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ABSTRACT

What Drives Demand for Private Tutoring in the Middle East and North Africa Region? Evidence from a Youth Survey

This paper examines the determinants of private tutoring in five major Middle East and North Africa (MENA) countries, Egypt, Algeria, Lebanon, Morocco, and Tunisia. The paper uses data extracted from the SAHWA Youth Survey (2016) and runs a probit model. The main findings indicate that age, receiving financial support, having educated parents, and living in urban areas increase the demand for private tutoring. Conversely, the results show that being a male student or a child of an employed mother would decrease the need for a private tutor. The empirical findings propose potential policy implications for MENA countries facing exacerbating gaps in the education system while emphasizing the challenges hindering public schools from delivering quality education.

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1. Introduction

The relatively unsatisfactory quality provided by some formal education institutions has enticed students to increasingly seek private tutoring as a way to complement formal education and strengthen academic performance, mainly in developing countries (Tansel and Bircan, 2006). With students resorting to private tutoring, many have chosen to sacrifice their leisure time in return for extra hours of private tutoring. Private tutoring is a subject-specific educational service obtained while being enrolled in a formal education program. The primary purpose of taking private tutoring is to enhance the performance of students. On the other side of the spectrum, tutors, who are mostly undergraduate students, secure a source of income in return. Trends in private tutoring are largely similar to that of formal education in terms of the frequency and effect of curriculum changes on the fluctuations in demand (Bray, 2007).

During the last few decades, private tutoring witnessed its first expansion in East Asia, spreading to other locations in North America, Africa, and Europe (Kim and Park, 2010). Although tutoring growth rates are different across these regions, policymakers have almost unanimously agreed that this growth has been pervasive; such a trend deserved rigorous analysis and policy reactions (Kim and Park, 2010). Despite the recent widespread of tutoring services, examining the determinants of private tutoring has been neglected by scholars. This can be largely ascribed to encountered difficulties regarding monitoring and observing this 'shadow' education (Bray, 2007).

A compelling reason to discuss this topic is the claim that getting tutored in a course has largely been associated with obtaining a better grade or increasing the probability of passing a course. This correlation has motivated students to seek this service more often (Tansel and Bircan, 2006). Therefore, we attempt to examine this

research question in the Middle East and North Africa (MENA) region. Specifically, we ask what pushes students to demand private tutoring? This debate is a demand and supply equilibrium, noting that this paper sheds light mainly on the demand side discussion.

Having overcrowded classrooms is associated with poor quality teaching methods that encourage Egyptian and Tunisian students to increasingly seek private tutoring (Ille, 2015; Yahia and Essid, 2019). In addition, teachers' wages are at the subsistence level, making it challenging for them to make ends meet without having other sources of income, which in turn encourages teachers to resort to external services including fee-based tutoring (Dang, 2007). Besides, the Egyptian, Jordanian, and Algerian public educational systems have been struggling in maintaining the minimum standards to achieve academic goals (Sobhi, 2012; Ali, 2013; Ghounane, 2018). This includes exacerbating shortcomings and deficiencies, particularly regarding class interaction, scientific and social sciences. For instance, approximately one-third of Egyptian students remain illiterate after finishing nine years of schooling (Sobhi, 2012). More specifically, 64% of primary school students in Egypt's urban areas and 52% of the students in its rural areas attend private tutoring classes. Additionally, the need to get admitted at competitive universities, whose entrance exams are extremely selective, has been substantially driving demand for private tutoring in the country (Assad et al., 2007).

Intuitively, relying on private tutoring has been fostering unethical practices by encouraging some teachers to refrain from giving their best effort in class, seeking to lucratively provide private tutoring services (Kim and Lee, 2010). This has contributed to a rise in student dropout levels and a plummet in school attendance records, largely due to the growing private tutoring business (Hartmann, 2007; Sobhi, 2012). However,

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in some countries like Oman[1] and the United Arab Emirates (UAE)[2], it is illegal for teachers to be engaged in private tutoring where they may face severe punishments (up to a $13,612 fine in the UAE). Only centers that are approved by the Ministry of Education and local economic regulators are allowed to give private tutoring lessons.

Utilizing unique youth micro-level data taken from the SAHWA Youth Survey (2016), this paper attempts to employ a comprehensive and rich youth dataset, identifying the demand-side determinants of private tutoring in the MENA region, and providing new evidence from a less studied region. The remainder of this paper is divided as follows: Section 2 provides an overview of the related literature and discusses the education systems in selected countries. Section 3 explains the methodology and data used in our analysis, while Section 4 presents and discusses our main findings. Finally, section 5 concludes and proposes relevant policy implications.

2. Related Literature

2.1 Theoretical background

In identifying the determinants of private tutoring in China, Egypt, and Vietnam, several studies corroborate the claim that gender bias is statistically insignificant (Assaad et al., 2007; Dang, 2007; Liu and Bray, 2017). The absence of gender bias is an important finding; all parents seek to best help their children perform well in school (Assaad et al., 2007; Sayed and Langsten 2014). The numbers also vary greatly among different cultures, suggesting that the tutoring outcomes in terms of gender bias are largely described as country-specific. For example, in India, Azam (2016) claims that

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[1] https://www.zawya.com/mena/en/legal/story/Severe_punishments_for_taking_private_tuitions_in_Oman-SNG_125056054/

[2] https://www.zawya.com/mena/en/legal/story/UAE_Private_tuition_classes_illegal_tutors_face_up_to_13612_fine-SNG_209939854/

gender bias is evident in sponsoring private tutoring classes for males. In contrast to the numbers found in India, South Korea's total spending on females' private tutoring exceeds that of males.

At the level of schooling, a positive correlation can be detected between the demand for private tutoring and the grade level. This implies that students moving to more advanced classes will be attending more tutoring sessions (Dang, 2007; Kim and Lee, 2010; Azam, 2016). Dang (2007) shows that 31% of students in primary school attend private tutoring sessions. These numbers jump up as the level of schooling increases; around 56% of students in lower secondary level depend on private tutoring compared to more than 77% for upper secondary level (Dang, 2007; Tansel and Bircan, 2006). This increase in percentages is linked to the examination process and the need for students to do better in a competitive schooling environment. Similarly, this demand increases as the student moves from one school level to another (for instance, from high school to college), seeking to vie for good grades before taking the university entrance exams (Dang, 2007; Kim and Lee, 2010; Azam, 2016). This is all rooted in the belief that better grades will guarantee acceptance to better colleges which will ultimately and positively shape students' future life opportunities (Dang, 2007). Salehi-Isfahani et al. (2009) find that Egyptian basic and secondary education is more targeted towards passing exams for university entrance to enhance productivity. These results are in line with those of Ali (2013) who finds that the rising demand for private tutoring in Jordan has emerged from the high-grade requirements for university admission and the growing competitiveness for university enrollment.

