

Macro-econometric assessment of the device of enterprise creation: The case of ANSEJ in Algeria

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Keywords

Employment, youth unemployment, device micro-enterprise, assessment, effectiveness

Abstract:

The purpose of this article is to present a macro-econometric quasi-experimental assessment of the device of enterprise creation: The case of the ANSEJ micro-enterprises. Our study retains the getting jobs criterion as a principal assessment. A statistical analysis of quarterly data from ANSEJ, at the national level, over the period [1999:1-2013:4], lead us to hold a regression (VAR) on variables integrated of order 1. The result of the ANSEJ device of micro-enterprises is effective for the period [2009:1-2013:4], compared to the forecasts of ANSEJ, but it is ineffective compared to the forecasts obtained by our model. This device is not generating a lot of jobs, barely two sustainable jobs per one micro-enterprise. It therefore requires as many micro-enterprises as jobs to create.

Introduction

After the oil crisis of 1986, private enterprise was one of the most important means to create employment and fill the void left by the public sector in Algeria. It is perceived as a new vector of growth, job generator and engine of socio-economic progress; hence the public investment program [2010-2014] spent a quarter of its budget only for the creation of micro-enterprises and micro-activities. We want to evaluate the device of business creation, through the device of micro-enterprises from ANSEJ and see if its objectives have been achieved. First of all, we will show that solving unemployment is the main motivation for this dynamics of enterprise creation, and then we will present the method of ANSEJ micro-enterprises financing. Finally, we will present the balance sheet of this device; we will use for this purpose a quasi-experimental macro-econometric evaluation method to assess the ANSEJ device.

1. Unemployment at the origin of the implementation of the ANSEJ device

The difference between supply and demand of the labour market has been compounded by the implementation of the program of structural adjustment (PSA), in the early 1990s. There caused a deep dysfunction resulting in an acute crisis, and an unemployment rate reaching its peak at the end of the 1990s (29.52% in 1997 and 29.7% in 2000)¹. This situation is the consequence of the dissolution of the non-productive enterprises and compression of workers.

1.1 Evolution of employment over the period [2001-2013]

From the early 2000s, the national economy of Algeria has gradually regained its dynamism with a best performance of macro-economic indicators and has improved in terms of employment creation, due mainly to the two support plans for economic recovery (PSRE for 2001-2004; PCSC for 2005-2009)² based on an expansionist policy of public spending in infrastructure and agriculture. But the jobs created are mainly non permanent characterized by non-permanent employment, see table n°1, below:

¹ The data collected on the website of national statistic office (ONS)

² PSRE : Support plan for economic recovery ; PCSC : Complementary support plan for growth

Status	Occupied population		Structure (%)		Absolute variation	Contribution (%)
	2001	2013	2001	2013		
Occupied population of the moment	6228772	10788000	100	100	4559228	100
Employers et Independents	1826020	3117000	29.3	28.9	1290980	28.3
Permanents salaried employees	2570793	3878000	41.3	35.9	1307207	28.7
Non-permanent salaried employees and apprentices	1306407	3562000	21	33.0	2255593	49.5
Families helps	525552	231000	8.4	2.1	- 294552	- 6.5

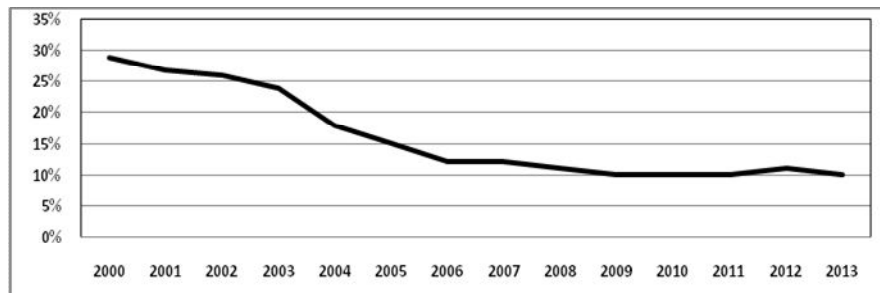
Source: Calculated by us, from the ONS data

Table n°1: Evolution of employment and status in employment, in the period [2001-2013]

Non-permanent salaried and apprentices employees represent 49.5% of jobs in the period [2001-2013], against 28.7% for permanent salaried employees. The dominance of non-permanent employees and apprentices in the structure of the population of salaried employees is the consequence of the change, in 1990, at the Algerian labor legislation.

