Introduction

Following the collapse of the growth around the mid-eighties, poverty is becoming an acute problem in Algeria. The actual heated debate in the Algerian newspapers on the extent of poverty reflects the public conscience *vis a vis* the problem of poverty[1] propagation. This was ignited by the oil price decline of 1986 in international markets, and political turmoil and instability further complicated the problem since the nineties. However, no serious attempts were made to quantify this phenomenon and address a detailed poverty profile for Algeria[2]. Given the widespread decline of the welfare of the population, there is an urgent need to map out poverty in order to better address this phenomenon and provide valuable information to policy makers. This paper attempts to build a detailed poverty profile for Algeria and study its dynamic between 1966 and 1995. The framework used in this poverty assessment will enable to evaluate poverty levels for non-survey years using only available data on aggregate per capita consumption and inflation, assuming a certain level of income distribution.

Poverty is deeply rooted in the Algerian society since the days of colonialism. The post independence development efforts helped improve the welfare of the population. The massive increase of oil windfalls and the extensive foreign borrowing meant that an egalitarian socialist program of development and generous social policy was implemented quite easily, though not sustainable in the long run as demonstrated by recent experience.

The approach of bureaucratic central planning economy planted the seeds of today's economic problems. Early development planning focused on heavy industrialisation and direct control of the economy. Efficiency and sustainability considerations were largely ignored. This meant that the long-term financial viability of the public sector was in peril. However, the horizontal extensive output expansion permitted the creation of job opportunities and increased wages. These growth factors were coupled by a generous social policy based on free universal access to health, education, low rent housing, and subsidised basic goods. Public sector employment became the important leverage of welfare improvement of the population.

The collapse of oil prices in 1986 and the ensuing budget and balance of payments problems forced successive governments to adopt increasingly flexible economic policies whose aim was to escape the rigidities and inefficiencies of central planning, and to promote sustainable growth. However, austerity measures paved their way as dwindling exports were coupled with ever increasing external debt. The limited results of reforms in the first half of the eighties prompted the government to accelerate these reforms. Economic policy of the second five years plan (1985-1989) introduced the autonomy of SOE[3]s and encouraged the private sector back into agriculture permitted price adjustments.

---

[1] The Jeune Independent Newspaper in August 6, 2000 published an article titled " Algeria Poorer than Bangladesh". However, Le Matin daily newspaper announced on March 12, 2001, that poverty in Algeria reached 33% and that 20 % suffer from malnutrition.

[2] Kouider (1997) discussed the poverty question in Algeria, however no poverty estimates were given. Aggregate poverty measures are given in World Development Report (2000) for 1988 and 1995. These figures are reproduced in Table (3). Other figures are summarised in CNES (1998) report on human development in Algeria.

[3] This measure spelled out the end of formal central planning. Ministry of Planning was transformed to a planning agency.

However, debt problems, low economic performance, and widening deficits led the government to negotiate a first stand-by agreement with the IMF in 1989 that was followed by a second program 1991. After a setback in reform policy in 1992-1993 the economic policy of overhauling the central planning was abandoned and successive governments have subsequently accelerated the drive towards market economy supported by structural adjustment programs and debt rescheduling. As reforms are costly and painful, and had a negative repercussions on the social sector and welfare of the population, the main objective of this paper is to assess the impact of these reforms on poverty and income distribution by studying poverty dynamics since 1966.

The aim of this paper is to study poverty dynamics and its trend in Algeria between 1966 and 1995. Apart from the aggregate estimates of poverty levels made by the World Bank and the UNDP using the Head count ratio and the international poverty line of $1 US PPP in constant terms, there are no comprehensive published studies on poverty assessment for Algeria. This paper tries to fill this gap by contributing to the evaluation and analysis of poverty levels and dynamics using standard poverty profile assessment methods. This is achieved by computing the main poverty indices and using decomposition techniques to unveil the main factors contributing to poverty. The data used to compute poverty levels is per capita aggregate expenditure distribution for survey years between 1966 to 1995. The poverty line was set at different levels using different methods in order to measure absolute and relative poverty levels. Finally, the results are used to draw conclusions about poverty alleviation strategy for Algeria.

The paper begins with a brief section on the roots of poverty in Algeria in order to highlight the poverty burden inherited at the dawn of independence in 1962. Economic policies and reforms undertaken in Algeria are quickly reviewed in order to understand their implications on the welfare of the population. Social policies and poverty alleviation strategies applied in Algeria as a response to the growth collapse and declining of oil rents are analysed in a separate section. The economic and social performance is subsequently analysed. After a brief review of poverty measurement methods, the question of poverty is then addressed by measuring all the relevant indicators and a detailed poverty profile is then established. The paper presents new poverty levels and studies its dynamics between different sectors. Elements of poverty alleviation strategy are then presented, and the future of poverty is assessed.

Roots of Poverty

The French colonial policy in Algeria was a deliberate destruction of the country's national identity and indigenous social system, which was based on the society's basic needs. A massive wave of dispossession and confiscation of tribal land dislocated the farming and nomadic population. This colonial policy resulted in the virtual destruction of traditional institutions of Algeria[4].

By the 50's, the French population in Algeria totalled nearly one million. The settlers owned most of the fertile land[5]. Gross inequality of income distribution was associated with dualism in production structures. A modern highly mechanised and a traditional backward sector. The average productivity between theses two

---

[4] On the accounts of under development formation in Algeria see Benachenhou, A (1979)

[5] Land distribution was on average 800 hectares per settler against only 8 -10 hectares for native landholders

sectors was 9 to 1. Settlers represented only 5 % of total population whereas their incomes was about 60% (El Ghoneimy 1999, Griffin, 1976 and Rudy, 1992). It is believed that between 65 per cent and 75 per cent of the Algerian population were living in destitute poverty.

Colonial rule restricted the indigenous' people access to principal human assets. In 1940-5, the primary education enrolment was only 9% for the Muslim population. The estimated adult illiteracy was 86%. (Rudey, 1992). This was the worst-off outcome among Arab children. This gloomy picture was complicated by high population growth. The population growth rate increased from 1.4 % before 1914 to 2.85 % in 1954. Of the indigenous population, two third still lived at the level of pre-capitalist substance economy (Ageron, 1964). A stagnant grain production and cattle stock coupled with high population growth threatened the livelihood of the population. This was the result of a decline in the area cultivated and the stagnation of the yield, and the degradation of soil and land parcelling, lack of any mechanisation or credit. Crop yield was estimated at 4.5 quintals per hectare, while the threshold of malnutrition was estimated at 12 to 20 quintals per hectare. Given the situation of no growth in the traditional sector, rural unemployment was estimated in 1955 at half a million and increased to 0.85 million if underemployed were included. This situation prompted a massive wave of internal migration to big cities, as well as emigration to mainland France. The Modern highly mechanised colonial agricultural sector, and the absence of vibrant industrial sector, could not provide job opportunities for migrant peasants. This migration wave created a huge shanty towns around inner cities. It was for the independent state of Algeria to address this poverty problem.

Economic Policy and Reforms

The Algerian economy is essentially oil exporting, developing economy, and in the process of transition to a market based economy. During the seventies, plans of economic development were based on the command economy style. Conventional macroeconomic policy was passive as central planning and administrative regulation took the lead. Prices were kept constant for long periods, basic goods where heavily subsidised, generating repressed inflation and excess demand in the consumer goods market. Public sector investment was allocated centrally by administrative schemes. Most of the investment finance (internal and external) was provided by the Treasury and channelled to sectors through the Algerian Bank for Development. Investment costs in infrastructure, social projects, and agriculture was met by the budget.

Credits to the public industrial public sector were also tightly controlled. Interest rates were low and kept constant (negative real interest rate), and did not reflect the opportunity cost of such investments. Banks were refinanced by the central bank, leading to more inflationary pressures, as the monetary policy was very lax. Budget deficits were monetized due to the absence of developed financial market (bond market). This policy led to monetary overhang mixed with open inflation, though limited. Inflationary pressures were masked by buoyant hydrocarbon prices. Oil windfalls[6] provided most financial resources (oil fiscal revenues and export proceed[7]). Fiscal policy was also driven by the extent of oil revenues.

---

[6]See Conway (1988) for oil windfall uses in the context of Algeria

[7]It is believed that oil revenues constitute two thirds of total government revenues, and hydrocarbon exports constitute almost the total of exports. Oil sector contribution to GDP is about a third, however its contribution to employment is only around 3%.

Rigid planning created enormous chronic shortages in the consumer goods market, inefficiency in the industrial sector, and a decline of the agricultural sector productivity. During the eighties, and after the second oil shock, coupled with the change in political leadership, attention shifted to reforming the central planning system and devising policies to deal with the growth collapse. Some attention was also given to the improvement of the living standards of the population in the light of the galloping demographic problem. In the face of low absorption capacity of the economy, investment in economic infrastructure was also taken into account. However these reforms were designed to slim the central planning system and to introduce some flexibility, away from bureaucratic control and administrative regulation. No macroeconomic policy and structural reforms package were considered

After the end of the second four year plan (1974-1977), which coincided with a change of political leadership after the death of the president Houari Boumediene late 1978, signs of widespread shortages and disequilibrium were apparent. This prompted a timid change in economic policy. After a period of evaluation of the achievements of the decade[8], the five years plan (1980-1984) consisted mainly of absorbing the huge public investment backlog and restructuring State Owned Enterprises (SOEs). The huge shortages in consumer goods that resulted from soaring excess demand and fixed prices[9] were relatively eased by a program of imported consumer goods known as the PAP *(programme anti penurie)* which was financed by soaring oil price after the Iranian revolution in 1979.

The masterpiece of reforms, was the restructuring of public enterprises both functionally and geographically. This policy intended to ease their budgetary burden[10] and increase their efficiency and capital utilisation in the public sector. The second phase of restructuring consisted of sorting out the arrears situation between parent companies and subsidiaries and Treasury liabilities to SOEs[11]. However, these reforms were insufficient to guarantee SOEs financial viability.

During the 1980-1984 plan, most of the new industrial projects were halted, as the investment backlog from previous plans was very important. In parallel oil windfalls were directed to more consumption and investment in social and economic infrastructure (such as roads and hospitals). Restrictions on trading in agricultural products were loosened and more roles were assigned to market forces in this sector.

Inefficiency of the industry was aggravated by distorted prices and high operating cost structure. The public industrial strategy neglected the development of small-scale consumer goods producing industries. Loss making public sector industries were heavily subsidised and relied mainly on imports of inputs (raw and semi-finished). As they faced soft budget constraint their burden on the government budget and the balance of payments was heavy. The inadequate capital-labour mix (high technology and low local labour skills) led to low

---

[8]See the report by the Ministry of Planning on the economic and social evaluation of the decade, 1980.

[9]See Beltas(1993) and Standaert (1989) for an account on disequilibrium and repressed inflation in Algeria.

[10]See Lee and Nellis (1990) for a description of the Algerian experience in enterprise restructuring.

[11]The amount of financial cleaning of SOEs and banks estimated around 2.1% of GDP in 1991.However, it led to the soaring of public debt to 21.9 % of GDP in 1999 and the interest cost to 5.4% of GDP in 1999.

productivity gains, and labour hoarding in an attempt to reduce unemployment. Urban unemployment was fuelled by rural migration[12] caused by regional disequilibrium.

The manufacturing public sector industries faced a wide array of managerial problems due to bureaucratic and rigid management systems. Inadequate marketing, transport, and inappropriate management led to widespread wastage of scarce resources. This rigid system of managing the economy implied that the performance was relatively low compared to the resources used to generate growth and social welfare.

Notwithstanding these problems, real economic growth, in most sectors of the economy, led to noticeable advances in raising the living standards of the Algerian population. A deliberate policy of free health care, free education, low rent, and generous social housing policy helped this. This egalitarian policy intended to improve income distribution, and achieve reductions in absolute poverty.

