc & Fidrmuc, 2016). Language acquisition is central to this paper, as the GI offers German language courses worldwide. According to Ginsburgh et al. (2017), one of the driving forces behind learning a foreign language is trade with a country where the respective language is spoken. This evokes a severe problem of reverse causality, which Fidrmuc and Fidrmuc (2016) tackle by using the fall of the iron curtain as a natural experiment and exploiting differences in foreign language proficiency in Eastern Europe that have been exogenous to trade. For the analysis of the impact of language learning opportunities abroad offered by the GI, another layer of this problem arises, since the opening of an institute could also be partially driven by trade with Germany. Studies on the impact of cultural institutes on foreign trade are still of quite recent vintage (Ghosh et al., 2017; Lien & Lo, 2017; Lien et al., 2012, 2019) and have not specifically explored language courses as a potential causal pathway between cultural institutes and trade flows.

Intuitively, closing the cultural gap between trading partners as well as improving communication should be beneficial for foreign trade between countries. Nevertheless, there are products which require more communication effort and/or mutual trust than others. The theoretical basis for this argument is best reflected in Williamson (1979) and (1985) which consider asset specificity to be the driving force for the governance cost[4] necessary to trade products. Non-specific assets, therefore, cause only few governance costs when traded on a market compared to more specific assets. With an increasing asset specificity, more hierarchical types of organisations tend to generate much lower governance costs than the market.

Similar to this transaction cost view, Rauch (1999) argues that trade frictions (e.g. search costs) increase with the degree of differentiation of the products. In order to formulate categories to distinguish the products, Rauch (1999) offers a tripartite system: homogeneous goods, listed goods and differentiated goods. Homogeneous goods are products that are traded on an organised exchange; listed goods define products that are listed in trade publications and therefore have a reference price; differentiated goods describe products that do not have a reference price and are potentially bought from a specific supplier. According to Rauch (1999), the latter

[4]According to Williamson (1989), governance is defined as the means to create order, mitigate conflict and realise mutual gains. The costs of the usage of a type of governance (market, hybrid and hierarchy) are therefore of administrative and bureaucratic nature.

category of differentiated goods is expected to be most affected by search costs (as an obstacle to trade). Rauch (1999) finds that sharing colonial ties and/or a common language has a positive effect on all three categories but is most beneficial for trade with differentiated products. Melitz and Toubal (2014) add to this research by analysing the impact of different concepts of common languages (common native/spoken/official language) on trade. They find that trade with differentiated goods benefits especially from common languages. Egger and Toubal (2018) additionally account for acquired language commonality and show that acquired language commonality has a positive effect on trade with differentiated goods, whereas the effects for homogeneous were mostly statistically insignificant. Investigating the special case of Switzerland as a multilingual country, Egger and Lassmann (2015) apply a spatial regression discontinuity design to show the causal impact of common native languages in foreign trade. Their findings demonstrate that common native languages impact the extensive margin in foreign trade more than the intensive margin. Here also, do the effect sizes differ across the three Rauch (1999) categories, suggesting a particular importance for trading differentiated products. These results suggest that the role of language is more prominent when it comes to the trading of more complex products. Finally, Felbermayr and Toubal (2010) show that cultural proximity positively impacts international trade with differentiated goods but find no effect on homogeneous goods.

2.2 | The Goethe-Institut

As a cultural institute, the GI (and its branches, i.e. the individual institutes) acts on the behalf of the German government and contributes to Germany's foreign cultural policy. The main duty of the GI is to promote the German language and culture worldwide. The GI is closely connected to the Federal Foreign Office (FFO) which provides the main funding for the GI. Only the funding of language services is based on fees (Goethe-Institut, 2014).

Regarding the promotion of language, the GI offers language courses and standardised examinations, provides scholarships and trains local German teachers to improve the quality of teaching. Furthermore, the GI builds on cultural exchange and cooperation by offering cultural events and providing information on German culture and society, for example, by maintaining libraries. These services are provided by institutes distributed all over the world. Figure 1 shows countries with institutes in 2014. In that year, 143 institutes were operating in 93 countries. A total of 126 of these institutes offered language services. Uebelmesser et al. (2018) provide a comprehensive overview on the history of the GI and its institutes, paying particular attention to the development of language learning at the GI.

When it comes to the decision of opening and closing institutes, the GI works together with the FFO. These decisions are influenced by many factors, such as legal, social and political aspects of the host countries, recent global and regional changes and by the main objective of the GI to promote German culture and language (Huber & Uebelmesser, 2019; Uebelmesser et al., 2018). Analysing the determinants of the openings and closings of institutes and the stock of institutes in operation, Jaschke and Keita (2021) find that the share of German exports to a country does not have a significant influence on any of these three measures, that is, the stock of institutes and their turnover. Lien and Oh (2014) show the case of the Confucius Institute that amongst FDI flows, the geographical distance and development status of a country and trade are important determinants for the establishment of Confucius Institutes. Thus, a reasonable suspicion arises that German trade also affects the openings of institutes, and therefore, we need to deal with the issue of reverse causality (see Section 4.2).

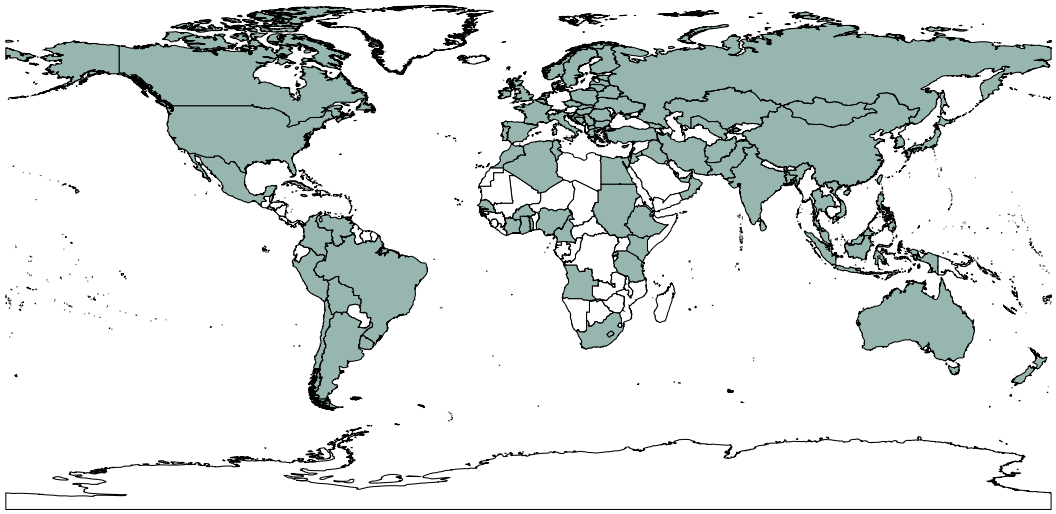

FIGURE 1 The presence of the GI in 2014 [Colour figure can be viewed at wileyonlinelibrary.com]

3 | DATA AND EMPIRICAL STRATEGY

3.1 | Data

3.1.1 | Dependent variable: exports

To study trade flows from Germany to other countries, we use export data (measured in current British pounds) provided by Fouquin and Hugot (2016), which mainly draw on the Trade Statistics by the International Monetary Fund. In additional explorations investigating Swiss trade flows, we use Swiss export data provided by the Swiss Federal Customs Office.

