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Returns to Foreign Language Skills in a Developing Country: The Case of Turkey

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ABSTRACT *This paper analyses the economic value of foreign languages in Turkey using data on some 6000 adult male wage-earners in 2007. We find positive earnings returns to proficiency in English and Russian, which increase with the level of competence. French and German skills are also positively rewarded, although their return seems mostly linked to the likelihood to hold specific occupations. In contrast, knowing Arabic does not generate an earnings premium. Focusing on English, we check for heterogeneous returns along the conditional earnings distribution. The results are qualitatively invariant when we account for misclassification errors in self-reported English skills.*

1. Introduction

Foreign language (FL henceforth) skills represent a form of human capital that can be rewarded in the labour market. Several papers highlight the economic value of FL knowledge among the native populations of developed countries. Any existence of positive returns to FL competences is expected to be even more relevant in developing countries. Indeed, fostering widespread FL knowledge of the population, alongside formal schooling and other cognitive skills (Hanushek & Woessmann, 2008), might represent a stepping-stone for economic development in the globalised world (Sergeant & Erling, 2011). However, there are relatively few studies of this topic in developing countries, mainly due to data limitations.

This paper investigates returns to FL competences in the Turkish labour market, defined as the *ceteris paribus* increase in earnings associated with FL knowledge.¹ Turkey provides an interesting case for several reasons. First, the economic value of FL proficiency in Turkey has not previously been investigated. Second, during recent decades, Turkey has experienced impressive growth rates as well as increases in international trade, tourist arrivals, foreign direct investment (FDI) and research and development (R&D) activities, all of which have contributed to the country's social and economic development. Along with these accomplishments, the globalisation process has stimulated demand for FLs (Fidrmuc & Fidrmuc, 2009; Fidrmuc, 2011; Hoon, Selmier, & Lien, 2011). Therefore, fostering FL skills would be especially important for a mid-sized, middle-income, emerging economy such as Turkey, since this would improve national performance in the global knowledge economy and stimulate the potential for further economic growth and development. Rising demand for FLs,

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combined with their relatively scarce supply among Turkish workers, generates the potential for important economic rewards. Therefore, our aim is to analyse the existence and amount of earnings returns to FL competences in the Turkish labour market. Another significant contribution of this work is that our rich dataset enables analysing the economic value of several FLs, without constraining the focus only to English (as is the case for studies on other developing countries).

In order to keep the empirical analysis tractable, we focus on male wage-earners between the ages of 25 and 65. We estimate earnings regressions augmented by indicators of FL competences. We also control for occupation fixed-effects in order to account for the indirect link between language and earnings through occupation. Parental education is used as an additional control, thus reducing the impact of unobserved factors such as unobserved ability and social networks. Indeed, obtaining unbiased estimates represents the main concern in the econometric analysis of returns to language skills, as it is for other forms of human capital such as schooling. Unobserved individual heterogeneity (for example, innate ability) and the resulting omitted variable bias represent the main concerns. Unfortunately, we are unable to explicitly deal with this potential issue due to a lack of either panel data or exogenous sources of variation in FL knowledge. Nevertheless, the robustness of our results to the inclusion of control variables and to several sensitivity analyses as well as their similarity to the findings of previous studies allow us to argue that returns to FL proficiency should not be mainly driven by unobserved ability.

In addition, the self-reported nature of our measure of skills in FLs might represent another source of bias, since individuals tend to overstate their competences. Therefore, by focusing on English, we seek to control for possible misclassification errors in the level of skills by using information about the frequency of English use for leisure activities as a proxy for skills. This allows estimating a model in which the observed skills variable is replaced by its predicted value, which should be less affected by misclassification errors. The results obtained from this alternative methodology are qualitatively robust and highlight again that FLs (and especially English) skills are positively rewarded in the Turkish labour market.

2. Background

2.1 The Demand for Competences in Foreign Languages in Turkey

Researchers such as Adak (2010) suggest that the expansion of international trade seems to be one of the most important factors driving economic growth and development in Turkey over the past decade. The 1988 financial liberalisation fostered both exports and imports (Cebeci & Fernandes, 2013) and the 1996 Customs Union with the European Union (EU) increased competitive pressure on the domestic economy. In 2012, the largest share of exports went to Germany whereas Russia was Turkey's leading import supplier, followed by Germany and China (TURKSTAT, 2013a). Increasing trade openness has boosted demand for FL competences, since speaking a common (foreign) language is likely to reduce transaction costs with trade partners and foreign investors.²

FL skills are also strongly connected with R&D activities (Fidrmuc, 2011); command of FLs enables R&D personnel to follow new scientific and technological developments and to interact with international researchers and institutions. Improving competences in FLs would thus increase the country's research potential, leading to more innovation and other productive investments and promoting economic growth. Moreover, during recent decades, a rapid structural transformation has taken place in the Turkish labour market: while agricultural employment has declined, service sector employment (including tourism³) has increased substantially since the early 1980s (see TURKSTAT, 2013b). The growing importance of foreign tourism in the country also fosters demand for FLs.

Taken together, the recent high growth rates, increasing trade openness and economic internationalisation, the phenomenal growth of the tourism sector and the ongoing intensification of FDI and R&D activities in the Turkish economy represent the main factors contributing to increased demand for FL skills, particularly for English (Fidrmuc, 2011; Ku & Zussmann, 2010).

