



## **Use the techniques of multivariate analysis to master the challenge of youth socio-economic insertion**

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### **Abstract**

Because of its multidimensional nature, the process of integration of youth is highly complex, the success of any juvenile integration policy must be based on effective strategies allowing young people to explore and exploit the various opportunities and protect against various threats. In this paper we mobilize the statistical tools of multivariate analysis to highlight the issue of the insertion of young people: using two approaches: first the inertia based on factorial analysis techniques, this approach allows us to develop a score to measure and summarize the socio-economic conditions of insertion of young people, then we will use the algorithm of hierarchical classification that will allow us to bring together young people in socio-economic class to seize their heterogeneity, and facilitate the targeting of the most disadvantaged. The data used in this work are 'Investigated National Indicators Multiple and Youth Health' prepared by the Moroccan Health Ministry in partnership with various national and international actors, the ENIMSJ provides detailed data on the living conditions of households, youth access to education, to health care services, and the means of information and communication, as well as their links with the family, and the deviations to the behaviors. The analysis helped to highlight the plight of young Moroccans and seize the structural nature of the barriers that undermine their socio-economic integration. The results indicate that the rate of young people in difficulty of insertion is very large at 48% reflecting the need for immediate action and the development of universal and structural solutions to address this alarming situation. However, the classification that we have undertaken highlighted a particular subclass of young people who suffer from an extremely strong exclusion what makes the point about the difference required in the treatment envisaged the drafting of public policies; such a class requires attention privileged about other young people who find themselves in a situation of vulnerability. Schooling, access to the means of information and communication, the exercise of parallel activity especially sport and reading, good health practices, and knowledge as factors that play the major role in the integration process, the analysis made the point also on the process of reproductions of the inequality that characterizes Moroccan society.

**Keywords:** Approach inertia, factorial analysis, ascending hierarchical classification, socio-economic integration of youth.

### **1. Introduction**

The central objective of this work is to set up a theoretical and empirical device allowing to dread the situation of the young people in Morocco, to draw up balance sheet opportunities and threats susceptible to determine the success of their passage towards the grown-up life by wondering about the mechanisms of insertion of the young people, and to develop after all a strategic frame allowing to follow the evolution of the situation of the young people, to seize them the heterogeneousness and to target the public interventions, to feign the effects of these interventions, and to estimate their efficiency.

### **2. Section 2: The composite index of the insertion of the young people:**

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## 2-1 methodology

The realization of a composite index via the Inertia approach is going to allow us to measure quantitatively the situation of every young person according to the chosen variables; this approach is used in a frame of static analysis, which pulls its origin of the field of the static mechanics. The application of this approach is generally made via the techniques of multivariate analyses such as the factorial analysis, the analysis in main component and the analysis of the multiple correspondences, We find a complete development of this approach by LOUIS-MARIA ASSELIN (2002 ), in " multidimensional Poverty ", according to him the approach allows to make an optimal choice of the relevant dimensions(size) of the poverty while avoiding the redundancy of the information, he insisted on the MCA as the most adequate technique to handle this kind of case " the category-specific level-weighting such as that obtained with an MCA, consists in measuring every primary qualitative indicator in a not linear way without imposing of constraint, at the very beginning in a functional shape the arguments of this one of which are indicators " (ASSELIN on 2000).

By basing itself on the braided of the modalities on the first axis taken out again from the MCA, we calculate for each of the individuals a score which depends on modalities which it takes in variables analyzed . The functional shape of the index:

$$ICIJ = \frac{(W1 * Ii1) + (W2 * Ii2) + \dots + (Wp * Iip)}{m}$$

With:

ICIJ: composite index of the insertion of the young people

I: Binary indicator of the modality p for the young person i, takes the value 1 if the individual is characterized by the modality and 0 in the opposite case

W: The coefficient of level- weighting or the weight of the modality the value of this coefficient corresponds to the score normalized by the modality on the first factorial axis.

M: The number of variables

## 2-2 results:

### a- Bar of the scores:

For each of the individuals of the sample we obtained a score reflecting its situation of insertion, the board below is an extract of the bar of the scores.

Board 1: extract of the scoring bar

Code de jeune	composite index of the insertion of the young people
Obs1	0,174401054
Obs2	0,130204614
Obs3	0,121204424
Obs4	-0,03256006
Obs5	0,0934205
Obs6	-0,079240958
Obs7	0,387658607
Obs8	0,177918288
Obs9	-0,268079069
Obs10	-0,12473682

