Inequality, Economic Growth, and Equity tn the Middle East and North Africa (MENA)

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ABSTRACT

This paper aims to find the necessary means to eradicate poverty in the Middle East and North Africa countries through reducing income distribution inequality. In a first stage, it was shown through a nonlinear modeling the limit of the Kuznets theory and that economic growth in the region is far to reduce inequality and eradicate poverty within a reasonable time. In a second step, it was shown that growth must be pro-poor. And improving social equity through education and access to medical care is the essential key to reducing inequality and thus fight poverty. The study period runs from 1975 to 2015 and the sample is composed of 20 Middle East and North Africa countries.

Keywords: *Inequality, Economic growth, Pro-poor growth, Kuznets Curve.*

JEL classification : *D63, F43, C23*

INTRODUCTION

There are two main schools on the relationship between growth, inequality and poverty; on the one hand the old school of ***Trickle-down-development*** Kuznets (1955) for which the reduction of inequality and poverty, has resulted in the growth process and the newest school of **pro-poor-growth**, for which growth is a necessary but not sufficient condition. The proponents of the latter school such as Ahluwalia(1976), Dollar et Kraay(2002) ; Ravallion et Chen (2003); Bourguignon(2003) ; et Son(2004) have advocated to ensure social equity as a prior action to reduce inequality and poverty traps through a substantial improvement in human development indicators, mainly health and education.

In Middle East and North Africa countries (MENA), the poverty reduction problem appears to be more complex, as highlighted by Iqbal (2006).

Indeed, despite a substantial improvement in human development indicators, these countries have not experienced a significant reduction of poverty. The purpose of this paper therefore, is to identify factors that reduce inequality in the MENA region and that can lead to poverty reduction.

This study will be organized into four sections, the second section focuses on the literature review.

The third section proposes to test the relationship between inequality and social equity. And the fourth section concludes.

LITERATURE REVIEW

The new approach assesses the growth impact on poverty reduction, taking into account the level of inequality. Thus, the Kuznet thesis seems to be reversed, especially in Africa.

According to Ravallion et Chen(2002) and Son(2004) pro-poor growth is growth that increases the income of the poorest, more proportionally compared to the rest of the population. Therefore, the policies on growth for the poor are strongly linked to issues of improving equity and the resorption of inequality traps, because they aim to offer opportunities to the poor to participate in economic growth and to enjoy its benefits.

The notion of growth elasticity of poverty makes it possible to measure the sensitivity of poverty to growth and makes it possible to determine whether a policy of "adjustment to growth" is still relevant, and discusses the taboo issue of redistributive policies.

It should be noted that in their measurement of growth elasticity of poverty, pro-poor growth theorists[1] decompose it into two components: a growth effect (e_g) and an inequality effect (e_i).

$$e = e_g + e_i$$

If ei >0 means that growth has been favorable to the rich, and vice versa.

Thus, these authors assume that besides the growth rate itself it is necessary to look at its nature and determine if it is equal or unequal.

The elasticity depends for many authors on the level of inequality and level of development of each country or sub-region.

Conclusions based on empirical arguments diverge; some believe growth remains fundamental, for others neglect of inequality remains the real obstacle to achieving the Millennium Development Goals (MDGs), while others call for case by case Did not find a causal link.

Bourguignon's (2003) analysis establishes several links between growth, distribution and poverty according to initial conditions and political choices. Nevertheless, inequalities seem to be relegated to the background of development stakes by focusing on manifestations of the latter, such as imperfections in the credit or labor market without condemning them as such.

Heltberg (2004) showed that the impact of growth was different depending on the position of the poverty line in relation to the average income. If the poverty line is below average income, the impact of growth on the poverty line will be stronger; on the contrary, it will be lower if the average income is lower. For this author, the elasticity of poverty in relation to growth is a function of distribution and level of development.

Then Ravaillon in looking for the relationship between the Gini index, growth and poverty rate determines the following identity:

$$e_{P/Y} = (1 - Gini) \times g$$

- $e_{P/Y}$ denotes the elasticity of poverty in relation to growth.

- g denotes growth rate.

This measure is interesting but does not take into account the position of the poverty line. It is this same author inspired by Bourguignon, who will develop a method of decomposing the growth impact on poverty in growth effect and inequality effect.

Dollar and Kraay (2002) ignored redistributive policies, affirming that growth is neutral to inequality, and that it is determined by domestic policy choices.

