

Successful Adult Literacy Training Determinants in Morocco: a Quantile Regression Analysis

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ABSTRACT: Typically, research places a great weight upon social, economic and political implications of illiteracy. The issue of illiteracy constitutes a serious constraint on the economic development of the country and on its contribution to adapt the production technologies that promote growth. The issue of adult literacy training arises at three complementary and interdependent levels: access, retention, and the quality of learning. The quality of learning is related mainly to what happens in the classroom as well as to the external environment. This article aims to examine the key determinants of quality in literacy programs; more precisely the determinants of successful training of adult literacy. The work also shows differences in performance among the implemented mainstream programs and the substantial differences between operators within the same program.

KEY WORDS: literacy, determinants, quantile regression, Morocco

I. INTRODUCTION

For several years now, the ruling governments of Morocco have realized the importance of fighting against illiteracy (one of the objectives of Education for All Program, which was set at the Dakar Forum in 2000, is “to improve adult literacy levels, especially that of women, to 50% in 2015. All adults have equitable access to basic and permanent education”).

Typically, research places a great weight upon social, economic and political implications of illiteracy. The issue of illiteracy constitutes a serious constraint on the economic development of the country and on its contribution to adapt the production technologies that promote growth. On a wider scale, illiteracy is a brake on human development in terms of social practices, collective participation as well as the situation of women (given the currently common recognition of the key roles of female literacy in the regulation of fertility, early childhood care, nutrition, health education...).

In Morocco, the illiteracy rate has declined significantly from 43 per cent according to the general population and housing census in 2004 to 28 per cent (according to the first results of the latest national survey on illiteracy in Morocco in July 2013).

This decline reflects significantly the efforts made within the framework of the national literacy strategy launched in 2004 involving both public operators and non-governmental organizations (NGOs). At the origin of this mobilization, there is the substantive work held by the Directorate of fighting against illiteracy (DLCA) to improve the quality of the intervention programs. This will take place only by offering the prerequisite training and professionalization of stakeholders, reviewing and developing the instructional tools to meet the needs and targeted profiles of population as well as developing partnerships with public and private operators.

In the recent few years, despite the positive increase in both quantitative and qualitative terms in the area of literacy in Morocco, several challenges persist, including further improvement of the monitoring and evaluation systems. This subsequently limits the objectivity and permits the overgeneralization of certain data, which can hinder the sustainability and the consolidation efforts undertaken in strengthening response capabilities and improving of the quality of programs.

The issue of adult literacy training arises at three complementary and interdependent levels: access, retention, and the quality of learning. The quality of learning is related mainly to what happens in the classroom as well as to the external environment.

The engaged actors criticize the lack (or the absence) of the information on the quality of activities conducted in the field of literacy, especially of women as key targets of the program and whose education is crucial for social and economic development.

Very often, the only criterion used for monitoring and evaluation is quantitative. This corresponds to the number of enrollees, and whether the annual objectives decided by the government were achieved or not. Moreover, today, most of the data on adult literacy is not sufficiently reliable to address the user requirements in the country. They frequently highlight either the reports of individuals about their own progress in the literacy skills, or rough indicators such as their level of education.

This article aims to examine the key determinants of quality in literacy programs; more precisely the determinants of successful training of adult literacy. The work also shows differences in performance among the implemented mainstream programs and the substantial differences between operators within the same program.

Two dimensions characterize the adopted methodology:

- The longitudinal dimension: the study is to track over one year a representative sample of 2 000 beneficiaries of various literacy programs. This follow-up makes it possible to monitor the evolved achievements using three tests (beginning, mid-term, and the end of the program) and to measure the regular attendance of the beneficiaries.
- The direct measurement dimension: measuring the learning outcomes and sustainability is based on the direct method. For three times, beneficiaries are subject to a direct assessment testing which is inspired by the methodology adopted in international surveys to measure literacy levels (OECD, 1994, 2000).

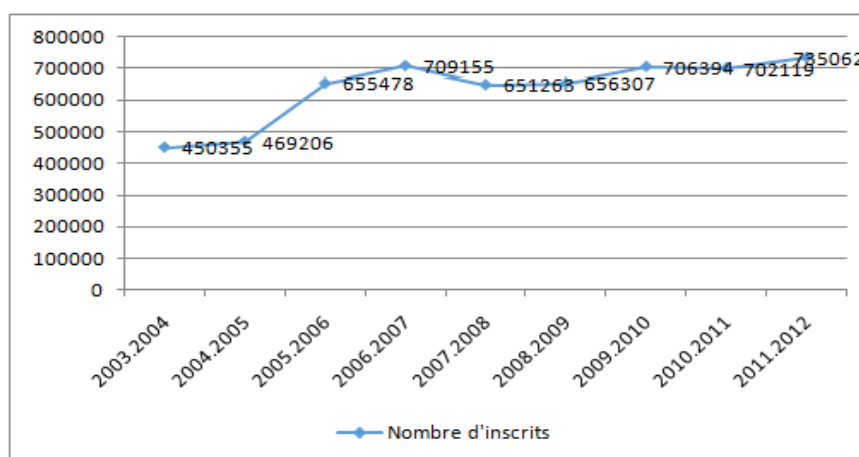
With respect to the Moroccan context, this work has a twofold interest:

