Middle Class and Pro-Poor Growth in Egypt:

The Missing Connection

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Abstract

Assessing whether distributional changes are "pro-poor" has become increasingly widespread in academic and policy circles. Based on the methodology of Ravallion and Chen (2003), Kakwani and Pernia (2000) and Kakwani, Khandker, and Son (2003) using grouped data, the paper generates three indices to test whether distributional changes were indeed pro-poor during the period (1990-2008). Another issue is whether pro-poor judgments should be correlative with the size of the middle class. The paper presents the evolution of middle class in Egypt using different thresholds. The middle class in Egypt has followed the path of bulging in size under a certain threshold even if growth was not pro-poor growth.

Introduction

The change that swept the Arab region unleashed new horizons of thinking, especially when the people who led the revolutions were not from the poor class, but came from the middle class, who Birdsall (2011) called "the catalyst middle class." Nevertheless, the MENA region has the largest proportion of the population which can be considered a middle class among the six regions; it increased from 75.5 percent of the population in 1990, to 78.7 percent in 2005, according to Ravallion (2010). The political uprising which was sparked by what conventionally is considered a middle class citizen (Bouazizi from Tunisia) urges a thinking of what lies under the surface of income lines, especially in countries that have achieved considerably rapid economic growth (Egypt & Tunisia).

On one hand, the appearance of a strong middle class in Egypt, according to the absolute threshold which represents about 85% of population in 2008 using Ravallion's thresholds, contrasts with the volatility of economic performance in the last two decades. While the relative threshold may delineate another view of a shrinking middle class, it presents about 43% of population by following Easterly (2001) and Zero middle class according Birdsall (2010). Sizing the population position between the national poverty line and the median may shed a light on a class many called middle class by crossing the lower threshold, but they are the most vulnerable to poverty traps. Birdsall (2013) described them as "New Strugglers."

One the other hand, economic growth is not the only driver of the increase in the size of the middle class (MC), the initial levels of income inequality also influence the extent to which the size of MC responds to economic growth. The interplay between the three elements of poverty, inequality and growth has a great influence on the size of the middle class, and these three elements constitute the essence of pro-poor growth policy. Recently, Egypt has adopted an inclusive growth concept which intends to achieve a pro-poor growth target in absolute terms, by making poverty reduction a priority and moving the poor to a new class. That would urge a further query regarding where those who departure poverty zone are moving to. This class that those who depart poverty are moving to is conventionally defined as neither poor nor rich, but "middle class" (Birdsall, 2007).

The study raises questions regarding the evolution of middle class size in Egypt. Which thresholds could be more proper to capture the real size of the MC in the income distribution ladder? Was growth pro-poor in Egypt?

The study contributes to the literature of measuring pro-poor growth (PPG) beyond the growth incidence curve. It generates the three main PPG indices; the Ravallion and Chen index (2003), Kakwani, Khandker, and Son (2003) and Kakwani and Pernia pro-poor index (2000). The main results show that growth was pro-poor during the two sub-periods periods (1990-1995) & (2004-2008). This drastic increase of the size of the MC, even when growth is not pro-poor, contradicts with the interplay factors of pro-poor growth; growth, poverty and inequality.

The rest of paper is structured as follows; Section two provides a review of the definitions of middle class, a regional comparison, the evolution of MC size in Egypt and a proposed median threshold. Section three presents the main indices of pro-poor growth. Finally, the paper ends with the conclusion.

Section Two: Middle class between definition and measurement

By 2030, two billion new people may join the world middle class (Wilson & Dragusanu, 2008). Some narratives argue that the next decades will witness major economic changes, as spending power shifts towards middle-income economies and away from rich countries. Especially with the rise of (BRICs), the high growth rates of China and India have played an important role in producing the middle-income bulge in the developing world as a whole, China alone accounts for half of the 1.2 billion new entrants to the middle-class over 1990-2005 according to Ravallion (2009).

In 2011, Branko Milanovic estimated that in the mid-nineteenth century, about half of global inequality could be accounted for by unequal incomes within countries and the other half to inequalities in average incomes across countries. Today the split is 80 percent in favor of cross-country income differences, with only 20 percent of global inequality accounted for by income differences within countries, which means that the global middle class has been reshaped dramatically, and that any shrinking of the size of the middle class means fighting against a rising tide of inequality.

Recent studies by Homi and Gerts (2010), Birdsall (2010) and Ali, A.A.G. (2010) have shed light on the middle class and its essential role in promoting world consumption. Especially after the latest world financial crisis and the downturn of the global economy, the middle class' role became a focus point to retrieve the balance of the world economy. Until the time of writing this paper, the definition of middle class is still hotly debatable; there is certainly no consensus among development economists on the definition of the income thresholds of the middle class in developing countries, where the main way for the middle class to expand is probably through poverty reduction. The middle class differs from place to place from one economy to another, and the standard of living of a person classified as 'middle class" depends on the average level of income of the country, so in a low income country the middle class may correspond to the poor in a high-income economy.

The problem starts with defining who we are talking about

Adam Smith's definition of classes is based on the objective position of the individuals who constitute them in economic life. In other words, the objective class is considered to be a consequence of his or her specific economic function. Smith presented the classical school where classes were categorized into three groups; the capitalists (owners of the means of production), who gain profit as income; the workers who gain wages as income; and the land-owners, who gain rent as income (from the renting of their fields to the capitalist-farmers). John Stuart Mill extended the principle of "friendly merger" to examine how non-economic parameters like government, traditions or custom influence the class structure of society. Yet, the definition of middle class swings between economic and social approaches.

