



What Works in Education?

Using Evidence to Improve Education

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Are scholarships and grants effective when it comes to the continuity and improvement of educational results at primary and secondary school level?

Mauro Mediavilla

One of the elements on which the educational debate has been focusing over the last years is the large number of individuals who do not continue their studies beyond the compulsory education level, quantified by a high rate of premature school dropouts. Literature indicates that this phenomenon is the result of the cumulative action of a series of vulnerability factors (individual, family- and environment-related). In this framework, the present review raises the question whether scholarships and study grants can act as a stimulating factor for the continuity in the school centre and/or the improvement of educational results and, moreover, tries to find out which design produces the biggest effects.

“For too long, education has been based on inertia and traditions, and the educational changes on intuitions or unfounded beliefs. The “what works” movement surfaces in the educational world with a clear objective: promoting educational policies and practices, based on evidence. [Ivàlua](#) and the [Fundació Jaume Bofill](#) join forces to help this movement move forward at home.”



What Works in Education?

Using Evidence to Improve Education

Are scholarships and grants effective when it comes to the continuity and improvement of educational results at primary and secondary school level?



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Motivation

One of the elements on which the educational debate has been focusing over the last years is the large number of individuals who do not continue their studies beyond the compulsory education level, quantified by a high rate of premature school dropouts.¹ Nevertheless, with the economic crisis, this rate has been decreasing as a result of vanishing professional alternatives (especially for temporary employment in the sectors of construction, hotel industry or catering) which had been working as a “vacuum cleaner” for young people with certain socioeconomic characteristics. In fact, literature indicates that premature school dropout is the result of a series of vulnerability factors (individual, family- and environment-related) which, when accumulated, result in the individual’s premature exit from the educational system, with the consequent loss for the entire society.

In this context, it is important to be aware of the existence and further develop educational policies which already have produced results in different places around the world, in order to ensure the continuity in the school centre and/or the improvement of educational results.

¹ Premature school dropout rate: percentage of young people between the ages of 18 and 24 who have, at most, completed the first stage of secondary education and no longer receive any kind of education or additional training.

This is the reason why this work addresses the scholarships of a compensatory nature, aimed at collectives of students and families with certain social or academic deficiencies, and also the non-focalised grants, for all kind of students, that include an incentive in the shape of an “award” in case of reaching certain established educational objectives. In both cases, we consider scholarships, aimed at different educational levels (primary, compulsory secondary and post-compulsory secondary) and pursuing different objectives: continuity in the school centre, improvement of results and graduation. Therefore, it is useful to highlight the existence or the absence of differential effects (meaning, the possibility that scholarships and grants would be more beneficial for certain collectives of students than for others), given their utility in the design of future policies in this matter.

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This review of international evidence aims at providing interpretative keys on the effectiveness of scholarships at a non-university educational level and, therefore, tries to fill the void, created by the lack of studies and assessments, conducted in the Catalan and Spanish territories.

What programs are we talking about?

In this review, we consider the studies that presented verified evidence of programs, involving a financial incentive and aimed at pre-university levels. Therefore, programs involving non-financial incentives² and affecting the higher educational level³ are excluded from this assessment.

Given that the objective is to find the causal effect of the programs under study, we give priority to the selection of studies, based on an experimental methodology, where the treatment and control groups are assigned randomly. Moreover, two studies have been included, demonstrating causality using different methodological approaches [1][2].⁴

In a more detailed manner, the present review considers the following axes of analysis:

- **Program profile: compensatory or non-focalised.** In the first case, these programs are aimed at collectives that gather certain characteristics of vulnerability (social or academic) and are created with the objective of reducing the effect of these iniquities at the start. Moreover, the schemes of the compensatory type can

2 [3] Presents an extensive systematic review of the effectiveness of non-financial interventions, aimed at students from economically underprivileged environments.

3 For an overview of the main challenges concerning the design of policies, aimed at this collective, see [4].

4 For an overview of all methodologies, demonstrating causality, see [5].

be conditioned or not. In the second case, the non-focalised programs include the entire student population and are based on incentivisation to reach educational objectives.

