



PROFESSIONAL INSERTION OF YOUNG PEOPLE IN THE SENEGALESE LABOR MARKET

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ABSTRACT

The objective of this paper is to analyze the effect of human capital through educational level and vocational training, on the integration of young people into the Senegalese labor market. Data from the Senegal Poverty Monitoring Survey (ESPS II) conducted in 2011 were used. To this end, we use a Logit Multinomial model. The results show that in Senegal, human capital contributes positively to the employability of young people in the “highly skilled” and “low skilled” segments. By moving from no education to the general high education, the probability of belonging to the “low-skilled” segment increases by 33.82% (47.14% for those with technical secondary education). While for the “highly skilled” segment, the probability of belonging to it increases by only 1.36% (46.32% for those in the higher technical). As for on-the-job training, it has a positive and significant impact on the integration of young people in the “low-skilled” and “unskilled” segments. In addition, young people are disadvantaged in all segments. In addition, young men have better access to employment than young women in the “highly skilled” and “unskilled” segments. Rural youth represents almost the entire segment of the population “unskilled”.

JEL Classification numbers : E24, J13, J24

KEYWORDS : Human capital, professional integration, young people, labor market, MLOGIT, Senegal.

INTRODUCTION

For decades, the world has been confronted with major problems to cope with the economic and social crisis that is hitting all states in general and developing countries in particular. Among these issues, the issue of youth unemployment, the resolution of which determines the future of humankind, is high on the agenda, taking into account its political, economic and social impact. Around the world, some 75 million young people are unemployed, and the highest youth unemployment rates are found in the regions with the highest growth in the labor force (ILO, 2012).

In sub-Saharan Africa, 60% of the population, or 200 million young people aged 15 to 24, are under 25 years of age and 11 million young people enter the labor market every year. Despite sustained economic growth for years and progress in education and training, the issue of youth employment remains a major challenge for countries.

In Senegal, unemployment first affects the youngest segment of the labor force (aged 15 to 35). Thus, Senegal, like most countries in sub-Saharan Africa, has a young population

that is large reservoir of labor. This population is more and more educated with a gross enrollment rate of children aged 7 to 12, amounting to more than 90%. The country has embarked on a process of developing its human resources by carrying out an in-depth reform of the technical education system that began in 2001, and a bold policy of developing higher education from the outset. 2013. This orientation will make it possible to better tailor training to the needs of the labor market and to provide the country with sufficient competent technical and professional human resources to support the economy over the next few years. Studies and training in general, are like investments which, accumulating, form a stock of professional skills, called “human capital” (Pierre and André, 2004). In general, people with the highest levels of education have the best job prospects (OECD, 2012). On average, in OECD countries, 83% of tertiary graduates work. According to the ANSD report (2013), in Senegal, statistics on occupancy rates by level of school attendance make it possible to note the importance of schooling in obtaining a job. The highest occupancy rates are provided by individuals who have already attended school (52.7%).

The fight against unemployment and underemployment of young people has always remained one of the major concerns of the Government of Senegal. Thus, the promotion of employment was the subject, during the 1990s, of a National Employment Policy document, which for more than two decades has led to the implementation of policies and programs to promote job creation and fight youth unemployment. The recognition of the importance of education on the access to employment of individuals has led Senegal to increase its expenditure on education, as shown in the 2012 Global Monitoring Report on Education for All, UNESCO, "Senegal has increased education spending from 3.2% to 5.7% of GNP". Despite these efforts in terms of investment in education policies aimed at improving the training of young people, making them fit to enter the labor market, the situation is still worrying. As the declared unemployment rate is estimated at 25.7% (RGPHAE, 2013), a breakdown of the unemployed population by age group shows that most of the unemployed are young people between the ages of 15 and 34. years (59, 7%). Moreover, the increase in unemployment of graduates is worrying and must however attract the attention of the authorities of the country. As shown in the study entitled "Diagnostic study on youth employment in Senegal", the unemployment rate of graduates of the higher level is particularly high and is 31% in 2011 against 16% in 2005. And yet the theory of human capital teaches us that a high level of education protects young people from unemployment.

Faced with this paradoxical situation and worrying unemployment, it is useful to conduct a study to address concerns about the employment situation of young people. Does the accumulation of human capital enable individuals to access employment?

