

The Role of Entrance Exams in Academic Performance of Students with Low Socioeconomic Background: Evidence from the SGP-PA

by

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ABSTRACT

Making higher education more accessible for the poor serves the equity objective. Until very recently the main policy tool to achieve this objective is funding public higher institutions. This has been shown to have no significant correlation on the enrollment of the poor by earlier studies. A new program - the Students Grants-in-Aid Program for Poverty Alleviation (SGP-PA) – was implemented starting 2012 to provide another way of giving access to tertiary education for poor. It has two important unique features, namely:

(a) it is well-targeted to identified *Pantawid Pamilya* households; and (b) it provides a grant amount that is sufficient to cover all normal education expenses including living allowance. A hotly debated feature of the program is whether passing the entrance examinations should be waived for the beneficiaries. This paper provides an empirical evidence of the correlation of entrance examinations on academic performance using data from SGP-PA program. The estimates show that there is a consistent positive correlation between subsequent academic performance in math, science and english and entrance examination scores. This highlights the importance of entrance examinations in the academic performance of tertiary students including those with low socioeconomic backgrounds.

Keywords: Higher education, Grants-in-Aid, Affirmative Action, Entrance Examinations, Philippines
JEL: I22, I23

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Introduction

Making higher education more available for poor but capable students is an important objective of any government. Until very recently the main policy tool to achieve this objective is funding public higher institutions. Interestingly, it has been shown that despite the expansion of the number of publicly funded higher education institutions in recent years, the number of SUCs is not correlated with attendance of the poor in higher education institutions (Orbeta et al, 2016). It has also been shown that the returns to higher education continues to be high (Paqueo, Orbeta and Albert et al, 2011) so completing higher education remains to be a good investment and making the poor complete higher education is a proven strategy of breaking the cycle of poverty.

In 2012, the Students Grants-in-Aid Program for Poverty Alleviation (SGP-PA) was implemented through the Commission on Higher Education (CHED) Memorandum Order No. 09, Series of 2012. Implementers of the program include selected State Universities and Colleges (SUCs), the Department of Social Welfare and Development (DSWD), and the Department of Labor and Employment (DOLE).

The SGP-PA is a new initiative taken by the government to provide access to the poor but capable students to higher education. The objective of the program is to increase the number of higher education graduates among poor households by directly providing financing for their education in selected SUCs. While there were other grants in aid (GIA) programs, SGP-PA has two important features that makes it different from the others: (a) it is well-targeted to identified poor households; and (b) it provides substantial grant amount sufficient to cover all normal education expenses including living allowance.

The program was implemented in the academic year 2012- 2013, with 4,041 selected beneficiaries from identified and classified poor households in the 609 focus municipalities covered under DSWD's *Pantawid Pamilyang Pilipino Program*. The program was rolled out in the academic year 2014-2015 by 36,412 beneficiaries under the Expanded SGP-PA (ESGP-PA), bringing the total number of beneficiaries to 40,453. Total number of implementing SUCs expanded from 35 to 112 across the country.

The financial benefits of an SGP-PA grantee include Php 10,000 per semester for tuition and other fees, Php 2,500 per semester for textbooks and other learning materials, Php 3,500 per month for 10 school months as stipend. The total grant amounts to Php 60,000 per academic year per student. Details of the features of the program can be found in the Silverberg and Orbeta (2016).

One of the hotly debated feature of the program is whether the entrance examination requirements should be waived for the SGP-PA grantees. Waiving the entrance examination requirement will allow any eligible Pantawid beneficiary to avail of the program. The downside of this policy is that it will allow admission of beneficiaries that may not be college-ready and hence has a lower probability of completing the program. It is clear that completion is the ultimate objective of the program.

The general objective of the paper is to contribute to the literature of affirmative action in the developing country context. The particular objective is to determine the relationship between entrance examination and subsequent academic performance at the tertiary level.

The paper finds a strong correlation between entrance exam and academic performance of program beneficiaries. Since completion of their college education is the primary objective of SGP-PA, it is therefore imperative that the entrance exams should be used in determining eligibility for the program.

The paper is organized as follows. The next section provides a selected literature review. This is then followed by a discussion of the methodology and results. A summary and recommendations is provided in the last section.

LITERATURE REVIEW

There is considerable literature relating entrance examinations to college performance in developed countries like the US and in developing countries. The results mostly show a positive correlation between entrance exam scores and academic performance, mainly indicated by grades either in the first year or the whole four year program, graduation or number of study credits. The coverage of the analyses often include all type of students but there are also others that are for specific disciplines.

The studies in developed countries, e.g. the US. Morgan (1987), for example, find there is a strong correlation between performance in coursework in math, natural science, and foreign languages and SAT-Mathematical course while SAT-verbal with foreign language coursework. Although it has been argued that this may have been inflated because the scores in standardized tests are highly correlated with socioeconomic background (Rothstein, 2004).

Results from developing countries are mixed. The results in Chinese universities show strong correlation between their entrance examination and undergraduate grade point average (Bai, Chi and Qian, 2013). Similar results are found in a university in Ethiopia (Zekaris, Aba-Milki and Mikre, 2015)). The results from Turkish universities, on the other hand, show low correlation between academic performance and their entrance exam test (Agazade, et al., 2014).

It is interesting to note the results in Armstrong and Carthy (2003) that indicates that predictive ability of the standardized entrance exam scores on college success is found stronger for students with low income levels and socioeconomic backgrounds.

Finally, there are also results showing positive impacts in specific fields of specialization, e.g. medicine (Zhou et al, 2014, Murshid, 2013, Shiyue, et al., 2015), social science and engineering (Hakkinen, 2004) and agriculture (Garton, et al. (2000)).

METHODOLOGY

Data collection

PIDS collaborated with select SUCs to obtain data on the grantees and their peers. Eight SGP-PA-implementing SUCs and another eight ESGP-PA implementing SUCs were selected to collaborate with PIDS on the study. The SGP-PA SUCs were given a Php 300,000 grant to collect data for four semesters for selected subjects and the ESGP-PA SUCs were given a grant of Php 225,000 to collect data for two semesters for selected subjects. The SUCs were asked to submit data for both the grantees and their peers. Peers refer to the batch mates of the grantees in the same course. All SUCs were also asked to submit a report on the implementation and program issues and other experiences of the SUCs with regards to the SGP-PA and ESGP-PA.

SUCs were selected based on the total number of grantees, expression of interest to participate, and nomination of a collaborating faculty-researcher or department as certified by the school head.

Due to delays in the processing of the Memorandum of Agreement (MOA) between PIDS and the SUCs, only four SGP-PA SUCs and six ESGP-PA SUCs (Tables 1 and 2) are included in the analysis presented in this report. Data collected by SUCs is summarized in Table 3.

Table 1. Selected SGP-PA SUCs

	HEI Name	No. of SGP-PA Grantees
1	Davao del Norte State College (DNSC)	204
2	Southern Philippines Agri-Business and Marine and Aquatic School of Technology (SPAMAST)	123
3	Mindanao University of Science and Technology (MUST)	204
4	West Visayas State University (WVSU)	246

Table 2. Selected ESGP-PA SUCs

	HEI NAME	No. of ESGP-PA Grantees
1	Capiz State University (CAPSU)	863
2	Carlos Hilado Memorial State College (CHMSC)	119
3	Guimaras State College (GSC)	93
4	West Visayas State University (WVSU)	527
5	Surigao del Sur State University (SDSSU)	582
6	Visayas State University	259

Table 3. Data submissions

Wave	Data Submissions
SGP-PA	<ul style="list-style-type: none"> • Profile data of grantees and peers • Entrance exam scores of grantees and peers • Semestral grades for grantees and peers for AY 2012-2013 and AY 2013-2014
ESGP-PA	<ul style="list-style-type: none"> • Profile data of grantees and peers • Entrance exam scores of grantees and peers • Semestral grades for grantees and peers for the AY 2014-2015

Methods of analysis

Profile of students. Selected demographic and socio-economic variables of the grantees and their households are compared with those of their peers. Test on difference of means are performed in order to ascertain whether there are differences that are statistically significant between the two groups. These differences are important because socioeconomic profiles are expected to affect academic performance.