Even deeper in the discussion of grade level, the literature highlights the presence of personal factors and characteristics in determining the demand for tutoring. As indicated by a national sample covering students from grades 1-12, and using data

extracted from the China Family Panel Studies, Liu and Bray (2017) argue that students' expectations of future educational levels significantly increase demand for private tutoring. More ambitious students and those placing credence in their education seem to be more willing to seek private tutoring services, considering it as a future investment. Furthermore, students not satisfied with their school performance are more likely to participate in private tutoring, attempting to catch up with their peers academically. In Algeria, seeking better academic achievements, the majority of parents have shifted their focus towards giving their children private lessons, particularly in scientific subjects, believing that public education is becoming weaker and no longer sufficient for them. The results of Ghounane (2018) illustrate that the majority of the students have positive attitudes towards private education. The findings also suggest that the two main factors of this increase in demand for private tutoring are the overcrowded classrooms and the poor level of teaching.

Furthermore, in South Korea, Kim and Park (2010) argue that family circumstances such as socioeconomic background, household income, and parents' education are positively correlated with having a higher probability of seeking private tutoring. Having well-educated parents not only increases the number of tutoring hours but also shapes the way parents perceive the tutoring service, in the sense that it gets looked at as an investment in a child's educational journey (Kim and Park, 2010). Separately, high-income families have on average greater expenditures on private tutoring than those of lower-middle-income families (Dang, 2007), which supports the positive correlation between household income and private tutoring demand. Interestingly, driven by the sense of rivalry in the Korean culture, the proportion of classmates participating in private tutoring becomes a powerful determinant of demand for private tutoring, signaling a defense mechanism followed by their parents to make

sure that their children are well ranked in their classes. These findings show that not only the material and economic factors, but also the contextual and cultural factors in society play a big role in forecasting the demand for private tutoring.

Adding to the contextual discussion, Elamin et al. (2019) show that parents in Egypt considerably work more overtime jobs to cover their children's tutoring sessions, even under the current severe economic situation in the country. Private tutoring is approximately and equally demanded by affluent and lower-middle-income students in Egypt and the MENA region overall, making this a cultural quest for social mobility rather than a straightforward analysis of family income (Rizk and Abou-Ali, 2016). According to a survey by UNDP in 1997, 51% of lower-middle students and 60% of affluent students participated in private tutoring (UNDP, 2005; Assaad and Krafft, 2015). Hence, the heavy demand among the rich is met by significantly high demand among middle- and lower-income groups, considering it an investment in improving their current social status (Stastny, 2016).

Furthermore, the literature on the demand-side analysis suggests that - all else equal - household size is negatively correlated with demand for private tutoring, ascribing such relationship to budget issues per person (Jung and Lee, 2010; Azam, 2015; Stastny, 2016). Following this logic, with the implementation of the one-child policy, Chinese parents were capable of spending more on private tutoring owing to smaller family sizes and relatively more resources to distribute per family member (Liu and Bray, 2017).

Moving forward, having access to specific types of tools can greatly alter the educational process, significantly influencing demand for private tutoring. In this regard, owning a personal computer (PC) is positively correlated with the demand for

private tutoring, implying that private tutoring classes cannot be substituted by possessing a personal computer (Kim and Lee, 2010). The authors empirically expand upon the correlation between demand for private tutoring and possessing a PC by arguing that they are complementary features. We have attempted to use variables such as owning a computer and the availability of financial support from parents to make sure we capture the financial dimension of the tutoring process which is sort of a proxy for paid tutoring (Sieverding, 2019).

In another light, having a working mother in or outside the house is a contributing factor to the demand for private tutoring. A mother's employment decreases the probability of her child obtaining private tutoring by 2 percentage points, compared to having a non-employed mother (Jung and Lee, 2010). One possible interpretation is that working mothers, due to time constraints, are less likely to search for private tutoring services, resulting in kids' lower levels of attending private tutoring (Jung and Lee, 2010). This finding differs according to the nature of the mother's job. The authors note that maternal employment has a statistically significant negative influence on children's private tutoring for nonprofessional working moms, but this is not the case for professional working mothers. Thus, despite the time restrictions imposed by the need to work, professional working moms have less severe time constraints than their nonprofessional counterparts, and they strongly prefer private tutoring for their children (Jung and Lee, 2010). Aside from the working mother's effect, the impact of having a working father has been negligible on private tutoring (Kim and Lee, 2010). This is markedly evident in the case of Asian mothers who primarily stay at home (Kim and Lee, 2010).

On another note, demand for private tutoring has intensified due to its correlation with several factors, such as the ineffectiveness and the corruption level at

public schools. The flawed mechanisms espoused by public schools entice parents to seek private tutoring classes, attempting to compensate for the deficiencies of public schools (Kim and Lee, 2010). Dang (2007) argues that private tutoring represents a middle-ground solution between inefficient and unsatisfactory public schools and fee exorbitant private schools. Thus, private tutoring appears to be noticeably substituting the role of formal education, particularly in the case of not properly functioning public schools.

In his paper, Buchmann (1999) also examines how the situation of public schools affects the spread of private tutoring in developing countries. Developing countries are known for their low educational expenditures which typically results in low wages of teachers working in the public sector; this has both supply and demand repercussions. Demand-wise, teachers in those public schools may be discouraged to work efficiently due to their low wages which may force students to choose private tutoring with their teachers as an alternative. On the supply side, this makes private tutoring similar to bribery acts in the public system where teachers encourage students to take private classes to increase their income and fulfill their financial needs. Due to this type of unethical practice in public schools, parents in Egypt start to rely more on private tutoring when enrolling their children in public schools to ensure that their children are well versed with basic academic material to prepare them for future educational commitment (Kabadaya, 2020).

Finally, demand for private tutoring in urban areas appears to be noticeably greater than that of rural areas (Dang 2007; Kim and Lee 2010; Azam 2016; Liu and Bray 2017). Furthermore, tutoring centers are concentrated in densely populated urban areas, making it much more difficult for students residing in rural areas to have access to such centers (Bray et al., 2014).

2.2 Education systems: Selected country comparisons

Different educational systems have different ways of functioning among the examined data. More specifically, the Lebanese system is characterized by the strong presence of non-government organizations (NGOs) that are heavily involved in providing internet-based affordable tutoring services to those in need (Shuayb et al., 2014). On the other hand, Morocco and Algeria seem to have less involvement from NGOs and more internet-based independent tutors (Rhazal et al., 2018).

Case of Egypt

Egypt's future performance is highly dependent on individuals obtaining a high-quality education that prepares them for life in a swiftly changing economic and social environment. While the government has made significant progress in expanding access to elementary and secondary education as well as increasing females' enrollment in education, the system has failed to offer the quality of education required to meet the country's educational, economic, and social goals (PwC, 2018/2019). One of the main challenges of the education system in Egypt is the mismatch between the educational system's outputs and the demands of the labor market which is one of the main drivers for Egypt's continuously high unemployment rate (Loveluck, 2012). Because of the low quality of public education and the unqualified teachers, an informal sector has emerged where private tutoring is utilized to fill the educational gaps of the formal sector (Loveluck, 2012). This will lead teachers more often to be discouraged from finishing their lesson preparations due to the prominence of private tutoring where many instructors augment their income by working as private tutors. This creates a conflict of interest since students' incentives to pay for extra help would be reduced if they excelled in their state-funded classes. However, Ille and Peacey (2019) suggest

that the private tutoring phenomenon is a roadblock to better public education since it encourages students to drop out of schools and only rely on private lessons. This is why the government of Egypt has announced laws to prohibit private tutoring (decree No. 53 of the Ministry of Education).