In terms of methodology: this contribution is, to our knowledge, the first application of the microeconomic approach on the Moroccan data. Quantile regression (Koenker and Bassett, 1978) is proposed to take into account the differences among beneficiaries. On the analytical section, the results of this work are to complement the few descriptive studies as well as to guide public actions and policies to improve the literacy programs' quality.

II. ACHIEVEMENTS IN ADULT LITERACY

The efforts made have significantly increased the number of literacy programs' beneficiaries. Thus, the number of beneficiaries increased from 181 000 to 735 062 in 2011-2012. The annual review of accomplishments shows a substantial growth in the number of registrants between 2003 and 2011 with a tendency to stabilize around 8000 000 enrolled. The graph below illustrates this positive trend.

Figure 1: The increase of the number of registrants between 2003 and 2012



Source: The State Secretariat for Illiteracy and Non-formal Education (2003-2012)

The evolution of beneficiaries according to the type of literacy program

It is worth noting that the implementing adult literacy programs are due to a combination of several actors (Ministry of education, public operators, NGOs and other companies). Thus, we can distinguish four programs:

- General partnership: It is an annual program led by the Ministry of National Education. A voluntary program that mobilizes teachers for pedagogical support.
- Other public operators' program: Actions undertaken by other governmental departments and public bodies operating in the social field (handcrafts, agriculture, fisheries, Habbous and Islamic Affairs, National Mutual Aid, Ministry of Youth and Sports...).
- The program of Civil Society: Actions in partnership with associations. The implementation of this program is relatively recent and dates to 1998.
- The program of companies: The overall actions that are conducted within companies. In the recent few years, several regulations have been adopted in order to encourage the companies to implement literacy programs on behalf of their workers. One of the most important provisions is the funding assumed by OFPPT, which is measured to 80% within the fund reserved for continuous training.

The observed changes in the number of beneficiaries of literacy programs according to the type of the program hide significant contrasts. Thus, the general program that was able to record the highest scores in respect of the first year of the new strategy with 89 500 beneficiaries (which constitutes 49% of the recipients of the year) has declined in the following years to remain around 105 649 in 2007-2008 (which is 16, 22% of the recipients of the year).

The public operators' program has recorded, equally, a sharp decrease from 69 000 beneficiaries by the end of its first year to 259 109 in 2007-2008.

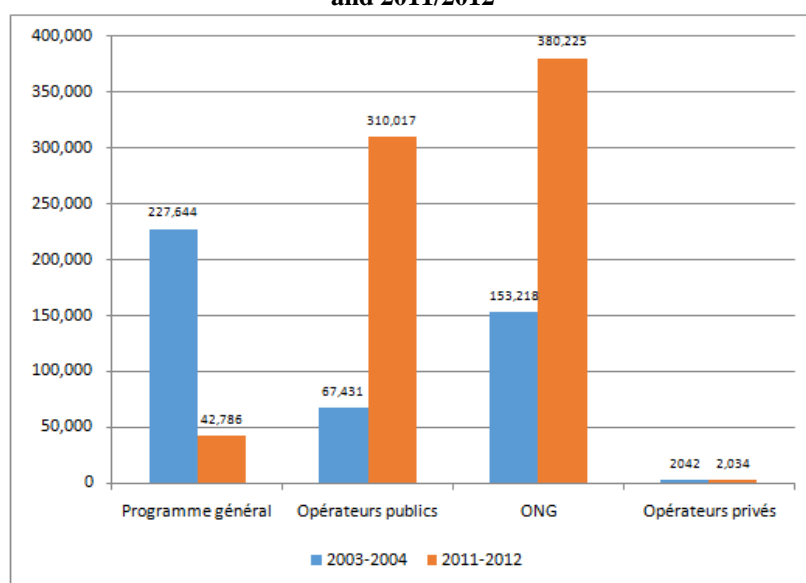
The civil society program has evolved significantly from 21 000 beneficiaries in the years 1998-1999 (representing 11.6% of the recipients of the year) to reach a record figure of 284 421 beneficiaries in 2007-2008 (which represents 43.67% of beneficiaries enrolled in the same year).

The number of the beneficiaries of the program remains modest throughout the period. Although the illiteracy rate among the population is estimated at 36.6% in 2006, the contribution of the program of companies in comparison to other programs rarely exceeds 1% (Balance sheet of the State Secretariat 2007-2008).

