Expenditure on Private Tutoring: The Case of Jordan

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Abstract, About 15 % of Jordanian households spend some of their income on private tutoring mainly to prepare their kids for Higher Secondary Education Examination (Tawjihi). The prevalence of private tutoring has important educational and economical policy implications, yet it has received no attention from economists in Jordan. Utilizing the first wave of the Jordanian Labor Market Panel Survey (JLMPS), gathered in 2010, the study examines econometrically the determinants of both the decision to spend on private tutoring (i.e. demand for private tutoring) and the annual amount of private tutoring expenditure. The analysis, which considers only secondary school students, is based on Probit and OLS regression models due to the different nature of the dependant variables.

The analysis shows that among the family background characteristics, household income is positively and significantly associated with a higher probability to participate in private tutoring and higher private tutoring expenditure. Mother's education level appears to be a significant predictor of demand for private tutoring. Students in private schools were found to spend more on private tutoring. It was also found that living in urban areas is positively and significantly affecting the decision on private tutoring. In addition, the findings reveal that students of science stream are more likely to allocate more resources for private tutoring. On the other hand, the role of gender in private tutoring decision and expenditure is minimal. Finally, the study reflects on the findings and provides policy implications.

Keywords: Private tutoring, Educational Policy, Household Expenditure, Jordan.

1. Introduction

Apart from negligible fees, public school education is offered free in Jordan. This policy extends partially to higher education as the state covers around 50 percent of the running costs of the public universities and colleges. The secondary school certificate (*Tawjihi*) plays the major role in the process of qualifying students to the comparatively lower-cost public higher education. University education market offers also opportunities through private institutions, however with significantly higher costs. On the other hand, some of higher education specializations, particularly medicine and engineering, require students meet minimum scores in *Tawjihi* even at the private institutions. Therefore, households try by all means to compete for public higher education and university majors.

The high competition among secondary students has contributed to escalating the phenomenon of private torturing in the pre-university stage in Jordan. Private tuition classes are provided by private institutions or by individual teachers, sometimes at students' houses in return for a fee. This phenomenon exists noticeably not only in the developing countries and recently received increased attention in academic circles (Dang and Rogers, 2008; Bary, 2007).

Theoretically, the standard economic view considers private tutoring as an investment in human capital that augments future earnings and improves one's labor market opportunities. This raises multipart policy questions related to the issues of equity and efficiency. For example, if private tutoring is available only for those from wealthy background, what would happen to the distribution of income in the economy?

Private tutoring has not been investigated thoroughly in Jordan by economists and policy makers probably due to unavailability of reliable data. No previous study has examined this topic from any economic angle. This

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paper aims to gain an understanding of the determinants of private tuition expenditure and decisions using new set of data (JLMPS).

The remainder of this paper is organized as follows. In the second section, the literature on private tutoring is summarized. In the third section we introduce the data sources and methodology. The empirical results are shown in the fourth section and the conclusion in the last one.

2. Determinants of Private Tutoring in the Literature

Economists have recently directed growing attention to private tutoring both in developing and developing countries. However, the studies of private tutoring are classified by previous literature reviews as underdeveloped and progress in the field as constrained by the unavailability of suitable and representative data (Bray, 2007; Dang and Rogers, 2008; Asankha, 2011). In the Arab region, the previous studies are rather limited. Assad and El-Bedawy (2004) is the only known study that systematically and econometrically handles the phenomenon of private tutoring, basing its findings on an Egyptian nationally representative survey data. Other attempts provide descriptive analysis and discussion of tutoring and its reasons and influences (Hussein, 1987 for Kuwait; Farah, 2011 for UAE). We attempt in this section to summarize selectively the literature, concentrating on leading determinants reported to significantly influence private tutoring in developing and Asian countries. Extensive and wider reviews are available in Bray (2007); Dang and Rogers (2008) and Assad and El-Bedawy (2004).

Assad and El-Bedawy (2004) show quantitatively that household wealth, not income, father's education and urban location are key significant factors in predicting expenditure on private tutoring. Their findings identify insignificant gender gap in investment in human capital through tutoring in Egypt. Except for gender, which is not included in their analysis, similar findings are reported for Turkey in Transel and Bircan (2006). However, the later find also that students born for educated mother or live in single-mother households are more likely to spend more on private torturing; while number of children is inversely associated with it. Many studies have been conducted in East and South Asia (for example Asankha, 2011 for Sri Lanka; Kim and Lee, 2004 for South Korea and Dang, 2007 for Vietnam). These studies arrive at mixed results on the role of urban location, gender and parental education. However, most of them indicate household income or its proxies as having a strong positive impact on expenditure on private tutoring.

