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Abstract

Since the early 1990s, the demand for higher education has been growing steadily in Palestine, including the case of the Gaza Strip. This paper formulates a model of demand for higher education in the Gaza Strip considering a wide range of demographic, social, academic, economic and institutional explanatory variables. It employs OLS procedures on aggregate enrolment data. The estimation results showed that demographic and social variables explain about 82 percent of the variation of demand for higher education. Also, demographic and social variables affected the number of newly enrolled students in higher education significantly with a positive sign. Further, demand for higher education reacted positively to academic variable represented by success percent in high secondary certificate, economic variables of gdp per capita and unemployment rate and to institutional variables represented by reform in secondary general test, which gives students other chances to pass Tawjihi. Thus we believe that these results have important implication for the conduct of national education policy.

Key words: Demand for higher education, Determinants of students participation, Palestine-Gaza Strip

JEL Classification: I20, I22, I28

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1.Introduction

The majority of countries worldwide have witnessed an important growth in higher education demand, especially in the Third World countries where the population explosion, and by consequent, the educational explosion were highly remarked.

Since the nineteen's of the last century, Palestine including the Gaza Strip, has experienced a steady growth in the demand for higher education.
The number of enrolled students in higher education institutions, in the Gaza Strip, increased about seven times, during the period of study. It increased from (11838) student in 1994 to (84817) one in 2017. This situation poses a number of challenges to the decision-maker, including the financing of higher education, the quality of education, employment planning, and the choice of suitable disciplines.

Until the early 1980s, educated people from the Gaza Strip found employment opportunities in neighbouring Arab countries. However, with the political events in the region, especially the Gulf wars, more Israeli restrictions on the movement of Palestinian workers to Israel since the first Palestinian uprising and till now, and the continued weakness of the local economy to absorb the labor in general and the skilled labor one, unemployment among graduates is increasing continuously in the context of Israeli restrictions on the economies of the Palestinian territories, including the Gaza Strip.

Recently, a number of studies highlighted main issues related to both education and higher education in Palestine.
Nocolai (2007) highlighted the issues seen urgent for education sector in Palestine. These include development of ministry administration, budget allocation, school construction, ensuring access and inclusion of marginalized groups, curriculum and textbooks development and teacher recruitment and development. El-Jafari (2010) gave evidence on the role of vocational skills and competences in the performance and

functioning of Palestinian skilled labor market. It denoted that success in vocational education and training could be improved if educational standards in this track of education are sufficiently high. Planning Ministry Study (2012) displayed the weakness in the quality of graduates in universities and colleges in the Gaza Strip and recommended to pay attention to the education system in both the basic and higher education level by providing the alumni with the required skills for labor markets. Alqarout (2013) highlighted challenges which face higher education in the Gaza Strip. These comprise the limitation of financial resources available for students, the relatively low quality of programs offered, the gender differences in study choices, the absence of realistic governmental policies towards promoting higher education quality and the weak participation of non-governmental organizations and other civil society organizations in sitting higher education policies and promoting post secondary study. Ramahi (2015) concluded a considerable dissatisfaction with established methods of teaching and learning outcomes in Palestine and recommends a change in the education system generally at the technical level, being concerned with skills, academic learning and abilities for competing in the market.

Abugamea (2017) measured the contribution of education to growth in per capita real GDP in Palestine over the period 1990-2014 by employing OLS estimation with the growth accounting formula. Distinctively, it found that economic growth related negatively with a more growth in graduated students in high institutions of universities and technical colleges due to the weakness of Palestinian economic sector in employing graduates, under the prevailing conditions, and to a lower productivity of labor.

In addition to issues mentioned in these studies related to higher education in particular, this study contributes to Palestinian higher education economics literature by investigating the main determinants (factors) affect demand for higher education in the case of the Gaza Strip.

The main objective of this paper is to examine the main determinants affect demand for higher higher education in the Gaza Strip over the period 1994-2017. It uses a modeling which aims forecasting demand for higher education.

This paper organized as follows. Section 2 presents an overview of selected literature.

Section 3 highlights higher education indicators time trends. Methodology, data and descriptive statistics of the employed variables are explained in section 4. Section 5 includes empirical results. Finally, section 6 gives the main findings of the paper.

2.Selected literature Review

Earlier Campbell and Siegle (1967) studied the demand for higher education in the US for the period 1919-1964. Based upon aggregate data of enrolment in higher education, income and price (fees) they found that the two variables, income and price, explain some 87 percent of the variation of demand for higher education. Also, that demand responded positively to changes in income and negatively to changes in price.