From the sociological approach there are two main theories. The first one is based on theory derived from the works of Karl Marx, and the other from Max Weber. The Marxian social class distinctions do not refer to types of occupation or levels of income but on the form of physical and capital endowments that each social group possess. Marx called the existence of a small, independent group of businessmen and professionals who acquired skills, knowledge, and education to rely only on

them to achieve a better economic position as the *petty bourgeoisie*. Weberians define social classes through inequalities in income, educational attainment, power and occupational prestige. Class in his terms, is the way economic power is distributed when economic action is organized to the greatest degree of rational manner. So class was bound to the production of goods, while the status of any group was stratified according to their consumption of goods and "style of life."

Other social views, like those of GoldThorpe and Mcknight (2006), adopt an employment-based class position in depending an individual's economic security and economic stability. Wright (2005) conceives of classes as being a structured mechanism of domination and exploitation in which economic positions accord some people power over the lives and activities of others.

Yet, income is still a tempting criterion for choosing income thresholds. It is easy to determine that whoever is below the lower threshold is "poor," whoever is above the higher one is "rich" and that in between each threshold is the middle class. Nevertheless, a purely economic point of view to define and calculate the middle class fluctuates depending on the purpose of the calculations and its relation with other factors; growth, democracy, political issues, etc. These differences are also due to the changing nature of the fundamentally used tools of calculation (poverty line, median, and the mean income). Also it's noticeable that there are three dominant approaches to measurement; the absolute, relative and hybrid approaches. The choice between these various approaches depends on the purpose at hand.

The Income-based absolute approach assumes a fixed income threshold (PPP adjusted) which raises a lot of arbitrary views, in addition to the heterogeneity of different countries' development levels. Among absolute measures Milanovic and Yitzhaki's study (2002) about decomposing the world distribution for 114 countries into three groups, which used households surveys, came out with a shocking result that only 11% of the world are middle class, by using the definition of the middle class as those living between the mean incomes of Brazil and Italy, which translates into roughly $12-$50 a day per person at 2000 (PPP). This aligns with the same absolute stream that the World Bank (2007) uses to define the global middle class, as their per capita income thresholds are approximately equal to $4,000 and $17,000. According to this definition many of the relatively rich in developing countries are in the global middle class, while the vast majority of the absolutely rich (per capita incomes above $17,000) live in OECD countries. In the context of the debate about the role of China's consumption in the global economy, Homi & Gerts (2010) pushed for an absolute measure. They sensed that the distinctive role of the middle class, especially the American middle class, declines after the global economic turmoil in mid-2008. They urge that China could be the potential middle class substitute, where the middle class has been expanding exponentially. They define the middle class as households with daily expenditures between $10 and $100 per person in PPP terms. The lower bound was chosen with reference to the average poverty line in Portugal and Italy, while the upper line was chosen as twice the median income of Luxemburg. By applying this methodology for 145 countries, they ascertained that the world is in the throes of a major expansion in the middle class, most of it will come from Asia, particularly from China. By 2020 China could be topping global consumption to become the largest single middle class market by

2020 (13%), surpassing the United States. Noting the need to accelerate China's transformation towards a domestic consumption-led growth pattern, eventually the global middle class would shift from West to East.

From a pro-poor growth perspective, Birdsall (2010) took a wider focus on the grounds that the middle class is a merely simple extension of caring about the poor, and emphasizing more sound and inclusive growth policies that enable the increase in the proportion of middle class, and consequently the proportion of total income that they command. Birdsall rejects the idea that anyone who escapes from the poverty line of just $2 a day is a member of middle class, as this would never be a reasonable level of economic security. Based on this concept, the lower bound would be $10 a day (in 2005 purchasing power terms) as the minimum income for a person to have the economic security in today's global economy, while the upper bound is determined to be at or below the 95th percentile of the income distribution in their home country. Yet, $10 per day is low compared to the national poverty lines of OECD countries where poverty lines are defined in relative terms. *Banerjee and Duflo (2007*) define the middle class as those whose daily per capita consumption is between $2 and $4 or between $6 and $10, and argue that the middle class person is not an entrepreneur in waiting, although they might run a business that is usually small not very profitable. Having a steady well paid job is the key for better education and health care that might lead them to build their own careers. In a recent study López-Calva and Ortiz-Juarez (2011) also proposed absolute thresholds and looked for an income value that corresponds to a minimum requirement that defines the middle-class. The authors followed a regression-based approach which exploits panel data to estimate the amount of comparable income which depicts the beginning of the middle class (lower threshold) –$10 dollars a day, associated with a low (0.10) probability of falling into poverty. They find the upper threshold to be $50 dollars a day. Moving to relative income-based definitions, which mostly relies on the median–suffers from the problem of different medians in each country which means different middle classes from one country to the other.

Birdsall et al. (2000) pushed to define the middle class as those with incomes between 75% and 125% of the median in each country. Easterly (2001) defines the "middle class" as those lying between the 20th and 80th percentile on the consumption distribution, and finds evidence that a larger income share controlled by the middle three quintiles promotes economic growth. In fact the study has shown, based on cross country and panel econometric regression, that a higher share of incomes for the middle class is empirically associated with higher growth, more education and other favorable development outcomes. Ravallion (2009) adopts a hybrid approach; it could be absolute in application but might be relative in essence. The developing world's middle class is introduced as those who are not deemed "poor" by the standards of developing countries, but are still poor by the standards of rich countries. Ravallion sets the lower bound at $2 a day at 2005 PPP (The median of 70 national poverty lines), and the upper bound at $13 a day (the USA poverty line). Ravallion showed that the developing world's middle class increased from 32.8 percent of the population in 1990 to 48.5 percent of the population in 2005. These figures suggest that more than 1.2 billion people joined the middle class over 1990–2005, with China accounting for a startling half of this amount. Blackburn and Bloom (1985) identify the middle class as households with

per capita income between 0.60 and 2.25 times the median income in the United States. Davis and Huston (1992) use a narrower range: between 0.50 and 1.50 times the median, also for the United States. Graham and Pettinato (2000) use a range between 0.75 and 1.25 times the median for 30 countries, including high-income, transition, and Latin American economies.