2.2 The Supply of Foreign Language Skills among the Turkish Labour Force

The corollary of this growing demand for FL skills is their supply in the Turkish labour market.⁴ In Turkey, competences in FLs are mainly acquired either at school or in private language centres,⁵ which are common across the country. During the 2010–2011 academic year, 34,905 individuals, about half of which were women, completed a course in a FL at a private language centre. Of these, 92 per cent of students studied English and 5 per cent studied German. The remaining 3 per cent completed courses in Arabic, French, Italian, Japanese, Spanish and Russian (TURKSTAT, 2012).

Until the 1997 educational reform,⁶ FL instruction in public schools started in the sixth grade and continued throughout high school. Moreover, so-called ‘Anatolian’ high schools, which are highly selective public high schools, offer more intensive English instruction and a few of them French or German, too. There are also private schools at all education levels in Turkey, where the medium of instruction is a FL, usually English. An increasing number of public universities have adopted English as the medium of instruction, either for some degrees only or for the whole university. Turkish medium-of-instruction universities have elective FL courses, predominantly in English. Finally, Arabic is taught in religious vocation high schools. Before the educational reform of 1997, Arabic instruction started in the sixth grade but since then it has begun in the ninth grade. At Anatolian religious vocation high schools, both Arabic and English are taught intensively.

Despite efforts to increase competences in FLs, Turkey is characterised by a significant English language deficiency (OECD, 2012). According to Education First (2011), Turkey is a ‘very low proficiency’ country. The special 2006 Euro-Barometer Survey about languages in Europe provides a similar picture (European Union, 2006). It indicates that Turkey has the highest percentage of the population declaring an inability to converse in a language different from the mother tongue among the EU-25 and four candidate countries. Thus, growing demand for FLs, together with their scarce supply among Turkish workers, generates the potential for economic rewards to FL skills. Quantifying this economic return and finding out the FLs that matter most in the labour market are the main aims of this paper.

3. Related Literature

Language proficiency, similar to formal schooling, is a costly asset that is embodied in the individual and is likely to be productive in the labour market. Most of the literature concerns immigrants, because competences in a host country’s language are fundamental for their economic and social integration (for a recent overview, see Chiswick & Miller, 2014). The same framework can be applied to explain skills in FLs among the native population. There are several reasons to expect a positive relationship between language proficiency and earnings. First, language might directly affect productivity by enhancing efficiency in communication among co-workers and managers. Second, language itself may enable achieving more prestigious occupations that are also likely to be better remunerated (Chiswick & Miller, 2009), as workers obtain a premium if their language skills match the linguistic requirements in the workplace (Chiswick & Miller, 2010, 2013). This means that a substantial part of the positive relationship between language competences and earnings is indirect, operating through the occupational channel. Third, language competences might also be remunerated when not directly used/relevant in the workplace, since this asset represents a positive signal of other cognitive skills from the employer’s perspective (Grin, Sfreddo, & Vaillancourt, 2010). Indeed, there is substantial evidence in the literature on the improved cognitive skills of bilinguals or those who have studied a FL (Adesope, Lavin, Thompson, & Ungerleider, 2010).

A growing number of papers have reported significant returns to FL skills among the native population. Most focus on developed countries: Saiz and Zoido (2005) for United States college graduates; Williams (2011) for FL usage at work in 12 European countries; Ginsburgh and Prieto-Rodriguez (2011) for several European countries; and Lang and Siniver (2009) for use of English in Israel. Toomet (2011) found that local languages are not remunerated in Latvia and Estonia, while English proficiency produces a significant earnings premium.

The return to English proficiency has been analysed in a few developing countries. Levinsohn (2007) and Casale and Posel (2011) reported high reward for English competence in South Africa as do Azam, Chin, and Prakash (2013) for India, while Angrist and Lavy (1997) report returns to using French in Morocco. However, in both South Africa and India, English is the former colonial language (as for French in Morocco) and currently one of the official languages, whereas this is not the case in Turkey. Unlike these few studies of developing economies, we consider returns to several FLs spoken in Turkey.

4. Data and Descriptive Statistics

The empirical analysis is based on nationally representative Turkish data from the Adult Education Survey (AES) for 2007. The details on the data and sample used in the empirical analysis are reported in Section A1 of the Online Appendix. Our analysis is based on a subsample of male wage-earners. The AES asks an individual's knowledge of up to seven languages different from the mother tongue. In the case of having some knowledge of at least one FL, individuals report detailed information about the two FLs they know best, the way they learnt those languages and their frequency of use at work and for leisure.

Table 1 shows that roughly 64 per cent of the individuals in the sample do not speak any FLs. Over one in three individuals are able to speak at least one FL (most speak just one). FL knowledge is more common among the younger cohort, those with greater educational attainment and white-collar employees (especially if highly skilled). Knowing at least one FL is slightly more common in urban than in rural areas.