Entrance exam scores and semestral grades of students. The means and the standard deviation of entrance exam scores and semestral grades are obtained for both groups. Similar to the profile analysis, test on difference of means are performed to determine whether any difference that may exist between the two groups are statistically significant. The test is done for the students' entrance exam scores and their semestral grades for score subjects in the Sciences, Mathematics and English. The entrance exam score are expected to provide an indication of their relative readiness for higher education at the point of entry. The semestral grades, on the other hand, provide an indication how are they faring in banner subjects.

Correlation between academic performance entrance exam scores and other socioeconomic characteristics. To provide evidence on the relative academic performance of grantees and their peers, regression analyses of semestral grades on banner courses controlling for entrance exam scores, which is expected to provide baseline academic preparation upon entrance, and other socioeconomic characteristics are done. These analysis are expected to provide richer analysis of relative academic performance controlling for known important determinants which cannot be done with bivariate analyses. Four models are constructed and are specified as follows:

Model 1: $GGGGGGGGG_{iii} = \alpha + \beta_1 EEEEEGGGEEEEEGGEEEEEGGEEEEEGGG_{ii} + \varepsilon_{iii}$

Model 2: $GGGGGGGGG_{iii} = \alpha + \beta_1 EEEEEGGGEEEEEGGEEEEEGGEEEEEGGG_{ii} + \beta_2 GGGGGEEEEGGG_{ii} + \varepsilon_{iii}$

Model 3: $GGGGGGGGG_{iii} = \alpha + \beta_1 EEEEEGGGEEEEEGGEEEEEGGEEEEEGGG_{ii} + \beta XX_{ii} + \varepsilon_{iii}$

Model 4: $GGGGGGGGG_{iii} = \alpha + \beta_1 EEEEEGGGEEEEEGGEEEEEGGEEEEEGGG_{ii} + \beta XX_{ii} + \beta_3 GGGGGEEEEGGG_{ii} + \varepsilon_{iii}$

where

- $GGGGGGGGG_{iii}$ is grade for individual i for subject j
- j is the subject (Math, Science, and English);
- $Grantee = 1$ if SGP-PA/ESGP-PA grantee, 0 otherwise;
- X is a vector of socio-economic and demographic variables;
- ε_{iii} is the error term

Box 1. Vector of socio-economic and demographic variables

- Age at entry into SUC
- Gender
- Civil status
- Household income
- Educational attainment of parents
- Gap between high school and college

The dummy for grantees is included in two of the models to capture any differences in academic performances between the two groups (grantees and peers) that are not explained by the entrance exam scores and socioeconomic characteristics. These socioeconomic variables can be found in Box 1.

RESULTS AND ANALYSIS

A. SGP-PA

Most SGP-PA grantees are female, are 19.7 years old on average, and have been out of school for two years. The complete profiles of the grantees and their peers are found in Table 4.

Table 4. Profiles of SGP-PA Grantees and their Peers

Characteristics	Peers (%)	Grantees (%)	Significance
Gender			
Female	53.1	60.42	***
Civil Status			
Married	0.73	1.81	
Age at entry			
Average (years)	17.1	19.7	***
15 to 18 years old	81.72	27.99	
19 to 22 years old	15.74	52.34	
23 to 26 years old	1.79	15.73	
27 years old and above	0.75	3.93	
Father's education			
None	0.34	0.16	
Elementary level or graduate	12.42	53.06	
High school level or graduate	38.57	39.87	
Vocational	1.89	0.16	
College level	19.8	4.87	
College graduate	26.98	1.88	
Mother's education			
None	0.05	0	
Elementary level or graduate	8.94	43.89	
High school level or graduate	38.18	46.52	
Vocational	0	0.31	
College level	17.05	5.56	
College graduate	35.77	3.71	
Type of high school attended			
Public	76.84	91.53	***
Average annual income of household (Php)			
Per capita	171965.3	51156.32	***
	18869.88	4489.132	***
Average household size			
	5.7	9.3	***
Year graduated from high school			
Before 2008	4.81	13.75	
2008	3.11	7.17	
2009	4.91	11.75	
2010	13.09	17.13	
2011	8.96	17.13	
2012	65.12	33.07	
Average gap between high school and college (years)	0.94	2	***

***Significant at the 1% level.

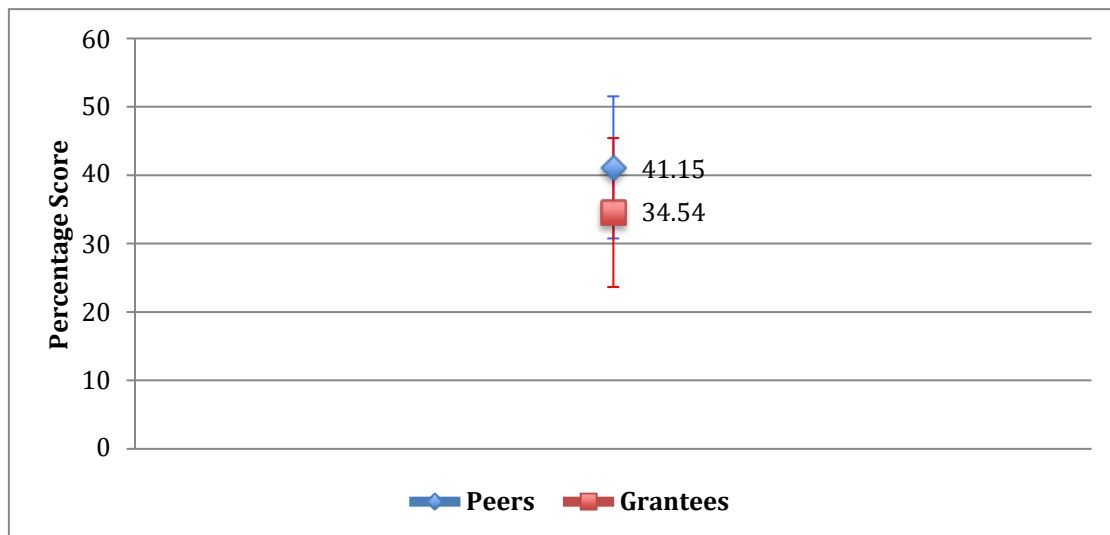
Table 4 shows the differences between grantees and peers, on average. As mentioned in the previous section, the selection process was made lenient in order to accommodate those who have been out of school longer and those that are married. This is reflected in the profile with the grantees having a higher proportion of married students compared to their peers. The grantees are also older, with almost 20% above the age of 22 as opposed to the peers' 2.5%. It follows that on average, the grantees have been out of school longer – twice the time the peers have been out of school. Disaggregation shows that 13.75% of the grantees graduated high school before 2008 meaning they have been out of school for five years or more. Unsurprisingly, most grantees graduated from a public high school.

The parents of the batch mates have higher educational attainment than the grantees' parents. 87% of the peers' fathers have had at least some high school education as opposed to only 47% of the grantees' fathers, while 91% of the peers' mothers have had at least some high school education as opposed to only 56% of grantees' mothers. Although the program was intended to cater to poor households that don't have any college graduates, 1.9% and 3.7% of the grantees' fathers and mothers, respectively, have completed college.