Other studies rely on the group position in the income distribution as a determinant of the middle class size, which could be more likely to quantify the income share of the middle class. For example; Alesina and Perotti (1996) use the income share of the third and fourth quintiles of the distribution; Partridge (1997) uses the middle quintile; Barro (1999) uses the middle three quintiles; and Solimano (2008), the third to ninth deciles.

Despite a persistent emphasis on the importance of having a large middle class for economic growth, its consumption patterns its propensity to accumulate human and physical capital, or for democracy and political stability, as of yet no pure analytical income characterization has been satisfactory. More digging is needed to capture a comprehensive picture of this group.

2.1 The size of the middle class in the Arab World – a regional comparison

Not only are the poverty lines deceptive in the Arab region, the measurement of the middle class is quite deceptive as well. At any value lower than $1.25, the Arab region displays very low poverty rates of about 25% in (2000-2009). However, rates jump sharply with a higher poverty line. At a poverty line of approximately $3 a day, the rate of the Arab region is far closer to that of the average of all developing regions (65%) for the same period. Similarly, for the measurement of the MC, as shown in table 1, the middle class of the Arab region[1] is considerably higher at absolute cutoffs, and by Ravallion 's thresholds it is even higher than other regions, and reaches about 79% and 80% by the ADP[2] lines ($20-$2). By comparison, using Homi's cutoffs it constitutes only 5 % of the population. But this aggregate picture hides more than it reveals, income measured by GDP per capita increased at an average of 2 percent annually in Arab countries during the 1990s and 2000s, while per capita growth of household final consumption expenditure was only 1.3 percent, which indicates that growth has not translated into higher incomes or household expenditures for the majority of people in these regions, especially the middle class that supported the poor to form a new coalition. Roughly speaking, there is a new middle class market not only according to the income-based threshold, but the recent political situation drew attention to this class, which would require the need to investigate the composition rather than the size of the MC.

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[1] Arab Region ; Djibouti, Mauritania, Yemen, Morocco, Tunisia, Egypt, Jordan, Syrian Arab Republic, Iraq, Sudan, Palestine

[2] Asian Development Bank

Table (1) Middle Class growth in Developing Countries - Regional Comparison

Region	(0.75-1.25) median	($13-$2)	($20-$2)	($13- Ho_NPL)	(90th-Ho_NPL)	($100-$10)
Arab Countries						
1990s	32.4	64	65.6	66.5	59.8	3.9
2000s	37.1	78.6	80.2	77.5	70	4.1
Change %	*14.5*	*22.8*	*22.3*	*16.5*	*17.1*	*5.1*
East Asia & Pacific						
1990s	36.4	33.7	33.9	39.7	78.1	0.6
2000s	31	55.7	74.2	83.9	72.9	2.6
Change %	*-14.8*	*65.3*	*118.9*	*111.3*	*-6.7*	*333.3*
Eastern Europe						
1990s	32.9	80.8	84.8	66.2	62.2	8.3
2000s	33.7	70.1	85.3	59.1	77.2	26.5
Change %	7.8	3.4	0.4	17.2	27.7	19.8
Latin America & Caribbean						
1990s	20.67	65.69	77.49	38.95	44.1	14.46
2000s	22.29	67.92	77.82	45.64	56.32	17.32
Change %	*7.84*	*3.39*	*0.43*	*17.18*	*27.71*	*19.78*
South Asia						
1990s	35.98	20.42	32.23	56.03	46.19	0.3
2000s	39.6	32.23	33.47	70.87	61.26	0.7
Change %	*10.1*	*57.8*	*3.8*	*26.5*	*32.6*	*133.3*
Sub-Saharan Africa						
1990s	29.9	22.3	22.4	45.4	35.7	0.8
2000s	31.5	34.3	34.7	58.3	49	1.1
Change %	*5.4*	*53.8*	*54.9*	*28.4*	*37.3*	*37.5*

Author's calculation based on UNESCWA "middle class in Arab region report 2014 "forthcoming .The calculations are based on data of 67 developing countries .

2.2 The Middle Class in Egypt

Why was the revolution initiated by secular middle class youth, who are supposed to be the beneficiaries of the modernizing republics? Why was this deep feeling of dissatisfaction so easily spread among the whole class? The next section will try to find answers to these questions through three methods. First, it will take a quick glance at Egyptian economic performance from both the aspects of both poverty and inequality, then it will look at the size of the MC at different cutoffs and measure the wealth index during the last two decades, and, finally, it will look at the median approach as a simple and understandable threshold of the middle class in Egypt.

The importance of the household sector in the Egyptian Economy

Before presenting inequality and poverty trends, it's important to investigate the household share of GDP during the last decade, which reveals that it constitutes about two-third of total GDP compared to the other three sectors.

Figure (1) the composition of GDP expenditure (%)
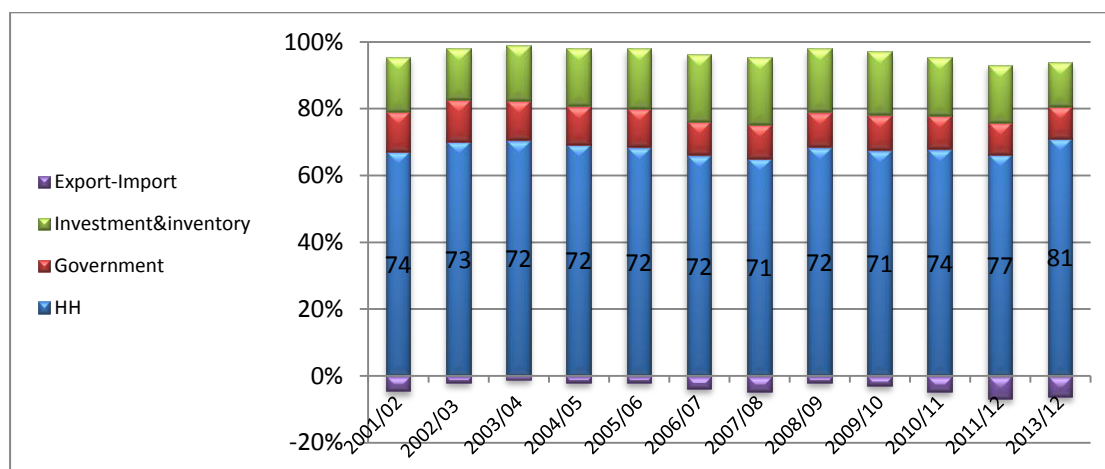
Source: Uses and Resources Tables –National Accounts data.

