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ABSTRACT

This study compared the different modes of evaluation at work in Greece's secondary school graduation and university admission process. The goals of the study were (1) to provide background information regarding the contribution of in-school assessment scores and external examination scores to higher education admissions decisions, and (2) to provide information on the external examination essays evaluation process. The first goal addressed questions of bias introduced in each evaluation procedure by the student's socioeconomic background and geographic origin by comparing the average score achieved in school with the average score achieved in the external examination. Informal interviews were undertaken to pinpoint some of the reasons for the differences observed between the two modes of evaluation. The second goal addressed questions of the validity of teachers-examiners' assessment of essay-type papers in the national examinations. It involved a comparison of the average score assigned by the two official examiners with the average score assigned by two other independent teachers. (BW)

SCHOOL-BASED EVALUATION AND EXTERNAL EXAMINATION EVALUATION IN THE GREEK EDUCATIONAL SYSTEM

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Paper presented at the American Educational Research Association annual meeting, April 11-15, 1983.

(50.28/The effects of teacher behavior on self and others)

A. Reforms in the selection system for higher education:

It must be emphasized at the outset, that numerus clausus is a fact of life in Greece regarding new entrants in the higher education system. The reasons are related to the existing limited capacity of the system, as well as limited resources for any expansion. It is also believed that "overeducation" of the labour force as regards general education at all levels, and the limited absorbing capacity of the labour market for higher education graduates, are also important reasons for the numerus clausus syndrome.

The necessity of a selection system is then obvious. The origins of the Greek educational system in the German and French paradigms, historically predefine that the selection system consist of written examinations, of the essay type. An instrument in the hands of the social elite at first, these examinations were, originally, and for a long period of time, administered by the Universities themselves, independently within each institution.

One of the first measures of the liberal government elected to office in the early sixties, was to develop and enforce a new system of centrally administered entrance examinations. The new system was controlled by the State (Ministry of Education), it was directly related to high school curriculum (rather than the prerequisite demands of individual university faculties) and was administered by school teachers and education superintendents in addition to university professors*.

The second reform of the admission system, in the late seventies, had the following objectives, according to its designers;

- To be geared to high school curriculum, so that "frontistiria" (special private cramming schools) will no longer be a necessity for prospective students to attend.
- To become part of the upper secondary education process itself,

*For a description of the goals set forth by the liberal reformers see G. Polydorides "Equality of Opportunity in the Greek Higher Education System:The Impact of Reform Policies, Comparative Education Review, Vol. 22, No. 1, February 1978.

in the sense that the examination would become a secondary-school-leaving examination rather than a higher-education-entrance one. All [illegible] secondary education students should take the exam, which [illegible] becomes the basis for the selection of prospective higher education students.

- To eliminate as much as possible the "chance" factor.
- To eliminate the "queuing" phenomenon. This meant that many students in the past were taking the exams for many consecutive periods, diminishing their own potential for initiating a carreer in a new discipline, as well as limiting at the same time the probability of success of new secondary education graduates.
- To reduce the unnecessary burden for students of participating in examination subjects which were completely unrelated to the field of study they intended to follow.
- To initiate and reinforce technical and vocational education at the upper secondary level.

To achieve these objectives, government policy-makers designed a system which included (beyond the 9-year compulsory education):

(a) Separation of the three-year upper secondary level into general lyceum and technical-vocational lyceum.

(b) Differentiation of the courses in second and third general lyceum grades into "core courses" and "options". There were two options, one for a humanities orientation and one for a science orientation.

(c) Technical and vocational lyceums do not include "options", but additional courses are provided for those interested in participating in the examinations and applying to corresponding higher education fields of study.

(d) A set of four essay examinations were organized for each option-type, in two stages:one after completing second lyceum grade courses and the other after completing third grade courses. These were considered school-leaving examinations administered centrally by the Ministry of Education.

The results were used both for grading students in the second and third lyceum grades (in the respective courses), as well as criteria for admission to higher education.

(e) There was a predefined content area for each exam. This area was specified as the common denominator of the material taught in all schools in the country.

(f) The admission process was based on the following achievement measures: i) four subject examinations at the end of second lyceum grade
ii) four subject examinations at the end of third lyceum grade
iii) the overall score for second lyceum grade
iv) the overall score for third lyceum grade
v) scores in specific essay examinations depending on the field (school) the student is applying for.