It followed by some studies in a number of countries investigated demand for higher education. Examples of these studies are Greece (Psacharopoulos and Soumelis, 1979), Australia (Nicholls, 1984), Belgium (Duchesne and Nonneman, 1998) or Canada (Christofides et.al, 2008).

Some studies of demand estimated national or regional demand functions to address funding issues or the optimal number and geographical dispersion of institutions. Most were concentrated on the US (Galper and Dunn, 1969), (Corazzini and Grabowski, 1972) or (McPherson and Schapiro, 1991), but other countries have also been investigated. Examples for instance, are Australia (Nicholis, 1984), Greece (Psacharopoulos and Soumelis, 1979), Belgium (Duchesne and Nonneman, 1998) or Canada (Christofides, Hoy and Yang, 2008).

Other studies assessed demand for a particular institution, investigation what motivates or discourages student to favour one university and are useful tools for institutional strategic planning, for example, (DesJardins et.al, 1999) and (Buss et.al, 2004).

Further, a number of studies mainly motivated by particular social concerns by examining equity of access and participation in higher education, for example, (Wetzel et.al, 1998), (Sa et.al, 2004) and (Sissoko and Shiau, 2005).

A separate distinction may also be drawn between student choice and student demand models. While the later approach employs aggregate data, examples include, (Hoenack and Weiler, 1979) and (Duchesne and Nonneman, 1998), the former more frequently focuses on the individual, using large longitudinal survey data and logistic regression

techniques, for examples, (McPherson and Schapiro, 1991), (DesJardins et.al, 1999), (Christofides et.al, 2008) and (Saiti and Prokopiado, 2008). The latter approach, adopted in this study, is seen adequate to examine effects which can only be picked up over long periods.

Recently, numerous studies, by following student demand models which employ aggregate data, examined main determinants affected demand for higher education.

Agasisti (2009) detected the determinants of participation rate in higher education for (14) European countries through a five year panel regression. He concluded that the most important determinants of participation rates in higher education were expenditure on higher education as a percentage of GDP, Gini coefficient, subsidies devoted to higher education and per capita GDP.

Neill (2009) estimated the effect of tuition fees on demand for university education in Canada. The study concluded that a C$ 1000 increase in university tuition fees was estimated to reduce the enrolment in Ontario, Canada's largest province by between 2.5 and 5 percentage point.

Čepar and Bojnec (2010) investigated the higher education demand in Slovenia in general and in the field of tourism using regression analysis on time series data for the period 1995-2007. They connected the number of total enrolled students at higher education institutions to demographic changes, proxied by fertility rates, and socio economic factors, include financial condition of families, size of the family, social student policy and unemployment rate of youth under 26 years of age. The study found a positive significant association between the demand for higher education in general and the demographic and socio-economic circumstances. Unfavourable demographic trends in general slow down or even decrease the demand for higher education, while favourable socio economic factors mostly encourage the demand for higher education.

Vieira and Vieira (2011) considered a wide range of demographic, economic, academic, social and institutional explanatory variables to estimate demand for higher education in Portugal over the period 1977-2010. They employed OLS econometric procedures. The estimation results suggested that the number of applicants for higher education institutions reacted positively to demographic trends, represented by the number of live births 18-20 years before, graduation rates at secondary education (academic determinant), female participation (social determinant), and institutional variable (reform

in secondary study). Also, demand for higher education reacted negatively to the existence of tuition fees and to unemployment rates (economic variables).

Also, Oliveira at.al (2012) analyzed demand for higher education in Portugal for the period 1977-2010 by employing the partial least squares methodology, which generalizes combines features from principal component analysis and multiple regression. Empirical results showed that most of the more relevant variables explaining the percentage of eighteen years old applying for a place in higher education were directly dependent on government action of the number of compulsory schooling years, the number of higher education institutions in the country and public spending in higher education in percent of GDP. The results also suggested that the economic variables were the least relevant to explain demand for higher education. Personal disposable income, GDP, either per capita or in growth rates, and the unemployment rate were ranked last in order of importance.

Further, Bader (2014) investigated the economic determinants of the demand for higher education at public universities in Jordan for the period 1990-2010, by using cointegration analysis. The study used for economic determinants; real disposable income, real government support, consumer price index and unemployment rate. The dynamic relationships among the variables explained via variance decomposition of the dependent variables results showed that demand for higher education related positively to both disposable income and government support, whereas the effect of consumer price index as a proxy for education cost and unemployment rate were found to be negative.

In view of this background, this study distinguished, from other studies tackled main issues related to the Palestinian education, by investigation the main determinants of demand for higher education in Palestine of the case of Gaza Strip over the period 1994-2017, where this case not researched yet**.**

3. Higher education indicators trends

Higher education in the Gaza Strip emerged with establishment of "Dar- Almualemeen" in 1955 under the Egyptian administration which is an institute with two- years post secondary education aiming at educating and training qualified teachers to educate at schools of Directorate of education.