3. Data and Methodology

This paper employs data obtained from the Jordan Labor Market Panel Survey (JLMPS) that covers about 5000 household incorporating about 25000 individuals. JLMPS had collected detailed individual and household information in the period from January to June 2010, under the supervision, and funding, of the Economic Research Forum (ERF) in co-operation with the Department of Statistics in Jordan (DoS) and the National Centre for Human Resources Development (NCHRD). We restrict our sample to individuals that are currently enrolled in education and were in the secondary education one year before the survey. In JLMPS, two questions cover private tutoring for each individual currently enrolled, asking whether a student obtained private tutoring in the last year and the amount of money spent on it. These two variables are utilized as dependant variables. JLMPS includes several information that is important to the study representing the independent variables. These include, among others: household income, urban location, gender, parental education, and family size.

Typically, econometricians recommend utilizing the Tobit model, (after Tobin, 1958), as a regression technique when the dependent variable is censored in some way. Censoring arises when a significant percentage of the dependent variable data cluster at a specific threshold (left-censored; right-censored, or both). Since expenditure on private tutoring can cluster for some households at zero it fits the characteristics of censored data. However, using Tobit model requires data to meet the assumptions of normality and homoskedasticity. The failure of these two assumptions lead to serious consequences if Tobit model is used for censored data. This does not arise in the case of OLS (Cameron and Trivedi, 2009), particularly if one employs log expenditure on private

tutoring rather than levels. In the current study, we arrived at the conclusion that utilizing two-part model, based on Probit and OLS regressions, will provide a better fit as our data do not fulfill the Tobit model assumptions.

4. Empirical Results:

JLMPS data classifies currently enrolled students into two categories based on whether they took private tutoring or not in the last year. This enabled us to employ Probit estimation techniques to model private tutoring decisions made by students and their parents in Jordan. Data on household yearly expenditure on private torturing is also available in this set of data. To examine the factors determine household private tutoring expenditure, we employ multiple linear regression (OLS), after converting expenditure level data into logarithms.

Probit model and OLS estimators were used on selected regressors that were reported in the literature among the leading determinants of private tutoring. These are: Household income represented in logarithms, urban location and sex. Subsequently, we extend the analysis to involve other independent variables using stepwise regression methods to arrive at the best fitted models. Table (1) and Table (2) reports empirical results of basic and best fitted models for private tutoring decision and log expenditure, respectively.

Table 1: Probit regression results of private tutoring decision (N=822)

Variables	Basic Model	Best Fitted Model
sex (0=male)	.258**	.287**
Urban (urban=0)	-.182*	-.309**
Family income (in log)	.576***	.587***
Family with more than one secondary student	----	-.150
Mother's education (university and higher=0)		
Illiterate	----	1.125***
Reads and writes	----	.927***
Basic	----	.656***
Secondary	----	.607**
Post-Secondary	----	.204
Father's education (university and higher=0)		
Illiterate	----	-.0176
Reads and writes	----	-.402*
Basic	----	-.327
Secondary	----	-.290
Post-Secondary	----	-.297
Secondary School type (Public=0)	----	.782**
Secondary educ. Certificate (Information management =0)		
Art	----	.179
Science	----	.310*
Vocational	----	.189
Family size	----	-.0123
Constant	-2.600***	-2.860***

Basic model: Log likelihood = -320.277, (LR chi2= 59.92, p=0.000), Pseudo R2=0.085.Best fitted model: Log likelihood = -296.461, (LR chi2= 102.21, p=0.000), Pseudo R2=0.147.
*Significant at 10%; **significant at 5%; ***significant at 1%.

4.1. Household Income

Undoubtedly, it is clearly evident from the two models in Table (1) that household income significantly and positively determines a student's likelihood to take private tutoring in the secondary education stage. This suggests that household investment in human capital through private tutoring is constrained by income and this probably contributes to the comparatively low percentage of private tutoring incidence in Jordan. Therefore, students from poor families may face unprivileged situation in supplementary sources of education. Such an implication must be kept in mind when policy makers consider equity and efficiency considerations of private tutoring. Family income is also found to influence positively household expenditure on private tutoring as depicted in Table (2).