Wages were tightly controlled, however increasing employment coupled with low productivity fuelled demand-pull inflationary pressures, which were repressed as a result of the planning of the supply of consumer goods and direct and price controls. Rigid manufacturing system also increased cost-push and imported inflationary pressures, which were also hidden due to price planning. The monetary policy could not be used to alleviate inflation as money stock adjusts passively to planned quantities and responded fully to fiscal needs.

Trade balance was mostly in surplus. However heavy investment in industry and technology transfer needed to raise important sums of external resources. This led to building external debt, mostly long term with average grace period of 10 years and maturity period of 15 years (World Bank, 2000). This technical aspect delayed the external debt problem. The exchange rate was kept constant and highly overvalued[13]. No use of exchange rate policies was needed, as stringent trade laws were enforced (monopoly over external trade, abolishing private wholesale and distribution, quotas, exchange restriction, no capital mobility). The impact of the exchange rate policy was neutralized and had no bearing on export competitiveness of the country.

Compared to population food needs, agricultural sector performance was disappointedly low as land reforms failed to sustain and stimulate production. The deficiency of agriculture was substituted by massive imports of food and diary products. The overvaluation of the Algeria Dinar helped to reduce the costs of consumption, but had devastating effects on agricultural output, through the mechanisms of the Dutch Disease. Buoyant oil prices and heavy long term external credits helped temporarily postpone the balance of payments and budget problems. Early reforms of the agricultural sector were designed to restructure the Algerian rural sector, but failed to sustain consistent policies of production growth in this sector. Imports of food and intermediate products of agricultural origin were ever increasing, henceforth aggravating the food bill.

The industrial strategy that was based on the development of basic industries and elaborated by De Bernis (1972) was costly in financial terms used a technology difficult to command and incompatible with labour skills. Despite the important capacity installed, utilisation of this capacity was low.

---

[12]See Benachenhou, A (1982) for an account on internal migration in Algeria.

The collapse of the oil price in 1986 magnified economic distortions and plunged the economy into a deep long lasting recession. The Algerian authorities responded by adopting wide-ranging reforms aimed at transforming the Algerian economy to a market economy. After a period of initial timid reforms during the five years plan (1985-1989), economic reforms sponsored by the IMF and the World Bank were implemented as early as 1989 by adopting the first stabilisation program. It consisted of currency devaluation, tighter fiscal and monetary policy. This enabled to reduce the monetary overhang, which resulted from previous expansionist fiscal and lax monetary policy. Liquidity absorption allowed subsequent price liberalisation, and a gradual reduction of price subsidy.

The authorities' subsequent relaxation of fiscal and monetary policies during 1992 and 1993 prompted a deterioration of the economic situation and macroeconomic imbalances widened further. According to the IMF (1995) reform efforts until 1994 were either insufficient or could not be sustained. A third SBA program was approved on May 27, 1994, in order to enhance medium term economic liberalisation and accelerate the reform process. Economic policies introduced under the program emphasised tighter demand management and wage restraint, including further depreciation of the Algerian Dinar and reducing the budget deficit.

IMF support was further strengthened in 1995 by a three years EFF[14] program. Structural measures under the program aimed at liberalising the economy and establishing market mechanisms. These measures included a managed float for the Dinar exchange rate, liberalisation of external trade, removal of price restrictions, and a phasing-out of generalised subsidies. The program also included some public sector restructuring and banking reform. The program aimed at ensuing high and sustained levels of economic growth to reduce unemployment, rapidly establishing a low level of inflation and restoring balance of payments equilibrium by the end of the program.

Under this program, the authorities were expected to complete the liberalisation of domestic prices, external trade and payments system, while accelerating the establishment of market mechanisms and promoting private sector activity. These actions were to be reinforced by additional fiscal adjustment, continued monetary restraint, and implementation of an exchange rate policy aimed at preserving the competitiveness of the export sector. The reform package and policy actions during 1994-1998 were thoroughly reviewed in Nashashibi et al (1998) and IMF (2000). The IMF praised Algeria for its steadfast implementation of structural reforms (Feller, 1996 and IMF, 2000).

The main objective of the fiscal policy under the EFF program was to establish a low level of inflation by eliminating the budget deficits. This was achieved through further reforms of the tax system, by focusing on broadening of the tax base and restructuring expenditure to improve their efficiency. Inflation control required also rigorous management of domestic liquidity. This believed to be achieved by developing the bond market, elimination of restrictions on interest spreads and further tightening monetary policy.

---

[13]See Sorosa (1999) for a quantitative assessment of exchange rate policy in Algeria.

[14]Algeria signed three Stand by Arrangements with the IMF in 1989, 1991 and 1994. It implemented a three years Extended Fund Facility between 1995 and 1998, and obtained a CCFF in May 1999.

On the structural front, the centrepiece of the program was a deepening of the liberalisation of the trade and payment systems. Trade was liberalised gradually by establishing current account convertibility of the Dinar, and developing an inter-bank foreign exchange market. Remaining restrictions of the price system were eliminated and the generalised system of subsidies was phased out. A large number of public enterprises were given full autonomy while others were dissolved. A legal framework for privatisation of public enterprises was set up and a privatisation program was announced[15]. Commercial banks were re-capitalised and performance contracts were signed with the state enterprises to ensure their efficient management. Taking into account the policy reaction lags it is very early to seriously to evaluate these IMF sponsored reforms. However, despite re-establishing macroeconomic balances and bringing inflation under control, and the noticeable improvements external debt indicators, unemployment rate is still high and no signs of reversing its trend. Population welfare as measured by real GDP per capita was severely curtailed, and poverty doubled between 1988 and 1995 and might be spreading at a faster pace thereafter. GDP Growth rates improved significantly after 1994, however still driven by the outlook of the oil market and weather conditions for the agricultural sector. The growth of the manufacturing sector could not reverse its negative trend.

Social Policies and Poverty Alleviation Strategy

During the oil boom years, the state had the resources to provide employment, infrastructure and services through a centrally controlled planning system. Social indicators improved markedly and poverty was kept under control thanks to employment generation, investment in education, health and in basic infrastructure, and generous subsidies. The decline in oil prices since 1986 made a serious threat to this generous social policy, highlighting the non-sustainability of past economic and social polices. The reforms introduced since 1986, although gradually, are increasing the number of the poor and the vulnerable. A social crisis is developing at a fast pace.

Despite structural problems and economic inefficiencies in the 1970s and early 1980s, the economic system was fairly successful in alleviating poverty. Thanks to oil rents, fiscal costs were not a major constraint. The wide coverage of the social system, despite large leakage to the better off, enabled the government to reach the poor. The universal food subsidy program covered 16 categories of food staples at affordable prices. However no targeting was applied, making the system impact large but with a huge cost. In 1988 the leakage to non-poor was estimated at 69 % of total subsidy. Transfers to bottom 40% were only 30% of total transfers[16].

The increasing costs of universal food subsidies and its huge leakage to the non-poor led to reforms of the food subsidy program. By mid 1992 most of the food subsidies were eliminated[17], therefore dropping the cost of subsidy ratio from 5% in 1991 to almost 2.3% of GDP in 1992. Prices of other subsidised goods such as energy and public basic services were adjusted significantly since 1990[18].

---

[15]Progress in the privatization program as announced in 1995 and 1997 was very sluggish. For a brief description a the program see EIU(2000).

[16]See World Bank Poverty Net in the Internet at http:\www.worlbank.org\poverty\ and Van Eghen (1998) and Gaicour(1998)

[17]Except for semolina, flour for bread, milk

[18]In 1994 prices of the remaining subsidised food products were increased by 41 % and prices of energy products by 50%..

The alarming new social reality as manifested by a continuous decline of per capita income and consumption, called for a series of reforms of the social protection system, which was based on direct subsidy of food and providing free basic services. As the new economic conditions does not permit to keep this system, its reforms were devoted to make it pro-poor through targeting and providing direct help to the needy.

To ensure equitable distribution of the adjustment burden, the authorities starved to strengthen the social safety net. The Algerian social protection system is comprised of both contributive and non-contributive components. The contributive component encompasses social insurance and provides cash benefits to its affiliates for contingencies such as retirement, disability and survivor's pensions, and health care[19]. Moreover, a new unemployment insurance scheme was introduced in 1994 as part of measures to alleviate the costs of public sector employment retrenchment and industrial restructuring.

The non-contributive component comprises the implicit and explicit consumer price subsidy, family benefits, and the social assistance programs. Despite the wide spread inefficiencies and large leakage to the non-poor, the system used to be fairly successful in alleviating poverty[20]. The main challenge of the system is to reach and protect the poor in a situation of a heavily constrained budget by finding a balance between equity and efficiency. The social insurance (security) system, the contributive component of the social protection system is managed by four regional public funds that are the source of all social insurance benefits. Total affiliation is about 5 millions [21] which represent only 60% of the active labour force. Moreover about 85% of the agricultural and independent workers are not affiliated in practice.

In the process of phasing out food subsidy program, the government reformed the safety net in order to alleviate poverty, and to compensate vulnerable groups for food subsidy elimination and short term costs of adjustments. The social assistance programs were made of direct transfers in cash and in kind directed to the hard core poor unable to support themselves. It consists of financial aid to the handicapped and elderly poor. Pension benefits to war veterans and their families, scholarships to less wealthy families. Food aid to children in schools located in disadvantaged areas. The cost of these expenditures amounted to 2% of GDP in 1994.

The other component of the social assistance programs consists of safety net schemes that were introduced in 1992. There were four cash benefits with an overall cost of 2.2 % of GDP in 1993 benefiting more than 60 % of the population. These programs included a child allowance. A benefit for salaried worker earning less than 7000 AD and spouse not working. A benefit for retiree disabled in work injury and living on a pension less than 7000 AD, a benefit for household without any source of income.

The authorities introduced many reforms since 1992 in order to better reach the needy. As the direct subsidy system was severely curtailed, a new system of direct cash transfers was introduced in 1992. In 1993 it reached almost 60% of the population, and its cost was almost 2% of GDP. However, the scheme was poorly

---

[19] See ISSA (2000) for a full description of the Algerian Social Security system

[20] See World Bank (1995) and Van Eghen (1998)

[21] see World Bank (1996)

targeted due to lack of means testing. The system was further reformed in 1994 as part of the IMF supported Stand By Arrangements. Reforms aimed at improving its targeting by transforming one of the benefits[22] into cash transfers to poor households unable to work (elderly and disabled), and a second transfer was established for the able-bodied and unemployed poor in the form of public works program[23].

The above mentioned system was inefficient and poorly targeted due to inadequate means testing. In fact about 25% of the population was considered without income and 50% of the population benefited from the schemes. In 1995 the system was further reformed, by integrating three benefits into the social security system. Cash transfers to those unable to work replaced the untargeted cash allowance given to persons without income. This scheme is intended to those unable to work and not covered by other schemes, such as elderly without a pension and partially handicapped individuals. Beneficiaries receive 900 AD a month, plus 120 AD for a maximum three dependants. The second scheme is a public work program. These two schemes covered about 15 % of the total population and cost about 0.8% of GDP in 1995. These reforms resulted in a financially efficient scheme, which better target the poor, and presents a comprehensive safety net program.

The cash allowance was distributed to nearly 453 thousands beneficiaries and to 384 thousands dependants in 1995. Out of the total of beneficiaries, 38 % were female and 84 % were elderly and 16% were handicapped. However, the program suffers from many drawbacks, such as the irregularity of the payments, narrow scope of eligibility which by definition excludes female headed households unable to work and without any source of income, and cash transfers less than subsistence level.

The public work program intends to provide short-term employment in various community based work to those able and willing to work at half the minimum legal wage rate. The participant is hired at DA 2800 per month (AD 140 per day). The number of participants were 492 thousands (27% females) in 26305 sites in 1995. However, and after purging the lists of beneficiaries the number dwindled to 135 thousand beneficiaries. The program suffers from many flaws, such as poor self-targeting. The time requirement (4 hours a day) pushed the wage of the program to the level of the minimum wage instead of half, thereby increasing the willingness of non poor to apply for the public work program, such as unemployed youth. Work sites are not necessarily geographically targeted and not labour intensive. The poor quality of social administration and the lack of good records on beneficiaries led to a poor targeting and widespread leakage to non-poor. The purging of the beneficiaries lists' in 1996 permitted to reduce the number by half[24].