Several authors have examined the relationship between education and the labor market. One of the most well-known relationships in this literature is Mincer's equation (Mincer, 1958), which demonstrates the correlation between income and the level of education attained. In most countries, education is a bulwark against unemployment. Research based on human capital theory has included access to employment and high wages, education and vocational training. According to the traditional theory of human capital, education is an economic investment that increases the productivity skills of workers and, de facto, is a form of human capital (Becker 1964, Schultz 1963). In theory, education decisions are motivated by two aspects. First, education makes workers more productive and raises their earnings in line with the human capital theory (Becker, 1964). Secondly, education increases the duration of individual employability, and thus is a protection against exclusion. As for Lucas (1988), the production function of an economy is composed of three elements: capital, labor and work efficiency reflecting the quality of human capital. Thus, we note that the lowest unemployment rates are generally found among the most educated groups of individuals (Borooah and Mangan, 2008).

Although this theory of human capital has the advantage of advancing the theory of labor supply by bringing training

and employment closer to market logic, it nevertheless has some limitations, especially the emphasis on individual productivity and supposed measurable. This poses a problem especially when we know that the production process is of the collective type as a whole. Hence the consideration of the complementary and alternative theories to the theory of human capital which are: theory of the segmentation of the labor market (Doeringer and Piore, 1971), signal theory (Spence, 1973), theory of implicit contracts (Azariadis, 1975), model "insiders / outsiders" (Lindbeck and Snower, 1988). These theories still called "WS-PS models" (Wages Settings-Price Setting) seek to explain the professional insertion by giving a foundation microeconomic to wage formation.

The general objective of this study is to analyze the effect of human capital through the level of education and vocational training, on the process of integration of young people into the labor market in Senegal.

More specifically, it is:

- ✓ To determine the impact of educational level on the chances of finding a job;
- ✓ To study the influence of vocational training on access to employment for young people.

Through this study, we will answer the following questions that we formulate in the form of hypotheses.

Hypothesis 1: The level of education has a positive effect on the employability of young people in the labor market.

Hypothesis 2: Vocational training positively influences young people's access to employment in Senegal.

Our work will be organized around three sections. In the first, we will present the backgrounds of the employment situation in Senegal. Then the methodology and data will be presented in the second section. Finally, the results and lessons of economic policies are presented.

1-PROFILE OF THE EMPLOYMENT SITUATION IN SENEGAL

Senegal is a developing country in sub-Saharan Africa ranked up to 2010 among the poorest in the world. Its per capita income of US \$ 1070 is below the average of SSA countries valued at US \$ 1258 in 2011. Senegal has stagnated at a low level of growth and is struggling to achieve more growth, strong, more sustainable and more inclusive. On average, GDP growth was 3.3% per year in the years 2006-2013; which barely exceeds the population growth rate of 2.6%. One of the major challenges is to improve the quality of education in order to solve the training-employment mismatch problem.

1.1 Socio-demographic context

As part of the general census of the population and housing (RGPH, 2013), it appears that, in December 2013, the resident population in Senegal is estimated at 13 508 715 inhabitants including 49.9% of men and 50, 1% of women. This population is characterized by its youth. The average age of the population is 22.7 years and half of the population is 18 years old (median age). The rural population appears younger with a median age of 16 years (against 21 years in urban areas). The resident population is predominantly rural with 54.8% against 45.2% of city dwellers.

Table 1: Mean Age and Median Age of Population by Sex

Indicators	Urban	Rural	Senegal
Âge moyen	24	21	22,7
Âge médian	21	16	18,0

Source : ANSD, RGPHAE 2013

1.2. Situation of the Senegalese economy since independence

1.2.1. From independence to structural adjustment policies

At the time of African independence, the development strategy applied in Africa aimed in particular at transforming the productive system and the administrative apparatus.

At its independence in 1960, Senegal had a level of industrialization and an economic situation on average more satisfactory than the countries of the subregion. The public administration was a major provider of jobs compared to the demand of the time. Between 1960 and 1980, the country's economy was still highly dependent on agriculture, which was, however, subject to significant fluctuations following the vagaries of the weather, particularly the drought of the 1970s. The industry recorded more sustained and regular growth, estimated at 4.7% annually due to the import substitution policy. This growth momentum, however, faded in the 1980s due to a protracted crisis of competitiveness. The economic performance during the first twenty years of independence was therefore not very satisfactory with an average annual growth of 2.2% of production for an estimated population growth of 2.7% per year.