2 .2.1 A quick glance at the poverty, inequality and growth trends in Egyptian Growth Performance

Egypt's growth performance has witnessed a high volatility trend. Figure 2 depicts that real GDP growth fluctuates from a declining phase in the latter half of the 1980s to an acceleration by 1990, followed by another decline during the period 1999-2003, to hit the highest levels of economic growth between (2005-2008), and to reach 7% just before the 2008 financial crisis. However, the Global Financial Crisis curbed Egyptian growth to maintain its rate at 5%. Meanwhile, inflation accelerated to 18.3% annually in August 2008 due to increased commodity prices, a high level even for a high inflation country such as Egypt. Unemployment rose from 9.2% in the beginning of the 2000s to 11.2% in 2006 to decline during the period of growth until the financial crisis (9.4%). By the 25 January Revolution, Egypt's growth witnessed a sharp decline, and fell to 1.8% by 2011/12. Recently GDP growth reached 2.2% in 2012/2103, and the unemployment rate soared to 13.3% in FY2012/2013. Yet, the economic growth rate is lower than the rate of population growth that would entail real challenges concerning the poverty and inequality rates after the revolution. *Similar fluctuations* in GDP per capita reveal that Egypt's economic growth has never been sustainable, and the economy was always susceptible to hits by both internal and external shocks. GDP per capita growth declined sharply twice in the last 23 years to reach zero in 2002 and 2011. Nevertheless, GDP per capita growth soared to 5% during (2005-2008), but declined due to the financial crisis by mid-2008. GDP per capita continues its decline through the three years of political transition to be only 0.07% in 2012. Volatility is not only bad for growth; it is particularly bad for pro-poor growth. The poor and middle classes gain less during booms while those who already

have real and financial assets gain most, and the poor and middle classes are the first to lose jobs during busts.

Figure 2: GDP growth rate(annual %)
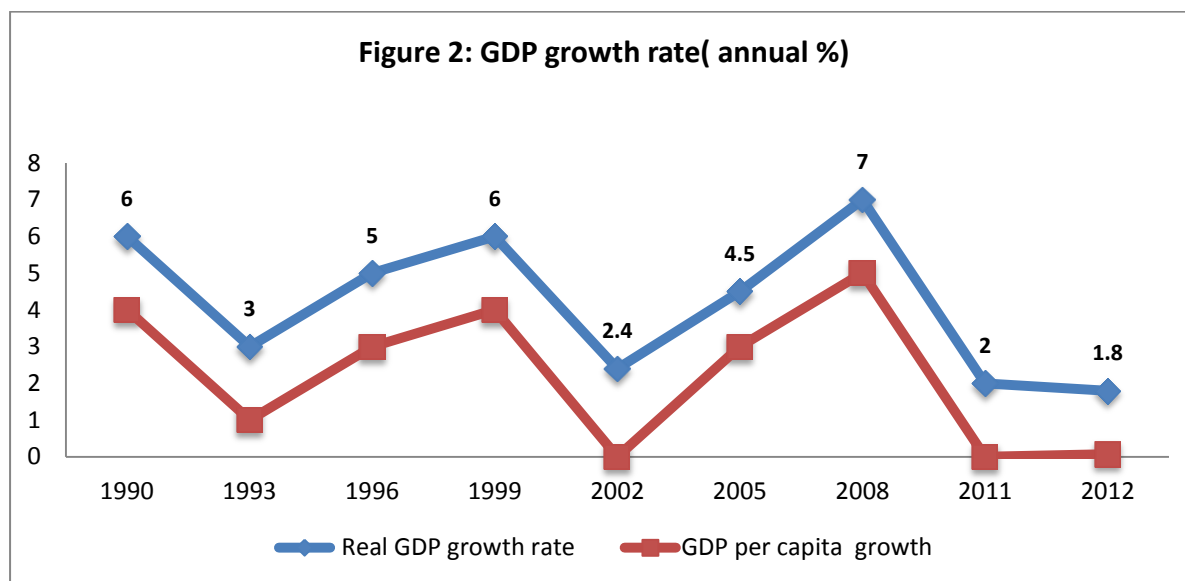
Source: WDI 2013

Poverty and inequality trends

Poverty remains a significant challenge in Egypt. Egypt's rate of absolute poverty, which is defined as the percentage of the population living on less than PPP $1.25 per day, was 2 percent in 2000, and maintained a steady rate until 2008, considered a better off situation than the 4 percent in 1990, as is shown in table 2. Although the incidence of extreme poverty is fairly low, much of Egypt's population is still poor; 15% of Egyptians lived on less than $2 PPP per day in 2008, the headcount poverty ratio under $2 amounted to 22% in 1990, but sharply declined by the beginning of the 2000s. In 1999/2000, the poverty rate, based on the national poverty line, in Egypt reached the lowest rate of 16.7%, only to increase during the next sub-periods despite the strong economic growth during the period of 2005-2008. Political changes made the poverty situation get worse, as it soared to 26.3% of the population under the national poverty line for FY 2012/2013 (Egyptian Ministry of Planning data). Looking beyond the average in table 3, the period (1990-1995) has experienced an increase in the poverty severity measure from 0.14 to 0.44, while the poverty headcount declined. This indicates that those closest to the poverty line gained benefits from growth while the poorest did not. FY2000 has experienced big reductions across all three measures, indicating that the poorest did relatively well from growth, unlike FY 2004 where the three measures were worse off. However, in FY2008 the headcount declined while P2 increased, indicating that the poor have done proportionately better than the poorest in general.