Case of Lebanon

Even while Lebanese households have a high perception of education quality in Lebanon, the reality reveals that the country is experiencing a learning crisis. In addition to low levels of learning, Lebanon has a significant level of inequity, with large inequalities in learning outcomes between the wealthiest and poorest students; at all grade levels, a gender gap in math skills favors boys, while a reverse gender gap in reading skills favors girls. The higher-than-average incidence of verbal and physical violence in Lebanese schools has been verified by international assessments to harm student learning results. Despite a generally positive perception of educational quality, the study found discrepancies in parent satisfaction between public and private schools (Abdul-Hamid and Yassine, 2020). In fact, public schools account for less than 30% of Lebanon's education, a share that has been declining over the last decade due to concerns about quality education (Jalbout, 2015). In comparison to empirical studies, the majority of research on education policy in Lebanon has been descriptive and historical. They are primarily directed towards Lebanese education policy, with only a few studies examining the topic in comparison to other countries.

Case of Tunisia

In Tunisia, parents are more interested in seeking private education because schools repeatedly fail to persuade them of the quality of what they offer. Tunisia's citizens appear to have lost faith in their public schools. Surprisingly, many Tunisian secondary

school students are required to "shift" their learning in a variety of disciplines out from traditional classrooms into other types of out-of-school teaching. It is safe to assume that every student receives extra lessons at some point during their education; In Tunisia, private education is almost certainly a necessary activity to keep up (Milovanovitch, 2014). Students from wealthy families can afford to take additional lessons more frequently than students from less wealthy ones, widening an already growing gap in educational quality among Tunisians.[3] Is private teaching a kind of corruption? It can be, for instance, when professors get their students to take private classes to pass a test (Bray, 2013). It is nearly assured that out-of-school education, private tutoring in specific, is a phenomenon that attracts many countries' interest and concern, particularly those in the MENA region (Milovanovitch, 2014). It is interesting to note that unlike some countries in the MENA region, in Tunisia, it is perfectly allowed for anyone to give private lessons.

Case of Morocco

Policymakers in Morocco understood the importance of putting education at the center of the country's socioeconomic and political future. Immediately after independence in 1956, Morocco's schools saw substantial growth in the number of students enrolled; yet the quality of education did not improve. Moreover, Moroccan schools are regarded as underperforming by individuals (Aourraz, 2017). According to a study on private tutoring in Morocco by (Minor, 2012), the main sources of motivation for Moroccan students to seek private tutoring are their desire to fill up knowledge gaps and, as a result, become competent for examinations. This means that high school students have a variety of issues with their learning. Students become incompetent and afraid of

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[3] www.oecd.org/pisa/pisaproducts/46581016.pdf

exams both inside and outside of school, making them interested in acquiring private tutoring. Furthermore, several respondents said that the students' level is poor when compared to the level of the school program. As a result, it becomes critical for students to obtain additional private lessons to catch up and prepare for exams (Minor, 2012).

Case of Algeria

In 2003, major educational reforms were adopted, including the introduction of new teaching methods, a redesigned curriculum, and the switch from French to Modern Standard Arabic as the teaching language. Despite these efforts, the United Nations Special Rapporteur on Education determined in 2015 that the quality of education in Algeria remains low, highlighting inadequate teacher training and overcrowding as the biggest barriers (Kwasi and Cilliers, 2020). Moreover, Ghounane (2018) reflects on the fact that teachers are underpaid in Algeria, driving the quality of teaching in schools to decline. Consequently, those teachers will offer their teaching services and encourage students to take some extra sessions out of school. This phenomenon, according to Bray (2007), is the main factor behind the widespread of private tutoring.

3. Data and Methodology

The data used in this paper is a unique and novel micro-level data extracted from the SAHWA Youth Survey (2016). This survey is a multi-country survey conducted in five MENA countries, Egypt, Algeria, Lebanon, Morocco, and Tunisia. Also, it is being carried out in the framework of the SAHWA Project.[4] The survey includes a comprehensive set of variables on the labor market, education, culture and values, migration, and political perception of youth. The data is unique in the sense that it is

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[4] The SAHWA Youth Survey is a major output of the SAHWA project funded by the EU. More details about the SAHWA project can be found in this link http://sahwa.eu/Media/Sahwa/Youth-Survey

the only available detailed survey on the topic of private tutoring covering the MENA region. The survey is a nationally representative sample of youth in the MENA region and consists of 9,860 observations, targeting a sample of Arab youth aged between 15 and 29 years. Our final sample comprises 3,984 observations after excluding observations with missing values for covariates and restricting the sample to current students.

3.1 Variables

We start with the dependent variable. In the survey, youth were asked to answer the following question on private tutoring, 'Do you/have you had private tutoring?'. Thus, the dependent variable is defined as a dummy variable that takes the value of one if the respondent takes private tutoring and zero otherwise. Therefore, the dependent variable indicates if the youth is taking private lessons or not. It is worth noting the reference group is the category of students who did not receive any private tutoring.

The independent variables are classified into four categories, youth characteristics, households' characteristics, perception of youth, and country of residence. Starting with youth characteristics, gender is a dummy variable that is equal to one if the youth is a male and zero if the respondent is a female, which is defined as the reference group (omitted category). Age is a variable indicating the age of each respondent measured in years. Age squared is also a variable related to age. Education is a categorical variable that includes three categories: primary, middle, and secondary. Each one of them is defined as a binary variable that indicates the respondents' educational level. Specifically, the primary school variable takes the value of one if the student is in primary school, and zero otherwise. The middle school variable takes the value of one if the student is in middle school, and zero otherwise. Similarly, the secondary school takes the value of one if the student is in secondary school, and zero

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otherwise. We consider the primary education level to be the reference group in the regression. In addition, the type of respondent's school is characterized by a dummy variable taking the value of one if the student is attending a public school, and zero if he/she is attending a private school (reference group). Owning a computer is addressed by taking a binary variable of zero when possessing a computer, and zero otherwise (reference group). The variable to own a computer measures to what extent technology has been employed including the use of the Internet. Lastly, a binary variable is being used to manifest whether the respondent receives parents' financial support. This latter is a binary variable that takes the value of one if youth received financial support from parents and zero otherwise (reference group). The student's place of residence is controlled by a binary variable taking the value of one if the respondent lives in urban areas, and zero otherwise (reference group). Finally, we have added an interaction term of income and parents' higher education to capture the correlation of these two variables.

Moving to the households' characteristics, income[5] is defined in terms of monthly salary expressed in $US. The father's and mother's education level is controlled by categorical variables that include three categories: no education, basic education (primary, middle, secondary), and higher education. We consider the reference group to be the category no education. Father's occupation is described in two dummy variables self-employed and being a manager. Specifically, the variable self-employed takes the value of one if the father is self-employed, and zero otherwise (reference group), while being a manager is also a dummy variable that takes the value of one if the father is a manager in a company and zero otherwise (reference group).