The criticism and controversy which followed implementation of the new school-leaving examination/university selection system focused on the following issues:

(a) The system induced great anxiety to the students because they all had to participate in the external exams. Furthermore, they knew they did not have other chances in the future (only the opportunity to participate once more in two subjects in order to improve their scores).

(b) The system produced a deteriorating effect to the quality and level of classwork during the third lyceum grade. This was due to the fact that a significant proportion of the students felt they had no chances any more to be successful candidates, since their second lyceum grade performance was not satisfactory.

(c) The system significantly hindered any potential for further study within school by the most able students. This was a direct result of the way the content-area for each exam was defined: as a common denominator of all the schools in the country. Therefore, if some schools, for example those in rural areas of the country, did not advance with a satis-

factory pace in covering their annual material, students from the more advanced schools of the center (Athens and major urban centers) would refuse to work on the advanced material since it would not become part of the exam content-area. The learning process in all schools of the country tended to follow the lead (sic) of the least organized and lower pace schools.

The new socialist government of Greece, which came to power after the elections of October 1981, having to respond to the demands raised as a result of its own pre-election rhetoric, has introduced the following changes:

(a) Abolished the examinations at the second lyceum grade.
(b) Introduced the overall grade point average in the first lyceum grade as an additional admission criterion.
(c) Introduced an additional "option", corresponding to the social sciences.
(d) Allowed the candidates to participate an infinite number of times in the external examinations for university admission.
(e) Increased the coefficient specifying the degree to which in-school evaluation is taken into account for secondary school graduation and university admission, from 18% to 25%.

B. The study

This study attempts to compare the different modes of evaluation at work in secondary school graduation and university admission process. The goals of the study are:

(a) To provide useful background information in policy decisions regarding the contribution of in-school assessment scores and external examination scores to the overall score for the evaluation of applicants in higher education.

(b) To provide information on the external examination essays evaluation process, which has raised questions of validity among educators.

The contribution of the study in the Greek educational matters rests at two points:

(a) To promote a feed-back and awareness process of teachers regarding their criteria for in-school evaluation (provided that the information is presented discretely).

(b) To give an international dimension to the above issues by relating the findings of this study to research findings in the international scene and bring Greek "uniqueness" (in these issues) under more systematic scrutiny.

This presentation is a small part from a wider research project in which a number of researchers participate and the author is principal investigator. The data presented here, in the first set of comparisons is derived from a 10% random sample of students who graduated in 1980 and succeded in higher education; this is derived from all higher education schools of the country. The questionaire included (among other groups of questions not immediately relevant to the present study) information on

- in-school assessment scores
- external examination assessment scores
- students' geographic origin (residence)
- fathers' occupation
- fathers' educational level.

The focus of the study is to investigate the mode of teachers' assessment of secondary education graduates in (a) school-based evaluation, and (b) external (essay-type) exit examinations at the national level.

Two approaches to the evaluation of graduating students assessment are attempted: The first is addressed to questions of bias introduced in each evaluation procedure by the students' socio-

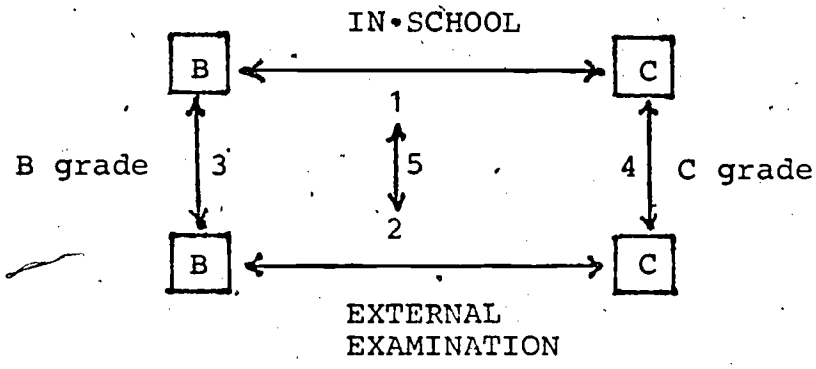
economic background and geographic origin (place of residence) by comparing the average score achieved in school with the average score achieved in the external examination. Informal interviews have followed, in an unobtrusive manner, to pinpoint some of the reasons for the differences observed between the two modes of evaluation. The second approach is addressed to questions of validity of teachers-examiners' assessment of essay-type papers in the national examinations. It involves a comparison of the average score assigned by the two official examiners with the average score assigned by two other independent teachers selected on the basis of expert advice, for each subject area in the examinations.