In order to distinguish German exports according to different trade categories that are potentially heterogeneously affected by linguistic and cultural differences, we use data provided by Comtrade (2019). These data provide information on German exports according to their Standard International Trade Classification (SITC) Revision 2 and 3 on a four-digit level. We then aggregated them to homogeneous and differentiated goods, following the classification suggested by Rauch (1999). Trade values can potentially differ depending on the reporting country. A German export is reported by Germany as well as by the importer country. We rely only on the data reported by Germany that have been provided since 1978. This prevents that zero-trade flows and missing flows in product types cannot be clearly distinguished from each other when using data from different reporting countries that deal with this issue inconsistently.

The three Rauch (1999) categories are ranked according to their degree of differentiation. In the analysis, only homogeneous and differentiated goods will be used to compare the extremes of the spectrum and to avoid vagueness related to the category of listed products. Furthermore, we use the conservative way to aggregate the data, which, in case of ambiguities about which category applies, is designed to minimise the number of homogeneous and listed entries. Thus, compared to the liberal categorisation, on average, homogeneous goods require less and differentiated goods require more communication to be traded. To use the conversion tables provided by Rauch (1999), the reported data have to be categorised according to the second or third revision of SITC on a 3- or 4-digit level.

3.1.2 | Independent variable: language-learning opportunities

Our independent variable of prime interest captures language-learning opportunities abroad. We use data on the presence of institutes based on the annual reports by the GI (Uebelmesser et al., 2018). The data provide information on institutes at the city-year level, which we aggregate to the country level. For our main specification, we consider the number of institutes a country hosts in a particular year. The data set also provides information on whether the institutes provide language services, that is, standardised language certificates and language courses. In order to investigate whether language services are the driver of our results, we make use of this information. However, we have to keep two limitations in mind: first, there is a measurement error in this information, as in some cases, the annual reports do not provide information if language services are offered. In particular, this is the case when the number of courses and exam participation are reported jointly with other institutes. For example, institutes that are subsidiaries of other main institutes have reported their numbers jointly in the annual reports by the GI (for more information on the different types of institutes in the data set, refer to Uebelmesser et al., 2018). Second, there are relatively few institutes without language services (see Figure 4).

3.1.3 | Other control variables

We control for several factors that potentially confound the relation between language learning opportunities abroad and trade. First, the GDP of the importer country controls the economic (business-cycle) condition and the economic size of the importer country. Second, to proxy trade openness of an importer country, we consider the relation of its total imports to its GDP. Third, we include a control for the population size of an importer country and an indicator for its membership in the General Agreement on Trade and Tariffs (GATT). All these data are provided by Fouquin and Hugot (2016). Finally, we control for trade agreements with two dummy variables provided by Mario Larch's Regional Trade Agreements Database from Egger and Larch (2008). The first one indicates for each year if both Germany and the importer country are members of a customs union. For the Swiss case, there is no variation in this variable, and we omit it in our regressions. Second, we include a dummy variable that indicates whether the importer country has a free trade agreement (FTA) and/or an economic integration agreement (ETA) with Germany (Switzerland).

3.1.4 | Sample construction

We construct our sample to attain a balanced sample for 1978–2014. After excluding Switzerland, Luxembourg and Austria as (partly) German-speaking countries, we end up with a balanced sample of 134 countries for the aggregated export flows.[5] For the analysis of homogenous and differentiated goods (Section 4.3), we balance our sample over the same time period (1978–2014) across the two categories, which results in 95 importer countries with positive trade flows from Germany. In order to keep the samples comparable, we start the observation period for both samples in 1978, as for the conversion tables provided by

[5]We balance our sample to assure comparability across different specifications. In Section 4.1.1, we show that results do not only depend on balancing the sample but also hold for an unbalanced sample.

FIGURE 2 Map of countries and the presence of institutes in the sample

Rauch (1999), the reported data have to be categorised according to the second or third revision of SITC on a 3- or 4-digit level. These have been reported by Germany starting in 1978. Additionally, the problem of joint reporting of two or more institutes, and therefore the uncertainty about the supply of language services, was especially large starting in the beginning of the 1970s until 1978.

3.1.5 | Descriptive statistics

Our main sample consists of 134 countries. The GI was never present in 60 countries in our period of observation, whilst 24 countries had institutes in some years and 50 countries had institutes throughout the whole period. Figure 2 shows a map of the countries in our main sample. Figure 3 presents the number of countries with institutes for each year in the observation period. Whilst the number of countries with institutes increased until the 1990s, at the end of the 1990s, the number started to decrease to 57 between 2000 and 2004. In the latter years, the number rose again and peaked in 2014 at 68 countries. Whilst the number of countries with institutes has increased, the number of institutes itself has decreased since the beginning of the 1990s, as shown in Figure 4. The number of institutes that do not offer language courses stays fairly constant and rather small throughout the observation period.[6] For our estimation, we use the variation of the number of institutes per country, which includes the openings and closings of institutes. An overview of openings and closings over time is presented in Figure 5.

In our sample, the countries that on average receive the highest German exports are France, the US, Italy, Great Britain and Belgium. Only 22 country-year observations exhibit zero trade flows. Average exports to a country in our data are worth around 2.3 billion British Pounds. Median exports, however, are only about 7.7 million British Pounds, which indicates that the

[6]In Figure 4, we assume that all institutes that are jointly reported offer language services.

