

## OKUN'S LAW, UNEMPLOYMENT AND INFORMAL EMPLOYMENT: THE IMPACT OF LABOUR MARKET POLICIES IN ALGERIA SINCE 1997

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### ABSTRACT

The paper tackles the job creation issue with respect to the framework of labour market policies implemented in Algeria since the late 1990s, in particular in 1997 and 2008. First, the sharp decline in unemployment rate and high elasticity *vis-à-vis* the GDP growth rate question the relevance of Okun's law. Second, the quantitative impact in terms of job creation is assessed as regards three employment schemes: intermediation on the labour market, safety net job creation and the effect of entrepreneurship promotion upon employment within SMEs. Third, the interplay between rising informal employment and unemployment decline before and after 2008, is addressed thanks to a Difference-in-Difference (DiD) experiment testing informal wage employment as well as informal businesses. The overall impact of employment policy schemes proves weak upon both the unemployment rate and informal employment. Informal employment stands as a cheap substitute for formal employment.

### KEYWORDS:

Algeria; DiD; Informal employment; Labour market policies; Okun's law; Unemployment.

**JEL CLASSIFICATION:**E26; J46; J48.

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## **LOI D'OKUN, CHOMAGE ET EMPLOI INFORMEL EN ALGERIE : L'IMPACT DES POLITIQUES DU MARCHÉ DU TRAVAIL DEPUIS 1997**

### **RÉSUMÉ**

L'article aborde l'enjeu de la création d'emplois dans le cadre des politiques du marché du travail mises en œuvre en Algérie depuis la fin des années 1990, notamment en 1997 et 2008. Premièrement, la forte baisse du taux de chômage et la forte élasticité vis-à-vis du taux de croissance du PIB questionne la pertinence de la loi d'Okun. Deuxièmement, l'impact quantitatif en termes de création d'emplois est évalué pour trois régimes d'emploi: l'intermédiation sur le marché du travail, la création d'emplois de sauvegarde et l'effet de la promotion de l'entrepreneuriat sur l'emploi dans les PME. Troisièmement, l'interaction entre la hausse de l'emploi informel et la baisse du chômage avant et après 2008 est abordée grâce à une expérimentation DiD (Difference-in-Difference) qui teste l'emploi salarié informel ainsi que les entreprises informelles. L'impact global des programmes de politique de l'emploi s'avère faible tant sur le taux de chômage que sur l'emploi informel. L'emploi informel constitue un substitut peu coûteux à l'emploi formel.

### **MOTS-CLÉS :**

Algérie, chômage, DiD, emploi informel, loi d'Okun, politiques du marché du travail.

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## قانون أوكن، البطالة و العمل غير الرسمي في الجزائر- اثر سياسات سوق العمل منذ 1997

ملخص:

يتناول المقال موضوع خلق فرص العمل في إطار سياسات سوق العمل المطبقة في الجزائر منذ نهاية التسعينيات ، لا سيما في عامي 1997 و 2008. أولاً : الانخفاض الحاد في معدل البطالة و المرونة القوية لمعدل نمو الناتج المحلي الإجمالي يشككان في أهمية قانون أوكن. ثانياً: يتم تقييم الأثر الكمي من حيث خلق فرص العمل حسب ثلاث مراحل للتوظيف: الوساطة في سوق العمل، خلق مناصب عمل احتياطية و تأثير تشجيع ريادة الأعمال على التوظيف في المؤسسات الصغيرة والمتوسطة. ثالثاً : تتم معالجة التفاعل بين ارتفاع العمالة غير الرسمية وانخفاض البطالة قبل وبعد عام 2008 من خلال تجربة فرق الاختلاف (Difference-in-Difference) (DID) التي تختبر العمل المأجور غير الرسمي وكذلك المؤسسات غير الرسمية. اتضح أن الأثر العام لبرامج سياسة التوظيف ضعيف على كل من معدل البطالة والعمالة غير الرسمية. إذن العمالة غير الرسمية هي بديل غير مكلف للعمل الرسمي.

كلمات مفتاحية:

الجزائر، البطالة، فرق الاختلاف، العمل غير الرسمي، قانون أوكن، سياسات سوق العمل.

تصنيف جال: E26; J46; J48.

## INTRODUCTION

We assess labour market policies conducted in Algeria since the implementation in 1997 of a first set of schemes fighting unemployment and poverty. To our best knowledge, no impact assessment of such policies has been yet carried out (Musette, 2013; Benhabib 2017).

Rising unemployment rate over 1987-1997 followed the fall in oil prices and the Structural Adjustment Plan (1994-1997), which generated some 400,000 job losses in state-owned enterprises in 1998 (Musette et al., 2003). Peaking in 2000 (almost 30%), the trend in unemployment reverted and dropped to 10-11% from 2009 to 2016 (ONS, 2012, 2017); meanwhile, the rise in oil prices fueled the increase in both export earnings and public expenditure throughout three plans: 2001-2004, 2005-2009 and 2010-2014.

The OECD (2015) designed a threefold typology that fits active labour market policies in Algeria: support for business creation or self-employment, professional inclusion with fixed-term contracts or temporary jobs, and training and job search assistance for the unemployed in order to improve access to the labour market.

According to Musette (2013) this typology uncovers into three generations. The first generation (1989-1997) attempts to mitigate the negative shock of the Structural Adjustment Plan upon the labour market, thanks to several agencies: the National Unemployment Insurance Fund (CNAC) established in 1994 grants unemployment benefits to laid-off workers and since 2003, alongside with ANSEJ, supports the creation of small businesses by redundant workers aged 35-50. The Social Development Agency (ADS) established in 1995 is in charge of alleviating poverty. The National Youth Employment Support Agency (ANSEJ) established in 1997 supports small business creation by young entrepreneurs aged 19-35. During the second generation (1998-2007), the National Employment Agency (ANEM) adjusts vacancies and labour supply and the National Agency for Microcredit Management (ANGEM) provides subsidised credit to

small businesses, both established in 2004. The third generation starts in 2008 with the implementation of the Action Plan promoting employment and fighting unemployment (hereafter Action Plan), bringing in incentives for employers and social security coverage for employees, enhancing temporary jobs and enforcing compliance with tax and labour regulations, in view of formalizing the informal sector.

Our question is threefold: to what extent are changes in unemployment the outcome of economic growth, the activation of employment policies, or the substitution of informal employment to formal employment?

The paper is structured as follows. Section two tackles the relevance of Okun's law in Algeria, decomposing the relationship between economic growth and employment as well as labour productivity and work force. Section three estimates the impact upon jobs creation from three employment schemes: supply and demand adjustment on the labour market, safety net jobs and promoting microenterprises. Section four focuses on the interplay between informal employment and unemployment decline before and after 2008. Section five is devoted to the conclusion and discussion. Section six sketches policy recommendations.

