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# **Economic growth, Employment and Poverty in Developing Economies: A focus on Arab region**

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## **Abstract**

The motivation of the study is to examine the nexus between economic growth, employment, poverty and inequality in the Arab countries as well as developing economies of the world, during the MDGs period (1990-2013). Within economic growth, the focus is on the pattern of economic growth by taking into account sectoral growth processes, their productivity and employment intensities, and to what extent changes in those matters for poverty reduction. Given the controversies of poverty measurement around the extreme poverty line, the study employs two poverty lines to examine the difference in impact with regard to how economic growth and inequality impacted the extreme poor (those below the \$1.25 a day in 2005 PPP) and the poor (below the \$2.50 a day in 2005PPP).

There are several interesting findings. The results reconfirm that growth and inequality (both) significantly contribute to changes in poverty. The pattern of growth in terms of changes in productivity and employment intensity across sectors contribute to understand the differential impacts on poverty across countries. The countries that have gone through structural transformation, particularly toward high value added sectors such as manufacturing, trade and transport and communications have made a major dent on poverty (by the broad measure \$2.50 (2005 PPP)). On the contrary, majority of the people engaged in agriculture and other relatively low value added sector activities tend to be trapped in poverty (by the broad measure \$2.50 (2005 PPP)), although they may be able to escape extreme poverty (by the measure \$1.25 (2005 PPP)) where these sectors noted increase in productivity.

The inequality effect has a strong impact on poverty as well. Further, the study noted that a small improvement in distribution of income may have a larger impact in reducing extreme poverty (by \$1.25 2005 PPP) but in order to reduce poverty (by \$2.50 2005 PPP) a significant improvement in the income distribution is essential. Therefore, policy choices regarding the pattern of growth and redistribution of income are both important considerations for addressing poverty, especially in the Arab region which suffers from addressing poverty and unemployment despite high growth in recent decades.

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## 1. Introduction

The Arab region has achieved fairly high average economic growth over last four decades but the benefits of growth did not significantly improve incomes of the poor nor did it generate enough jobs to a rapidly rising educated labour force.<sup>1</sup> The region today is characterized by high rates of unemployment rate, undernourished population, poverty, and poor performance on several other indicators of MDGs that are vital measures of wellbeing in any society. Among the countries that were considered as good performers of the MDGs, such as Egypt, Syria, Tunisia, had triggered the so called 'Arab Spring' in 2010-2011.<sup>2</sup> Recently, political instability and conflict in several parts of the region have contributed significantly to rise in poverty and inequality. For instance, the on-going conflict in Syria has wiped out decades of progress, and has led to further increase in poverty and undernourishment. The growth-poverty nexus in the Arab region is weak if not absent, given the historical evidence, and there is not much research from the region that explains the missing links succinctly.

Since the 1990s, the developing countries have laid main emphasis on boosting economic growth in order to achieve poverty reduction target set by the MDG 1. They are driven by contemporary policy instruments that focus on growth poverty elasticity, assuming that economic growth is also an enabler for correcting income distribution over time. Some countries have gained out of such experience, such as China and some other emerging market economies. However, the transmission channel between growth and poverty reduction is not as clear as thought out by many countries in the world. For instance, the experiences from the Arab countries make it more than clear that quantity of economic growth is important but it is not just enough to eradicate poverty.<sup>3</sup> Getting a definitive answer to such a problem is difficult but demystifying the linkages is worth exploring and important for policy considerations, particularly when countries are gearing up to eradicating all forms of poverty, which is a key target of the SDGs/post-2015 development agenda.

Literature on explaining the linkages between poverty reduction and economic growth is rich with various perspectives.<sup>4</sup> Based on cross-country evidences, some studies argue that economic growth is the prime driver of poverty reduction,<sup>5</sup> while others argue that growth alone doesn't necessarily translate to reduce poverty; the role of income distribution is crucial.<sup>6</sup> Some studies have examined the relative importance of growth and distribution policies for poverty reduction.<sup>7</sup> Son and Kakwani (2004) demonstrated that initial level economic development and income inequality can significantly influence the extent to which economic growth reduces poverty.<sup>8</sup> The importance of job-centred or labour-intensive growth has been advocated by a number of studies as an effective poverty reduction strategy.<sup>9</sup> Squire (1993) argued that "economic growth that fosters the productive use of labour, the main asset owned by the poor,

can generate rapid reductions in poverty". Islam (2004) provided a more comprehensive framework on linkages between economic growth and reduction in poverty by taking into consideration both macro and micro aspects, such as the average productivity of the employed work force (macro level) and the nature of economic activities in terms of employment and earnings (micro level). This framework is discussed in more detail in the section 3 in explaining the missing links between growth and poverty nexus in the context of the Arab region.

Not just growth but *quality* of growth is the new anchor in the SDGs/post 2015 development agenda. In this spirit, this study is an attempt to understand the nexus between poverty and the *quality* of growth in the emerging and developing economies in general, and the Arab countries in particular, during the period since 1990s. Drawing from Islam (2004), the study used the term *quality* of growth in the context of explaining the *pattern* of growth defined as contributions to growth due to changes in the average productivity of the employed work force and changes in the employment intensity, among others, at the aggregate as well as the sectoral levels. It essentially indicates what did matter for growth in the last two decade and half, such as changes in productivity or employment intensity, and in which sectors. Decomposing the growth profile helps better in understanding the pattern of growth over time (and across countries) and therefore it serves as a good entry point to discuss the linkages with changes in poverty. It also serves as a tool to analyse the relative importance of economic sector in the context of poverty analysis. The decomposition of the factor contributions to the pattern of growth is explained in section 4 in more detail. It may be noted that the environmental sustainability aspect is crucial to economic growth, but it is not covered in the present study due to lack of good data and methodological challenges to account for environment related externalities in the growth process. The issue is certainly important for future research.

The focus of the study is to demystify the linkages between changes in poverty and economic growth in the developing economies of the Arab region where poverty eradication is a genuine concern. For the purpose of building dataset to estimate the linkages, the study uses a broader set of emerging and developing economies across the world. Majority of Arab countries feature within this set of countries, except few high income countries.<sup>10</sup> Addressing poverty and fostering economic growth has been a common challenge in the emerging and developing economies in the MDGs agenda. Indeed, these countries in aggregate have grown faster than any other group of countries, including the advanced ones, since the mid 1990s.<sup>11</sup> In that sense the set of countries and the MDGs period (since the 1990s till 2015) is ideal to examine the pattern of growth and how economic growth behaved with poverty. The aim is to derive lessons for the Arab region that can serve as an entry point for policy intervention in the context of the post-2015 development agenda and also to contribute to the literature on nexus between poverty and the pattern of growth. Given the huge challenge of constructing sector level dataset

on employment and value-added, in comparable periods for poverty and inequality data, the study could construct a cross-country dataset of 344 growth spells across 52 countries; 8 observations across 4 countries belong to the Arab region. The low number of observations restricted us to use any dummy variable based regional analysis, however, descriptive analysis of key indicators on Arab region vs other developing regions complemented the econometric exercise to draw implications for the Arab region. Overall, the objective of the study is to explain the following issues:

- The interrelation between economic growth, poverty reduction, and income inequality at the macro level;
- Explain the pattern of economic growth, particularly by looking at productivity and employment intensity, and its impact on poverty;
- Discuss the relative importance of sectoral productivity and employment intensity in explaining poverty reduction;
- Draw policy implications toward implementing the related sustainable development goals (SDGs), with a focus on Arab regional perspective.

In doing so, the second section of the paper presents the statement of the problem with regard to the missing link between changes poverty and economic growth in the Arab region. The third section provides a framework to analyse the poverty-growth nexus and assesses the achievements of the pattern of growth according to selected indicators. A comparison of achievements is made between the Arab region vis-a-vis other developing regions of the world. The fourth section provides the methodology of analysing poverty impact of growth and inequality, with focus on decomposing the factor contributions to the growth processes at the aggregate and at the sector levels. The fifth section discusses the database construction for such analyses. The sixth section discusses the empirical estimates and interprets the results. The last section discusses conclusion and the future policy challenges in the context of the Arab region.

## **2. Economic growth and poverty in the Arab region: The missing link**

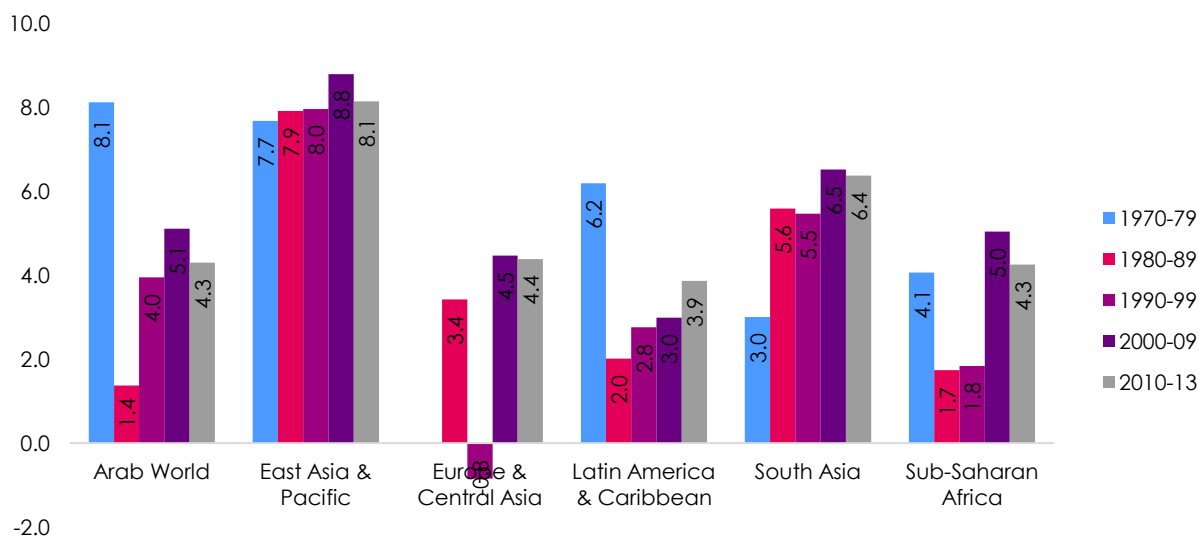
### *2.1 GDP growth was relatively high, but per capita income growth was low*

In the 1970s, the Arab region witnessed an impressive economic growth of 8 per cent a year. In the following decades, growth was much lower, ranging from 1.4 per cent in the 1980s to 4.0 per cent in the 1990s, increasing to 5.1 per cent in the 2000s (figure 1). Although economic growth has been relatively high over the decades, the region has thus been unable to effectively translate economic growth into greater income of the overall population. Income or gross domestic product (GDP) per capita has not increased at the same pace as overall GDP growth in

the Arab region; income per capita has increased only by an average of 1.4 per cent during the period over 30 years (figure 2).

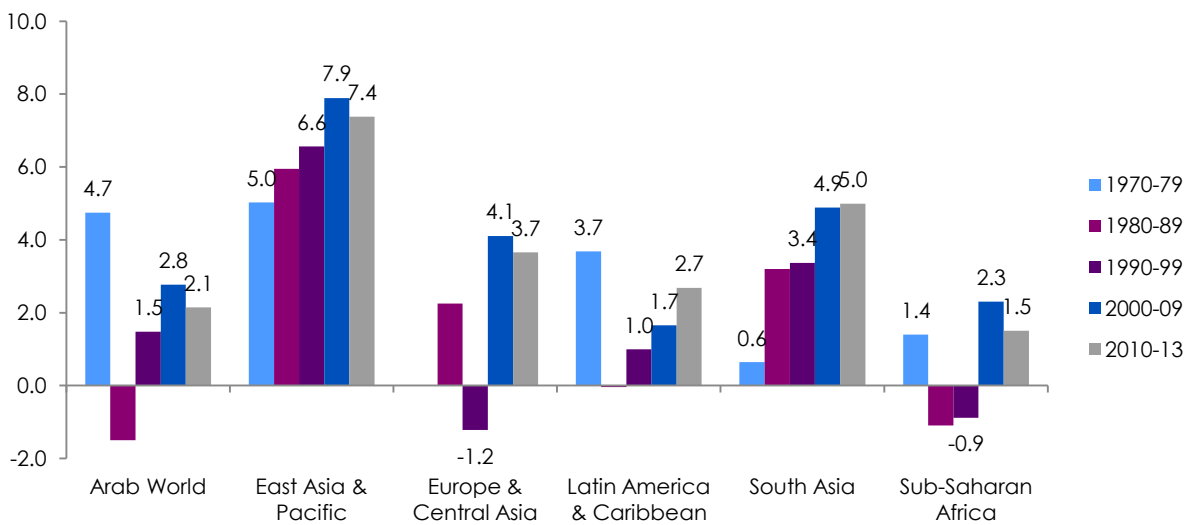
Does that imply that high population growth offset the growth of GDP in the Arab region which resulted in low per capita income? Evidence does indicate a relatively high population growth rate in the Arab region, being above 2 per cent even in the 2000s.<sup>12</sup> Evidence also suggests high and growing divergence between per capita growth in consumption expenditure from the household surveys and per capita household final expenditure from the national accounts, which is discussed in the section on inequality in greater detail. In addition, another reason is that growth in Arab countries is volatile<sup>13</sup> and mainly driven by natural resources, such as oil and gas. The non resource-rich countries tend to have a more diversified economic structure but they are heavily influenced by the growth drivers from the neighbours and interconnectedness of the economies. In general, the pattern of growth has not been conducive toward generating jobs and enhancing productive capacities over time, indicating the structural deficiencies toward inclusive growth and poverty reduction. Further, several countries in the region are facing negative consequences of conflicts and political instability directly or indirectly, which has severely affected their achievements on economic and social development indicators.