1.2 Evolution of the unemployment over the period [2000-2013]

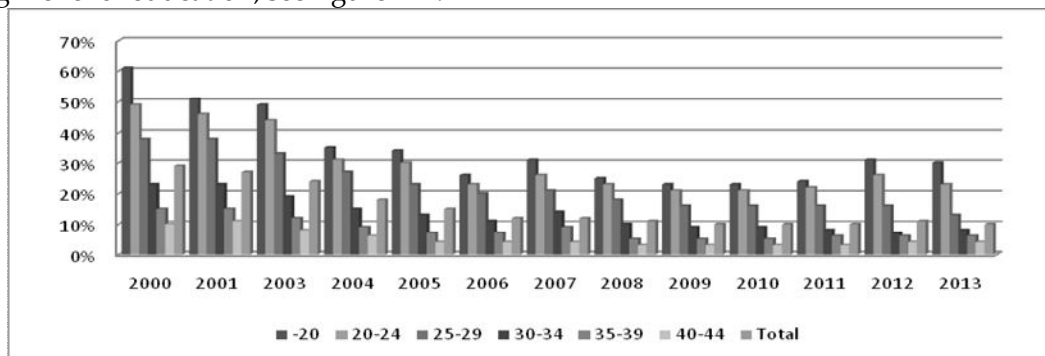
Evolution has a decreasing curve, but stabilizing around a high rate of 10% since 2009, see figure n°1:



Source: A from the ONS data

Figure n°1: Evolution of the unemployment rate, on the period [2000-2013]

This drop of the unemployment rate can be explained by the implementation of the plan for the promotion of employment. However the unemployment affected more the young population with high level of education, see figure n°2:



Source: Calculated by us, from the ONS data³

Figure n°2: Evolution of the unemployment rate by age group, over the period [2000-2013]

This figure demonstrates that the highest average of unemployment rate, during the period [2000-2013], is for those under than 20 years old (34.3%), followed by those of 20-24 years old (29.7%) and then those of 25-29 years old (22.6%). In addition, graduate studies not seem more protection against unemployment, see table n°2:

Année	Without instruction	Primary	Middle	Secondary	Superior
2007	4.2	10.9	17.1	14.7	17.0
2010	1.9	7.6	10.7	8.9	20.3
2011	2.5	6.3	12.6	8.6	15.2
2012	3.0	8.3	13.3	9.7	14.6
2013	2.7	6.7	11.1	9.7	14.0

Source: A from the ONS data

Table n°2: unemployment rate, according to level of education, between 2007 and 2013

In 2013, the unemployment rate of uneducated and primary are very low and the highest unemployment rate is of superior level which is 14%. This is due to demographic pressure that makes more strongly feel its effects on employment and jobs more often benefited the less educated workers.