For Stiglitiz (2015), the general compromise on the fact that we can achieve more equality, but only at the expense of overall economic performance, is not true. Indeed, given the extreme inequalities in many rich countries and the way in which they have been generated, greater equality and better economic performance are complements. In this respect, Stiglitz assumes that the use of GDP as a measure of growth by previous studies is not appropriated. He affirms that '' If we use the wrong metrics, we will strive for the wrong things…We need to focus not on what is happening on average -as GDP leads us to do- but on how the economy is performing for the typical citizen, reflected for instance in median disposable income. People care about health, fairness and security, and yet GDP statistics do not reflect their decline. Once these and other aspects of societal well-being are taken into account, recent performance in rich countries looks much worse. ''. Stiglitz suggests that, economic difficulties associated with growing inequality in rich countries can be mitigated through more investment in public goods; better corporate governance, anti-trust and anti-discrimination laws; a better regulated financial system; stronger workers' rights; and more progressive tax and transfer policies.

In a recent study of a sample of 19 European countries for the period 1985 to 2013, Baiardi and Morana (2016) showed a long-term, inverse U-shaped linkage between income inequality and economic development. Specifically, they find that financial deepening contributes to a more equitable distribution of income by lowering the turning point of per capita income. Thus, a country with more developed financial markets would reach the turning point of the Kuznets curve (1955) at a relatively lower income level than a country with a less

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[1] *According to the theory of pro-poor growth, reducing poverty requires a " growth effect "(which measures the impact of an improvement in average income in the absence of changes in its distribution) and" inequality effect" (resulting from a change in the distribution of income in the absence of any change in the average income).*

developed financial system, compatible with a direct link between financial deepening and growth, and the view that a threshold must be crossed before financial development leads to a reduction in inequalities. Development thinking about inequality and poverty seems to be locked in the ideological straitjacket of "adjustment to growth".

EMPIRICAL VALIDATION

Test of Kysnet's Development Hypothesis (1955)

In this section, we will study the causal link between per capita GDP and income inequality by referring to the work of Ahluwalia (1976) and Baiardi and Morana (2016) which tests the relationship between economic development and inequality. Thus we check if the Kuznets hypothesis that the poverty reduction is the result of the accelerated growth has been validated in MENA countries.

According to this theory, in emerging countries, a high level of inequality is the result of the process of growth itself and the relationship between inequality and average income forms an inverted U curve.

Several criticisms have been addressed to this theory (Anand and Kanbur, 1993; Deininger and Squire, 1996; Alesina and Perotti, 1993; Bruno, Ravallion and Squire, 1996; Barthélemy, 1995):

- First, this theory has ruled out any state policy aimed at reducing inequality, since the relationship between variables is deterministic.
- Second, it assumes that inequality is a given, since its evolution depends on economic growth

To test the validity of Kuznets hypothesis, a sample consisting of 20 MENA countries has been chosen: Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, Yemen, Sudan,

Mauritania, West Bank and Gaza. The study period runs from 1975 to 2015.

GDP and GINI data are successively taken from World Development Indicators of The World Bank (WDI).

As suggested by Baiardi and Morana (2016), consider the model:

$$GINI_i = \alpha + \beta \times GDP_i + \gamma \times GDPSQ_i + \varepsilon_i$$
(1)

Where $GINI_i$ denotes income distribution inequality in country i, GDP is the Gross Domestic Product, GDPSQ is square of GDP, and ε's are stochastic error terms. Eq. (1) represents a simple version of the Kuznets-quadratic which has been used in numerous studies of the relation between the level of income and its inequality. It permits, but does not require, an inverted-U relation of the kind suggested by Kuznets (1955). Following the vast literature on empirical tests of Kuznets's hypothesis, thow variants of Eq. (1) are also explored. One variant enters logarithmic transforms of the right-hand variables in terms of natural logarithm of GDP (LGDP) and its square (LGDPSQ). That form has also been used widely in the literature on Kuznets-hypothesis relative to income. Another version of that form omits the quadratic (logarithmic) term so as to give another indication of the correlational pattern between income and its inequality and to facilitate a comparison with some earlier research.

These variants may also help provide some indication of the sturdiness of the estimates.

Based on the longitudinal data described above, the tow variants of Eq.1 are estimated according to the existing literature, by the ordinary least-squares (OLS) procedure with heteroscedasticity-consistent standard errors. The estimation results are reported in the following table:

Table 1. *Estimates of Kuznets-type structures relating GDP and income distribution Inequality represented by GINI*

Regressor	Dependent variable GINI	
	(1)	**(2)**
C	50.66	41.35**
	(17.12)	(30.36)
LGDP	0.088	0.0020**
	(4.65)	(3.84)
LGDPSQ		-0,0001009**
		(-2.066)
R-square	0.03	0.09

NOB	820	820

Note. Relevant t-statistics based on heteroscedasticity-consistent standard errors are in parentheses. LGDP is the logarithmic transform of GDP. LGDPSQ is the square of LGDP. ** Denotes statistical significance at least at the 5% level.