The economic reforms undoubtedly involved some public sector retrenchment and labour shedding (see Ruppert, 1999). In order to lessen the costs of revenue loss, an unemployment benefit was introduced in 1994 designed to the salaried workers in the economic sectors who are laid off. The beneficiaries must have contributed to social security at least for three years. Employer must pay severance pay equal to 80% of monthly earning, for up to 12 months. Unemployment benefits are calculated on the basis of two months each year of service, for up to 36 months. Benefits are paid quarterly as percentage of reference salary. Beneficiaries with

---

[22] Allocation Forfitaire de Solidarite (AFS)

[23] Programme d'Activite d'Interet General (PAIG)

[24] In 1995, both schemes (AFS and PAIG) cost the government around 200 M US $

benefits less than AD 7000 per month receive AD 500 per month as spouse allowance, and are eligible for sickness, maternity and family allowance for 12 months while receiving unemployment benefits.

The shortcomings of the safety net programs in alleviating poverty prompted the government to further reform its social action program by creating in 1996 a Social Development Fund (SDF) and a Social Development Agency. The fund undertook most of the tasks of providing emergency social protection, social investment, youth employment schemes, social services, micro-credits and community development[25]. The fund also undertook the task of managing through an independent social development agency the country's safety net, instead of the ministry of social affairs. The agency became the government arm is formulating and executing its social policy and poverty alleviation strategy.

The SDF started by managing the direct transfers to the poor and the public work program. It supervised the work of the *cellules de proximite* which identifies problems of slum dwellers, and provide basic services to them. In the second half of 1998 two new schemes were introduced. The first offers pre-employment contracts for university graduates who numbered around 100.000 job applicants for the first time. The beneficiaries receives a job for a maximum one year and a half at a salary of (AD 6000) 100 $ monthly. The second concerns the establishment of mechanisms of managing micro-credits for unemployed people wishing to engage in small private business.

Economic Performance

As was explained above, economic policy in Algeria went through different episodes which could be summarised by accelerated development central planning, then loosening and overhauling of the central planning system, and transition to market economy and liberalisation. Oil windfalls, external shocks and the availability of external finance played major roles in shaping up this policy. The oil sector has a heavy direct effect on the economy, as exports consist nearly entirely of hydrocarbon, and over two thirds of government revenues originate from this sector. This sector also accounts for a third of GDP. However, its contribution to total employment is minimal (around 3%). Sharp fluctuations in the price of oil are directly translated to the balance of payments, output and the budget[26]. Table (1) summarises the performance of the Algerian economy between 1962 and 1998. The performance indicators were calculated in specific periods. These are thought to reflect major shifts in economic policies and changes in political orientations since the independence.

During the period (1967-1979), government efforts were mainly devoted to building an industrial sector based on import substitution of heavy basic industries in order to promote growth and employment. The accumulation rate of physical assets increased rapidly from 15% in 1967 to reach 49 % in 1979 as shown in graph (1.3). The accelerated pace of industrialisation in basic industries was financed by foreign loans and oil windfalls, where oil price per barrel, after the first oil shock in 1973, increased from around 10 US$ per barrel to more than 30 US$ in 1973. Total external debt increased form less than one billion US$ in 1970 to over 19 bn

---

[25] Other funds were also created such as the fund for supporting youth employment and the fund for developing vocational training. These Schemes are describes in CNES (1998).

[26] It is estimated that a fluctuation of 1$ pa results in a change of export proceeds by $600m and a change of AD 35 Bn in government revenues (see Arezki (2000).

US$ in 1980. Debt service ratio increased gradually to reach 27 % in 1979. The debt stock was entirely long term and public. Concessional debt was minimal and most of debt was contacted at private creditors (80 % in 1980), with long maturity. This strategy proved fatal as the debt service start to increase when the oil prices collapsed in mid 1980. Principal repayments reached 6.9 bn US$ and the debt service ratio rocketed to 80 % in 1988 as shown in Graph (1.10).

The development strategy of the seventies assumed that industrialisation would increase substantially GDP growth and structurally transform the economy so as to permit sustainable external finance and improve economic and social welfare. In fact real GDP growth of 6 % pa was based mainly on horizontal expansion and accumulation of capacity (Graph 1.9). Given the limited absorption capacity of the economy and the style of management of public sector productive assets, capacity utilisation and return on investment were low[27]. The investment backlog increased gradually to reach unsustainable levels.

The rapid pace of public investment, although inefficient, permitted per capita GDP to increase seven fold, from 260 US$ in 1969 to around 1940 US$ in 1979. Despite high growth rate of labour force of more than 4% pa unemployment rate decreased from 23.9% in 1967 to 15.79% in 1979 (Graph 1.4). However, unemployment figures should be read with some caution, as labour force data are only based on projections between years of labour force surveys. During this period exchange rate was kept constant at 4.6 AD to one US$, as shown in graph (1.7) and open inflation rate accelerated from less than 5% in 1967 to reach more than 15% in 1978 (graph 1.1), despite stringent price controls.

After the end of the second four years plan (1973-1977), and after a two years of reflection on the future of economic policy in Algeria, the political authority decided to start a process of loosening the central planning system. This was translated by halting new investment projects in industry, so as to improve the absorption capacity and eliminate the backlog of public investment. Improve the welfare of the population by massive imports of consumer durable, and organically restructuring public enterprises in order to facilitate their management. A special attention was given to the agricultural sector where the process of collectivisation performed poorly in terms of production. Dutch disease factors contributed to the stagnation of the agricultural sector (Graph 1.11), specially resorting to imports in covering the food needs of a growing urban population[28].

This process of restructuring coincided with the substantial increase in the oil price in 1979 and permitted to finance a consumer boom that proved difficult to maintain after the oil price collapse in 1986. Real GDP grew at 4.7 % pa and fuelled primarily by new infrastructure projects, especially in housing and highways. Inflation stood at 9.2 % pa despite its decline from a peak of 17 % in 1979, which was due to the easing of excess demand in the consumer market and overvalued exchange rate at a 4.6 AD per 1$ which well below its real counterpart (see Graph 1.7). Real Effective Exchange Rate (REER) depreciated from 1980 until 1985, where after it appreciated under the pressure of domestic inflation at a rate higher than world inflation (see graph 1.5). This expansion program kept the unemployment rate at its 1979 level (15%) and even went below this level in

---

[27]See Bouzidi (1984) for data on capacity utilization in public industries

[28]Agricultural land represents only 3% of total area of Algeria. Agricultural imports represent a quarter of total imports and cereal production covers only 10% of population needs.

1985. The accumulation rate declined from its peak of 1978 to reach just above 30 % in 1989, which permitted the current account to substantially improve and reach 2% of GDP in 1985 (Graph 1.2).

The increase in oil revenues kept the external debt at its 1980 level, and even declined to reach 16 bn US$ in 1984, and then increased to reach a level of 22.6 bn US$ in 1986. Consequently the debt service ratio (Graph 1.10) climbed from 30% in 1979 to reach 40% in 1985 due to the use of short term debt (3.1 bn US$ in 1986) and the increase in the stock of foreign debt.

The increase in oil revenues and the investment program permitted the increase of GDP per capita steadily from 1939 US$ in 1979 to 2876 US$ in 1985. However, the decline of the oil price in 1986 ignited a process of economic and social decline. Nominal GDP per capita steadily declined to reach a level of 1958 US$ in 1998, in fact below the level achieved in 1980. Average real GDP growth between 1986 and 1998 was only 1.8 % pa far below the previous record.

Policy makers thought that this downturn in oil prices was only a temporary phenomenon. They resorted to further external borrowing to finance the balance of payments deficits. Short-term external debt reached 3.1 bn US$ in 1986 and total debt stock increased from 18 bn US$ in 1985 to 33.4 bn US$ in 1996. This rapid growth in debt coupled with a lack of GDP growth increased debt indicators substantially. Debt to GDP ratio increased from 47 % in 1980 to 64 % in 1990 and debt service from 27.4 % to 70.4 % for the same period. The current account deteriorated to reach –4.0% of GDP in 1989. This unsustainable situation in the external sector led to debt rescheduling[29] with commercial banks in March 1992 for an amount of 1.5 bn US$ and 3.2 bn US$ in June 1995. Official creditors agreed on debt relief program in June 1994 and July 1995, which permitted to consolidate 5.2 and 7.0 bn US$ respectively. These agreements eased the external debt constraints and reduced the debt service ratio from 76 % in 1993 to just 27.2% in 1997.

The hesitance and delays in applying reforms and adjustment programs between 1986 and 1994, mainly for political reasons, and to temporary improvements in the balance of payments after the Gulf war in 1990, helped to complicate the economic environment further. Inflation galloped rapidly from 10% in 1985 to reach more than 30% in 1992. The stringent measures of curbing demand included in the IMF programs helped to restore inflation back to 2.6% in 1999. These measures included a massive devaluation of the AD from 4.6 per 1$ to reach 73 AD in 1999, with a devaluation rate of 21.5 % pa between 1992 and 1999. These series of devaluation helped to depreciate the real exchange rate substantially from 1992, which reduced expenditure and switched it away from tradable sector. A deliberate policy of building foreign exchange reserves was engaged to reach the amount of 7 bn US$ in 1998, in order to face short-term volatility of export earnings.

The reform programs applied since 1989 helped to stabilise the Algerian economy and provided the necessary environment for growth promotion. However many structural constraints still impede growth take-off. These are primarily related to low efficiency in public industrial sector and to total dependency of the

---

[29]Algeria failed to make a repayments of 800 m$ in 1991. This led to an innovative commercial refinancing deal, called reprofiling worth 3.2 bn $. But debt ratio remained high and another reprofiling deal was achieved with Japanese Banks in 1993 worth $9.0 bn. However, these reprofiling accords did not solve the severe debt problems and forced the government to sign a deal with IMF in April 1994 followed by a debt rescheduling in May 94 worth 5.3bn and a second deal in July 1995 worth 7bn.

hydrocarbon sector in financing balance of payments and the budget. The adopted stabilisation and adjustment measures did not help spur high growth rates. In fact unemployment rate soared to 28 % in 1998. This is basically due to high labour market entry and a continuous decline of public sector employment. The decline of real wages and the deterioration of labour market led to a real decline of per capita consumption from 1000 US$ in 1987, to just 559 US$ in 1998 in 1995 prices. According to these figures, income poverty should on the increase. Despite the positive real GDP growth since 1994, mainly driven by the outlook of the hydrocarbon sector and weather conditions, it is still far fragile and below levels that permit to catch up GDP losses during the nineties.

At the heart of the Algerian economic problem, is the huge inefficient public sector. The 1997 official statistics on GDP allocation by sector and ownership shows that most public sector net operating surplus are negative (agriculture, steel, electrical, mechanical, electronic, textile, leather and footwear, paper, services). Around a quarter of public non-hydrocarbon public sector output was originated in loss making public sector. This situation of public sector deficit leads to a double loss in government finance. A loss in profit taxes and the obligation of writing off public sector debts. The operation of financial cleaning of public sector increased government domestic debt to 574.6 bn AD in 1997, which represent around 20% of GDP. The proportion of public sector value added represented 54 % in 1997 of GDP. Around 84% of total credit were allocated to the public sector. This situation will reflects badly on the banking sector and increases its proportion of bad performing loans and in the same time penalising the private sector by not having wider access to credit.

The public sector restructuring process since the eighties, which granted autonomy of the enterprises from direct bureaucratic control did not solve their problems of production and management despite debt writing off and substantial refinancing. Many of the industrial public sector are intermediate goods producing relying on imported inputs for further processing. The rationing of their hard currency budgets, and the severe devaluation of the Dinar amplified pass-through effects on domestic inflation, hitting hard their profit margins that was further complicated by foreign trade liberalisation. The value of the non-hydrocarbon industrial production index reached 75.8 in 1999 from a base value of 100 in 1989. Still worse, for some industries such as leather and hides, the index reached a value of 16.0 in 1999. This critical situation pushed policy makers to go ahead with public sector privatisation.