## **2- THE RELATIONSHIP BETWEEN GROWTH AND EMPLOYMENT: HOW RELEVANT IS OKUN'S LAW IN ALGERIA?**

### **2.1- Demography and labour market trends: some stylized facts**

We first present some stylized facts drawn from the data in Table A1 (See Appendix 1).

The employment rate increases by 10% between 2000 and 2014, while the working-age population increases by only 4.6%. The change in the employment rate accelerates until 2005 and then declines until 2012. The change in the working-age population declines continuously and becomes negative from 2010. Hence, there is a potentially virtuous demographic effect upon unemployment.

The working-age population is stabilizing, the working population is rising with the increase in the employed population and the number of unemployed is dramatically dropping from 2,511 million in 2000 to 1,241 million in 2006 and 1,072 million in 2009. The unemployment rate almost reached 30% in 2000, dropped to 20% in 2004 and 10% in 2009. Over the period 2001-2015, the average annual increase in the employed population nearly amounts to 300,000 workers (290,000) and the decline in unemployment benefits nearly 100,000 people (-98,000) per annum. It is worth noticing the fall in unemployment occurs before the implementation of the 2008 Action Plan

## 2.2- Labour force, labour productivity, unemployment and GDP: Okun's law

Okun's law (Box 1) proves controversial, with respect to two strands of literature addressing the relationship between economic growth and unemployment in Algeria.

### Box 1. Two specifications of Okun's law

Okun's law covers two specifications: the first difference model and the gap model.

According to the first difference model, the relationship between the logarithm of the actual observed output ( $y$ ) and the observed unemployment rate ( $u$ ) is expressed by:

$$(u_t - u_{t-1}) = \alpha + (y_t - y_{t-1}) + \varepsilon_t. \text{ Hence, } \Delta u_t = \alpha + \beta \Delta y_t + \varepsilon_t.$$

$\beta$  corresponds to the Okun coefficient, which measures the elasticity of unemployment to GDP.

According to the gap model, the relationship between the observed unemployment gap ( $u_t$ ) to the natural unemployment rate ( $u^*_t$ ) and the difference between observed GDP ( $y_t$ ) and potential GDP ( $y^*_t$ ) is expressed by:  $(u_t - u^*_t) = \alpha + \gamma (y_t - y^*_t) + \omega_t$ .

$\gamma$  corresponds here to the Okun coefficient.

The problem with the gap model is that  $y^*$  and  $u^*$  are not observable and must be estimated. The estimation requires smoothing (e.g. Hodrick-Prescott filter) in order to impute the trend and cyclic components of these two variables respectively.

The elasticity coefficient is assumed to be negative and less than 1. Okun's law would be verified in the long term (Ball et al., 2017). Labour productivity and the labour force are decisive factors.

*Source: Authors*

The first strand includes two studies claiming that Okun's law does not exist under the gap model.

Yousefat (2011) uses an error-correction model (henceforth ECM) over the period 1970-2009 and concludes that there is a low causality of unemployment upon economic growth; however, no balancing relationship shows up either in the long or short term.

Driouche (2013), also using an ECM over the period 1980-2011 to determine the growth rate required to absorb long-term unemployment, concludes that there is no co-integration relationship between unemployment rate and economic growth.

The second strand gathers three other studies claiming that Okun's law is valid.

Furceri (2012) explores the impact of labour market institutions on the relationship between unemployment and growth over the period 1980-2008. He observes a negative relationship between employment and the output gap. The Okun coefficient appears low (-0.05) due to the preponderance of industries experiencing low employment growth (hydrocarbons) and the rigidity of the labour market characterized by the opposition of insiders and outsiders.

Adouka and Bouguell (2013) use an ECM validating Okun's law over the period 1980-2010: a 1% increase in real GDP around its potential GDP results in a 0.2% decline in the unemployment rate.

El Aynaoui and Ibourk (2016) test Okun's law on a sample of 39 countries during the period 1991-2015. They validate the gap model in the case of Algeria for which a 1% growth reduces unemployment, approximately, in the same proportion.

However, any increase in GDP does not necessarily imply a fall in unemployment due to the variation in labour productivity and the labour force, which is the sum of the growth rate needed to alleviate the unemployment rate. This growth rate can stand as a first approximation of the growth rate of potential GDP.

According to Figure 1, during the period 2001-2015, the annual average change in labour productivity is 0.1526% and it fluctuates in line with real GDP up to 2010, while the change in the labour force is 1.644% and fluctuates in line with the unemployment rate until 2010. The annual average change in real GDP is 3.693% and the change in unemployment is -3.458%. The sum of the change in labour productivity and the change in the labour force (i.e. the growth rate requested to stabilize the *Yógt* unemployment rate) averages 1.749%.

We use alternatively a simplified version of the first difference model and the gap model<sup>1</sup>.

The elasticity of the unemployment rate / GDP averages -1.398 over the period 2001-2015. The elasticity is strong and negative from 2001 to 2009, then becomes positive between 2010 and 2015 when the unemployment rate reaches 10%, without possibly inferring that it is the natural rate of unemployment.

The simplified model in first difference is written as follows:  $\Delta ut = + \beta \Delta yt$

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<sup>1</sup> We use the OIC statistics database (OICStat) for real GDP rather than National Accounts series. Actually, the Algerian Statistical Office (ONS) compiles real GDP from 1989 constant price, which becomes obsolete. Other data come from Table A1 (Appendix 1). Calculations are available upon request.



Where  $\Delta ut$  represents the average change in the unemployment rate over the period 2001-2015 and  $\Delta yt$  represents the average change in GDP growth rate over the same period.

Hence:  $-3.458\% = -0.936$  (3.693%), where the multiplier ( $\beta$ ) is very close to -1 (-0.936).

The simplified gap model can be written:  $U_t - U_{t-1} = -\gamma(Yg_t - Y\omega g_t)$

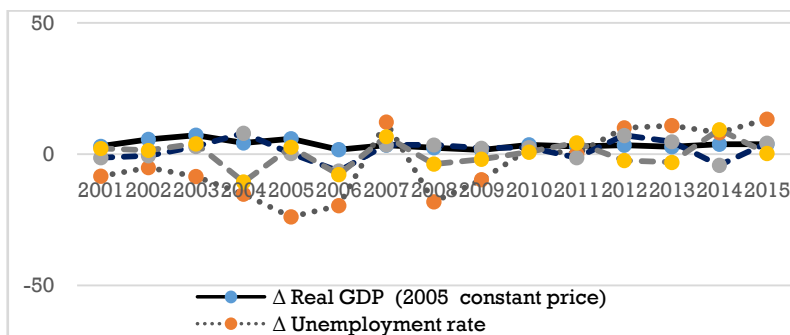
Where  $U_t - U_{t-1}$  is the average difference in the unemployment rate over the period 2001-2015,  $Yg_t$  is the average change in GDP growth rate over the same period and  $Y\omega g_t$  is the growth rate requested to stabilize the unemployment rate.