B.1. In-school assessment and external examination assessment

The comparison involved the percentage of (successful in higher education) students achieving an average score over 18.5 (out of 20.0) in school and in the external examination, by selected student's characteristics:

- father's occupation
- father's educational level
- region of student's residence
- urban-rural differentiation of student's residence.

Tables 1 through 4 present the data for the comparisons which are indicated in the following schema:



Comparison 1: In-school assessment (proportion achieving a high average score in grade B of the lyceum, vs. pro-

portion achieving a high average score in grade C of the lyceum).

Comparison 2: External examination assessment (proportion achieving a high average score in the examination of B lyceum, vs. proportion achieving a high average score in the examination of C lyceum).

Comparison 3: Assessment in grade B (proportion achieving a high average score in the examination of B lyceum, vs. proportion a chieving a high average score in grade B of the lyceum).

Comparison 4: Assessment in grade C (proportion achieving a high average score in the examination of C lyceum, vs. proportion achieving a high average score in grade C of the lyceum).

Comparison 5: In-school assessment and external examination assessment (difference of proportions achieving a high average score in grades B and C of the lyceum, vs. difference of proportions achieving a high average score in the external examinations of B and C).

The comparison of the proportions of students with an average score over 18.5 in in-school evaluation and in external examination evaluation for grades B and C involves samples which are not independent of each other. In this case, a "before-after" design is used in which the same persons are compared with respect to different "treatments". Vertical classification of the "pairs" by father's occupation, or father's educational level, or student's place of residence (tables 1,2,3,4) helps to control as many variables as possible other than the experimental variable. Thus, a pair-by-pair comparison is made by obtaining a difference score for each pair and "treatment".

Comparison 5 deals with the overall difference of each mode of evaluation (for each grade). The use of all four scores helps to separate out the effects of extraneous factors which might

have affected performance (e.g. extra effort, cramming school attendance, etc.), in both cases. The null hypothesis that there is no difference between the two types of evaluation was tested for each comparison. We simply hypothesize that the mean of the differences is zero, and use the t-statistic. The findings are presented in table 5, where the significant t's are indicated.

Following the comparison between different modes of evaluation and different points in time, another set of comparisons was made between different categories of parameters identifying students' background within the same type of evaluation and point in time. Thus, a comparison of two independent random samples (representing different occupational categories or educational levels and so forth) with respect to the proportion of students achieving a high score was made. The null hypothesis that the proportions are equal was formulated and tested, using the Z-statistic. The significant Z's for each characteristic of student's socioeconomic background and geographic origin are presented in tables 6 through 8.

Discussion of results:

Table 5 presents the estimates of t for the five different comparisons indicated in pages 6 and 7. The t's in column (1) indicate that there is a significant difference in in-school evaluation between grades B and C of the lyceum, grade C having a considerably higher proportion of high scorers. This is not the case in comparison (2) which estimates the significance of the differences between the two external examinations*. Significant differences are also observed between external examination proportions of high scores and in-school evaluation. While the first result provides a strong indication of teachers' bias in the way they evaluate students in C lyceum grade, the second might only indicate a fairly easy examination or an inflated assessment of students' performance in the exams. Comparison (5)

*The differences in comparison (1) are more paramount than what it appears at first, since in-school evaluation includes as scores in four out of ten exams, the four scores in the corresponding external exams; this is done so in order to avoid unnecessary dublication of subject examinations at the end of the school year.

becomes crucial at this point since it examines the differences in student assessment between grades C and B correcting for possible differences due to factors other than the teachers' mode of evaluation. This is more so if we consider that, as practically all teachers testify, students do not pay much attention to subject matters other than the four exam subjects - an issue which has been raised in the past as a serious disadvantage of the evaluation scheme - and so a significant difference in the scores achieved in school is not justified.

So there is considerable evidence to hypothesize that teachers promote students in grade C. From a social justice point of view (not from an educational or a school credibility point of view) this promoting would not be a major concern if it were equally distributed among different classes and geographic areas. This is a concern which we deal with in the comparisons presented in tables 6 through 8. It is important to note that there are few significant differences between pairs of regions (table 8) and no significant differences between categories of geographic areas (urban-rural; the data is presented in table 4).