Table 2 reports that English is the most widely known FL, with about 82 per cent of those who possess some knowledge of FLs declaring that English is one of the languages they know. German represents the second most frequent language known by 11 per cent, considerably less common than English although Germany is the traditional destination for Turkish emigrants. Arabic is the third most frequent language (8.6%), taught in religious vocation high schools and more common among the indigenous population in the south-southeast of the country as well as among people with some migration experience of the Middle East and North Africa (which were alternative migration destinations during the 1980s). Arabic is followed by French (6.7%), which was widely taught as part of the oldest generation's schooling. Less common is Russian (2.3%), which is not taught in the school

Table 1. Foreign language knowledge among Turkish male employees

	No foreign languages	One foreign language	Two foreign languages	Three or more FLs	Total (%)
BIRTH COHORT					
Cohort 25–39	61.72	33.78	3.75	0.74	100
Cohort 40–65	67.96	27.56	4.12	0.36	100
COMPLETED EDUCATION					
Low-education	92.91	6.26	0.67	0.16	100
Medium-education	56.48	39.4	3.59	0.53	100
High-education	18.19	69.09	11.09	1.63	100
OCCUPATION					
High-skilled white-collars	33.92	56.78	8.09	1.22	100
Low-skilled white-collars	60.81	34.18	4.16	0.85	100
High-skilled blue-collars	83.27	15.4	1.18	0.15	100
Low-skilled blue-collars	80.77	17.36	1.7	0.17	100
URBAN/RURAL AREAS					
Urban	63.04	32.63	3.74	0.58	100
Rural	68.02	26.84	4.47	0.66	100
TOTAL (%)	64.04	31.47	3.89	0.6	100
NUMBER OF OBSERVATIONS	3854	1894	234	36	6018

Table 2. Foreign languages spoken (among foreign language speakers, N = 2164)

	English	French	German	Arabic	Russian	Others
BIRTH COHORT						
Cohort 25–39	86.5	4.2	10.4	7.2	2.6	1.4
Cohort 40–65	73.9	11.6	13.1	11.6	1.5	2.0
COMPLETED EDUCATION						
Low-education	47.8	3.3	14.4	28.3	5.6	11.1
Medium-education	82.0	6.8	9.9	7.4	2.8	1.3
High-education	88.9	7.1	12.2	6.3	1.2	0.1
OCCUPATION						
High-skilled white-collars	85.4	7.4	11.8	7.8	1.7	0.6
Low-skilled white-collars	85.7	5.4	11.5	6.7	3.0	0.9
High-skilled blue-collars	76.2	5.7	9.7	9.7	2.2	3.5
Low-skilled blue-collars	71.7	6.5	10.6	13.3	3.2	4.4
URBAN/RURAL AREAS						
Urban	84.0	6.7	11.0	6.7	2.3	1.2
Rural	74.6	6.2	12.7	17.4	2.1	3.4
TOTAL (%)	82.3	6.7	11.3	8.6	2.3	1.6

system. However, Russian is likely to be known by returning Turkish workers from the migration wave towards Russia and Central Asia that occurred in the 1990s (Tansel & Yaşar, 2010) as well as migrants from Bulgaria.

English is relatively more common within the younger cohort, as is Russian, while knowledge of German, Arabic and French is somewhat higher among older groups. Russian, German and Arabic are significantly more common among the less educated. In particular, almost half of the Arabic speakers sampled have five or fewer years of schooling. Those who know German among the less educated may be return migrants from Germany, but, unfortunately, we do not have information about previous migration experiences. English is more frequently known among white-collar employees, while blue-collar employees who declare they know FLs are relatively more likely to know Arabic. Finally, the incidence of Arabic knowledge and – to a lesser extent – German knowledge seems to be relatively high in rural areas. In the case of German, this evidence might reflect a previous (direct or indirect) migration background from Germany. Regarding Arabic, its incidence among low educated individuals residing in rural areas might mirror ethnic identities with Arabic roots.⁷

In Table 3, we focus more deeply on the FLs individuals know better. English represents the primary FL for about four-fifths of FL speakers, followed by German (7.4%), Arabic (5.9%) and French (4.9%). We have data on how people learned the FL they know best (not shown here). Most people acquired English skills at school (79% among those who affirm English to be their best FL), on a private course (10%) or by self-learning (7%). In contrast, 94 per cent of French speakers learnt this at school. The share of individuals who declare they learnt German and Russian abroad is significantly

Table 3. Foreign language skills (among foreign language speakers, N = 2164)

	% over FL speakers	Basic skills	Regular skills	Advanced skills
First FL = English	79.44	55.03	31.47	13.50
First FL = French	4.85	73.33	20.00	6.67
First FL = German	7.44	50.93	31.06	18.01
First FL = Arabic	5.87	20.47	38.58	40.94
First FL = Russian	0.74	12.50	75.00	12.50
First FL = Other	1.66	27.78	19.44	52.78

Table 4. Distribution of foreign languages and net monthly earnings (in Turkish liras)

Income deciles	All the sample	At least one FL	English	French	German	Arabic	Russian	Other FL
% Q ₁ (top decile)	9.39	4.0	3.4	0.69	2.86	10.7	4.08	20.59
% Q ₂	10.14	5.5	4.9	6.25	5.71	8.56	2.04	8.82
% Q ₃	12.38	6.9	6.5	3.47	4.9	8.02	10.2	17.65
% Q ₄	7.76	5.4	5.4	3.47	5.31	5.88	4.08	5.88
% Q ₅	12.4	9.2	9.7	5.56	9.8	6.42	10.2	2.94
% Q ₆	7.68	6.8	6.3	6.25	8.16	4.81	8.16	23.53
% Q ₇	13.78	15.7	15.4	13.19	13.88	25.67	18.37	2.94
% Q ₈	7.98	12.6	12.2	19.44	11.02	15.51	14.29	5.88
% Q ₉	10.5	17.9	18.3	21.53	17.55	10.16	10.2	11.76
% Q ₁₀ (bottom decile)	8.01	16.1	17.9	20.14	20.82	4.28	18.37	–
Total (%)	100	100	100	100	100	100	100	100
Average monthly earnings (in Turkish Liras)	923.9	1255.9	1280.2	1543.6	1332.9	962.1	1230.8	713.2

higher than those for other languages. Finally, 40 per cent of those that consider Arabic to be their best FL learnt at (religious vocation) schools and 35 per cent in the family.