Hence:  $-3.458\% = -1.778$  (3.693% -1.749%), where the multiplier ( $\gamma$ ) is higher than 1 (1.778).

With our simplified gap model, we obtain a comparable multiplier although a little higher than that (1.5) in the gap model that El Aynaoui and Ibourk (2016) apply over the same period (2000-2015).

Figure 1 shows that real GDP varies in line with labour productivity, whereas the unemployment rate varies in line with the labour force.

Figure 1: Okun’s law, labour force and labour productivity: the gap model



Source: Authors (See Table A1 in Appendix 1).

Whether using the difference or the gap model, Okun's law may prove a valid long-run relationship. However, it sheds little light upon the short-run pattern of unemployment. In this respect, Okun's coefficient should not be confused with the short-run employment multiplier (Kahn, 1931); it cannot explain the change in unemployment rate. Hence, it is worth examining the role of employment policy schemes.

### **3- EMPLOYMENT POLICY SCHEMES AND THE TREND IN UNEMPLOYMENT**

According to the literature review addressing the assessment issue of employment policies in Algeria, most studies are descriptive. The CNES (2002, 2010) provided two studies on employment policies assessment that did not include an impact assessment component. The World Bank (2010) conducted an assessment without assessing the impact on the labour market. The ILO undertook a comparative analysis of labour market intermediation in the three Maghreb countries (Barbier, 2007). In 2010, the ILO put together a synthesis of labour market policies for some Arab countries including Algeria (Musette 2014). Adair and Bellache (2008, 2009) assessed the policies tackling job creation in very small businesses (microenterprises), whereas Hammouda (2009) focused on the impact of employment policies from aggregate data rather than micro econometric analyses.

Besides the fact that impact assessment is a hot political issue, uncoordinated various agencies provide only gross data that prove sometimes disparate and net flows are unavailable. Table A2 (Appendix 2) lists the mechanisms implemented by the public authorities, under the auspices of two separate ministries whose various agencies intervene in the labour market: the Ministry of Labour, Employment and Social Security (MTESS) as well as the Ministry of National Solidarity and Family (MSNF).

We examine successively the adjustment of the employment level resulting from labour market intermediation, from safety net

precarious contracts and from job creation generated by the promotion of very small businesses (microenterprises).

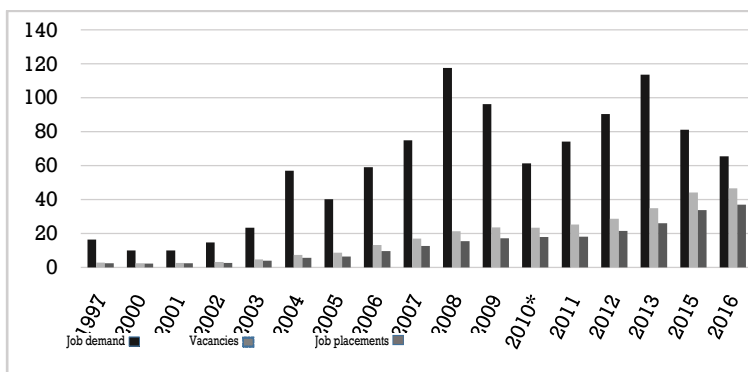
### 3.1. Labour market intermediation

The ANEM is in charge of supply and demand adjustment on the labour market. The trend in placements follows that of job vacancies, with a widening gap since 2004 (See Figure 2). According to the private sector absorbed three out of four placements in 2016, 90 percent being fixed term contracts (ANEM, 2017).

Beginning in 2008 and peaking in 2011, the DAIP (including its three components CID, CIP and CFI) supplied an annual average of 245,000 fixed-term contracts to young people between 2008 and 2016. The duration of contracts being limited to two years (one year renewable once), inclusion remains uncertain.

Over 2009-2016, the CTA provided an annual average of 33,000 permanent contracts (See Appendix 1).

Figure 2: Job demand, vacancies and job placements - 1997-2016 (thousands)



Note: No data are available for 2014.

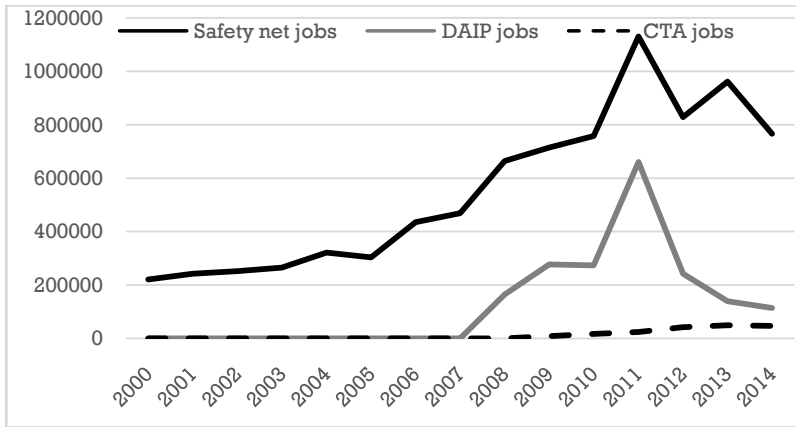
Sources: ONS (2003-2014) ; ANEM (2016 ; 2017)

### 3.2- Subsidised wage employment schemes

Subsidised wage employment uncovers into four programmes: TUP-HIMO, DAIS (formerly ESIL), IAIG (including the DAIS from

2012 onwards) and PID (formerly CPE). They provided the most disadvantaged social strata an annual average of 342,300 temporary jobs over the period 1997-2014 (See Figure 3 and Table A2 in Appendix 2). The once predominant share of young people (below 30) benefiting from the DAIS and IAIG dropped dramatically over 2008-2014. (CNES, 2016).

Figure 3-Subsidised wage employment: annual stock (2000-2014)



Source: Table A1 (Appendix 1).