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[5] The SAHWA Youth Survey asks youth about their monthly income in national currency. The national currencies then converted into a comparable value that takes into account the different exchange level and prices level of each country. This comparable value is based on the purchasing power parity (PPP) extracted from the World Bank.

Finally, we use a dummy variable for the mother's employment status taking the value of one if the mother works, and zero otherwise where the reference group is the category of those who do not work.

Students' perception has been addressed with five different variables, including frequently speaking about school performance, no confidence in education, university aspiration, the importance of education, and if corruption takes place in the country. Frequently speaking about their school performance is a dummy variable indicating if the students talk regularly about their school performance with parents and zero otherwise (reference group). Having no confidence in education is also a dummy variable that takes the value of one if the youth place no credence in the educational system of their schools and zero otherwise (reference group). University aspiration is another dummy variable indicating the motivation of students to work hard and attain a university degree in category one and zero otherwise (no aspiration is defined to be the reference group). The importance of education has been addressed by a dummy variable that takes the value of one if the students place the importance of education and zero otherwise (reference group). Finally, we have added a binary corruption variable which measures how bad do respondents think corruption is in their respective country that has the value of one if the respondent believes the country has a widespread corruption problem and zero otherwise (reference group).

At last, country variables addressing the location of youth are also integrated among the independent variables. The regional variables are five binary variables covering the studied countries, Egypt, Algeria, Lebanon, Morocco, and Tunisia. We define Egypt to be the omitted category for the country variable.

3.2 Summary Statistics

Table 1 shows the summary statistics of the used variables in the regressions across all countries, while Table 2 displays country-specific summary statistics. The dependent variable shows that 40% of the examined youth take/took private lessons, where 83% of the studied students in Egypt benefited from private tutoring compared to 49% in Algeria, 7% in Lebanon, 27% in Morocco, and 59% in Tunisia. The independent variables show that males and females are equally represented in the sample. The average age is around 18 years. 14 % of the examined students attend middle school and 46% attend secondary school, while the remaining 40% attend primary school. We also observe around 80% of respondents attend public schools; interestingly, Lebanon records 35% of public school attendance which is relatively much lower than other countries recording a rate above 90%. In addition, it is found that 68% of students own a computer, and it is observed that Egypt ranks at the bottom while Lebanon records the highest rate in terms of computer ownership.

When it comes to financial support, 87% of youth receive financial support from parents which does not vary much across countries. 70% of youth live in urban areas on average. Second, household characteristics show that the average size of the household is around 5 members. The statistics show that 65% of fathers finished school studies, compared with 17% of them completed higher education. Regarding mothers, 63% of them finished school studies, compared with only 10% of them completed higher education. We notice that mothers' education is particularly low in Algeria, Morocco, and Tunisia recording a rate below 10% where Morocco records the lowest percentage. Self-employed fathers are 25% and managers are 25%, while 66% of mothers are working mothers. There is a prominent variability in terms of the latter variables across countries, but the most intriguing observation would be the non-

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existence of a self-employed father, a father in a managerial position, and a working mother in Egypt across the sample.

The perception of students on education shows that the frequency of discussing school performance with parents is 39% overall, ranging from 25% in Egypt, 39% in Algeria, 62% in Lebanon, 14% in Morocco, and 48% in Tunisia. In addition, 13% of overall students lack confidence in the educational system with Egyptians recording a 94% high lack of confidence, while Lebanese record the lowest 11%. We find that 88% of overall students have university aspirations that are particularly high in Algeria, Morocco, and Tunisia. 13% of them think that education is important; however, this perception is significantly low in Lebanon and Tunisia (2% and 10%, respectively). Moreover, 91% of the students believe that corruption takes place in the country where we do not notice much variability of this indicator across countries.

[Insert Table 1 here]

Moving to summary statistics per country in Table 3 (distribution of youth with private tutoring by characteristics), we show the percentage of those who receive private tutoring by each category of independent variables. We find that males make up half of the students who receive private tutoring in Egypt and Lebanon, while they are less than half in other countries. Morocco has the least male participation in private tutoring (21%). The results also show that private tutoring is mainly given at the secondary school level, and the majority of students taking private tutoring, across all countries, come from a public school except for Lebanon (only 30% of the privately tutored students go to public schools). More than half of the students receiving private tutoring own a computer, receive financial support from their parents, and live in urban

areas across all countries. We do not notice striking differences among household characteristics between Table 2 and Table 3.

An interesting observation lies in the distribution of privately tutored students who lack confidence in education. The percentage is much lower across all countries as compared with the whole sample in Table 2. For instance, the lack of confidence rate dropped in Egypt from 94% among all students to 26% among students with private education; the same applies to the education aspirations in the case of Egypt where the rate increased from 15% to 96%. As for their perception about the importance of education, privately tutored students reported a 14% in Egypt (a lower rate than the whole sample), 16% in Algeria, 13% in Lebanon, 32% in Morocco, and 12% in Tunisia which record a higher rate as compared with Table 2. Concerning corruption, students who receive private tutoring seem to perceive their country as more corrupted as compared to the whole sample.

[Insert Table 2 here]

[Insert Table 3 here]

3.3 Empirical Model

The purpose of this paper is to emphasize the factors affecting the demand for private tutoring among youth in the MENA region. Let P_i^* denote the utility from taking private classes to the youth i *(i=1,…,I)* who lives in country *c (c= 1,…, C)*. However, the variable P_i^* is not observed in the data. What is observed is the decision of taking private tutoring or not. Therefore, a probit model is used. The model can be presented as:

$$P_i^* = Y_i\alpha + H_i\beta + Pr_i\gamma + Z_c\delta + u_i$$

With the following probit rule:

$$P_i = \{1 \; if \; P_i^* \geq 0$$

$$0 \; if \; P_i^* < 0$$

Where P_i is a dummy variable taking the value of one if the person takes private tutoring and zero otherwise, Y_i is a vector of variables describing youth characteristics, H_i is the vector of variables describing household characteristics, Pr_i is the vector of variables describing the perception of students on education, Z_c is the variable representing the country of residence, and u_i is the stochastic error term. Finally, $\alpha, \beta, \gamma, and \; \delta$ are all vectors of youth and households' parameters to be estimated. We then compute the marginal effects of the estimated parameters. The marginal effect is defined as the infinitesimal change in the probability in each independent continuous variable and the discrete change in the probability for dummy variables. These are calculated at the means of the variables.

4. Empirical Results

4.1 Decision to attend private tutoring classes: Benchmark results

Table 4 presents the empirical findings of the probit model in terms of average marginal effects. There are three models tested in which a different combination of variables is integrated into each model. We have constructed the three models to capture various sets of variables. The first model includes the youth characteristics that capture separately the coefficients of these variables concerning the demand for private tutoring. Model 2 adds the way education is perceived and frequently speaking about school performance. This provides a more robust and greater scope in explaining the results in light of how important education is to students and their families. Moreover, model 3 adds a third layer of variables which is country-specific along with interaction

terms that capture a unique aspect on demand for private tutoring by shedding light on differences among sampled countries.[6]

Starting with youth characteristics, the results reveal that being male is negatively correlated with the probability of taking private classes compared to the omitted category of being a female, noting that its coefficient is statistically significant in all models. This is consistent with the findings of Kim and Lee (2010) from South Korea, largely emphasizing the gender element in influencing private tutoring. In contrast, the findings of Azam (2016) show a pro-male bias to enroll in private tutoring in India. As a student gets older, the tendency of taking private tutoring increases, largely consistent with the results of attending middle and secondary school.

