The Determinants of Individual Retention of Different Literacy Programs Implemented in Morocco: Microeconometric Approach

Aomar Ibourk

Abstract – **This article aims to show that the progress made in terms of access is not enough in the presence of a high dropout rate. It also aims to provide some answers on the determinants of retention of the various literacy programs implemented in Morocco. This article is based on the exploitation of an original unique database, which enables us to tracks cohorts of beneficiaries throughout the process of literacy.**

Keywords – **Retention, Literacy, Microeconometrics, Morocco.**

I. INTRODUCTION

In Morocco, since the late 1980s, the initiatives in the field of literacy has constructed one of the privileged axes of this social policy. Indeed, some progress has been made. The number of registered programs has been increased very substantially thanks to the diversification of the offer from 100,000 registered per year in the late 1990s to more than 700,000 registered in recent years.

However, access is not an end in itself. The generalization of the access is only a necessary condition to take up the challenge of education. The progress achieved in terms of the rates of enrollments appeals to be complemented by a voluntary policy to ensure the quality of educational services. In other words, it is necessary that adults have access to quality literacy opportunities that enable them to effectively fill their basic education deficit and be able to place themselves for lifelong learning opportunities.

All the actors involved criticize the lack (see absence) of information about the quality of actions made in the field of literacy. The implementation of indicators for monitoring and evaluation is required at least in three levels:
✓ The measurement of acquisitions (learning) of the beneficiaries: it is measuring by direct testing the achievement levels of the beneficiaries within three dates: at the entrance of the program, mid-term and at the end of the program.
✓ The durability of the acquisitions: the sustainability of acquisitions is related to the quality of learning and their relevance to the actual changes of the living conditions of the beneficiaries of literacy programs.
✓ The analysis of the cost-effectiveness of the entire device.

A successful improvement of literacy policy, whose resources are limited, assumes streamlining actions that involve the selection of good practices, good operators and a careful thought to the training costs.

In Morocco, a pilot study on quality indicators for literacy programs was carried out in 2004 by the French cooperation on behalf of the State Secretariat (Cerbelle and Jarousse, 2005).

This assessment led to the collection of specific information from the beneficiaries varying from achievement tests and questionnaires on their personal characteristics. In addition to these questions, an analysis should be conducted on the beneficiaries' attendance and retention (the dropouts are several and constitute a flaw in the device) and their possible articulation with the success observed in the level of operators. Indeed, Among 1,609 enrolled beneficiaries only 997 completed the cycle. The dropout rate rises to 61.96%. This very high rate is a big challenge to the decision makers, researchers and all the involved actors.

The recommendations were given on i. improving the quality of literacy programs (lower dropout rates); ii. Improving program content emphasizing a functional approach; and iii. The mobilization of new actors (NGOs, companies). Organizationally, these two studies have streed the necessity of creating a sufficiently high political body to support the literacy works.[1]

This article aims to show that the progress made in terms of access is not enough in the presence of a high dropout rate. The article aims to provide some answers on the determinants of retention of the various literacy programs implemented in Morocco.

This article is based on the exploitation of an original / unique database, which enables us to tracks cohorts of beneficiaries throughout the process of literacy. The current paper is twofold. The first section presents the profile of the population that abandoned the literacy programs. The second section analyses the determinants of the abandonment. The political implications are presented in the conclusion.

II. THE PROFILE OF THE BENEFICIARIES WHO ABANDONED THE PROGRAMS

A. Data
The data used in this paper has two characteristics:
- The longitudinal dimension: The survey is to track a representative sample of the cohort of beneficiaries enrolled in literacy programs under the 2007-2008 campaign in the territory of delegation of the Ministry of

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[1]Following the recommendations of the first study, a department was created within the Ministry of Employment and Social Affairs. The recommendations of the second study led to the creation of the State Secretariat in charge of literacy and non-formal education in 2002.