### 3.3- Small business creation schemes

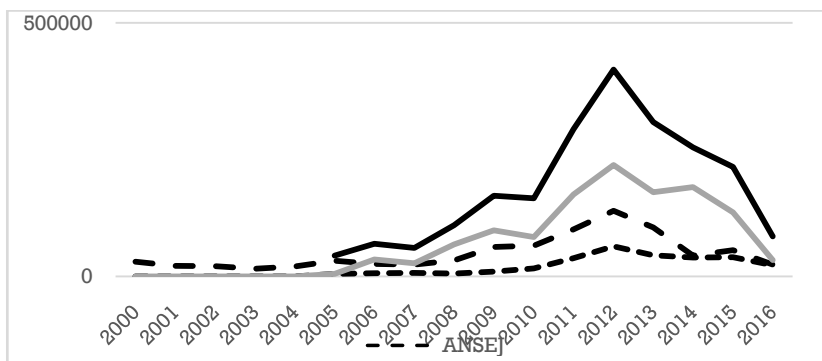
Support for the start-up of small businesses results in one million projects funded by ANSEJ, CNAC and ANGEM, generating twice as much potential direct jobs (See Figure 4, Table 1 in Appendix 1 and Table A2 in Appendix 2).

Together, the three agencies generate an average of nearly two jobs per project and an annual average of 141,000 jobs from 2005 to 2016, i.e. another 200,000 jobs created per year over the period 2008-2015, during which employment creation is particularly important up to 2012. The annual number of jobs doubled by 2008 and tripled by 2011, declining rapidly since 2012.

Overall, the ANGEM scheme generates on average nearly twice the amount of job creation of the ANSEJ and about four times that of the CNAC. The average number of jobs per project is the lowest for the ANGEM (1.5) followed by the CNAC (2) and the ANSEJ (2.4).

According to Seddiki (2013), the cost for a job from the ANSEJ scheme, including loan and interest charge would amount to DZD 200,000 in 2004 and has increased over time. This cost is higher than that of the ANGEM scheme. Unfortunately, there are no available disaggregated data regarding expenditure on labour market policies that would enable the compilation of comparative costs (Adair and Bellache, 2008).

Figure 4: **Small business job creation: annual stock (2000-2016)**



Note: Acronyms and content are explained in Table A2 (Appendix 2).

Source: Table A1 (Appendix 1) and MIM (2016; 2017).

In addition, it is worth looking at some comments regarding the rise in SMEs throughout the period under review.

Job creation in SMEs induced by the 2001 SME Guidance Act would have tripled between 2000 and 2013. The average gross annual creation of more than 25,000 businesses (whose net balance is lower due to their mortality), which employs an average of 2.4 employees, generates an annual average of 60,000 gross jobs. Job creation occurs mainly in labour-intensive sectors with low productivity: services for half and building and construction for one third (NemiriYaici, 2014).

It should also be mentioned the role of the National Agency for Investment Development (ANDI) established in 2001. ANDI supported 48,363 projects generating 748,409 gross jobs from 2002 to 2011, 15 jobs per project and almost an annual average of 75,000 jobs (Kadi, 2013).

According to Kadi (2013), the contribution of SMEs to total employment would amount to almost one million jobs (981000). However, this contribution covers just over a quarter of the 3.55 million net new jobs created over the 2001-2010 period. It remains to explain nearly three quarters of job creation. If we add the 250,000 social net jobs created during the period (Appendix 1), we reach 1,231 million.

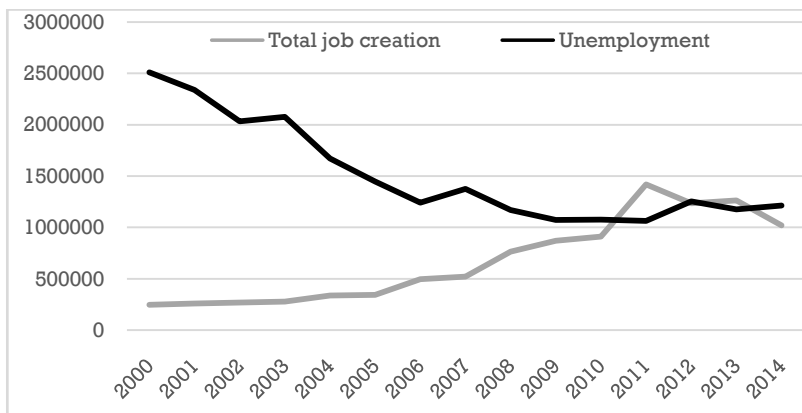
It therefore remains to explain nearly two-thirds of job creation, which results from the demand for work of existing companies and which corresponds in particular to the 900,000 job placements made by ANEM during this period (Appendix 3).

The rest of the job created did not transit through intermediation on the labour market.

### **3.4- The overall impact of employment policy schemes upon unemployment dynamics**

The contribution of job creation from the various schemes to the growth of the employed population is weakly significant from 2000 to 2005 (4% of total employment) and is mainly limited to the social safety net. It has increased significantly since 2006, with the ramp-up of business creation schemes; accounting for nearly one in seven jobs in 2011 (14.82%) and another one in ten jobs in 2013 and 2014 (See Figure 5).

Figure 5: Rising job creation and declining unemployment



Source: Table A3 (Appendix 3).

The macroeconomic assessment of employment policies is based on the estimated net effect of schemes upon employment and unemployment levels (impact variable) and the output level. Section two has already taken care of the output level. Here, we compare the outcomes of these schemes according to the annual number of jobs created and the corresponding unemployment level. It should be reminded that the number of jobs created can be overstated and that the published data (in stock) are disparate and unadjusted.

From 2000 to 2014, job creation schemes helped reducing unemployment. However, the impact seems quite low, since the halving of the unemployment rate occurs between 2000 (29.5%) and 2005 (15.3%) and the impact does not persist beyond 2011, when the unemployment rate reaches 10%.

Macroeconomic assessment points out two major deficiencies. First, labour market policies prove mildly efficient before 2008. Second, reinforced policies after 2008 are neither timely, because the drop in unemployment slows down, nor cost-effective in the light of growing expenses throughout the three successive plans (See Section five).

Hence, we look for another driver of the sharp decline in unemployment: expanding informal employment.

#### **4- INFORMAL EMPLOYMENT AND EMPLOYMENT POLICY**

According to the principles of the UN System of National Accounts, unincorporated enterprises with less than ten employees are included in the household sector, which encapsulates the informal sector. However this ten employee threshold may be lowered to less than five employees in order to better grasp the informal sector (ILO, 2013).