**Figure 1. Decadal average of GDP growth (%), 1970s - 2013**



Source: Authors' calculations based on World Bank (2014b).

**Figure 2. Decadal average of GDP per capita growth (%), 1970s - 2013**



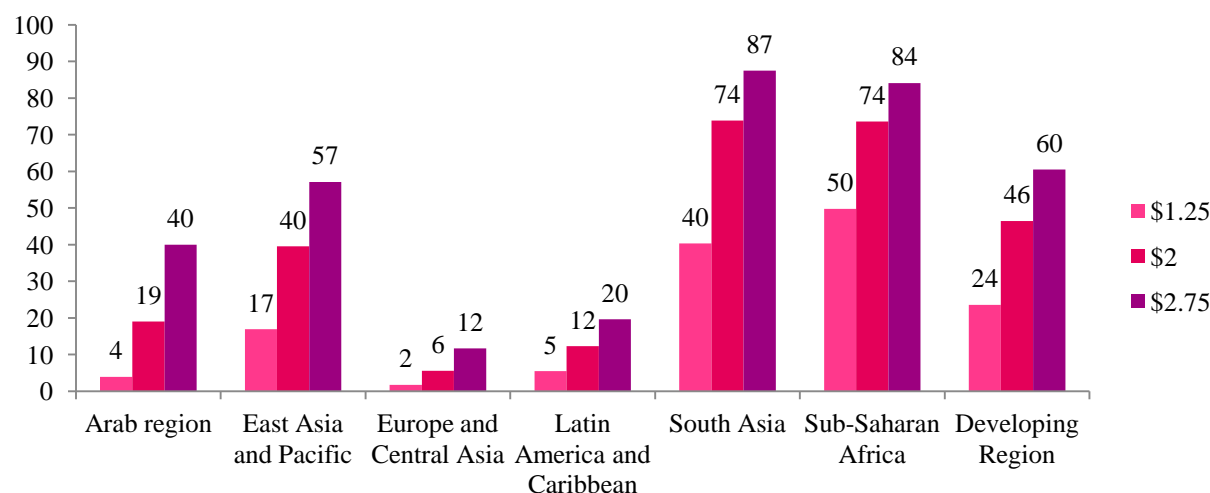
Source: Authors' calculations based on World Bank (2014b).

## 2.2 High and rising regional poverty due to crises

Poverty is one of the major challenges in the region, which is increasing since 2010 due to several reasons including conflicts, declining performance of social safety nets and the scarcity of available job opportunities across the region. A distinct feature of the region is that poverty rates vary significantly between those measured by the international poverty line \$1.25 a day and those measured by national poverty estimates. By the \$1.25 a day poverty line, the regional poverty incidence is only 4 per cent in the year 2010 (latest surveys for most countries in the region are around the year 2010). By this measure, the region is doing better than the Latin America and Caribbean (figure 3). The achievements on poverty however don't correlate with other indicators such as the undernourishment rate, which can be seen as a manifestation of poverty. In fact, the Arab region is the only region in the world to witness increasing undernourished population.<sup>14</sup> Given this disconnect between income poverty rate (measured by a fixed line using \$1.25) and prevalence of undernourishment, the regional Arab Millennium Development Goals Report (2013) questioned the notion of low income poverty. The report argued that a large share of population is actually concentrated just above the poverty line, which is not captured by the measure of the \$1.25 a day.<sup>15</sup> By shifting the poverty line from \$1.25 to \$2 and \$2.75, the poverty rates for the region increases from 4 per cent to 19 per cent and 40 per cent respectively (Figure 3). Such a spectacular increase in poverty rate is a distinct feature of the Arab region compared to other regions of the world.



**Figure 3: Poverty rates based on PPP\$ poverty lines across different region**



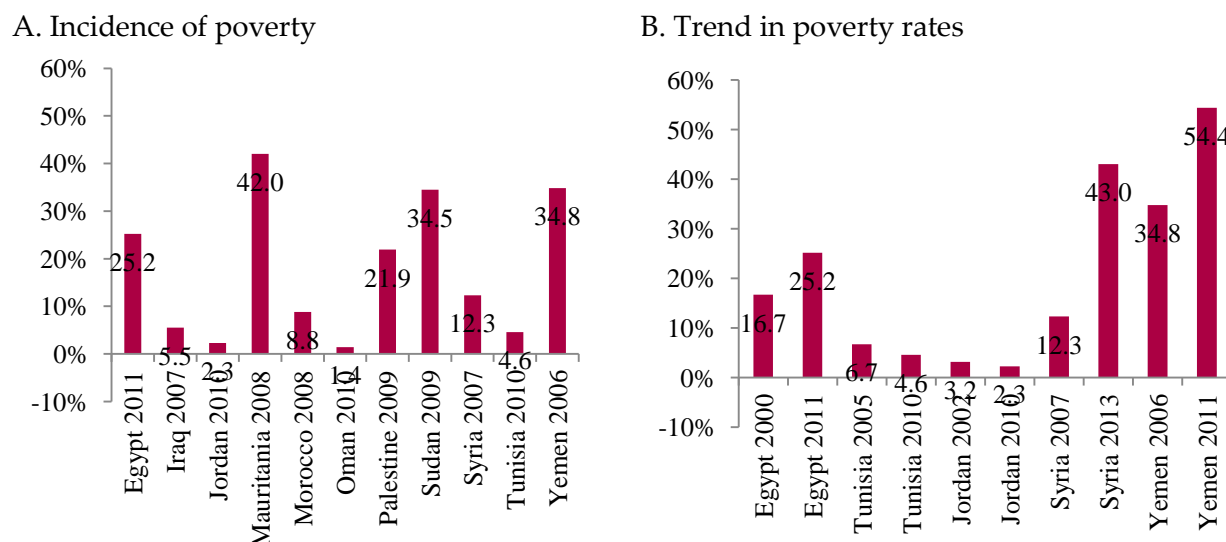
Source: Authors' calculations based on World Bank (2014a).

The regional aggregate poverty based on national lower poverty lines show higher poverty rate than even the \$2.75 poverty line. The estimates based on national upper poverty lines<sup>16</sup> show an additional large number of people are vulnerable to poverty. Using data prior to the crises since 2011, the poor and the vulnerable groups each constituted 21.3 per cent and 19.5 per cent, respectively, of population in the Arab region.<sup>17</sup> This regional average is calculated by taking into account population of nine countries for which detail household full sample survey is available with the authors, and the population of these nine countries account for 60 per cent of the total Arab population in 2011.<sup>18</sup>

The figure 4A shows incidence of poverty, estimated by the lower poverty lines, according to latest household surveys that are available from national sources. However, these data reflect pre-crisis situation in several countries including Syria and Yemen that are affected by crises. Estimated latest poverty rates, by taking into account impact of crises, are significantly high in countries that are affected by crises. For example, in Syria, armed conflict is estimated to have increased poverty from 12.3 per cent in 2007 to 43 per cent in 2013, and in Yemen, the prolonged recession has resulted in increasing poverty from 34.8 per cent in 2006 to 54.4 per cent in 2011 (Figure 4B).<sup>19</sup> Both countries also witnessed a rise in vulnerable population size. Poverty in Egypt has increased in the last decade, in particular rural residents suffered. After a reduction in poverty between 1995 and 2000, Egypt has experienced a continuous increase in the poverty incidence according to national poverty lines since year 2000. Poverty stood at 16.7 per cent in 2000, but in 2005 it had increased to 19.6 per cent, and 25.2 per cent in 2011, despite Egypt experienced high growth rates in both GDP and GDP per capita. It may be explained by the fact

that economic growth has not been shared among larger sections of population, rather it was concentrated in a few sectors with very little participation of the poor.

**Figure 4: Poverty rates (%) in the Arab countries, by the national lower poverty lines**



*Source:* Authors' calculations based on data from Household Budget Surveys of respective countries.

*Note:* The poverty rates in figure 4A are from latest household surveys and they are estimated based on national lower poverty lines. Jordan's official poverty rate is 14.4 per cent in 2010, which is according to the upper poverty line. However, for the purpose of comparability of poverty rates, the rate based on lower poverty line is presented in the figure 4. For Syria and Yemen, the poverty rates in recent years are estimates (figure 4B).

A clear example of disconnect between growth and poverty reduction is Egypt. Between 2000 and 2005, annual average growth rate of GDP was 4.1 per cent and average growth in GDP per capita was 2 per cent. Between 2005 and 2009, annual GDP growth averaged 6.2 per cent and GDP per capita growth averages 4 per cent per year. However, poverty in Egypt (based on national estimates) has increased during the period 2000 onwards, in particular rural residents suffered. From a 16.7 per cent in 2000, poverty increased to 19.6 per cent in 2005, and further increased to 25.2 per cent in 2011.<sup>20</sup> At the sub-national level, rural residents were the net losers as poverty incidence increased most rapidly. Between 2005 and 2009, urban poverty increased by 0.9 percentage points, while rural poverty increased by 2.1 percentage points. The increase in poverty in the last decade is particularly puzzling despite having relatively good growth rates in both GDP and GDP per capita.<sup>21</sup>

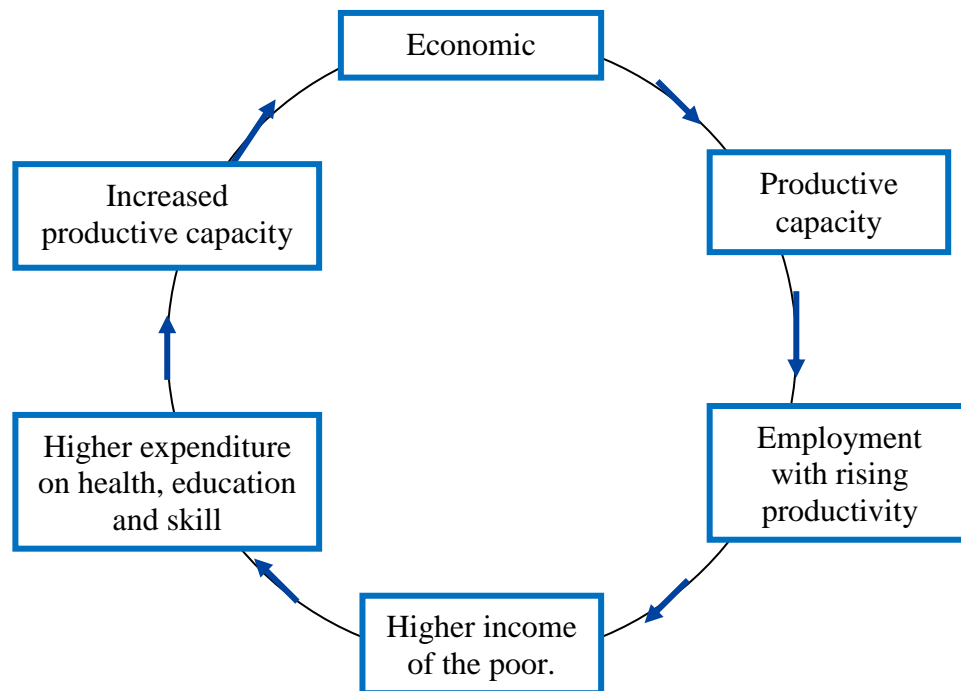
### 3. A framework: Growth, employment and poverty

The quantity of growth tells one side of the story only. It doesn't explain the growth process which in a large way affects the distribution of the benefits of growth and therefore impacts

poverty. The study would argue that the quantity of growth is as important as the pattern of growth which creates more jobs, adds more earnings to workers, generates more productive capacity of workers and lifts the economy to a new level of equilibrium. Among the several studies in the literature on growth and poverty nexus, Islam (2004) articulated the conceptual linkages between the pattern of growth and poverty more comprehensively, which is closer to the perspective of this study. Islam argued that high rates of economic growth results in higher per capita income and reduction in poverty in a situation where growth leads to “improved productivity of various sectors and occupations, a shift in the structure of employment towards occupations with higher levels of productivity, and increases in real wages, earnings from self-employment, and earnings from wage employment”.<sup>22</sup>

The illustration shows the flow in an economy (figure 5). It shows that economic growth can enhance productive capacity that leads to generation of jobs with rising productivity. The workers can benefit by increase in their real wages achieved through higher productivity, which enhances their social expenditure as well as skill development that in turn further increases productive capacity and contributes to economic growth.

**Figure 5. Linkages between economic growth, employment and income**



Source: Adopted from Islam 2004.

The next step is to assess the achievements of the Arab region in terms of selected indicators as illustrated in the conceptual linkages, which helps understanding the pattern of growth, and thereby implicitly shows its association with explaining changes in poverty.