The privatisation program was launched in 1995 with some 230 firms were identified for sale. Preparations for privatisation included shedding public sector employment by 130,000 by 1997, and liquidating and selling most of the distribution chain outlets and local public enterprises. Eleven state holding companies were created in 1997 to act as a vehicle for restructuring or privatising public enterprises. Algiers stock market was set up in 1999 in order to accelerate the drive toward privatisation. Despite that more than 100 public enterprises were identified for divestiture by the *Conseil National de Privatisation* no major progress was made on this front blamed on excessive red tape, political unwillingness and civil strife as the causes of this sluggish progress.

Despite the austerity measures for controlling government spending, the budget deficit still difficult to control. Revenues are largely dependent on the oil price. Graph (1.12) shows the budget balance GDP ratio behaviour since 1967. As the oil price increased, the budget balance showed substantial surpluses exceeding 3%

of GDP. However, by mid eighties these surpluses evaporated and the budget dipped into the red and the ratio reached –4% in 1988. The Gulf war in 1990 permitted a temporary recovery, and afterwards the fiscal situation deteriorated, and the budget balance ratio reached –6% in 1993. The improvements in the oil market in 95-97 reflected positively on the budget ratio, however the situation deteriorated again in 1998. The stabilisation of the budget needs further structural reforms in the fiscal system which aims at strengthening government revenues by combating tax evasion, consolidating income tax and further rationalising government expenditure.

Social performance

The Algerian society is characterised by strong population growth of 2.0 % pa, for the period 90-95, which declined from 3.1 % pa for the period 70-75. However, there are signs of a demographic transition reflected by a decline in fertility rates and a slowing of the population growth rate. This fast growth constrained heavily social development. Moreover, labour force growth is about 3.1 % pa reflecting young structure of the population. In fact more than 38% are under the age of 15 and only 3.74 % are above 65 years.

Despite fast population growth, social indicators in Algeria are generally good. Table (2) summarises some of the important social indicators. As far as education is concerned, net primary enrollment ratio increased from 86 % for the period 80-85 to reach 94% for the period 90-95, well above the MENA average of 81%. (WDI, 2000). Gender differences amounted to 10%, reflecting lower female enrollment in rural area. These rates decline rapidly for secondary and higher education. However, gender gap gets closer. Improvements in education indicators are not reflected at the general illiteracy level. In fact about 35 % of the population were illiterate (24 % for male and 46 % for female). This reflects the fact that older generations did not have access to education. Nonetheless, this illiteracy ratio compares favourably with MENA average (56 % in Morocco, 49 % in Egypt).

Life expectancy at birth increased from 52 years in 1967 to 70 years in 1995. This ratio compares favourably with high levels reached in Gulf States, and well above levels of poor Arab countries. The increase in longevity coincided with a decline in female fertility rate from 7.4 in 1970-75 to just 3.5 in 1990-95. This reflects a process of demographic transition that will increase old age dependency ratio in the future. Longevity increased due to the improvements in health and safety indicators, as well as to universal free access to health services and education. The ratio of health expenditure to GDP equals 3.3 % and is one of the highest in Arab Countries (WDI, 2000).

Access to safe water ratio increased from 84 % in 70-75 to 100.0 % in 90-95 for the urban areas, and was 77 % for rural area. Access to sanitation is less than safe water (66 % in 1998). Infant mortality ratio still high at 32 (MENA average 54), however declined rapidly from 132 in the seventies, thanks to the immunisation campaigns where the rate increased from 17% to 69% for measles and to the reduction of child malnutrition to just 9% in 90-95.

Housing conditions and unemployment represent the major deficiencies of the social welfare in Algeria. The 1998 population census results show that precarious housing represent 6.95% of total housing which was 10.3% in 1966. However data are thought to be unreliable as it excludes slum areas. Fast population growth and

sluggish house delivery led to some housing overcrowding. The average house occupancy rate was 7.4 individual in 1995 (7.6 in rural and 7.1 urban areas) with the number of households per house increased from 1.06 in 1987 to 1.14 in 1995. Moreover, the number of persons per room was 2.7 in urban and rural area. The proportion of households of more than seven persons per house constituted 40 % of total households. In fact 90 % of houses are overcrowded with 1.2 households per house. Severe overcrowding (more than 3.4) presented more than 28 % in 1995.

The housing stock in Algeria is well equipped with electricity, drinking water, sanitation and natural gas. The electricity rate increased from 30.6 % in 1966 to 85 % in 1998. The proportion of houses with tap water increased as well from 37.1 % in 1966 to 71 %b in 1998. The proportion of houses with sanitation facilities was 66.34 % in 1998. These figures reflect respectable levels of welfare, but hide wide differences between rural and urban regions. The housing stock is at majority owner-occupied and the government policy on rents is very generous. The government policy on selling its housing stock at very low prices helped to increase this rate of owner-occupier. In fact it was found (CNES, 1998) that housing conditions in Algeria were not significantly different between poor and non-poor.

The LSMS (1995) survey provides some interesting figures about the health situation of the population. Total morbidity was about 20 %. Only 15.3% of total population had to consult a doctor (77.9 % of people reported ill). More than half of them used private clinic while only 20 % used hospitals and 5.4 % a dispenser. These figures reflect that basic health provision and access are quit well.

The Algerian population totalled 29.272 millions in 1998, only 8.16 millions constitute the labour force and more than 21 millions are reported inactive, representing a rate of activity of 27.9%. Despite this low activity rate unemployment was about 2.3 million, giving a very high unemployment rate of 28.1 %. To understand the impact of this labour market situation on poverty, further analysis of unemployment is needed in order to unravel the main characteristics of labour demanders. Female employment represents only 16.6 %, but female unemployment is increasing. However, 80 % of labour demanders are less than 30 years old. Moreover, 63.5 % are aged between 16 and 19 years and only 15.6 % are household heads. This demographic structure of unemployment limits its impacts on poverty. Most the unemployed do not have the responsibility of caring for a family. In fact the unemployment rate of non-married to married persons is more than five folds. Average unemployment does not decline with duration, which reflects a structural feature of the labour market. However these rates declined dramatically with qualifications from 29.9 % for people with secondary school qualification to just 4.4 % for university graduates.

The UNDP introduced in 1990 the Human Development Report (HDR) in order to measure and monitor progress made in human development. To this end it devised the famous Human Development Index (HDI) and the Human Poverty Index (HPI). Both indices are composite and monitor progress in human development, despite major deficiencies of the indices. The HDI for Algeria progressed from a score of 0.511 in 1975 to 0.683 in 1998. This gives an average increase of 1.4% pa and a reduction in shortfall of the index (1-HDI) by 31.5 % between 1975 and 1998. The reduction in the shortfall was consistently maintained until 1993, where HDI reached 0.746 and then it started to regress under the impact of GDP decline despite an improvement in the other components of the index. This contrasting pattern between economic growth and social progress demonstrates

that Algerian poverty is mainly due to the income decline. The appropriate policy to enhance HDI is to maintain social sector performance and rely on growth polices in order to generate income and welfare.

To understand further this progress, it is better to look closer at the HDI and analyse its components. The sub indices related to life expectancy, adult literacy and education enrolment progressed only slowly. In this respect adult literacy is lower than the average of medium human development countries, and needs to be improved through pursuing education policies for the adult. Combined enrolment needs to be improved by increasing access to secondary and higher education in order to achieve the performance of high human development countries.

The HDR also presents results of the HPI, which measures non-income poverty. The index indicates that there are about 28 % of poverty related to low human development. The index highlights the human deprivation in terms of survival, and lack of access to basic social services. It is clear from that HPI reflects structural deprivations that are difficult to improve in the short to medium term. Adult illiteracy in Algeria is a phenomenon related to colonialism as an entire generation was deprived from formal schooling. After independence, Algeria had the highest illiteracy rate in the Arab world. Education policy afterward concentrated on providing schooling for young children. Adult education was provided in work places however despite progress made, more than a quarter of the adult population still illiterate. These results are in complete contrasts with income poverty estimates given by the World Bank. For example estimated poverty proportion at one US$ in real PPP 1985 prices was only 1.6 % in 1995. This might reflect a mere fact of no severe absolute poverty in Algeria. But this result is misleading, because of the concentration of the mean expenditure just above this line. For example if we increase the poverty line to 2 US$ per day in 1995 the poverty proportion increases to 12.32 %.

Poverty Assessment Methods

Income poverty exists if one or more members of the society are unable to reach a predefined minimum level of welfare or standard of living. (Lipton and Ravallion, 1993, Ravallion, 1994) either in absolute or relative sense. Material welfare is usually determined by the command over commodities and services as well the acquisition of publicly provided goods. Standard of living can be either measured by income, consumption level of households or individuals[30].

Most poverty assessment studies relied on consumer expenditure surveys for the estimation of income based poverty indicators. These indicators permit to measure poverty in a given society, build a poverty profile and simulate the effects of growth and distribution, and analyses the contribution of sub-sectors to the overall poverty. Devised measures usually highlight poverty in three dimensions which reflect poverty level, measured by the head count ratio; poverty depth which measures the deviation of the welfare of the poor from the minimum level of welfare, measured by the poverty gap; poverty severity which measures inequality distribution among the poor. When measuring poverty one need to properly define welfare or living standard indicator;

---

[30]The choice of the appropriate welfare indicator (income, consumption per adult equivalent, caloric content) is very important in poverty assessment as it has direct implication on the poverty estimates (see Anand and Harris (1994)).

welfare distribution among the members of the population; poverty line which reflect minimum welfare; a poverty indicator which determine poverty aggregation; and the unit of measurement.

Poverty measures

Suppose that the welfare level of individual i is denoted Y_i and f(y$_i$) represents the welfare distribution among the member of the population. Suppose also that f(.) is continuous and Z measures the poverty line. The poverty index can be written as:

$$\psi(Y_i, Z)$$

ψ is non-decreasing function in Z and homogeneous of degree zero[31] in its arguments. Suppose also the family of additive poverty measures:

$$P(Z) = \int_0^Z \psi(Y_i, Z) f(Y_i) dY$$

From the available poverty measures in the literature[32] we choose the Foster Thorbeck Greer (1984) poverty measure which has the desirable features of respecting the principal poverty axioms.

$$\psi(Y_i, Z) = (Z - Y_i)/Z)^\alpha$$

α Takes different value and represent inequality aversion among the poor. When $\alpha = 0$ we obtain the head count ratio which measures the proportion of people living under the poverty line.

$$P_0 = P(Z) = \int_0^Z f(Y) dY = \frac{H}{N}$$

Where H is the number of the poor having welfare level under the poverty line and N the total number of the population.

When $\alpha = 1$ we get:

$$\psi(Y, Z) = (1 - \frac{Y_i}{Z})$$

Which gives the poverty gap measure

---

[31] Homogeneity of degree zero ensures that proportional changes in poverty line and expenditure does not change the poverty index. This assumes that the poor has no money illusion.

[32] See Zheng (1997) for a good survey of poverty measures and the basic axioms.

$$P_1 = \int_0^z (1 - \frac{Y_i}{Z}) f(Y) dY$$

$$P_1 = H(1 - \frac{\mu_z}{Z})$$

Where μ_z represent average welfare of the poor and given by:

$$\mu_z = \frac{1}{H} \int_0^z Y f(Y) dY$$

Poverty gap does not measure the inequality between the poor, but does have an attractive interpretation as far as poverty alleviation is concerned. In fact, the amount $Z P_1$ represent the minimal amount of resources needed to transfer from non-poor to the poor in order to lift the latter out of poverty. This is obtained by subtracting the poor's income after the transfer Z.H from their income before the transfer $H.\mu_z$:

$$HZ - H\mu_z = H(Z - \mu_z) = ZP_1$$

When $\alpha = 2$ we get an additive measure of poverty severity which measure the degree of welfare inequality distribution between the poor.

$$P_2 = \sum_{i=1}^{H} (1 - Y_i / Z)^2 / N$$

This measure reflects that poverty severity is only a weighted squared sum of poverty gaps as a proportion of the poverty line.