According to the above estimation table, the estimated model of column (2) can be written as follows:.

$$LGINI_i = 41.35 + 0.002 \times LGDP_i + -0.0001009 \times LGDPSQ_i + \varepsilon_i$$

(1)

Turning-point LGDP** is given in terms of the notation of Eq. (1) of the text by:

$$LGDP* = \frac{-\beta}{2\alpha} = \frac{-0.002}{-2 \times 0.0001009} = 9.91080$$
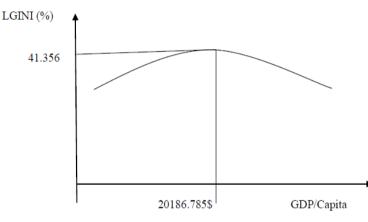
and GDP*=20146.785 **(2)**

The variation table of LGINI as a function of the variable LGDP is as follows:

Table 2: *Variation table*

LGDP	0		+∞
$\dfrac{dLGINI}{dLGDP}$	+		-
LGINI (%)	0	41.356 ↗	41.326 ↘ -∞

According to Kuznets's theory, the income distribution inequality curve measured by the GINI index as a function of GDP per capita is concave and it is in the inverted U-shaped.

Figure 1: *Kuznets curve in the case of MENA countries*

The results show that, with the exception of the Gulf Cooperation Countries (GCC), the rest of the MENA countries have incomes lower than $ 20,186.785, which correspond to the turning point.

Thus, for MENA countries other than GCC, inequality increases when the product per capita increases. In reality, these countries are still too far from the turning point from which growth can significantly reduce inequality (see table 3). This finding implies that during the development process the MENA region will reach even higher levels of inequality, allowing holders of capital to generate profits, which will benefit ultimately to the poorest.

Table 3. *Gap between GDP per capita (PPP) and the Kuznets threshold*

Country	GDP per capita **2013 (USA $)**	GDP-GDP*
Algeria	14687	-5459,785
Bahrain	46946	26799,215
Egypt	10891	-9255,785
Iran	17303	-2843,785
Iraq	14895	-5251,785
Jordan	10880	-9266,785
Kuwait	71312	51165,215
Lebanon	13938	-6208,785

Libya	14154	-5992,785
Morocco	7491	-12655,785
Mauritania	3912	-16234,785
Oman	38234	18087,215
Qatar	143788	123641,215
Saudi Arabia	53430	33283,215
Sudan	4069	-16077,785
Syria	5285	-14861,785
Tunisia	11397	-8749,785
United Arab Emirates	70238	50091,215
Yemen	3785	-16361,785
West Bank and Gaza	4509	-15637,785

Source: author's calculation based on World Bank 2015

The problem is that it is not logical to wait the situation where growth would be beneficial to the poor, hence the theory of ''pro-poor growth'' where growth becomes a necessary but insufficient condition for reducing inequalities. According to this approach, poverty reduction does not happen indirectly, but seat the poor at the center of the growth process.

Estimation of Relationship Between Inequality And Social Equity

$$GINI_{it} = \alpha_i + \beta_1 Educ_{it} + \beta_2 Health_{it} + \beta_3 Lib_{it} + \beta_4 Urb_{it} + \beta_5 Credit_{it} + \gamma_t + \varepsilon_{it} \qquad (3)$$

Where,

- GINI: it is the dependent variable of household income inequality and is determined by the Gini index;

- α_i : Individual effect;

- Educ: Variable indicating human capital, is measured by public spending in education as a percentage of GDP. The choice of this variable is justified by the fact that the improvement of human capital will reduce the pay gap.

- Health: It is a variable that measures social equity, it indicates the access to medical care for children. It is measured by the percentage

- of children vaccinated against common diseases, such as measles, diphtheria, pertussis and tetanus. Indeed, the concept of equity refers to a set of social vulnerability variables that consider the degree of accessibility to basic structures.

- Lib: it is the variable that indicates the level of civil liberty, it is measured by the Freedom House Index (FHI) . This index varies from 1 to 7. 1 represents the greatest civil liberty and 7 indicates total freedom absence. The criteria taken into account to

In this section we will analyze the impact of a set of variables of equity and human capital on inequality. Starting from a panel data analysis that considers the heterogeneity of countries, we test the influence of a set of explanatory variables on the inequality variable, measured by the Gini index.