### *3.1 Lack of structural transformation*

The first aspect of the quality of growth is assessed by examining the mobility of the economic structure, such as whether factors of production are moving from low value added to high value added sectors. Arab countries can be divided into two groups on the basis of their resource endowments – those oil-rich or net exporters of oil and gas; b) those non oil-rich or net importers of oil and gas. The figures 6a and 6b show the economic structure of Arab oil-rich and non oil-rich countries respectively since the 1990s. As expected, oil and gas and utilities dominated among all sectors and contributed more than half of the GDP of the oil-rich countries in 1990. The share of oil and gas has reduced slightly by 2012, but it is still the dominant sector. The share of manufacturing in GDP was only 6.63 per cent in 1990, which slightly improved to 8.82 in 2012. The share of service sector has seen an increase during the period, whereas agriculture's share remained negligible throughout.

The economic structure of non oil-rich countries remained more diversified than the oil rich countries (figure 6b), but there as well the share of manufacturing in GDP remained low, and stagnant since the 1990s at around 12.5 per cent. There are of course variations among countries. For instance, the share of manufacturing sector value added to GDP has grown in Jordan, Oman and Tunisia. In the period from 1970 to 2012, the manufacturing sector in Jordan grew from 10 per cent of GDP to 18 per cent, in Oman from 0.4 per cent to almost 10 per cent, and in Tunisia from 9 per cent to almost 17 per cent. On the contrary, the share of manufacturing value added to GDP in Egypt declined from about 22 per cent in 1970 to about 16 per cent in 2012.<sup>23</sup>

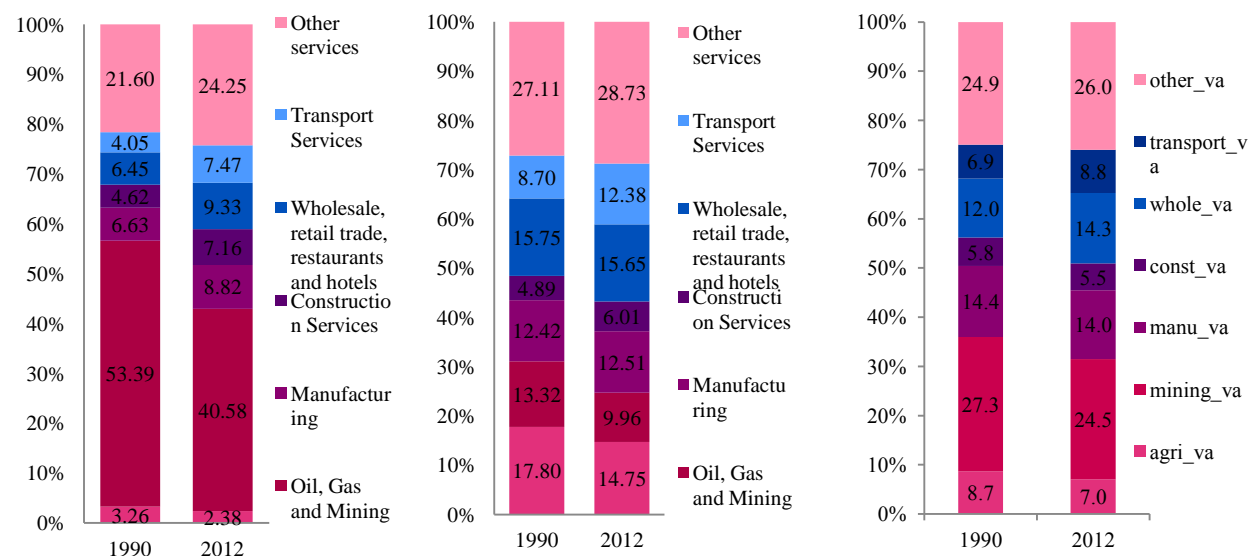
The share of construction, transport and other services value added to GDP has grown in the non-oil-rich Arab countries during 1990 to 2012. In these countries, the share of trade has remained almost stagnant over decades. This is in sharp contrast to the trend in the emerging and developing economies of the world where the share of trade to GDP went up as they benefitted much from being part of global value chain in trade during the last two decades (figure 6c).<sup>24</sup> What is more worrying is that the share of 'other services', which tend to be low value-added activities, continue to have larger share than the high value added sector services. A proper disaggregation of high and low value added activities will require much disaggregated information. In general, trade and transport sectors will carry a mixture of high and low value added activities. Services in the construction activities tend to be low value added. Those activities that are not defined are categorised as 'other services', which tend to be

low value added and informal activities. The share of agriculture to GDP in the non-oil-rich Arab countries has gone down during 1990 and 2012, but it is still high as compared to the aggregate of emerging and developing economies.

In summary, the economic structure of the Arab region can be explained as the following: stagnating shares of GDP of agriculture and manufacturing sectors,<sup>25</sup> a rapidly expanding service sector but mainly concentrated in low value-added activities, and a still dominant oil sector. Therefore, owing to the lack of structural transformation, productivity gains have been the slowest in the world.

**Figure 6: Economic structure (sectoral shares in GDP)**

A. Arab oil-rich countries      B. Arab non oil-rich countries      C. Emerging and developing economies of the world



Source: Authors' calculations based on UN National Accounts (UNSD n.d.b).

Note: Developing economies refer to the IMF classification of emerging market and developing economies. The aggregation in the figure doesn't include China.

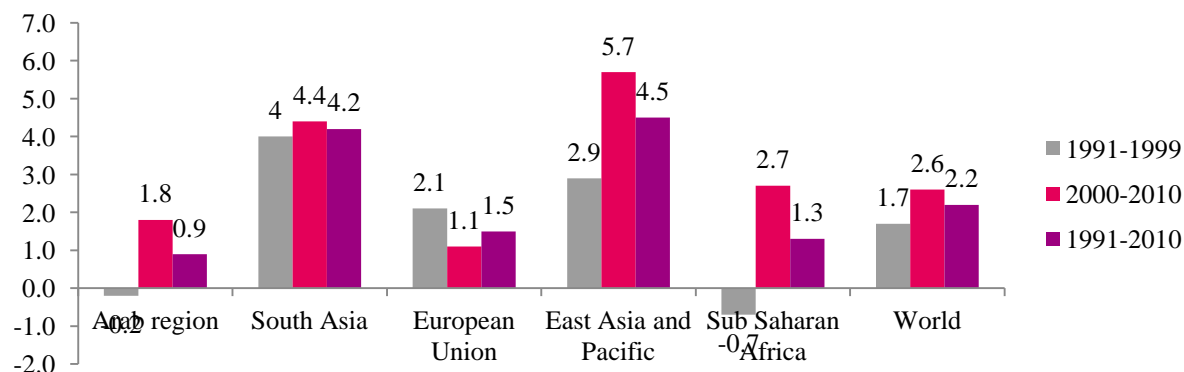
### 3.2 Low productivity growth

Productivity, measured by the ratio of GDP to labour or output per worker, growth rate in the Arab countries registered the lowest as compared with various other regions of the world, including Sub Saharan Africa, during 1991-2010 (figure 7). The growth rate did not exceed the threshold of 1 per cent between 1991 and 2010. In terms of total factor productivity, compared with the benchmark USA, the non-oil-rich countries in the region recorded much lower level

than that of the oil-rich countries, and the relative trend in the TFP has not picked up since 1990, rather shows a slightly declining trend (figure 8).

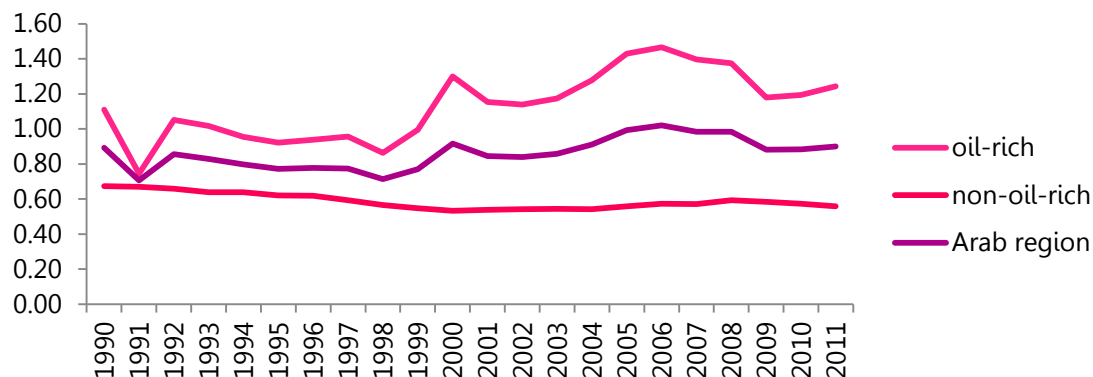
An analysis of productivity gains at the level of the Arab countries shows the role of oil revenues in reducing the economic productivity, where all the Arab Petroleum Exporting Countries (UAE, Saudi Arabia, Qatar, Libya and Algeria) except for the State of Kuwait recorded negative rates of overall productivity. In addition to these countries, Iraq's concentration on oil revenues and its lack of political stability and security contributed in facing a negative growth of productivity factors. While some Arab countries were able to make relative development in their economies through industrialization recorded levels of growth in total factor productivity such as Egypt, Tunisia and Oman, in addition to Lebanon, which came out of a civil war that destroyed its infrastructure.

**Figure 7: Productivity growth rate (%) (GDP per person employed, Constant 1990 PPP\$)**



Source: ESCWA (2013).

**Figure 8: TFP in the Arab region (by resource type countries)**



Note: TFP level at current PPPs (USA=1).

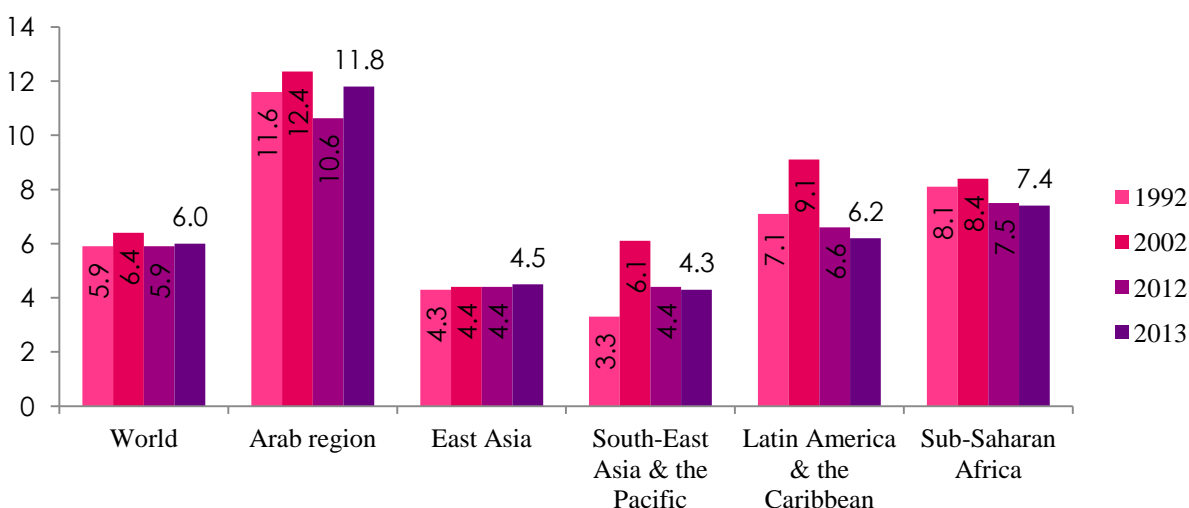
Source: Penn World Table 8.1 (Feenstra et al 2015).

### 3.3 High unemployment rates

High unemployment rates, lack of decent employment opportunities and low real wages are some of the key labour market characteristics of the Arab region. In general, the majority of investment in Arab economies is directed towards the capital-intensive oil sector, low value-added services and construction and real estate sectors, which generate demand for low skilled employment. The result is a mismatch between labour supply and labour demand, where there is an over-supply of skilled labour relative to the demand.

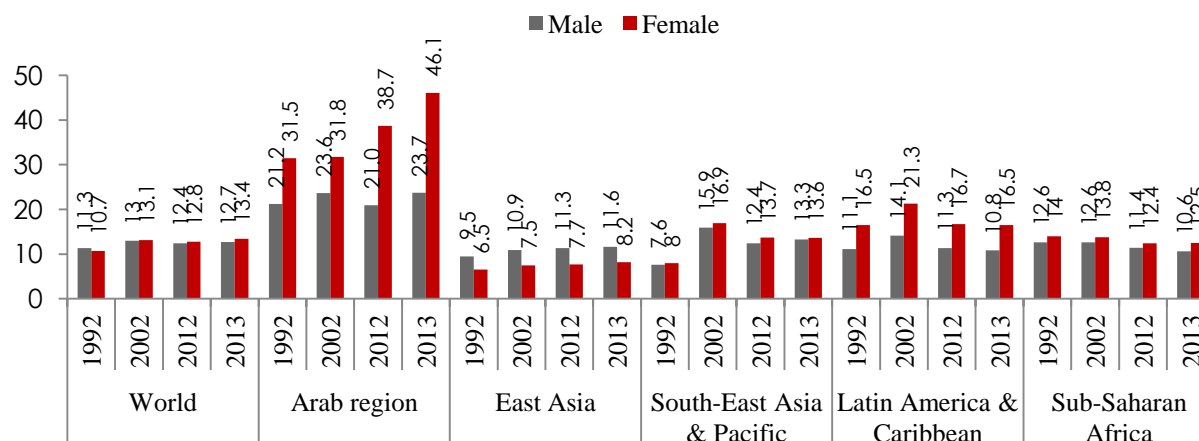
A high unemployment rate has always been the norm in the Arab region (figure 9). Among the causes of high unemployment in the region, increasing population growth and weak labour demand from the formal private sector are important drivers. Several parts of the region being affected by crises, unemployment rate has gone up during 2012 and 2013 from 10.6 per cent to 11.8 per cent. Further, when adult unemployment is high, youth unemployment is much higher. While the world average stood at 13 per cent in 2013, the youth unemployment rate in the Arab region was at 29 per cent (ILO 2014). Youth female unemployment stood at 46.1 per cent as against youth male unemployment at 23.7 per cent (figure 10). The trend also shows that youth unemployment rate has increased in 2013 as compared to 2012. In general, high youth employment rates reflect high birth rates, a youth bulge and excessively rigid labour markets in some countries.