- **Treatment target population.** This is directly related to the previous point. The target population indicates the collective the policy is aiming at. This could be a specific age, the fact of having precedents related to educational performance, particular private situations (teenage mothers) or coming from socioeconomically underprivileged environments, among others.
- **Educational level.** The programs can be aimed at the elementary (primary) or secondary (compulsory or post-compulsory) educational level. Some programs affect both levels.
- **Particularities with respect to implementation.** In this point, we consider a wide variety of designs. For example: there are variations between individual or group scholarships; the amount can be increased when reaching a higher educational level; in some cases, the scholarship is in kind (toy) and in others, the stimulus is awarded at the start, after which the beneficiary needs to return the money in case he does not fulfil the established requirements, necessary to be entitled to it.
- **Main objectives of the scholarship.** Normally, the objectives are educational continuity (school centre attendance), improvement of performance and graduation.
- **Existence of differential effects.** One striking element is that, in some assessments, policies with non-homogenous effects between all treated individuals are detected, where some collectives of students obtain a higher yield.

It has not been possible to take into account other variables of interest, such as financial sources, voluntary participation or conditionality scheme, due to the fact that they have not been sufficiently addressed in the studies under review.

Questions guiding the review

In order to respond to the main objective of the investigation (knowing the effectiveness of the scholarships), the following questions have been considered:

- 1) Are scholarships effective when it comes to improving educational results?
- 2) What are the characteristics of the most effective compensatory / non-focalised programs?
- 3) Are some abilities or learning points affected more positively than others by these interventions?
- 4) For which collectives are the scholarships most effective? Does the implementation have an influence?
- 5) Would some of the policies, reflected in this review, be applicable to the reality of the Catalan educational system? Under which conditions?

Evidence review

Given the scarcity of rigorous assessment work in the Catalan and Spanish area, the present study is based on the results of assessments and reviews, developed in different contexts, mainly in the United States of America and some developing countries. The main information source has been the Institute of Education Sciences (Department of Education, United States of America), the World Bank and own research.

The work divides the analysed programs in compensatory ([table 1](#)) and non-focalised ([table 2](#)). Within each of these groups, different aspects are taken into account, considered crucial with respect to the knowledge of the design of each policy: the country where it has been developed, the implementation form, profile of the students, the educational level where the action is launched, the educational objectives pursued and, finally, the calculation of the impact and the existence (or not) of differential effects.

The present study is based on the results of assessments and reviews, developed mainly in the United States of America and some developing countries.