One of the main reasons behind the lack of motivation of the active population towards this program lies in the fact that the latter considers literacy classes as a lucrative investment. An investment and the collection of its benefits would be possible just after a long term of literacy cycles.

The analysis of the aggregated data in the table and the graph allows us to conclude that civil society programs gradually replace the state programs (the General and the public operators programs). Indeed, public sector programs are slowly disappearing and being replaced by NGOs. This fact drives us to reflect further on the actual ability of NGOs to assume their responsibilities and to fulfill their commitments

Figure 2. Evolution of the number of beneficiaries according to the type of literacy program in 2003/2004 and 2011/2012



Source: The State Secretariat for Illiteracy and Non-formal Education (2003-2012)

A review of this table leads to the following observations:

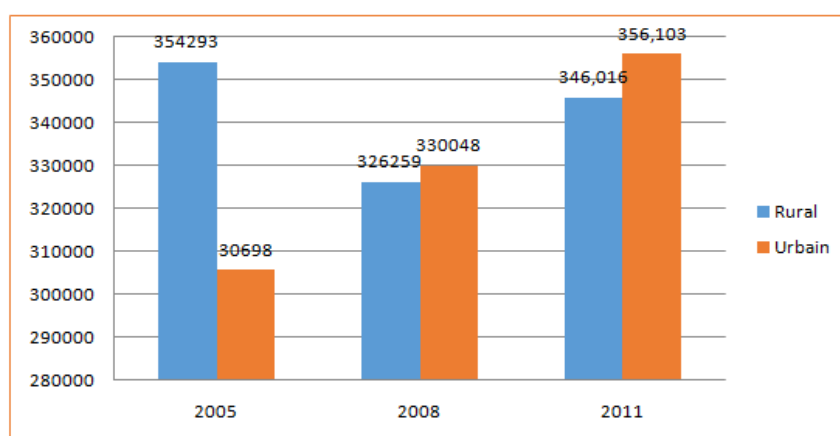
Declining support on behalf of the general program. Indeed, the proportion of this program has exhibited a downward trend from 50% in 2003 to less than 6% in 2011. On the other hand, the share of the NGOs has stabilized around 50%. We also observe an increase and stability in the share of public operators. The start-up and early stages of the private sector remain a significant concern. Its proportion is still weak and does not exceed 1% under the best circumstances.

The mastered knowledge learnt during one literacy program course is measured, in the short-term, by its consistency and adequacy to the fixed objectives. In addition, this can be assessed, in the medium term, with respect to its sustainability and the scope of its use. Finally, it can be evaluated in a long-term perspective compared to the different impacts they induce. The results can be translated in different forms ranging from the learning achievements to the more or less diffused social impacts they generate.

Evolution of the number of beneficiaries by place of residence:

The graph shows that the beneficiaries of adult literacy programs in 2005 were mainly from rural areas. They represent nearly 92% of the total beneficiaries. In 2011, the illiteracy programs focus increasingly on addressing the urban illiterates. In fact, the proportion of beneficiaries coming from both the urban and the rural areas is almost equal.

Figure 3. Evolution of the number of beneficiaries by the place of residence 2005-2011

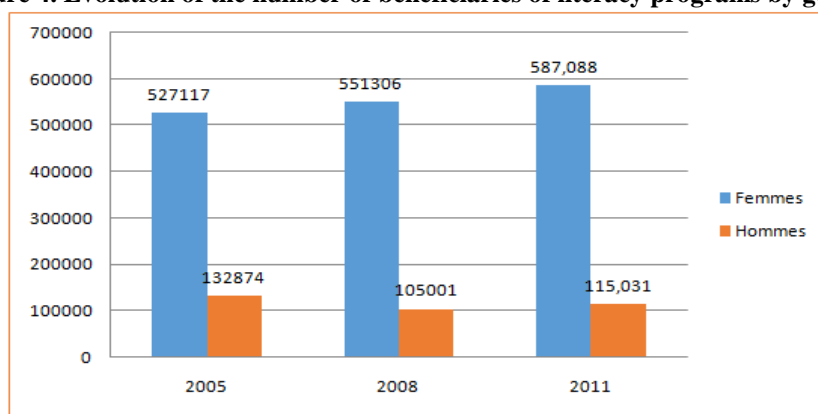


Source: The State Secretariat for Illiteracy and Non-formal Education (2010-2011).

Evolution of the number of beneficiaries by gender

Given the fact that illiteracy primarily affects women, one would naturally expect that the beneficiaries would be just female. This predominance of female beneficiaries remains stable over a long period. Indeed, the proportion of female beneficiaries is 79, 86% and 83.61% respectively in 2005, 2008 and 2011.