**Figure 9. Unemployment rate (%) across regions, 1992-2013**



Source: ILO (2014).

**Figure 10. Youth Female and male unemployment rate (%) across regions, 1992-2013**



Source: ILO (2014).

Note: Data for 2013 are ILO estimates; Prior to 2013 are national data.

In many Arab countries, the better educated youth are more likely to be unemployed than their less skilled counterparts.<sup>26</sup> In recent years, over 30 per cent of qualified young people were unemployed in the Arab region, representing over 40 per cent of the total unemployment rate.<sup>27</sup> In Tunisia, 33.6 per cent of those with university degrees were unemployed. Unemployment in the Arab region is persistent in both low and high income households.<sup>28</sup> This correlates with the high unemployment rates of more educated workers who predominantly come from better off families, lending further support to the idea that Arab economies fail to generate decent jobs for the population as a whole.

The gender component to youth unemployment warrants more concern. From 1992 to 2013, the female youth unemployment rate of the Arab region increased from 31.5 per cent to 46.1 per cent. The female youth unemployment rate is considerably higher than the male youth unemployment rate, although in many Arab countries women represent the majority of skilled university graduates. It may be noted that female labour force participation has seen an increasing trend during the last two decades although the rate is still very low as compared to the World average. But high unemployment rate of the female youth shows that the labour market has been unresponsive to higher participation of females seeking jobs.

### 3.4 Lack of decent employment opportunities

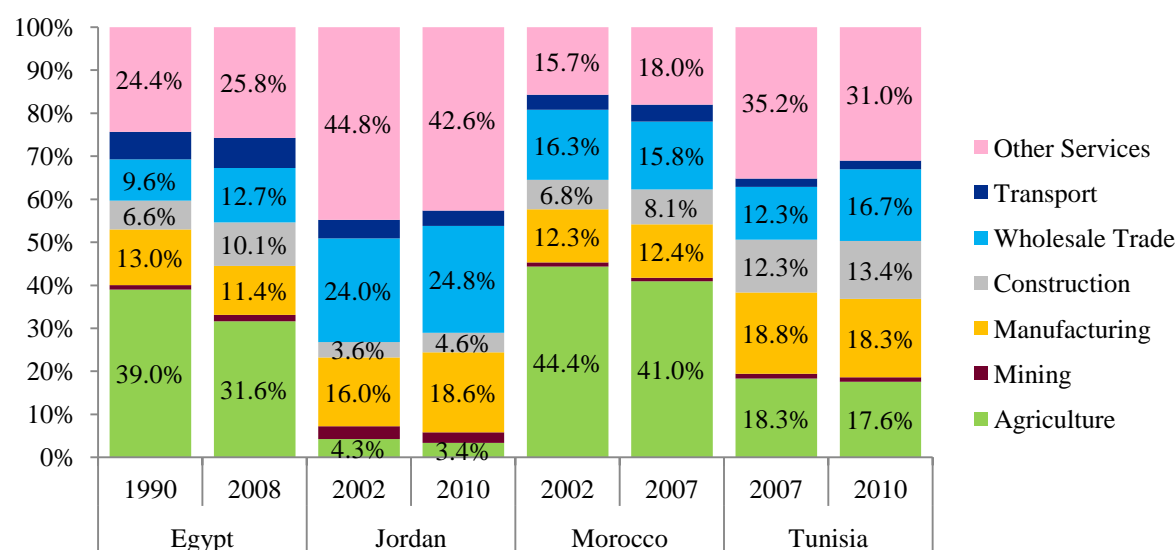
During the decade or so preceding the uprisings, the Arab region achieved fairly high rates of economic growth and relatively fast employment creation.<sup>29</sup> But the impact on people's quality of life was less evident: "employment generation was not accompanied by the creation of decent



jobs, that is, jobs that met the expectations of the increasingly educated job seekers and the aspirations of the middle classes”.<sup>30</sup> Therefore, although the region’s employment growth was the highest in the world at 3.3 per cent a year on average between 1998 and 2009, compared to an annual growth of 1 per cent in East Asia and developed countries and just over 2 per cent in Latin America and South Asia, the jobs that were created were largely in the low value-added sectors that are typically associated with informal sector activities.<sup>31</sup>

The sectoral employment data in four selected more diversified economies in the region indicates that manufacturing employment share is low and it has remained stagnant or declined in three out of the four countries (Figure 11). Agriculture still constitutes more than one third of employment in Egypt and Morocco and a little less than one fifth of employment in Tunisia, although its share has slightly declined over the years. During the same period, employment share in wholesale and retail trade has increased in Tunisia and Egypt, but not so in Jordan and Morocco. Share of construction sector employment increased in all the four countries, and the share of ‘other services’ remained high in Egypt, Jordan and Tunisia, since the 1990s.

**Figure 11. Employment shares (sectoral) in the four selected more diversified economies**



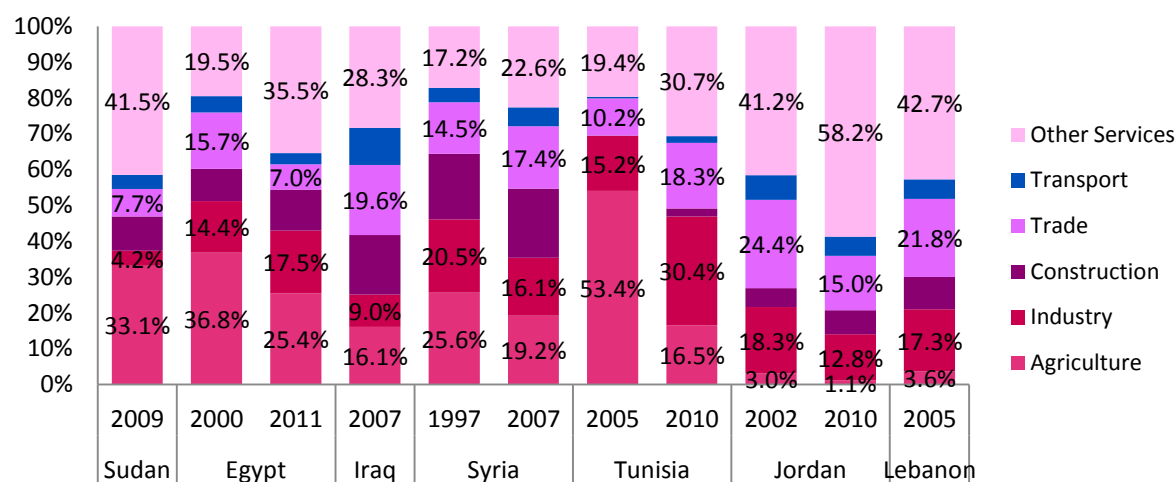
Source: ILO 2014.

The study combined the overall sectoral employment information with youth occupation in the middle class households as reported in the household surveys. Among the middle class households, the non-agricultural sector is the main source of occupation for the majority of employed youth, but a significant number of them are absorbed in “other services” (figure 12). For example, 35.5 per cent of youth occupations in Egypt in 2011 were in “other services”, 22.6 per cent in Syria in 2007, 58.2 per cent in Jordan in 2010 and 30.7 per cent in Tunisia in 2010. The

structure of economies across countries explains the diversity of youth occupation sectoral profiles, which implies that countries with higher diversity in economic structure have a higher share of non-agricultural jobs, compared to those with relatively greater reliance on agriculture.

Between 2000 and 2011, there was a major shift from agricultural to non-agricultural occupations among young people, a trend that is distinctly noticeable across Egypt, Jordan, the Syrian Arab Republic and Tunisia (figure 12). The share of industrial jobs increased in some countries, such as in Egypt and Tunisia, although they are at low levels, while trade and transport sector occupations increased in the Syrian Arab Republic but not in Jordan. Importantly, construction jobs and “other services” that are mostly low value-added in nature, increased in all the four countries. This shift from agricultural to non-agricultural occupations could be the result of education expansion in the region, especially higher education. The greater diversification of occupations in Tunisia can be attributed to its successful shift from an agricultural to a non-agricultural economy in the post-reform era that began in the 1990s. However, a lack of industrial development and modern high value-added service sector development in most Arab countries has increased service sector jobs, mostly in the “other services” category that tend to be informal in nature.

**Figure 12. Distribution of middle class youth employment across economic sectors**



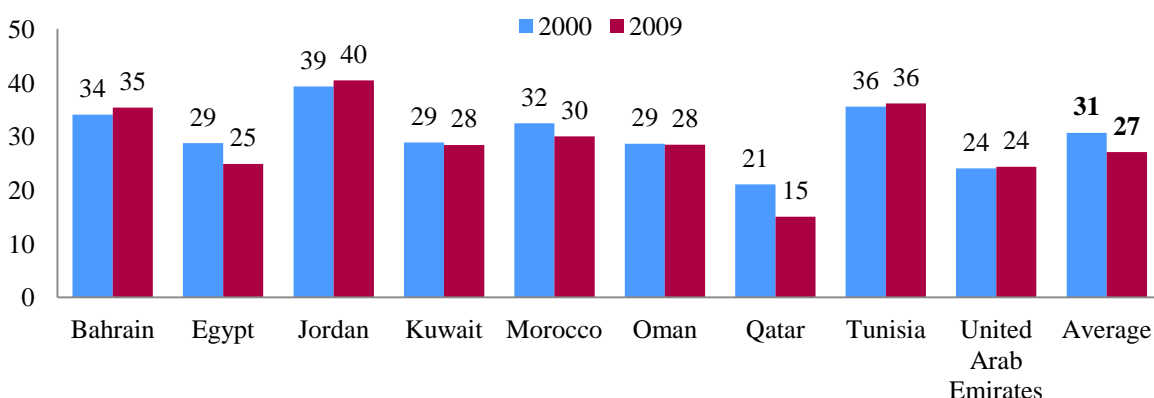
Source: ESCWA (2014a).

### 3.5 Stagnant or declining real wages

Given that productivity is among the lowest in the region, wages are also low and real wage is declining or constant in most Arab countries.<sup>32</sup> Wages as a percentage of GDP (derived from national accounts) in the Arab region have been declining, from 31 per cent in 2000 to 27 per cent in 2009 (figure 13). Egypt witnessed the most dramatic decline, where the wage share

dropped from 29 per cent to 25 per cent of GDP between 2000 and 2009. Economic growth has thus benefitted employers and capital holders instead of workers, given that real wages have not increased significantly since the 1970s (figure 14). In fact, the Arab region is the only region where real wages have declined, dropping by 2.7 per cent between 2006 and 2011.<sup>33</sup>

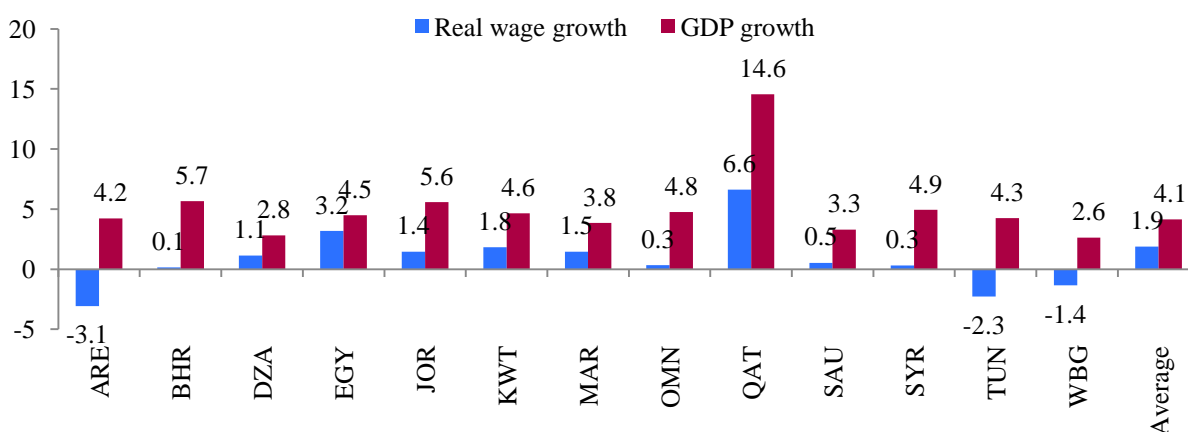
**Figure 13. Wages as a percentage of GDP, 2000 and 2009**



Note: Regional average is population weighted.

Source: ILO (2012b).

**Figure 14. Growth rates of wage share and GDP, 1990s-2000s**



Note: Regional average is population weighted.

Source: Authors' calculations based on ILO (2012b) and the World Bank (2014b).