Source: Author calculations

### b- descriptive Statistics of the distribution of the scores:

Board 2 the distribution of the scores

ICIJ
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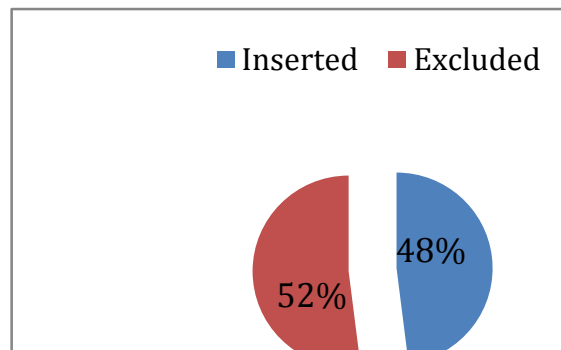
Nb. obs	5176
minimum	-0,783
maximum	1,021
amplitude	1,804
1st Quartile	-0,292
median	0,022
3rd Quartile	0,27
average	0,004
Standard deviation (n)	0,363
Standard deviation (n-1)	0,364
Standard deviation of the mean	0,005
Lower bound. the average (95%)	-0,006
Terminal sup. the average (95%)	0,014

Source : author calculations

The relative threshold was calculated on the basis of a proportion of the median, by convention this proportion is situated is generally between 0.4 and 0.6, this approach to the advantage of the objectivity, and it is independent from personal evaluations. We chose the second approach, then the threshold of insertion:  $-0.6 * \text{median} = 0,01292529$ ;

The idea consists that the young people having scores below this threshold (0,01292529), constitute the category in trouble of insertion Then according to the calculated threshold, the distribution of the groups of young people is illustrated on the graph below.

**Graph 1: insertion rate of the young people in Morocco**



Source: author calculations

The rate of the young people in trouble of socioeconomic insertion amounts to 48 %, a very high but normal rate seen the number of the failures, what is so in compliance with the structural character of the problems met by the young people in Morocco. The elaboration of the composite index of insertion of the young people allowed us to distinguish two typologies of young people, group of the "inserted" young people and the group of the young "outcasts/excluded", however in reality there is/are not only these two extremes, we claim the existence of certain groups more at least disadvantaged, yet it is essential to take out again and to characterize pertinently all the profiles of the young people.

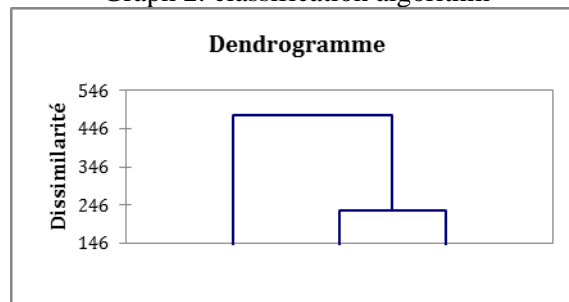
Then to strengthen the results of the previous part we resorted to one other technique of the multidimensional analysis, It is about the hierarchical ascending classification.

### **3. Section 3: Typologies of the young Moroccans: groupings of the young people in homogeneous classes**

The objective of this part is to take out again the various typologies of the young people according to their socioeconomic conditions, illustrated by the factorial coordinates stemming from the analysis of the multiple correspondences made in the previous part.

### 3-1 typologies stemming from classification:

Graph 2: classification algorithm



Source: author calculations

As we notice on the graph, the algorithm of the classification which we made allowed releasing 3 various classes grouping the individuals of the sample, whose staff are shown in the following board:

Board 3: class effectives

Class	effectives	%
1	1678	32,42
2	2077	40,13
3	1421	27,45

Source: author calculations

Then, to understand the logic of the made segmentation, in what follows we are going to characterize each of these classes according to the composite socioeconomic score of insertion of the young people.

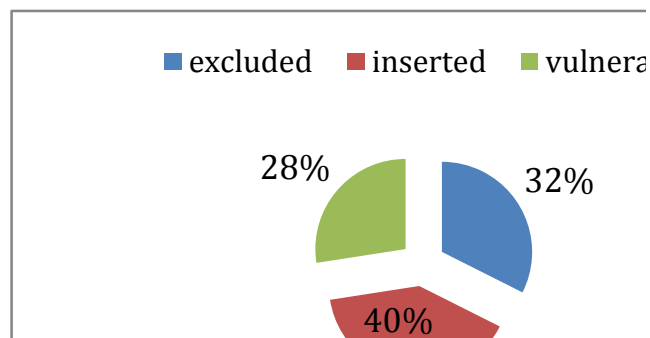
### 3-2 Scores distribution in each of the classes

Board 4: class scores

class	Mean	N	Standard deviation	Maximum	Minimum
1,00	-,0621	1678	,1910	0,354	-0,624
2,00	,3433	2077	,2062	1,021	-0,090
3,00	-,4125	1421	,1705	0,014	-0,783

Source: author calculations

Graph 3: class repartition



Source: author calculations

The board and the graph shows descriptive statistics of the distribution in each of the classes; we notice clearly the differences of the profiles of these classes, in fact the class 3 is endowed with the most unfavorable distribution we can deduct that it groups the extremely excluded young people, on the other hand the distribution of the class 2 demonstrates itself by high values of the composite score what makes that this class groups the young people accumulating the conditions favorable to the insertion, however the distribution of the class 1 is in the middle of previous both distributions; it can become famous for an intermediate zone which groups the young people who do not accumulate all the dimensions of insertions but all the same they are not very deprived to be excluded, In economic literature we can give to this group the attribute of the group of the vulnerable.