Figure 4. Evolution of the number of beneficiaries of literacy programs by gender



Source: The State Secretariat for Illiteracy and Non-formal Education (2003-2012)

Evolution of the number of beneficiaries by region:

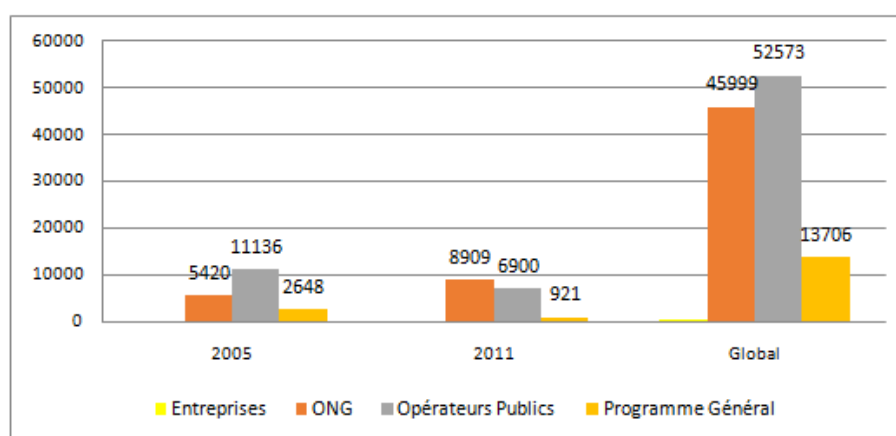
The geographic distribution of literacy programs' beneficiaries reveals that these programs cover all regions of Morocco with a clear concentration on Souss-Massa-Draa with the rates of 16.45%, 15.21% and 15.98% respectively in 2005, 2008 and 2011. The lowest rates of beneficiaries are noted in the regions of Sahara essentially the region of Oued Ed-Dahab – Lagouira (0.95 % of beneficiaries in 2011), Laayoune – Boujdour – Essakia Al Hamra (1.22% of beneficiaries) and Guelmim – Smara (3.53% of beneficiaries).

Table 1. Evolution of the number of beneficiaries by region

Regions	2005		2008		2011	
	Number	in %	Number	in %	Number	in %
Souss - Massa - Daraâ	108588	16,45	99828,00	15,21	112226,00	15,98
Orientale	57406	8,70	44861,00	6,84	67196,00	9,57
Tanger - Tetouan	51918	7,87	44213,00	6,74	60861,00	8,67
Meknes - Tafilalet	56488	8,56	49108,00	7,48	57728,00	8,22
Marrakech - Tensift - Al Haouz	59801	9,06	64137,00	9,77	53993,00	7,69
Grand Casablanca	58945	8,93	58827,00	8,96	50098,00	7,14
Taza - Al Hoceima - Taounate	44153	6,69	35095,00	5,35	45199,00	6,44
El Gharb - Chrarda - Béni H'ssan	33467	5,07	33242,00	5,07	41880,00	5,96
Rabat - Salé - Zemmour - Zair	56247	8,52	63109,00	9,62	40567,00	5,78
Tadla - Azilal	26346	3,99	40111,00	6,11	39258,00	5,59
Doukkala - Abda	27592	4,18	36858,00	5,62	36920,00	5,26
Chaouia - Ouardigha	23930	3,63	24394,00	3,72	28080,00	4,00
Fes - Boulmane	23131	3,50	26223,00	4,00	28072,00	4,00
Guelmim - Smara	19300	2,92	16683,00	2,54	24790,00	3,53
Laâyoune - Boujdour - Essakia Al Hamra	6716	1,02	7625,00	1,16	8555,00	1,22
Oued Eddahab - Lagouira	5963	0,90	8011,00	1,22	6696,00	0,95
Total	659991	100,00	656307,00	99,39	702119,00	100,00

Hand in hand with the development of the training centers during the period from 2005 to 2011, the NGO program recorded a slight increase in the number of these training centers. However, other literacy programs had experienced a significant decline in the number of the training centers.

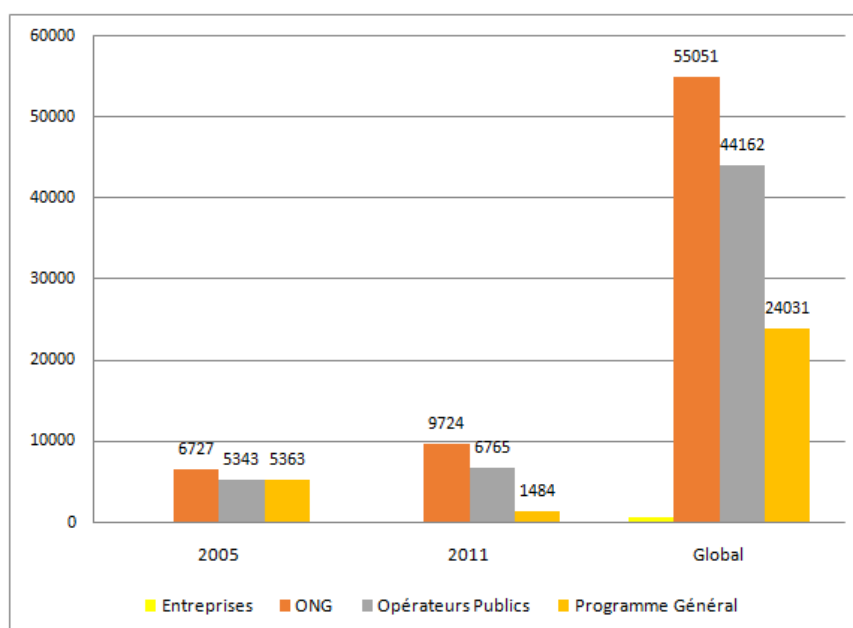
Figure 5. Evolution of the number of training centers by Program