We can obtain a better insight into the quality of FL skills by considering basic, regular and advanced levels of competences. Among those who declare English to be their first FL, 55 per cent report having a basic level, about 31 per cent have regular skills and only 14 per cent have advanced skills. The distribution of German skills follows a similar pattern, whereas French skills are mostly concentrated in the basic level and those who claim Arabic to be their first FL are likely to have advanced skills.

Finally, unconditional earnings differentials by FL knowledge are reported in Table 4. The AES includes net monthly earnings from the main job (in Turkish liras). Tabulating monthly earnings by deciles shows that the incidence of top-coded earnings is significantly higher among those who speak at least one FL, but lower in the bottom deciles. Similarly, average monthly earnings are markedly higher among FL speakers. However, not all FLs are positively related to earnings.

Knowledge of German, English, Russian or French is clearly associated with higher earnings. This is clearly not the case for Arabic. The relationship between FL knowledge and earnings that we observe in the raw data might be confounded by other individual and labour market characteristics that are likely to co-vary with both FL knowledge and earnings. Therefore, in the next section, we analyse the return to FL knowledge in a regression framework. The complete list of explanatory variables used in the empirical analysis is provided in Table A1 in the Online Appendix together with some descriptive statistics.

5. Empirical Results

5.1 Foreign Language Knowledge and Earnings

The starting point of our empirical analysis consists of comparing the results from several OLS regressions of log earnings ($\ln(Y_i)$) on typical human capital and labour market variables (included in the vector X_i of control variables), plus different indicators of FL knowledge ($g(FL)$), that is:

$$\ln(Y_i) = \alpha + \beta' X_i + g(FL) + \varepsilon_i \quad (1)$$

First, we include dummies for the number of FLs known by each individual, which means that the earnings equation is specified as:

$$\ln(Y_i) = \alpha + \beta'X_i + \sum_{k=1}^3 \delta_k NFL_k + \varepsilon_i \quad (2)$$

where NFL_k represents dummy variables and δ_k are the coefficients that capture the conditional earnings differentials associated with knowing one, two or three (or more) different FLs – relative to individuals who do not know any language other than their mother tongue.

Second, we estimate several separate equations containing a dummy for each specific and non-mutually exclusive FL (FL_l , with $l = 1$ for English, 2 for French, 3 for German, 4 for Arabic and 5 for Russian). Therefore, the earnings equation now becomes,

$$\ln(Y_i) = \alpha + \beta'X_i + \gamma_l FL_l + \varepsilon_i, \quad (3)$$

where γ_l represents the parameters to be estimated, which reflect the earnings premium associated with a general knowledge of each FL. Third, the five different FL indicators are jointly included in the regression in an additive way, that is:

$$\ln(Y_i) = \alpha + \beta'X_i + \sum_{l=1}^5 \varphi_l FL_l + \varepsilon_i. \quad (4)$$

Finally, we add occupation fixed-effects and dummies for parental education to the vector of control variables (X_i). Occupation fixed-effects (two-digit ISCO88 classification) inform us about the extent to which the relationship between FL knowledge and earnings is indirect, working through the occupational channel – that is, individuals who know FLs earn more because they are attracted into better paid occupations. Furthermore, controlling for parental education should help pick up unobservable characteristics such as cognitive and non-cognitive ability and social networks.

The estimated coefficients for the control variables are quite standard and are not discussed for brevity reasons (the estimates are displayed in Table A2 in the Online Appendix). The main coefficients of interest from Equations (2)–(4) are reported in Table 5. The first column of Table 5 shows that having some knowledge of one FL is associated with 8 per cent higher earnings, which increases to 15 per cent in the case of knowing two FLs and up to 38 per cent in the (infrequent) case of three or more FLs. However, not all languages are equally rewarded in the labour market, as shown by the estimates of Equation (3) in columns two to six of the same table. In fact, knowing English has a clearly significant return (around 11%) and the estimates for French and German are also statistically significant with about 8 per cent returns, while Arabic is associated with lower earnings.⁸ Finally, we obtain a noticeably high and significant return to Russian knowledge (probably due to the low number of observations), which is associated with 20 per cent higher earnings. When we simultaneously include all FL dummies (Equation (4), reported in column seven), the point estimates of English and German remain unchanged, while that of French becomes significant and slightly higher. The return to Russian is somewhat reduced in this full specification, indicating that it might be driven by other language-related unobservable characteristics.

After controlling for occupation fixed-effects,⁹ we obtain a lower return to English knowledge (see column eight of Table 5). Occupation accounts for about 30 per cent of the return to English, which is still substantial and significant even among employees within the same occupation. A similar pattern is observed for French, German and Russian. The results regarding Arabic knowledge remain invariant even when controlling for occupation. In the last column of Table 5, we include dummies for parental education, which are significant predictors of earnings, implying a certain degree of social segmentation in the Turkish labour market. Moreover, we observe a very modest reduction in the point estimates of returns to FL knowledge.