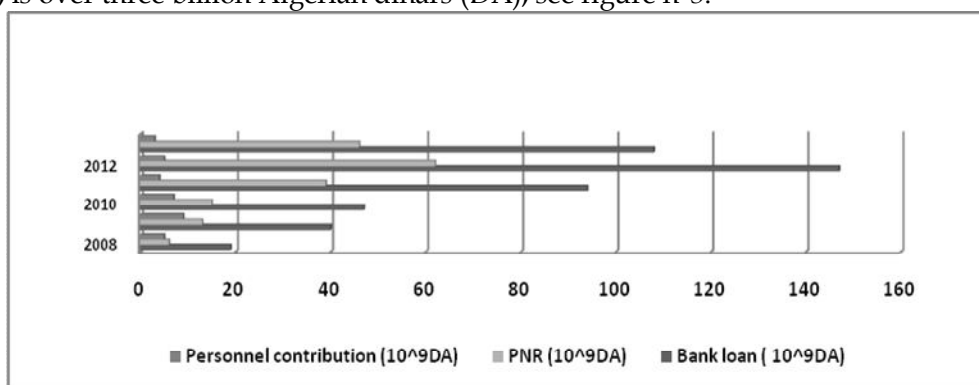
Faced with this situation, successive governments have taken measures for the promotion of employment and combating unemployment. As non-permanent and apprentices positions dominate the wage system, the Algerian State hopes to train the young citizen (the diploma in particular) to create his/her own job, to receive remuneration from their activity and so do participate in economic growth by creating wealth. This is why we are particularly interested in the ANSEJ device of micro-enterprises.

2. Financing and balance sheet of the device of micro-enterprise ANSEJ

The National Agency for Employment of Young People (ANSEJ) support manages the micro-enterprise device launched in 1997 that is part of a process of creating sustainable jobs and activity. This device is intended for unemployed young people aged from 19 to 35⁴ years old, it provides a number of incentives to invest: subsidized interest rate, tax benefits etc.

2.1 Financing of ANSEJ device of micro-enterprises on the period [2008-2013]

The amount of funding of micro-enterprises ANSEJ, according to different financing structures, is over three billion Algerian dinars (DA), see figure n°3:



³ Data for the years 2012 and 2013 are from documents of the ONS, number 651 and 653, p.6

⁴ 40 years for the Manager when the project generates 03 jobs.

PNR: unpaid loan

Source: A from the data collected on the website of ANSEJ

Figure n°3: The amount according to different financing structures of micro-enterprises ANSEJ, on the period [2008-2013]

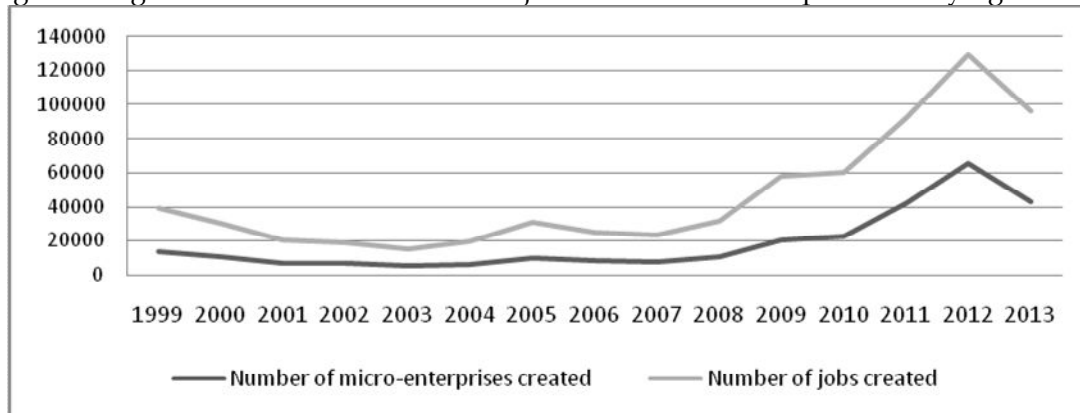
The bank loans are increasing, up to about 147 billion of DA in 2012 and the personal contribution in 2013 decreased by 2 billion Algerian dinars, compared to 2008. This reflects the encouragement of the Government in the development of the micro-enterprise, let's see, now the balance sheet of the ANSEJ device of micro-enterprises.