The profile also reflects the economic disadvantage of the grantees compared to their peers. The grantees came from substantially larger households with average household size of 9.3 while that of the peers' is only 5.7. On average, the annual income of a peer's household is three times that of a grantee's household.

The grantees for the first wave of the program are found to be academically behind their peers upon entry into the university or college. The entrance exam scores of grantees are 6.61 percentage points lower than the results of their batch mates. This is significant at the 1% level. Figure 1 shows the mean scores of both groups and their standard deviations.

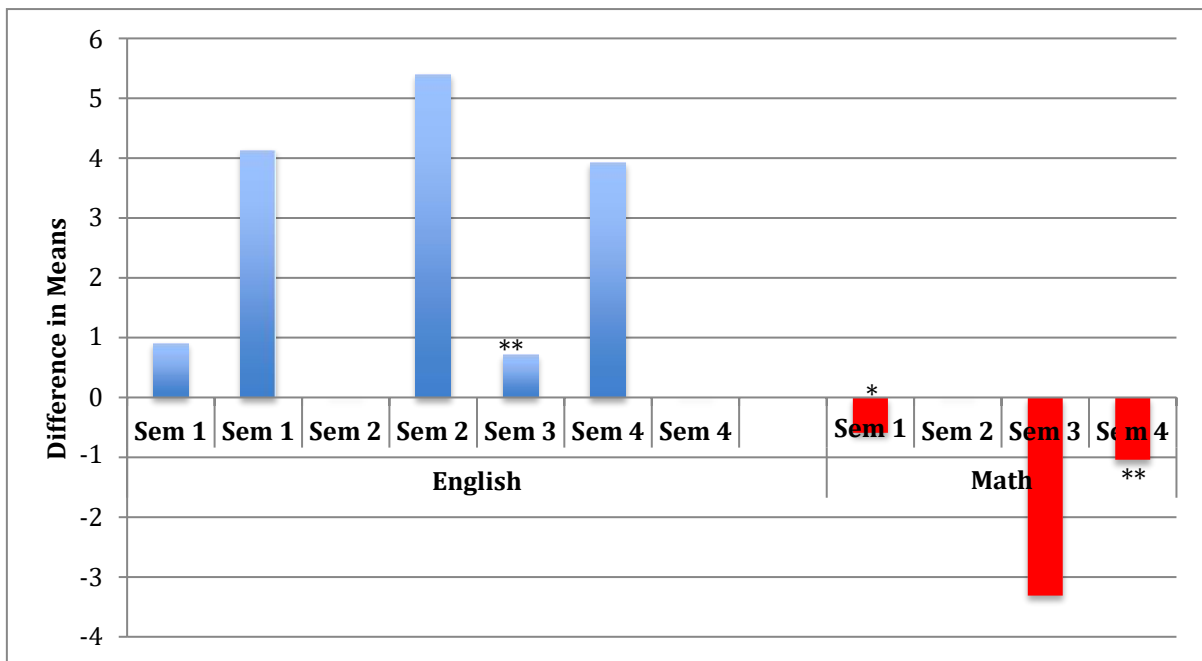
Fig. 1. Entrance Exam Scores of SGP-PA Grantees and their Peers



² Raw grades were collected for grantees and peers, ranging from 50 to 100 with single point increments. Passing grade is 75.

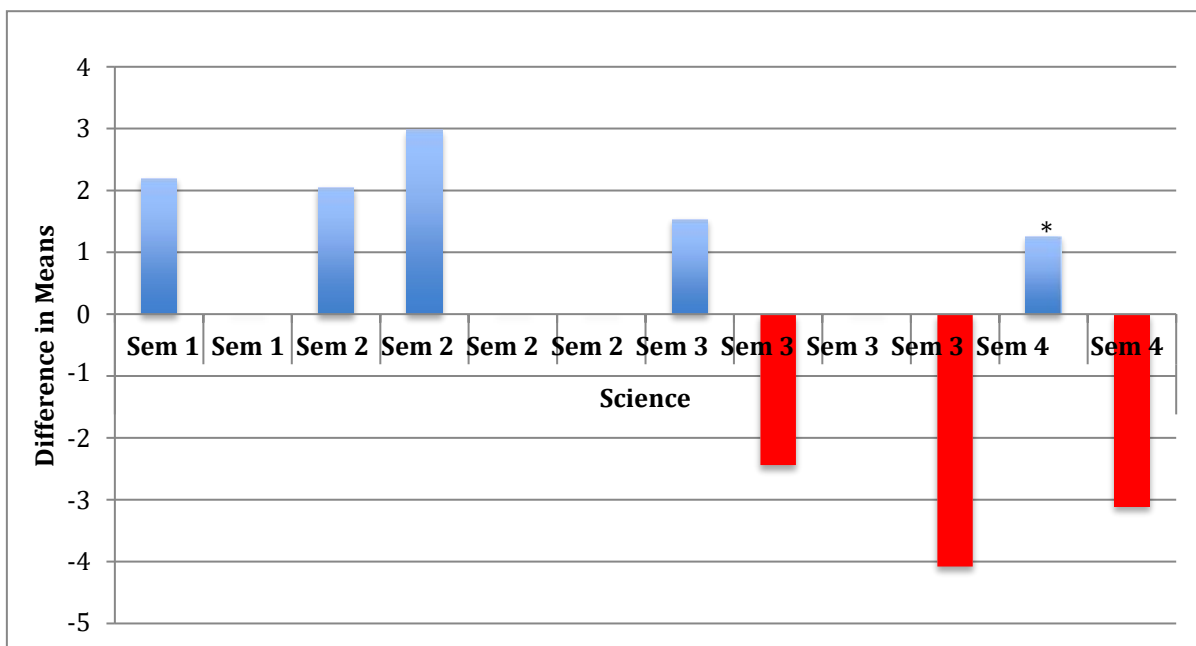
Despite the initial lag of the grantees behind their peers, they seem to be catching up by the first semester of the second year, except in English subject where a 4-point difference remains by the second semester of the second year ³. Figures 2 and 3 illustrate the difference in means between the two groups for English, Mathematics and the Sciences. The blue bars denote that peers are performing better than the grantees and the red bars denote that the grantees are performing than the peers. The absence of a bar signifies that there is no statistically significant difference between the two groups, implying that both groups are performing equally. Graphs on means and standard deviations are available upon request.

Fig. 2. Difference in means between SGP-PA grantees and peers for English and Math



*Bars are significant at the 1% level, ** at 5%, * at 10%, and no bar is statistically insignificant.*

Fig. 3. Difference in means between SGP-PA grantees and peers for Sciences



Bars are significant at the 1% level, * at 10%, and no bar is statistically insignificant.

A. ESGP-PA

Most ESGP-PA grantees are female and enter university at 18 years old, on average. Table 5 shows the differences in the profiles of grantees and peers, on average.