1.2.2. Two decades of structural adjustment policy in Senegal

The serious rupture that occurred at the time of African independence between the food production structures in this case and the consumption patterns, has deeply contributed to a double extraversion: that of production and that of consumption. The combination of all these situations has progressively led all African States to adopt the structural adjustment programs and the accompanying management mechanisms with the support of the World Bank and the IMF. In 1978, the Senegalese economy entered a deep insolvency crisis with a deep depreciation of the entire macroeconomic framework. Indeed, economic growth during this period was highly dependent on the primary sector. Its rate grew in real terms, on average, by 2.2% while the population growth rate was estimated at 2.7% on average. These imbalances, if left unchecked, would lead to a cessation of payments. States and inevitable sociopolitical upheavals. To make new disbursements the international financial institutions, the main donors will impose the implementation by the government of a series of programs which together is the process of structural adjustment of the economy. These policies aimed to clean up the economic environment by reducing public spending, restructuring the banking system and public enterprises, and developing private initiative. This is chronologically:

- ✓ The short-term stabilization program (1979-1980)
- ✓ Medium Term Economic and Financial Recovery Plan (PREF): 1980-1985
- ✓ The medium and long-term structural adjustment program (PAMLT): 1985-1992
- ✓ The 1993 stillborn emergency plan
- ✓ The post-devaluation plan (1994-1998)

However, with the devaluation in 1994, economic growth picked up steam. GDP growth was estimated at 2.9 percent in 1994, 4.8 percent in 1995, and 5.5 percent in 2000. The rate of GDP growth was again higher than the rate of population growth. However, this new economic stimulus did not have immediate effects on employment.

1.2.3. In 1997, a National Employment Policy (NEP)

In 1997, a National Employment Policy (NEP) was defined by the state to face much more actively the problems of employment. The new government elected in 2000 took over and consolidated this NEP.

1.2.4. In 2014, Vision of an Senegal Emerging Plan (PSE)

According to the explanatory memorandum, the Finance Bill for 2014 is part of the Government of Senegal's vision of achieving emergence in intra and intergenerational solidarity. The Senegal Emerging Plan is defined as a frame of reference that federates the various programs and strategies of economic and social development of Senegal. This new plan is based on two strategies, including a previous poverty reduction strategy and the national strategy for economic and social development. It retains the same pillars that are: (i) growth and structural transformation of the economy; (ii) human capital promotion, social protection and sustainable development; and (iii) good governance, institutions, peace and security. However, the strengthening of the first pillar (growth) proposed by the Senegal Emerging Plan has been well received. In this perspective, the Government projects over the next decade an average annual inclusive growth of 7%, and generating employment. Such an objective was at the center of the "Senegal Emergent 2015" Accelerated Growth Strategy (SCA) that was presented to the Advisory Group in October 2007.

1.3. Recent economic situation of young people in Senegal

1.3.1. Analysis of employment and unemployment

The Senegalese population of working age (those aged 15 or over) is estimated at 7, 728,868 (ANSD, RGPFAE 2013). In most regions, at least one in two people of working age is idle. A large part of this inactive population is predominantly female and consists of housewives (43.8% of the inactive) and pupils / students (30.4% of the inactive). The usually active population, which is occupied and unemployed, is 50.4% of the potentially active population. As for the active population, it consists of 74.3% of employed and 25.7% of unemployed (ANSD, RGPFAE 2013). The analysis in the table below shows that the vast majority of the labor force does not have a diploma. In fact, 78% of the employed and 70% of the unemployed do not have one.