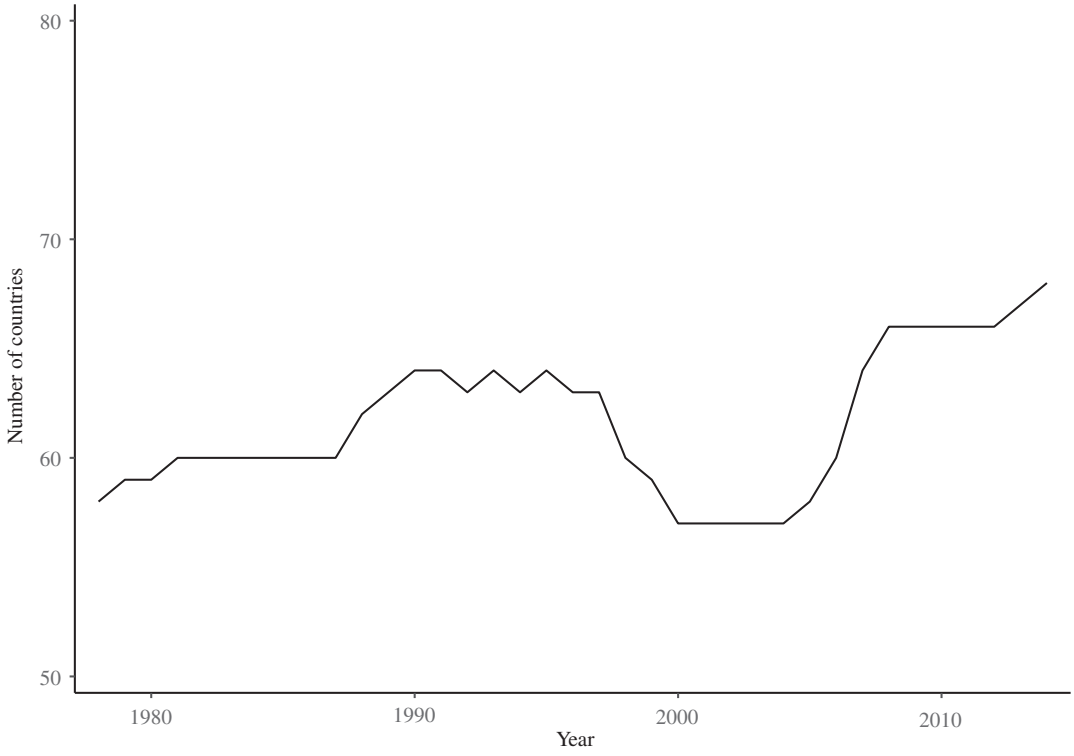

FIGURE 3 Number of countries with institutes in the sample

distribution of exports is highly left skewed, with relatively few but very large importers. Table 1 provides summary statistics for the variables we use in the analysis.

3.2 | Theoretical background and empirical strategy

Originating from Newton's law of gravity, the gravity model in economics provides a useful framework to analyse international trade patterns. In simple terms, the gravity model explains trade as an increasing function of the economic size of trading partners and a decreasing one with respect to trade frictions. In the field of international trade, it has been used by Tinbergen (1962) for the first time. It soon developed into a widely used tool in empirical analyses which exhibit a sound foundation in trade theory (Anderson & Van Wincoop, 2003). In the current application of the gravity model, the analysis centres around a single exporter (Germany) and its trade relations with other countries. Whilst this setting does not allow for checking multilateral resistance, the consideration of only trade flows from one country has the essential advantage of permitting the distinction of exports from imports (Földvári, 2006) and, further, an analysis of the effects of the opening of a cultural institute as a tool for export promotion. Our choice of control variables (see Section 3.1.3) is mainly motivated by the extensive overview by Head and Mayer (2014) of the gravity model as a workhorse in international trade.

In the presence of heteroskedasticity, estimates of the gravity model are biased and inconsistent if estimated with fixed effects ordinary least squares, including a log-linearised version of the dependent variable. Santos Silva and Tenreyro (2006) show that estimating gravity models

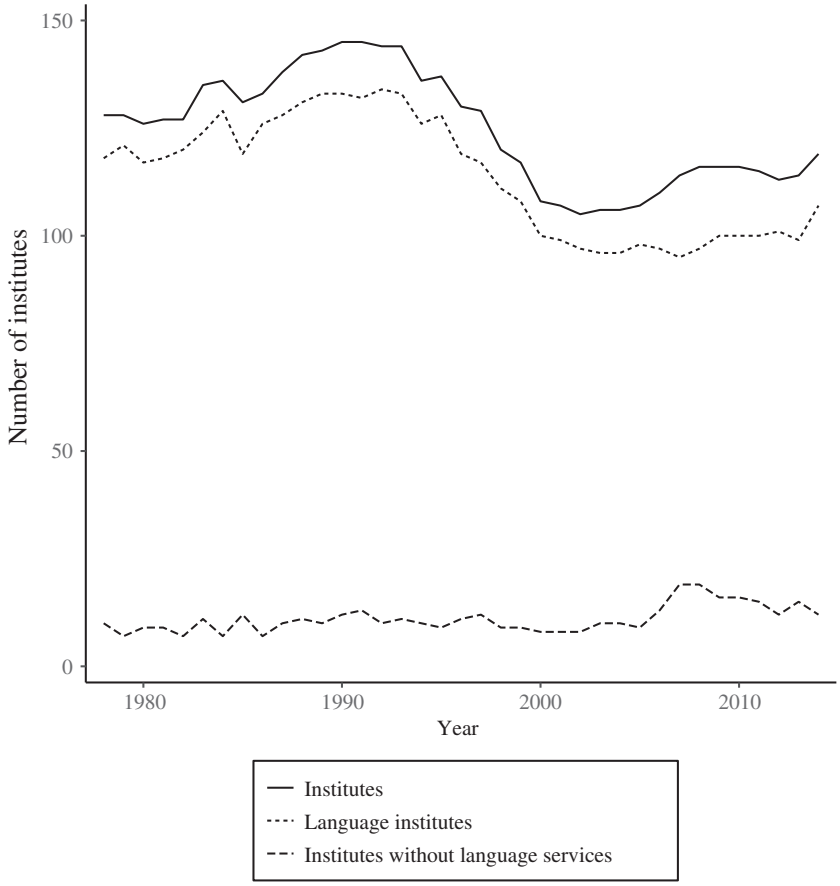

FIGURE 4 Number of institutes in the sample

of trade with the Poisson pseudo-maximum likelihood (PPML) estimator has the advantage of being consistent and unbiased in the presence of heteroskedasticity. Additionally, the PPML estimator solves the problem of including zero trade flows, as the dependent variable is included in levels (not logs). By using the PPML estimator in our empirical analysis, we follow other researchers who estimate trade flows from but a single exporter (Johnston et al., 2015; Lien et al., 2019). Drawing from the theoretical specification of the gravity model, we estimate the following equation:

$$y_{jt} = \exp\left[\boldsymbol{\alpha}'\mathbf{GI}_{\boldsymbol{jt}} + \boldsymbol{\beta}'\boldsymbol{x}_{\boldsymbol{jt}} + \boldsymbol{\phi}'_{\boldsymbol{t}}\boldsymbol{d}_{\boldsymbol{t}} + \boldsymbol{\phi}'_{\boldsymbol{j}}\boldsymbol{d}_{\boldsymbol{j}}\right] + \eta_{jt} \tag{1}$$

where y_{jt} represents exports from Germany to the importer country j in year t. **GI** represents the vector of GI-related variables, our main variables of interest. For each specification, we estimate, we always control for the number of institutes and its square to capture the possibly non-linear effect of another additional institute. In our main specification, we use the number of all institutes. $\mathbf{x}_{jt}$ is the vector of control variables. It includes the log of the population in the importer country j, dummy variables indicating joint membership of the European customs union, an EIA or FTA between Germany and the importer country j in year t and whether the importer country j is a member of the GATT. Furthermore, we control for