Table 5. Profiles of ESGP-PA Grantees and their Peers

Characteristics	Peers	Grantees	Significance
Gender			
Female	58.76	67.46	***
Civil Status			
Married	0.64	0.21	*
Age at entry			
Average (years)	17.6	18.1	***
15 to 18 years old	77.45	67.9	
19 to 22 years old	19.02	30.27	
23 to 26 years old	2.67	1.54	
27 years old and above	0.86	0.29	
Father's education			
None	1.34	0.31	
Elementary level or graduate	25.41	46.3	
High school level or graduate	45.51	44.11	
Vocational	0.9	1.41	
College level	13.22	5.05	

College graduate	13.62	2.81	
Mother's education			
None	0.4	0.1	
Elementary level or graduate	19.11	31.2	
High school level or graduate	50.63	54.83	
Vocational	0.21	0.46	
College level	15.04	8.64	
College graduate	14.61	4.76	
Type of high school attended			
Public	91.58	94.53	***
Average annual income of household (Php)	75672.14	47622.77	***
Per capita	14402.99	7061.443	***
Average household size	6.08	7.2	***
Year graduated from high school			
Before 2010	4.08	1.68	
2010	3.53	5.5	
2011	4.4	7.22	
2012	9.87	10.17	
2013	22.11	26.98	
2014	56.01	48.45	
Average time gap between high school and college (years)	1.26	1.269	

*** Significant at the 1% level, * at the 10% level.

ESGP-PA grantees are older by half a year on average compared to their peers. However, the average time gap between high school and college between the two groups are approximately the same. Upon disaggregation, a bigger percentage of the peers compared to the grantees have graduated college five or more years before entering university. Changes were made to the program guidelines for the second wave, only allowing potential grantees that were at the most 30 years of age⁴.

The economic disadvantage of the grantees vis-à-vis their peers as expected still persist. The average annual household income of the peers is 1.6 times higher than that of the grantees', with the per capita income of the grantees' households only half of the peers'. The grantees typically come from a bigger household with 7.2 members, on average, compared to their peers' households that have an average of 6 members.

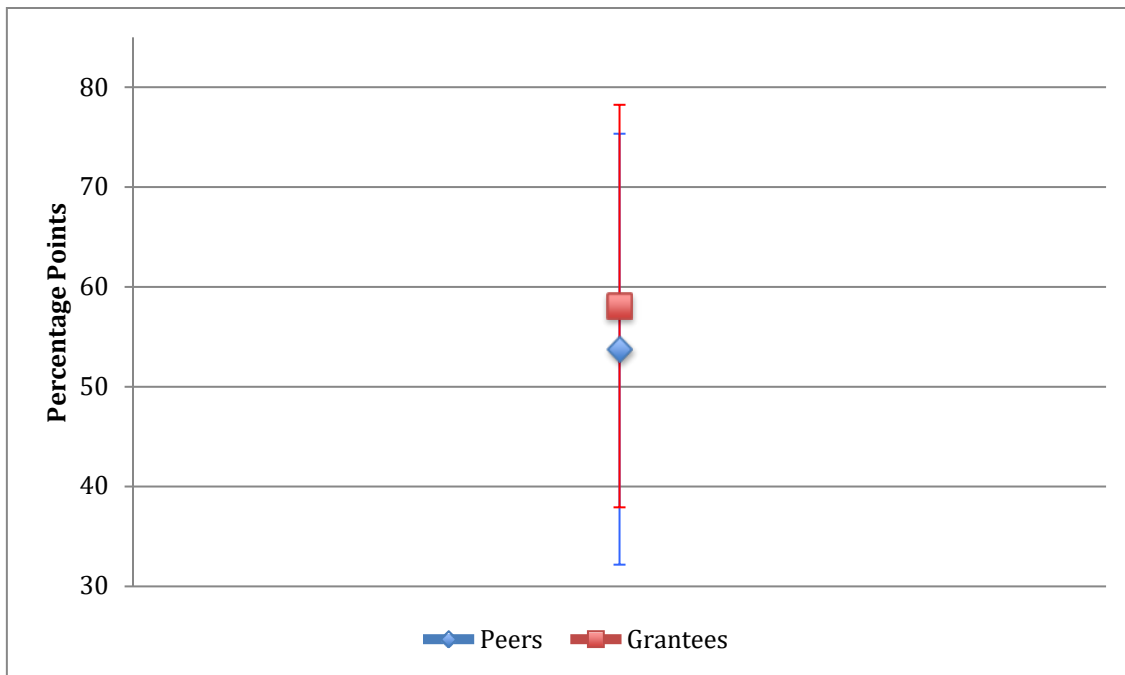
The peers' parents are more highly educated compared to the grantees' parents, with 73% of their fathers and 80% of their mothers having had at least some high school education compared to the grantees' 53% and 68% respectively. Just like the first wave, a small percentage of the grantees' parents have completed college.

The grantees' disadvantage compared to their peers is mainly of an economic nature. Not only do they enter university at around the same age, they also do not have a disadvantage in terms of the length of time they may have been out of school between

³ Age range in the data for ESGP-PA grantees is from 15 to 30.

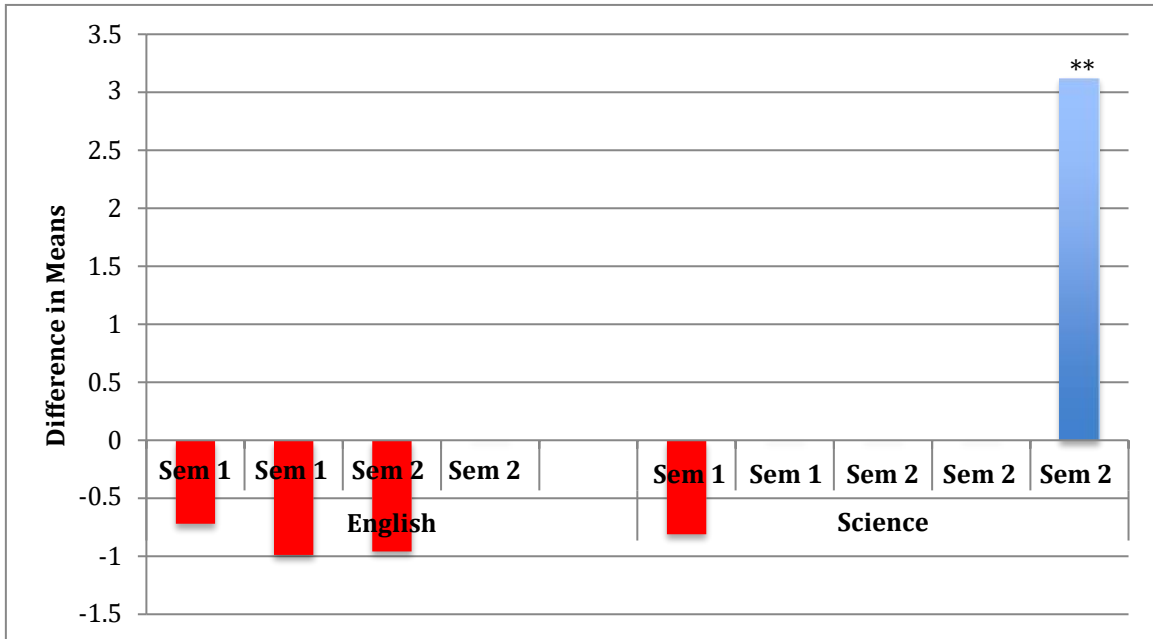
high school and college. Academically, the grantees are competitive with their peers upon entry into the university, even scoring higher in the entrance exams, on average (Figure 4). The grantees, on average, scored 4.3 percentage points higher than their peers. This is statistically significant at the 1% level.