Table 2- Trends in poverty and inequality

Indicator	1991	1995	2000	2005	2008
Poverty headcount ratio at $1.25 a day (PPP) (% of population)	4	2	2	2	2
Poverty headcount ratio at $2 a day (PPP) (% of population	28	26	19	18	15
Poverty headcount ratio at $2.5 a day (PPP) (% of population)	44	46	37	36	32
Poverty headcount ratio at national poverty line	24.18	19.4	16.7	19.6	22
GINI index		32	30.1	32.8	32.1	30.8
Palma Index		1.2601	1.1563	1.3231	1.2787	1.19417

Source: WDI 2013

Table 3 -Poverty class measures at $ 1.25

	Head count poverty	Poverty Gap	Poverty Gap square
2008	1.69	0.38	0.39
2004	1.99	0.39	0.16
2000	1.18	0.32	0.11
1995	2.46	0.34	0.44
1990	4.46	0.60	0.14

Source: World Bank Povcal's data

Inequality as measured by the Gini coefficient indicates an overall improvement in the distribution of per capita expenditure in Egypt between 2000 and 2008 (down from 32.8 to 30.8), which more than offset a slight deterioration between 1996 and 2000 (up from 30.1 to 32.8). Roughly speaking Gini for the last 25 years has shown a moderate trend, moving up or down only about 2 percentage points. Also, inequality can be traced by the Palma index, which considers a recent deciles ratio that tackles the tails of distribution. Palma is the ratio of income share of the top 10% to the poorest 40% of population, it measures the how much the rich earn relative to the poor, and the high value of Palma indicates that the poor increased their income share or reduced the share of the rich within the followed government's policies. The Palma index was about 1.2601 in 1990, and had a sluggish improvement as it declined to 1.19417 in 2008. As shown in **figure (3)** the distribution of consumption expenditure by quintile that changes over the five dates (1990, 1995, 2000, 2005 and 2008) have been marginal across all deciles over time. However, over (2000-2008) the share of the bottom 20 percent remained almost unchanged, the richest deciles' share increased by 1.04 percentage points, while the shares of all other deciles increased only marginally. It is worth noting that income distribution during the 5 waves from (1990-2008) didn't fluctuate dramatically to cope with the volatility of economic growth as was presented in graph (2).

Figure (3) Distribution of income or consumption by quintile

Year	Poorst 20%	Sceond 20%	Third 20%	Fourth 20%	Richest 20%
2008	9.24	13.02	16.37	21.03	40.34
2004	8.96	12.64	16.05	20.98	41.46
2000	8.95	12.47	15.83	20.65	42.1
1995	9.51	13.01	16.4	21.17	39.91
1990	8.71	12.49	16.27	22.44	41.09
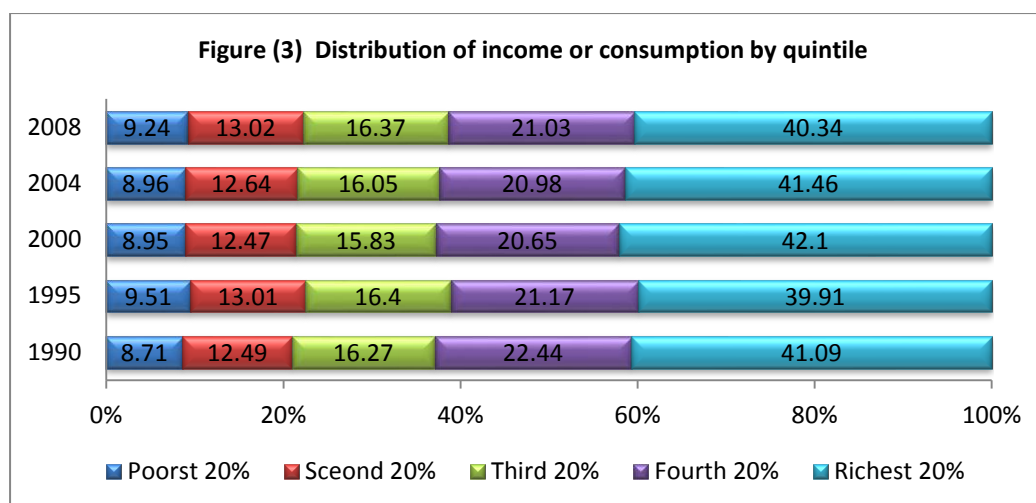
Source: Poverty & Equity databank, world bank

2.2.2 The size of the middle class in Egypt

A recent study by Loayza (2012) points out that when the size of the middle class increases, social policy on health and education becomes more active, and the quality of governance regarding democratic participation and official corruption improves. Following the same vein, Easterly (2001) emphasizes the strong association between a solid middle class and higher income, more education, better health outcomes and faster upward mobility. However, that wasn't the case of the Egyptian middle class as we will reveal in the next points.

Table (4) presents the main results for the five waves for some relative and absolute definitions of MC that were presented earlier in the first section of the study. The first remarkable result is that these definitions imply a widely varying size of the MC.