To construct a detailed poverty profile, it is important to explain poverty dynamics between different periods and measure the contribution of changes in growth and changes in welfare distribution. Using Kakwani (1990) approach, welfare distribution is represented by parametric Lorenz Curve:

$$L(\mu, \theta)$$

Where μ and θ are respectively average welfare and Lorenz curve parameters. The vector of parameters, θ, is estimated from welfare distribution data using either beta Lorenz curve of Kakwani (1990) or a quadratic function of Villsenor and Arnold (1984). Using this function, we obtain a parametric poverty measure:

$$P(\mu / Z, \theta)$$

This formulation permits to simulate a numerous hypothesis (Datt, 1992), such as poverty measure sensitivity to changes in the poverty line, Z, and the simulation of the effects of a welfare distribution neutral growth, and in mean welfare μ. This presentation permits to decompose changes in poverty measures to growth and distribution effects between two periods t_0 and t_1 using the following formulae proposed by Ravallion and Datt (1992):

$$P(\mu_1/z,\theta_1) - P(\mu_0/z,\theta_0) =$$
$$[(P((\mu_1/z,\theta_0 - (\mu_0/z,\theta_0)]$$
$$+[P(\mu_0/z,\theta_1 - P(\mu_0/z,\theta_0)] + \xi$$

The first element in the right hand side measures the change in poverty index between the two periods holding welfare distribution constant. The second measures the changes in poverty index holding the growth in welfare constant. ξ Measures a residual that cannot be explained by growth and distribution.

Poverty indices could also be measured for m sub-sectors of the population with N_i population in each sub-sector i. Total population
Is given by:

$$N = \sum_i^m N_i$$

The aggregate poverty measure could be expressed as a population weighted average of sectoral poverty index:

$$P_\alpha = \Sigma_{i=1}^m \frac{N_i}{N} P_{\alpha i}$$

If we assume that the society is divided into two sub-sectors, rural (r) and urban (u), then we can decompose poverty index between two periods t_1 and t_2 as follows:

$$P_\alpha^2 - P_\alpha^1 = (P_{\alpha u}^2 - P_{\alpha u}^1)N_u^1 + (P_{\alpha r}^2 - P_{\alpha r})N_u^1 + \sum_{i=u}^r (N_i^2 - N_i^1)P_i + \sum_{i=u}^r (P_{\alpha i}^2 - P_{\alpha i}^1)(N_i^2 - N_i^1)$$

This formula, proposed by Ravallion and Huppi (1991), decomposes poverty index between two periods into intra-sectoral effects, a population shift, and interaction effects.

A major issue in poverty measurement is that of evaluating poverty elasticity with respect to the welfare indicators. According to Kanbur (1987) and Kakwani (1990, 1993) the point elasticity of poverty index with respect to distributionaly neutral growth is only the elasticity of cumulated distribution evaluated at the poverty line:

$$\eta_\alpha = \frac{-Zf(Z)}{P_0} \quad \text{if } \alpha = 0$$

$$= \alpha(1 - \frac{P_{\alpha-1}}{P_\alpha}) \quad \text{for } \alpha \geq 0$$

And following Ravallion and Huppi (1989) one can evaluate the degree of poverty acceleration due to welfare changes. By differentiation of the above equation, we obtain:

$$\frac{\partial \eta_\alpha}{\partial \mu} = -\eta_0^2 / \mu \quad \text{for } \alpha = 0$$

$$= (\eta_\alpha - \eta_{\alpha-1})/\mu P_{\alpha-1} \quad \text{for } \alpha \succ 0$$

The increase in welfare might be accompanied by a worsening of income inequality. Total poverty will increase or decrease depending on which factor is dominant. The elasticity of poverty index with respect to a change in distribution can be evaluated by the Kakwani (1993) formula:

$$\varepsilon_\alpha = \eta P_\alpha + \frac{\alpha \mu P_{\alpha-1}}{Z P_{\alpha-1}}$$

Since mean income and inequalities can each affect poverty, we can evaluate the trade-off between mean welfare and its distribution given by the Marginal Proportional Rate of Substitution (MPRS):

$$MPRS = \frac{\partial \eta}{\partial G} \frac{G}{\mu} = -\frac{\varepsilon_\alpha}{\eta_\alpha}$$

This equation evaluate how much growth in welfare is needed in order to off-set the negative impact of 1% increase in inequality of welfare distribution. We can also estimate the sensitivity of the poverty index to changes in the welfare distribution as measured by Lorenz curve and summarised by Gini Index (G):

$$\frac{\partial \eta_\alpha}{\partial G} = \frac{\eta_0}{G} \quad \text{for } \alpha \succ 0$$

$$= \frac{(\varepsilon_\alpha - \varepsilon_{\alpha-1})\alpha P_{\alpha-1}}{G P_\alpha} \quad \text{for } \alpha \geq 0$$

Where ε_α is the elasticity of P_α with respect to G. it is also important to test for significant differences in poverty levels between sub-sectors and/or periods.

Methods for setting Poverty Lines

The estimation of the poverty line Z represents the backbone of any poverty assessment study. The major source of uncertainty in any poverty profile stems from the setting of this poverty line. No wonder that numerous efforts were devoted to this problem. This resulted in different methods in setting this line. Poverty

line represents a benchmark value for classifying people into poor and non-poor. It also measures the minimum required welfare for leading a healthy decent life and fully participates in the society.

In order to fix a poverty line, researchers followed many approaches. The most widely used approach for setting poverty lines for poverty stricken developing countries is the objective or absolute poverty notion. According to Sen (1987) poverty should be determined by the non-achievement of certain capabilities. In the framework of income poverty attention was given to the determination of the revenue or the expenditure on commodities needed to satisfy these capabilities. However, in human poverty approach the stress is on identifying human capabilities to lead a healthy normal life. This approach was developed by Sen (1976, 1985, 1987) and related concept of poverty estimated by the UNDP using a composite index. Ravallion (1978) used traditional demand dualism concepts in order to reconcile the capabilities approach with income poverty by providing a mapping between the capabilities space and the commodities space.

Sen's approach is an extension of the basic needs approach developed by Rowntree (1899) in his seminal paper about poverty in York, England. In this approach poverty is defined by the satisfaction of a certain basic needs deemed necessary. It is essential to regard that food is the most important item of these basic needs. Non food basic needs should cover adequate provision among other things basic health care, education, proper clothing, and decent shelter.

It is very difficult to agree on a single list of basic needs, as this is dependent on many factors. To reduce this arbitrariness in setting the poverty line many methods were devised to compute this line. Central to these methods is the computation of food basic needs using Food Energy Intake (FEI). In this methods daily individual requirements of food energy in calories are determined by nutritionist (WHO, 1985) with respect to human body needs to perform its vital metabolic operations and also permits to the individual to do necessary activities and contributes to society. Needless to say that requirements differ according to many factors such as sex, age, climate, regions, nature of activities. Once Food Energy Requirements (FER) are determined the cost of obtaining these calories is determined in terms of expenditure on food. Unfortunately there are countless numbers of diet combinations that have the same caloric values. One obvious choice is pick the least cost diet taking into account local tastes and cultural factors that determine consumption habits. The pattern of expenditure of the lowest decile or quintile will better reflects the consumption habits of the poor, and helps to construct a poverty line.

Determining the non-food component $\left(Z_{nf} \right)$ of the poverty line is even more complicated, as there is no obvious anchor such as FER to establish the value of Z_{nf}. According to the basic needs method one has to construct what constitutes basic non-food and estimates its cost. Other non direct methods were used either to calculate this component, or estimate the total poverty line Z. The food expenditure method of Orashansky (1963, 1965) applied in the USA establishes the food poverty line Z_f using the FEI and then divide the food poverty line by the share of food expenditure in total expenditure. This method produce poverty line assuming that non-food poverty line is determined by average spending on food. This method is clearly biased, as poor

expenditure on non-food does not necessarily coincide with aggregate average. One way to improve on this method is to use the share of the lowest expenditure quintile.

A more rational method developed by Thorbeck and Greere (1986) that takes into account the structure of spending and its relation to FER is to fit a caloric Engle curve to the data of food expenditure evaluated at their caloric value C_i and total expenditure Y_i by applying OLS method to a sample data one can determine the poverty line at a predetermined FER. This method yield a poverty line anchored in the demand structure and does not require price data as quantities are easily converted to their caloric content values.

Both methods avoid the estimation of non-food component of the poverty line. One easy method known as food poverty line of evaluating Z_{nf} is to determine Z_f using FER and then look at the welfare distribution to spot the individual expenditure that equals food poverty line. The non-food expenditure associated with this food expenditure will be regarded as non-food poverty line. Ravallion (1994) disputed the idea of people spending on non-food after allocating the food budget. He argued that people spends first survival food, then on some basic non-food and last allocate the rest to basic food. This suggestion assumes that people displace some of their food expenditure to non-food expenditure. So to determine the poverty line one has to set the food poverty line and then spot the total expenditure equal to Z_f which will determine the total expenditure before displacement. The non-food expenditure of this people will be equal to Z_{nf} after displacement.

Ravallion (1994) also suggested the determination of a dual poverty line instead of using a single point estimate. This will help to reduce the degree of uncertainty inherent in the estimation of the poverty line. A lower poverty line would be set at the level of expenditure of a household who is just capable of reaching food requirements. This lower poverty line (Z_L) is defined as the food poverty line (Z_f) plus the non-food spending of households who can just afford Z_f. The upper poverty line (Z_U) is the total spending level at which a household actually spends Z_f on food. Using a linear Engle curve both poverty lines can be estimated from readily available data on food expenditure Y_f, total expenditure Y, and the food poverty line Z_f:

$$\frac{Y_F}{Y} = \alpha + \beta \log(\frac{Y}{Z_z}) + \varepsilon$$

Where α is the average food share of those households who can just afford basic food needs. The upper poverty line Z_U is calculated as follows:

$$Z_U = \frac{Z_f}{\alpha^*}$$

and the lower poverty line Z_L is given by the following formulae:

$$Z_L = (2 - \alpha)Z_f$$

The parameter α^* can only solved numerically from the following formulae:

$$\alpha^* = \alpha + \beta \log(\frac{1}{\alpha^*})$$

The above equation was estimated based on expenditure distribution and poverty line using data for 1988. The upper and lower poverty lines for the other years were updated using calculated inflation rates.

Evaluation of Poverty Lines

The assessment of absolute poverty lines based on methods described above requires the determination of population energy needs. Traditionally a single figure for the average energy needs of a population is derived, and then used to compile the cost of these energy needs. This approach needs to be modified so that a proper allowance is made for the fact that body weight and Physical Activity Level (PAL) are the two prime determinants of energy requirements. Based on the WHO (1985) guidelines, James and Schofield (1990) devised a method for calculating population energy needs. The results of this method applied to Algeria are given in Table (3). The method consists of splitting the population by gender and age, and then Basal Metabolic Rates (BMR) are calculated for each group (by age and sex) using formulae based on population weight. The estimation of the average total daily energy requirement (T) of an age group is calculated as the product of BMR and PAL. The application of this method for Algeria gives an average of per kaput requirements of 2100 Kcal per day.

The next step in the construction of a poverty line is to estimate the food poverty line that corresponds to the satisfaction of the 2100 Kcal a day. This step is very difficult to apply, as there are countless combinations of diets that give the same caloric content of 2100 Kcal a day. To minimise arbitrariness in setting the food poverty line we based our calculation on food expenditure at the good level of a poor household (lowest quintile) using the 1988-expenditure survey. We also used the table given by Autret (1978) that lists the necessary food expenditure for Algeria that was developed as part of a FAO study on nutritional requirements in Algeria. Table (4) below gives the content of the food poverty line by quantity and energy content of the goods regarded as minimal daily requirements of per capita food consumption.