### 3.6 Widening gap between "rich" and "poor"

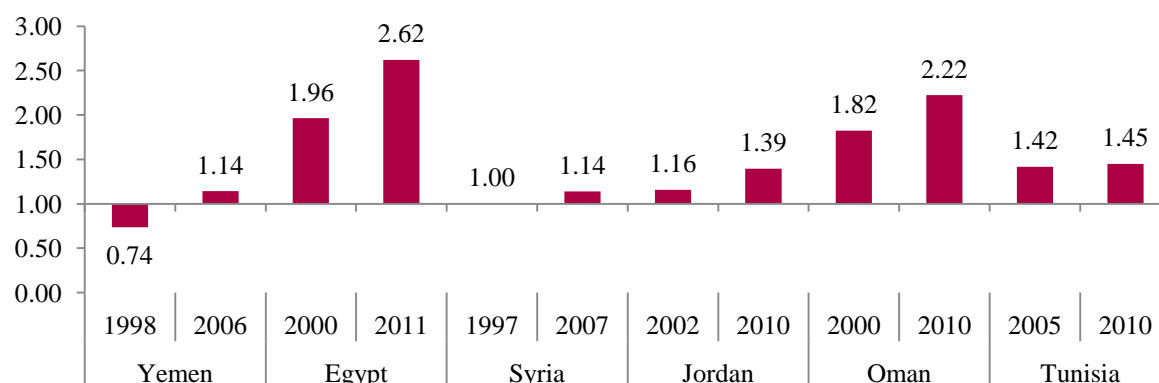
Income inequality suffers from several measurement challenges in the region, but mainly due to household expenditure surveys being not an effective instrument in capturing the expenditure of the wealthy people.<sup>34</sup> Based on survey data, a general notion is that income inequality, Gini index, is relatively moderate (varies between 0.3-0.4) in the Arab region and has changed little

over the last two decades. A recent study of Egyptian household survey data by Hlasney and Verme (2013)<sup>35</sup> suggested low and stagnant inequality in Egypt. Therefore, they related the reasons behind the Egyptian revolution to perceptions of inequality rather than actual experienced inequality. Alvaredo and Picketty (2014) cited severe data limitations<sup>36</sup> in availability of income tax records and challenges in survey data in order for computing a reliable inequality index that reflect the nature of growth and perceptions of wellbeing among people across countries in the region. They, however, suggested that increased inequality across countries in this region is a serious concern.

A recent report on wealth, produced by Credit Suisse (2014), indicates that wealth gini is 0.80 in Egypt and the latter is among the countries in the world that witnessed fastest rise in wealth inequality in recent years along with China and Hong Kong, China (SAR). This finding suggests that the household expenditure surveys are not able to capture the expenditure of the top wealthy in Egypt and therefore a moderate income gini may be expected. Another indicative of the “missing wealthy” in the household expenditure surveys can be substantiated by the fact that the difference between the private final consumption expenditure per capita from national accounts data and the one actually experienced by households from the surveys has been increasing over time. Had there not been cases of rising wealthy, the difference between the two measures would have been similar over time.

The study examined this proposition from the two sources of data. First, high level of disparity exists between household final expenditure per capita from national accounts and household consumption expenditure per capita from survey. For example, in Egypt (2011), the per capita household final expenditure was 2.6 times higher than that reported by the survey based per capita consumption expenditure (figure 15). Similarly high levels of divergence were noted in Jordan, Oman and Tunisia. It may be noted that the gap between the two measures may not be a surprise but a high level of gap certainly raises alarm regarding significant missing items in the expenditure surveys. Importantly, the gap between the two measures increased over time for all countries in the sample. Empirical exercises from several countries, as well as conceptual analysis, provides a basis to argue that the widening divergence between the two measures indicates increased inequality over time,<sup>37</sup> even when taking into account that household expenditure surveys might miss some consumption items and that national household final expenditure includes some components that household consumption surveys do not cover.

**Figure 15. Trends in the ratio between household final expenditure per capita (from National Accounts) and household consumption expenditure per capita (from Survey)**



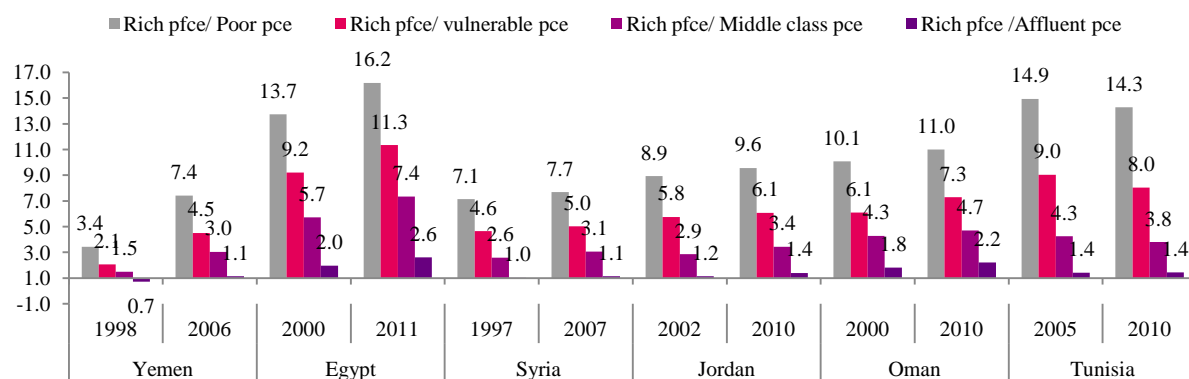
Source: ESCWA (2014a).

Extending this exercise, the disparity between the average expenditure of the ‘rich’ (on the basis of distribution of household final expenditure per capita from national accounts) and the average expenditure of different population classes (from household survey data) is estimated. The exercise essentially combines the information on expenditure from both sources to estimate the mean consumption of the “rich” who are at the top end of the hypothetical distribution of national accounts, and they are often not captured by the household surveys. To calculate the average expenditure of the “rich”, the underlying assumption was that the distribution of mean household final expenditure per capita across economic classes in the national accounts was the same as that of household survey-based consumption expenditure per capita. Conceptually, the survey based consumption mean observes a lower variation across the distribution than that of the distribution of private expenditure in the national accounts. Therefore, assuming the same variation of mean in both distributions, the average expenditure of the ‘rich’ will tend to be at the lower side of estimation than otherwise.

The ratio between per capita expenditure of the ‘rich’ to the per capita expenditure of different population classes from the survey based consumption data is presented in figure 16. The results are sharp and striking, as would be expected from the countries in the region. For example, the ‘rich’ in Egypt have 16 times higher per capita expenditure than the poor, 11 times more than that of the vulnerable class, 7 times more than that of the middle class and 2.5 times than that of the affluent consumption class. Similar high level of divergence is noted in Tunisia as well. The ratio between average expenditure of the ‘rich’ and middle class ranges between 3 in Jordan, Syria and Yemen to 7 in Egypt. The ratio earns a progressively higher value for the vulnerable and the poor, and a lower value for the affluent class across the countries.

Over the decade, the ratio between average expenditure of the ‘rich’ and other consumption based population classes have increased significantly in all countries except for Tunisia. For example, in Yemen, the ratio between average expenditure of the ‘rich’ to average expenditure of middle class has doubled during 1998 and 2006; in Egypt that increased from 5.7 to 7.4 during 2000-2011; in Jordan that increased from 2.9 to 3.4 during 2000-2010 and so on. In Tunisia, that ratio shows relatively stable gap around 4, during 2005-2010.

**Figure 14. The ratio between average expenditure of “rich” and average expenditure of other economic classes**



Source: ESCWA (2014a).

Note: Pfce stands for per capita final consumption expenditure from national accounts, and Pce for per capita expenditure

This disparity analysis helps strengthen the argument that inequality in Arab countries widened in the 2000s. In other words, the share of national income commanded by the middle class, the poor and the vulnerable declined over time.<sup>38</sup>

## 4. Methodology

The poverty impact of the pattern of growth and inequality is estimated by using the following methodology.

### *i. Poverty as a function of growth and inequality*

A typical poverty measure  $P_\alpha$  can be written by

$$P_\alpha = f(z, \mu, L(p))$$

Where  $z$  is the poverty line,  $\mu$  is the mean income (or expenditure) and  $L(p)$  is the Lorenz curve measuring the relative income (or expenditure) distribution, which can be expressed as the Gini

index ( $G$ ).<sup>39</sup> Son and Kakwani (2004) have shown that the extent to which economic growth reduces poverty depends on growth as well as change in inequality along with growth.

Islam (2004) argued that not just growth but the nature of growth that increases productivity and employment intensity helps poverty reduction better. He estimated cross country regression for change in poverty due to change in growth and employment elasticity.

$$P = f(dY, EE)$$

Where  $dY$  represents GDP growth and  $EE$  represents employment elasticity with respect to output. Islam (2004) also took into consideration change in gini as an explanatory variable as growth can also be affected by the degree of inequality in the distribution of income. He, however, has not considered decomposing growth into productivity and employment intensity. He did analyze growth in certain economic sectors that can impact change in poverty, but his sectoral classification was limited to only agriculture and manufacturing.

Keeping this in background, the study aims to find answers to the following questions:

- To what extent economic growth and inequality growth matter for change in poverty?
- Does productivity and employment intensity of growth matter for changes in poverty?
- Is there a sectoral pattern such that growth in productivity and employment intensity in specific sectors matter for changes in poverty?

Therefore, the next step was to decompose growth into its various components.

## *ii. The pattern of growth – a decomposition exercise*

First, the study applied Shapely decomposition rule to calculate changes in per capita GDP (growth) into contributions from productivity, employment intensity and demographic shifts in share of workers. Second, contributions from aggregate productivity and employment intensity are decomposed into different sectors.<sup>40</sup> The Shapely decomposition exercise of growth largely draws upon Gutierrez et al (2007), along with some important modifications in terms of sectoral disaggregation.<sup>41</sup>

To begin with, per capita GDP ( $Y/N$ ) can be written as:

$$\frac{Y}{N} = \frac{Y}{E} \times \frac{E}{W} \times \frac{W}{N}$$

Where  $\frac{Y}{E}$  represents output per employed worker,  $\frac{E}{W}$  represents employment rate (employment/working age population), and  $\frac{W}{N}$  represents the share of working age population (or the reverse of dependency rate).

Taking into account  $k$  sectors in the economy, the above equation can be written as:

$$\frac{Y}{N} = \left( \sum_{i=1}^k \frac{Y_i}{E_i} \times \frac{E_i}{W} \right) \times \frac{W}{N}$$

for  $i = 1, 2, 3, \dots, k$  sectors

In other words,

$$y = \left( \sum_{i=1}^k y_i' e_i \right) w$$

where  $y$  is the GDP per capita,  $y_i'$  is value added per worker in sector  $i$ ,  $e_i$  is employment rate in sector  $i$  (measured by employment in sector  $i$  divided by working age population), and  $w$  is the share of working age population (population in the age group of 15-65 divided by total population), which can be read as the inverse of dependency rate.

The study applied the Shapley Value decomposition method to assess the contribution of changes in factor inputs to changes in per capita GDP, such as changes in productivity, employment intensity and share of working age population. The Shapley Value is an allocation method that assigns the total gain of a coalition of players among its members as a function of what they contribute to the coalition.<sup>42</sup> In other words, the total gain of a coalition of players is the sum of marginal contribution of each player to the coalition. A caution is that the contribution of a player depends on the order in which the player joins the coalition. Therefore, the Shapley rule weights each possible coalition by its probability and assigns to every player the average of all marginal contributions that this individual can make to all coalitions.

In the context of decomposing growth, applying Shapely rule implies considering the impact on growth of eliminating each source of contribution to growth in a sequence. Since there is no natural order of elimination, the average of these impacts is estimated over all possible sequence of eliminations. So, to consider impact of any given source, the study applied the before-after concept to the set of all possible combinations of sources of growth, and took the average of all contributions. For instance, the amount of growth that can be attributed to changes in output per worker ( $y'$ ) would be obtained by calculating the resulting growth in per



capita value added under the hypothetical scenario in which employment rates (e) and the share of the working age population (w) had remained constant, but output per worker had changed as observed. The difference between the resulting hypothetical growth and the observed growth is defined as the contribution of changes in output per worker to per capita value added growth.<sup>43</sup>

Applying the Shapley decomposition approach:

$$\bar{y} = \sum_{i=1}^k \bar{y}_i' + \sum_{i=1}^k \bar{e}_i + \bar{w}$$

Where  $\bar{y} = \Delta y/y$  that represents percentage changes in per capita value added (measure of growth), similarly  $\bar{y}_i'$  is the amount of growth that can be attributable to changes in productivity in each sector,  $\bar{e}_i$  is the amount of growth that can be attributable to changes in employment rate in each sector and  $\bar{w}$  is the contribution to growth due to changes in share of working age population.