Fig. 4. Entrance Exam Scores of ESGP-PA Grantees and their Peers



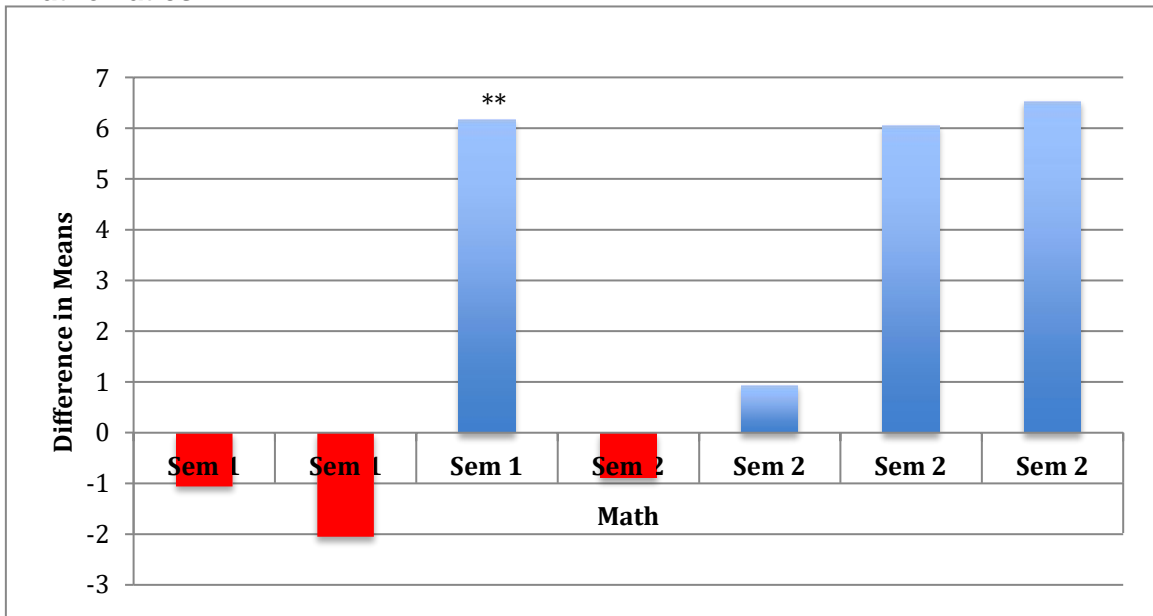
The academic advantage of the grantees over their peers remains during the first year of studies except for some subjects in Mathematics where the grantees fall behind their peers in the second semester (Figures 5 and 6). Graphs on means and standard deviations are found in Appendix B.

Fig 5. Difference in means between ESGP-PA grantees and peers for English and Science



Bars are significant at the 1% level, ** at 5%, and no bar is statistically insignificant.

Fig. 6. Difference in means between ESGP-PA grantees and peers in Mathematics



Bars are significant at the 1% level, ** at 5%.

B. Correlation between Entrance Exams Scores and Socioeconomic Characteristics

The objective of the program is to increase the number of higher education graduates among poor households and to employ them in high value-added occupations. Critical in successful completion of the program is academic performance in specific courses. We compare the relative performance of grantees and their peers in banner courses to gauge the likelihood of completion of grantees. We do so by comparing the performance of the grantees and their peers controlling for entrance exam scores and socioeconomic characteristics. Entrance exam scores indicate the baseline academic preparation when they enter the university. The socioeconomic characteristics indicate the kind of likely support they can expect from home.

Analyzing the role of entrance exams in academic performance has an independent importance. Administering admission exams is the easiest way of gauging a student's ability and likelihood to complete the degree. For some fields of study, for instance, entrance exams have been found to predict both graduation and the number of study credits taken (Häkkinen, 2004).

In order to assess the relationship between entrance exam scores and academic performance, a regression was run with end of year grades (first and second year) for English, Math, and Sciences as dependent variables. The subjects are analyzed separately as different preference and aptitude may factor in the performance for the different subject categories. Four models are constructed as described in the previous section. Table 6 shows the results for the first year and Table 7 for the second year for Models 2 and 4. Complete results for all models are found in Appendix C.

It is notable that the coefficient for the entrance exams score did not change much with the introduction of the socioeconomic variables into the model. There is the argument that the exam scores and socioeconomic status are highly correlated in US data (e.g. Rothstein).

Table 6. OLS results for first year academic achievement

Dependent variable	Mathematics				Science				English			
	Model 2		Model 4		Model 2		Model 4		Model 2		Model 4	
Independent variables	Coeff	SE	Coeff	SE	Coeff	SE	Coeff.	SE	Coeff	SE	Coeff.	SE
Entrance exam score	0.04 ***	0.02	0.06 ***	0.01	0.06 ***	0.00	0.10 ***	0.01	0.05 ***	0.00	0.04 ***	0.01
Grantee	0.22	0.17	-0.78 **	0.33	-0.24	0.21	-0.86 **	0.37	-0.16	0.16	-0.72 **	0.28
Age			0.11	0.08			0.42 ***	0.10			-0.24 ***	0.07
Log of HH income			0.34 **	0.18			1.07 ***	0.22			0.46 ***	0.15
Married			-0.70	2.12			2.25	2.43			0.28	1.94
Female			0.40	0.34			0.86 **	0.40			1.58 ***	0.29
Father had at least some HS			0.06	0.35			0.33	0.37			0.67 **	0.30
Mother had at least some HS			0.37	0.38			0.49 *	0.41			0.39	0.32
Gap between HS and college			-0.10	0.10			-0.36 ***	0.12			0.16 *	0.09
SUC			-0.49 ***	0.14			0.73 ***	0.14			0.36 ***	0.11
Program wave	0.37 *	0.22	2.32 ***	0.39	-2.84 ***	0.39	-2.43 ***	0.46	-0.95 ***	0.22	-1.03 ***	0.36
Constant	80.41 ***	0.43	73.66 ***	2.90	86.11 ***	0.78	61.94 ***	3.43	84.64 ***	0.41	82.24 ***	2.48
No. of observations	3519		1028		2581		635		4069		384	
Adj. R-squared	0.0273		0.0901		0.0621		0.2202		0.0365		0.213	

Significant at the *10%, **5%, and ***1% levels.

Table 7. OLS results for second year academic achievement

Dependent variable	Mathematics				Science				English			
	Model 2		Model 4		Model 2		Model 4		Model 2		Model 4	
Independent variables	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Entrance exam score	0.10 ***	0.02	0.13 ***	0.04	0.07 *	0.04	0.37 ***	0.09	0.16 **	0.1	0.21 ***	0.07
Grantee	0.78	0.52	0.57	0.79	0.24	1.1	5.72 **	2.45	1.58	1.3	3.75 **	1.59
Age			0.29 **	0.12			0.05	0.23			-0.18	0.22
Log of HH income			-0.67 **	0.41			-0.47	0.59			-0.47	0.46
Married			-1.94	4.50			0.00	(omitted)			2.39	3.09
Female			0.76	0.60			-0.33	0.88			2.45 ***	0.80
Father had at least some HS			-0.44	0.70			-0.94	1.22			0.62	1.09
Mother had at least some HS			-0.90	0.70			0.39	1.27			0.38	1.10
Gap between HS and college			-0.11	0.16			0.02	0.31			-0.26	0.28
SUC			0.00	(omitted)			0.00	(omitted)			0.00	(omitted)
Constant	80.41 ***	0.4	78.12 ***	5.03	80.59 ***	1.9	67.50 ***	9.11	79.9 ***	3.2	82.90 ***	7.31
No. of observations	335		184		116		63		129		120	
Adj. R-squared	0.079		0.1547		0.0174		0.1904		0.0443		0.1428	

Significant at the *10%, **5%, and ***1% levels.

The relationship between entrance exam scores and the semestral grades of students is positive for all subjects and statistically significant for most models. For Mathematics, the relationship is consistently strong and statistically significant for both models and for both years. In the first year, every percentage point increase in entrance exam score leads to a 0.04 to 0.06 increase in the end of year semestral grade. The impact of entrance exam scores is larger for the second year increasing semestral grades in Math by 0.10 to 0.13 points for every point increase of the entrance exam scores.

For Sciences, the effect is significant for both models in the first and second years. The magnitude of the impact is considerably higher for the Sciences in the second year, ranging from a 0.07 to 0.37 point increase for every percentage point increase in entrance exam scores.