It should be noted that the OLS estimates of returns to FL knowledge might be affected by omitted variable bias. This concern comes from the fact that our FL knowledge indicators in Equations (2)–(4)

Table 5. Foreign language augmented earnings regressions

	Number of foreign languages	English	French	German	Arabic	Russian	All FLs	All FLs	All FLs
No foreign languages	<i>ref. cat.</i>								
One foreign language	0.075 ^a (0.016)								
Two foreign languages	0.147 ^a (0.037)								
Three or more foreign languages	0.376 ^a (0.096)								
Knows English		0.107 ^a (0.016)					0.111 ^a (0.016)	0.086 ^a (0.015)	0.072 ^a (0.015)
Knows French			0.084 ^c (0.044)				0.103 ^b (0.043)	0.090 ^b (0.041)	0.089 ^b (0.040)
Knows German				0.082 ^b (0.032)			0.085 ^a (0.032)	0.065 ^b (0.031)	0.056 ^c (0.030)
Knows Arabic					-0.066 ^b (0.033)		-0.066 ^b (0.034)	-0.088 ^b (0.034)	-0.067 ^c (0.034)
Knows Russian						0.199 ^a (0.069)	0.141 ^b (0.070)	0.136 ^b (0.068)	0.129 ^c (0.067)
Occupation fixed effects	no	no	no	no	no	no	no	yes	yes
Number of observations	6018	6018	6018	6018	6018	6018	6018	6018	6018
Adjusted R ²	0.351	0.351	0.346	0.347	0.346	0.347	0.353	0.410	0.417

Notes: OLS regressions with robust standard errors within parenthesis in italic. ^cSignificant at $p < 0.1$, ^bsignificant at $p < 0.05$, ^asignificant at $p < 0.01$. All the models include controls for years of schooling, potential experience (quadratic), type of contract and a dummy for urban area (see Table 2a in the Online Appendix for the estimates of other control variables). Indicators for knowledge of each FL are not mutually exclusive as individuals may declare to know more than one language.

might be correlated with the error term (ε_i) due to the existence of unobserved variables (for example, cognitive ability) that affect both the propensity to know one or more FLs and earnings potential. However, the last evidence can be taken as suggestive of the robustness of our results to potential omitted variable bias. Lang and Siniver (2009) obtained similar results when they simultaneously included two different languages in the earnings equation. Since the ability to learn two or more different FLs should be similarly correlated with general unobservable skills, they argued that if knowing different languages mainly depends on unobserved ability, a significant change should be observed when dummies for different languages are simultaneously included. This conclusion was also confirmed by their panel estimates of the return to English proficiency. In our case, the coefficients of English and German knowledge are virtually unaffected by the inclusion of other FL indicators in the regression (while only minor changes are observed for other languages). This suggests that the effect of unobserved individual heterogeneity is limited. A more convincing argument was proposed by Saiz and Zoido (2005), who estimated the return to FLs among United States college graduates using two-period panel data. They argued that if unobserved ability is the main driver of the return to language skills, one should observe similar earnings returns for those who currently speak a FL and those who were able to do it only in the past but not in the current period. Indeed, their results go in the opposite direction, suggesting that the impact of omitted ability should be rather limited. Unfortunately, we only have cross-section data with information about current language knowledge and without any (plausibly) exogenous predictor of FL knowledge, which

means that we are unable to perform instrumental variable estimations (as, for example, in Bleakley & Chin, 2004). Therefore, the results should be taken as conditional correlations (rather than causal effects), although the reported evidence seems to indicate that the return to FLs knowledge should not be just a mirror of (omitted) ability bias.

5.2 Returns to Skill Levels in Foreign Languages

The results in the previous section point out that having some knowledge of languages other than the mother tongue generally has a market value in Turkey. However, if the labour market pays a different price for different levels of the command of a language, general levels of FL knowledge might be just a partial picture of the earnings return to this human capital asset. Hence, in this section we exploit the available information about the different skill levels of the FL known best. The language-augmented earnings Equation (1) can be easily adapted to the inclusion of dummy variables that capture the level of skills in FLs. As in the case of general FL knowledge, we first estimate several OLS equations that include indicators for skills in each single FL¹⁰ (SFL_j^l , with $l = 1$ for English, 2 for French, 3 for German and 4 for Russian), that is,

$$\ln(Y_i) = \alpha + \beta'X_i + \sum_{j=1}^3 \phi_j^l SFL_j^l + \varepsilon_i, \quad \forall l = 1, 2, 3, 4, \quad (5)$$

where ϕ_j^l represents the return to having a skill level j (with $j = 1$ for basic, 2 for regular and 3 for advanced) in language l , relative to those who do not claim that language l is the FL they know better (holding the other control variables constant). Moreover, in line with the analysis of general FL knowledge, we also estimate the earnings equation that simultaneously controls for skills in each FL, which takes the form,

$$\ln(Y_i) = \alpha + \beta'X_i + \sum_{l=1}^4 \sum_{j=1}^3 \phi_j^l SFL_j^l + \varepsilon_i, \quad \forall l = 1, 2, 3, 4. \quad (6)$$

Table 6 reports the results of the earnings regressions with skills dummies for each FL individually (Equation [5]) and simultaneously (Equation [6]). The results reveal that returns to different levels of proficiency in English are positive and increasing – ranging between 20 per cent and 46 per cent. Basic French skills are negatively associated with earnings and the coefficient for regular French skills is positive but imprecisely estimated, while having advanced French skills has a remarkably high return of 68 per cent. By contrast, returns to German skills are insignificant. Russian skills are significantly remunerated only at the advanced level, with 27 per cent increased earnings.