Table 2: Distribution of employed and unemployed persons by highest diploma

	occupied	unemployed
No education	78,04	70,17
CFEE	12,02	15,14
BFEM	5,11	7,36
BAC plus	4,83	7,33
TOTAL	100 %	100%

Source : ESPS 2011

In Senegal, the declared unemployment rate is 25.7%, reflecting low participation of assets in the production of goods and services. This unemployment rate varies by region, but also with regard to other household characteristics, including the place of residence, age groups and marital status (ANSD, RGPFAE, 2013). A breakdown of the unemployed population by age group shows that most of the unemployed are young people between the ages of 15 and 34. (59.7%) Senegal has a young and growing population and according to forecasts, its workforce is expected to increase by 36% over the next decade. For 10 unemployed people, almost 9 are looking for their first job (92.9%), and in most parts of the country, the number of unemployed women is higher than that of men, with the exception of Thies, Kolda, Kaffrine and Kedougou. At the national level, out of 100 unemployed, 54 are female. In urban areas, the unemployment rate is 17.7% (12% for men versus 28.1% for women). In rural areas, this rate is estimated at 33.4% (23.6% for men versus 53% for women).

1.3.2. Policies for youth employment in Senegal

The most recent statistics show a reported unemployment rate of 25.7% (RGPFAE, 2013), a breakdown of the unemployed population by age group, showing that most of the unemployed are young people. The Government had various programs in place for youth employment. It's about :

- ✓ The National Fund for the Promotion of Youth (FNPJ), which promotes access to credit;
- ✓ The National Agency for Youth Employment (ANEJ), which facilitates the establishment of links between young people and potential employers.
- ✓ The National Action Plan for Youth Employment (PANEJ), which provides economic and technical advice and information to young people and provides legal and financial assistance services.
- ✓ Capacity Building Project for Monitoring and Evaluation of Youth Employment Programs.
- ✓ The Youth Employment Agency of the Suburbs (AJEB).
- ✓ The Public Works Executing Agency (AGETIP), which employs young people in labor-intensive work.

For the sake of rationalization of autonomous public agencies, the current Government has decided to group most of the structures for promoting employment around a single entity, the National Agency for the Promotion of Youth Employment (ANPEJ). Employment opportunities for young people are much greater in the informal sector. The creation of jobs on a large scale depends on the achievement of strong economic growth, driven by sectors generating high added value. The Government is targeting the agricultural sector and agribusiness as a source of job creation. It is also important to consider training measures to adapt the skills of young people to the needs of the labor market. Such measures will help to promote the employability of young people in Senegal.

2.METHODOLOGY AND DATA

In this section, we focus first on the presentation of the model, then on that of the data.

2.1.Presentation and mathematical formalization of the model

The multinomial logit model (MLM) is our analytical model. As with the simple logistic regression model, the multinomial logit model can be used as a discriminant analysis tool to highlight the distinguishing features of a category of people. This model is an extension of the simple logistic regression model. This type of model was introduced by McFadden in 1968. It allows to study the situations where the individual must make a choice among several modalities. It is a model used as a discriminant analysis tool in order to highlight the distinguishing features of each category.

In unordered models, the variable to be explained represents the possibilities of choice of an individual among $M + 1$ possibilities and therefore his preferences, which is why they are also called random utility models.

The decision $Y_i = j$ is retained if

$$U_{ij} = \text{Max}(U_{i0}, U_{i1}, \dots, U_{iM})$$

Suppose that each individual has to choose between the four alternatives ($j = 0$ to 3) more precisely (unemployed, highly skilled & skilled, semi-skilled, unskilled). What we seek to study is the unique decision of an individual among a number of unordered alternatives. In a model of unordered choices, the individual i will compare the different levels of utility associated with the various choices, and then opt for the one that maximizes its utility U_{ij} among the J choices.

For the individual i , the utility of the choice j is :

$$U_{ij} = \beta'Z_{ij} + \varepsilon_{ij}$$

Where Z_{ij} is a vector of individual characteristics (level of education, vocational training, age group, gender, place of residence, etc.), β is a vector of unknown parameters and ε_{ij} is a random error term. If the individual makes the choice j , U_{ij} is considered to be the greatest utility among the utilities considered by the individual i . In fact, the probability that the individual i participates in sector j corresponds to the probability that the utility of sector j is greater than that associated with all other sectors:

$$P(U_{ij} > U_{ik}), \text{ for } k \neq j, j, k=0, 1, 2, 3$$

Assuming that the errors ε_{ij} are distributed independently and identically according to a Weibull law:

$$F(\varepsilon_{ij}) = \exp(-\varepsilon_{ij}^\alpha)$$

In this case, the difference between errors follows a logistic distribution (McFadden, 1973). In many studies, the estimation of the reduced equation of labor force participation is done from this point using a multinomial logistic model (LM). In this model, the probability that the individual i choose option j is expressed by:

$$\text{Prob}(Y_i = j) = \frac{e^{\beta_j' z_i}}{\sum_{k=0}^3 e^{\beta_k' z_i}}, \text{ avec } j = 0, 1, 2, 3 \text{ et } \beta_0 = 0$$

$$\delta_j = \frac{\partial P_j}{\partial z_i} = P_j [\beta_j - \sum_{k=0}^3 P_k \beta_k] = P_j [\beta_j - \bar{\beta}]$$