Having significant and negative results, the tables show that attending middle school is negatively correlated with the demand for private tutoring. On the other hand, attending secondary school is positively correlated with the demand for private tutoring compared to the omitted category of primary education. Hence, private tutoring's demand increases as students get older, transitioning from middle to secondary school. This result is merely consistent with taking age as a proxy variable for schooling, indicating the role of age in demanding private tutoring. These results are in line with the findings of Kim and Lee (2010) and Tansel and Bircan (2006) whose main arguments revolve around the correlation between preparing for university and demand for private tutoring.

The results also confirm the robustness of the mother's education relative to that of the fathers. Mother's education significantly correlated with the demand for private

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[6] We conduct a robustness check analysis for the whole sample. We also conduct a 70:30 cross-validation random split. Specifically, we divide the sample into 70% and 30% and run the same regressions. The results overall remain qualitatively unchanged.

tutoring. Mother's basic education increases the likelihood of taking extra classes by 6.5 percentage points and mother's higher education decreases that probability by 1.7 percentage points compared to the omitted category of no education. Furthermore, the father's basic education increases the likelihood of taking extra classes by 3.9 percentage points, and the father's higher education increases it by 15.5 percentage points compared to the omitted category of no education. These two variables, along with the rate of university completion, can markedly alter intergenerational skill mobility, opening the door for future research in this discipline.

Furthermore, having a manager father is correlated with a lower probability of taking private tutoring by -7.1 percentage points compared to the omitted category in which the father is not a manager. By the same token, having a working mother has a significant and a negative coefficient, decreasing the probability of taking private tutoring by around -26.2 percentages points compared to the omitted category of not working, corroborating the claims of Jung and Lee (2010) that working mothers have no time to search for private tutoring centers or tutors, largely justifying the negative correlation between having a working mother and demand for private tutoring. Although some may nullify this negative correlation by arguing that working mothers are more in need of such services and they have greater ability to pay for private tutoring, the working environment for women in the MENA region may not guarantee the latter scenario. In particular, a significant number of Arab countries still suffer from gender pay gaps along with inadequate childcare policies and entitlements that can secure funds for private tutoring. Although efforts are made to pass law amendments in several countries to secure equal pay, discrimination against women regarding paid work and childcare benefits is still evident (Yassin et al., 2016).

Moreover, we have included the interactive terms of family income with father's education in model three. This interaction term has a positive coefficient of -0.19 but is insignificant, and the interactive terms of family income with mother's education is insignificant with a negative coefficient of 0.52. These interactive terms examine the dynamics of the interactions of these variables.

Finally, when looking into the effects of country, we find that in all the sampled countries, i.e. in Algeria, Lebanon, Morocco, and Tunisia, youth are less likely to receive private tutoring compared to the omitted category of Egypt, emphasizing the spread level of private tutoring in the country.

[Insert Table 4 here]

4.2 Results by country

This section seeks to identify the empirical results by country. The results are shown in Table 5. Starting with youth characteristics, being a male has a negative correlation with the demand for private tutoring, and being male is also statistically significant and exhibits a lower probability of attending private tutoring by -7.7 percentage points in the case of Tunisia, -7.9 percentage points in Egypt, -5.1 percentage points in Algeria, -0.2 percentage points in Lebanon and -8.2 percentage points in Morocco compared to the omitted category of being a female.

The age variable is positively and statistically significant in Algeria, increasing the probability of taking private tutoring classes by 14.1 percentage points, 7.7 percentage points in Egypt, 1.4 percentage points in Lebanon, 6.6 percentage points in Morocco, but – 5 percentage points in Tunisia. Attending middle school, compared to the omitted category of having primary education, has a negative correlation with private tutoring and its coefficient is statistically significant in the case of Egypt,

indicating lower probabilities to attend private tutoring classes by 10 percentage points, -5.5 percentage points in Algeria, -23.8 percentage points in Tunisia, but 1 and 2.3 percentage points in Lebanon and Morocco, respectively. Owning a computer has a positive and significant coefficient in Egypt, and Tunisia, exhibiting higher probabilities by 7.5 and 16 percentage points, respectively, compared to the omitted category of having no computer. Obtaining financial support from parents is significant in Lebanon, Morocco, and Tunisia, with varying values of coefficients among countries. Obtaining financial support from parents lowers the probability of seeking private tutoring by -2.2 and -4.7 percentage points in Lebanon and Morocco, respectively, but increases the probability by 9.8 percentage points in Egypt compared to the omitted category of having no financial support. Finally, the coefficient of living in urban areas is statistically and positively significant in all countries except Lebanon, indicating higher probabilities to take private tutoring by 11.4, 7.9, 10.4, and 17.9 percentage points in Egypt, Algeria, Morocco, and Tunisia, respectively, compared to the omitted category of living in the rural areas. Thus, we can realize that the variable of residing in an urban area is positive and statistically significant.

Having a self-employed father has a statistically significant coefficient in all the studied countries, compared to the omitted category that includes all other types of employment, resulting in a negative marginal coefficient in Lebanon while producing a positive coefficient in Tunisia. Having a manager father has a positive and a statistically significant coefficient in the case of Lebanon, Morocco, and Tunisia, indicating higher probabilities by -3.9, 22.7, and 21.2 percentage points, respectively, compared to the omitted category of not being in the management. The coefficient of mother's employment is statistically significant in Morocco, and Tunisia, having a negative coefficient and indicating lower probabilities to attend private tutoring classes

by -1.0, -4.5, and -2.9 percentage points, in Morocco, and Tunisia, respectively, compared to the omitted category if the mother does not work.

Regarding students' perception of education, frequently speaking about school performance with parents all have coefficients that are positively and statistically significant in all countries except Morocco, indicating higher probabilities of taking private tutoring by 5.7, 7.2, and 2.4 percentage points in Egypt, Algeria, and Lebanon, respectively, but frequently speaking about school performance has a negative and significant correlation of -2.2 percentage points in Tunisia, compared to the omitted category of not talking frequently with parents. This negative and significant correlation in Tunisia might entail that the lower the possibility for students to speak up about their performance in school, the more likely they receive private tutoring. If students refrain from talking about their performance, there is a higher chance that they would be dissatisfied with their school performance, or facing certain difficulties; hence, they may require some external assistance in the form of private tutoring. Perceiving education as an important process, compared to the omitted category if youth think that education is not important, has a positive and significant marginal correlation in the case of Lebanon, Morocco, and Tunisia increasing demand for private tutoring by 4.1 percentage points in Lebanon, compared to a 9.1 percentage points increase in Morocco and a 13.9 percentage points in Tunisia.