Table 2: OLS regression results of Log annual private tutoring expenditure (N=125)

Variable	Basic Model	Best Fitted Model
Sex (0=male)	-.010	.032
Urban (urban=0)	.077	.181
Family income (in log)	.129*	.156*
Family with more than one secondary student	----	.112
Mother's education (university and higher=0)		
Illiterate	----	-.333
Reads and writes	----	-.071
Basic	----	-.032
Secondary	----	-.034
Post-Secondary	----	.197
Secondary School type (Public=0)	----	.477**
Secondary educ. Certificate (Information management =0)		
Art	----	.130
Science	----	-.084
Vocational	----	-.517*
family size	----	.003
Constant	4.105***	3.519***

Best Model: (F= 1.92 , p= 0.033), R-squared= 0.173.
Basic Model: (F= 1.16 , p= 0.32), R-squared= 0.034.
*Significant at 10%; **significant at 5%; ***significant at 1%.

4.2. Gender

Interestingly, in Table (1), the sex dummy was significant and positive in favor of females. In Table (2), gender appears insignificantly influencing household expenditure on private tutoring. This suggests that Jordanian families do not discriminate against females in investment in children as might be expected in labor market. Elbedawy and Assad (2004) find similar results for Egypt. The latter suggest that Egyptian families probably do not have gender discrimination in private tutoring expenditure due to importance of that in marriage market. We also suggest this justification to explain why families in Jordan invest more in females' tutoring, in spite of their lower earning in labor market. Generally speaking, education statistics in Jordan show that education among females, particularly post-secondary and higher education, has improved in the last three decades. It was evidenced, over the last decade that higher education enrolment rates for female and male students were identical, even higher for the former in some years.

4.3. Urban Location

Households who reside in urban areas are found to have a higher probability to send their children to tutoring as shown in the Probit models. This may be due to better availability of private tutoring services in urban than in rural areas. Competition for higher education opportunities is more intensified in urban areas, as the current education policy advantage rural areas through the so-called "Disadvantaged School Quotas". Regarding expenditure on private torturing, OLS results in Table (2), urban location seems to exert insignificant role. This implies that wealth and income determine the expenditure regardless of the location. Rural wealthy families enjoy more accessibility to private tutoring. They can benefit more from private tutoring in their areas and also afford to send their children to private tutoring centers in urban areas.

4.4. Parental Education

Probit regression on private tutoring decision generated interesting results regarding parental education. Mother's education level, unlike father's education level, is among the significant variables. Once a household decides to send his children to join private tutoring, parental education variables become insignificant in affecting amount of expenditure on private tutoring. This supports the above-mentioned finding that income plays major role in private tutoring decision. Mother's education level is inversely associated with private

tutoring in the regression of the likelihood to take private tutoring. Secondary students of educated mothers are more likely to resort to private tutoring. This may be attributed to labor market dynamics in Jordan. Female labor market participation is very low even in comparison with the region, averaged at 15% in the last decade. Unemployment rates among women amounts to levels higher than 20%, whereas men's vary around 10%. Jordanians are keen to invest more in their daughters to face the hard competition in labor and marriage markets, as employment opportunities available for women are limited. To conclude, less educated mothers are more likely to stay longer unemployed and therefore enjoy more time for home-production activities including helping their children in education.

4.5. Other Determinants

The estimation using the Probit model and OLS show that students educated in private schools have higher tendency to take private tutoring and to spend more on it. This result raises important questions on quality gains of education provided by private schooling. This issue indeed requires further and in-depth investigation. However, we suggest that the higher probability of private secondary school students to undertake supplementary education may be due to higher competitive pressures among students in those schools. Furthermore, some specializations at public higher education institutions, particularly medicine and engineering majors, require very high scores amounting sometimes to 98% or more. This fuelled the competition among students even higher in the private schools which are generally afforded only by wealthy families. Finally, Scientific secondary students, in comparison with the other branches: Art, Information Management, Vocational, are more likely to resort to private torturing. This factor is not significant in expenditure on private tutoring.

5. Conclusion

The study presents evidence on the determinants of private tutoring decision and private tutoring expenditure in Jordan. The results, in general, correspond well to a certain extent with the findings reported in the literature, particularly for developing countries. It shows that family income, mother's education and urban location play a vital role particularly in the probability of a student to undertake tutoring.

About 15% of Jordanian households spend part of their income on private tutoring to prepare their children for Secondary School Certificate, which determine their higher education opportunities and subsequently their future labor market opportunities. Thus, policy makers are advised to pay more attention to the incidence of private tutoring. From economic perspective, private tutoring involves equity and efficiency considerations, which in turn establish what stance should policy makers take towards tutoring (Dang and Rogers, 2008). Such a process requires a comprehensive analysis incorporating, among others, rates of return to private tutoring; cost-effectiveness of private tutoring and the potential overgenerational transmission of income inequality through inequality of current private tutoring opportunities. Therefore, more and in-depth academic research in this area of interest is essential. Equity considerations are arguably a priority as household income is found in the current study as a positive significant deriving force of both private tutoring decision and expenditure.

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