According to Business Register updates (Adair and Bellache, 2008; ONS, 2012), as well as the average number of jobs per business created by the ANSEJ (2.5 workers), ANGEM and CNAC (1.5 worker), most unincorporated enterprises in Algeria (below 10 workers) count actually less than five employees. In addition, the labour force surveys provide data regarding the size of the business, whereupon the distribution of informal workers can be calculated for most years

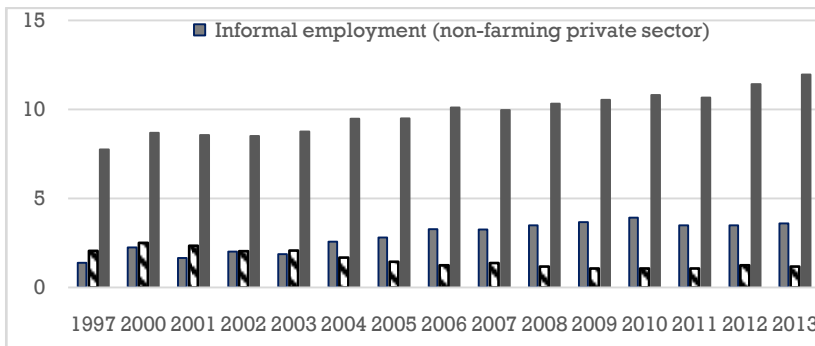
In line with the ILO definition (ILO, 2013), informal employment of the non-agricultural employed population consists in informal employees of both formal and informal enterprises, as well as non-wage earners of microenterprises (below 10 employees) in the informal sector, who are not registered with Social Security.

##### **4.1. Is informal employment a substitute for employment policy?**

Figure 6 displays two observations of the change in labour force from 2000 to 2013. First of all, the unemployed population experiences a sharp decline and varies inversely with the labour force. Then, informal employment increases significantly until 2010 and varies directly with the labour force. From 2003 onwards, the number of informal workers exceeds that of the unemployed, suggesting that growing informal employment absorbs unemployment.



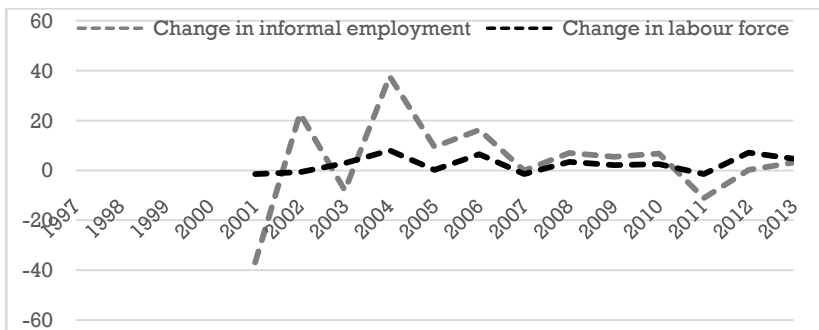
**Figure 6: Labour market adjustment:the absorption of unemployment within informal employment**



Source: Authors' calculation from ONS data. See Table 1 (Appendix 1). Units are thousands.

Such absorption is evidenced by the joint variation in informal employment and labour force that follows exactly the same pattern from 2003 to 2011 (See Figure 7 and Table A3 in Appendix 3).

**Figure 7:Joint variation in informal employment and labour force**



Source: Authors' calculation from ONS data.

#### 4.2- The impact of employment policy upon informal employment: a DiD experiment

Informal employment in Algeria displays little barriers to entry and constitutes a last resort job position to escape unemployment (Souag et al. 2016a, 2016b). Hence, employment policies combating unemployment should exert a negative impact on informality.

Souag et al. (2018) analyse the effects upon informality of the Action Plan adopted by the Algerian government in 2008, being the second intervention on the labour market after the first one (1997) that occurred in a different context. Thanks to cross-sectional data from ONS labour force surveys over 1997-2013, they use the Difference in Difference estimator (henceforth DiD), which measures the difference between before and after labour market intervention. Comparing the average variation over time of the treatment group compared to a control group, they identify the impact of the Action Plan on the probability of obtaining an informal job for employees (informal employment), and the impact on the administrative and fiscal registration of their business for self-employed (informal sector).

Following Souag et al (2016a, 2016b), all enterprises with staff below five employees are considered informal, whereas those with at least five employees are formal. Formal enterprises are further subdivided into two groups: from five to nine employees and with at least 10 workers. The treatment variable in the model is being employed in a formal enterprise, looking separately at these two groups.

As for the impact upon the administrative and tax registration of self-employed workers, the scheme promoting business creation targets both the informal and new businesses. Companies employing at least 10 workers stand as a control group, although it may not be appropriate because a share of the seal so includes informal employees.

The mixed results show that the Action Plan contributed to the reduction of informality but with heterogeneous effects. It helped decreasing the chance of holding an informal job, but only in firms with at least 10 workers, whereas the effect is not significant for smaller businesses that constitute the bulk of the informal sector. For first-time jobseekers, the impact is not significant. The Action Plan also helped lessening the share of the informal sector. Business creation scheme had a significant impact on the administrative and fiscal registration of very small businesses employing one to four workers as compared to companies employing at least 10 workers.

The impact is not significant for small businesses employing five to nine workers. Hence, the Action Plan proved more efficient improving compliance with tax registration than labour regulation upon workers' social protection, the former being less expensive to implement than the latter.

## **5- CONCLUSION AND DISCUSSION**

We assessed the various employment policy schemes implemented in Algeria since 1997. One main limitation stems in particular from the fact that the data on job creation are unadjusted, allowing only the measurement of gross jobs rather than net flows.

Beyond the controversy as for Okun's law, the employment multiplier seems quite substantial (equal to one), but it does not help predicting the trend in unemployment. However, it suggests that the impact of labour market policies taming unemployment proved rather weak, whereas public spending spillovers may have positively influenced economic conditions.

In the short and medium term, the macroeconomic impact of employment schemes on unemployment proves positive but weak. From a qualitative point of view, subsidised jobs are precarious and the failure of young micro-entrepreneurs should be included, implying that net job creation is below figures expected from gross job creation. We ignore the individual impact and the issue of the medium-term inclusion of the beneficiaries must be addressed.

Informal employment stands as a cheap substitute for formal jobs; its impact is positive upon the declining trend in unemployment. Informality remains almost immune as regards the very weak impact labour market schemes exert on formalising informal activities, whereas the improvement in informal businesses registration is not due to bureaucratic procedures alleviation, which did not take place yet.

Public spending rocketed over the period and the substantial share devoted to employment policies has been rising. The Support Plan for economic recovery (2001-2004) amounted to DZD 14.76 billion;

whereas the Supplementary Support Plan for growth (2005-2009) spent over twice as much (i.e. DZD 33.36 billion) and expenditure multiplied by factor 2.5 (i.e. DZD 83.86 billion).as for the Five-year Development Plan (2010-2014).