Table 1.
Review of evidence-based literature: compensatory programs

References	Country	Implementation	Students' profile (target population)	Educational level	Educational objectives	Measured effect / Differential effect (4)
Allan and Fryer (2011) [6] / Fryer (2012) [7]	USA	Students can achieve a financial incentive by passing a Mathematics test. Teachers have incentives according to the performance of their students and for attending meetings with parents. The parents have incentives according to the results of their children and their participation in meetings	Public schools with low educational performance	Primary	Improved results	1.08 SD (sig.) (5) / Different effects according to gender, ethnic group and previous performance level
Maluccio <i>et al.</i> (2010) [8]	Nicaragua	Program of conditional transfers, according to the school attendance rate	Pupils between 7 and 13 who have not completed fourth grade of primary school. Coming from underprivileged rural environments	Primary	Continuity	Dropouts: -5.8% (sig.) Repetition: -11.6% (sig.) Attendance: 41.2% (sig.) / higher effectiveness in areas with educational autonomy and in the most underprivileged environments
Filmer and Schady (2008) [1]	Cambodia	Scholarship program to ensure the primary – secondary school transition	All female students	Primary – compulsory secondary	Continuity	30.3% (sig.) / Larger impact in the most underprivileged classes
Sparrow (2007) [2]	Indonesia	Program of conditional transfers, according to the school attendance rate and the non-repetition of grades	Students from the fourth grade of primary school onward, coming from underprivileged environments	Primary – compulsory secondary – post-compulsory secondary	Continuity	Primary: 10% (sig.) ; Compulsory secondary: 11.7% (sig.) ; Post-compulsory secondary: -0.2% (non-sig.) / Larger effects for students considered being the poorest within the distribution.
Levitt <i>et al.</i> (2016) [9].	USA	Two-level program: (A) Primary (B) Post-compulsory secondary. Options: money prize according to the compliance of requirements or loss of a previously awarded incentive in case of not meeting foreseen objectives	Programa d'incentius dirigit a escoles amb baix rendiment educatiu	Primària – secundària post-obligatòria	Millora en resultats	Diferents resultats. (A) Sig. (B) Sig. / Major efecte en cas de l'incentiu centrat en la pèrdua d'una compensació ja atorgada; en cas d'estudiants de primària, en Matemàtiques i en nois
Angrist i Lavy (2003) [10]	Israel	Scholarship for registration and school attendance	Students with low educational performance (starting with a pre-test)	Post-compulsory secondary	Graduation	0.1% (non-sig.)
Long <i>et al.</i> (1996) [11]	USA	Monthly scholarship, received by the beneficiary for compliance with school attendance requirements. Also, in case of completing <i>High School</i> (or GED), (3), an additional financial stimulus is awarded	Teenage mothers	Post-compulsory secondary	Continuity / Improved results / Graduation	II: +6 (sig.) / +4 (non-sig.) / +4 (non-sig.) (6)
Snipes <i>et al.</i> (2006) [12]	USA	Scholarship with a duration of four years (= High School), including the costs for attending two summer schools. Requirements: minimum average educational performance (75/100), completing some preparatory courses to access university and attend the two summer schools	Students from economically underprivileged environments	Post-compulsory secondary	Improved results / Graduation	II: -4 (non-sig.) / -3 (non-sig.) (6)

Source: Self-processing based on data from the Institute of Education Sciences, Department of Education (United States of America) and own research

- (1) Methodology: regression discontinuity and near-experimental pairing methodology (2) Metodologia: Variables instrumentals.
- (2) Methodology: instrumental variables.
- (3) *General Educational Development Certificate* (GED). Equivalent to High School (post-compulsory secondary), aimed at young people who have not completed their studies following the traditional path.
- (4) In this column, statistically significant impact values are highlighted in bold.
- (5) Values expressed in terms of Standard Deviation (SD). [10] considering that values smaller than 0.10 represent a small effect, between 0.10 and 0.30 a medium effect, and higher than 0.30 a large effect.
- (6) Improvement Index (II): represents the difference in percentage between the average score of the group, affected by the intervention (treated) and the average score of the control group. This index can show values between -50 and +50, where positive values indicate a positive result of the policy under assessment.