Using 1995 commodity prices given in ONS (1998), the food poverty line was estimated at 12017 Algerian Dinars (AD) in current prices per annum. The corresponding real food poverty line was 4088 AD in 1989 prices. Data given in Table (4) permitted also to update food poverty line for 1967,1980,1988 using food prices data over the period 1967-1995 published by ONS (1998). The food poverty line (FPL) for these years are given in Table (5). The results show that between 1967 and 1988 the FPL increased from 519 AD to 2766

reflecting an average per annum inflation rate of 9%. The collapse of oil prices and the adjustment process that followed pushed the FPL to 12017 AD reflecting an average inflation rate of 21% pa. As we do not have detailed expenditure pattern similar to that in 1988, we assumed that expenditure structure was fairly constant. This is a fair assumption, as the data on expenditure pattern over 1967 to 1988 does not show a dramatic shift.

The computation of non-food component of the poverty line is even more problematic than the food component. These methods consist of either scaling-up food poverty line or assuming ad-hoc non-food basic necessary expenditure. Orshansky's method consists of dividing FPL by the average food share of average expenditure, or by the food share of people belonging to the lowest decile, is a straightforward method of evaluating the PL. According to this method, the PL evolved from 798 AD in 1967 to 4255 AD in 1988,and to 18488 AD in 1995[33]. These figures are consistently higher than those given by the World Bank for 1988[34] and 1995. This is due to the fact that the share of food in total expenditure is low even for people at the bottom decile. For example the expenditure data for 1988 show that food share of the lowest decile was 65% whereas that of the average expenditure was 52.5%. These proportions imply high total poverty lines, and of course a higher poverty levels as estimated on the basis of these Pls.

The application of the Ravallion (1994) method, which is based on the methodology, explained above, permitted to evaluate a total poverty line based on people having expenditure equal to their food expenditure. By looking at total and food expenditure we evaluated non-food expenditure and added it to food PL. Ravallion's estimates is in fact lower than Orshansky's PL. The method also permits the computation of a lower and upper Pls. (Table 5). Given the fact that the various computed poverty lines fall within the values of the lower and upper poverty lines, it is fairly correct to take these two levels as reflecting the range of variation or the degree of uncertainty associated with the estimation of the poverty lines.

The above mentioned methods are based on scaling up the FPL by a fraction which was justified by different arguments. The direct estimation of non-food component could be based on an ad-hoc choice of basic necessary expenditure. This choice could be explained and justified on basic need arguments, which has a long tradition in applied poverty analysis since the work of Rowntree. By looking at the non-food expenditure of the lowest quintile it is fair to consider that clothing and furniture, housing, health, transport, and education could be considered as components of basic non-food expenditures. By adding the poor's expenditure on these components we computed non-food expenditure based on Cost of Basic Needs (CBN) which are given in Table (5). The figures of the PLs obtained from CBN give the nearest estimates to the lower PL's.

These estimates could be regarded as reliable figures of the cost of basic needs in Algeria and could be used for the evaluation of poverty levels. More work is needed in order to reconcile these figures. One way to move forward is to have more detailed data on expenditure, as the lack of detailed data increases easily increases the error margin of the PL estimates. Also some methods are based on different methodologies and are not comparable, and indeed give different outcomes. However lower and upper Pls could be regarded as the margin of variability of these lines.

---

[33] Assuming food share of the lowest quintile as calculated form expenditure distribution.

In order to highlight these findings, Table (6) summarises the main poverty parameters between 1967 and 1995. Mean expenditure in current terms increased from 1636[35] AD in 1966 to 35263 AD in 1995. In terms of PPP in 1985 international prices[36] average expenditure increased substantially between 1966 and 1980, whereas it declined severely afterwards, reflecting a sharp decline in the welfare of the population. The lower and upper poverty lines also followed this pattern, because they were estimated using the same inflation figures. The lower poverty line as a proportion of mean expenditure fluctuated between 41% and 58%, whereas the upper poverty line was between 50% and 70%. These ranges reflect plausible estimates of PLs. In fact these proportions are not far from those reported by Demery and Squire (1996) for some African countries.

Data Sources

All the data concerning per capita distribution and the calculation of poverty lines were taken from various official sources. The data for the 1966 survey published by the AARDES (1968) covers Algiers only. Poverty estimates at the national level assumed the same expenditure pattern. The aggregate results should be read with extreme caution as in 1966 more than 60% of the population was rural. The 1979/80 expenditure survey published by MPAT (1980), covers the whole country in a more detail both geographically and socially. The 1988 expenditure survey results published by ONS (1988) although covers the whole country are less detailed than in 1988. The 1995 data were taken from a published note by the ONS (1997). This survey was conducted as an LSMS as a part of the structural adjustment program applied by Algeria between 1994 and 1998. The published data of these surveys were sufficient to estimate aggregate poverty indicators that are reported in the appendix. All the data are expressed in per capita terms not as a household average.

<u>Poverty Levels and trend</u>

After having estimated and chosen the relevant poverty lines, and using per capita expenditure distribution for the 1966, 1980, 1988 and 1995 consumer surveys, the various poverty measures were calculated using POVCAL of Chen, Datt and Ravallion (1991). Aggregate and sectoral poverty levels for survey years are summarised in Table (7) and Table (8). According to these estimates the proportion of poverty as measured by the head count was 54% in 1966 which dramatically derides to 28% in 1980. This is due the real appreciation of per capita consumption and the improvement in the income distribution. The decline in the degree of poverty continued through to 1988, where the head count decreased to just 16%. Per capita expenditure was further improved as higher oil windfalls after 1979 permitted to finance a consumer boom in the first half of the eighties. However, the prompt decline in oil price, the acceleration of inflation and the decline in per capita income pushed the proportion of poverty to 22% giving an increase of 38% between 1988 and 1995. This increase could have been even worse if the government lifted subsidies earlier than 1994. By applying the upper poverty line head count decreased from 71% in 1966 to 26.71 % in 1988 and then increased to 33.25% in 1995. The pace of

---

[34] Poverty lines used by the World Bank were calculated by the author from published poverty levels figures given in World Development Report (2000).

[35]This figure was derived from the survey data and corresponds only to the average expenditure of Algiers City. Macroeconomic data indicates that mean households consumption for 1966 was 778 AD only.

[36] Figures computed from the Heston and Summers (1993) International Comparison Program (ICP) data.

decline in absolute poverty between 1966 and 1995 was 60% compared to 53% for the relative poverty. The differences are caused by the fact 7% of the population in 1995 who crossed the lower poverty line, but still regarded as poor by the upper poverty line. The difference in the head count between as measured by the lower and upper poverty line declined from 18% in 1966 to just 11% in 1995.

The poverty gap (P1) estimated using lower poverty line which measures the shortfall in expenditure was estimated at 20% in 1966, declined to just 8.55% in 1980, and declined further to just 3.28% in 1988, but increased to 5.83% in 1995. This trend decline in P1 would suggest that poverty alleviation by transferring income from non-poor to poor people by means of perfect targeting would represent only a fraction of the cost as compared to universal food subsidy cost.

The depth of poverty (P2), which summarises expenditure inequality distribution among the poor, also reflects an important fact about poverty distribution in Algeria. The index declined from 10.94% in 1966 to just 2.11% in 1995. Low P2 figures mean that in poverty alleviation strategies, the choice of who first to lift out poverty is risk neutral. The sensitivity of poverty indices to growth and inequality are measured by their corresponding elasticities. The various estimates show that the positive impact of expenditure growth on poverty is very strong. The growth elasticity with respects the head count ratio increased from −1.41 in 1966 to -2.54 in 1988 but declined to −1..97 in 1995. Holding income distribution and cost of living constant, a real 11% increase in per capita expenditure would almost eliminate poverty in Algeria using 1995 figures. Despite the stability of income distribution during the years (see Tables 9 and 10) the expenditure distribution across brackets suggests that inequality elasticity is as important as growth elasticity. An increase of 1% in Gini coefficient would worsen poverty level by 2.13% and the poverty gap by 5.06% and poverty severity by 7.99% for 1995. The Marginal Proportional Rate of Substitution (MPRS) measure how much growth is needed in order to offset the negative impact of inequality on poverty indicators. According to these figures a worsening of income distribution would need as much as growth in order to offset its impact on the head ratio. However, twice as much as growth is needed in order to halt worsening in the poverty gap and poverty severity. In this context a growth policy that worsens income distribution would harm the poor instead of benefiting them. A proper growth policy would combine some redistribution policies and poverty alleviation schemes in order enhance the process of "trickling down" of growth.

The aggregate poverty measures reported above were further detailed across sectors in order to enhance the poverty profile. Table (8) reports sectoral poverty indicators for 1988 and 1995. The expenditure data was split into rural and urban, however, the same poverty line was applied to both sectors. According to lower poverty line, the aggregate poverty level was 15.81% in 1988 compared to 21.83 % in 1995. The urban poverty level was 11.89% in 1988 and increased to 16.18 % in 1995. Rural poverty level increased from 26.06 % in 1988 to just 27.36 in 1995. Using population distribution between urban and rural sectors for 1988 and 1995 the weighted contribution of sectors to aggregate poverty is presented in Table (12). Despite the increase in urban poverty proportion, its contribution to aggregate poverty declined from 54 % in 1988 to just 37% % in 1995. By contrast the share of urban poverty severity increased between the two periods.

In order to understand the disparities in poverty across sectors, the impact of unequal expenditure means was simulated and results are reported in Table (11). By assuming equal expenditure means set at the

aggregate level, the differences between actual and simulated poverty indicators at the aggregate level would not change significantly. Poverty across sectors would be redistributed significantly resulting in an increase of urban poverty by 26.3% in 1988 and 25.6 % in 1995. Rural poverty would be decreased significantly by 33% in 1988 and by 19.58% in 1995. The results of this exercise reflect the policy choice in eradicating poverty by just closing the gap in income disparity between rural and urban sectors. The population dynamics and its interactions between sectors would impact poverty between different periods. Population dynamics impact on poverty could also be decomposed into intra-sectoral effects, population shift, and interaction shift. The results of this decomposition shown in Table (13) reveal that the increase in poverty indictors between 1988 and 1995 was mainly due to the intra-sectoral effects. The urban intra-sectoral effects are more pronounced than rural sector effects. Inter-sectoral population shift had a positive impact on poverty indicators, because of the population transfer from high poverty region to low poverty region. The interaction effects increased poverty indicators, but only marginally.

Rural poverty is more or less double urban poverty. This structure is inherited from the colonialism as clearly reflected by the poverty measures of 1966. In this year nationwide poverty was estimated to 53.67% compared to just 14.91% for Algiers. At that time urbanization was less than 40%. The decline in aggregate poverty was 38% between 1988 and 1995. However urban poverty worsened by as much as 36% compared to only 4.98% for rural poverty over the same period. These results are understandable for the case of Algeria where urban population are more subjected to the decline of public employment, mostly urban, and to wage freeze and price increases. However, rural population is mostly food producers working to their own account, thereby less vulnerable to price and income fluctuations as their urban counterparts.

The increase in poverty indicators between sectors and at the aggregate level could be decomposed into growth and inequality effects, and to a residual that could not be accounted for. Results in Table (14) shows that the decline in aggregate poverty between 1980 and 1988 by 12.2 % was mainly due to growth (-13.87%), however the increase in Gini index would have contributed by 4.83 % but other factors as captured by the residual offset this increase. This pattern was totally reversed between 1988 and 1995. Aggregate poverty proportion increased by 6.02 % due to a decline in growth by 7.14, however moderated by an improvement in income distribution by –1.13%. The increase in rural poverty by 1.3% was caused by a decline in growth of 4.58%, however, strongly moderated by the improvement in income distribution, which decreased poverty by 2.77 %.