Source: The State Secretariat for Illiteracy and Non-formal Education (2003-2012)

Regarding the number of trainers involved, Public operators and NGO programs saw a slight increase between 2005 and 2011. The General program, however, had recorded a sharp decline in the number of trainers during the same period.

Figure 6. Evolution of the number of trainers working for the program



Source: The State Secretariat for Illiteracy and Non-formal Education (2003-2012)

III. EMPIRICAL ANALYSIS: THE DETERMINANTS OF SUCCESSFUL TRAINING OF THE BENEFICIARIES OF LITERACY PROGRAMS

The purpose of this section is to investigate empirically the determinants of successful training of the beneficiaries of literacy programs relying on the quantile regression tools.

3.1. Data

The deployed data has two characteristics:

- Longitudinal dimension: The survey aims to follow a representative sample of the cohort of beneficiaries enrolled in the literacy program for the 2007-2008 marketing year conducted within the delegation of the Ministry of Education in Marrakech. The initial sample includes 1619 people. The sampling frame is composed of literacy classes for each operator available from the delegation of MEN. The sample incorporates the four types of programs / operators (General program, Public operators, NGOs and private sector).

Data collection procedure involves the following:

- Beneficiaries will take three proficiency tests in the process of the literacy program (at the beginning, in the middle and at the end of the process).
- Collecting socio-demographic data on each beneficiary
- The direct measurement dimension: measuring the learning achievements and sustainability is based on the direct method. For three times, the beneficiaries are subject to a direct assessment testing which is inspired by the methodology adopted in international surveys to measure literacy levels (OECD, 1994, 2000). The province of Marrakech-Menara is selected as the geographical scope of this study. This province houses all types of literacy programs and represents a large socioeconomic variety (urban and rural).

3.2. Methodology

The econometric approach has been carried out in two stages. The first is innovative and aims to highlight the impact of certain variables (taken separately) upon the results obtained in the various international tests. Quantile regression (Koenker & Bassett, 1978) is appropriate and relevant. Indeed, it permits the exploration of the conditional distribution of the endogenous variable with respect to exogenous variables. The advantage of using this method is mainly to depict a more complete picture on the relationship between variables while remaining flexible. In fact, it assumes neither normality nor homoscedasticity. As a matter of fact, when these assumptions are not verified, the results of this method become more robust than those of the conditional mean models (Hao and Naiman, 2007). It is of high interest to define quantiles formally before introducing this method:

Y is a random variable representing $Y \in \mathbf{R}$ and distributed as:

$$F(y) = Prob(Y \leq y) ,$$

then set as $0 < \tau < 1$:

$$Q_{\tau} = \inf\{y: F(y) \geq \tau\}$$

If we apply this definition on the studied context, the 0.5 quantile (median) is the student who shares the distribution into two equal portions. Thus, half of the students outperform the median student otherwise the second half who underperform this student. Similarly, 95% of students outperform the student of the quantile 0.05, while 5% show a lower performance of the latter conversely to 0.95 quantile. The empirical formulation of the quantile regression is the following:

$$y_i = \beta_0^{\tau} + \beta_1^{\tau} x_i + \varepsilon_i^{\tau}$$

$$Q^{\tau}(y_i | x_i) = \beta_0^{\tau} + \beta_1^{\tau} x_i$$

where x_i is the vector of exogenous variables. In our study, the explanatory variables include age, gender, the educational level of parents, the school aspects (rural, private), endowments of students (calculators, computers, desks, dictionaries, and internet) and student's characteristics (self-confidence and preparing lessons). $Q^{\tau}(\cdot)$ is the conditional quantile function. The index τ provides information about the studied quantile. It is possible to obtain therefore different estimates within each quantile (see Hao and Naiman, 2007). We will rely on the quantile regression (Koenker & Bassett, 1978), which is formulated as follows:

$$Q_{\tau}(Y_{ij,k} | X) = X' \beta^{\tau}$$

Obviously, the usual form of the quantile regression assumes the exogeneity of the explanatory variables. Having said that, the study's context is a special one. Indeed, in the microeconomics of education, school is not a black box. Rather, it largely interacts with its environment undergoing certain socio-cultural phenomena and amplifying them. The endogeneity problem remains pervasive. Within a context where any variable can be suspected of endogeneity, the undertaken analysis looks harsh. ~~Having said that,~~ This situation is unfortunately unavoidable because the variables of the two surveys contain several missing data. The unconditional struggle conducted against exogeneity restricts more cruelly our field for maneuver than it already is.