Table 2.
Review of evidence-based literature: non-focalised programs

References	Country	Implementation	Educational level	Educational objectives	Measured effect / Differential effects (1)
Allan and Fryer (2011) [6]	USA	Second grade primary school students receive a financial incentive, according to the number of books they have read (and understood)	Primary	Improved results	0.18 SD (Sig.) (2)
Berry (2015) [13]	India	Scholarship in cash or in kind (toy), received in case of improved reading skills after two months	Primary	Improved results	0.48% (Sig.)
Bettinger (2012) [14]	USA	Scholarship in cash, according to the educational performance. A test is done at the end of each course. The financial stimulus is awarded, or not, depending on the result	Primary	Improved results	Mat: 0.13 SD (Sig.) (2) Language: non-sig. Science: non-sig. Social Studies: non-sig.
Blimpo (2014) [15]	Benín	Individual prize or per group of four students. Awarded in case of exceeding an established performance level in the corresponding tests	Primary	Continuity / Improved results	0.29 SD (Sig.) (2)
Fryer (2011) [16]	USA	Study of three scholarship programs (in three cities) to stimulate schooling continuity and educational performance. In one case, the incentive was to read books, in the other two, according to the qualifications obtained	Primary	Continuity / Improved results	Different results (non-sig.)
Galiani and McEwan (2013) [17].	Honduras	Program of conditional transfers, according to the school attendance rate	Primary	Continuity	8% (Sig.) / Larger effect for students from socioeconomically underprivileged environments
Han <i>et al.</i> (2010) [18]	China	Program integrating three actions: (A) incentive to pass the course; (B) incentive for tutorials with fellow student and; (C) communication actions with parents. Applied separately (A or B) and together (A+B+C)	Primary	Continuity / Improved results	(A) -0.02 SD (non-sig.); (B) 0.14 SD (Sig.) ; (A)+(B)+(C) 0.20 SD (Sig.) (2)
Allan and Fryer (2001) [6]	USA	Students receive the incentive when passing a test	Primary – compulsory secondary	Improved results	Different results (non-sig.)
Allan and Fryer (2001) [6]	USA	Each year, schools receive a financial incentive, to be shared among the teachers. This cannot be done according to seniority. Requirements: students' attendance and performance	Primary – compulsory secondary – post-compulsory secondary	Continuity / Improved results	Different results (non-sig.)
Allan and Fryer (2001) [6]	USA	Students are rewarded according to their attendance rate and behaviour at school	Compulsory secondary	Continuity	Reading: 0.14 SD (non-sig.) Mathematics: 0.10 SD (non-sig.) (2)
Allan and Fryer (2001) [6]	USA	Students receive the incentive according to their notes at the end of the course. One part: immediately; the other part: after graduation	Post-compulsory secondary	Improved results / graduation	Reading: -0.01 SD (non-sig.) Mathematics: -0.10 SD (non-sig.) (2)
Allan and Fryer (2001) [6]	USA	Three incentive types: (A) for students, (B) for teachers and (C) for students, teachers and school managers. Requirement: performance in Mathematics	Post-compulsory secondary	Improved results	Different results. (A) Sig. , (B) non-sig. (C) Sig. / Different effects, according to the program maturity and its continuity.

Source: Self-processing based on World Bank data and own research

Target population: all students for all assessments, with the exception of the Honduras case, where the program is aimed at students between 6 and 12 years of age, following primary school's first to fourth grade.

(1) In this column, statistically significant impact values are highlighted in bold

(2) Values expressed in terms of Standard Deviation (SD). [10] considering that values smaller than 0.10 represent a small effect, between 0.10 and 0.30 a medium effect, and higher than 0.30 a large effect.

Are scholarships effective when it comes to improving educational results?

The review that was conducted indicates that, in general, scholarships can be a useful instrument with respect to the improvement of educational results. Nevertheless, it is necessary to do a series of evaluations in order to understand in which areas and under what conditions this instrument can become more effective:

- With regard to the educational level, the biggest effect has been observed in the primary education and vanishes as the level increases.
- Considering the objectives, their effectiveness with respect to avoiding school dropouts (mainly, at the primary and compulsory secondary education level), in the improvement of educational results and in guaranteeing the primary-compulsory secondary transition is clear (despite the fact that, for the latter, evidence of the results is scarce). On the other hand, the scholarships with the graduation of the student as main objective do not seem to have the desired effect.

Scholarships are particularly effective when it comes to avoiding school dropouts at the primary and compulsory secondary education level, and in the improvement of educational results.



What are the characteristics of the most effective compensatory / non-focalised programs?

Regarding the programs of compensatory nature, it is obvious that their initial objective is to guarantee the pupil's attendance to the school centre. In this sense, the best-working programs focus their attention on the primary level and simultaneously apply incentives on different actors in the educational process: students, teachers and parents (see the example in [box 1](#)). In general, stimuli are offered to students for reaching certain educational objectives (normally, adapted to each situation); moreover, teachers have incentives for attending evaluation meetings and according to the performance of their students; and parents also have incentives, according to their children's results and for their participation in scheduled meetings with the teachers. Furthermore, the scholarships, received at the start, which need to be returned in case of non-compliance with the foreseen objectives, have a larger effect than the usual option, where the "prize" is handed over *a posteriori*, or so at least in the cases that have been compiled. Given that, in all reviewed works, there is some element of conditionality, the real effectiveness of totally unconditional compensatory programs still needs to be verified.