B.2. Student assessment by official examiners and independent examiners*

In this case, twenty examination papers were randomly selected for each one of the subject areas of the external examination from the total papers of one educational administrative division. The papers were reproduced so that corrections, notes and scores by the two official examiners were deleted. The papers were then evaluated by two independent examiners (specialized in the corresponding subject area) selected on the basis of recommendations of experts (in the same subject area) in the Center of Educational Research and Teachers in-Service Training. The two mean scores (official examiners, independent examiners) were then statistically compared. The null hypothesis that there is no difference between the two mean scores was tested for each subject area, at the .05 significance level and a two-tailed test.

The findings of the computation of the t-statistic are presented in table 9 where the significant t's are also indicated.

Discussion of results:

The results show that we may reject the null hypothesis that there is no significant difference between the average scores assigned by the official examiners and the average scores assigned by the independent examiners in the following subjects: composition I, ancient Greek, Latin, history, composition II. On the other hand we may accept the null hypothesis that there is no significant difference between the average scores assigned by the official and independent examiners regarding math, physics and chemistry. This was more or less to be expected as indicated in the literature of similar research internationally. It is interesting though that the official examiners always favor students whenever a significant difference is detected. There are two obvious explanations: (a) that the official examiners have assigned higher scores to the examination papers either spontaneously (realizing the importance of the score for the student) of being instructed to do so by the Ministry (for political reasons?).

*both cases refer to selected teachers-practitioners; the first case involves a large number of teachers specialized in the corresponding subject-area and selected by the Ministry of Education.

(b) that the independent examiners have taken their role "seriously" in the sense that they were checking out their coleagues* and not evaluating students.

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*the two official examiners as well as the other independent examiner were of course unknown to them.

The interviews were in fact informal discussions with teachers-practitioners* during seemingly casual meetings. The interview was completely unstructured and focused on the teachers' perceptions regarding potential bias in the way students are evaluated in school. Teachers feel that there is a lot of pressure for them to assign high scores in school, since these scores contribute a considerable proportion to the final score on the basis of which selection for higher education is made. They assert that pressure varies among geographic regions and it is higher in medium size urban centers. Rarely do teachers recognize that they themselves are biased in their evaluation of students' in-school performance by patterns of behavior, and the social status of the students, factors which are not apparently identifiable in the external examination papers. As it was expected at the outset, these interviews by no means have produced conclusive evidence. Rather, they provide some indications for the development of hypotheses to be systematically tested in a relevant future study. We believe that such a study would benefit practitioners if it were to be undertaken by a group formed by peers as well as educational researchers. Due to the sensitivity of the issues involved, and possible comments by the general public as a result, we believe that such a research project ought to be carried out discretely. Following that, the dissemination of information ought to take place through the relevant professional associations to all teachers-practitioners so that they begin reviewing their own evaluation patterns and attitudes.

*a good proportion of those interviewed have participated as official examiners in the external examination.

TABLE 1: Proportion of students achieving an average score over 18.5 (out of 20.0) by father's occupation.

Father's Occupation	IN SCHOOL		EXTERNAL EXAMINATION		Number of cases
	B	C	B	C	
Education	35.3	51.7	68.1	77.2	114
Manager	28.6	40.2	68.1	67.2	117
Professional (univ.)	26.6	38.3	61.1	71.3	108
White collar	20.9	29.5	56.1	61.7	245
Commercial	19.8	26.3	54.3	57.8	169
Military	15.4	28.9	58.0	54.9	85
Professional (other)	13.5	17.9	49.5	46.7	295
Skilled Worker	11.6	18.6	47.7	49.7	161
Unskilled Worker	9.3	18.9	52.6	53.3	86
Sales personnal	7.3	14.7	28.3	33.3	63
Agriculture	7.1	13.8	37.5	37.2	317
Other	24.5	35.8	63.0	67.0	105
Total	16.8	25.1	52.4	54.3	1865

TABLE 2: Proportion of students achieving an average score over 18.5 (out of 20.0) by father's education.