Since the establishment of Palestinian national Authority in 1994 higher education has witnessed a steady growth in terms of number of institutions, aspects of academic

disciplines and infrastructure and capabilities. The number of higher school institutions increased from (7), (3) universities and (4) colleges, in 1994 to (11) institutions, (4) universities and (7) colleges, in 2002 and reached to (28) institutions, (8) universities and (20) colleges, in 2017.

About of 80 percent of total enrolled students in higher education join universities which give a four year bachelor degree compared with 20 percent in colleges give a two year diploma.

The enrolled students in higher education institutions distributed among public (Ahliya) universities and colleges, governmental institutions and private ones. For the selected years 1994, 2002 and 2917, respectively, the percents of students enrolment in governmental institutions (14, 13.6, 26), in public institutions (84, 88, 59.4) and in private ones (0,0,13), respectively.

Further, Palestinian ministry of education & higher education statistics shows that more students enrolled in certain academic programs such as social sciences, education, and humanities and arts in higher education, and the share of science and engineering is proportionately less , along the time periods.

Data on main higher education indicators; total enrolled students, newly enrolled students and graduated students, are shown in Table (1).

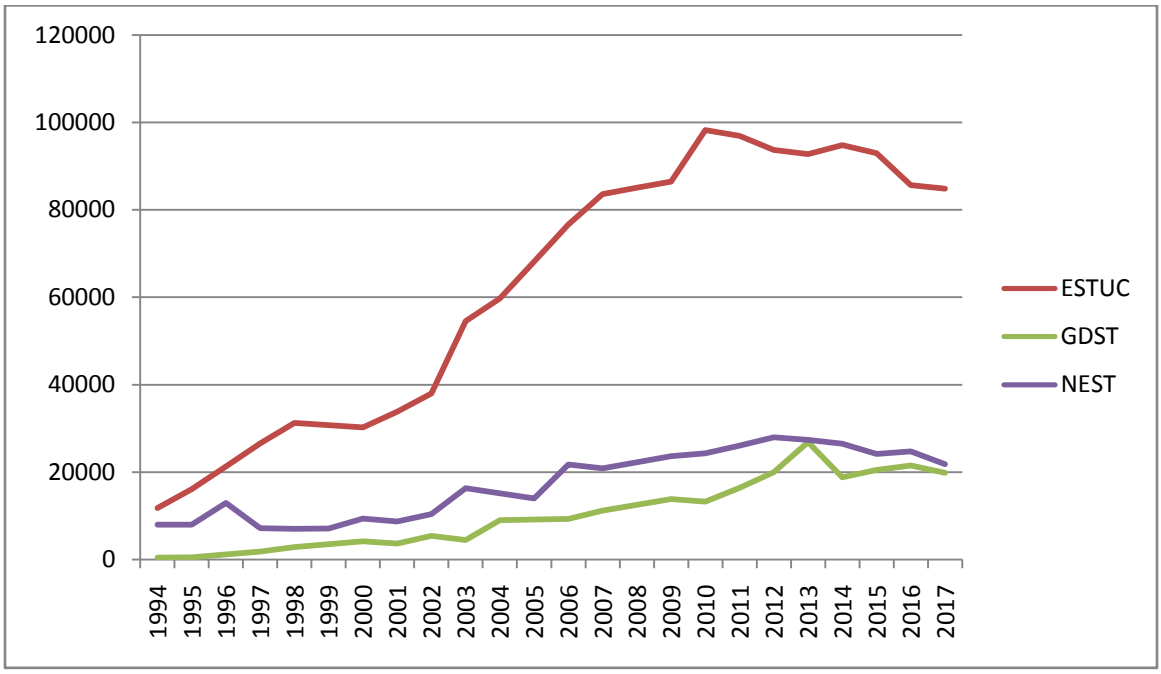
Table (1): Higher Education Indicators

year	Total enrolled students ESTUC	Newly enrolled students NEST	Graduated students GDST
1994	11838	8044	470
1995	16138	7994	572
1996	21383	13017	1198
1997	26627	7192	1825
1998	31321	7075	2883
1999	30793	7150	3550
2000	30264	9391	4217
2001	33875	8776	3673
2002	38033	10449	5425
2003	54525	16383	4500
2004	59726	15214	8989
2005	68184	14046	9167
2006	76642	21757	9344
2007	83610	20900	11189
2008	85029	22272	12528
2009	86448	23644	13867
2010	98232	24316	13241
2011	96936	26064	16422
2012	93726	27991	20015
2013	92756	27412	26861
2014	94830	26557	18825
2015	92934	24156	20532
2016	85660	24802	21508
2017	84817	21814	19844

Table (1) exhibits an increasing time trend for these indicators over the time period.