Next, we include all the dummies for all the skill levels for all the FLs. In this case, the return to FL skills will be conditioned on competences in each of the (mutually exclusive) possible best FLs known and the reference category will be those individuals with no FL command. The results show that the return to English skills is almost unaffected by this exercise. However, basic French skills are no longer negative, while returns to regular and advanced French skills are significant and higher. Returns to basic and advanced German skills are both significant, and no change is observed in the return to advanced Russian skills. Finally, adding occupation fixed-effects (and parental education) to this model produces modest reductions in returns to FL skills, indicating again that FL knowledge also affects earnings indirectly through occupational attainment.

Our analysis is complemented by several sensitivity exercises in which we focus more deeply on the economic value of English competences, since English is the most widely spoken FL in Turkey – as well as in other non-English-speaking countries in Europe (see European Union, 2006) – and is commonly used as the *lingua franca* for commerce and trade. First, we consider the

Table 6. Return to foreign language skills

	English skills	French skills	German skills	Russian skills	All FLs skills	All FLs skills	All FLs skills
Reference category:	English no first FL	French no first FL	German no first FL	Russian no first FL	No foreign languages*		
Basic English skills	0.005 (0.017)				0.019 (0.018)	0.015 (0.017)	0.011 (0.017)
Regular English skills	0.196 ^a (0.025)				0.213 ^a (0.026)	0.175 ^a (0.025)	0.160 ^a (0.025)
Advanced English skills	0.456 ^a (0.034)				0.475 ^a (0.035)	0.396 ^a (0.035)	0.366 ^a (0.036)
Basic French skills		-0.079 ^b (0.039)			0.001 (0.040)	0.011 (0.038)	0.014 (0.038)
Regular French skills		0.171 (0.115)			0.259 ^b (0.117)	0.192 ^c (0.104)	0.208 ^b (0.100)
Advanced French skills		0.679 ^c (0.403)			0.792 ^c (0.404)	0.640 (0.402)	0.575 (0.385)
Basic German skills			0.004 (0.040)		0.078 ^c (0.041)	0.067 ^c (0.038)	0.063 (0.038)
Regular German skills			-0.078 (0.065)		0.002 (0.065)	-0.035 (0.063)	-0.034 (0.063)
Advanced German skills			0.113 (0.085)		0.189 ^b (0.088)	0.174 ^b (0.087)	0.160 ^c (0.088)
Basic Russian skills				0.626 (0.464)	0.636 (0.452)	0.597 (0.434)	0.578 (0.437)
Regular Russian skills				0.174 (0.145)	0.213 (0.140)	0.234 ^c (0.135)	0.225 ^c (0.136)
Advanced Russian skills				0.272 ^a (0.030)	0.280 ^a (0.017)	0.228 ^a (0.039)	0.252 ^a (0.068)
Parental education	no	no	no	no	no	no	yes
Occupation fixed effects	no	no	no	no	no	yes	yes
Number of observations	6018	6018	6018	6018	6018	6018	6018
Adjusted R ²	0.370	0.348	0.346	0.346	0.374	0.423	0.428

Notes: OLS regressions with robust standard errors within parenthesis in italic. ^cSignificant at $p < 0.1$, ^bsignificant at $p < 0.05$, ^asignificant at $p < 0.01$. All the models include controls for years of schooling, potential experience (quadratic), type of contract and a dummy for urban area. FL skills refer to the (mutually exclusive) FL the individual knows better. *No foreign languages (reference category in the last three columns) means that neither English, French, German or Russian are the first FL that the individual knows.

existence of heterogeneous returns according to observed and unobserved individual characteristics. Following the previous literature (Azam et al., 2013; Casale & Posel, 2011; Lang & Siniver, 2009; Saiz & Zoido, 2005; Toomet, 2011), we allow for heterogeneous returns to English skills by several observed characteristics (that is, frequency of language use at work, birth cohort, education, occupation, urban/rural location). The results (available upon request) reveal that returns to English skills are positive and substantial for several subgroups of workers (in other words, we detect little heterogeneity in returns to English skills). Moreover, our results concerning the complementarity between English skills and formal schooling are somewhat at odds with those in the literature, since we obtain slightly higher returns for low educated workers (while previous evidence usually reported higher returns for more educated workers). Nevertheless, the main conclusion that can be drawn from the analysis of heterogeneous returns according to observable workers' characteristics is that the conditional positive correlation between English skills and earnings is in general stable and robust for individuals with different characteristics. As a further

check regarding the existence of heterogeneous returns to English skills with respect to unobservable characteristics, we also allow the estimates to be different along the earnings distribution by applying quantile regression. The results are fully described in section A2 of the Online Appendix and, in general, reinforce the robustness of the overall finding of this work. In the same Online Appendix (section A3), we also discuss the potential source of bias and limitations of our empirical strategy, together with an additional robustness check for the presence of misclassification errors in the language skills variable.

5.3 Discussion

Our analysis highlights that knowledge of FLs has a positive economic value in the Turkish labour market, which seems to be in part related to the occupational channel (that is, those who master FLs are likely to be attracted into better paid occupations).¹¹ The results are robust to the inclusion of controls for parental education. English competences clearly represent the most valuable asset. Advanced knowledge of Russian seems to be highly rewarded, although this evidence should be taken with caution because it is based on the few observations of Russian speakers in our sample. There are also positive rewards for mastering either French or German, although their economic value seems to be mostly linked to occupation rather than productivity within occupations and they seem to be complementary to English proficiency. On the contrary, knowing Arabic seems not to be rewarded in the labour market.