In the case of non-focalised programs, although they maintain their main effectiveness in the case of the primary level and in the programs that simultaneously apply incentives to students, teachers and parents, there are differential elements. In this case, we can observe a larger general impact in the improvement of educational results. At the design level, some programs, in addition, encourage group work and tutorials among peers. Moreover, they have a differential impact, related to the maturity of the program, with two differential implications. First,

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during the program's second and third year of implementation, bigger effects have been observed than during the first year for groups which are new to the program. Second, the permanence in the program (duration of the treatment) increases the effects observed.

Are some abilities or learning points affected more positively than others by these interventions?

Generally, we can observe that the mathematical skills are being affected more positively by the implementation of this kind of programs. Despite this initial evaluation, we need to be aware of a series of issues. In first place, many of the policies assessed are focussing on the improvement of this skill; in second place, there are only two cases with solid evidence on their differential reaction with respect to other abilities (such as comprehensive reading, for example) and, finally, the assessment technique, used in the majority of the works included –via test– could bias the obtained results by artificially boosting the impacts on Mathematics.

For which collectives are the scholarships most effective? Does the implementation have an influence?

The literature review clearly reveals that the students from the most underprivileged environments are those who capitalise best the aid received. Moreover, there are other elements which also have an influence on the effectiveness of the policy: a higher previous performance level results in a larger effect for the intervention and, for the gender aspect, differential effects are observed, but their impact (higher in boys or girls) depends on the program under assessment.

Box 1.

Simultaneous incentive program in Houston

Here, a pilot experiment of simultaneous incentives for students, teachers and parents is presented, conducted in the city of Houston (USA) during the school year 2010-2011 and aimed at public schools with a relatively low educational output. The program as such was extended to other cities: Chicago, Dallas, New York and Washington, D.C., but with some modifications regarding the design. In the case of Houston, two people were assigned fulltime to the management of the program, running a total budget of 875,000 dollars.

From the methodological perspective, out of a selection of 50 schools with similar educational outputs (as well as other internal and context variables), twenty-five were treated. 1,693 students participated in the treatment group of the program, and 1,735 in the control group. The intervention was applied to the fifth grade of elementary school, the equivalent of the fifth grade of primary school in the Catalan education system. Specifically oriented towards the improvement of results in Mathematics, each student had to pass evaluations/tests, adapted to his abilities (for this reason, an initial diagnostics exam was held). Previously, they were given activities to go through the subjects at home or during their spare hours at school. In the case of home-study, they were allowed to receive help from parents/tutors. The assessments, as well as the review activities, were processed using a computer application. This program, installed in the treatment schools as well as in those belonging to the control group, allowed calculating the magnitude of the impact.

The students could earn this award by passing a Mathematics test (2 dollars for each test passed) and, in the case of reaching a specific level of improvement in Mathematics, they received an additional 100 dollars, as well as a certificate. The incentive was handed over every 3 or 4 weeks during a school ceremony, intended as an additional incentive. For the teachers, there were incentives, derived from the performance observed in their students (starting with their candidacies for a program with own incentives) and for the organisation of eight meetings per year to comment, together with the parents, the progress observed in their sons/daughters (in case of the latter, they received 6 dollars for each meeting). Finally, the parents also had incentives, according to the performance of their children (2 dollars per test passed) and for their participation in the meetings with the teachers (20 dollars for each meeting).

Regarding the conditions of participation, in principle, all students and parents of the selected schools were potential beneficiaries of the program. After an initial informative process, the parents could voluntarily accept to participate (implying also the participation of their son/daughter).

The results obtained (1.09 Standard Deviation) indicate the existence of a very important positive effect, shown in the existing differences between the treatment group and the control group. However, a higher impact was observed in the case of girls (1.16 SD), students of Hispanic origins (1.11 SD) and students with a higher previous performance level. (1.66 SD).