 On one hand, absolute results, except Homi's ($10-$100), appear to display a stable, strong middle class, amounting to a size of almost 85%, whether using Ravallion's or ADB thresholds, and maybe a little size shrinking following Ali, A.A.G. (2009) methodology (NPL-$13). Notably, these results hide the large bulk of poverty rate under the upper thresholds $10, $13, $20 and $100. On the other hand, measures based on the relative approach display a glaring heterogeneity. Following Birdsall (2007) by excluding the richest decile as the upper line, and $10 as the lower threshold, there is *no* middle class in Egypt. It is worth noting that Birdsall (2007) considers $10 to be a minimum secure line for the MC, while Easterly (2001) methodology reveals a reasonable average size of the MC as about 40% of the population.

Table (4)   the Size of Middle Class in Egypt

survey year	($13-$2)	($20-$2)	($10- $2)	($13- NPL)	($100-$10)	(1.25 m-0.75m)	(90th -$10)
1990	72.09	72.89	70.98	77.25	2.3	38.9	0
1995	73.81	74.43	72.93	79.62	1.9	42.88	0
2000	80.24	81.11	79.01	82.26	2.6	41.19	0
2004	81.1	81.96	79.88	80.06	2.6	41.45	0
2008	84.17	84.96	83.01	76.78	2.4	43.57	0

Author's calculation – Povcal data bank.

2.2.3 The wealth index of middle class in Egypt

Following Abd-gadir's empirical steps

$$\Upsilon p = Z \quad (1 - (Pz /H_z) \qquad (1)$$

Where, Υp is the average expenditure for the poor under (**Z)** as a poverty line,
Pz is the poverty gap for the given poverty line, while **Hz** is the head count ratio for the given poverty line. *By equation (1) we can produce the average expenditure for the poor for both the lower poverty line, $\Upsilon p(Z_P)$, and the highest line, $\Upsilon p(z_m)$*

The rich average expenditure Υ_r can be calculated by the following identity, as the average expenditure for the country is already well known.

$$\Upsilon \quad = \quad H_{zm} * \Upsilon p(m) \quad + \quad (1 - H_{(zm)}) \; \Upsilon_r \qquad (2)$$

Where; Υ is the average income for the society, Υr is the average expenditure of the rich, **H$_{zm}$** is the head count ratio at the upper line, and $\Upsilon p(m)$ is the average income of the poor at the upper line

By following the above steps, the country expenditure is divided into three classes that can be calculated as

$$\Upsilon = H(Z_p)\Upsilon_p + M(z_p, z_m)\Upsilon m + [1 - H(zp) - M(z_p, z_m)] \; \Upsilon_r \qquad (3)$$

The wealth index $\quad \gamma = \Upsilon m / \Upsilon$

It seems that the middle class in Egypt didn't obtain the proper gains, according to the wealth index in table (5). It was much better off in 1990, then it started to slide backward since that time, even though it looks as if it is a steady position. The average expenditure of the middle class is close to the average expenditure for the whole country. That would add another puzzle regarding not only the economic position but also the social and political one

Table (5) Middle class wealth index ($13-NPL)					
Year	Y	Y_r	Y_m	Y_p	γ
1990	101	258	111.74	42.59	1.11
1995	98	652	100.34	43.45	1.02
2000	112	843.4	111.30	46.47	0.99
2004	113	836.6	112.15	46.23	0.99
2008	114	932.7	112.00	47.00	0.98

Author's calculation

2.2.4 A new proposed measure of the middle class in Egypt

The author proposes a new threshold that might reflect the actual picture of MC. Consider the median as the lower cutoff while the upper one will exclude the richest 10% following the Birdsall (2007) upper cutoff as it represents almost 30% of the income share of distribution in Egypt. But first, why use the median? First; with the decline of absolute and extreme poverty, the median would be a reasonable line, as it reflects the fact that overall growth is shared with the households. Secondly; the growth of the median is close to the growth of the poorest 40% (Birdsall, 2013). Finally as table 6 presents, the population size between the NPL and the median is considered a large segment, which contradicts the convention wisdom that the person who crosses the poverty line can be considered middle class, so subtracting the bulk of population under the median line can capture the actual story of the middle class. Even Ravallion's upper threshold a $13 is very high line in the Egyptian case; almost 99% of the population under this line is poor which is considered an unrealistic line to the author, even if it is the western poverty line. Unlike the absolute measure, which showed a stable and strong middle class size in Egypt for the five waves, the middle class according to the new thresholds have shrunk during the period of high economic growth and decreasing inequality. Additionally, it shrinks from almost 40% to 35% in a period which is highly pro-poor growth as we will illustrate in the next section. That might be a string to explain the dissatisfaction in the years of booming growth.

Table (6)   the size of middle class using the median approach

survey year	(m-NPL)	($13-m)	(90th-m)
1990	28.72	48.53	39.72
1995	30.72	48.9	39.88
2000	34.07	48.19	39.53
2004	31.84	48.22	39.56
2008	**33**	43.78	35

Author's calculation

Section Three: Pro-Poor Growth in Egypt

Was growth pro-poor in Egypt? In the previous section the volatility of economic performance was glaring; the contradiction of the size of the middle class under different thresholds may be adding complexity to the vague picture. However, in recent years, a central topic in the economic development literature has been the measurement of the distributive impact of growth. Although there is a growing consensus in the literature that sustained and rapid economic growth translates into poverty reduction, there is a wide disparity in the extent of poverty reduction that a growth process can achieve. The supposed fact is that achieving pro-poor growth would lead to a poverty decrease, then a larger middle class size. But, was that the actual path in the Egyptian case?   The next section will demonstrate the different approaches of defining Pro-poor growth, then the indices of pro-poor growth from the grouped data.

3.1 Definitions of pro-poor growth

Defining pro poor growth is a debated subject; generally speaking pro-poor growth is economic growth that is favorable to the poor. But, the term favorable differs from one view to another. While one view focuses on the poverty reductions in absolute terms, another alternative concentrates on distributional changes. Another alternative proposes a non-income dimension of pro-poor growth that had to be considered beside the income gains of growth of the non-income view. The next section will reveal the main distinctive approaches to defining pro-poor growth. Each one of these views has its own merits and limitations.