The regional distribution of poverty in 1980 and 1988 is given in Table (15) and (17) and presents a detailed poverty profile for Algeria. Detailed data for 1995 were not published. Poverty computation reveal that in 1980 income poverty among low-income category was doubles that of medium income categories. In 1980 state officials were the least poor in the country. Peasants were the worst off followed by urban workers. The average expenditure of self-employed was not far from that of workers and given their head count ratio, they could be regarded as a poor category. Combating poverty require to target low-income groups, such as peasants workers and self-employed. The regional distribution of poverty indicators does not reveal the wide differences as in social categories. However, urban zones are the least poor compared to Mountain dwellers and those living in the High Plateau and the Sahara. More detailed data on regional poverty distribution given in Table (16) revels that poverty is severe in small rural villages as compared to large urban cities and urban villages. In 1988 the

situation of all social categories improved as compared to 1980. Seasonal agricultural workers are the most poor, followed by workers and self-employed. Despite that head count ratio declined considerably between 1980 and 1988, it seems that the social map of poverty did not change considerably.

The Algerian population increased from 12.24 million in 1966 to 28.06 millions in 1995. During the same period the proportion of the rural population declined from 61.6 % in 1966 to just 43.4% in 1995. Applying the poverty proportion calculated using the lower poverty line gives the evolution of the number of poor between 1966 to 1995 (Table 19). The number of rural poor declined from 4.04 m to 3.319 m in 1995 however registered an increase of 8.5% between 1988 and 1995 despite the decline in income inequality. The number of urban poor increased from 0.7 m in 1966 to more than 2.5 m in 1995. The rate of increase between 1988 and 1995 was more than 79 %. This of course was amplified by the rapid increase of the urban population by 3.8 m and the rapid increase of the head count from 11.89 to 22.26 %.

It was mentioned above that the poverty gap could be used to measure the amounts of money needed to transfer from non-poor to the poor in order eradicate poverty under different hypotheses of targeting. In the event of perfect targeting of knowing the poor and their incomes, the elimination of the shortfall in 1995 would require from the state to supplement individual expenditure only by 986 AD per annum (Table 20), which represents only a small proportion of the poverty line of around 6%. This is so because the poverty gap in 1995 was only 5.83%. Closing the total gap would require AD 27.67 Bn, which represent 1.4% of GDP less than the cost of direct food subsidy. In case of a broader perfect targeting which ignores the amount of the shortfall, and transfers the whole amount of the poverty line to all identified poor, the cost would rocket AD 99 Bn (5% of GDP).   This figure would quadruple to 474 billions AD if the amount is distributed to the whole population as in the case of imperfect targeting.

The government shifted away from direct food and services subsidy because of its exorbitant costs to the budget. This subsidy was replaced by a system of direct help to those unable to work, in addition to other schemes designed for those able to work. Those working and paid at the minimum wage or less would receive less than the poverty line and excluded from the poverty alleviation programs, while loosing welfare in terms of forgone consumption as a result of this transformation in the form of help to the poor. Therefore, people not receiving direct cash and earning less than a per capita poverty line would be trapped into poverty. For example the minimum wage was only AD 5600 per month in 1995. For a family of seven and a single wage earner, this amount represent only 56% of the poverty line. The situation is even worse for someone working in a PWP, or for someone receiving direct cash help from the social fund is not different. Government should use these tools (minimum wage, direct cash transfers, public work programs) in relation to the estimates of the poverty line in order to seriously alleviate poverty. The minimum wage would have been set at AD 9865 instead of AD 5600 in order to enable a minimum wage earner family of seven to escape poverty in 1995.

The results on poverty presented above were based on lower poverty line that took into consideration the non-satisfaction of basic needs. Poverty alleviation strategies should rank poverty according to its severity and depth. In this context priority should be given to the elimination of extreme or ultra poverty. Table (18) give some estimates of extreme poverty in Algeria based on the non-attainment of food poverty line and 80% of this line as postulated by Lipton (1983). The proportion of people living in extreme poverty declined consistently

between 1966 and 1980. It reached 1.54% when 80% of FPL was used as an anchor. However the extreme poverty increased between 1988 and 1995 to almost 4.39% of the population. This implies that 1.23 million people experienced extreme poverty in 1995. Their average annual spending was 8584.35 AD giving an expenditure shortfall of 8328.65 AD. Eliminating such poverty would require the state to transfer to them around AD 10.25 billions which represent only 0.005 of GDP in 1995.

Inequality and Income Distribution

Expenditure distribution data allows assessing inequality and income distribution situation for the years considered. Income inequality of Atkinson, Thiel, Gini and Coefficient of Variations are given in Table (9). Comparing the Gini coefficients with those published by Deininger and Squire (1996) and in WDR (2000) for various LDCs confirm that income inequality in Algeria is moderate. According to the data in 1966, Gini index for Algiers was 30.74. Thanks to the egalitarian policies of the seventies, the index increased only marginally between 1966 and 1980. The index further increased in 1988 to 38.79. The deterioration of income distribution in parallel with real consumption decline, meant that low-income categories bear most of the welfare loss. The increase is more pronounced for rural areas where Gini increased from 33.32 in 1980 to 40.13. It is very difficult to reconcile this pattern with rural policies and radical agricultural reforms that were in favor of land-less peasants. This seemingly conflict could be the result that land redistribution was not sufficient to generate sustainable incomes of the peasants working the cooperatives.

In 1995, Gini index decreased to 35.88 and the same happened for both rural and urban. This was accompanied by a real decline in average per capita consumption. To understand what happened to the Gini index Table (10) compares expenditure distribution between 1988 and 1995. The distribution of the bottom half did not change for the urban sector, whereas this segment lost about 5% in the rural sector. The top decile in the aggregate distribution lost about 5% in favor of the lower deciles in the upper half. The same pattern happened for the urban population. However, the rural top decile lost 2% further reinforcing the upper half of the distribution density. These changes are probably the result of the restructuring policies operated since the early nineties. The decline in public sector employment, currency devaluation and inflation and the gradual liberation of the economy are the potential candidates that shifted the expenditure distribution.

Table (10) could also be used for dominance analysis. It is clear that both aggregate distributions do not intersect except at the top decile. As poverty comparison would exclude shifting the poverty line beyond the bottom half, it is safe to conclude that poverty comparison between 1988 and 1995 are robust. This is not true for the rural densities where they intersect at the sixth decile. Comparison beyond this point would make comparison inconsistent. Given the fact that poverty lines gives a poverty proportion of no more than 41% which corresponds to the third decile it is safe to compare rural poverty between 1988 and 1995 within the limits of the lower and upper poverty lines.

Efficiency of Poverty Alleviation Schemes and the Future of Poverty

The government shifted its social policy from direct food subsidy that cost the treasury more than 5% of GDP in 1995 to a system of direct help. The reforms reduced considerably the cost, but did not permit to

improve poverty indicators, although it appears that income poverty did not considerably deteriorate between 1995 and 1999. Despite a rapid decline of inflation from 29.8% in 1995 in to just 2.6% in 1999 (see Table 22), real mean expenditure stagnated between 1995 and 1999. Assuming no significant change in income distribution between 1995 and 1999, simulating the growth of real per capita expenditure on the 1995 distribution gave a stationary poverty indices for this period. Real mean per capita expenditure increased from 8940 AD in 1995 to just 9045 Ad in 1999. Despite a rapid dis-inflation in this period growth of expenditure was insignificant. This poor record is the direct result of the stringent demand management policies applied during the eighties.

The poverty alleviation package implemented since 1992 in relation to the phasing out of basic good subsidy would trap people in poverty as far as cash transfer and incomes of people in the bottom of the scale do not evolve faster than the poverty line. A few examples from reality would prove this point. Starting by wage earners, the legal monthly minimum wage of 8000 AD applied since January 2001 represent approximately 4 times the poverty line. This salary will keep a family of four just on the poverty line. Given the fact that in Algeria average family is composed of seven people, it is clear that a single minimum wage earner could not keep his family out of poverty if not extreme poverty. In fact even for average earner the outlook is not much different. In 1996 average wage was 5 times the poverty line marginally higher than minimum wage earner. The situation is even worse for people in public working programs, where the wage is only half the legal minimum. This means that only two people could be kept on the poverty line. As for people receiving government cash transfer of 900 AD per month plus child benefit of 120 AD, the average home take transfer is only 6120 AD per person. This figure represents only 27% of the poverty line.

The actual social safety net is not designed to lift all poor people out of poverty, but instead lessens poverty severity by providing incomes less than poverty line. Despite strong trade union pressures and their role in wage setting through a national wage bargaining system, real wages declined severely, eroding real purchasing power of consumers. Between 1990 and 1996 wages of workers were increased by 136 % while inflation was 155%, thereby wages eroded by 18.8 %. Wage erosion was even higher for managers by 37% and was 28.4% for technicians and supervisors. Linking wages to inflation or anchoring minimum wages to poverty line would permit to alleviate poverty. However, given low labor productivity and inelastic supply it will only create an inflation spiral.

In the absence of a strong growth poverty in Algeria will continue to remain high reflecting the inability of current structural reforms in addressing the poverty problem in Algeria. In fact using Kanbur (1985) formula it would take nine years to bring initial mean income of the poor to the poverty line, assuming equal proportional increase in income for every member of the population. Given the improvements in the oil price during 2000 where export proceeds registered a record high. Medium term prospects for Algeria associated with a likely strong oil price outlook (2000-2004) was simulated by the IMF (2000). This exercise shows that future growth would be quite strong. Using the GDP growth figures for 2000-2004, it is expected that per capita real expenditure would increase steady from 1.6 % in 2000 to 4.20 in 2004. Given low inflation outlook for the same period, poverty line would increase by 3% from 23774 Ad in 2000 to 26758 Ad in 2004. Mean expenditure would grow faster from 50835 AD in 2000 to 64828 AD in 2004. The implied mean expenditure and poverty line growth was simulated using 1995 expenditure distribution.

This growth pattern would bring poverty down from its level in 1999 of 21.34 % to just 15.61 % in 2004 (Table 21). This exercise shows that strong real growth of around 4% pa in per capita expenditure is sufficient to substantially lower poverty in Algeria. Strong growth in Algeria is up to now associated with oil windfalls and does not necessarily mean good growth in non-hydrocarbon sectors. Given the decline in manufacturing sector and the large volatility in agricultural growth it is very difficult to ensure that oil shock would translate into growth. This will largely depends on the future government policy in the areas of public sector restructuring, employment and investment.

Conclusion

This paper presented a comprehensive study of poverty dynamic in Algeria between 1966 and 1995. It argued that roots of poverty in Algeria goes back to the days of French colonialism. By the independence in 1962 more than 70 % of the population of Algeria were considered poor. The successive development efforts implemented since the early sixties aimed at modernizing the economy, spurring growth and redistributing its fruits by installing a very generous social net based on providing goods and services at a subsidized prices and allowing free access to health, education and cheap housing rents. The egalitarian program was financed by oil windfalls and external debt. By 1988 poverty decreased sharply from 56% in 1966 to 16%. Most of the social indicators also improved.

This system was very vulnerable to oil price shocks that was amplified by a heavy bureaucratic public sector. In 1986 price oil declined sharply, causing the collapse of the development model. Per capita expenditure declined as a result of soaring inflation and stringent measures of the IMF led stabilization and structural adjustment programs. By 1995 poverty was on the increase to 23%. The number of poor increased to nearly six millions. Growth collapse contributed to this increase more than deterioration of the income distribution. Algeria poverty is mainly caused by growth collapse rather than income distribution deterioration. Government social policy remained based on free universal access to health and education and other basic services. The elimination of food subsidy in the nineties was replaced by a social safety net. Despite the comprehensiveness of this net in term of coverage, the transfers are thinly distributed and do not permit to alleviate poverty. However, they contribute to lessen poverty depth. The paper demonstrated that strong growth is a good devise for fast reduction in poverty. The big challenge for the Algerian government is how to use oil windfalls in generating pro poor growth through employment generation and consolidating the social safety net for the unable to work.

References

Atkinson, A (1987). "On the Measurement of Poverty". Econometrica V55, pp.749-64.