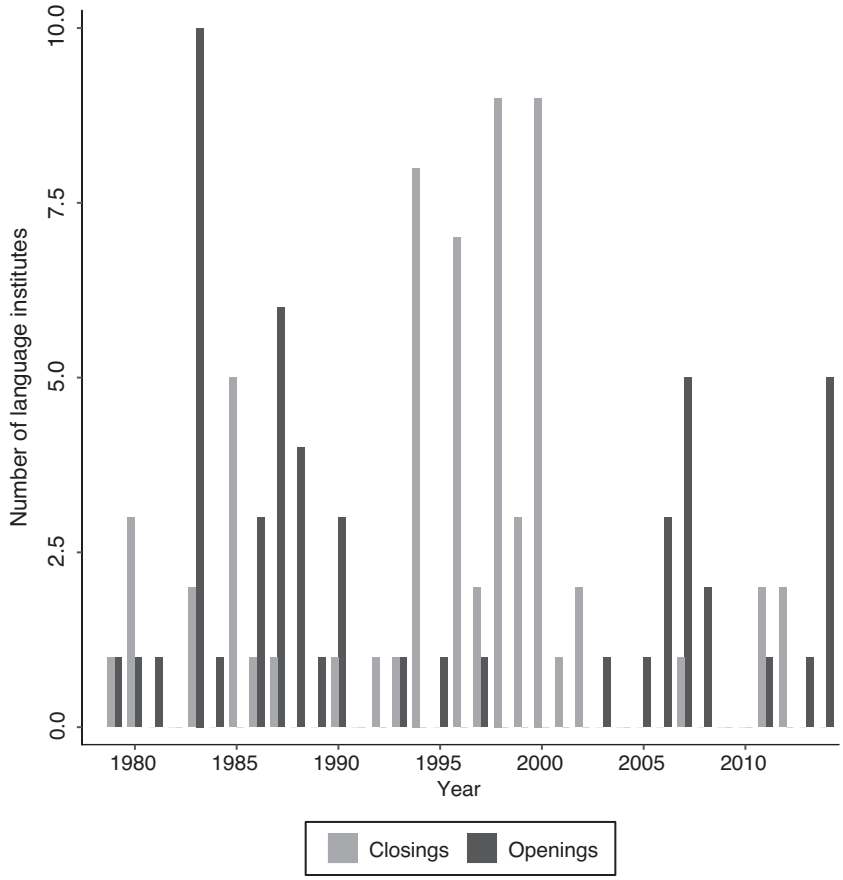

FIGURE 5 Openings and closings of institutes in the sample

economic conditions in the import country with the log of GDP. As a measure of trade openness, we include the share of total imports in GDP. We also include two sets of dummies to control for importer country effects d_j, and year fixed effects d_t. η_{jt} denotes the error term. We cluster standard errors at the importer country level.

4 | RESULTS

4.1 | German exports

4.1.1 | Main results

Table 2 shows PPML regression results for seven basic specifications of trade flows from Germany to 134 importer countries. The interpretation of coefficients estimated by PPML is equivalent to that of coefficients estimated by OLS when the dependent variable is in logs: coefficients of log-transformed variables can be interpreted as elasticities and coefficients in levels capture semi-elasticities. We sequentially introduce control variables in columns (1)–(4). Column (5) shows results when GI variables are omitted as regressors. As is evident from the table, estimated

TABLE 1 Summary statistics

Variable	Obs		Mean	*SD*	Min	Max
German exports in Mill. GBP	4958	Overall	2298.73	7522.31	0	84331.43
Number of institutes	4958	Overall	0.93	1.62	0	12
Number of language institutes	4958	Overall	0.80	1.33	0	9
Number of institutes without lang. serv.	4958	Overall	0.08	0.43	0	6
Population (in 1000)	4958	Overall	37630.76	137105.80	49.2	1364270
GDP in Mill. GBP	4958	Overall	135012.90	615356.80	12.02	10700000
Total Imports/GDP	4958	Overall	0.48	1.34	0.04	45.81
Customs Union	4958	Overall	0.10	0.30	0	1
FTA/EIA	4958	Overall	0.13	0.34	0	1
GATT	4958	Overall	0.76	0.43	0	1

TABLE 2 Estimation results

DV: Exports	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Institutes	0.317***	0.170***	0.144***	0.139***			0.122***
	(0.099)	(0.052)	(0.043)	(0.043)			(0.036)
Institutes sq.	−0.017***	−0.011***	−0.010***	−0.010***			−0.009***
	(0.005)	(0.003)	(0.002)	(0.002)			(0.002)
Inst./pop. in mill.						1.059***	
						(0.320)	
Inst./pop. in mill. sq.						−0.259***	
						(0.081)	
log GDP		0.846***	0.772***	0.786***	0.804***	0.794***	0.796***
		(0.053)	(0.052)	(0.052)	(0.058)	(0.054)	(0.048)
log population		−0.555*	−0.428	−0.425*	−0.344	−0.405*	−0.421
		(0.312)	(0.260)	(0.255)	(0.294)	(0.244)	(0.265)
EUCU			0.555***	0.550***	0.573***	0.573***	0.454***
			(0.111)	(0.110)	(0.141)	(0.115)	(0.117)
FTA/EIA			0.167*	0.167*	0.219**	0.182**	0.153*
			(0.088)	(0.086)	(0.088)	(0.082)	(0.079)
GATT			0.265***	0.255***	0.299***	0.279**	0.138
			(0.098)	(0.096)	(0.114)	(0.114)	(0.085)
Import share				0.088***	0.092***	0.087***	0.095***
				(0.022)	(0.023)	(0.020)	(0.026)
Constant	19.100***	7.845	7.283*	6.870	5.139	6.387	3.211
	(0.041)	(4.904)	(4.314)	(4.251)	(4.879)	(4.098)	(2.977)
Observations	4958	4958	4958	4958	4958	4958	6206

(Continues)

TABLE 2 (Continued)

DV: Exports	(1)	(2)	(3)	(4)	(5)	(6)	(7)
R-squared	.970	.991	.992	.992	.991	.991	.992
Countries	134	134	134	134	134	134	184
Years	1978–2014	1978–2014	1978–2014	1978–2014	1978–2014	1978–2014	1978–2014
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Note: Cluster-robust standard errors in parentheses. ***$p < .01$, **$p < .05$, *$p < .1$.