In our model, the dependent variable is the difference between the score of the initial test and that of the final test. In order to avoid collinearity problems, a reference variable was introduced every time. The explanatory variables are composed of the type of the program (public operators, NGOs, private operators, and the General program is the reference program). Both genders of the beneficiaries and trainers are approached by "masculine" (reference category) and "feminine". The age of the beneficiary is approximated by four binary variables corresponding to four possibilities. Reference age is "less than 15 years old". The place of residence is approached by "urban" and "suburban". The reference variable is the "rural" areas. Four variables are selected to approach the family status: "single", "widowed", "divorced", and "married" is the reference category. We have also included the trainer's level of education through these five modalities: Baccalaureate, Deug¹, Bachelor of Art, Masters and the patent is the reference category. The administrative linkage that relates between the operator and the trainer is approached by three modalities: "temporary" and "no formal engagement"; the reference category is "employee". The gender of the trainer is approached by both "masculine" (as a reference category) and "feminine". Other variables to be explained include the number of children the beneficiary has, whether the beneficiary's house is connected to drinking water, sanitation, electricity, the size of the class, and the age of the trainer.

3.3. Descriptive Analysis

3.3.1. The Characteristics of the Sample

This study covered a sample of 1619 beneficiaries in four programs. Thus, a quarter of the beneficiaries are enrolled in the General program. Pupils registered in the public operators and NGOs programs represent about two thirds of all beneficiaries. However, those enrolled in the program of private operators represent only 7.2%. It is worth mentioning that more than 93% of beneficiaries are women. At the same time, the survey is conducted substantially in urban areas. Thus, almost three-quarters of registered are located in urban areas. Just like any other program, beneficiaries find many difficulties in the completion of the literacy programs. Therefore, about 22.6% of the recipients abandon the literacy programs in the mid-term and 17% continue until the end of the program.

¹ Deug in Moroccan is the equivalent of 2 years of studying after baccalaureate.

Table 2. Sample Description

		Number	%
Program in which the beneficiary is enrolled	general program	412	25,4
	public operators	516	31,9
	NGO	575	35,5
	private operators	116	7,2
	Total	1619	100
Beneficiary gender	Male	107	6,6
	female	1512	93,4
	Total	1619	100
place of residence, the beneficiary	rural	293	18,1
	urban	1217	75,2
	Suburban	109	6,7
	Total	1619	100
Drop out level	Completed the program	977	60,3
	Mid-term abandonment	366	22,6
	Abandoned at the end of program	276	17
	Total	1619	100

3.3.2. The evolution of the learning achievements of the beneficiaries

The Table below summarizes the scores obtained in the different tests according to the degree of completion of literacy program. We can observe that the initial grade obtained by the recipients is low regardless of the degree of completion of the program with a slight advantage in favor of those who completed the program with a, initial score of 5.36. We also note an improvement in the level of the beneficiaries of literacy programs since the average score rises to 9.23 and 7.83, respectively, for those who completed the program and those who have left at the mid-term. Moreover, the learning achievement level of the beneficiaries is increased to more than the double from the starting date to the final one for people who have completed the program. It ranges therefore from an average score of 5.36 to 11.16.

Table 3. Learning achievement evolution according to the degree of completion and the type of tests

Degree Completion	Test Type	N	average	Standard deviation
Completed the program	Score obtained at the initial test	977	5,3684	4,14001
	Score obtained at the mid-term	977	9,2351	4,47963
	Score obtained at final test	977	11,1695	5,88564
Mid-term abandonment	Score obtained at the initial test	366	4,7635	3,88905
	Score obtained at the mid-term	276	7,8327	4,44347

From our examination of this table, we deduce the following remarks:

- The initial average score per program remains relatively low. It is below 7.4/20 for all operators.
- The final average score per program is barely at the average (10/20). Thus, the obtained average scores in the final tests in the General program, Public operators, NGOs, and Private operators are respectively 9.95; 12.82; 10.42 and 11.87.
- the evolution of the average score on mid-term by operator reflects an improvement in the level of the beneficiaries of literacy programs.