2.2 Balance sheet of the ANSEJ micro-enterprises, on the period [1999-2013]

The annual data on the number of micro-enterprises and jobs created, collected at the level of general management from ANSEJ and enabled us to analyze:

2.2.1 Evolution of the number of micro-enterprises and jobs created through ANSEJ, at the national level, over the period [1999-2013]

The total number of projects funded, over the period mentioned above and at the national level, is 284209 generating 686165 stable and sustainable jobs. Its evolution is represented by figure n°4:



Source: Elaborated by us, based on data from ANSEJ

Figure n°4: Evolution of the number of micro-enterprises and jobs created through ANSEJ, at the national level, over the period [1999-2013]

We are seeing a decline in the number of micro-enterprises and jobs created, during the years 1999-2003, this is due to the decline in the price of oil, but thanks to the national reconciliation, the increase of the oil prices exceeding sometimes \$100 barrel and the new regulations (2009 and 2011 finance law), the number of micro-enterprises has increased, in 2012, it is 65848 generating 129267 sustainable jobs. We present below the evolution of the indicator (the number of jobs created by one micro-enterprise) on the period [1999-2013], see figure n°5:

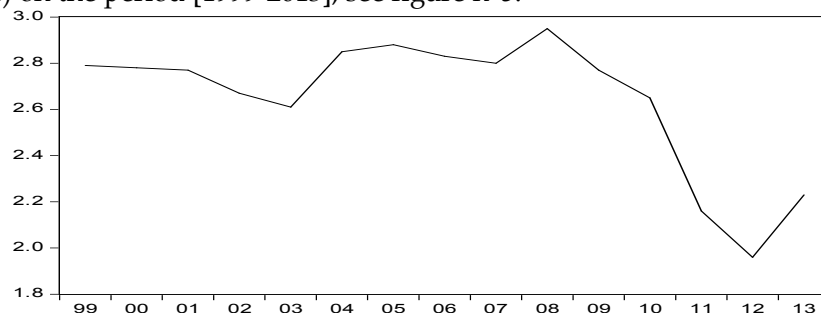


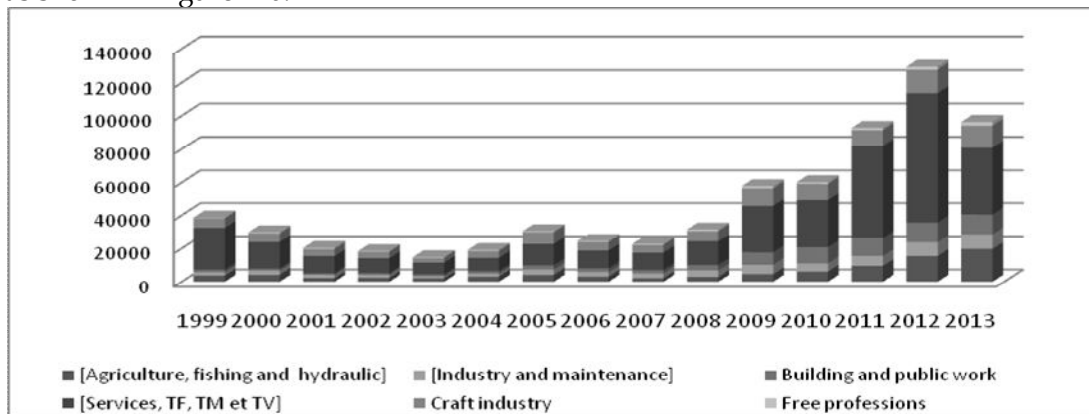
Figure n°5: Evolution of the number of jobs created by one micro-enterprise ANSEJ

This figure shows a drop in the number of jobs created by one micro-enterprise. It can be explained by the individualism of developers, since according to figure n°4, in 2012, a large number of micro-

enterprises created 129267 jobs, the largest number of jobs created on the period [1999-2013], but the number of jobs created by one micro-enterprise ANSEJ is two jobs, this explains well that the **developer** does not create a lot of jobs.