Father's Education	IN SCHOOL		EXTERNAL EXAMINATION		Number of cases
	B	C	B	C	
University graduate	31.5	44.4	68.4	73.3	266
Teachers' college	33.7	50.6	67.9	79.3	82
Completed Secondary	21.6	29.8	53.5	57.3	374
Completed Technical and Vocational	13.8	23.2	48.1	43.8	110
Some Secondary	11.5	19.8	49.0	47.3	159
Completed Primary	11.1	18.0	46.6	49.0	582
Some Primary	9.2	15.2	41.7	45.3	269
No education	8.0	8.0	35.0	25.0	23
Total	16.8	25.1	52.4	54.3	1865

TABLE 3: Proportion of students achieving unaverage score over 18.5 (out of 20.00) by place of residence (regions)

Regions	IN SCHOOL		EXTERNAL EXAMINATION		Number of cases
	B	C	B	C	
Peloponnese	19.2	28.7	55.8	60.1	160
Sterea and Euvia*	15.9	24.3	55.6	57.2	765
Aegean Islands	23.2	38.2	50.0	57.7	55
Crete	25.0	25.3	50.0	57.0	91
Macedonia	15.6	24.3	53.3	52.8	473
Thessaly	20.5	24.5	43.8	49.7	184
Epirus	10.8	26.6	43.4	52.8	59
Ionian Islands	7.4	21.4	50.0	40.9	28
Thrace	13.2	23.1	29.8	19.6	50
Total	16.8	25.1	52.4	54.3	1865

*It includes the Athens region.

TABLE 4: Proportion of students achieving an average score over 18.5 (out of 20.0); urban and rural areas.

Geographic area	IN-SCHOOL		EXTERNAL EXAMINATION		Number of cases
	B	C	B	C	
URBAN Athens (center)	16.4	25.0	54.4	51.8	80
Athens (upper and middle class suburbs)	17.0	26.0	58.0	59.3	491
Athens (working class suburbs)	12.1	19.8	54.8	59.8	87
County seats	18.8	27.3	53.0	56.3	801
RURAL Rest of the country	13.7	20.4	43.0	44.8	406
Total	16.8	25.1	52.4	54.3	1865

TABLE 5: Estimates of t from matched pairs and different evaluation procedures (:in-school evaluation B Lyceum, C Lyceum, external examination B Lyceum, C Lyceum.

Category of pairs	IN-SCHOOL C - B (1)	EXT. EXAM. C - B (2)	B EXAM.- INSCH. (3)	C EXAM.- INSCH. (4)	Overal Differen. (1)-(2) (5)
Father's occupation ($t \geq 2.201$)	* t=9.43	* t=2.21	* t=20.77	* t=21.48	* t=5.33
Father's education ($t \geq 2.365$)	* t=4.86	t=0.89	* t=28.17	* t=15.36	* t=5.80
Geographic region ($t \geq 2.306$)	* t=5.60	t=0.75	* t=10.47	* t=6.26	* t=2.47
Geographic area ($t \geq 2.776$)	* t=19.75	t=1.30	* t=15.66	* t=11.18	* t=4.56

* significant at the .025 level for one-tailed test

TABLE 6: Significant Z's: difference of proportions between occupational categories (father's)

Level of significance .025;
one-tailed test

father's occupation	education	manag.	professional (univ)	white collar	military	commerc.	other profess.	skilled	unskilled	sales person.
education										
manager										
professional (univ.)										
white collar	◐ ○									
military	◐ ○									
commercial	◐ ○ □									
other professional	◐ ◧ ○ □	◐ ◧ ○ □	◐ ○ □	○						
skilled	◐ ◧ ○ □	◐ ◧ ○ □	◐ ○ □	○						
unskilled	◐ ○ □	◐ ○	◐ ○							
sales person.	◐ ◧ ○ □	◐ ◧ ○ □	◐ ◧ ○ □	◐ ◧ ○ □	○ □	◐ ◧ ○ □	◧	◧		
agricultur	◐ ◧ ○ □	◐ ◧ ○ □	◐ ◧ ○ □	◐ ◧ ○ □	□	◧ □	◧	◧	□	

◐ : significant difference; in-school evaluation, B Lyceum
○ : significant difference; in-school evaluation, C Lyceum
◧ : significant difference; external examination, B Lyceum
□ : significant difference; external examination, C Lyceum

TABLE 7: Significant Z's: difference of proportions between educational levels (father's).