More information in:

Allan, B. M. and Fryer, Jr., R. G. (2011). *The Power and Pitfalls of Education Incentives* (The Hamilton Project Nr. 2011-07). Brookings. [6]

Fryer, R. (2012). «Aligning Student, Parent, and Teacher Incentives: Evidence from Houston Public Schools». *NBER Working Paper*, 17752. [7]

Box 2.

Experiences at home: evidence in Catalonia and Spain

Evidence in Catalonia

In the case of Catalonia, no evidence has been found regarding the assessment of financial incentives programs. Nevertheless, the works of Martínez-Celorio (2015) [20] and Vallvé (2016) [21], without making any kind of assessment that could determine causality, update the situation of scholarship policies in the Spanish state, focussing on the Catalan situation and with a comparative analysis of the international context.

Martínez-Celorio (2015) [20] describes the evolution of the scholarships system in Spain and Catalonia, their effectiveness and coverage, as well as their redistributive equity. Moreover, the coherence and inclusion capacity of the education system are being discussed. The case of Vallvé (2016) [21] presents the conclusions of the Alterbeques project, which had the objective of exploring alternative models of financing education and analysing the viability of its introduction in the Catalan context, taking into account the socioeconomic environment, the regulatory framework and the objectives to be reached.

Finally, it is interesting to point out as well how, from the government of the Generalitat, independent actions are conducted in the line of the assessment. Recently, and with the intention of creating tools that allow to start a self-evaluation process for the schools, the Consell Superior d'Avaluació del Sistema Educatiu (High Council for the Assessment of the Education System) published a manual, aimed at guiding the assessment process of projects of improvement which can be developed by the educational centres (Generalitat de Catalunya, 2016) [22]. In this presentation, its objectives remain very clear: "This manual has been conceived to guide the assessment process of projects of improvement which can be developed by the educational centres [...], because they can use instruments allowing them to see whether the project in question has reason of existence, whether it has been properly designed and whether it achieves the foreseen improvements with a positive level of impact."

Evidence in Spain

In the case of the Spanish State, Mediavilla (2013) [23] studies the role of the scholarships and the study grants during the period 2004-2005, regarding the probability of successfully reaching the post-compulsory secondary level in Spain (bachillerato and CFGM). Starting from a near-experimental methodology (Propensity Score Matching), in agreement with the Life Conditions Survey, it tries to approximate the true effect of this educational policy. The final sample contains 150 treated students and between 527 and 621 control individuals (depending on the comparison algorithm used). The achieved results indicate a positive effect. Also, differential effects are observed, depending on gender (larger in girls) and on the social environment from which the beneficiary students come (higher impact in case of lower family income).

More recently, we found an assessment, conducted on the Programa 18-25, which was developed in Extremadura for the school years 2012-2013 to 2014-2015 (Pedraja *et al.*, 2016) [24]. It assesses the effect of a financial incentive, conditioned by educational performance, regarding the probability to achieve compulsory secondary graduation via Compulsory Secondary

Education (ESO) for adults in the Autonomous Community of Extremadura. In case of regular class attendance and passing the academic evaluation of the respective modules, an incentive was received in the shape of two payments of 500€ at the end of each semester. The target population of the program is the collective of 18 to 25 years of age, unemployed and without having completed the compulsory secondary education. For women in long-term unemployment, the program did not have an age limit.

The assessment was conducted on the male population and during the school year 2013-2014, observing two samples: an administrative one of 2,637 individuals and an own database, containing 525 survey-based observations. The methodology used was that of regression discontinuity of diffuse characteristics, where the assignment variable (in this case, age) does not allow a precise determination of the degree of participation in the program, but rather the participation probability. This approximation provides a local averaging effect of the treatment which makes it not always possible to be extrapolated to the rest of the population. The results have shown that there was no effect with regard to the pursued objective.

More information in:

Generalitat de Catalunya. 2016. *Manual d'avaluació de projectes i programes educatius*. Barcelona: Consell Superior d'Avaluació del Sistema Educatiu. Departament d'Ensenyament. «Col·lecció Documents», nr. 35 [22].