3-1.1 The relative definition group:

The relative definition of pro-poor growth compares changes in the incomes of the poor with respect to changes in the incomes of the non-poor. Using this definition, growth is pro-poor when the distributional shifts accompanying growth favor the poor. According to McCulloch and Baulch (1999), whenever poverty bias of growth it must be a pro-poor, they compare the actual income distribution with one that would be obtained in the case of distribution-neutral growth, and propose a measure of pro-poor growth known as the poverty bias of growth (PBG).

Nevertheless, the higher values of the PBG may not imply a greater reduction in poverty because poverty also depends on the growth effect. In an attempt to capture the degree of pro-poor growth, Kakwani and Pernia's (2000) study "what is pro-poor" represents a major departure from the "trickle-down" phenomenon that was dominant in the 1950s and 1960s, which implied a vertical flow from the rich to the poor, where the benefits of economic growth go to the rich first, while in the second round the poor begin to benefit when the rich start spending their gains.

Kakwani and Pernia (2000) proposed a new indicator—the pro-poor growth index—that measures the degree to which growth can be deemed pro-poor. Kakwani followed the work of the pro-poor growth index (Kakwani and Pernia, 2000) which has captured the distribution of growth benefits among the poor and non-poor, but it does not take into account the level of the actual growth rate. In response to this Kawani and Son (2003), proposed the PEGR (Poverty Equivalent Growth Rate), defined as the growth rate that will result in the same level of poverty reduction if the growth process had not been accompanied by any change in inequality (everyone get the same proportional benefits of growth), which takes into account not only the magnitude of growth, but also how much the benefits of growth are distributed between the poor and non-poor. For K&S the word "pro-poor" literally means that the poor should receive more but not less benefits than the non-poor.

3.1.2 The absolute definition group

The second prevailing definition is the absolute definition, which focuses on what happens to poverty. Growth is considered to be pro-poor if and only if poor people benefit in absolute terms, as reflected in some agreed upon measure of poverty. Consistent with this approach is the work of both Ravallion and Chen (2003) & Kraay (2004), which is based on changes in both the rate of growth and the distribution of gains. On one hand, the absolute approach emphasizes the proportional gains of the poor using poverty elasticity, while on the other hand, it is hard to discern whether a particular elasticity actually implies that the poor have benefited disproportionately or not. In Dollar and Kraay's (2000) study "growth is good for the poor," they proposed the link between the average income and the average income of the poorest quintile, and the poor were defined as those in the bottom of the income distribution of a country. D&K came to the conclusion that the growth incomes of the poor tracked average income roughly one-to-one, which means that elasticity of the income of the poor relative to mean income is statistically indistinguishably from unity .

Ravallion and Chen's (2003) study, which focused on what happen to poverty instead of focusing on the distributional shifts during the growth process, came out with the view that pro-poor growth is the growth that reduces poverty. The extent to which growth is pro-poor depends on how much the chosen measure of poverty changes, in that case, what happens to the distribution changes only a part with addition to what happens to the average living standard. From the inception of Ravallion and Chen (2003), and building on Dollar and Kraay (2002), Kraay (2004) took a deeper step by adopting a broader definition and then applied a standard poverty decomposing technique to identify three potential sources of pro-poor growth: (a) a high growth rate of average incomes; (b) a high sensitivity of poverty to growth in average incomes; and (c) a poverty-reducing pattern of growth in relative incomes.

3.1.3 Non-income dimension of pro-poor growth

Growth that is declared to be pro-poor where the measure is based only on income must not automatically imply improvement in the non-income (or social) dimension of poverty. (Klasen, 2005) clarifies the non-monetary dimension of pro-poor growth by investigating the missing gap in the literature on pro-poor growth where the income dimension is supreme. Consistent with Klasen's view (2004) that the income dimension is not sufficient, Osmani (2005) argues that pinning the definition of pro-poor growth exclusively on distributional impact adds nothing to the traditional concern with equitable growth that can be traced back at least to Chenery et al. (1974). Osmani took a further step to the need to clarify the quality of pro-poorness, taking into account the distinction between the rate and the nature of the growth. Osmani's view of pro-poor growth is a combination of Ravallion and Kakwani approaches, suggesting that the concept of PPG must refer to the absolute magnitude of poverty reduction, yet contain an element of bias in favor of the poor. So a critical question that must be raised is how is this bias defined? This entails identifying a benchmark to gauge the pro-poorness of growth.

3.2 Measuring Pro-Poor Growth

Methodology and data

The research relies on an empirical tool that uses Distributive Analysis SATA Package DASP, which provide the results of three main indices of PPG. The method introduces complementary and consistently measures of PPG with the Growth Incidence Curve (GIC) from the Household survey. Taking into consideration that the author is not authorized to use the Household surveys due to Egyptian government restrictions, the author used grouped data from the Povcal data bank to calculate the indices.

Data

World Development Indicators	GDP, GDP per capita, Population
Povcal data	P_0, P_1, P_2, income shares , Gini coefficient, Lorenz curve data

The study can be a complementary work regarding the measurements of PPG, as it develops the measures of PPG that uses the grouped data of World Bank Povcal data. The study differs from the work of El-Laithy et al. (2011) or (2008), the first (2011) covers only the period (2005-2008) based on the Household Income, Expenditure and Consumption Panel Survey conducted by Egypt's national statistical agency, as data is easily available. The study of El-Laithy compares Growth Incidence Curves (GIC) based on a cross section of data with GICs based on the panel data ,and

how its results may contradict depending on whether the mobility factors were up and down. The research of this study covers the five waves (1990-2008) using both the grouped Povcal data.