Education in Marrakech. The initial sample includes 1619 people. The sampling frame is made of literacy classes per operator which are available from the Delegation of MEN. The sample includes the 4 types of programs / operators (general program, public operators, NGOs and private sector).

The data collection protocol comprises the following activities:

• Awarding a measurement proficiency test three times the literacy process (at the beginning, in the middle and at the end)

• Collecting socio-demographic data on the beneficiary;

- The dimension of direct measure :the measurement of acquired knowledge and its sustainability is based on the direct method. Beneficiaries are subject to three times direct assessment test that is based on the methodology adopted in international surveys to measure levels of literacy (OECD, 1994, 2000). The geographic scope of the study concerned the province of Marrakech-Menara. This province is home to all kinds of programs and presents a large socioeconomic variety (urban area, rural area).

B. Characteristics of the sample

The sample is composed of 93% of female beneficiaries. Literacy programs are primarily located in urban areas (Almost three quarter of beneficiaries live in urban areas and only 18.1% of the beneficiaries are located in rural areas). Almost 8 out of 10 beneficiaries are inactive. Married beneficiaries are the majority (60%). Almost 6 out of 10 beneficiaries have at least one reliant child. About 27 % of beneficiaries speak Amazighi as a mother tongue. A significant proportion of the beneficiaries are not first time applicants for literacy programs. More than 25% of the beneficiaries report have previously registered in a literacy program. The registering motivations cited by beneficiaries are related to personal growth (85.8%) and religious reasons (38.2%).

The beneficiaries of literacy programs are registered in four different programs (the general program (25.4%), the public operators program (31.9%), the NGO program (35.5%), and the private operators Program (7.2%).

Table 1: Characteristics of the sample

		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
sex of the beneficiary	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
	Total	1619	100

C. The profile of the abandoned beneficiaries

Registration to literacy programs does not necessarily lead to its completion. Indeed, only 977 out of the 1619 recipients completed the program, which means 60.3% of the total sample. 22.6% dropped out midway courses while 17% dropped out at the end of the program.

Table 2:. Type of abandonment of literacy programs

		Number	%
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

The level of abandonment of literacy programs depends on the type of the program the beneficiary is enrolled. Indeed, they are 40.3% who abandoned the general program, 38.8% abandoned the program of public operators, 38.3% abandoned the NGO program then almost 50% abandons the programs provided by private operators (Table).

Table 3: Dropout rates according to the type of literacy program

| | | | program in which the beneficiary is enrolled | | | | |
			General Program	public operators	NGO	private operators	Total
leave	0	Effective	246	316	355	60	977
		% Included leaving	0,252	0,323	0,363	0,061	1
		% Included in the program in which the beneficiary is enrolled	0,597	0,612	0,617	0,517	0,603
	1	Effective	166	200	220	56	642
		% Included in leaving	0,259	0,312	0,343	0,087	1
		% Included in the program in which the beneficiary is enrolled	0,403	0,388	0,383	0,483	0,397
Total		Effective	412	516	575	116	1619
		% Included in leaving	0,254	0,319	0,355	0,072	1
		% Included in the program in which the beneficiary is enrolled	1	1	1	1	1

Note: The value of chi-square test of dependenceis rejected

The dropout rates of literacy programs depend not only on the type of the program in which the beneficiary is enrolled but also on the place of his or her residence. Accordingly, slightly more than 55% of beneficiaries who live in suburban areas have abandoned the program. Nearly four out of ten of the recipients abandon the urban program and only one third abandon the rural one.

Table 4: Dropout rates according to the place of residence

| | | | area of residence of beneficiary | | | |
			rural	urban	suburban	Total
Leave	0	Effective	193	735	49	977
		% Included in leaving	0,198	0,752	0,05	1
		% Included in area of residence of beneficiary	0,659	0,604	0,45	0,603
	1	Effective	100	482	60	642
		% Included in leaving	0,156	0,751	0,093	1
		% Included in area of residence of beneficiary	0,341	0,396	0,55	0,397
Total		Effective	293	1217	109	1619
		% Included in leaving	0,181	0,752	0,067	1
		% Included in area of residence of beneficiary	1	1	1	1

Chi-square test of dependence, the value 14.529 is accepted

The Table below reports the distribution of the dropouts of literacy programs according to their family status of the beneficiaries. The highest dropout rate is observed among divorced (61.9%), followed by single recipients (42.4%) and married ones (37.9%). The drop out phenomenon of the literacy programs is less recorded among widowed.