Growth in poverty ( $\Delta P_\alpha/P_\alpha$ ) is estimated by taking into account economic growth ( $\bar{y}$ ), its decomposition into various elements such as  $\bar{y}_i'$ ,  $\bar{e}_i$  and  $\bar{w}$ , and inequality growth ( $g = \Delta G/G$ ). Therefore, to analyse change in poverty is correlated with economic growth and inequality, the following eq (1) is estimated:

$$\Delta P_\alpha/P_\alpha = \beta_0 + \beta_1 \bar{y} + \beta_2 g \dots \text{eq (1)}$$

To analyse change in poverty is correlated with the productivity and employment intensity of growth, the following eq (2) is estimated:

$$\Delta P_\alpha/P_\alpha = \beta_0 + \beta_1 \bar{y} + \beta_2 \bar{e} + \beta_3 \bar{w} + \beta_4 g \dots \text{eq (2)}$$

To analyse how the sectoral productivity and employment profile of growth is correlated with changes in poverty, the following eq (3) is estimated:

$$\Delta P_\alpha/P_\alpha = \beta_0 + \sum_{i=1}^k \beta_i \bar{y}_i' + \sum_{i=1}^k \gamma_i \bar{e}_i + \varepsilon \bar{w} + \delta g \dots \text{eq (3)}$$

Since the variables are measured in annual percentage changes, the regression coefficients can be interpreted as the (partial) elasticity of the poverty measure  $P_\alpha$  with respect to the explanatory variables. For instance, the  $\beta_i$  coefficients indicate the percentage change in the  $P_\alpha$

that is likely to associate a 1 per cent increase in productivity-intensive growth in sector  $i$ , and the coefficients  $\gamma_i$  indicate the percentage change in the  $P_\alpha$  that tends to associate with a 1 per cent increase in employment-intensive growth in sector  $i$ . Similarly the coefficient  $\varepsilon$  represent the percentage change in the  $P_\alpha$  for a 1 per cent change in the share of working age population, and the coefficient  $\delta$  indicate the percentage change in the  $P_\alpha$  for a 1 per cent change in the gini index.

### *iii. The choice of poverty line*

The study used two measures of poverty<sup>44</sup> (income):  $P_\alpha \rightarrow P_{1.25}, P_{2.50}$ .<sup>45</sup> The  $P_{1.25}$  shows the extreme poverty based on the \$1.25 a day poverty line (2005 PPP), which is used by the World Bank to track global poverty. The \$1.25 a day poverty line however severely underestimates poverty in the Arab region, as discussed in the first section of the paper. Not just in the Arab region, the \$1.25 has limited relevance in the Latin America and Caribbean region too due to similar reasons.<sup>46</sup> Studies by Atkinson and Bourguignon (2000), Reddy and Pogge (2005), Pritchett (2006), and Pogge (2008) among others, have argued that the low poverty lines of \$1 a day and \$ 2 a day do not capture global poverty adequately, in conjunction with the controversies associated with application of PPP (Deaton 2010). Nevertheless, choice of an international poverty line significantly affects the global poverty count and its rate of change. For instance, Pogge (2008) estimated that global poverty (by the \$2.50 a day poverty line) actually regressed by 12 per cent between 1990 and 2008 as against the notion of fast pace of reduction in poverty (by the \$1.25 a day) in the run up to achieve the MDG1 target by 2015. Pritchett (2006) had suggested alternate monitoring of poor and the 'not poor' by using different poverty lines, such as the destitute (below a lower bound of \$1.50 in 2000 prices), the extreme poverty (below \$3.00 a day in 2000 prices), and global poverty (below \$15 a day in 2000 prices). The critical point is that the \$1.25 a day measure understates poverty count globally as well as in many countries and regions, and particularly in the Arab region.

In line with the arguments of Pritchett (2006) and Pogge (2008), and from own assessment of concentration of people between the lines \$1.25 a day and \$2.75 a day in the Arab region (figure 3), another poverty line of \$2.50 a day ( $P_{2.50}$ ), by 2005 PPP, is selected. The poverty rates by the \$2.50 a day closely corresponds to national poverty estimates in several countries, such as in Egypt. Meanwhile, the World Bank has constituted the 'Commission on Global Poverty' on how to measure and monitor global poverty by taking into account different concerns, including possibility of monitoring income poverty by using different poverty thresholds, and possibility of monitoring poverty by other non-income dimensions. While the report is being drafted, it clearly indicates a general concern to take into account different aspects in measuring and monitoring poverty. Hence, the study used the two poverty lines to examine the difference in

impact with regard to how economic growth impacted the extreme poor (those below the \$1.25 a day in 2005 PPP) and the poor (below the \$2.50 a day in 2005PPP) during the MDGs period between 1990 and 2013, as data are available.

## 5. Data

### *i. Selection of countries*

To obtain empirical results using the methods described above, it was necessary to expand the dataset beyond the Arab region. The data availability for the Arab region, particularly data needed for measuring sectoral growth and employment, was too limited to allow for robust analysis of solely the Arab region. In order to expand the dataset, the study went with a wider selection of countries, the broad country classifications given by the IMF, emerging markets and developing economies (EMDEs).<sup>47</sup> Relative to more narrow classifications (e.g. the World Bank's income groupings<sup>48</sup>), the wide selection of 152 countries within the EMDE classification allows analysis to achieve a large enough sample size without relying on the inclusion of developed economies, which are structurally different from developing economies, but with data that is more readily available.

Furthermore, the use of the EMDE country grouping for analysis of economic growth, wages, and poverty is common in both IMF and World Bank papers. In papers with similar research questions, the IMF has used the EMDE country groupings in research on long term growth periods and economic resilience,<sup>49</sup> while the World Bank has analysed employment and wage growth across emerging and developing countries.<sup>50</sup> The implicit rationale is that EMDEs can be expected to share similar statics and dynamics relative to the indicators of interest: employment, productivity, wages, and poverty.

### *ii. Selection of indicators*

After the country selection was finalized, choosing specific indicators and their data sources was the next step. The framework for Shapely decomposition best informed this process. Based on the equations shown previously in the analytical framework section, it was clear that data needs for the study include: sectoral employment, value added by sector, percent of population under the poverty line, inequality, working age population, total population and mean wage.

Poverty and wage data used in the analysis were gathered from national surveys at the individual country level. Inequality, as measured by the Gini coefficient, energy imports, education and population, were sourced from the World Bank's World Development Indicators

(WDIs). Due to a dearth of alternative sources for poverty and wage data, and the reliability of the WDIs, the selection of these indicators was relatively straightforward once methodological framework was determined. Sectoral employment and sectoral value added data were sourced through the ILO and UNCTAD respectively. All data listed and available for each country from 1980 onward were collected and sourced.

### *iii. Construction of indicators*

Before beginning the analysis, some data was adjusted and other data was used to calculate new variables. Using the data on GDP, working age population, total employment, and total population, working age population as a percent of the total population, employment as a percent of working age population, GDP per capita, and total productivity were calculated.

Another main adjustment required was to consolidate all sectoral data into comparable sectors. Due to the long time span of the methodology, the sectoral classifications used in GDP and employment disaggregations were not static across time and needed to be adjusted for use in a panel dataset. The three types of classifications used, at different periods of time for different countries, are the International Standard Industrial Classification (ISIC) revisions 2, 3.1, and 4. For comparability between revisions, the study followed the correspondence tables provided by UN Stats<sup>51</sup> and consolidated employment and value added data into the 7 broad sectors of: Agriculture, Mining, Manufacturing, Construction, Wholesale and Retail Trade, Transport and Information, and Other Services. These broad categories were then used to calculate sectoral productivity and sectoral employment shares (of working age population).

The final step was identifying the countries with at least two years of full data. From these, this study was able to calculate growth spells and obtain the data needed to estimate the empirical models. In the end, the full dataset consisted of 344 growth spells from 52 different countries, including 8 growth spells from Egypt, Jordan, Morocco and Tunisia. The length of any given growth spell is between 1 and 17 years, but the annualised rate of change of all the variables of interest is calculated. So, each data point corresponds to an annualised percentage change in the variable in a specific country.

The *measure of growth* in this study is thus percentage change in per capita value added. *Productivity* is calculated as value added per worker. This implies that change in productivity may capture several aspects, including due to changes in the (a) capital/labor ratio, (b) changes in total factor productivity, and (c) mobility of workers from the low end of productivity sectors to higher value added productivity sectors. Therefore, increasing productivity doesn't necessarily mean higher wages per worker. *Employment rate* is defined as the employed people

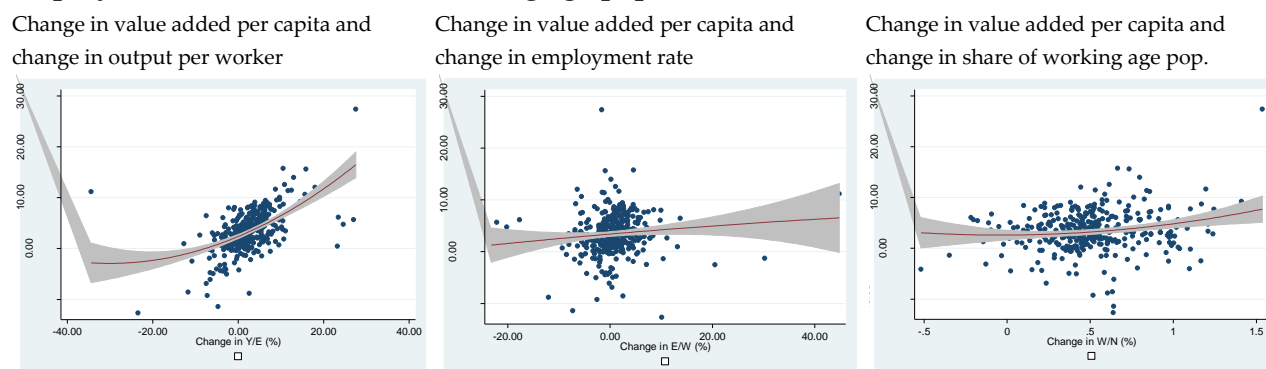
as a fraction of the working age population. The *share of working age population* is the fraction of working age population to the total population. We also included poverty headcount ratios measured by less than 1.25 PPP\$ a day and less than 2.50 PPP\$ a day. The former indicates extreme poverty and the later was introduced because poverty rates based on this measure are closer to national poverty estimates of many countries. The percentage change in poverty rates and gini index are calculated in similar fashion. Given these information, this allowed us to estimate countries' ability to reduce poverty based on components of growth, sectoral breakdown of growth, changes in gini index, and so on, as represented in the methodology section.

## 6. Empirical results

### i. Descriptive statistics

The figure 15 shows association between growth in per capita value added with growth in productivity, employment intensity and share of working age population. The association between growth in output per worker and per capita value added is positive and strong as expected. This implies that more output per worker is associated with rising per capita value added, either translated through wages or higher profit in case of self employment. The growth in employment rate as well as in the share of working age population are also positively correlated with growth in value added per capita, but the scatter plots show that their association is more flattened with large confidence intervals, which indicates that their association is less strong. One would expect that more employment implies more earning per workers however, increasing jobs doesn't necessarily associate with strongly rising per capita value added. The unclear pattern may be attributable to more capital intensive growth or rising employment in low value added sectors where wages are low.

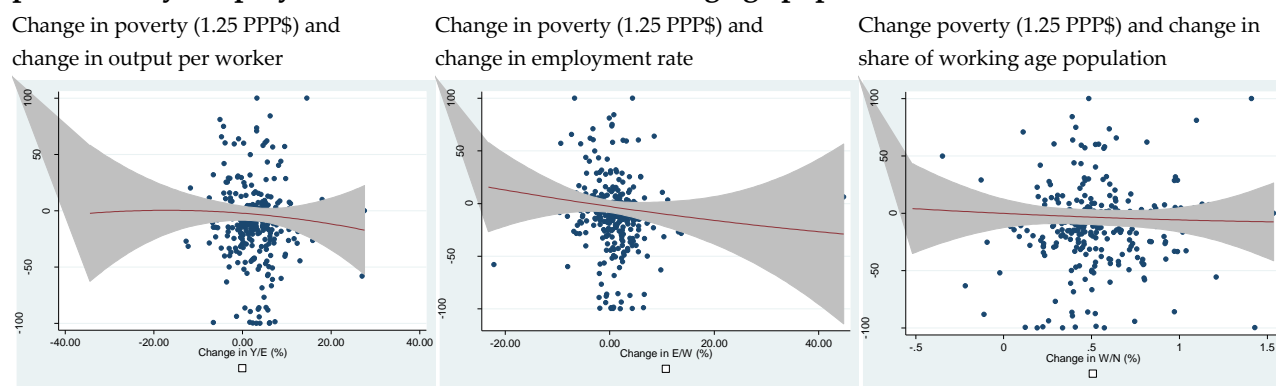
**Figure 15. Association between growth in per capita value added and growth in productivity, employment rate, and share of working age population**



Source: Author's calculation

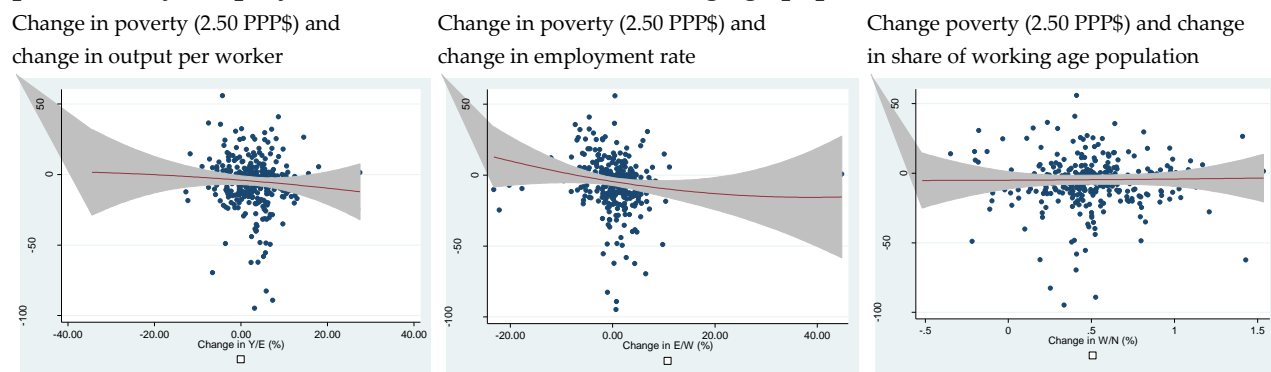
The figure 16 and figure 17 show the association between growth in poverty (by \$1.25 and \$2.50 respectively) with growth in productivity, employment rates and share of working age population. Changes in productivity-intensive growth as well as changes in employment intensity tend to associate negatively with poverty reduction (by both measures), which implies that higher productivity or more employment have an impact on poverty reduction. However, the pattern is less strong as there are large confidence intervals in their associations. The association between change in share of working age population and poverty (by both measures) shows hardly any pattern. The confidence intervals are too large to draw any conclusion.