Table 4. Learning achievement evolution according to the type of the program for the beneficiaries who completed their training

Program	Test Type	N	average	Standard deviation
general program	Score obtained at the initial test	246	5,0396	3,67527
	Score obtained at the mid-term	246	9,9902	4,10078
	Score obtained at final test	246	9,9507	6,44312
public operators	Score obtained at the initial test	316	4,867	4,12592
	Score obtained at the mid-term	316	9,7481	4,49964
	Score obtained at final test	316	12,823	5,55212
NGO	Score obtained at the initial test	355	5,7124	4,17485
	Score obtained at the mid-term	355	7,9089	4,30936
	Score obtained at final test	355	10,4234	5,5375
private operators	Score obtained at the initial test	60	7,3213	5,05858
	Score obtained at the mid-term	60	11,2846	4,89534
	Score obtained at final test	60	11,873	5,23434

IV. ECONOMETRIC RESULTS AND DISCUSSION

In order to better understand the determinants of success of adult literacy programs, we have regressed the gap between the initial and the final score on selected determinants related mainly to the nature of the literacy program and the socioeconomic characteristics of both the beneficiaries and trainers by using the quantiles. Four regressions analysis are performed. 0.05, 0.25, 0.5, 0.75 and 0.95 quantiles provide information on the beneficiaries with very weak, weak, median and good performances respectively. To test of the robustness of the results, we have operated an OLS regression. Our estimation results are presented in the table. The results highlight that the training provided by the public operators and NGOs penalize the performance of the beneficiaries of literacy programs. By contrast, the training offered by the private operators have no significant impact upon their success. However, if we think only in terms of quantile, we observe that the training of public operators penalize much more the performing beneficiaries (-3,909) whereas they are to the benefits of the weakest beneficiaries. For its part, the training by NGOs mostly penalize the weakest beneficiaries (0.05 quantile) and the weak performing ones (0.25 quantile).

Ibourk (2012) has examined the case of formal educational system in Morocco and concluded that whenever the beneficiaries of literacy programs are female, the school performance tend to decrease compared to male recipients. This result is robust to changes in the estimation method and belonging to a certain quantile. Concerning the age of the beneficiary, the results of OLS estimates show that the age groups 15-35, 36-45, and 46 years old or older reduce significantly the success of literacy training otherwise the beneficiaries aged under 15. This, in turn, reflects the fact that the school achievement is reduced with age. If we see this from the quantile perspective, we notice that the same trends persist except for very weak and weak performers aged 15-35 years old whose educational performance is not significant compared to the beneficiaries under 15.

The results have suggested that the beneficiaries of urban and suburban literacy courses see their educational performance in deterioration when compared with their rural counterparts. That is particularly true for beneficiaries with the levels median (0.5 quantile) and good (0.75 quantile).

Overall, the family status of the beneficiaries of literacy programs has no significant impact upon the successful completion of such trainings. This finding is robust in changing the estimation technique. It is worth noting that only widowers who get penalized compared with married beneficiaries.

Meanwhile, the estimates do not show any significant impact of the number of children of the beneficiaries upon the successful completion of literacy programs. This was expected since we have no information about the nature of the relationship between the child and the beneficiary. In other words, we do not know whether the child is dependent or not. Indeed, we are expecting that the number of dependent children influences negatively and significantly the success of literacy programs. That is particularly true for beneficiaries with median level (0.5 quantile).

Concerning the impact of certain social services, we observe that water and electricity linkage have no significant impact on the success of literacy programs. By contrast, the connection to sanitation contributes to the improvement of learning achievement.

The explanatory variables of successful literacy programs include variables related to the characteristics of the trainer. Thus, the results suggest that chances of success of a literacy program rises with the age of the trainer. Indeed, the gradually the trainer's age increases, the more knowledge and experience he or she gets. This positively affects the learning achievement of the beneficiaries of literacy programs.

The trainer's gender plays a key role in the success of literacy trainings. As expected, and given the components of our sample, which consists essentially from the female recipients, we observe that the rate of success in literacy programs increases when the trainer is female. This result is robust in changing the estimation technique.