Table 5: Dropout rates according to the beneficiary's family status

| | | | beneficiary family status | | | | |
			married	célibataire	veuf	divorcé	Total
Leave	,00	Effective	596	278	87	16	977
		% Included in leaving	61,0%	28,5%	8,9%	1,6%	100,0%
		% Included in beneficiary family status	62,1%	57,6%	64,4%	38,1%	60,3%
	1,00	Effective	363	205	48	26	642
		% Included in leaving	56,5%	31,9%	7,5%	4,0%	100,0%
		% Included in beneficiary family status	37,9%	42,4%	35,6%	61,9%	39,7%
Total		Effective	959	483	135	42	1619
		% Included in leaving	59,2%	29,8%	8,3%	2,6%	100,0%
		% Included in beneficiary family status	100,0%	100,0%	100,0%	100,0%	100,0%

Chi-square test of dependence, the value 12, 509 is accepted

The gender of the trainer may explain the dropout rates of the literacy programs. Indeed, the Table shows that the abandonment of literacy programs is very high when the trainer is female (65.3%) while it is just 34.7% when the trainer is a man.

Table 6. Dropout rates according to the trainer's gender

			Trainer Gender		
			Male	female	Total
Leave	,00	Effective	409	568	977
		% Included in leaving	41,9%	58,1%	100,0%
		% Included in trainer gender	64,7%	57,5%	60,3%
	1,00	Effective	223	419	642
		% Included in leaving	34,7%	65,3%	100,0%
		% Included in trainer gender	35,3%	42,5%	39,7%
Total		Effective	632	987	1619
		% Included in leaving	39,0%	61,0%	100,0%
		% Included in trainer gender	100,0%	100,0%	100,0%

Chi-square test of dependence, the value 8, 27,529 is accepted

III. THE DETERMINANTS OF ABANDONINGA LITERACY PROGRAM: AN EMPIRICAL STUDY

A. Methodology

In particular, after grouping the recipients into three categories according to the abandonment level of the literacy programs (completion of the program, mid-way course and dropouts at the end of the program), we estimate, taking the first group as reference, the effects of certain variables on the probability of belonging to each of the last two groups. We will use the multinomial logit model (Maddala, 1983).

We observe three dichotomous variables (Yi0, Yi1, and Yi2). Yi0 variable indicates if the recipient has completed the program, Yi1 shows whether the beneficiary drops out in the mid-course and Yi2 whether she/he abandoned at the end of the program. The usefulness (which is not observed) of each possibility for the beneficiary corresponds to a linear model:

$$Y_{i0}^* = x_i \beta^0 + u_{i0},$$
$$Y_{i1}^* = x_i \beta^1 + u_{i1},$$
$$Y_{i2}^* = x_i \beta^2 + u_{i2},$$

If the random terms within the three previous models are independent and identically distributed with the distribution of the Type 1 outliers, we can write therefore:

$$\text{Prob}(Y_{ik} = 1 \mid x_i) = \frac{e^{x_i \beta^k}}{1 + \sum_{r=1}^{2} e^{x_i \beta^r}}, \qquad k = 1, 2$$

$$\text{Prob}(Y_{i0} = 1 \mid x_i) = \frac{1}{1 + \sum_{r=1}^{2} e^{x_i \beta^r}}.$$

The coefficients of the multinomial logit model can be difficult to interpret directly. This is why we often analyze the marginal effects of exogenous variables on the probabilities. The estimate will be carried out according to the maximum likelihood method that ensures consistent and efficient estimators if the model is correctly specified. The used explanatory variables in this paper are the type of program (the reference category is the general program), age (the reference category is less than 15 years), sex (the reference category is man), and the place of residence (the reference category is the rural areas). The estimation results are reported in the Table.