Martínez-Celorio, Xavier (2015). *Les beques a examen. Repensar el sistema d'ajudes a l'estudi*. Barcelona: Fundació Bofill. «Col·lecció Informes breus», 61 [20].

Mediavilla, M. (2013). «Heterogeneidad en el impacto de la política de becas en la escolaridad secundaria postobligatoria en España: un análisis por subgrupos poblacionales». *Estudios de Economía*, nr. 40(1), p. 97-120 [23].

Pedraja, F., Santín, D. and Simancas, R. (2016). *Programa Extremeño 18-25: Mil euros por la obtención de la ESO*. Communication presented during the XXV Meeting of the Economics of Education Association, Badajoz [24].

Vallvé, C. (2016). *AlterBeques. Recull de l'exploració dels models existents de beques i ajudes a l'estudi. Document de Treball*. Barcelona: Fundació Jaume Bofill [21].

Summary

This literature review has only taken studies into account which present verified evidence of specific programs, implying financial incentives and aimed at pre-university education levels. Given that the objective was to detect the existence, or not, of a causal effect, studies have been included in nearly all cases, applying an experimental methodology with random selection of the treatment group and the control group.

The review divides the analysed programs into compensatory and non-focalised types. Within each of these groups, different aspects have been taken into account, considered crucial when it comes to deciding the design of each of the interventions.

Summarising the presented work, we can conclude that scholarships are a useful instrument for improving educational results, although we need to mention some considerations in this regard. In first place, the biggest effect can be observed at the primary education level, and a higher impact is seen in the objectives related to ensuring educational continuity and the improvement of results. In second place, mathematical skills are the ones that are affected most positively.

Furthermore, other aspects we could indicate as relevant are the fact that the scholarship policy has a higher effectiveness if applied simultaneously onto different actors in the educational process (students, teachers and parents), and that the program's own growing process has an influence.

Following the literature review, it has been confirmed that students from underprivileged environments are those who get the highest return out of the aid received and that there are other individual determining factors which also have an impact on the policy's effectiveness: the previous performance level and the beneficiary's gender. [Table 3](#) give a schematic summary of the main results, related to the design of the scholarships policies.

Table 3.
Elements to take into account regarding the design of a scholarship program

Target population where the largest effect is observed	Types of results/objectives where the largest effect is observed
<ul style="list-style-type: none"> • Primary school students • Aimed at individuals from underprivileged classes with a relatively high previous performance level • Simultaneous incentive programs for different actors in the educational process 	<ul style="list-style-type: none"> • Incentives for improvement of performance in Mathematics • Aimed at schooling continuity and improvement of results
Other design elements with positive effects	Other design elements with positive and negative effects
<ul style="list-style-type: none"> • Financial incentive goes directly to the student • Explicit acknowledgement of objectives reached, through certificates or congratulatory notes • Including other non-financial incentives (such as toys, food vouchers or cinema tickets) • The growing process of the program introduces noticeable increases in the positive effects • Including group incentives which are evaluated using the average observed performance • Demonstrated efficiency of scholarships, which are handed out at the start of the program and need to be returned in case the objectives are not met 	<ul style="list-style-type: none"> • Establishing an incentive for the execution of an activity could encourage other actions which also imply learning or, on the contrary, could divert the commitment from other relevant educational objectives.⁵
Other design elements with negative effects	
<ul style="list-style-type: none"> • The lack of continuous follow-up and control could lead to policy failure • The incentive could provoke undesired attitudes, such as copying of exams 	

⁵ An example of a positive effect: a stimulus, linked to reading books, could boost the student's motivation and also bring him to start doing Maths homework.

Practical implications

Evidence tells us that scholarships and study grants (of the financial type) can have a positive impact on the fulfilment of certain educational objectives, set by the Administration. This effect depends, for a big part, on the design of the policy itself, based on the analysis of the target population. In this sense, it is relevant to reaffirm that its effectiveness is centred on primary education and can be observed mainly in connection with objectives of continuity and improvement of educational results (less in the graduation rates). In this final section, we will reflect on the implication of the results obtained for the design of the scholarship policies at home. In a general way, we ask ourselves: **Would some of the policies, reflected in this review, be applicable to the reality of the Catalan educational system? Under which conditions?**

In first place, we need to picture the state of the scholarships and study grants in Catalonia. In this sense, it is relevant to refer to the works, produced by Martínez-Celorio [20] and Vallbé [21].