In general, the earnings premiums for FL knowledge are comparable, but somewhat lower, than the returns to different levels of education in Turkey provided in Tansel (1994, 2010). The return to English skills obtained for Turkey is consistent with those for other developed and developing countries. The European evidence¹² obtained by Ginsburgh and Prieto-Rodríguez (2011) suggests that returns to English knowledge vary from 11 per cent in Denmark, where English is widely spoken, to 49 per cent in Spain, where speaking English as a FL is significantly less common. Toomet (2011) reported a return to English skills of about 45 per cent in Estonia and 62 per cent in Latvia. Studies for South Africa report returns to English proficiency that range between 18 and 25 per cent (Levinshon, 2007) and 41 and 44 per cent (Casale & Posel, 2011). Finally, the results reported by Azam et al. (2013) show a 35 per cent premium for advanced English skills for Indian men.

Moreover, we checked for the heterogeneity of returns to skills in English. They seem to be stable for different subgroups of workers. Further, the quantile regression estimates show increasing returns at higher quantiles of the conditional earnings distribution, but also a surprisingly high coefficient in the left tail, which is mostly due to language-related occupational selection. The estimates obtained when controlling for occupation seem to be almost flat along the earnings distribution. Therefore, our analysis with respect to observable and unobservable heterogeneity reveals that a positive economic value of English skills exists for several subgroups of workers and along the entire conditional distribution of earnings, which points to the overall significance and robustness of our results. The conclusions on the economic reward to English skills are that it is qualitatively unaffected when using a complementary econometric strategy that seeks to deal with the presence of errors in self-reported language skills variables and using the frequency of English use for leisure as a proxy for the level of skills.

Even though there are reasons to consider that the positive return to a FL (and especially English skills) should not be entirely driven by omitted variable bias, this remains a relevant and unresolved issue. The unavailability of panel data or plausibly exogenous instruments for FL knowledge and skills prevents the use of econometric techniques aimed at obtaining causal estimates in the presence of unobserved individual heterogeneity (correlated with FLs). Therefore, the results reported in this paper are, and should be taken as, meaningful conditional correlations which highlight the positive economic value of FLs (and especially English skills) in the Turkish labour market.

6. Conclusions and Policy Implications

Knowledge of FLs represents a form of human capital. Drawing on data from the 2007 AES, this is the first study to estimate the earnings returns to FL skills in Turkey – a country characterised by recent rapid economic and social development. The ongoing changes in the Turkish economy have fostered the relevance of and demand for FL competences in the labour market. The results from our study suggest that acquiring competences in FLs generally represents a profitable investment in the Turkish labour market. Becoming proficient in English and, to a lesser extent French and German, provides significant potential for higher earnings and, more generally, for better labour market performance, as FL knowledge seems to increase the chances of obtaining a better and more remunerated job. The high potential reward for Russian knowledge should be better investigated in the future due to the low number of cases in our sample. Therefore, proficiency in FLs has important implications in terms of labour market outcomes, since it improves employability, occupational prospects and earnings potential. Moreover, it seems to be plausible that the economic value of FL knowledge would be positive not only at the individual level, but also at the societal level.

The low level of human capital of (current and future) Turkish workers has been identified as one of the main concerns for the future development of the country (Organization for Economic Co-Operation and Development, 2012). The performance of Turkish 15-year-olds in the PISA test is rather poor, the average 15-year-old student in Turkey is one full year behind the OECD average (World Bank, 2013). Enhancing human capital, the endowment of education and its equitable distribution among different socio-economic groups present current challenges for achieving and maintaining a sustainable path of growth and development in the mid- to long-term in Turkey and in other developing countries (Hanushek & Woessmann, 2008). Our results suggest that fostering FL skills should be taken as an additional challenge for Turkish policymakers. Increasing FL competences among the Turkish population would further promote international trade, internationalisation and openness in the Turkish economy as well as R&D activities and innovation. Fostering competences in English and other European languages might be especially important in Turkey. First, given the geographical location of the country, this could favour its historical role as a bridge for commodities trading between Asia and Europe. Second, reducing language barriers would be especially relevant for further attenuating the already reduced cultural barriers between Turkey and EU countries, which might represent an additional stimulus for commerce and trade.

Several policy implications can be directly advocated in light of our results, which can be reasonably extrapolated to other developing countries. First, policymakers should emphasise the teaching of English at schools in order to increase the English proficiency of future generations of workers. This would be especially important due to growing demand for FL competences in the Turkish labour market in the near future, with the prospect of further economic growth and development and possible accession to the EU. The government should also foster English teachers' training and professional requirements, since teachers play a fundamental role in guaranteeing the effectiveness of the above-mentioned educational reforms. Second, for the current generation of workers, future public policies should encourage and subsidise their attendance at private FL centres. This is a sensible approach as our findings point to certain, albeit low, substitutability between English skills and general schooling for the young. In fact, beyond earnings, FL skills may also enhance employability and labour market opportunities for young, low educated individuals who may come from disadvantaged socio-economic and family backgrounds.

Here, we emphasise English as the FL to be taught, not only because of its international value and relevance compared with other languages, but also because there currently is a substantial stock of English language teachers, albeit still less than the demand for them. Teaching Russian in schools would take time to accomplish, because of the need to train teachers first. The current demand for Russian-speaking workers could be met by teaching Russian in special schools such as tourism schools or at FL centres. There may also be some space for policies aimed at improving competences in German and French. However, owing to our less conclusive results regarding these two languages, and given the hegemony of English as the *lingua franca*, less priority should be given to investments in these languages.