**Figure 16. Association between growth in poverty rates (1.25 PPP\$) and growth in productivity, employment rate, and share of working age population**



Source: Author's calculation

**Figure 17. Association between growth in poverty rates (2.50 PPP\$) and growth in productivity, employment rate, and share of working age population**

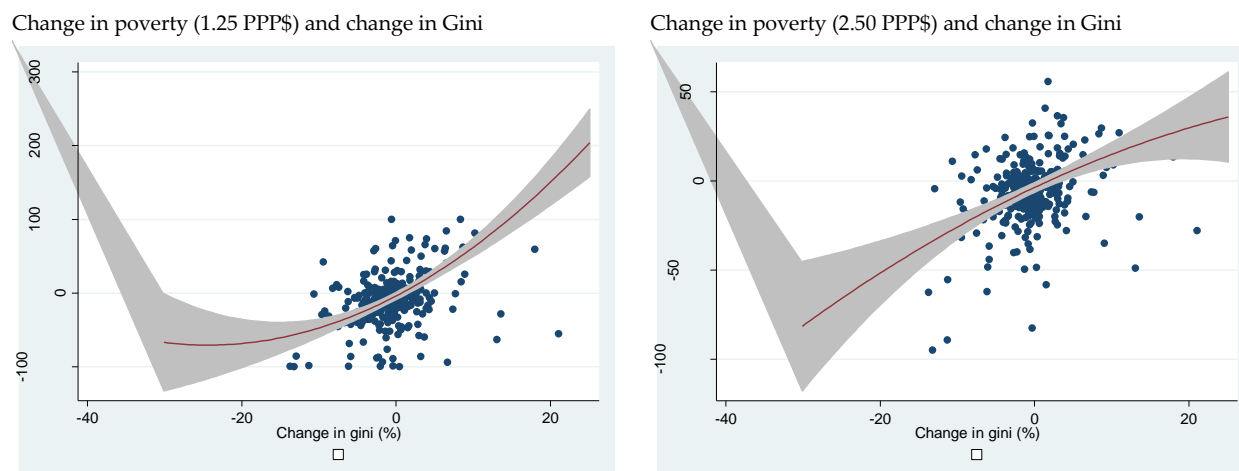


Source: Author's calculation

The figure 18 show association between changes in inequality and poverty, measured by both \$1.25 and \$2.50. Their association looks positive and strong, which implies that higher inequality tend to exasperate poverty, measured by any definition of poverty. On the left end of the figure, one would notice that reduction in inequality tends to reduce poverty. However, the

confidence interval is much larger here, which implies that there are also other factors that contribute to reduction in poverty while inequality declines.

**Figure 18. Association between changes in poverty rates and changes in gini index**



Source: Author's calculation

## ii. Estimation results

The first question was to analyse what matters more for poverty reduction – whether growth or inequality? We estimated equation (1) for two measures of changes in poverty: the extreme poverty measured by less than 1.25 PPP\$ (2005 PPP) and a broad measure of poverty by less than 2.50 PPP\$ (2005 PPP), henceforth poverty refers to the rate corresponding to 2.50 PPP\$ (2005 PPP). The aim is to examine the differences in coefficients of the explanatory variables in the two equations that influence changes in extreme poverty and poverty. The magnitude of the coefficients will indicate the sensitivity of the impacts due to concentration of people around the corresponding poverty lines. The starting point was to estimate equation (1) which regresses poverty variables (separately) on overall growth in value added and gini index. The ratio of poverty line(s) to per capita value added was added to the equation as an indicator to examine the relative importance of poverty cut offs in relation to level of per capita income.<sup>52</sup> Upon estimating the equations, several formulations were tried by looking at the variance of the residuals and come up with the final formulation using the equation with robust estimates of standard errors.<sup>53</sup> The results of equation (1) are presented in Table 1, separately for extreme poverty ( $Z=1.25$ ) and poverty ( $Z=2.50$ ).

The estimates of the first equation indicate that both economic growth and growth in gini are highly correlated with growth in poverty rates (for the two measures). The coefficients of growth and gini index are significant at 1 per cent level. As explained in the methodology, the coefficients can be interpreted as growth or inequality elasticity (partial) of poverty. A 1 per cent

increase in value added per capita tends to reduce extreme poverty rate by -2 per cent and poverty rate by 1.46 per cent. The sensitivity of growth effect is more in impacting extreme poverty than that for the poverty, which is expected where a large number of people are concentrated around the extreme poverty line than the other poverty line. This is a typical scenario in most emerging and developing countries around the world, and in particular in the Arab region as discussed in the section 2 of the paper.

The inequality effect indicates that a 1 per cent rise in inequality tends to aggravate extreme poverty by 5.6 percent and poverty by 2 per cent. In other words, an improvement of gini index by 1 per cent will tend to reduce extreme poverty at a much higher rate than it can reduce poverty. So a small improvement in distribution of income may impact in reducing extreme poverty but in order to reduce poverty (by 2.50 PPP\$) there need to be a significant improvement in the income distribution. The ratio of poverty line to per capita income shows positive sign but not significant in the equation for  $Z=1.25$ , while it is significant at 5 per cent level for the equation  $Z=2.50$ . Essentially it can be interpreted that a higher poverty line relative to mean income tends to increase poverty rates quite significantly.

The next step was to estimate the pattern of aggregate growth and its impact on poverty. The pattern of growth is examined by how different factors such as aggregate productivity, employment intensity and changes in demographic dividends measured by share of working age population contributed to the growth process. Their relation with changes in extreme poverty rate ( $Z=\$1.25$  2005 PPP) and poverty rate ( $Z=\$2.50$  2005 PPP) is estimated separately as per specification of equation (2). The results are presented in Table 2, with robust standard errors.

The coefficients indicate strong negative correlation between aggregate productivity intensity of growth and changes in poverty (for both measures of poverty). Improvement in productivity intensity tends to reduce poverty significantly. Similarly, improvement in employment intensity of growth also tends to reduce poverty as they exhibit strong negative correlation. A test for the equality of coefficients cannot be rejected which indicates that both productivity and employment intensity are equally important in impacting changes in poverty. It is therefore crucial to see the sectoral pattern and their relative impact in changes in poverty. In this equation, changes in gini was included as the total poverty elasticity takes into account changes in gini coefficient. As expected, the coefficients for change in gini turn out positive and significant, with high values for the equation on extreme poverty than that for poverty.

The sectoral productivity and employment intensity along with inequality changes are taken into consideration for estimating changes in poverty, as per equation 3. The Table 3 presents the results for both the dependent variables: change in extreme poverty rate ( $Z=\$1.25$  2005 PPP) and



change in poverty rate ( $Z=\$2.50$  2005 PPP). The results on impact of growth are interesting and much more complex than noted in case of changes in aggregate productivity and employment intensity. The coefficients of the equation w.r.t.  $Z=1.25$  indicate that the growth in agricultural productivity per worker tends to be the single most important factor, among all the variables, in contributing to reduction of extreme poverty. The other component that is somehow correlated with reduction in extreme poverty is the growth in productivity in 'other services'. None of the other factors are significant in extreme poverty reduction. It may also be noted that the increase in employment intensity in these two sectors has no significant impact on reduction in extreme poverty. In general, agriculture and 'other services' tend to be at the lower end of value added activities and mainly considered as informal sector activities. Hence wages are lower than other in sectors. Therefore, merely getting a job in these sectors does not necessarily lift a worker above extreme poverty.

Neither productivity nor employment intensity in agriculture sector tend to reduce poverty, measured by the definition of  $Z=2.50$ . This may be expected considering the low wages and lack of social protection in agriculture sectors. It may be worrying to see that increasing productivity intensity in agriculture doesn't result in reducing the broad poverty rate. There could be several reasons to it. One of the possible reasons is that the rise in productivity may not be sufficient enough to increase the wage rate above  $\$2.50$  (2005 PPP) a day. This can be checked with growth in agricultural real wage data, a subject of further research. The productivity intensity in 'other services' however is correlated with reduction in poverty rate; although the coefficient is significant at 10 per cent level. Some jobs in the 'other services' are therefore contributing to rise in income of people. This is possible because of the nature of dataset. The 'other services' group cover a lot of activities such as some contractual jobs, financial services etc which can be informal activities but have higher returns. Therefore, productivity intensive growth in 'other services' contribute to poverty reduction, but merely increasing employment intensity in this sector does not show any significant association with poverty reduction. The coefficient of productivity intensive growth in 'other service' is much higher for the extreme poverty equation than that for the broad poverty equation. This implies that a rise in productivity in 'other services' tend to impact extreme poverty rate much more strongly than it impacts the poverty rate. This is typical because the extreme poor are more likely to be in the informal activities than the poor and the better-off people.

The changes in productivity and employment intensity in trade is showing strong correlation with reduction in poverty, as noted in the equation  $Z=2.50$ . In addition, the changes in employment intensity in manufacturing and transport (and communication) are negatively correlated with poverty reduction, the coefficient of the former being significant at 5 per cent level. These are striking results. Evidence suggest that the developing countries have benefitted

significantly from participating in the global and regional value chains of trade and the improvement of transport and communications, including modern information and communication technologies.<sup>54</sup> This corresponds to the analysis correctly indicating that structural transformation toward modern technologies and high value added activities did impact poverty reduction significantly. On the contrary, majority of those engaged in agriculture and 'other services' tend to be trapped in poverty, measured by the line  $Z=2.50$ .

Another critical finding is that growth in employment intensiveness in manufacturing is highly negatively correlated with poverty but the same doesn't hold for growth in productivity in manufacturing. Quite naturally, employment led growth in manufacturing leads to raising incomes and poverty reduction but not so if growth is capital intensive. Employment-intensive growth in manufacturing however may not lift the extreme poor out of poverty, as shown by the non-significant correlation between the two. One reason could be that the industry sector is hiring workers that are already above the extreme poverty line (skilled workers by virtue of their initial household endowments) and second, the demand for workers from the industry sector is very limited as they mostly rely on capital-intensive growth (hence they need workers with certain specific skills and mobility from agriculture to industry sector is also restricted).

These are broad results of the exercise and some further explorations from here would be to examine the impact of initial conditions, levels of development, resource endowments, and their interactions with productivity and employment intensive contribution to growth and poverty linkages. However, these broad results on sectoral productivity and employment-intensive patterns of growth and poverty linkages have important points for policy discussion. Countries that have gone toward structural transformation from agriculture to manufacturing, trade and transport (with communication) have made a major dent in poverty (by the broad measure  $z=2.50$ ). The disaggregation of services sector and its linkages with poverty reduction by various measures of poverty is an important contribution of the paper. Disaggregation within services sector is important because they combine both extreme of high and low value added activities. Moving from agriculture to other low value added non-agricultural activities are not helpful, neither that contributes to structural change nor inclusive and sustainable growth. For instance, in the Arab region 'other services' constitute high share of value added as well as employment share within the services sectors. Stagnancy in industrial development and lack of development of modern services sector has pushed the educated youth from agriculture to other non-agricultural services. Those who don't accept such an occupational choice are remain unemployed. That explains the high educated youth unemployment in the region.

The exercise also indicates that the coefficient of change in gini is significant throughout in all equations, which re-emphasises that addressing inequality is extremely important in poverty reduction.

**Table 1. Poverty, growth and inequality**

Dependent variable: Change in poverty (%)

	<b>Z=1.25</b>	<b>Z=2.50</b>
Change in Y/N (%)	-2.018*** (0.061)	-1.461*** (0.26 )
Change in Gini (%)	5.590*** (1.30)	2.029*** (0.44)
Ln (Z/Y)	1.135 (3.33)	2.779** (1.37)
Constant	7.733 (6.12)	4.496** (2.00)
R-squared	0.273	0.187
Observations	344	344

Note: \* p&lt;.10, \*\* p&lt;.05, \*\*\* p&lt;.01. Robust standard errors are in parentheses.