2.2.2 Evolution of the number of jobs created, through ANSEJ, by sector of activity, at the national level, over the period [1999-2013]

The ANSEJ device of micro-enterprises device has promoted job creation in services and transport, as shown in figure n°6:



Source: Elaborated by us, from ANSEJ data

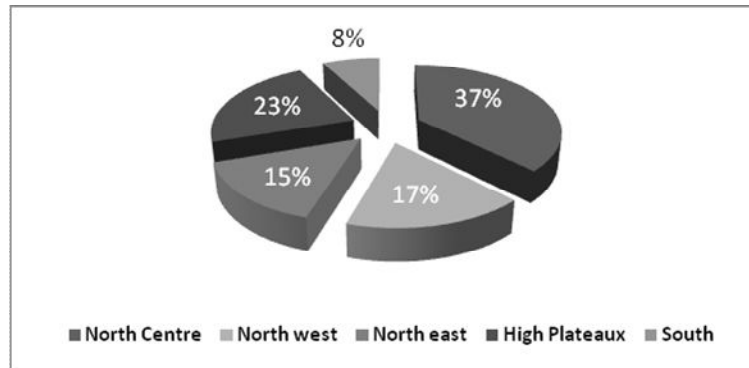
Figure n°6: Evolution of the number of jobs created through micro ANSEJ, by business sector, at the national level, over the period [1999-2013]

In 2013, the number of jobs created is 40419 (73.8% in services, 8.1% in TF, 12.7% in MT and 5.5% in TV)⁵. These jobs are concentrated⁶ (BELKACEM D. 2012) in food services and those related to the development of telecommunications and health.

2.2.3 Evolution of the number of jobs created through ANSEJ, by region, on the period [1999-2013]

The strengthening of the outreach work by extending the network of ANSEJ, thanks to the opening of annexes at the level of several localities, allowed the creation of micro-enterprises, in the various regions. According to the first economic census, these regions are divided into five regions (ONS, 2011). The distribution of the number of jobs created by micro-enterprises ANSEJ, throughout the national territory, is represented by figure n°7, below:

⁵ TF: refrigerated transport; TM: transport of goods and TV: the passenger transport



Source: Established by us, based on data from ANSEJ

Figure n ° 7: percentage of jobs created through microenterprise ANSEJ, by region, on the period [1999-2013]

The large concentration of jobs in the northern region can be explained by the density of the population, the concentration of central governments and public institutions to character administrative (EPA). The ANSEJ device of micro-enterprises contributed to create stable and sustainable jobs and reduce the unemployment rate which remains high among young people of higher level (14% in 2013), we want to evaluate the effectiveness of this device.

3. Evaluation of the ANSEJ device of micro-enterprises

In our study, we want to know if the ANSEJ device of micro-enterprises has achieved the objectives assigned account required to budget expenditure, for the development of micro-enterprises. It is therefore an impact assessment.

3.1 Theoretical and conceptual impact assessment framework

According to E. DUFLO (2011), impact evaluation is intended to assess, in the most objective way, the effects of a program on the company. It allows verifying if the expected results were achieved. We are interested in ex-post evaluation which is carried out using experimental data or no, but collected after the introduction of the devices.

Two methods of assessment are opposed, at the level of analysis tools, which are the experimental method and the quasi-experimental method. For economists, the assessment can be done at two levels: at the level of microeconomic and macroeconomic.

In our case, we chose the quasi-experimental method. The latter is proposed by J.HECKMAN and his colleagues in 1987; it is often the most convenient method to be adopted for the assessment of employment or training programs. The main advantage of the AI. designs⁷ is that they can be performed after a program has been implemented, given existing and sufficient data. The use of effective econometric modeling techniques is to obtain reliable estimates of the effects of the programs.

3.2 Application of a method of quasi-experimental evaluation to assess the effectiveness of the micro-enterprises ANSEJ device

Let us compare the forecasts on the number of jobs to establish for the period [2009-2013] made by ANSEJ with the number of jobs made and planned by the econometric model built by us and using existing data.