Level of significance .025; one-tailed test

father's education	University	Teachers' College	Secondary	Technical and Vocational	Some Secondary	Primary	Some Primary	no education
University								
Teachers' College								
Secondary	■ ○ □	■ ○ □						
Technical and Vocational	● ■ ○ □	● ■ ○ □						
Some Secondary	● ■ ○ □	● ■ ○ □	●					
Primary	● ■ ○ □	● ■ ○ □	● ○					
Some Primary	● ■ ○ □	● ■ ○ □	● ○ □					
no education	● ■ ○ □	● ■ ○ □	● ○ □					

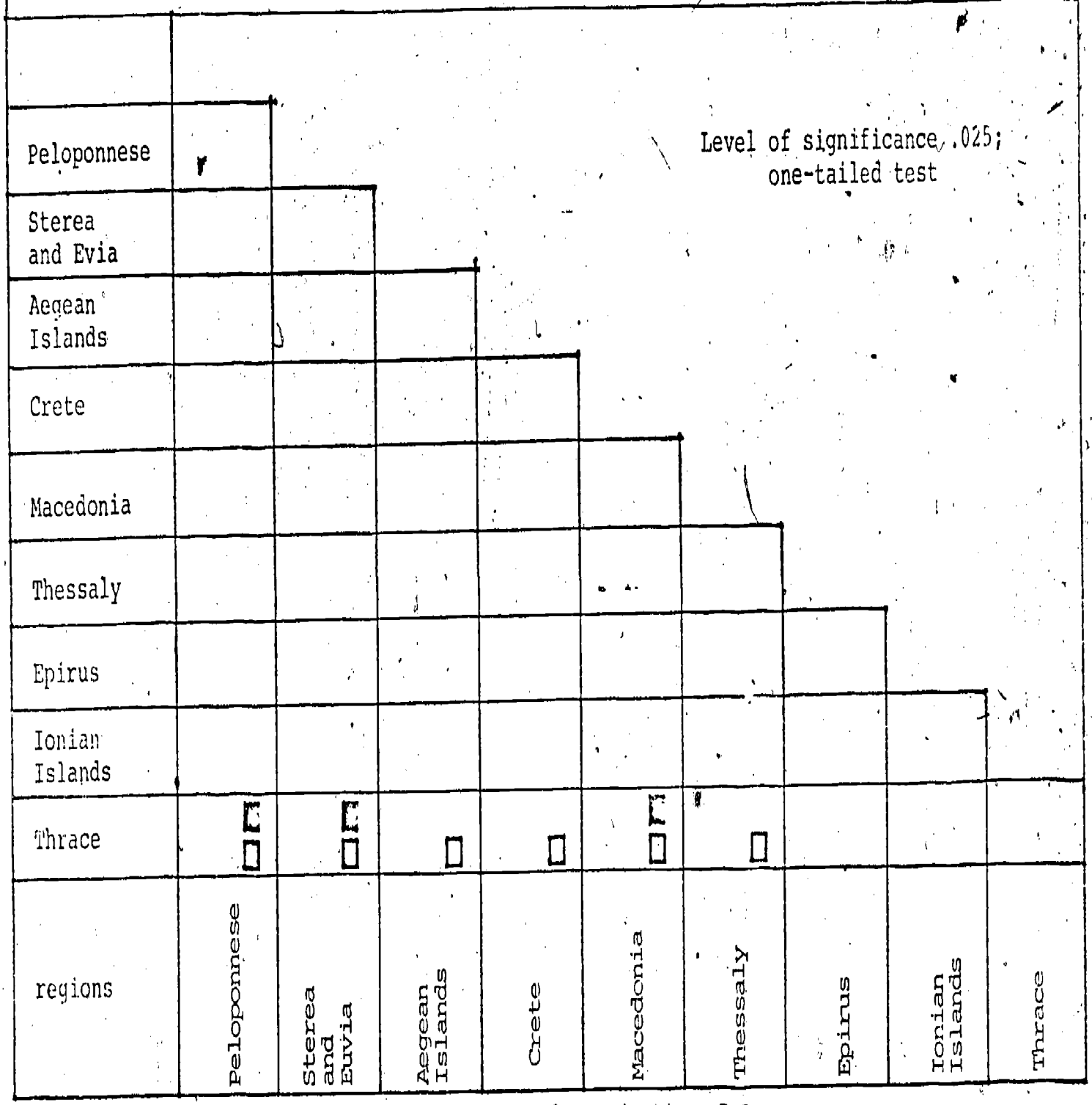
●: significant difference; in-school evaluation, B Lyceum

○: significant difference; in-school evaluation, C Lyceum

■: significant difference; external examination, B Lyceum

□: significant difference; external examination, C Lyceum

TABLE 8: Significant Z's: difference of proportions between regions of students residence.