The significant effect of entrance exam scores on English grades persists for all models of both years. Magnitude of the coefficient for the second year is higher than the effects during the student's first year of education, ranging from 0.16 to 0.21 for every percentage point increase of entrance exam score.

Turning on to relative performance of grantees and peers, the regression analyses results reveal no significant difference in first year academic performance only for entrance exam scores are controlled for. However when the other socioeconomic characteristics are also controlled for, there is a significantly poorer performance for grantees compared to their peers. The performance in the second year, however, tells a completely different story. While no significant difference is still found when controlling for entrance exam scores only, the grantees are shown to perform better in Science and English when other socioeconomic are controlled for as well and no significant difference for Math. It appears that while the grantees did not perform as well during the first year, they are able to overcome whatever deficiency they have in the second year and even surpassed the average performance of their peers in Science and English and perform at par in the case of Math. The results seems to indicate that their poor socioeconomic status and entrance exams only affected their initial performance in the initial year and these are no longer a disadvantage in the second year.

Summary and Recommendations

A hotly debated feature of the new Grants-in-Aid Program for Poverty Alleviation (SGP-PA) implemented starting 2012 was whether passing the entrance examinations should be waived for the beneficiaries. This paper provides empirical evidence of the correlation of entrance examinations on academic performance using data from SGP-PA program. The estimates show that there is a consistent positive correlation between subsequent academic performance in math, science and english and entrance examination scores. This highlights the importance of entrance examinations in the academic performance of tertiary students including those with low socioeconomic backgrounds. It is worth noting that it was shown that the most often cited reason for dropping out of the program is academic difficulties (Silfverberg and Orbeta, 2016). Since the objective of the program is to help children from poor households finish college education, then, it is imperative that the selection of the beneficiaries should be such that they are not only poor, this is assured by being Pantawid Beneficiaries, but also college-ready as indicated by passing the entrance examinations.

The study also shows the importance of program monitoring data in empirically assessing important program features.

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APPENDIX A. SEMESTRAL GRADES OF SGP-PA GRANTEES AND PEERS

Fig. 1. Means and deviation for English

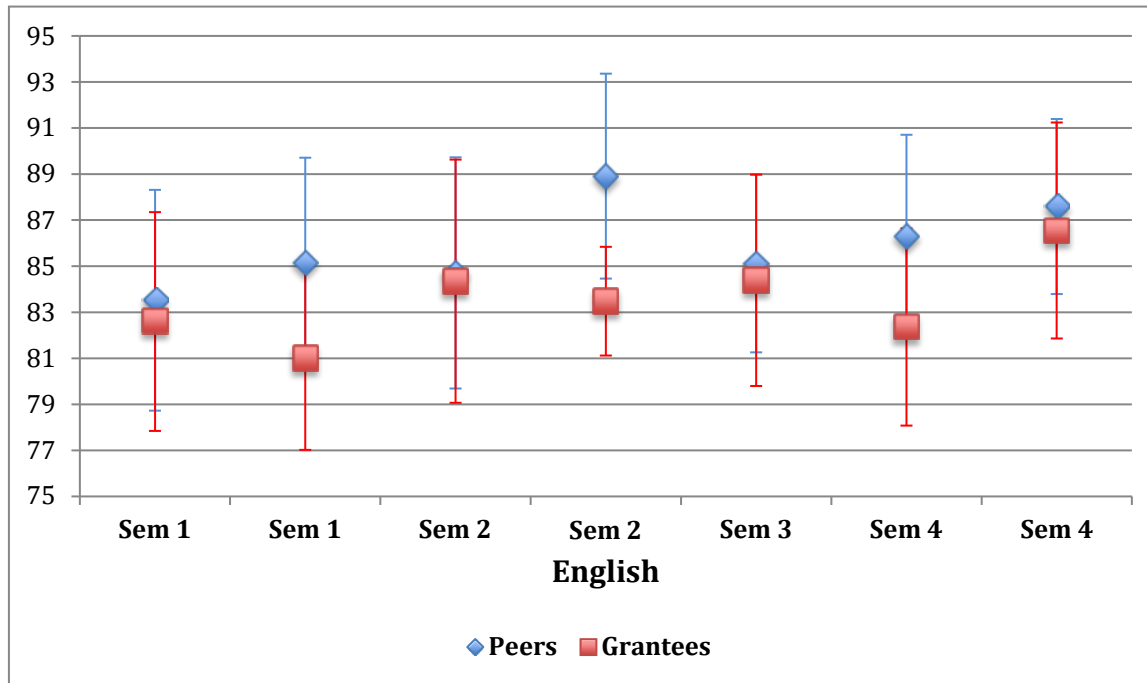


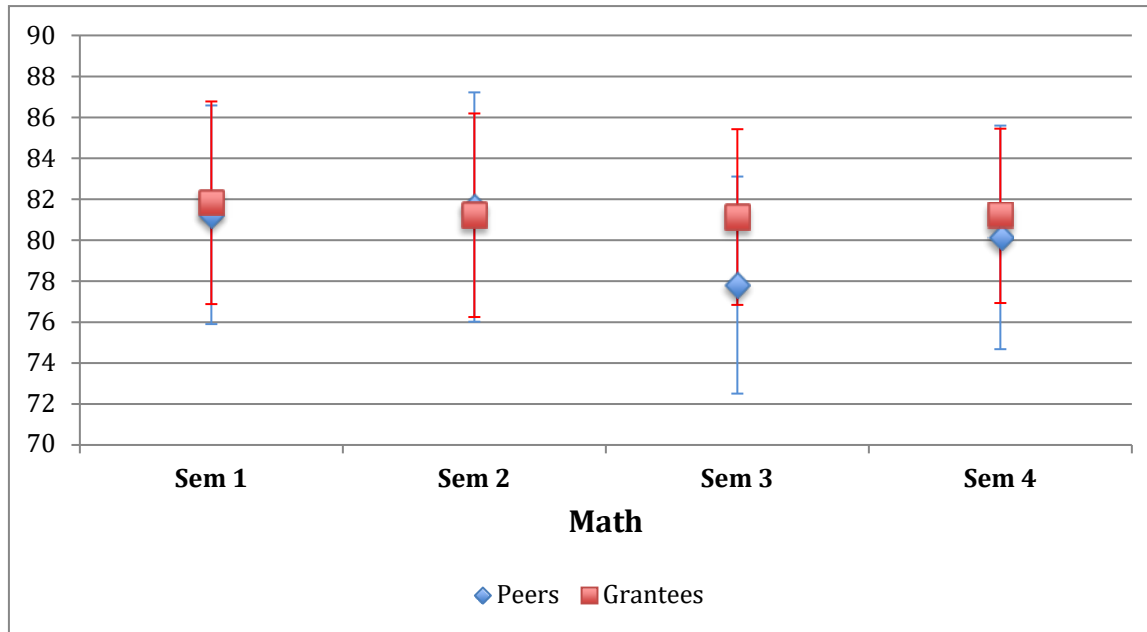
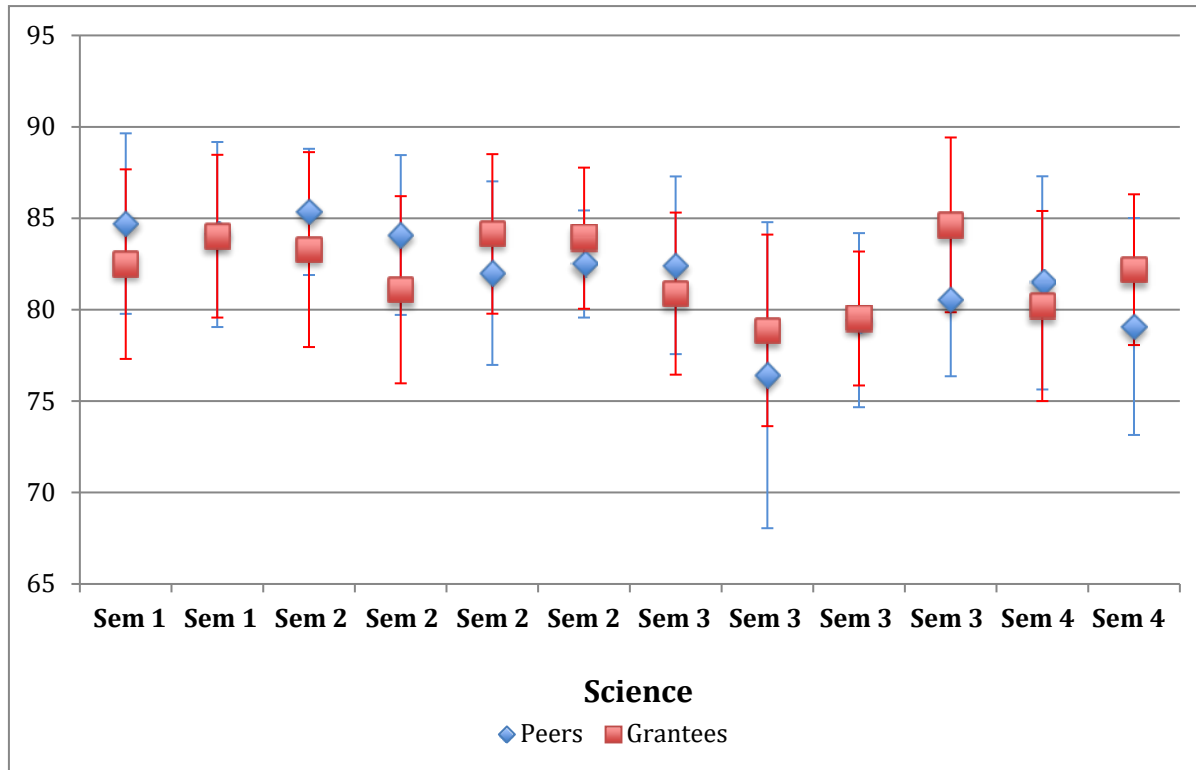
Fig. 2 Means and deviation for Mathematics