The theoretical model

The model to estimate, is as follows

establish the index are: freedom of expression, right of assembly and education, freedom of religion, rule of law, freedom of economic activity. This index allows us to appreciate how people are able to implement their abilities.

- Urb: This is a variable that is interested in urbanization. it is measured by the percentage of urban population to the total population. So according to Kuznets, the rural exodus and the upgrading of the remuneration of inter-sectoral factors of production, lead to an increase in inequalities in the early stages of development.

- Credit: This variable measures the efficiency of the banking system. It is the ratio of domestic credit to GDP. It is considered that a favorable economic environment should allow the poorest people to access to new financial resources.

- γ_t : Denotes the temporal shocks;

- ε_{it} : Residual component.

According to the existent literature, the directions of the expected relationship between inequality and each explanatory variable used in the model are presented in the following table:

The correlation test shows that there is no bias collinearity between the variables introduced into the model.

Table 4. *Sense of expected relationship between inequality and each explanatory variabl*

Variables	Expected sign
Educ	-
Health	-
Lib	+
Urb	+/-
Credit	-

Table 5. *Correlation test of variables*

	Educ	**Health**	**Lib**	**Urb**	**Credit**
Educ	1				
Health	0,2130	1			
Lib	-0.5714	-0.0421	1		
Urb	-0.2632	0.3989	0.5998	1	
Credit	-0.4989	-0.3324	0.6111	0.0389	1

The data come from World Bank statistics and to estimate the model, we use the generalized least squares method (GLSM).

The estimation of the relationship between inequality and social equity is given in the following table 6:

The estimation results

Table 6: *Pro-poor model estimation*

Explanatory variables	Coefficient	Standard Error	t_{cal}
Educ	-7.65*	0.675	-11.33
Health	0.202*	0.050	4,03
Lib	3.11*	0.378	8,22
Urb	2.65*	0.433	6.12
Credit	-0.61	0.685	-0.89
R-sq: within 0.58 Between 0.70 Overall 0.75 Hausman Test Chi2=822 pb>Chi2=0.71			

*: significant at the 5%, **: significant at the 10%

The variable Lib, which measures the level of civil liberty, is positively and significantly related to the income inequality distribution. Thus, a favorable legal framework should promote the individual entrepreneurial freedom, which promotes the reduction of inequalities.

The sign of the Health variable is unexpected; it varies in the same direction with inequality index. However this can be explained by the low level of health services in most countries of the region. social equity measured by the medical services has not yet reaches the minimum threshold at which it starts to negatively affect the income distribution inequality.

The fourth variable, relative to the urbanization impact on inequality confirms the Kuznets hypothesis on internal migration. The Urb variable is significant and has a positive sign; since the rural population leaves rural areas, they reach regions where wages are generally higher but where significant inequalities persist.

The results also show the major role played by human capital variables and the banking sector in reducing inequality. The low significance of the variable that measures the financial development (Credit), can be explained by the evolution of the informal sector at the expense of the formal sector due to political unrest experienced in the region during the study period.

CONCLUSION

In this article we tried to find the necessary means to ensure the equality of income distribution in MENA countries, with the aim of eradicating poverty. In a first step the Kuznets hypothesis has been tested through a second degree polynomial function, between inequality measured by the Gini index and the per capita income measured by GDP per capita. The

results showed that the per capita income of each MENA country other than the Gulf Cooperation Countries is below the point at which it begins to reduce inequality.

By pursuing the logic of Kuznets, the results show that it would be difficult to reduce the income distribution inequality in a reasonable time through the improvement of GDP. Indeed the GDP threshold at which growth begins to reduce inequality is very far away, and then this same threshold depends on the political and economic environment. Thus, seeking alternatives to reduce inequality and eradicate poverty become necessary. This is the subject to the second estimate, which assumes that the reduction of inequality traps requires the improvement of social equity. The results of a linear regression with random effects have shown the major role played by human capital measured by public spending in education as a percentage of GDP and access to medical care measured by the percentage of children vaccinated against common diseases in reducing inequality. However, these results must be taken with caution, in fact without investments in productivity and in sustainable creation of job positions, the mere investment in human capital leads to massive brain drains. It is shown that brain drain reduces the economic growth rate and generally hurts the non-emigrants through the static income-distributional effects and the dynamic damage on economic growth and human capital accumulation[2]. And therefore, investment in human capital will be an unproductive investment with no significant effect on reducing inequality.

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