[Insert Table 5 here]

5. Concluding Remarks
This paper seeks to identify the determinants of private tutoring in the MENA region, extracting samples from Egypt, Algeria, Lebanon, Morocco, and Tunisia, while emphasizing country-specific results

Driven by the lack of sufficient attention in the literature regarding the determinants of private tutoring in the MENA region, this paper attempts to meticulously scrutinize the determinants of private tutoring, utilizing unique datasets of the SAHWA survey of 2016.

The paper examines the role of youth characteristics, modeling the demand-side determinants of private tutoring across students. We empirically conclude that being male decreases the probability of taking private tutoring. The study also scrutinizes other factors, such as age, attending secondary and public school, owning a computer, and receiving financial support from parents; all of these increase the probability of demanding private tutoring. Furthermore, our regression models validate that students' perception of education is significant, heavily influencing the demand for private tutoring: the lack of confidence in the educational system, the student's university aspiration, and the importance of education for students are all positively correlated with obtaining private tutoring.

The paper also addresses the household determinants; deliberately showing that having high-income and educated parents increases the likelihood of attending private classes. Unlike the correlation with having an employed father, having an employed mother is negatively correlated with the demand for private tutoring. The paper concludes that the correlation between the urban residence variable and private tutoring is of varying importance. In the same regard, demand for private tutoring in urban areas appears to be significantly greater than that of rural areas, potentially owing to students' and parents' perceptions of the importance of education. Hence, to understand what drives students towards tutoring sessions and how to manipulate this demand, policymakers must understand how students value their education. Ultimately, the educational system in the MENA needs to reach a healthy equilibrium where the

demand for private tutoring is not fueled by poorly performing public schools, ill-intentioned teachers, the quest for social mobility in a restrictive economy, or competition for demonstrating family wealth.

This study indicates that the household variables - family income, parents' education, and employment- greatly affect demand for private tutoring, which could be linked to separate effects of student performance. Hence, one implication could be providing equal access to tutoring among different social classes. Choi (2012) argues that subsidizing private tutoring for low-income students can greatly enhance social mobility, allowing poor people to afford extra classes to bridge any educational gap with financially well-off students. This policy recommendation is particularly related to investing in future human capital and intergenerational skills and social mobility, heavily combating grievances and inequality between social classes this is in line with the findings of Hartmann (2013) who suggest that inequity starts from the formal sector and the gaps get widened by the expensive tutoring service. However, this does not tackle the quality of education and remains a superficial cover to mask the effects of a flawed educational system.

This paper recommends robust governmental actions, fundamentally tackling the exacerbating problems of the educational system, particularly those of public schools, ensuring that public school students receive standardized satisfactory quality education and that public school teachers are fairly compensated for their efforts. These actions should be tailored to the specific needs of the country. More specifically, the low level of university aspiration in Egypt is an issue that should be addressed as part of the national strategy to reform the educational system and resolve the related challenges. On the other hand, attending public schools significantly increases the likelihood of attending private tutoring. This should be an alarming indicator to

policymakers to address all challenges that public schooling attendees suffer from as part of examining the country-specific issues regarding the topic of private tutoring. Achieving such a goal will deepen students' trust in the educational system, offering equal opportunities to students for future endeavors. As a result, by reducing the effects of an unbalanced educational system on demand for private tutoring, future studies can focus more on the personal and specific attributes such as student ability, personal preference, and mental health conditions on the choice of acquiring private tutoring services.

Finally, it is worth mentioning that this paper faces some limitations of secondary importance. The analysis could have looked further into the differential impacts of student performance at school in terms of test scores and results satisfaction. Whether to opt for private tutoring or not may differ when looking at the extent to which students are performing well at school from their perspective and from the parent's perspective too. However, the paper is bounded by the set of variables addressed in the SAHWA youth survey which may not include all desired explanatory variables. A possible extension for future research would be the use of panel data to address the choice of private tutoring across different intervals of time; this would account for unobservable characteristics and may pave the road for a cause-effect relationship giving more precise and unbiased estimates. Another area that holds room for further investigation is the positive correlation between urban residency and the demand for private tutoring; future researchers may examine whether this correlation holds from a demand-side standpoint, or it stems from an excess supply of private tutoring services in urban areas.

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Table 1. Weighted summary statistics (all countries)

	Mean	Distribution of youth with private tutoring by characteristics (%)
Dependent Variable		
Taking Private Tutoring (d)	0.40	
Independent Variables		
Youth Characteristics		
Gender: Male (d)	0.51	50
Age	18.94	
School Level: Primary (d)	0.01	1
School Level: Middle (d)	0.14	9
School Level: Secondary (d)	0.46	50
School Type : Public (d)	0.80	93
Own a computer (d)	0.68	69
Financial support from parents (d)	0.87	89
Area of residence: Urban (d)	0.70	73
Household Characteristics		
Fathers with no education (d)	0.18	16
Father's basic education (d)	0.65	63
Father's higher education (d)	0.17	21
Mothers with no education (d)	0.27	24
Mother's basic education(d)	0.63	63
Mother's higher education (d)	0.10	12
Self-employed father (d)	0.25	19
Father is a manager (d)	0.25	22
Employed mother (d)	0.66	52
Perception of Youth		
Frequently Speaking about school performance (d)	0.39	37
No Confidence in education (d)	0.13	18
University aspiration (d)	0.88	91
Education is important (d)	0.13	17
Corruption taking place in country (d)	0.91	93
Country		
Egypt	0.15	31
Algeria	0.19	25
Lebanon	0.26	4
Morocco	0.22	15
Tunisia	0.17	25
N	3,984	

Notes: (d) for discrete change of dummy variable from 0 to 1. Our set of independent variables includes two categorical variables: i) education of youth variable that contains three categories: primary, middle, and secondary and ii) father's and mother's education level that include also three categories: no education, basic education, and higher education. These variables are implemented with dummies. The distribution of youth with private tutoring by characteristics is shown only for dummy variables.

Table 2. Weighted country specific summary statistics (Mean)

	Egypt	Algeria	Lebanon	Morocco	Tunisia
Dependent Variable					
Taking Private Tutoring (d)	0.83	0.49	0.07	0.27	0.59
Independent Variables					
Youth Characteristics					
Gender: Male (d)	0.55	0.46	0.52	0.52	0.49
Age	19.22	19.34	18.22	19.35	18.81
School Level: Primary (d)	0.02	0.01	0.01	0.03	0.01
School Level: Middle (d)	0.05	0.16	0.19	0.14	0.11
School Level: Secondary (d)	0.49	0.41	0.39	0.43	0.61
School Type : Public (d)	0.97	0.99	0.35	0.96	0.92
Own a computer (d)	0.52	0.64	0.84	0.62	0.68
Financial support from parents (d)	0.89	0.89	0.90	0.78	0.92
Area of residence: Urban (d)	0.47	0.71	0.77	0.65	0.79
Household Characteristics					
Fathers with no education (d)	0.21	0.26	0.04	0.33	0.09
Father's basic education (d)	0.52	0.64	0.75	0.53	0.77
Father's higher education (d)	0.22	0.15	0.21	0.13	0.14
Mothers with no education (d)	0.31	0.39	0.03	0.51	0.17
Mother's basic education(d)	0.49	0.62	0.79	0.45	0.74
Mother's higher education (d)	0.12	0.07	0.18	0.04	0.09
Self-employed father (d)	0.00	0.20	0.36	0.40	0.18
Father is a manager (d)	0.00	0.16	0.47	0.15	0.37
Employed mother (d)	0.00	0.82	0.72	0.86	0.74
Perception of Youth					
Frequently speaking about school performance (d)	0.25	0.39	0.62	0.14	0.48
No confidence in education (d)	0.94	0.16	0.11		0.21
University aspiration (d)	0.15	0.91	0.96	0.68	0.93
Education is important (d)	0.83	0.16	0.02	0.26	0.10
Corruption taking place in country (d)	0.93	0.95	0.92	0.80	0.98
N	600	805	989	930	660