TABLE 3 Heterogenous effects for country groups

DV: exports	(1) Advanced economies	(2) Non-advanced economies	(3) Germanic language	(4) Non-Germanic language	(5) Membersof EUCU	(6) Non-membersof EUCU
Institutes	0.106**	0.416***	0.045	0.197***	0.049*	0.169**
	(0.044)	(0.115)	(0.037)	(0.058)	(0.028)	(0.073)
Institutes sq.	−0.008***	−0.076***	−0.004*	−0.020***	−0.012***	−0.011***
	(0.003)	(0.009)	(0.002)	(0.004)	(0.002)	(0.004)
Observations	2479	2479	629	4329	506	4452
R-squared	.992	.997	.994	.994	.994	.991
Years	1978–2014	1978–2014	1978–2014	1978–2014	1978–2014	1978–2014
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: Cluster-robust standard errors in parentheses. Other controls (log (GDP)), log population, EUCU, FTA/EIA, GATT, import share and constant are included, but not shown. ***$p < .01$, **$p < .05$, *$p < .1$.

coefficients remain statistically significant (with one exception) and also of similar magnitude to those reported in column (4). The one exception is the coefficient on log population, which is now slightly smaller and also imprecisely estimated. Column (6) relates the number of institutes to the population size of an importer country, instead of considering their absolute number, and column (7) uses an unbalanced (and hence larger) sample.

Before focusing on our main variables of interest, we briefly discuss the coefficients of the control variables. The estimated coefficient for GDP in the importer country is positive and significant in all specifications. The estimated coefficient for population size in the importer country is negative and significant at the 10% level in column (4). Being a member of the European Union Customs Union (EUCU), that is, the only customs union in which Germany is a member, increases German exports to a country. The positive effect of an EIA and/or FTA membership is only significant in PPML estimations at the 10% level. GATT membership increases exports significantly. This effect vanishes in the unbalanced sample in column (7). Finally, an importer country's openness to trade, measured by total imports/GDP, has a positive and significant effect on German exports.

We next turn to our main variable, which captures German language learning opportunities in importer countries. We hypothesised that an increase in German language learning opportunities in a country increases German exports to that country. And indeed, this is what we find. As shown in column (4), the coefficient for an additional institute is 0.139 and is highly significant. However, the marginal effect of an additional institute is highest for the first institute in a country and decreases with an increasing number of institutes, which can be seen by the negative and significant effect of the associated number of institutes squared. The effect of the number of institutes can be interpreted as an average effect over the years an institute is open.[7]

Column (6) tests if the estimated effect depends on the size of the population (or market) an institute serves in an importer country, as proxied by the ratio of language institutes to the total population (in million inhabitants). With this specification, we account for differences in openings between large (e.g. India) and small (e.g. Hungary) countries. As it turns out, the estimated effect remains positive and significant and therefore robust to the use of this alternative measure.

Further, we want to test if our results depend on our choice of a balanced sample whereby we consider only countries with non-missing observations in all years, 1978–2014. Column (7) shows results for an unbalanced sample with 184 countries. As can be seen, our results turn out to be robust to this change in the sample, but the sizes of our two coefficients become slightly smaller than in column (4).

4.1.2 | Heterogenous effects for country groups

The effect of institutes on German exports to a country might also be sensitive to and vary with certain importer country characteristics. We, therefore, perform subgroup analyses for groups of importer countries differentiated by their economic development, their linguistic distance to

[7]In Table A1 in the Appendix, up to five lags of the number of institutes are included in order to get a picture of how the effect of opening an institute evolves over time. These estimations show, that the total effect can be split up in a significant short-time contemporaneous effect and a long-term effect which is represented by significant effects of the largest lags in each specification in Table A1. These two significant effects add up to a cumulative effect that is roughly the average effect we have found in the basic specification.

German and their membership status in the EUCU. Table 3 reports the results. We find that the results of all three subgroup analyses go in the same direction: countries with already lower trade barriers benefit less from an institute than those countries with higher trade costs. This indicates that economies that are facing higher trade barriers initially benefit most from the establishment of institutes.

First, we split the sample according to importer countries' economic development. We classify a country as an advanced (non-advanced) economy if its average GDP/capita over the observation period is larger (smaller) than the median GDP/capita of importer countries in our sample. Columns (1) and (2) show for both subsamples a significant and positive but decreasing effect of the institute numbers. This effect is much more pronounced, however, for non-advanced economies. These findings are similar to those of Lien et al. (2019).

Second, we split the sample according to the linguistic distance between the language spoken by the majority of the population in the importer country and the German language (Adserà & Pytliková, 2015). In column (3), we consider only countries with a Germanic language and in column (4) only countries where the majority of the population speaks a non-Germanic language. As is evident from a comparison of column (3) and column (4), institutes only exert an effect on German exports in countries where the majority of the population speaks a non-Germanic language. This result might be explained either by the fact that in these countries German is already a more common language or that the knowledge of English is even better and therefore used as the lingua franca for economic exchanges. As described in Section 2.1, the linguistic distance increases the costs of trade, in particular communication costs. Consequently, an institute helps to overcome these larger costs and creates a larger potential for cost reductions than for linguistically closer languages where communication costs are already less.

Third, when splitting up the sample into members and non-members of the EUCU, we find that the effect for non-members is much larger and also more precisely estimated than the effect for members of the EUCU. A potential explanation for this finding is the following. Whilst trade barriers within the EUCU are already very low, language skills might help to overcome existing language barriers and increase trade in non-member states of the EUCU.

All three subgroup analyses suggest that the benefit from the openings of institutes is larger for economies that face higher trade barriers.