Autret, M (1978). "La Situation Aliementaire en Algerie". Food and Agricultural Organization. Roma Italy.

Beltas, A (1993). " Money, Inflation and Causality in a Financially Repressed Economy: Algeria 1970-1988". Applied Economics. Vol25, No 4, April, PP. 473-80.

Benachenhou, A (1979). " La Formation du Sous Development en Algerie". Office des Publiucations Universitaires. Alger.

Benachenhou A (1982) "La Migration Rurale en Algerie". Entreprise National de l'imprimerie Commerciale. Alger.

Bouzidi, A (1984) "Questions Actuelles de la Planification Algerienne", Entreprize Nationale des Arts Graphiques. Algeria.

Chen S, Datt G, and Ravallion M (1993) . " Is Poverty Increasing in the Developing World", Policy Research Working Paper, The World Bank WPS 1146

Conseil National Economique et Social (1999). "Projet de Rapport National sur le Development Humain". Alger.

Conway Patrick (1988) Windfalls in a Socialist Economy ", in Gelb, A et al "Oil Windfalls: Blessing or Curse?" Oxford University press. England.

Datt, Gurav (1991) "Computational tools for poverty measurement and Analysis Using Grouped Data", Welfare and Human Resources Division, World Bank. Washington. DC.

Datt, G and Ravallion, M (1992), " Growth and Redistribution Components of Changes in in poverty Measures: A Decomposition with Applications to Brazil and India in the 1980s", Journal of Development Economics, V38, pp.275-295

Deaton , A (1997). " The Analysis of Household Surveys: A microeconomic Approach to Development Policy". The Johns Hopkins University Press. Baltimore

Destanne De Bernis (1972). "Industrialising Industries and Economic Integration of LDCs". in Dimrco, L. International Economics and Development. Academic press

Economist intelligence Unit (2000)"Algeria: Country profile 1999/2000. London England

Economic Research Forum (1998) Economic Trends in the MENA Region, ERF Indicators. Cairo. Egypt

El-Ghonemy, Riad (1998). "Affluence and Poverty in the Middle East". Routledge, London

Essama-Nssah, B (1997) " Impact of Growth and Distribution on Poverty in Madagascar", Review of Income and Wealth, Series 43, No2, June, PP.239-252.

Feller, A (1996). "Algerian Adjustment Efforts Yield Broad Gains ".IMF Survey. July 29 1996. PP. 245-253.

Foster, J and Shorrocks, F (1988), " Poverty Orderings and Welfare Dominance", in W. Gaertner and Pattanaik, P (eds.), Distributive Justice and Inequality, Berlin, Springer-Verlag.

Foster J, Greer, J and Thoerbeck, E (1984), A Class of Decomposable Poverty Measures, Econometrica, V52, N03, and PP.761-766.

Foster, J and Shorrocks, F (1991), "Poverty orderings", Econometrica, V56, PP.173-177.

Fuchs, V (1967), "Redefining Poverty and Redistributing Income", The Public interest, 8, 88-95

Greer, J and Thoerbecke, E (1986) "A Methodology Food poverty Applied to Kenya." Journal of Development Economics. V24, PP. 59-74

Griffin, K (1976), Land Concentration and Rural poverty, Macmillan, London

Grootaert, C (1995) Analyzing Poverty and Policy Reform the Experience of Cote D'Ivoire
World Bank. Washington. DC.

Gueciour, A (1996) "Social Safety Nets: Experience of Arab Countries", In Poverty: Eradicating and Preventing. Report on the Experts meeting on poverty alleviation and sustainable livelihoods in the Arab States. UNDP

IMF (1977) Surveys of African Economies: Volume 7 Algeria, Mali, Morocco, and Tunisia Washington, DC

IMF (1995) Algeria: Background Paper, IMF Staff Country Report No 95/54

IMF (1996) Algeria: Selected Issues, IMF Staff Country Report No 96/71

IMF (1997) Algeria: Statistical Appendix. IMF Staff Country Report No 97/83

IMF (1998) Algeria: Selected Issues and Statistical Appendix. IMF Staff Country Report No 98/97.

IMF (2000) Staff Country Report N0 00/93 July 2000. Washington D.C.

James, W and Schofield, E (1990) "Human Energy Requirements: A Manual for Planners and Nutritionists". Oxford Medical Publications, Oxford. England.

Jbili A et al (1997) "Financial Sector Reforms in Algeria, Morocco, and Tunisia: A Preliminary Assessment", IMF Working Paper WP/97/81

ISSA(2000) " Social Security Worldwide". 2000. Edition 1. International Social Security Association. ISSA. AISS. IVSS. CD-ROM.

Kakwani , N (1980) " On a Class of Poverty Measures", Econometrica, V48, PP.437-446

Kakwani, N (1993) " Poverty, and Economic Growth with Application to Cote d'Ivoire", Review of Income and Wealth, Series 39, Number 2, June, PP.121-139

Kanbur, R (1985). Measurement, Alleviation and the Impact of Macroeconomic Adjustment. University of Essex Discussion Paper. No 125. Essex, England

Keypten, A et al (1988) "Some Methodological Issues in the Implementation of Subjective Poverty Definitions", The Journal of Human Resources, 23, 222-242

Kouidri, M (1998) "Population, Crise et Pauverete en Algerie : Quelles Perspectives". Paper presented at the CROP workshop on Poverty Alleviation Strategies in the Mediterranean Basin, Rabat Morocco

Lee, and Nellis, J (1990) Entreprise Reform and Privatization in Socialist Economies. World Bank Discussion Papers 104. Washington. DC

Lipton, M (1983) "Poverty, Undernutrition and Hunger", World Bank Staff Working Paper No 597, World Bank. Washington. DC.

Lipton, M and Ravallion, M (1993) Poverty and Policy. World Bank Policy Research Papers WPS 1130. Washington. DC

Nashashibi, K et al (1998) Algeria: Stabilisation and Transition to the Market, IMF Occasional Paper 165. Washington. DC

MPAT (1980) " Bilan de la Decennie Economique et Sociale". Alger. Algerie.

ONS(1988) Depenses de Consommation des menages 1988 ONS Collections Statistiques N45

ONS(1992) "Retrospectives 1962 –1991". N35 Series Statistiques. Special Edition.

ONS (1996) Statistical YearBook of Algeria National Board of Statistics. Algeria

ONS (1997) Depenses de Consommation des Menages Resultats issus de l'enquete sur lq mesure des niveaux de vies 1995 Donnees Statistiques N247

ONS (1998) Collections Statistiques N 76 1998 Indices des prix de la consommation Evolution de 1989 a 1997

Orshansky, M (1963) "Children of the Poor", Social Security Bulletin, 26 3-29

Orshansky, M (1965) " Counting the Poor, Another Look at the Poverty profile", Social security Bulletin, 28, 3-29

Osmani, S (1982) " Economic inequality and Group Welfare" Oxford University press, Oxford

Ravallion M (1998) "Poverty Lines in Theory and practice". Living Standards Measurement Surveys Working Paper. N133. The World Bank .Washington DC.

Ravallion, M and Huppi, M (1991), "Measuring Changes in Poverty: A Methodological Case Study of Indonesia During an Adjustment Period", World Bank Economic Review, Vol. 5. PP. 57-84

Ravallion, M (1992) " Poverty Comaraison : A guide to Concepts and Methods". LSMS Working Paper No 88. The World Bank. Washington. DC.

Ravallion, M (1996) "Issues in Measuring and Modelling Poverty". The Economic Journal, No 106, September, PP.1328-1343

Ravallion, M and Bidani, B (1994) "How Robust is a Poverty Profile". The World Bank Economic Review, Vol 8, No1, PP. 75-102

Ravallion, M et al (1991) "Quantifying the Magnitude and Severity of Absolute Poverty in the Developing World in the mid 1980s

Ravallion, M (1996) "Issues in Measuring and Modelling Poverty". Policy Research Working Paper No 1615 World Bank. Washington. DC.

Ruedy, J (1992) " Modern Algeria: The Origin of a Development of a Nation", Bloomington and Indianapolis. Indiana University Press.

Ruppert, E (1999) "The Algerian Retrenchment System: A Financial and Economic Evaluation". The World Bank Economic Review, Vol 13, No 1, PP.155-83

Rowntree, B.S (1901), Poverty-a Study of Town Life, London Macmillan

Sen, A (1976) "Poverty: An Ordinal Approach to Measurement", Econometrica Vol.45, PP.437-446.

Sen, A (1985), Commodities and Capabilities, Amsterdam, North Holland

Sen, A (1987), The Standards of Livings, Cambridge University Press, England.

Social Development Agency of Algeria (1998) "International Workshop on Social funds in MENA", Cairo, 13-16 December 1998.

Sorsa P (1999) " Algeria- The Real Exchange Rate, Export Diversification, and Trade Protection", IMF Working Paper WP/99/49

Standaert, S (1989). " Did Algeria Experience Repressed Inflation in the 70's ". Economic Modelling. Vol (6), No 1, PP. 94-104.

Subbaro, K et al (1997) Safety Nets and poverty Reduction: Lessons from Cross-Country Experiences. The World Bank. Washington DC.

UNDP (1999) Human Development Report

Van Eghen Willem (1998) Poverty in the Middle East and North Africa, in Nemat Shafik Prospects for MENA: from, boom to bust and back, Macmillan Press Limited and ERF

Villsenor, J, Arnold, B (1989) "Elliptical Lorenz Curves", Journal of Econometrics, Vol40, PP.327-338

World Bank (1994) Trends in Developing Economies, Washington, and DC.

World Bank (1995) "Claiming the Future: Choosing Prosperity in the Middle East and North Africa". World Bank Publications. Washington D.C

World Bank (1996) Staff Appraisal Report No 15392-AL: Social Safety Net Support Project

World Bank (2000) World Development Indicators, Washington DC.

Zheng, B (1997) Aggregate Poverty Measures, Journal of Economic Surveys, 11,2,123-162

Poverty Dynamics in Algeria

By

Laabas Belkacem, Ph.D.

Arab Planning Institute, Kuwait

February 2001

Table of Contents

Abstract

This paper is concerned with poverty dynamics in Algeria. It tries to shed light on its magnitude, severity and depth and distribution as well as evolution since independence. Based on data from four consumer surveys, new poverty indicators are estimated based on a rigorous evaluation of the poverty line. The paper also establishes a detailed poverty profile, thus unmasking poverty distribution across sectors.

Poverty is deeply rooted in Algeria since the days of colonialism. It is believed that before independence, between 65% and 75% of the Algerian population were living in destitute poverty. Post independence development efforts helped reduce poverty levels rapidly. In 1966 poverty level reached 56% of the population, however it was only 15% in Algiers city. This reflects the huge degree of regional disequilibrium. The increase of oil prices and the substance of the development policy are the factors that make the fortune and misfortune of Algeria. Huge oil windfalls and central planning accelerated development noticeably and decreased poverty significantly. In 1980 poverty head count reached 28.0 %. This trend continued and poverty reached 15% in 1988.

The development strategy created unsustainable growth that collapsed with the reverse oil shock of 1986. Delays in implementing economic reforms and political turmoil contributed to complicate the economic and social decline. By 1995 poverty was again on the increase and reached almost 22%. Income inequality in Algeria is not severe and the estimates give high growth elasticity. Rural poverty is almost double urban poverty. Given high urbanisation rate and high internal migration, population dynamics helps to moderately contain poverty.

Between 1995 and 1999 real per capital expenditure stagnated despite a significant dis-inflation that resulted from the application of stringent demand management policies as part of adjustment programs. Successful stabilisation did not spur high growth. As a consequence poverty levels stagnated around its level in 1995. In fact it would take almost nine years to bring poverty line to mean expenditure, assuming moderate growth. The significant improvement in the oil market outlook since the second half of 1999 helped to further improve the economic outlook of Algeria. If we simulate this optimist medium term outlook and assuming that per capita real expenditure would grow by as much as real GDP per capita, poverty would decline rapidly to its 1995 level.