Moreover, the behaviour of these indicators could be shown in figure (1).

Figure (1): The Behavior of the Indicators: Total enrolled students, Newly enrolled students and Graduated students over the period 1994-2017.



Based on Table (1).
Source: Source: Educational Statistics Publications, Palestinian Ministry of Education & Higher Education

The coming analysis examines empirically the main determinants of demand for higher education represented by aggregate newly enrolled students in universities and colleges.

4.Methodology, data and descriptive statistics of variables

4.1 Methodology

Guided by the empirical literature, this study introduces a model to investigate the determinants of demand for higher education. These determinants suggested to be demographic, social, academic, economic and institutional variables.

We have to emphasise that we were limited by the availability of the necessary data.

Based on the objective, the present study seeks to test the following hypotheses:

• H1: There is a direct relationship between demographic variable and demand for higher education.

• H2: There is a direct relationship between social variable and demand for higher education.

• H3: There is a direct relationship between academic variable and demand for higher education.

• H4: There is a direct relationship between economic and demand for higher education.

• H5: There is a direct relationship between institutional variable and demand for higher education.

The analysis will be conducted using the following model:

Demand for higher education = *f* (determinants of students participation) (1)

Demand for higher education as dependent variable, represented by newly enrolled students in universities and colleges at year t, (NEST).

Determinants of students participation as independent variables are:

Demographic variable represented by population percent of age 18-20 years at year t, (AGP).

Social variable represented by the proportion of female students in higher education at year t, (FMRT)

Academic variable represented by success percent in high secondary certificate, at year t, (STSP)

Economic variables represented by gross domestic product per capita (GDPPC) and the economy's unemployment rate (UNMR), at year t for both.
Institutional variable represented by a reform in secondary general test (STSR)

Thus, we get;

$$\mathbf{NEST} = f\ \mathbf{(AGP, FMRT, STSP, GDPPC, UNMR, STSR)} \qquad \mathbf{(2)}$$

Since the focus of this study is determine the partial elasticities of demand for higher education with respect to determinants of student participation, we denote the natural logarithm formula of the variables in equation (2) in a lower case letter, thus econometrically we get the following equations;

$$\mathbf{nest_t = \beta_0 + \beta_1\ agp_t + \beta_2 fmrt_t + \beta_3 stsp_t + \beta_4 gdppc_t + \varepsilon_t} \qquad \mathbf{(3)}$$

$$\mathbf{nest_t = \beta_0 + \beta_1\ agp_t + \beta_2 fmrt_t + \beta_3 stsp_t + \beta_4 unmrl_t + \varepsilon_t} \qquad \mathbf{(4)}$$

$$\mathbf{nest_t = \beta_0 + \beta_1\ agp_t + \beta_2 fmrt_t + \beta_3\ unmr_t + \beta_4 stsr_t + \varepsilon_t} \qquad \mathbf{(5)}$$

Equation (3) connects between demand for higher education and demographic, social, academic and economic determionants. Economic determinant in this case represented by gdp per capita. Equation (4) also connects between demand for higher education and demographic, social, academic and economic determionants but it represented economic determinant by economy's unemployment rate. Here, equation (4) introduces interactive variable (unmrl) which displays unemployment under more restrictions imposed on Palestinian labor movement into Israel since 2001 onwards following Al Qsa uprising in 2000, (Abugamea, 2010) and (Abugamea, 2018). Equation (5) connects between demand for higher education and demographic, social, economic and institutional determionants. The institutional determinant is the amendment to the general secondary exam system during the period 1996-2015, which gives the students a better chance to pass Tawjehi. The student who not passed two subjects was allowed to repeat these two subjects in the following year instead of repeating all subjects as was done in the applicable Egyptian system before 1994. It proxied by (stsr) interactive variable shows success percent in high secondary certificate under the mentioned new reform.

Based on empirical literature β_1 and β_2 in the previous three equations and β_3 in equations (3) and (4) are expected to be positive. Also, β_4 in equation (5) is expected to be positive. The coefficients β_4 in equations (3) and (4) and β_3 in equation (5) can be positive or negative.

Demographic is expectedly the major driver of aggregate demand for higher education particulary where of student recruitment is almost exclusively domestic. Over the period of study, the rising number of studnts enrolled in higher education coincides with the positive demographic trend, represented by population percent of 18-20 years of age.