4.2 | Reverse causality: the case of Switzerland

One of the reasons for opening or closing an institute may be trade promotion, that is, the size of German exports might affect the number of institutes present in the country. If so, then our main explanatory variable is not exogenous to German exports, and the relationship we estimate between institutes and trade flows suffers from reverse causality. In order to deal with this potential bias, we take a closer look at Swiss exports. First, the GI decides together with the German government whether and where to open or close institutes—without consulting the Swiss institutions or taking Swiss exports into account. The openings and closing of institutes should hence be exogenous to Swiss exports. Following Huber and Uebelmesser (2019), who first made use of this reasoning and identification strategy in the context of migration, we replace German exports with Swiss exports as our dependent variable. Second, distinguishing between Swiss exports from German-speaking and non-German-speaking cantons in Switzerland allows us to perform a placebo test for the German-speaking part of Switzerland. The two parts of Switzerland should not differ substantially in institutional

TABLE 4 Estimation results: Swiss exports

	(1)	(2)	(3)	(4)	(5)	(6)
DV: Exports	**Switzerland (German-speaking)**			**Switzerland (non-German-speaking)**		
Institutes	0.094*	0.134***	0.137***	0.104	0.100	0.100
	(0.050)	(0.047)	(0.047)	(0.080)	(0.064)	(0.064)
Institutes sq.	−0.008***	−0.010***	−0.010***	−0.007	−0.007*	−0.007*
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
log GDP	0.574***	0.615***	0.618***	0.589***	0.599***	0.599***
	(0.090)	(0.080)	(0.079)	(0.104)	(0.088)	(0.087)
log population	0.060	−0.068	−0.062	−0.029	−0.013	−0.010
	(0.208)	(0.185)	(0.179)	(0.250)	(0.199)	(0.198)
FTA/EIA = 1	0.167***	0.150***	0.149***	0.090	0.089	0.088
	(0.051)	(0.051)	(0.051)	(0.085)	(0.083)	(0.083)
GATT	0.252	0.149	0.145	−0.170	−0.225	−0.225
	(0.218)	(0.123)	(0.123)	(0.343)	(0.172)	(0.172)
Import share	0.094**	0.098**	0.099**	0.119**	0.120**	0.120**
	(0.044)	(0.045)	(0.045)	(0.059)	(0.059)	(0.059)
Constant	1.286	2.519	3.036	1.013	0.566	2.537
	(3.297)	(3.201)	(2.315)	(2.956)	(2.752)	(1.898)
Observations	2680	3340	3584	2680	3340	3584
R-squared	.984	.983	.984	.987	.987	.988
Countries	134	167	183	134	167	183
Years	1995–2014	1995–2014	1995–2014	1995–2014	1995–2014	1995–2014
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: Cluster-robust standard errors in parentheses. ***$p < .01$, **$p < .05$, *$p < .1$.

factors but only in the language predominantly spoken. Therefore, the non-German-speaking part should be close to a suitable counterfactual for the German-speaking part which is not treated by German language-learning opportunities. Hence, we expect no significant effect of the GI variables there.

Export data for Switzerland at the canton level are available from 1995. We aggregate export flows by cantons that speak primarily German (German cantons) and cantons that do not (non-German cantons).[8] We estimate our preferred specification[9] (Table 2 Column 4) for the three regions the German-speaking part of Switzerland (Table 4 Column 1–3), the non-German-speaking part of Switzerland (Table 4 Column 4–6), Germany (Table A2 Column 1–3) and Switzerland

[8]The canton with the lowest share of German native speakers (68.3%) classified as German speaking is Graubünden. The canton with the highest share of German native speakers (29.2%) that is classified as non-German speaking canton is Fribourg. Eighteen out of the total of 26 cantons are classified as German-speaking cantons.

[9]The control variable indicating membership in a customs union is omitted for Switzerland, as there is no variation in this variable in the data.

(Table A2 Column 4–6). For each region, we run regressions using three different estimation samples for the period 1995–2014. The first sample contains exactly the same countries as the main sample and is therefore balanced. The second includes all 167 countries for which we have balanced observations for all three regions. The third sample includes all available observations for all three regions, that is, this third sample is unbalanced, and it contains observations on 183 importer countries.

As shown in Table A2 columns (1)–(3), which consider German exports for the shorter period 1995–2014, the size of the coefficient on the institute count variable is around 0.06 for all three samples, which is less than half the size of the coefficient estimate in column (4) in Table 2. The estimated effect is significant for the larger samples in columns (2)–(3) but only imprecisely estimated in column (1). The size of the coefficient for the squared term is also about half of the size as in column (4) in Table 2 and is significant in all three specifications. Table A2 Columns 4–6 show the same estimations for total Swiss exports. The relationship between the number of institutes and Swiss total exports is larger than 0.1 and significant in all three specifications, at least at the 5% level.

When we split exports into exports from the German and the non-German speaking parts of Switzerland, we see that the relationship is only due to exports from the German-speaking parts. Table 4 columns (1)–(3) present estimates with exports from the German-speaking part of Switzerland. For the two larger samples, the size of the coefficient for the number of institutes is about the same as column (4) in Table 2. For the smaller sample in column (1), it is slightly smaller and only significant at the 10% level. These results suggest a causal effect of the number of institutes on export flows, as the number of German Goethe institutes is arguably exogenous to Swiss trade flows. However, the results in columns (1) and (2) hint at heterogeneous effects for different groups of countries, which seem to be more present in the larger samples. A potential reason for this effect heterogeneity may be that German exports vary in type across importer countries, requiring lesser or greater language skills for their international trade. In the next subsection, we investigate the language skill requirement of different German export flows, and thereby also provide evidence on the importance of language for international trade and our main finding of a link between institutes and German exports. With respect to the non-German-speaking part of Switzerland, the placebo test is successful with all three samples: there is no significant positive effect of opening an institute on exports. The size of the coefficient for the number of institutes is around 25% smaller, and the estimations are much more imprecise than in the German-speaking part. This is similar for the squared number of institutes.