Despite the resources agencies absorb, limited information is available regarding operations and results. Little is known about the average cost per job created, the number of beneficiaries, dropout rates, and follow-up of beneficiaries and assessment of policy effectiveness in terms of job placement rates, impact on duration of unemployment and the quality of employment (Musette, 2014).

Charmes (2010) pinpointed that social protection coverage according to social security schemes does not match that of labourforce surveys. Hence, a thorough understanding of disparate statistics is requested: Extending social protection should be better grounded upon more reliable data in order to tame informality with appropriate policies.

Change in the magnitude of informal employment depends upon the pro- or counter-cyclical characteristics of its components according to economic upturn *vs.* slowdown. Informal wage employment is rather pro-cyclical, whereas self-employment and the informal sector may be counter-cyclical, shrinking with recovery and expanding with downturns. The role and share of informal employment is overlooked. Hence, a quarterly economic survey of SMEs would provide a better understanding of the impact of short-run economic growth upon informality.

## **6- POLICY RECOMMENDATIONS**

Missing monitoring policies should be enforced. A joint taskforce from Ministries in charge of employment policies should overcome the lack of coordination within the public administration. It should address specifically the informality issue, with the help of the National Statistical Office (ONS) and provide a report every year under the auspices of the National Economic and Social Council (CNES).

The 'stick and carrot' policies implemented so far to enforce labour regulation and extend social protection should go on, alongside with monitoring and impact assessment devices. Incentives (granting credit, temporary tax exemption, improvement in doing business thanks to swift and limited number of procedures) go hand in hand with penalties (reinforced control from labour inspection and from banks). The balance must avoid the disincentive effect of extending social protection as a windfall benefit in the process of formalising informality, e.g. discouraging employers to hire formal employees. Such mechanisms should be tailored according to the heterogeneous segments they address: promoting income-generation activities to the working poor, extending social protection to non-permanent informal employees as well as to informal entrepreneurs. Targeting new labour market entrants, micro entrepreneurs and employees, may prove easier than changing the behaviour of already existing categories of informal workers.

### References

**Adair P., & Bellache Y., (2009).** «Emploi informel et dispositifs publics d'aide à la création d'activités en Algérie ». *In Emploi et politiques sociales – Défis et avenir de la protection sociale* (sous la direction de T. Barnay et F. Legendre), L'Harmattan, tome 1, pp. 315-329.

**Adair P., Bellache Y., (2008).** Expertise internationale secteur informel, Algérie. "Promotion du Développement économique durable" (DEVED). GTZ. Alger: Ministère de l'Artisanat et de la PME.

**Adouka L., & Bouguell Z., (2013).** « Estimation de la loi d'Okun en Algérie à l'aide d'un modèle ECM ». *In RoaIkdissadiaReview*, 6: 21-40, Université El Oued, Algérie.

**ANEM (2017).** *Informations statistiques*, décembre 2016. Alger. Agence Nationale de l'Emploi. <http://www.anem.dz>

**ANEM (2016).** *Informations statistiques*, décembre 2015. Alger. Agence Nationale de l'Emploi. <http://www.anem.dz>

**ANEM (2015).** *Extrait de la base de données .mimeo*, Alger. Agence Nationale de l'Emploi.

**ANGEM (2017).** Réalisations 2005-2016, états statistiques. Agence Nationale de Gestion du Micro-crédit. Alger.<http://www.angem.dz>

**ANSEJ (2016).** Agence Nationale de Soutien à l'Emploi des Jeunes. Alger.<http://www.ansej.dz>

**Ball L., Leigh D., and Loungani P., (2017).** « Okun's Law: Fit at 50? *Journal of Money, Credit and Banking*, 49(6): 1413–1441.

**Barbier J-P., (2007).** *L'intermédiation sur le marché du travail dans les pays du Maghreb. Etude comparative entre l'Algérie, le Maroc et la Tunisie*, Bureau International du Travail, Genève.

**Benhabib L., (2017).** « Chômage des jeunes et inégalités d'insertion sur le marché du travail algérien : analyses multidimensionnelles et expérimentation ». Thèse, Université Paris-Est.

**Charmes J., (2010).** *Informal Economy and Labour Market Policies and Institutions in selected Mediterranean Countries: Turkey, Syria, Jordan, Algeria and Morocco*. ILO Report. International Labour Office: Geneva.

**CNES (2016),** Rapport National sur le Développement Humain 2013-2015. Quelle place pour les jeunes dans la perspective du développement humain durable en Algérie? Conseil National Economique et Social en collaboration avec le PNUD, Alger.

**CNES (2010).** Mesures de promotion d'emploi. Conseil National Economique et Social, Alger.

**CNES (2002).** Evaluation des dispositifs d'emploi. Conseil National Economique et Social, Alger.

**Driouche D., (2013).** « Economic growth and unemployment in Algeria: An econometric study ». In *An-Najah University Journal for Research - Humanities*, 27(3): 1294-1322.

**El Aynaoui K., & Ibourek A., (2016).** « Policy Lessons from Okun's Law for African Countries ». International Monetary Fund.

[https://www.imf.org/external/np/.../Aynaoui\\_Session1\\_paper.pdf](https://www.imf.org/external/np/.../Aynaoui_Session1_paper.pdf)

**Furceri D., (2012).** « Unemployment and Labour Market Issues in Algeria ». International Monetary Fund, *Working Paper 12/99*, April.

**ILO (2013).** « *Measuring Informality: A Statistical Manual on the informal sector and informal employment* ». International Labour Office: Geneva.

**Kadi M., (2013).** « Relation entre PME et emploi en Algérie : quelle réalité ? » Colloque international *Evaluation des effets des programmes d'investissements publics 2001-2014 et leurs retombées sur l'emploi, l'investissement et la croissance économique*, Université de Sétif, 11-12 mars, Algérie.

**Kahn R-F., (1931).** « The Relation of Home Investment to Unemployment ». In *Economic Journal* 41: 173-98.

**Gouvernement algérien, (2010).** *2<sup>ème</sup> rapport national sur les Objectifs du Millénaire pour le Développement*, Alger.

**Hammouda N-E., (2009).** Labour Markets Policies and Institutions, with a Focus on Inclusion, Equal Opportunity and the Informal Economy. Le cas de l'Algérie, *National background paper*, International Labour Office: Geneva.