The report by Martínez-Celorio [20] indicates in its summary that “the scholarship system in Spain follows a centralist model that has generated a historical jurisdiction conflict with Catalonia. It is a system which is monopolised by the university level, at the expense of the post-compulsory stages. It generates a very low and regressive redistributive impact, harmful for the most vulnerable families and categories.” Moreover, it states that the investment in Catalonia in scholarships and study grants for non-university education types, on the overall educational expenditure, represented 2% in 2011, below the European Union’s average (3.8%) and other Autonomous Communities like Madrid (3.7%), for example. Finally, it points out that: “the fragmented data sources for scholarships, the lack of harmonisation and the non-existence of a scholarship holders’ register make it difficult to know the framework, coverage and social return of the investment in scholarships.”

Moreover, the work by Vallbé [21] mentions that “there is no coherent and structured scholarship system, capable of responding to the needs of the population in a systematic way. The existing solutions are partial, fragmentary and, sometimes, contradictory among themselves”; and that “the present scholarship system has proven itself insufficient to cover the basic needs of infants and young people in situations of vulnerability”.

With this brief reference to two recently produced studies on the Catalan reality, it becomes clear that it is necessary to boost educational policies which imply the development of a powerful compensation and/or incentivising tool with clear educational objectives. At this point, when the tool is being conceived (or revised), is when the evidence needs to be taken into account.

Starting from the conclusions, summed up in the previous section, we could extract five implications with respect to the design of future scholarships in our country:

The effectiveness of programs with triple incentives (students, teachers, parents/tutors) could be explored. It is important, in some situations, to incentivise all the intervening actors of the learning process and, as such, boost a common objective.

There is more evidence of positive impacts in scholarship programs including money transfers at the primary and compulsory secondary level. In the case of higher (non-university) levels, the evidence focuses on non-financial interventions.

The program needs to be adapted to the beneficiary's characteristics. The existence of non-homogenous effects of scholarships, particularly positive in the case of students from underprivileged environments, has been demonstrated. This extreme condition could be introduced to modulate the policy according to each of the collectives.

Whatever the policy is, in order to be effective, it needs to have sufficient resources and a growing period. In this sense, it is important to use previous experiences, starting from pilot tests, with the possibility of modifying the design, based on implementation assessments.

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Finally, the new policies, implemented in Catalonia, need to take into account its necessary assessment and, as such, need to have guaranteed resources to put them into practice. Also, more study is required to provide an answer to other question marks as to which could be the most effective design and implementation form for the scholarship programs, as for example:

- Does the money have to go to the students' parents/tutors or to the students themselves? In case the answer is "to the students", do they need to have complete freedom as to the use of the grants, or does a system need to be established, similar to the conditional transfers between public administrations?
- What needs to be the magnitude of the incentive, in order to increase its effectiveness without generating an excessive investment? Is there a point where the increase in assistance stops generating the desired effects?
- When is the best moment to hand out the assistance, at the start of the school year, during, after, or at all three moments?
- Could the effectiveness of the grants be improved by giving the educational centres a certain level of autonomy in the selection of the target population and/or to adapt the program to their students (among other interventions)?
- Does the financial aid need to be related to certain actions, carried out by the beneficiary (class attendance, reading books, solving Mathematics exercises, etc.) or according to the educational objective achieved (results obtained for certain subjects)?

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- Can the financial source (public, mixed or private) be relevant as an explanatory factor for the effects observed?
 - Could the voluntary nature of the participation be a decisive element in the success of the policy?
 - In the case of conditional aid, which would be the most efficient conditionality scheme in terms of reaching the established objectives?
 - Finally, and according to Gneezy *et al.* [25], a question that remains unanswered is: which situation could be generated when the incentives are withdrawn? How would the treated students react in such a case?

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