3.2.1 Measuring PPG from grouped data (DASP)

In this section the research presents the three main indices of PPG using DASP program. A Brief review of indices is presented in Appendix 1.

Table 7 presents the indices at the poverty line of $38 and the poverty measure of H_o where α =0. During the period (1990-1995) growth was pro-poor for only two indices except for K&S (2000). The period was marked by stabilization program and price liberalization, particularly in agriculture. This was accompanied by a significant decline in all poverty measures except the poverty gap square. Also, in spite of the decline in Gini as an inequality measure, the Household final consumption expenditure annual growth declines to reach 2.44% in 1995 from 3.7% in 1990, according to WDR (2013), which means that the poorest people didn't benefit from economic reform. That is the only explanation to K&S 2000 index of anti-pro-poor growth. Moving from 1995 to 2005, growth was anti-pro-poor for the two sub-periods. It has witnessed a reversal of the pattern of expenditure distribution, with an increase in poverty measures. Inequality (GINI) increased by two percentage points. Unlike the period (2004-2008), growth was pro-poor. This means that GDP growth is still the main trigger for reducing poverty and inequality in Egypt.

Table (7) Pro-poor growth indices (1990-2008)   Poverty line =38 $\alpha = 0$

Indices Estimate	1990-1995	1995-2000	2000-2005	2004 -2008
Growth Rate(g)	-0.030135	0.146668	0.002852	0.013421
Ravallion & Chen (2003) index	0.116517	0.043268	-0.018977	0.022711
Ravallion & Chen (2003) - g	0.146652	-0.103400	-0.021829	0.009290
	Pro-poor	*Anti-poor poor*	*Anti-poor poor*	*Pro-poor*
Kakwani & Pernia (2000) index	-3.142857	0.500000	-34665648.393	3.000000
	Anti-Pro- poor	*Moderate - poor poor*	*Anti-Po-poor*	*High Pro-poor*
PEGR index	0.094709	0.073334	-98877.090693	0.040263
PEGR – g	0.124844	-0.073334	-98877.093545	0.026842
	Pro- poor	*Anti-poor poor*	*Anti-Pro- poor*	*Pro- poor*

Author's calculations

Table (8) Pro-poor growth indices (1990-2008)   Poverty line =60 $\alpha = 0$

Indices Estimate	1990-1995	1995-2000	2000-2005	2004 -2008
Growth Rate(g)	-0.030135	0.146668	0.002852	0.013421
Ravallion & Chen (2003) index	0.058390	0.063223	0.000540	0.035797
Ravallion & Chen (2003) – g	0.088525	-0.083445	-0.002312	0.022376
	Pro-poor	*Anti-pro-poor*	*Anti-pro-poor*	*Pro-poor*
Kakwani & Pernia (2000) index	-0.250000	0.650000	3.500001	3.333333
	Anti-pro-poor	*Moderate - pro-poor*	*High Pro-poor*	*High Pro-poor*
PEGR index	0.034897	0.007027	0.005987	0.012582
PEGR – g	0.035940	0.007571	0.005987	0.012534
	Pro-poor	*Pro-poor*	*Pro-poor*	*Pro-poor*

Author's calculations

Conclusion

The study has reviewed some of the most frequently used income-based definitions of middle class in the empirical literature. The analysis of the way in which the middle class has evolved over time requires a measure that is sensitive to changes in the income distribution. The empirical results for the absolute-thresholds definition indicate that the size of the middle class in Egypt has been increasing over the last two decades. While the relative-thresholds definition may have another trend, it indicates that the size of the MC is not bulging. The researcher proposes a threshold based on the median as a lower threshold, as the size of population who lies between the national poverty line and median is about 33% of the population, those who are conventionally called middle class. The study also presents the wealth index of the middle class in Egypt, which emphasizes the strong stable middle class households' expenditure level, noting that the index used absolute income-based thresholds. The evidence presented in this study suggests that definitions of the middle class based on sound principles of distributional analysis are most needed beside the income-based definitions.

The paper has proposed an empirical test to test whether distributional changes are pro-poor in Egypt during the period time (1990-2008) using the three main indices. It shows that Egypt's growth was pro-poor in two sub-periods. Egypt has achieved a reasonable poverty reduction according to international standards during the growth booming period; inequality also was moderate by global standards. However, despite the fluctuation, if Egypt's economic growth was achieving pro-poor growth during the study time, the middle class in Egypt shows a stable pattern in size. That

would entail a deep further study of income and social mobility of this class to monitor the real evolution of this class from other aspects rather than the income-based threshold, especially after the political changes that swept the Arab region. Inevitably, an in-depth analysis of the characteristics and vulnerability of the middle class and its relevance as an engine for economic development are substantially needed.

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Appendix:

1- Ravallion and Chen index (2003)

Index = $W_1(z)$-$W_2(z)$/ $F_1(z)$

Where $\mathbf{W_D}$ is the Watts index for the distribution $D \in [1, 2]$, $\mathbf{F_1(z)}$ is the headcount poverty for index of the initial distribution . Which means if the index –g is positive, then this period is pro-poor growth as it presents in table 6and 7.

2- PEGR Index: Kakwani, Khandker, and Son (2003)

Index = $g * \left(\dfrac{P_2(y^2, z, \propto) - P_1(y^1, z, \propto)}{\left(P_1\left(\frac{\mu 2}{\mu 1}\right), z, \propto\right) - P_1((y^1, z, \propto)} \right)$

If this exceeds the growth rate g, the actual growth rate, the growth is judged pro-poor (with the relative statement).

3- The Kakwani and Pernia pro-poor index (2000):

Kakwani and Pernia consider that growth is pro-poor when the poor receive the benefits of growth proportionately than the non-poor. PPGI shows the ratio of elasticity for total poverty reduction in case of distribution neutral growth. This ratio will be greater than one when growth is pro-poor.