3.2.1 The choice of variables and data sources

We designate the number of micro-enterprises (projects) financed by the PRO variable and the number of jobs created by these micro-enterprises by the variable EMP. Statistical data have for source general management from ANSEJ, statistical department under the direction of Mr. BOUZAR

⁷ They can be made from existing and often faster and inexpensive to implement data

Rachid. It is quarterly data quantitative, composed of two sets of 60 observations, obtained after the implementation of the ANSEJ device, on the two variables PRO and EMP, covering the period [1999: 1-2013: 4], at the national level. What justifies a macro ex post and a quasi-experimental evaluation method.

The problem is to correctly estimate the net effect of the micro-enterprises ANSEJ device represented by the number of jobs created⁸ and the criterion for obtaining jobs is used as a principle of assessment (P. DOLTON et al, 1994). We are inspired by the work of J. GAUTIE (1993); which brings us back to do a macro-econometric study of data from ANSEJ on PRO and EMP variables.

3.2.2 Macro-econometric study of data from ANSEJ, on the number of micro-enterprises (PRO) and of jobs (EMP) created

The use of effective econometric modeling techniques led us to propose the model VAR of order 1 of the form⁹:

$$DLEMP1_t = \alpha DLPRO1_t + \varepsilon_t \quad \text{where } \alpha \text{ is a real number}$$

The estimate, under EVIEWS, of this model is represented by:

$$DLEMP1 = 0.979 \times DLPRO1 \quad R^2 = 0.9826 \quad n = 59$$

It is a valid model and can be a basis for prediction.

3.3 Forecast as a tool for assessment of the effectiveness of the micro-enterprises ANSEJ device

The forecast is fundamental in so far as it is the basis of the action (G. MELARD, 2006)¹⁰. It represents a tool orientation and evaluation of economic policy and in particular the active employment policy. Forecasts are made according to appropriate methods based on all the available information. Forecast errors are inevitable in a world uncertain and governed largely by stochastic and unpredictable shocks by definition¹¹; it is necessary to use various statistical measures¹² of the error in forecasts, in order to allow the improvement of the new forecasts for the future.

Our model is a model of simple regression on variables integrated of order 1, and then it is justifiable to apply an explanatory method that is linear regression. In our case, we inspired by the work of C. BARRAUD (2008), under EVIEWS, we proceed to a forecast out-of-sample, in the short term, in order to assess the effectiveness of the micro-enterprises ANSEJ device.

3.4 Forecast out-of-sample of the time series DLEMP1

It comes to make forecasts out of sample and compare with the values achieved; are forecasts based on recursive (Ségla YVONNICK LOIC HOSSOU, 2012) estimates. The period of availability of the data is subdivided into two sub-periods: the first, either the main sample is used to make

⁸ We believe that the number of jobs created by micro-enterprises would be influenced only by the number of projects (micro-enterprises) and the employment policy inspired by Keynesian theory is extensive. We are looking for in this work to test this hypothesis and econometrically a response that allows to evaluate the effectiveness of the micro-enterprises ANSEJ device.

⁹ Statistical analysis of the two series took the treatment of statistical data, by replacing the peaks by the average arithmetic mean of neighboring points. Thus, we get two series treated EMP1 and PRO1.

¹¹ « Thème spécial : Analyse de la qualité des prévisions », p.33, Direction de la politique économique-Tendances conjoncturelles. Secrétariat d'Etat à l'économie (2014),

¹² The most used by the software EVIEWS are: Mean Absolute Error (MAE), the absolute error average; Root Mean Squared Error (RMSE), the square root of the average quadratic error and U of THEIL statistics (1996).