B. Results

The estimation results have shown that those enrolled in the NGOs' programs are likely to abandon the training at the end of the program. By contrast, those enrolled in private programs are more likely to drop out in the mid-course.

Concerning the variable of age, we can see that the recipients belonging to the age group of more than 35 years olds are more likely to leave the literacy programs at the end of the training. Compared to the registered males, women are less likely to drop out at the mid-course. At the same time, the place of residence has emerged as a key element of the abandonment of literacy programs. In fact, the residence in the suburban areas increases the probability of dropping out the training both in the mid-course and at the end of the program. While enrollees of the urban areas risk to drop out the course at the end of the program.

It appears from these analyzes that the determinants of the abandonment of literacy programs differ according to the type of literacy program, age group, place of residence and the gender of enrollees. In this vein, evaluation policies should be implemented to come up with analyses that are more detailed on the major obstacles that hinder the success of literacy programs.

Table 7: Results of model estimation

Variables		abandon___mi_parcours	abandon_fin_de_programme
Type of program	Public operators	-0.170	-0.110
		(0.177)	(0.181)
	NGO	0.0301	-0.514***
		(0.177)	(0.197)
	Private operators	0.438*	0.120
		(0.258)	(0.284)
Age	Between 15 and 35	-0.281	-0.767
		(0.522)	(0.483)
	Between 36 and 45	-0.766	-1.022**
		(0.530)	(0.491)
	46 and over	-0.433	-0.860*
		(0.525)	0.486
gender	female	-0.536**	-0.0322
		(0.238)	(0.306)
Area of residence	urban	0.254	0.381*
		(0.189)	(0.202)
	suburban	0.757***	1.016***
		(0.288)	(0.302)
Constant		-0.286	-0.554
		(0.584)	(0.586)

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

IV. CONCLUSION

The analysis in this paper highlighted the various factors that may cause the abandonment in the mid-course or at the end of the training of a literacy program. Some variables are related to the characteristics of the beneficiaries while others are due to the available programs.

Therefore, even though Morocco has managed to achieve significant advances in access to literacy services, the issue of quality is still a major challenge. Moreover, rising the reception capacity multiplies the sources of variability in the quality and makes it inevitable to search for a response to the challenge of quality.

Here are the three areas that can be advanced by the public action:

- The development of an information system to monitor and evaluate literacy activities based on the provision of reliable, relevant and regionalized data. It is of high interest to produce this data regularly and establish the potential mechanisms to ensure its scientific exploitation and use in the policy-making process. At the same time, universities should be solicited to play a pivotal role in this regionalized information system needed to operate a targeting release of literacy activities.

- The development of human and logistic capacities of the supervisory department to ensure favorable conditions of coordinating, piloting and evaluating. This is very required as the role of the department as a literacy operator is in a decline.

- The establishment of an adequate institutional framework to sustain and professionalize the outsourcing policy with NGOs. The latter should be equipped with the needed resources and support to professionalize their activities agreeing to be subject to monitoring and accountability. Particular attention should be given to the conditions of attraction, retention and the professional development of the trainers.

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AUTHOR'S PROFILE

Aomar Ibourk

is a professor of quantitative methods and social economics at the Cadi Ayyad University in Marrakech and an economist. He is also the director of GRES (Economic and Social Research Group) at the same university. His research focuses on econometric methodologies applied to social sciences (labor economics, economics of education and economy of philanthropy). His doctoral thesis looks into the "Contribution to Econometrics through the Labor Market Matching Process: Macro and Microeconometric Approaches to the Moroccan Labor Market." He has recently published in *Empirica, Prospects: Quarterly Review of Comparative Education*.