This formula generates an indeterminacy. This one is raised by the simple normalization $\beta_0 = 0$. Thus, each probability of choice is between 0 and 1 and the sum of these last ones equals the unit. The estimation of the parameters is done by the method of maximum likelihood. The coefficients of the parameters are not directly interpretable.

We will use the marginal effects for the purpose of interpretation:

The δ_j describe the effect of the unit modification of a variable on the probability that an individual chooses the alternative j. Note that it is also possible for continuous variables to evaluate elasticities. We seek to explain the variable segment designating the socio-professional category in which the individual is located (0 = unemployed, 1 = highly skilled, 2 = poorly skilled, 3 = unskilled) by the explanatory variables. These explanatory variables will be presented in the table.

Table 3: Model variables

Dépendante variable	Modalités
Access to employment for young people i	1, if the young person is highly skilled
	2, if the young person is poorly skilled
	3, if the young person is unskilled
	0, if the young person is unemployed
Independent variables	Reference modality
Level of education of the young	no education
Youth vocational training	no training
Age range	[15-24]
Sex	Women
Nationality	Foreign
Middle of residence	Other urban centers
Relationship	Head of household

Source : author

Explanation of the segments of access to employment

- “ highly skilled “: senior managers, engineers and similar
- ” Poorly skilled“: middle managers, supervisors, skilled workers, medium technicians;
- “ Unskilled “: maneuver, agriculture, fishing
- Unemployed: a person in the potentially active population who meets the following three conditions:
 - 1- Not having worked at least one hour during the last seven days preceding the survey;
 - 2- Being actively looking for a job;
 - 3- Be ready to work within two weeks of the survey.

2.2. Data

The analysis method is based on data from the Senegal Poverty Monitoring Survey (ESPS 2011). These data come from the National Agency for Statistics and Demography (ANSD).

3.RESULTS

After estimating our analysis model, we are interested in the interpretation of the results. We seek to interpret the effects of the explanatory variables on the probability of access to employment for young people in the senegalese labor market. To do this, we will use marginal effects.

□ Effect of human capital on different segments of the labor market in Senegal

➤ **General level of education**

General higher education contributes positively to the employability of young people belonging to the “highly skilled” and “unskilled” segments in Senegal. When we consider these two segments, only the coefficient associated with the general higher education is positive and significant. So access to these segments for the young i is conditioned by obtaining

a general higher level of education. By moving from no level of education to the general higher level of education, the probability of belonging to the “low-skilled” segment increases by 33.82%, while for the “highly skilled” segment, the probability of belonging to it only increases by 1.36%. This result shows that in Senegal, the young people of the general higher education have difficulties in terms of professional integration in the “highly skilled” segment.

As for the “unskilled” segment, there is a negative relationship between the level of education and the probability of belonging to this segment for the young people. In this segment, all modalities of the Education variable are negative and significant. So the unskilled segment’ ie young people with basic jobs (traditional farmers, traditional fishermen, unskilled labor, etc.) do not require a level of education that is too high to integrate. This segment only requires the level of primary education to be able to exercise freely.

➤ **Professional training**

On-the-job training will have to be distinguished from the technical training. On-the-job training has a positive and significant impact on the ‘low-skilled’ and ‘unskilled’ segments. These two segments need this type of training, especially that of ‘unskilled’ whose ‘Learning by doing’ would improve their lot.

For technical vocational training, secondary and tertiary levels are positive and significant for the “highly skilled” and “low-skilled” segments. In the “low-skilled” segment, the probability of access increases by 47.14% for those with a technical secondary education and 46.32% for those with a higher technical level. This result corroborates with that found by Cabral et al (2014). According to their study, young people in higher education are more affected by unemployment “the unemployment rate for graduates of the higher level is particularly high and stands at 31% in 2011 against 16% in 2005 »

Thus, technical education gives Senegalese young people access to the “highly skilled” and “low-skilled” segments, even from the technical secondary level.