Table 5. Estimate of the determinants of successful literacy training

Variables	modalities	-1	-2	-3	-4	-5
		MCO	Q(0,05)	Q(0,25)	Q(0,5)	Q(0,75)
Type Program	Public operator	-1.692* (0.893)	1.471** (0.695)	0.106 (0.711)	-1.449 (1.187)	-3.909** (1.521)
	NGO	-4.624** (2.110)	-7.80*** (2.989)	-3.037* (1.829)	-1.370 (2.657)	-5.804 (4.844)
	Private operators	-0.414 (1.123)	-0.0268 (1.881)	0.953 (2.080)	1.820 (1.657)	-2.347 (1.621)
Gender beneficiary	Female beneficiary	-6.15*** (0.829)	-4.299* (2.341)	-6.58*** (1.765)	-7.71*** (0.901)	-7.63*** (1.157)
Age of the beneficiary	15-35 years	-3.657** (1.571)	-2.565 (1.634)	-3.464 (2.186)	-6.288** (3.175)	-3.354* (2.011)
	36-45 years	-4.19*** (1.605)	-2.506* (1.458)	-4.673** (2.208)	-7.039** (2.972)	-3.769* (2.238)
	46 years and +	-5.08*** (1.619)	-3.031** (1.528)	-4.980** (2.022)	-8.18*** (3.137)	-4.439** (2.233)
place of residence	urban	-1.56*** (0.580)	1.024 (1.127)	-0.813 (1.374)	-2.48*** (0.652)	-1.905** (0.879)
	Suburban	-4.32*** (0.848)	-0.234 (1.160)	-2.622* (1.533)	-4.63*** (1.081)	-5.46*** (1.360)
family situation	single	-0.693 (0.615)	1.442 (1.542)	-1.215 (1.014)	-1.285 (1.054)	-1.670 (1.068)
	widower	-1.015* (0.602)	-0.832 (1.371)	-0.816 (0.593)	-0.943 (0.714)	-0.854 (0.816)
	divorced	0.137 (1.278)	-0.490 (2.605)	1.621 (1.830)	0.0918 (1.608)	-0.409 (1.951)
Number of children of the beneficiary	Nombre_enfant_du_bénéficiaire	-0.187 (0.541)	2.396 (1.564)	-0.509 (0.930)	-0.862 (0.989)	-0.738 (0.723)
Connection to water	Rattachement_eau	-1.093 (1.093)	1.775 (1.978)	-0.895 (1.563)	-1.722 (1.823)	-1.489 (1.299)
Ratachement to assainissement	Ratachement_ assainissement	1.80*** (0.689)	-2.157 (1.468)	1.434 (1.277)	2.60*** (0.875)	2.111 (1.360)
Connection to electricity	Rattachement_elect	0.454 (1.018)	-0.851 (1.222)	0.908 (1.200)	1.943 (2.196)	0.0518 (1.699)
trainer Age	Age_ formateur	0.14*** (0.0285)	0.0341 (0.0517)	0.13*** (0.0493)	0.17*** (0.0346)	0.16*** (0.0545)
Trainer Gender	Formateur_ femme	1.27*** (0.376)	1.394* (0.735)	0.490 (0.675)	1.302** (0.660)	1.74*** (0.455)
Educational level of the trainer	Baccalaureate	1.53*** (0.559)	1.186 (0.825)	1.552** (0.686)	1.416 (0.875)	0.990 (1.346)
	Baccalaureate	3.64*** (0.927)	-1.708 (3.083)	2.358 (1.513)	5.48*** (1.186)	4.73*** (1.551)
	Bachelor	2.67*** (0.678)	1.523 (1.098)	2.036** (0.950)	2.67*** (0.912)	3.68*** (1.356)
	Master	3.63*** (1.332)	4.67*** (1.545)	4.296** (2.167)	4.30*** (1.327)	3.067* (1.715)
class size	class size	0.0111 (0.0326)	-0.14*** (0.0524)	0.00109 (0.0330)	0.0705 (0.0451)	0.0358 (0.0644)
Administrative link between the operator and trainer	temporary	4.045** (1.967)	8.65*** (3.008)	3.974** (1.555)	1.656 (2.718)	3.289 (4.232)
	Engagement_non_formel	5.26*** (1.899)	6.620** (2.647)	5.31*** (1.382)	3.543 (2.590)	5.455 (4.147)
Constant		7.46*** (2.749)	3.618 (5.072)	4.102 (3.342)	6.982 (4.383)	12.51** (5.431)
Observations		977	977	977	977	977
R-squared		0.219				

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

The educational trainer's level played an important role in the success of literacy programs. Indeed, the econometric estimates by OLS have shown that the higher diploma the trainer gets, the better the learning achievement level becomes (of the beneficiaries of the literacy program). However, the degree of the impact depends on the level of the obtained diploma from the quantile regression perspective. Thus, for the trainers holding baccalaureate degree, a positive impact is observed but among beneficiaries with lower levels. For trainers holding a Deug degree, the positive impact is observed among recipients with medium and good levels. For trainers with a BA degree (license), the positive impact is seen only with lower level beneficiaries. Finally, trainers who hold Master degree influence positively the learning level of literacy beneficiaries regardless of their initial level.

According to the OSL estimates, the influence of the class size upon the achievements of the beneficiaries of literacy programs is ambiguous. However, this impact is negative and significant for pupils with very weak grades (0.05 quantile).

V. CONCLUSION

The above comments show that the quality of literacy services, as measured by the total score whose level provides information about the level of acquired knowledge, is subject to variability/dispersion that can be perceived at two levels: (i) structure of grades and (ii) the evolution of this structure.

The analysis also has highlighted the diversity of factors that may be the source of this variability. Some of these variables are related to the characteristics of the beneficiaries, others to the characteristics of the trainers or to the logistical conditions under which the literacy program take place.

Therefore, while Morocco has managed to achieve significant progress in access to literacy services, the issue of quality remains a major challenge. Moreover, the increase in the reception capacity multiplies the sources of variability of the quality and requires a good response to the issue of quality.

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