**MIM., (2015-2016).** « *Bulletin d'information statistique* », n° 26, 27, 28, 29. Ministère de l'Industrie et des Mines. Alger, novembre. <http://www.mdipi.gov.dz>

**Musette M-S., (2013).** « *Les politiques de l'emploi et les programmes actifs du marché du travail en Algérie* ». European Training Fund. trad. franç., 2014

**Musette M-S., (2011).** « Au-delà de la structure *insider-outsider* du marché du travail », Algérie, Document d'information, Banque Mondiale, Alger, 31 juillet.

**Musette M-S., Isli M-A., & Hammouda N- E., (2003).** « *Marché du travail et emploi en Algérie, Eléments pour une politique nationale de l'emploi* », Organisation Internationale du Travail, Genève, octobre.

**Nemiri Yaici F., (2014).** « Les PME et l'emploi en Algérie : une diversité de dispositifs d'appui pour quel résultats? ». In *Cahiers du CREAD*, 110 :53-73.

**OECD, (2015).** «*Employment outlook. Activation policies for more inclusive labour markets (pp. 105–166)*», Organisation of Economic Cooperation and Development, Paris. [http://dx.doi.org/10.1787/empl\\_outlook-2015-7-en](http://dx.doi.org/10.1787/empl_outlook-2015-7-en)

**ONS, (2012).** «*Rétrospective Statistique 1962-2011*». Office National des Statistiques. Alger.

**ONS, (2001-2017).** «*Enquêtes emploi auprès des ménages*», Office National des Statistiques, Alger.

**ONS, (2007-2014).** «*Annuaire Statistiques de l'Algérie*», n° 23-29-30, Office National des Statistiques, Alger.

**ONS, (2003-2014).** «*L'Algérie en quelques chiffres*», n° 32, n° 44, Office National des Statistiques, Alger.

**Premier Ministre, (2012).** *Bilan des réalisations économiques et sociales de l'année 2011*. Portail du Premier Ministre, Alger.

**Premier Ministre (2009).** *Bilan des réalisations économiques et sociales de la période 1999-2008*. Portail du Premier Ministre, Alger.

**Seddiki M., (2013).** « Investissements publics et gouvernance en Algérie : quelle relation ? » Colloque international *Evaluation des effets des programmes d'investissements publics 2001-2014 et leurs retombées sur l'emploi, l'investissement et la croissance économique*, Université de Sétif, 11-12 mars, Algérie.

**Souag A., Adair P., Hammouda N-E., (2016a).** «The Informal Sector and National Accounts in Algeria (2001-2010): Definitions, Measurements and Estimation Methods ». In *Revue Algérienne de Finances Publiques*, 6 : 35-52, Université de Tlemcen.

**Souag A., Adair P., & Hammouda N-E., (2016b).** «L'emploi informel en Algérie : tendances et caractéristiques (2001-2010) ». In *Revue MECAS*, 12 : 12-26, Université de Tlemcen.



**Souag A., Adair P., & Hammouda N-E., (2018).** «Labour market policies and informality in Algeria».FEM42-05 funded by FEMISE through the European Commission funding 2<sup>nd</sup> round - *Managing the Transition of the South Med Countries*, September 2016- August 2017.Final report.[www.femise.org/](http://www.femise.org/)

**Yousefat A., (2011).** Unemployment and economic growth in Algeria in the periods from 1970 to 2009.*International Forum on: Government's strategy to eliminate the unemployment and achieve the sustainable development*. 15-16 november, Al-M'sila University, Algeria.

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Table A 1: GDP, labour market and employment policy statistics (1997-2015)

	1997	2000	2001	2002	2003	2004	2005
<i>Δ real GDP (2005 constant prices)</i>			3	5.6	7.2	4.3	5.9
<i>Δunemployment rate</i>			-8.39	-5.13	-8.49	-15.19	-23.88
<i>Δworking pop.</i>			-1.41	-0.63	2.91	8	0.23
<i>Δ labour productivity</i>			2.19	1.48	3.96	-10.6	2.66
Working pop.	7,757,000	8,691,000	8,568,000	8,514,000	8,762,000	9,470,000	9,492,000
Employed pop.	5,708,000	6,180,000	6,229,000	6,482,000	6,684,000	7,798,000	8,044,000
<i>Employment rate</i>	-	30.5%	29.8%	30.3%	30.4%	34.7%	34.7%
Unemployed pop.	2,049,000	2,511,000	2,339,000	2,032,000	2,078,000	1,672,000	1,448,000
<i>Unemployment rate</i>	26.4%	29.5%	27.3%	25.9%	23.7%	17.7%	15.3%
<i>Δemployed pop.</i>			49,000	253,000	202,000	111,4000	246,000
<i>Δunemploy. pop</i>			-172,000	-307,000	46,000	-406,000	-224,000
Safety net jobs	355,305	220,013	241,787	251,355	264,463	320,580	303,342
DAIP jobs	-	-	-	-	-	-	-
CTA jobs	-	-	-	-	-	-	-
Business jobs		28,735	20,152	19,631	14,771	19,111	
ANSEJ jobs		28,735	20,152	19,631	14,771	19,077	30,376
ANGEM jobs	-	-	-	-	-	-	4,994
CNAC jobs	-	-	-	-	-	34	5,159
Total safety net+ business jobs	355,305	248,748	261,939	270,986	279,234	339,691	343,871
<i>Subsidised jobs / working pop. (%)</i>	4.58	2.86	3.05	3.18	3.18	3.59	3.62
<i>Safety net jobs /working pop. (%)</i>	4.58	2.53	2.82	2.95	3.02	3.38	3.19
Informal employ.	1,390,000	2,255,000	1,647,696	2,023,196	1,861,812	2,563,779	2,807,088
<i>% Informal employ.</i>	29.22	36.5	37.5	31.21	36.01	42.3	41.8

Table A 1: (Continued from preview page)