Table 4: Results

Base = Unemployed	Segments		
	Highly skilled	Poorly skilled	Unskilled
Coefficients (Ecart type en dessous)			
Human capital	(1&2)		
Level of education (ref = no level)	(1)		
Primary	-0.235 (0.734)	-0.0182 (0.0733)	0.389*** (0.0606)
Secondary general	-12.97 (676.2)	0.0573 (0.128)	-0.399*** (0.115)
Technical secondary	1.852** (0.844)	1.441*** (0.153)	-1.126*** (0.209)
General high education	3.347*** (0.718)	0.681*** (0.217)	-1.528*** (0.313)
Technical high education	4.329*** (0.643)	1.086*** (0.166)	-1.885*** (0.300)
Professional Training (ref = no professional training)	(2)		
On-the-job training	0.248 (0.662)	0.477*** (0.0897)	0.381*** (0.0792)
Residence (ref = Other urban centers)			
Urban Dakar	0.529 (0.353)	0.431*** (0.0808)	-0.183** (0.0783)
Rural	0.532 (0.433)	-0.00653 (0.0813)	1.395*** (0.0618)
Gender (ref = Woman)			
Men	0.667* (0.373)	0.409*** (0.0664)	0.607*** (0.0559)
Age groups (ref = [15-24])			
Age [29-35]	1.235* (0.657)	0.628*** (0.0793)	-0.696*** (0.0682)
Age [24-29]	0.0910 (0.707)	0.340*** (0.0791)	-0.745*** (0.0659)
Nationality (ref = Foreign)			
Senegalese	14.13 (1,483)	0.383 (0.376)	-0.189 (0.293)
Marital status (ref = Head of household)			
Husband Wife	-0.988 (0.728)	-1.007*** (0.181)	-0.0595 (0.162)
Other family ties	-1.494*** (0.339)	-0.669*** (0.122)	-0.357*** (0.122)
Constant	-18.82 (1,483)	-0.425 (0.401)	2.530*** (0.320)
Observations	13,418	13,418	13,418
LR chi2(42)	4493.92		
Prob > chi2	0.0000		
Pseudo R2	0.1846		

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

□Effect of other variables on young people's access to employment in Senegal

In addition, young people are disadvantaged in all segments when they enter the Senegalese labor market. In addition, young men have better access to employment than

young women in the “highly skilled” and “unskilled” segments. Rural youth are in the majority and represent almost the entire segment of the “unskilled” population.

CONCLUSION

The issue of the contribution of human capital in the process of integration of young people into the labor market is still little studied in Senegal to our knowledge. The objective of this study was to analyze the impact of human capital through educational level and vocational training, on the process of professional integration of young people in the labor market in Senegal. The use of a multinomial logit model (MLM) made it possible to reach our goal. General level of higher education contributes positively to the employability of young people belonging to the “highly skilled” and “unskilled” segments in Senegal. As for on-the-job training, it has a positive and significant impact on the integration of young people for the “low-skilled” and “unskilled” segments. For technical vocational training, secondary and higher education. are positive and significant in the ‘highly skilled’ and ‘low skilled’ segments.

Excepted to the ‘unskilled’ segment, young people are discriminated in all other segments in terms of access to employment. Urban youth are more likely to find employment in the “low-skilled” segment than rural youth. Only in access to the “unskilled” segment do rural people have an advantage. With regard to gender, it is noted that with the exception of the “low-skilled” segment, women are at a disadvantage compared to men in all other segments.

As a summary, we recommend to the authorities increased and more targeted investments in vocational training, the development of youth entrepreneurship with high human capital, the establishment of a partnership between private school-business to reduce the ratio young unemployed people in Senegal. The authorities must also introduce a labor insertion contract for young workers in the labor code. This study could be more enriched if several aspects were taken into account.

□The proxy used to capture human capital (level of education and vocational training) could be improved by adding the individual’s health variable.

□Professional integration could be seen not only in terms of access to employment, but also in terms of obtaining a relatively high income.

In perspective, the use of a more recent database and the inclusion of other components of human capital could improve this research. A dynamic study of the professional integration of young people could be possible.

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