Notes: (d) for discrete change of dummy variable from 0 to 1. Our set of independent variables includes two categorical variables: i) education of youth variable that contains three categories: primary, middle, and secondary and ii) father's and mother's education level that include also three categories: no education, basic education, and higher education. These variables are implemented with dummies.

Table 3. Weighted country specific summary statistics (Distribution of youth with private tutoring by characteristics in %)

	Egypt	Algeria	Lebanon	Morocco	Tunisia
Youth Characteristics					
Gender: Male (d)	53	47	54	21	47
Age					
School Level: Primary (d)	0	2	0	3	1
School Level: Middle (d)	4	12	14	13	8
School Level: Secondary (d)	47	46	42	47	59
School Type : Public (d)	97	99	30	93	94
Own a computer (d)	57	73	84	66	78
Financial support from parents (d)	90	90	86	79	93
Area of residence: Urban (d)	53	79	74	80	87
Household Characteristics					
Fathers with no education (d)	14	23	7	23	7
Father's basic education(d)	52	67	71	58	74
Father's higher education (d)	25	20	19	17	18
Mothers with no education (d)	21	34	3	39	11
Mother's basic education(d)	52	70	30	53	77
Mother's higher education (d)	14	9	26	6	12
Self-employed father (d)	0	21	30	47	21
Father is a manager (d)	0	22	42	24	46
Employed mother (d)	0	78	67	84	69
Perception of Youth					
Frequently speaking about school performance (d)	26	46	67	16	50
No confidence in education (d)	26	18	6	0	20
University aspiration (d)	96	93	93	70	95
Education is important (d)	14	16	13	32	12
Corruption taking place in country (d)	93	92	93	84	98
N	600	805	989	930	660

Notes: (d) for discrete change of dummy variable from 0 to 1. The distribution of youth with private tutoring by characteristics is shown only for dummy variables. Our set of independent variables includes two categorical variables: i) education of youth variable that contains three categories: primary, middle, and secondary and ii) father's and mother's education level that include also three categories: no education, basic education, and higher education. These variables are implemented with dummies.

Table 4. Determinants of private tutoring (probit model, marginal effects), weighted results

	(1)	(2)	(3)
Youth Characteristics			
Male (female omitted)	-0.050***	-0.055***	-0.071***
	(0.017)	(0.018)	(0.019)
	[-2.86]	[-3.13]	[-3.82]
Age	0.133***	0.129***	0.054
	(0.035)	(0.036)	(0.037)
	[3.76]	[3.61]	[1.47]
Age squared	-0.003***	-0.003***	-0.001
	(0.001)	(0.001)	(0.001)
	[-3.60]	[-3.46]	[-1.51]
School Level: Middle (primary education omitted)	-0.088**	-0.081**	-0.086**
	(0.035)	(0.036)	(0.037)
	[-2.45]	[-2.18]	[-2.25]
School Level: Secondary (primary education omitted)	0.040*	0.043*	0.002
	(0.024)	(0.024)	(0.025)
	[1.70]	[1.81]	[0.07]
School Type: Public (private school omitted)	0.349***	0.347***	0.014
	(0.017)	(0.018)	(0.037)
	[14.91]	[14.57]	[0.37]
Own a computer (no computer omitted)	0.043**	0.037*	0.071***
	(0.020)	(0.020)	(0.021)
	[2.10]	[1.79]	[3.30]
Financial support from parents (no financial support omitted)	0.066**	0.068**	-0.008
	(0.027)	(0.027)	(0.031)
	[2.36]	[2.41]	[-0.27]
Urban (rural omitted)	0.107***	0.103***	0.108***
	(0.019)	(0.019)	(0.021)
	[5.47]	[5.23]	[4.91]
Household Characteristics			
Income	0.014	0.016	-0.003
	(0.014)	(0.014)	(0.018)
	[1.01]	[1.11]	[-0.19]

Father's basic education(no education omitted)	0.039	0.036	0.014
	(0.028)	(0.028)	(0.029)
	[1.40]	[1.30]	[0.48]
Father's higher education (no education omitted)	0.155***	0.153***	0.050
	(0.039)	(0.039)	(0.041)
	[4.02]	[3.97]	[1.25]
Mother's basic education(no education omitted)	0.065***	0.065***	0.112***
	(0.024)	(0.025)	(0.025)
	[2.63	[2.58]	[4.37]
Mother's higher education (no education omitted)	-0.017	-0.008	0.163***
	(0.041)	(0.042)	(0.049)
	[-0.40]	[-0.19]	[3.39]
Self-employed father (all other types of employment omitted)	-0.109***	-0.104***	0.074***
	(0.021)	(0.021)	(0.026)
	[-4.97]	[-4.70]	[2.85]
Father is a manager (father is not in the management omitted)	-0.071***	-0.063***	0.126***
	(0.023)	(0.024)	(0.029)
	[-3.00]	[-2.64]	[4.42]
Employed mother (the mother does not work omitted)	-0.262***	-0.251***	-0.029
	(0.020)	(0.020)	(0.028)
	[-12.81]	[-12.18]	[-1.03]

Perception of Youth

Frequently speaking about school performance (do not talk frequently omitted)		-0.004	0.037*
		(0.019)	(0.021)
		[-0.23]	[1.76]
No confidence in education (having confidence in the education system omitted)		0.066***	-0.020
		(0.025)	(0.026)
		[2.70]	[-0.77]
University aspiration (no aspiration to work hard and attain university omitted)		0.111***	0.063**
		(0.026)	(0.029)
		[3.99]	[2.11]
Education is important (if students think that education is not important omitted)		0.097***	0.083***
		(0.027)	(0.028)
		[3.61]	[2.98]
Corruption taking place in the country (no corruption in the country omitted)		-0.021	-0.001

		(0.033)	(0.035)
		[-0.63]	[-0.04]
Interaction Terms			
Income*Father's higher education			-0.019
			(0.035)
			[-0.56]
Income*Mother's higher education			0.052
			(0.046)
			[1.14]
Country			
Algeria (Egypt omitted)			-0.355***
			(0.024)
			[-11.07]
Lebanon (Egypt omitted)			-0.659***
			(0.016)
			[-20.47]
Morocco (Egypt omitted)			-0.467***
			(0.020)
			[-15.16]
Tunisia (Egypt omitted)			-0.320***
			(0.025)
			[-9.53]
N		3,955	3,954	3,954

Notes: The reference group (omitted category) of each variable is between parentheses. Our set of independent variables includes two categorical variables: i) education of youth variable that contains three categories: primary, middle, and secondary and ii) father's and mother's education level that include also three categories: no education, basic education, and higher education. These variables are implemented with dummies. Statistical significance: * $p<0.100$, ** $p<0.050$, *** $p<0.010$. Robust standard errors are between parentheses. Standard test statistics are between brackets.