Fig. 3. Means and deviation for Sciences



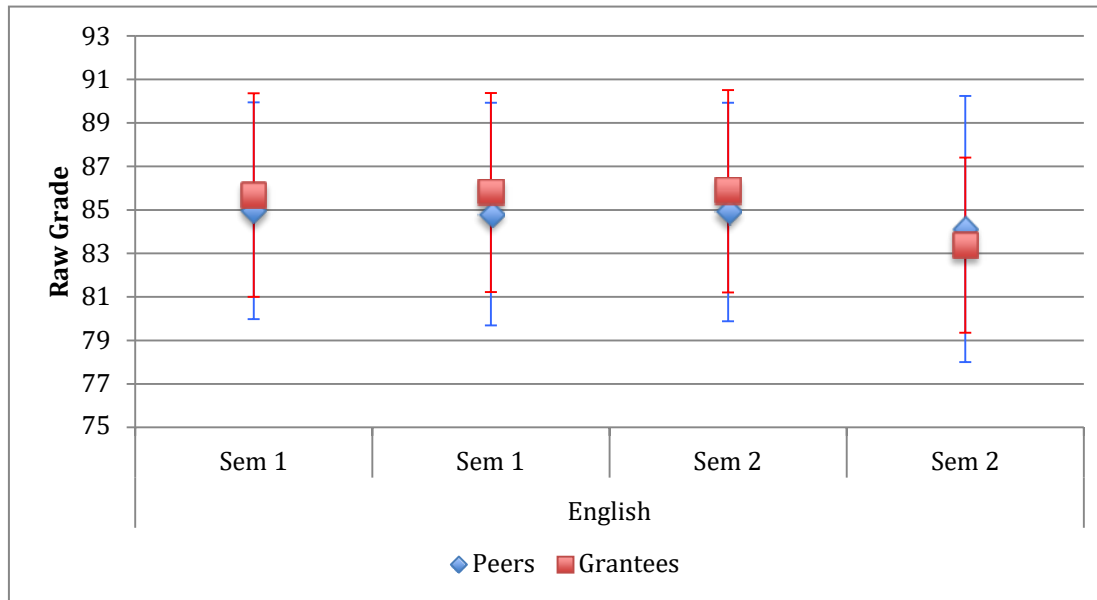
APPENDIX B. SEMESTRAL GRADES OF ESGP-PA GRANTEES AND PEERS**Fig. 1. Means and deviation for English**

Fig. 2. Means and deviation for Mathematics

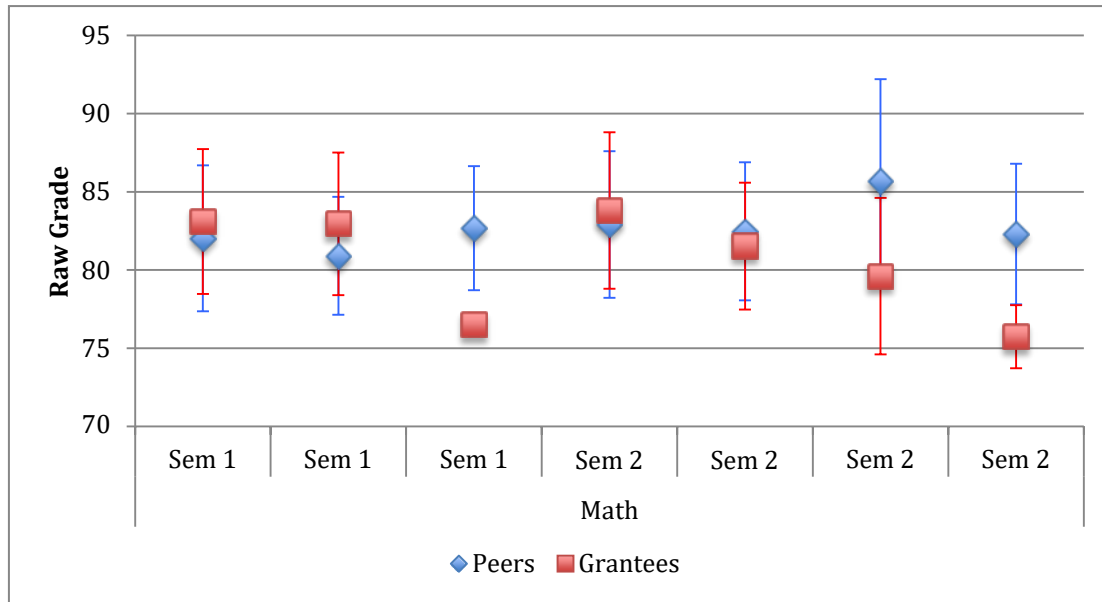
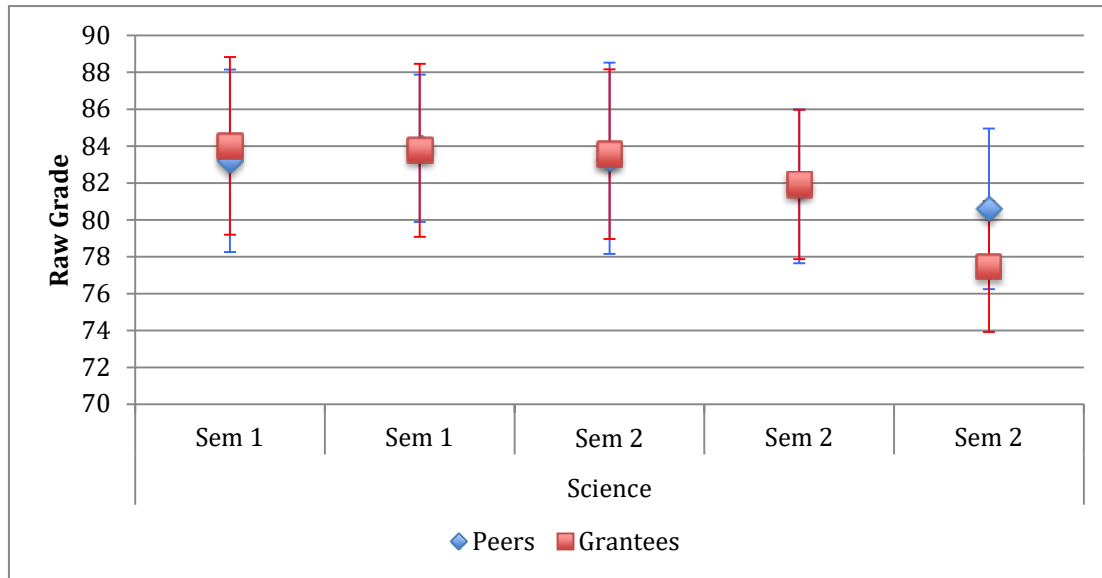