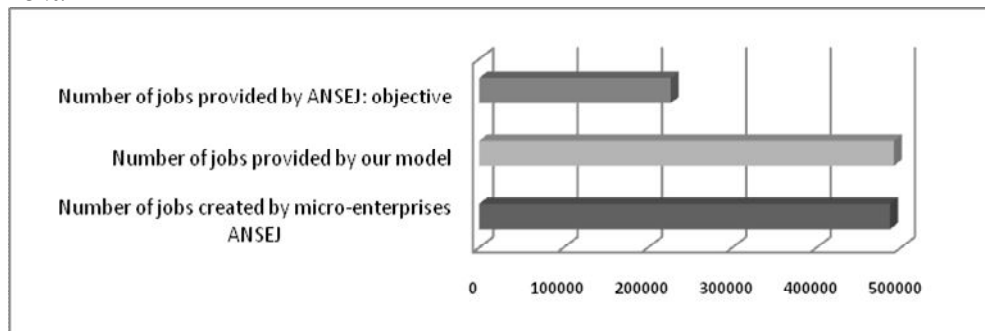
statistical inference, to estimate our model and the second sub-period, or comparison sample, to generate forecasts and compare with the values achieved.

We have quarterly data over the period [1999: 1-2013: 4], $T = 60$ the total number of observations. Data over the period [1999:1-2008:4] represent the main sample and $R = 40$ the number of observation in the main sample that represents the comparison sample to generate forecasts and the forecast horizon is equal to $h = 1$. To generate the forecast for the 1st quarter of 2009, we estimate our model on the period [1999: 1-2008: 4]; the next step is to re - estimate our model by including the true value in the 1st quarter of 2009, in order to get the forecast for the 2nd quarter of 2009 and so on, until the 4th quarter of 2013.

The choice of the period that extends from the 1st quarter of 2009 in the 4th quarter of 2013 is motivated by two considerations: it comes to forecast short-term ($h = 1$) and also to compare the number of jobs made with planned employment obtained by the model and the number of jobs provided by ANSEJ representing its goal. It is clear that the number of comparison is $T - R = 20$, which is the number of forecasts to generate.

With EVIEWS, we obtained the following results:

The number of jobs provided by our model is 491953 on the period [2009: 1-2013: 4], the number of jobs carried out by micro-enterprises ANSEJ is 487289 and ANSEJ aims to predict 227200 jobs, see figure n°8 next:



Source: Established by us, from ANSEJ data

Figure n°8: Comparison of the number of jobs created, provided by our model and provided by ANSEJ on the period [2009-2013]

We find that the number of created jobs is much higher than the number provided for ANSEJ, from this point of view, the ANSEJ device is effective. The number of jobs provided by our model is slightly higher number of jobs created, we find a variance of 4664, over the period [2009-2013]; in this case, compared to our model, the device from ANSEJ is ineffective.

Conclusion

Employment policy, adopted so far remains below expectations, because most of the jobs created, over the period [2001-2013], are either non-permanent or apprentice jobs, moreover, university students are most affected by unemployment. The important decisions are taken in terms of encouragement to the development of the micro-enterprise, to engage young citizens to create wealth. One of the organizations of support to the micro-enterprise, in Algeria, is the ANSEJ device. The descriptive statistical analysis of data from ANSEJ reveals a number of 284209 micro-enterprises funded, at the national level, generating 686165 stable and sustainable jobs over the period [1999-2013]. These jobs are concentrated in the North region and dominant in services and transport sectors; which denounces the non participation of these micro-enterprises to create added value.

Moreover, the existence of quarterly data from ANSEJ, at the national level, over the period [1999: 1-2013: 4], and inspired by the work of J. GAUTIE and C. BARRAUD, justifies the application of quasi-experimental of impact time series, macro-econometric approach to assess the effectiveness of the ANSEJ device.

The estimation of this assessment leads us to hold a regression VAR of order 1. It is a valid model and good quality short-term forecasting tool. Comparison of the values achieved and forecasted is justified by forecasts off horizon sample 1; According to the ANSEJ, the achievements are more important than the forecasts. The predictions of our model show, on the contrary, that the number of jobs is very low, barely two jobs by a micro-business.

We conclude that the ANSEJ micro-enterprise device is not very effective and could not be considered as a real policy for job creation and economic growth.

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