The second class of potential demand determinants includes several social variables. In the Palestinian case, and in particular for the Gaza Strip, the rapid growth of demand since the early 1990s can be attributed to the increasing women's participation rate. The propertion of females enrolled in higher education increade from 40 percent in 1995 to about 55 percent in average for the last decade. This situation reflects the fact that the Palestinian society, and in particular in the Gaza Strip where 75 percent of population are refugees, sees in light of successive crises that educating women and joining higher education is a necessity and a major means of hedging against the challenges in the future.

The third determinant of demand for higher education is academic success in pre-tertiary schooling, that is, how effective the eucational system was in bringing students to seats of universities and colleges. Over the perid of study, the success percent in high secondary certificate shows a positive trend.

The fourth determinant is the economic one. The country's macroeconomic conditions may also affect the aggregate demand fof higher education. The average houshold disposable incom or more indirectly GDP per capita or even the unemployment rate, all indicate how the economy is globally performing and therefore how families can adjust with the costs of higher education. The unemploymet and GDP per capita, with its decreasing trend in the case of Gaza Strip, may have an ambigous effects on demand. They usually reflect depressed income and therefore have negative impact on demand for higher education. On the other hand, they reduces the opportunity cost of attending with the opposit effect on demand.

Finally, ther is a fifth determinant that should also be considered. This is the institutional variable. Mainly, the period of study affected by a new reform in secondary general test which started in 1996 and continued to 2015. This reform which allowed students who not passed two subjects to repeat them in the following year instead of repeating all subjects. Thus it gives student other chance to pass Tawjihi and is expected to reduce dropout and improve success rates and hence increases student enrolment in higher education.

OLS estimation results of these equations are introduced in the following section.

4.2. Data and descriptive statistics of variables

2.2.1. Data

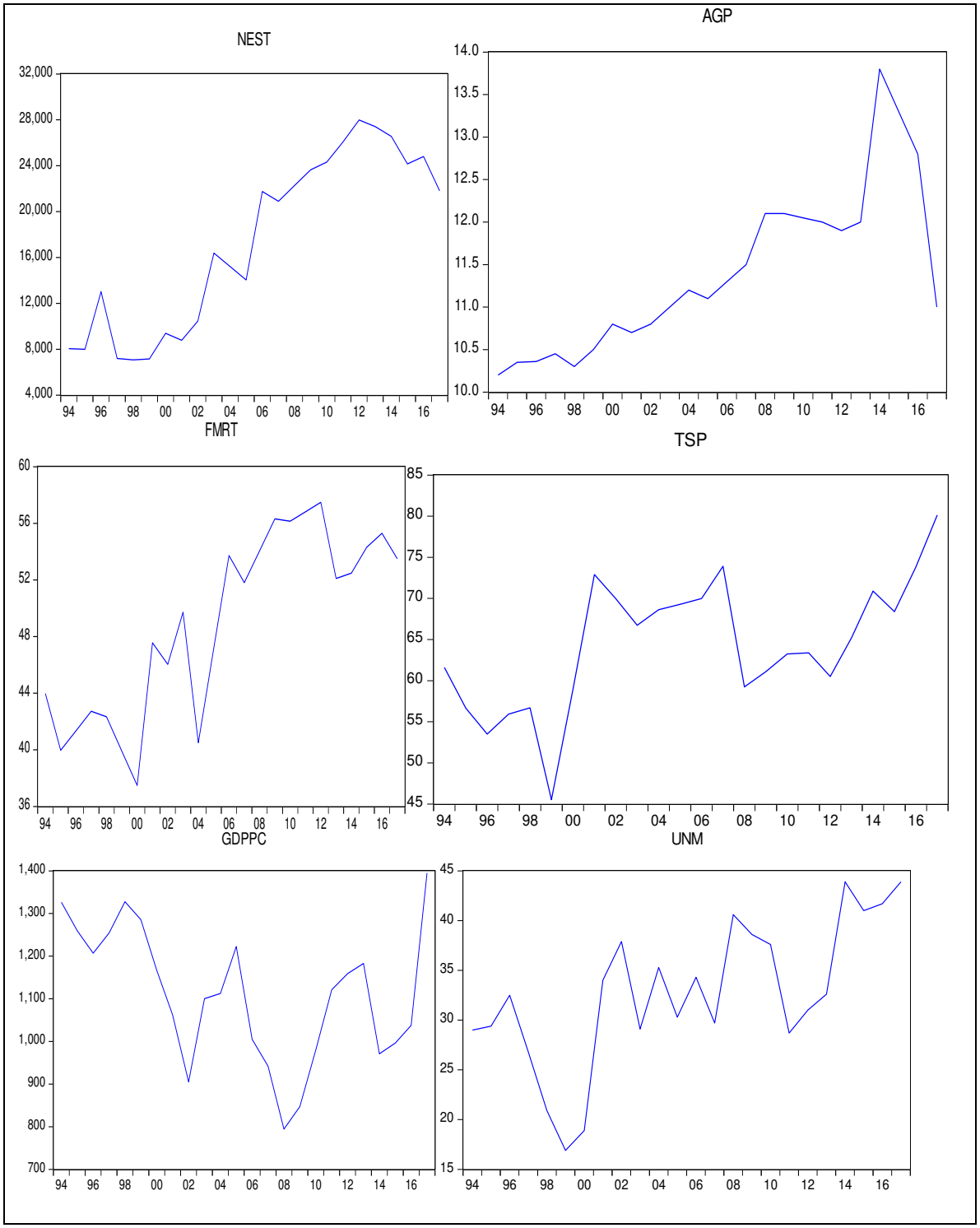
The data for all the employed variables covered the time period 1994-2017 for Palestine in the case of Gaza Strip.