By contrast, our findings suggest that there is no earnings premium for knowledge of Arabic in the Turkish labour market. However, we consider that more detailed data are needed to further disentangle this puzzling evidence, which should enable separating the human capital component from the ethnicity-related attributes that the Arabic knowledge variable (as collected in Turkish AES data) might be picking up. Also noteworthy is the absence of Chinese language instruction in Turkey, except a couple of recently introduced university programmes. Chinese language instruction could be important given the recent increases in the volume of trade with China.¹³

Further, since most productive potential of FL skills is expected to be allocated to the private sector, especially among firms exposed to English-intensive activities such as international trade, R&D, ICT and tourism, private businesses should contribute to financing FL training for their workforce and complement the government's public investment. Finally, Turkey should be able to benefit more from the language competences of its citizens with immigrant backgrounds, such as the growing population of return migrants from Germany attracted by the current economic development path of the country.

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Disclosure Statement

No potential conflict of interest was reported by the author(s).

Notes

1. We focus on pecuniary returns, although there might be important non-monetary returns to FL proficiency (which are difficult to quantify). These might be, for example, the ability to read books and to watch movies in original languages or the increased facility to travel and to establish relationships with individuals from other countries, all of which are likely to generate positive gains in terms of individual utility. In addition, we implicitly consider 'gross monetary benefits' from FL knowledge, as we are unable to capture the individual opportunity cost of learning one or more FLs.
2. There are numerous studies documenting that language represents a barrier to international trade flows, for example Hutchinson and Williams (2005), Isphording and Otten (2013), Melitz (2008), Ku and Zussmann (2010) and Fidrmuc and Fidrmuc (2011).
3. Regarding the importance of FL skills for services and tourism, see Tucci and Wagner (2004) and Leslie, Russell, and Forbes (2002), respectively.
4. The mother tongue of most people in Turkey is Turkish, which is not an Indo-European language but belongs to the Altay-Uralic language family. Turkish is the only official language. However, there are many other native languages spoken in Turkey, Kurdish and Arabic being the most common (Yağmur, 2001).
5. Foreign language knowledge in Turkey may also be related to migration background. For example, there have been several important waves of migration of ethnic Turks (that is, individuals with direct or indirect Turkish origins) from Bulgaria who would know Bulgarian and Russian as well. Moreover, more recently, many Turkish immigrants (first and second generations) residing in Germany have returned to Turkey (Aydın, 2012) and they could be proficient in German.

6. The Turkish education system has experienced an increase in the emphasis given to FL teaching since the educational reform of 1997, which also extended compulsory schooling from five to eight years. However, our data do not cover individuals affected by the 1997 reform. It also seems to be worth mentioning that the recent (and gradually implemented) educational reform of 2012 established 12 years of compulsory education and a further increase in foreign language instruction at schools.
7. Unfortunately, the Turkish questionnaire of the AES does not include specific questions about mother tongue (which are indeed included for other countries). Therefore, information about Arabic knowledge should be taken with caution, since its distinction with ethnic background is somewhat subtle.
8. The negative sign for Arabic knowledge is because the FL knowledge indicators are not mutually exclusive (that is, individuals may have some knowledge of more than one FL), which means that those who know Arabic are likely to earn less than those who either do not know any FLs or have some knowledge of English, French, German, Russian or another language. Following the suggestions of the referees, we further investigated this issue. We performed additional regressions in which we eliminated observations of individuals who know FLs other than Arabic. In this case, the point estimate for Arabic was close to zero and statistically insignificant, that is, Arabic speakers do not earn significantly different (conditional on other covariates) than those who do not have any knowledge of FLs. This result might be due to a confounding effect of the unobserved variables related to Arabic knowledge, which may hide the labour market value of having some command of this language. Further, we have a small number of observations of individuals with Arabic knowledge, which does not allow in depth analysis. We believe that specific information about mother tongue and place of birth and current residence (which is not available in the Turkish AES data) is needed to provide a better understanding of the economic value of Arabic knowledge.
9. It might be argued that the inclusion of occupation fixed-effects represents bad controls (following Angrist & Pischke, 2009) in the sense that the estimation of the treatment effect (FL return) is confounded by the inclusion of controls that depend on the treatment itself (occupation). Therefore, under positive occupational sorting, the mediating impact of occupation in the language–earnings relationship is likely to represent a lower bound of the whole relevance of occupation.
10. Note that we excluded Arabic from the list of FLs considered in the estimation of returns to skills, as it seemed to be irrelevant for labour market outcomes.
11. Modelling the complex relationship between English knowledge, occupation and earnings represents an interesting extension of the current work, which will be the object of future research.
12. Williams (2011) also obtained significant returns to the use of English at work in several European countries. He highlighted that the use of other languages – especially French and German – is relevant in some countries, which can be considered to be in part consistent with our results regarding these two languages.
13. China was Turkey’s fourteenth largest export partner and the third largest import partner in 2012 and Chinese FDI stock in Turkey is becoming substantial (TURKSTAT, 2013a). Therefore, Chinese proficiency might have a significant labour market value in Turkey. Unfortunately, we were unable to quantify the return to Chinese knowledge, since just one Chinese speaker appeared in our sample.

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