4.3 | Rauch product categories and the language channel

In light of previous results by Rauch (1999) and other scholars, we reviewed in Section 2.1, we expect that the establishment of cultural institutes may aid international trade. More specifically, we hypothesise that the supply of language courses particularly facilitates the trade of differentiated goods, as it requires greater communication and hence higher language proficiency of trading parties. In this section, we test these expectations by re-estimating our main specification from column (4) in Table 4 with export flows aggregated according to the classification suggested by Rauch (1999). We are using Comtrade data reported by Germany for the longest time period available (1978–2014) that allow the conversion to Rauch categories and a balance of our

TABLE 5 Estimation results: Rauch categories

	(1)	(2)	(3)	(4)	(5)	(6)
DV: exports	**Aggr.**	**Aggr.**	**Hom.**	**Hom.**	**Diff.**	**Diff.**
Institutes	0.130***		0.057		0.106**	
	(0.040)		(0.120)		(0.041)	
Institutes sq.	−0.010***		−0.003		−0.009***	
	(0.002)		(0.007)		(0.002)	
Lang. Institutes		0.132***		0.059		0.086**
		(0.051)		(0.068)		(0.042)
Lang. Institutes sq.		−0.016***		0.000		−0.012***
		(0.005)		(0.005)		(0.004)
Institutes w/o lang. serv.		0.024		−0.005		0.006
		(0.034)		(0.045)		(0.029)
Institutes w/o lang. serv. sq		−0.004		−0.003		−0.003
		(0.006)		(0.006)		(0.005)
log GDP	0.791***	0.802***	0.664***	0.568***	0.902***	0.918***
	(0.053)	(0.051)	(0.118)	(0.120)	(0.054)	(0.057)
log population	−0.369	−0.375	−0.021	−0.294	−0.347	−0.328
	(0.248)	(0.255)	(0.417)	(0.314)	(0.258)	(0.268)
EUCU	0.383***	0.361***	0.658***	0.567***	0.283***	0.266***
	(0.079)	(0.088)	(0.122)	(0.132)	(0.066)	(0.079)
FTA/EIA	0.192*	0.202*	0.145	0.108	0.194	0.213
	(0.116)	(0.118)	(0.147)	(0.136)	(0.131)	(0.136)
GATT	0.250**	0.288***	−0.255	−0.166	0.273**	0.307**
	(0.100)	(0.105)	(0.221)	(0.213)	(0.114)	(0.124)
Import share	0.088***	0.090***	0.133	0.086*	0.088***	0.091***
	(0.021)	(0.022)	(0.081)	(0.052)	(0.019)	(0.021)
Constant	5.621	6.103*	0.946	8.242	2.749	2.366
	(3.498)	(3.614)	(6.943)	(5.320)	(3.627)	(3.937)
Observations	3515	3515	3515	3515	3515	3515
R-squared	.992	.993	.950	.957	.991	.991
Years	1978–2014	1978–2014	1978–2014	1978–2014	1978–2014	1978–2014
Countries	95	95	95	95	95	95
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: Cluster-robust standard errors in parentheses. ***$p < .01$, **$p < .05$, *$p < .1$.

observations. The final sample covers 95 countries. For comparison, we also estimate aggregated exports for the same sample as in column (1) in Table 5, using the data provided by Fouquin and Hugot (2016), as before.

Institutes that offer German courses and institutes that do not can both contribute to the establishment of networks and help to bridge the cultural gap between countries. Cultural institutes such as the GI may have a general trade-promoting effect. However, institutes that offer language courses may benefit trade even more by increasing trade in communication-intensive goods. To explore this possibility, we modify our main specification in column (4) in Table 2 by splitting the total number of institutes into those which offer language services and those which do not.[10] Out of the 95 countries included in the sample, 68 countries have had an institute of which 35 countries also had an institute that did not offer language services. This allows us, as noted, to further investigate language as the potential driver of the effect of institutes on exports. Both specifications make use of the whole set of control variables and employ PPML for estimation. As additional outcomes in this exercise, we consider exports of homogeneous goods and of differentiated goods, which represent the two 'extremes' in the classification by Rauch (1999).[11]

Similar to the previous specifications, in the reduced sample with only 95 countries (see column (1)), the number of institutes has a positive but decreasing impact on overall exports. The coefficients for the other control variables have the expected signs and are similar in size to those we obtained in earlier regressions. In column (2), we split the number of institutes into those that offer language services (i.e. language institutes) and those which do not. Keeping in mind that there are relatively few institutes that do not offer language services, the results show that the effect seems to be driven by language institutes, which exert a statistically significant effect. The estimated coefficient for non-language institutes, in contrast, turns out to be both much smaller and also imprecisely estimated.

Columns (3) and (4) consider exports of homogeneous goods, whilst columns (5) and (6) consider exports of differentiated goods. Institutes do not appear to affect exports of homogeneous goods. The same holds true for the two subgroups of institutes with and without language-learning opportunities. However, for differentiated export goods, institutes exert an effect similar to the one observed for overall (aggregate) exports, albeit one that is slightly smaller in magnitude. As shown in column (6), this effect is driven by institutes with language-learning opportunities. Institutes which do not offer language services do not impact trade in differentiated goods. Therefore, as was expected and as the previous literature suggests, trade in differentiated goods benefits from cultural institutes particularly. Furthermore, our evidence shows that this effect is driven by institutes that offer language services, which suggests that language is indeed the driver behind the effect of such institutes on exports.

[10]Column (2) in Table 5 shows results only for the reduced sample of 95 countries. In Table A3 in the Appendix, however, we show that results do not differ for the full sample of 134 countries. Because of joint reporting of two or more institutes in the annual year books, it is not clear for some institutes if they actually do offer language courses or not. The specification in column (1) in Table A3 assumes that only the main institute offers language services in these cases. Column 2 instead assumes that all institutes with joint reporting do offer language services. As it turns out, the results do not depend on which assumption is made. In Table 5, we report results from specifications where we assume that only the main institute offers language services.

[11]The estimation results for the impact of GIs on listed goods are larger than the impact on differentiated goods. However, the coefficients are not significantly different from each other (see Table A4).

5 | CONCLUSION

This paper adds to the literature on cultural institutes and their impact on foreign trade in several ways. We show that language-learning opportunities (and not mere cultural services) offered by the GI abroad play an important role in export promotion. This strongly suggests that language (and more specifically foreign language acquisition) is a relevant channel for foreign trade relations.

We also find that the strength of the export-promoting effect of institutes differs across countries. The effect is more pronounced for less advanced economies, countries with a non-Germanic native language (i.e. a language that is linguistically further away from German) and countries that are not part of the same trade union as Germany.

Concerning potential reverse causality, we find that institutes abroad also have a positive impact on Swiss exports to countries hosting these institutes, although Switzerland has no say in the decision of where institutes are operated. Distinguishing between exports by non-German-speaking cantons and German-speaking cantons shows that only the latter benefit from establishing institutes abroad.

Finally, in line with the previous literature, we also find evidence for effect heterogeneity by type of export product. Using the product classification suggested by Rauch (1999), we find that institutes, specifically those that offer language-learning opportunities, benefit the export of differentiated goods, which require more communication for their trade. Trade in homogeneous goods, in contrast, appears to be unresponsive to the presence and activities of institutes.

ACKNOWLEDGMENTS

We thank Silke Uebelmesser, Michael Kvasnicka, Yue Huang and Fabian Koenings for their valuable comments. Eren Aydin has provided excellent research assistance. This work was supported by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation, UE 124/2-1 – 270886786. All remaining errors are our own. Open Access funding enabled and organized by Projekt DEAL.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable to this article, as no new data were created or analysed in this study.