: significant difference; external examination, B Lyceum

: significant difference; external examination, C Lyceum

: significant difference; in-school evaluation, B Lyceum

: significant difference; in-school evaluation, C Lyceum

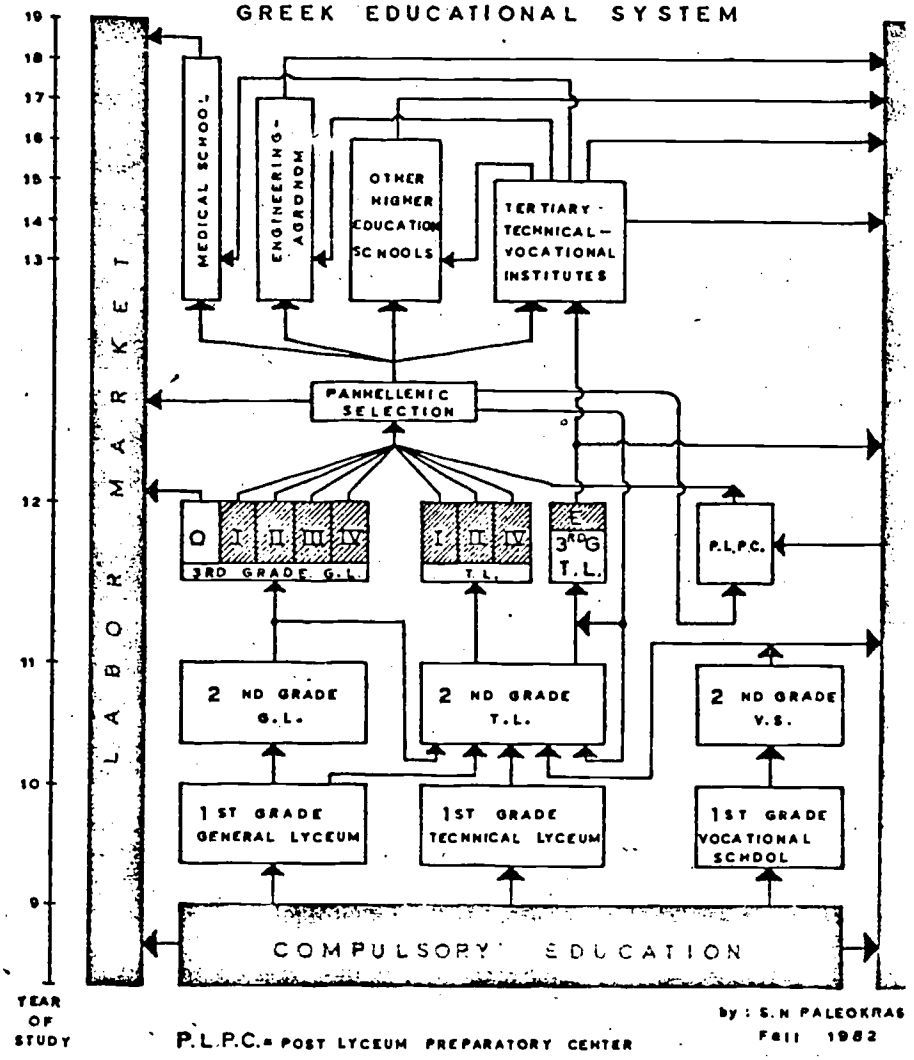
TABLE 9: Comparison of exams' assessment by official examiners and independent examiners

Subject	Estimate of t	degrees of freedom	direction (favor students)
Composition I	3.97*	19	official examiners
Ancient Greek	4.011*	19	official examiners
Latin	2.776*	19	official examiners
History	4.31*	19	official examiners
Composition II	3.88*	19	official examiners
Mathematics	2.033	19	
Physics	1.828	18	
Chemistry	2.047	19	

*significant at the .05 level and two-tailed test.
(t 2.093, 19 d. of f.)
(t 2.101, 18 d. of f.)

HELLENIC REPUBLIC
MINISTRY OF NATIONAL EDUCATION AND RELIGION
CENTRE FOR EDUCATIONAL RESEARCH AND TEACHER IN-SERVICE TRAINING

ARTICULATION OF GREEK EDUCATIONAL SYSTEM



by : S.N PALEOKRAS
Fall 1982

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