The data for populatıon percent of Age 18-20 years (agp) and economy's unemployment rate (unmr) in percents and for gdp per capita in US dollars in constant prices were extracted from Palestinian Central Bureaue of Statistics (PCBS) publications. The data for newly enrolled students in higher education in thousands (nest)**,** proportıon of female students in higher education in percents (fmrt) **and** Success Percent in High Secondary Certificate (stsp) taken from educational statistics at Palestinian ministry of education & higher education, Gaza.

4.2.2. Descriptive statistics of variables

Figure (2) suggests that the variable; NEST, AGP, FMRT, STSP and UEMR to a large extent exhibit an increasing pattern meanwhile the variable GDPPC shows a decreasing trend for the majority of time period.

Figure (2): The Behavior of the Employed Variables



Sources: -Palestinian Central Bureau of Statistics, Yearly Book, Various Issues
-Educational Statistics Publications, Palestinian Ministry of Education & Higher Education

It is noticed that the last five years witnessed a clear declining in the enewly enrolled students in higher education, a situation seems to mirror the effect of the stagnant economy in the Gaza Strip, which characterized by high level of macro unemployment rate and a decreasing GDP per capita. However, the negative effect of unfavorable economic conditions on students enrollment in higher education to some extent mitigated in the last decade by a student loan scheme for tertiray education aimed to create a sustainable resource that assist students, to ensure that students would understand their resposibility to share cost of their education and to provide a collection mechanism that wuld ensure a revolving fund (Adrina and Katayama, 2009) and (MOEHE, 2008-2017 Plans).

Table (2) shows descriptive statistics for all the variables employed. It gives the minimum, maximum, mean and standard deviation.

Table (2): Descriptive Statistics of the Employed Variables

Variables	Symbols	Minimum	Maximum	Standard Deviation	Mean	Coefficient of Variation
Newly Enrolled Students in Higher Education	NEST	7075.00	27991.00	7655.510	17350.67	2.2664
Populatıon Percent of Age 18-20 years	AGP	10.200	13.800	0.9764	11.40042	11.6760
Propertıon of Female Students in Higher Education	FMRT	37.48	57.49	6.4416	48.8631	7.5855
Success Percent in High Secondary Certificate	STSP	45.53	80.15	7.8737	64.4296	8.1829
Real GDP per Capita	GDPPC	794.50	1395.00	160.035	1110.896	6.9416
Unemployment Rata	UNMR	16.90	43.90	7.3583	32.69	4.4416

Sources: -Palestinian Central Bureau of Statistics, Yearly Book, Various Issues
-Educational Statistics Publications, Palestinian Ministry of Education & Higher Education

Taking the ratio of Mean to Standard Deviation as a measure for variation shows the highest variation per unit of standard deviation is for AGP. It followed by STSP and FMRT. The lowest variation per unit of standard deviation is for NEST. This suggests that despite the increased opportunity to enroll in tertiary education in line with the increase in success rates in Tawjihi and with the demographic increase, the pattern of change in the enrollment of new students in tertiary education is still limited, which means that significant numbers in the age group concerned are still outside higher education .

5.Empirical Resuts

We proceed in this section by investigating the effect of the potential determinants identified above (demographic, social, academic, economic and institutional) on demand for higher education, using OLS estimation.

Table (3) presents seven models.To move towards estimation of equations 3, 4 and 5, model (1) starts by including demographic determinant represented by Populatıon Percent of Age 18-20 years (agp). It shows a positive significant effect of (agp) on demand for higher education. It followed by model (2) which includes both demographic detriminant (agp) and social determinants (fmrt). This time, also social determinant has a positive significant effect on demand for higher education. Moreover, model (2) highights a higher explanatory power in terms of R^2 value, where about 82 per cent of variation of demand for higher education explained by demographic and social variables.