	2006	2007	2008	2009	2010
<i>Δ real GDP (2005 constant prices)</i>	1.7	3.4	2.4	1.6	3.6
<i>Δunemployment rate</i>	-19.61	12.19	-18.11	-9.73	1.96
<i>Δworking pop.</i>	-6.51	3.47	3.47	2.22	2.53
<i>Δ labour productivity</i>	-7.76	6.7	-3.77	-1.9	0.8
Working pop.	10,110,000	9,969,000	10,315,000	10,544,000	10,811,000
Employed pop.	8,869,000	8,594,000	9,145,000	9,472,000	9,735,000
<i>Employment rate</i>	37.2%	35.3%	37.0%	37.2%	37.6%
Unemployed pop.	1,241,000	1,375,000	1,170,000	1,072,000	1,076,000
<i>Unemployment rate</i>	12.3%	13.8%	11.3%	10.2%	10.0%
Δemployed pop.	825,000	-275,000	551,000	327,000	263,000
Δunemploy. pop	-207,000	134,000	-20,500	-98,000	4,000
Safety net jobs	434,658	468,043	664,228	714,574	757,489
DAIP jobs	-	-	164,296	277,618	273,141
CTA jobs	-	-	-	8,027	16,937
Business jobs					
ANSEJ jobs	24,500	22,685	31,418	57,812	60,132
ANGEM jobs	33,331	25,847	63,148	91,101	77,934
CNAC jobs	6,078	6,949	5,781	9,574	15,804
Total safety net+ business jobs	498,567	523,524	764,575	873,061	911,361
<i>Subsidised jobs / working pop. (%)</i>	4.93	5.25	7.41	8.28	8.43
<i>Safety net jobs /working pop. (%)</i>	4.3	4.69	4.84	4.07	4.32
Informal employ.	3,265,031	3,251,254	3,481,933	3,672,576	3,921,209
<i>% Informal employ.</i>	45	43.8	41.42	41.71	45.6

Table A 1: (Continued from preview page)

	2011	2012	2013	2014	2015
<i>Δ real GDP (2005 constant prices)</i>	2.9	3.4	2.8	3.8	3.8
<i>Δunemployment rate</i>	0.1	10	10.91	8.16	13.34
<i>Δworking pop.</i>	-1.37	7.13	4.72	-4.26	4.17
<i>Δ labour productivity</i>	4.35	-2.4	-3.1	9.36	0.32
Working pop.	10,662,000	11,423,000	11,963,000	11,453,000	11,931,000
Employed pop.	9,599,000	10,170,000	10,788,000	10,239,000	10,594,000
<i>Employment rate</i>	36.0%	37.4%	39.0%	36.4%	37.1
Unemployed pop.	1,063,000	1,253,000	1,175,000	1,214,000	1,337,000
<i>Unemployment rate</i>	10.0%	11.0%	9.8%	10.6%	11.2%
<i>Δemployed pop.</i>	-136,000	571,000	618,000	-549,000	355,000
<i>Δunemploy. pop</i>	-13,000	190,000	-78,000	39,000	162,000
Safety net jobs	1130,578	828,444	961,431	766,441	664,228
DAIP jobs	660,810	241,993	138,973	113,417	95,084
CTA jobs	24,188	41,753	49,076	47,262	39,445
Business jobs					
ANSEJ jobs	92,682	129,203	96,233	40,856	51,670
ANGEM jobs	16,1417	219,641	166,053	176,315	126,152
CNAC jobs	35,953	59,125	41,786	37,000	37,921
Total safety net+ business jobs	1,420,631	1,236,413	1,265,503	1,020,612	879,971
<i>Subsidised jobs / working pop. (%)</i>	13.32	10.82	9	8.91	
<i>Safety net jobs /working pop. (%)</i>	4.18	4.77	4.89	5.29	
Informal employ.	3,486,944	3,494,756	3,604,726		
<i>% Informal employ.</i>	40.2	37.7	37.4		

Table A 2. **Labour Market Programmes**

**Active:** DAIP vocational inclusion assistance scheme, run by the Ministry of Labour (MTESS) consists in three categories:

Program	Target	Duration
CID (contrat d'insertion): Graduate inclusion contract	First-time jobseekers, graduates of tertiary education or senior technicians who receive support for their sustainable recruitment, priority within public and private economic sector	Firms: 1 year Administration: 1.5 year
CIP(contrat d'insertion professionnelle): Professional inclusion contract	Young, first-time jobseekers leaving secondary education or vocational education and training (VET) centers (CFPA) (including apprentices)	Firms: 1 year, nonrenewable Public sector and administration: 1 year, renewable
CFI (contrat de formation- insertion) Training inclusion contract	Jobseekers without training or qualifications; they are placed in various work projects initiated by local authorities or various sectors for the duration of the project	1 year, non-renewable
CTA (contrat de travail aidé): Subsidised work contract	Proposed when one of the above contracts comes to an end (and sometimes earlier if the employer agrees)	3 years

Table A 2. Labour Market Programmes (Continued)

Program	Compensation.	Comment
CID (contrat d'insertion): Graduate inclusion contract	University graduates:DZD 15,000 per month Senior technicians:DZD 10,000 per month The employer's share of contributions to Social security is paid by the State.	Replaces CPE (Contrats de Pré-Emploi).
CIP(contrat d'insertion professionnelle): Professional inclusion contract	In firms: DZD 8,000per month In public and administration:DZD 6,000 per month The employer's shareof contributions to Social security is paid by the State.	At the end of the contract, ANEM may propose a subsidised work contract (CTA) in firms. In case of refusal, the person loses the right to remain in the CIP.
CFI (contrat de formation-insertion) Trainingin clusion contract	DZD 4,000 per month	
CTA (contrat de travail aidé): Subsidised work contract	Labour costs shared between the State and employer: CID: University graduates(category 11, index 498) 1st year: 55%; 2 <sup>nd</sup> year : 45%; 3rd year: 35% CID: Technicians (category 10, index, 453). 1st year: 50%; 2 <sup>nd</sup> year: 40%; 3rd year: 30% CIP contract (category 8, index 379). 1st year: 47%;2nd year: 35% CFI contract. 53% of category 3, index 252	

Source: Authors, adapted from Musette (2014, p. 32).

Appendix 3 :

Table A 3: Informal employment and labour market statistics (Continued)

	1997	2000	2001	2002	2003	2004	2005	2006
Informal employment (non-farming private sector)	1,390	2,255	1,648	2,023	1,862	2,564	2,807	3,265
Unemployed population	2,049	2,511	2,339	2,032	2,078	1,672	1,448	1,241
Labour force	7,757	8,691	8,568	8,514	8,762	9,471	9,492	10,111
Change in informal employment			-36.86	22.79	-7.98	37.7	9.49	16.31
Change in labour force			-1.415	-0.63	2.91	8.08	0.232	6.51

Table A 3: Informal employment and labour market statistics

	2006	2007	2008	2009	2010	2011	2012	2013
Informal employment (non-farming private sector)	3,265	3,251	3,482	3,673	3,921	3,487	3,495	3,605
Unemployed population	1,241	1,375	1,171	1,072	1,076	1,063	1,253	1,175
Labour force	10,111	9,969	10,315	10,544	10,811	10,662	11,423	11,963
Change in informal employment	16.31	0.42	7.09	5.47	6.77	-11.07	0.22	3.15
Change in labour force	6.51	-1.39	3.47	2.22	2.53	-1.38	7.14	4.73

Source: Souag et al (2018). Units are thousands.