Table 5. Determinants of private tutoring by studied countries (probit model, marginal effects), weighted results

	(1) Egypt	(2) Algeria	(3) Lebanon	(4) Morocco	(5) Tunisia
Youth Characteristics					
Male (female omitted)	-0.079***	-0.051	-0.002	-0.082**	-0.077***
	(0.013)	(0.034)	(0.004)	(0.035)	(0.002)
	[-10.41]	[-1.49]	[-0.54]	[-2.29]	[-4.01]
Age	0.077***	0.141**	0.014	0.066***	-0.050
	(0.021)	(0.071)	(0.025)	(0.001)	(0.070)
	[2.92]	[1.99]	[0.54]	[4.64]	[-0.72]
Age squared	-0.002**	-0.003*	-0.000	-0.002***	0.001
	(0.001)	(0.002)	(0.001)	(0.000)	(0.002)
	[-2.14]	[-1.94]	[-0.42]	[-5.77]	[0.70]
School Level: Middle (primary education omitted)	-0.096***	-0.055	0.010	0.023	-0.238***
	(0.006)	(0.050)	(0.015)	(0.054)	(0.019)
	[-5.14]	[-1.10]	[0.67]	[0.43]	[-12.10]
School Level: Secondary (primary education omitted)	-0.029	0.093***	0.017*	0.023***	-0.135***
	(0.028)	(0.034)	(0.010)	(0.007)	(0.017)
	[-0.97]	[2.72]	[1.66]	[3.12]	[-7.58]
School Type: Public (private school omitted)	0.039	0.040	-0.017	-0.101**	0.075
	(0.072)	(0.046)	(0.019)	(0.041)	(0.070)
	[0.58]	[0.86]	[-0.89]	[-2.69]	[1.08]
Own a computer (no computer omitted)	0.075***	0.060	-0.001	-0.002	0.160***
	(0.014)	(0.037)	(0.051)	(0.070)	(0.026)
	[9.00]	[1.61]	[-0.02]	[-0.03]	[6.14]
Financial support from parents (no financial support omitted)	-0.023	0.004	-0.022***	-0.047*	0.098***
	(0.075)	(0.040)	(0.008)	(0.025)	(0.032)
	[-0.30]	[0.10]	[-3.1]	[-1.91]	[3.11]
Urban (rural omitted)	0.114***	0.079***	-0.005	0.104***	0.179***
	(0.010)	(0.021)	(0.004)	(0.016)	(0.018)
	[5.381]	[3.74]	[-1.41]	[6.39]	[10.19]
Household Characteristics					
Income	-0.011	-0.010	-0.003	-0.000	-0.000

	(0.028)	(0.052)	(0.005)	(0.000)	(0.000)
	[-0.39]	[-0.19]	[-0.54]		
Father's basic education (no education omitted)	0.011	0.067***	-0.034	0.007	-0.125
	(0.055)	(0.024)	(0.097)	(0.029)	(0.147)
	[0.21]	[2.74]	[-0.39]	[0.25]	[-0.82]
Father's higher education (no education omitted)	0.103	0.166**	-0.046	0.023	-0.087
	(0.066)	(0.077)	(0.076)	(0.050)	(0.187)
	[1.11]	[2.07]	[-0.49]	[0.45]	[-0.47]
Mother's basic education (no education omitted)	0.027***	0.111***	0.024	0.072	0.122***
	(0.003)	(0.008)	(0.082)	(0.070)	(0.016)
	[28.73]	[13.81]	[0.26]	[1.04]	[7.49]
Mother's higher education (no education omitted)	0.074*	0.058***	0.093	0.133	0.095*
	(0.041)	(0.006)	(0.200)	(0.206)	(0.051)
	[1.65]	[10.19]	[0.60]	[0.70]	[1.78]
Self-employed father (all other types of employment omitted)		-0.019**	-0.042***	0.112*	0.174***
		(0.009)	(0.001)	(0.063)	(0.038)
		[-2.16]	[-29.09]	[1.80]	[4.20]
Father is a manager (father is not in the management omitted)		0.085	-0.039***	0.227***	0.212***
		(0.055)	(0.005)	(0.060)	(0.013)
		[1.53]	[-8.61]	[3.97]	[5.51]
Employed mother (the mother does not work omitted)		-0.068	-0.010	-0.045***	-0.029***
		(0.099)	(0.013)	(0.009)	(0.000)
		[-0.69]	[-0.80]	[-4.75]	[-6.69]

Perception of Youth

Frequently speaking about school performance (do not talk frequently omitted)	0.057***	0.072**	0.024***	0.000	-0.022***
	(0.004)	(0.032)	(0.006)	(0.005)	(0.001)
	[9.90]	[2.23]	[4.47]	[0.04]	[-2.62]
No confidence in education (having confidence in the education system omitted)	0.009	-0.003	-0.032***		-0.016**
	(0.012)	(0.088)	(0.001)		(0.008)
	[0.73]	[-0.03]	[-57.17]		[-2.13]
University aspiration (no aspiration to work hard and attain university omitted)	0.158***	0.060	-0.041	0.030***	0.182***
	(0.045)	(0.119)	(0.050)	(0.010)	(0.066)
	[3.66]	[0.50]	[-0.98]	[2.89]	[2.75]
Education is important (if students think that education is not important omitted)	-0.021	0.004	0.410***	0.091***	0.139***
	(0.029)	(0.006)	(0.144)	(0.009)	(0.032)

	[-0.70]	[0.57]	[4.03]	[10.80]	[4.01]
Corruption taking place in the country (no corruption in the country omitted)	0.063	0.100***	-0.002	-0.073**	0.111***
	(0.054)	(0.007)	(0.041)	(0.037)	(0.023)
	[1.09]	[13.83]	[-0.04]	[-1.98]	[4.83]
Interaction Terms					
Income*Mother's higher education (d)	0.000	0.002	0.004	0.001	0.000
	(0.000)	(0.000)	(0.028)	(0.000)	(0.000)
	[1.02]	[0.91]	[0.16]	[0.83]	[0.59]
N	587	802	986	910	657

Notes: The reference group (omitted category) of each variable is between parentheses. Our set of independent variables includes two categorical variables: i) education of youth variable that contains three categories: primary, middle, and secondary and ii) father's and mother's education level that include also three categories: no education, basic education, and higher education. These variables are implemented with dummies. The interaction term Income*Father's education is dropped due to a collinearity issue. Statistical significance: * $p<0.100$, ** $p<0.050$, *** $p<0.010$. Robust standard errors are between parentheses. Standard test statistics are between brackets.