Model (3) introduces Success Percent in High Secondary Certificate (stsp) as academic variable in addition to both demographic and social variables. It shows a positive effect of (stsp) on demand for higher education, but insignificantly.

Model (4) adds gdp per capita as economic determinant to the previous determinants shown in model (3). This time, also it is shown that gdp per capita has a positive effect of demand for higher education, but in significantly.

Model (4), which introduces four determinants for higher education, gives the empirical result from the estimation of equation (3).

Further, model (5) adds economy's unemployment rate (unmr) as economic variable in addition to demographic, social and academic ones in model (3). Again, it is shown that (unmr) has a positive effect on demand for higher education, but insignificantly.

Noticeably, moving from model (3) to both (4) and (5) models resulted in slight changes in explanatory power in terms of R^2 values.

Model (6) introduces interactive variable of economy's unemployment rate (unmrl) in addition to demographic, social and academic determinants. It gives the empirical results from the estimation of equation (4). It shows a positive effect of unemployment rate on demand for higher education, but insignificantly. However, moving from model (3) to (6) one shows this time noticeable changes in explanatory power of R2 and the negative sign of academic variable (stsp).

Table (3): OLS Estimation Results

Dependent Variable: nest

Explanatory Variables	Coefficients						
	1	2	3	4	5	6	7
Constant	-2.7517 (1.7263) [-1.5939]•	-4.6955 (1.3831) [-3.3949]•	-5.2119 (1.6875) [-3.0884]•	-7.111 (4.1852) [-1.6991]	-4.8339 (2.0646) [-2.3413] •	-1.7238 (3.7635) [-0.4580]	-4.3187 (1.5257) [-2.8307] •
Agp	5.1025 (0.7099) [7.1870]•	2.6127 (0.7996) [3.2676]•	2.5888 (0.8143) [3.1793]•	2.7504 (0.8912) [3.0861]•	2.5168 (0.8605) [2.9248]•	2.3130 (0.8552) [2.7046]•	2.3866 (0.8870) [2.6907]•
Fmrt		2.0603 (0.4910) [4.1960] •	1.9591 (0.5317) [3.6843] •	1.9971 (0.5474) [3.6448] •	1.9146 (0.5601) [3.4184] •	1.6205 (0.6233) [2.599] •	1.9275 (0.5520) [3.4917] •
Stsp			0.2326 (0.4200) [0.5537]	0.2307 (0.4282) [0.5387]	0.1422 (0.5080) [0.2799]	-0.1698 (0.5714) [-0.2971]	
Gdppc				0.1952 (0.3922) [0.4978]			
Unmr					0.0999 (0.2996) [0.3337]		0.1845 (0.2674) [0.6900]
Unmrl						0.0670 (0.0646) [1.0364]	
Stsr							0.0143 (0.0316) [0.4530]
Adjusted R^2	0.688	0.822	0.816	0.809	0.807	0.817	0.809
R^2	0.701	0.838	0.839	0.842	0.841	0.849	0.842
F Stat.	51.652	54.142	34.994	25.320	25.107	26.611	25.306
Prob. F Stat.	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Durbin Watson Stat.	1.174	1.834	1.848	1.873	1.846	1.921	1.836

-Figures in parenthesis and brackets are standard errors and t-statistic values, respectively.

• and •• denotes statistical significance or close to significance at 5% and 10% respectively.

-In models (5), (6), and (7), we selected one of the economic variables and chose between academic and institutional variables to avoid a further missing degrees of freedom and multicollinearity among variables.

Model (7) used the institutional variable represented by reform in secondary general test (stsr) in addition to demographic, social and economic determinants. In this model, both economic determinant of economy's unemployment rate and the institutional variable have positive on demand for higher education, but insignificantly. Model (7) gives the empirical result from the estimation of equation (5).

Results show that demographic and social varaiables are statistically significant at 5 percent. The elasticity of demand for higher education (nest) with respect to demographic variable is markedly high with value of more than (2) in models from (2) to (7). It suggest that if population of age group 18-20 years goes up by one percent on average demand for higher education goes up by (2.3-2.7) percents. Thus the demographic determinant is expectedly the main driver for demand for higher education, particularly where the focus of student recruitment is almost domestic.

Also, the elasticity of demand for higher education with respect to social variable is high, with values of (1.6-2.06) in models from (2) to (7). It suggests that if the female participation increases by one percent, an increasing is the main second determinant for demand for higher education in the Palestinian case of the Gaza Strip.