### 3-3 Characteristics of classes:

Board 5: class characteristics

modalities	vulnerable	inserted	excluded
No schooling	1,70%	1,30%	46,70%
preparatory	33,80%	39,00%	65,60%
secondary	8,20%	42,70%	2,50%
higher	1,00%	16,00%	
Can read it completely	77,00%	98,50%	37,70%
exercises now	42,30%	38,20%	22,40%
satisfied	19,90%	30,10%	15,00%
Almost every day is magazines	3,50%	8,70%	0,80%
Journals At least 1 time / sema	40,80%	64,50%	11,00%
TV Not at all	3,60%	1,00%	19,40%
Parable Not at all	35,90%	15,60%	52,40%
A one in which youth may account	74,30%	84,30%	73,20%
Discussion with the family of school or work events	25,50%	43%	16,5%
Outside school sports	53,60%	51,40%	20,70%
reading	13,00%	35,10%	7,10%
Internet	23,40%	40,80%	0,40%
good health	46,40%	49,40%	47,50%
private doctor	21,60%	43,00%	13,20%
Never smoke	76,60%	90,10%	92,30%
Yes knows FP	84,90%	94,40%	72,50%
knowledge of AIDS	84,00%	96,70%	46,30%
Tap water in the dwelling or in the plot or bottled water	57,20%	90,80%	13,40%
finished material	89,30%	98,80%	55,90%
Poorest	12,10%	0,10%	55,10%
second	27,10%	5,30%	35,90%
means	32,90%	17,30%	8,00%
fourth	24,60%	30,80%	1,00%
The richest	3,40%	46,50%	
Head of household	40,30%	80,30%	21,40%
education level of Secondary			
Chief education level Higher household	1,00%	16,00%	

Source: author calculations

The board of the modalities allows to characterize the various classes, and thus to dread the heterogeneousness of the profiles of the young people. Then we took out again 3 profiles:

**The inserted young people:** young people were schooled reaching high educational levels, they work and they are more at least satisfied with their jobs, they guard strong family links, they adhere to parallel activities as the reading, and the sport, they use the internet, they are informed well about the sanitary best practice, they reach sanitary quality services, so they belong to households of the rich and average classes the living conditions of which are good.

**The excluded young people:** young illiterates, never schooled, or with educational levels very low, they suffer from the unemployment, and those who work are not satisfied with their jobs, they are in break of the family links, they do not practice parallel activities, they are not informed about the sanitary best practice, they have difficulty of access to the sanitary services, they belong to the households of the poor class the living conditions of which are unfavorable.

**The vulnerable young people:** young people were schooled until average levels, they work but they are not satisfied by their jobs, their family links are not very strong, they practice some parallel activities, especially the sport, they are more or less informed at the sanitary levels, they reach sanitary

services but of mediocre quality, they belong to the households of the middle class the living conditions of which are acceptable.

#### 4. Conclusions

All these conclusions lead us to recommend the setting-up of a strategy of insertion of the young people and which is led on the national level while taking into account the determiners of the success of the strategy in question namely: the modernity, the multidimensionality and the completeness. After all, it is of a big importance that it is focused on the following pillars:

**The targeting of the most disadvantaged young people:** the situation of the young people of the excluded class is so critical that it requires a particular treatment on behalf of the decision-makers who have to set up an action plan which takes into account the specified of this class given that the majority of them have no actual access to the formal opportunities of the insertion such as the schooling and thus the eventuality of power to read and to write. An outcome of this situation consists in institutionalizing mechanisms of making up as the expansion of the schools of the second chance, The encouragement of fight against the illiteracy, the equivalence of the qualifications of informal education to those of the formal education, the popularization of the sanitary information, the promotion and the encouragement of the creation of the institutions of reception, qualification and support dedicated to the most deprived young people.

The fight against the reproduction of social inequalities: the dependence between the insertion of the young person and the standard of living of the household is not desirable and must be small, what has to bring to focus the policies of social welfare on the principle of equality of opportunity and freedom of choices especially for the children and the young people. Following the example of the developed countries, it is necessary to conceive the educational systems and of health so that all the young people will have the same opportunities and the same choices independently of the situation of their families, what is going to allow to establish possibilities of catching up to reduce social inequalities and benefit from the dynamism and from the creativity of all of the young people.

**Favoring of the educational opportunity:** the education constitutes a basic determiner of the insertion; the public authorities have to stay up strictly the total access to the education and fight against the school abundance so as to increase the average of the years of schooling. The institution of a process of the day before is imperative but cannot nevertheless be sufficient (self-important), she must be accompanied with an improvement of the taught contents and with a ceaseless modernization of the educational methods to value the human resources and allow the expansion of the opportunities of insertion.

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