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How to cite this article: Fieles-Ahmad, O. M., & Huber, M. (2022). Learn German, Buy German? Language-learning opportunities abroad and exports. *The World Economy*, *45*, 3031–3058. https://doi.org/10.1111/twec.13280

APPENDIX

TABLE A1 Estimation results: lags of institutes

DV: Exports	(1)	(2)	(3)	(4)	(5)	(6)
Institutes	0.139***	0.065***	0.061***	0.066***	0.066***	0.063***
	(0.043)	(0.0234)	(0.0235)	(0.0230)	(0.0222)	(0.0226)
Institutes sq.	−0.010***	−0.007***	−0.007***	−0.008***	−0.008***	−0.008***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)
Institutes, lag = 1		0.089**	0.034	0.029	0.036	0.037
		(0.037)	(0.028)	(0.027)	(0.028)	(0.027)
Institutes sq., lag = 1		−0.003	−0.001	−0.001	−0.002	−0.002
		(0.002)	(0.002)	(0.001)	(0.001)	(0.001)
Institutes, lag = 2			0.061**	−0.015	−0.022	−0.018
			(0.025)	(0.025)	(0.027)	(0.026)
Institutes sq., lag = 2			−0.002	0.002	0.003*	0.003
			(0.00169)	(0.00173)	(0.00188)	(0.00186)
Institutes, lag = 3				0.084***	0.020	0.016
				(0.030)	(0.040)	(0.040)
Institutes sq., lag = 3				−0.005***	−0.001	−0.000
				(0.002)	(0.002)	(0.003)
Institutes, lag = 4					0.065**	0.003
					(0.0275)	(0.0187)
Institutes sq., lag = 4					−0.005**	−0.001
					(0.002)	(0.001)
Institutes, lag = 5						0.065*
						(0.033)
Institutes sq., lag = 5						−0.004
						(0.003)
Observations	4958	4824	4690	4556	4422	4288
R-squared	.992	.993	.993	.993	.993	.993
Years	1977–2014	1978–2014	1979–2014	1980–2014	1981–2014	1982–2014
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: Cluster-robust standard errors in parentheses. Other controls (log (GDP)), log population, EUCU, FTA/EIA, GATT, import share and constant are included, but not shown. ***$p < .01$, **$p < .05$, *$p < .1$.

TABLE A2 Estimation results: German and Swiss total exports

	(1)	(2)	(3)	(4)	(5)	(6)
DV: Exports	**Germany**				**Switzerland**	
Institutes	0.057	0.062**	0.063**	0.103**	0.130***	0.132***
	(0.039)	(0.029)	(0.029)	(0.042)	(0.039)	(0.039)
Institutes sq.	−0.005**	−0.005***	−0.005***	−0.008***	−0.010***	−0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
log GDP	0.726***	0.747***	0.745***	0.544***	0.582***	0.584***
	(0.055)	(0.048)	(0.048)	(0.078)	(0.068)	(0.067)
log population	−0.184	−0.185	−0.185	0.106	0.024	0.027
	(0.311)	(0.276)	(0.275)	(0.206)	(0.175)	(0.172)
EUCU = 1	0.377***	0.225***	0.224***			
	(0.077)	(0.078)	(0.078)			
FTA/EIA = 1	0.056	0.008	0.005	0.155***	0.143***	0.142***
	(0.074)	(0.066)	(0.066)	(0.049)	(0.047)	(0.047)
GATT	0.400***	0.165*	0.166*	0.143	0.050	0.047
	(0.090)	(0.089)	(0.089)	(0.262)	(0.137)	(0.137)
Import share	0.085***	0.092***	0.092***	0.126*	0.127**	0.128**
	(0.024)	(0.027)	(0.027)	(0.064)	(0.065)	(0.065)
Constant	3.767	3.493	1.368	1.422	1.970	3.274*
	(4.846)	(4.433)	(2.996)	(2.763)	(2.666)	(1.839)
Observations	2680	3340	3584	2680	3340	3584
R-squared	.995	.994	.995	.990	.990	.990
Countries	134	167	183	134	167	183
Years	1995–2014	1995–2014	1995–2014	1995–2014	1995–2014	1995–2014
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes

Note: Cluster-robust standard errors in parentheses. ***$p < .01$, **$p < .05$, *$p < .1$.

TABLE A3 Estimation results: institutes with and without language services

DV: Exports	(1)	(2)
Lang. Institutes	0.136***	0.142***
	(0.041)	(0.054)
Lang. Institutes sq.	−0.015***	−0.017***
	(0.003)	(0.005)
Institutes w/o lang. serv.	−0.034	0.026
	(0.037)	(0.035)
Institutes w/o lang. serv. sq	0.005	−0.004
	(0.007)	(0.006)
Observations	4958	4958
R-squared	.993	.993
Countries	134	134
Years	1978–2014	1978–2014
Other controls	Yes	Yes
Year FE	Yes	Yes
Country FE	Yes	Yes

Note: Cluster-robust standard errors in parentheses. Other controls (log GDP, log population, custom unions, FTA/EIA, GATT, import share) and constant are included but not shown. ***$p < .01$, **$p < .05$, *$p < .1$.

TABLE A4 Estimation results: listed Goods

	(1)	(2)
DV: exports	**List.**	**List.**
Institutes	0.137***	
	(0.0500)	
Institutes sq.	−0.00933***	
	(0.00274)	
Lang. institutes		0.132**
		(0.0619)
Lang institutes sq.		−0.0129**
		(0.00551)
Institutes w/o lang. serv.		0.0112
		(0.0272)
Institutes w/o lang. serv. sq.		0.000
		(0.00627)
log GDP	0.663***	0.664***
	(0.0591)	(0.0579)
log population	−0.231	−0.278
	(0.222)	(0.242)
EUCU	0.453***	0.416***
	(0.0915)	(0.0962)
FTA/EIA	0.244**	0.287**
	(0.120)	(0.120)
GATT	0.0952	0.0996
	(0.167)	(0.167)
Import share	0.0867	0.0889
	(0.0647)	(0.0667)
Constant	5.611*	6.620*
	(3.342)	(3.669)
Observations	3515	3515
R-squared	0.993	0.993
Years	1978–2014	1978–2014
Countries	95	95
Year FE	Yes	Yes
Country FE	Yes	Yes

Note: Cluster-robust standard errors in parentheses. ***$p < .01$, **$p < .05$, *$p < .1$.