The findings on the effect of demographic and social determinants on demand for higher education are found to be similar to that of Salovenia investigated by Čepar and Bojnec (2010), and to that of Portugal examined be Vieira and Vieira (2011).

The elasticity of demand for higher education with respect to academic variable (stsp) shows a noticeable magnitude with values of 0.23 in models (3) and (4) and 0.14 in model (5), though the coefficient is not statistically significant. It shows that if success percent in high secondary certificate increases by one percent, an increasing in demand

for higher education reaches about 0.23 percent. The positive effect of academic variable is expected. However, this effect diminshed by students delay to join tertiry education for different reasons, and in particular for economic one, as noticed in the last years.

The positive effect of the economic variables; GDP per capita in model (4) and unemployment rate in models (5), (6) and (7) on demand for high education is unexpected. The elasticity of demand for high education with GDP per capita reached 0.19 and with unemployment rate takes values of 0.09, 0.06 and 0.18 in models (5), (6) and (7), respectively. Despite of the depressing economy under siege in the case of the Gaza Strip, demand for high education affected positively by unfavourable economic variables. In this case, it seems that the negative impact of higher unemployment and decreasing income are lesser than that of a lower opportunity cost of attending higher education.

Noticebly, result related to the effect of unemployment rates, as economic variable, on demand for higher education is found similar to Salovenia investigated by Čepar and Bojnec (2010), and is different from that of Portugal examined be Vieira and Vieira (2011), and Jordan investigated by Bader (2014).

The positive effect of institutional variable (stsr) on demand for high education in model (7) is expected. However, this model shows a slight effect of the reform in secondary general test, which cover the period 1996-2015, on demand for higher education.

Again, the insignificant effect of institutional variable like the academic one denoted that a more students who passed Tawjihi in the case of the Gaza Strip not sufficient to attract newly students to higher education and in particular to technical colleges which suffers a lesser growth compared with universities.

The models from (5) to (7), which include the majority of explanatory variables, have high explanatory power with adjusted R-squared and R-squared values of more than 80

percent. The F-statistics value shows the significance of these models and the Durbin-Watson statistics not show sereial correlation.

Coefficients of constant in all models except (6) are statistically significant at 5 percent and have negative signe. It denots autonomous term not connected to the explanatory variables.

Thus, overall results show that demographic and social determinants are the key factors affecting demand for higher education. Further, demand for higher education reacted positively to academic variable represented by success percent in high secondary certificate, economic variables of gdp per capita and unemployment rate and to institutional variable, represented by reform in secondary general test, which gives students other chances to pass Tawjihi.

6. Conclusions

This study estimates a model of aggrgate demand for higher education in Palestine- the Gaza Strip Case, for the period 1994-2017, by employing OLS procedures, with the objective of identifying demand's main determinants and forecasting demand for higher education. It formulate a model which connects the number of newly enrolled students as depenedent variable to a wide range of demographic, social, academic, economic and institutional explanatory variables. The estimation results showed that demographic and social variables explain about 82 percent of the variation of demand for higher education. Also, demographic and social variables affected the number of newly enrolled students in higher education significantly with a positive sign. Further, demand for higher education reacted positively to academic variable represented by success percent in high secondary certificate, economic variables of gdp per capita and unemployment rate and to institutional variables represented by reform in secondary general test, which gives students other chances to pass Tawjihi. Overall, academic, economic and institutional variables in addition to demgraphic and social ones are main determinants of demand for higher education. These results reveal a number of recommendations for the conducting of national education policy; a) The steady increase in the enrollment rates in higher

education, which coincides with the demographic growth, puts pressure on higher school institutions to improve their abilities of both infrastructure and academic caders, especially in certain disciplines that are still weak in their abilities in the case of the Gaza Strip such as in medicine and technical ones. b) With the increase in girls enrollment rate in university education and they mainly joining humanaties and social sciences disciplines which experienced high unemployment rates, higher education institutions should reconsider appropriate academic specialisation to match labor market needs. c) With the financial pressure faced both public and private universities, which rely heavily on student fees to finance them, and where more students go to governmental universities, there is a need to develop the governmental universities to fit the Gaza Strip need of specialisations like medicine and agriculture. d) The existed insignificant effect of both institutional variable and for the case of academic variable too to attract students who passed Tawjihi to higher education, and in particular to technical colleges, featured with a slow growth, invokes socio-economic policies from government to boost demand for higher education. These policies should take actions encourge technical and middle colleges and offer more scholarships for students join technical education. e) With the presence of large numbers of graduates annually from institutions of higher education and with the difficulty in absorbing them in the local market there is a need to improve the quality of education. This improvement in quality is expected to enhance access to regional and international labor markets.

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