Fig. 3. Means and deviation for Sciences



APPENDIX C. OLS RESULTS FOR ALL MODELS

Table 1. OLS results for first year Mathematics

Dependent variable: Mathematics	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Entrance exam score	0.04 ***	0.00	0.04 ***	0.02	0.07 ***	0.01	0.06 ***	0.01
Grantee			0.22	0.17			-0.78 **	0.33
Age					0.03	0.07	0.11	0.08
Log of HH income					0.36 **	0.18	0.34 **	0.18
Married					-0.29	2.16	-0.70	2.12
Female					0.47	0.34	0.40	0.34
Father had at least some HS					0.17	0.35	0.06	0.35
Mother had at least some HS					0.69 *	0.38	0.37	0.38
Gap between HS and college SUC					-0.10	0.10	-0.10	0.10
Program wave			0.37 *	0.22			2.32 ***	0.39
Constant	81.08 ***	0.22	80.41 ***	0.43	75.47 ***	2.69	73.66 ***	2.90
No. of observations	3519		3519		1028		1028	
Adj. R-squared	0.0269		0.0273		0.0551		0.0901	

Table 2. OLS results for first year Sciences

Dependent variable: Science	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Entrance exam score	0.05 ***	0.00	0.06 ***	0.00	0.10 ***	0.01	0.10 ***	0.01
Grantee			-0.24	0.21			-0.86 **	0.37
Age					0.51 ***	0.10	0.42 ***	0.10
Log of HH income					1.24 ***	0.22	1.07 ***	0.22
Married					3.44	2.47	2.25	2.43
Female					1.09 ***	0.41	0.86 **	0.40
Father had at least some HS					0.35	0.37	0.33	0.37
Mother had at least some HS					0.29	0.42	0.49 *	0.41
Gap between HS and college SUC					-0.40 ***	0.12	-0.36 ***	0.12
Program wave			-2.84 ***	0.39			-2.43 ***	0.46
Constant	80.83 ***	0.26	86.11 ***	0.78	54.64 ***	3.21	61.94 ***	3.43
No. of observations	2581		2581		635		635	
Adj. R-squared	0.0436		0.0621		0.1836		0.2202	

Table 3. OLS results for first year English

Dependent variable: English	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Entrance exam score	0.04 ***	0.00	0.05 ***	0.00	0.03 ***	0.01	0.04 ***	0.01
Grantee			-0.16	0.16			-0.72 **	0.28
Age					-0.18 ***	0.07	-0.24 ***	0.07
Log of HH income					0.55 ***	0.15	0.46 ***	0.15
Married					0.71	1.94	0.28	1.94
Female					1.58 ***	0.29	1.58 ***	0.29
Father had at least some HS					0.78 ***	0.30	0.67 **	0.30
Mother had at least some HS					0.40	0.32	0.39	0.32
Gap between HS and college SUC					0.11	0.09	0.16 *	0.09
Program wave			-0.95 ***	0.22			-1.03 ***	0.36
Constant	83.09 ***	0.21	84.64 ***	0.41	78.62 ***	2.33	82.25 ***	2.48
No. of observations	4069		4069		1158		384	
Adj. R-squared	0.0325		0.0365		0.0938		0.213	

Table 4. OLS results for second year Mathematics

Dependent variable: Mathematics	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Entrance exam score	0.09 ***	0.02	0.10 ***	0.02	0.12 ***	0.04	0.13 ***	0.04
Grantee			0.78	0.52			0.57	0.79
Age					0.29 **	0.12	0.29 **	0.12
Log of HH income					-0.69 *	0.41	-0.67 **	0.41
Married					-2.91	4.29	-1.94	4.50
Female					0.76	0.60	0.76	0.60
Father had at least some HS					-0.46	0.70	-0.44	0.70
Mother had at least some HS					-0.94	0.70	-0.90	0.70
Gap between HS and college					-0.07	0.15	-0.11	0.16
SUC					0.00	(omitted)	0.00	(omitted)
Constant	77.94 ***	0.68	77.10 ***	0.88	79.07 ***	4.85	78.12 ***	5.03
No. of observations	335		335		184		184	
Adj. R-squared	0.0755		0.079		0.0628		0.1547	

Table 5. OLS results for second year Sciences

Dependent variable: Science	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Entrance exam score	0.06 **	0.03	0.07 *	0.04	0.21 ***	0.06	0.37 ***	0.09
Grantee			0.24	1.09			5.72 **	2.45
Age					0.08	0.24	0.05	0.23
Log of HH income					-0.67	0.61	-0.47	0.59
Married					0.00	(omitted)	0.00	(omitted)
Female					-0.33	0.92	-0.33	0.88
Father had at least some HS					-0.86	1.27	-0.94	1.22
Mother had at least some HS					-0.48	1.26	0.39	1.27
Gap between HS and college					0.23	0.31	0.02	0.31
SUC					0.00	(omitted)	0.00	(omitted)
Constant	80.91 ***	1.39	80.59 ***	1.98	78.98 ***	7.98	67.50 ***	9.11
No. of observations	116		116		63		63	
Adj. R-squared	0.0256		0.0174		0.1247		0.1904	

Table 6. OLS results for second year English

Dependent variable: English	Model 1		Model 2		Model 3		Model 4	
	Coeff.	SE	Coeff.	SE	Coeff.	SE	Coeff.	SE
Entrance exam score	0.25 ***	0.04	0.17 ***	0.04	0.26 ***	0.09	0.12	0.10
Grantee			-5.35 ***	0.81			-5.15 ***	1.84
Age					-0.15	0.31	0.08	0.31
Log of HH income					0.16	0.58	-0.20	0.56
Married					4.25	3.19	5.28 *	3.04
Female					3.05 *	1.53	1.70	1.53
Father had at least some HS					0.86	1.36	0.04	1.32
Mother had at least some HS					0.10	1.32	-0.88	1.30
Gap between HS and college					-0.93 **	0.38	-0.78 **	0.36
SUC					0.00	(Omitted)	0.00	(Omitted)
Constant	75.60 ***	1.86	81.85 ***	1.79	73.51 ***	9.10	83.73 ***	9.34
No. of observations	87		87		65		65	