Source: Author's calculation

**Table 2. Poverty, aggregate growth pattern and inequality**

Dependent variable: Change in poverty (%)

	<b>Z=1.25</b>	<b>Z=2.50</b>
Change in Y/E (%)	-2.034*** (0.06)	-1.511*** (0.26)
Change in E/W (%)	-2.012*** (0.75)	-1.698*** (0.34)
Change in W/N (%)	-1.144 (7.10)	3.616 (3.30)
Change in Gini (%)	5.596*** (1.32)	2.017*** (0.45)
Constant	5.128 (5.03)	-1.293 (2.00)
R-squared	0.273	0.175
Observations	344	344

Note: \* p&lt;.10, \*\* p&lt;.05, \*\*\* p&lt;.01. Robust standard errors are in parentheses.

Source: Author's calculation

**Table 3. Poverty, sectoral growth pattern and inequality**

Dependent variable: Change in poverty (%)

	<b>Z=1.25</b>	<b>Z=2.50</b>
Change in Y/E in agriculture (%)	-5.890** (2.90)	-.088 (1.88)
Change in Y/E in mining (%)	-.009 (1.14)	.673 (0.79)
Change in Y/E in manufacturing (%)	-.227 (4.01)	-2.456 (2.00)
Change in Y/E in construction (%)	.450 (2.16)	.313 (1.55)
Change in Y/E in trade (%)	-7.563 (5.12)	-7.426** (3.13)
Change in Y/E in transport (%)	1.781 (7.44)	-1.776 (3.19)
Change in Y/E in other services (%)	-6.079* (3.51 )	-1.894* (0.99)
Change in E/W in agriculture (%)	-3.345 (4.34)	1.875 (3.25)
Change in E/W in mining (%)	-.347 (1.31)	.950 (0.95)
Change in E/W in manufacturing (%)	-6.341 (5.02)	-5.508** (2.43)
Change in E/W in construction (%)	3.135 (2.26)	1.225 (1.58)
Change in E/W in trade (%)	-8.394 (5.40)	-8.438** (3.50)
Change in E/W in transport (%)	-2.685 (7.89)	-7.393* (4.38)
Change in E/W in other services (%)	-5.078 (3.80)	-1.530 (1.45)
Change in W/N (%)	-.144 (7.06)	2.918 (2.93)
Change in Gini (%)	5.671*** (1.32)	2.037*** (0.44)
Constant	6.111 (5.78)	1.722 (2.60)
R-squared	0.316	0.256
Observations	344	344

Note: \* p&lt;.10, \*\* p&lt;.05, \*\*\* p&lt;.01. Robust standard errors are in parentheses.

Source: Author's calculation

## 7. Conclusion and discussion

In the spirit of the 2030 development agenda that has a focus on *quality* rather than *quantify* of growth, the present study aims to explore the linkages between the quality of growth and poverty in the emerging and developing economies of the world, and the Arab countries in particular. While quality of growth can be examined by various approaches, the study focuses on the pattern of growth, in particular, the productivity and employment intensity aspects of growth, and their linkages with poverty. The study addresses a key question on how growth processes have mattered for poverty reduction in the past two decades. Answering the question, it provides an entry point for supporting policy intervention, particularly for the Arab region that suffers from addressing poverty and unemployment despite having high growth in recent decades.

### *Some key findings:*

- Economic growth and redistribution policies are both important considerations for addressing poverty. The pattern of growth impacts more for changes in poverty. Lack of structural transformation is a significant impediment to poverty reduction. This is the biggest challenge in most Arab countries.
- Equally important for poverty reduction are enhancing productivity and generating employment. Both issues are big concerns of Arab governments.
- Increasing employment in agriculture is not associated with reducing poverty by any of the poverty measures. Increasing productivity intensity in agriculture tend to reduce extreme poverty but that didn't associate with the broad measure of poverty (under \$2.50, 2005 PPP).
- Employment intensive growth in 'other services' tend to have no significant effect on poverty reduction. This is expected as 'other services' tend to be largely low value added activities. Productivity intensive growth in the 'other services' is likely to be more effective in reducing extreme poverty than poverty.
- Increasing employment in manufacturing, trade, transport and communication sector, which are mainly high value added sectors, are strongly associated with poverty reduction. In selected Arab countries, employment share in trade and transport has improved but manufacturing share has remained almost stagnant.
- Increase in productivity in trade has strong association with poverty reduction. But productivity in manufacturing as well as other major sectors shows no significant pattern with poverty reduction.
- Improving income distribution is important to make a significant impact on poverty. Fair allocation of resources, tax systems, social protection systems and redistribution

systems need to be considered with an equity perspective. They all require of course good governance, which is the main problem in the Arab region.

- A small improvement in redistribution of income may help lifting extreme poor but it doesn't help lifting people who are under poverty line 2.50. The latter constitute a large number of people in the Arab countries, so the challenge is bigger.

### *Policy implications from an Arab regional perspective*

The conclusions of the study provide implications for policy that are relevant to three areas of the SDGs: eradicating poverty in all forms and in everywhere (Goal 1), promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all (Goal 8) and reducing inequality (Goal 10). In this respect the study draws important policy questions that can guide policy-making, especially for the Arab region.

*The first policy question is to identify the target population that is poor and extreme poor.* The methodology of measurement is therefore important. The international poverty line to define extreme poverty and the national poverty lines developed by the countries are both important tools to identify the target population. Keeping in view the large discrepancies in poverty rate between the \$1.25 and national poverty line definitions in the Arab countries, poverty reduction by national definitions holds high priority. While using national definitions, emphasis must be put on harmonized poverty measurement methodologies as well as data generation for poverty measurement in a pan-Arab regional framework, so that the poverty rates are comparable across countries.<sup>55</sup> It is also important to develop appropriate measures of multi-dimensional poverty index, by factoring in regional specificities, which could more precisely capture poverty and inequality in the Arab countries.<sup>56</sup>

*An emphasis on a combination of both economic growth and redistribution policies:* A combination of both economic growth and redistribution policies is essential for pro-poor growth, reinforced by the reality that countries cannot sustain high growth for a long period without populations that are healthy and well educated,<sup>57</sup> and if societies are increasingly unequal.<sup>58</sup> Although there are controversies among economists regarding a possible trade-off between redistribution and growth, recent evidence from cross-country analysis suggests that 'lower inequality is correlated with faster and more durable growth, for a given level of redistribution'.<sup>59</sup> Advancing equitable strategies, such as wage-led growth or cash transfers to the poor can help boosting economic growth. For instance, a wage growth can support demand via consumption effects and it can induce higher productivity growth.<sup>60</sup> In the context of European countries, a recent study argues that real wage growth below productivity growth to increase the international competitiveness of EU has detrimental effects, particularly in increasing inequality, lowering the share of wages in national income and supporting an unsustainable model of growth for Europe. The study suggests that "policies to push for a wage-led development strategy can be,

and should be, implemented for not only equality but also economic and political stability”.<sup>61</sup> These are good lessons for the Arab countries to shape their future public policy as the region is experiencing declining share of wages in national income over a decade and inequality has been one of the root causes of conflict across the region.

*Generating decent jobs along with enhancing productive capacity of workers:* One important area where Arab states can do more to lead a pro-poor development process is to put particular emphasis on structural transformation that can generate decent jobs to absorb the growing labour force, particularly the youth. In the region, the large mining and utilities sector accounts for only up to 2 per cent of employment.<sup>62</sup> A more diversified economic structure should be considered with a focus on high productive capacities and creation of decent jobs that can spread benefits of growth more equitably across all sections of society. Environmental concerns, particularly with regard to production and use of energy and water, do need to be integrated in the diversification strategy so that the present development trajectory doesn't impact the future generations to come. Coherent strategies should encourage formal economic sectors that are most likely to provide decent jobs, especially in the private sector, so that reliance on informal sector is reduced. Recent breakthroughs in development in Latin America and Asia such as in Brazil, China, Indonesia, Malaysia, Thailand and the Republic of Korea, have demonstrated the role of the State in their development process, as they have managed effective structural transformation through diversification and industrial development and effectively harnessed opportunities in the evolving regional context.<sup>63</sup>

*Public spending allocation should consider promoting social justice and human development:* The state has a central role in making choices about allocating resources for promoting human development and social justice. High income can be spent on the military—or on quality health care, improved education, the construction of roads and other activities producing human development gains. The three critical ratios of state expenditure that impact human development are: The public expenditure ratio, defined as the proportion of income spent by the various levels of government; the social allocation ratio, defined as the proportion of total government expenditure devoted to the human development sectors; and the priority ratio, defined as the proportion of total human development sector expenditure allocated to priorities, all three may vary by country and their development stage. Even if the public expenditure ratio is the same between two countries, a higher social allocation ratio and particularly a higher priority ratio to human development sectors will contribute to higher human development achievement, as in the case of Kenya compared to Malawi in the 1980s.<sup>64</sup>

A universal, rights-based and integrated approach to social policy is key to achieving social justice.<sup>65</sup> Public policy should consider addressing concerns of disadvantaged population

groups, those who face discrimination and social exclusion, such as persons with disabilities, young people, older persons, migrant workers and refugees.<sup>66</sup> Redistributive policies include a variety of measures, such as reforming tax system, social transfers and social expenditure, and national laws and regulations.<sup>67</sup> Provision of social protection is an important strategy for augmenting household/individual income. It is important for supporting mobility of the poor to higher income bracket as well as to help sustain the middle class of today. Social protection systems exist by varying degrees in the Arab region. But the primary limitation is its limited coverage. For instance, contributing social insurance schemes reaches less than 40 per cent of the working population. Others include social assistance in the form of cash transfers/ subsidies for energy and food, zakat funds. However, these are neither having universal coverage nor they are comprehensive in their scope to help against different shocks. According to a study by ANND (2014), the social protection policies have declined in most Arab countries, including in high and low income countries, due to financial constraints. Further, many Arab governments do not have a holistic understanding of social protection, taking into consideration the rights perspective. In light of this, a comprehensive social protection system<sup>68</sup> is much needed, which can protect the poor and the vulnerable, including the persons with disabilities, against natural and human-induced shocks, disaster risks and economic insecurities. Importantly, social protection reforms should be fully integrated with labour market policies to ensure efficiency and impact. For example, public works programmes with wages lower than unemployment benefits are not likely to be effective.<sup>69</sup>

Overall, a combination of policies targeting economic growth, transformation in the pattern of growth and redistribution are important considerations for poverty eradication in the context of the SDGs. While Arab countries need to encourage technically advanced industrial production and high-value added service sectors, they should also take action toward enhancing agricultural productivity for boosting agricultural production and diversification of rural economies. Technology development and global value chain participation should be a key strategy, which has benefitted most of the emerging and developing economies of the world since the 1990s. At the same time, ensuring accessible and high-quality health and education services to all, social protection, food security and gender equality, among other fundamentals are important policy choices toward inclusive growth and sustainable development.



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## Endnotes

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<sup>1</sup> ESCWA 2014a.

<sup>2</sup> UN and LAS 2013.

<sup>3</sup> UN and LAS 2013.

<sup>4</sup> See Datt and Ravallion 1991, Kakwani 1993, Ravallion and Chen 1997, Bruno et al, 1998, Dagdeviran et al 2001, Dollar and Kraay 2002, Bourguignon 2003, and Son and Kakwani 2004.

<sup>5</sup> Dollar and Kraay 2002.

<sup>6</sup> Kakwani 1993, Dagdeviran et al 2001.

<sup>7</sup> Datt and Ravallion 1991, Ravallion and Chen 1997, Bourguignon 2003, Son and Kakwani 2004.

<sup>8</sup> Son and Kakwani 2004.

<sup>9</sup> World Bank 1990, Squire 1993.

<sup>10</sup> As per the IMF classification of emerging and developing economies.

<sup>11</sup> Dabla-Noriss et al 2013.

<sup>12</sup> World Bank 2014. Also see ESCWA 2014a.

<sup>13</sup> Von Arnim et al (2011).

<sup>14</sup> UN and LAS 2013.

<sup>15</sup> Also see Abu-Ismail et al 2012.

<sup>16</sup> Based on Ravallion 1998.

<sup>17</sup> See Sarangi et al 2015, based on methodology of classifying population classes in Abu-ismail and Sarangi 2013; 2015.

<sup>18</sup> The nine countries are: Sudan, Yemen, Egypt, Iraq, Syrian Arab Republic, Jordan, Lebanon, Tunisia, and Oman.

<sup>19</sup> ESCWA, 2014a; and World Bank 2014a.

<sup>20</sup> Latest estimates of poverty is 26.4 per cent in 2013 (CAPMAS 2014).

<sup>21</sup> Abu-Ismail and Sarangi 2013; 2015.

<sup>22</sup> Islam 2004.

<sup>23</sup> ESCWA 2014.

<sup>24</sup> Dabla-Noriss et al 2013.

<sup>25</sup> There are slight increases in the share of manufacturing in some countries, particularly petrochemical industries in Gulf Cooperation Council (GCC) countries, but the overall share of manufacturing contribution to GDP is the lowest among all regions.

<sup>26</sup> ITCEQ 2013.

<sup>27</sup> ILO, 2014.

<sup>28</sup> Tzannatos, 2011.

<sup>29</sup> ILO and UNDP, 2013.

<sup>30</sup> Abu-Ismail et al 2012.

<sup>31</sup> ILO and UNDP, 2013.

<sup>32</sup> Wage data for Arab countries was compiled using ILO databases.

<sup>33</sup> ILO, 2012b.

<sup>34</sup> Deaton 2003.

<sup>35</sup> Hlasney and Verme, 2013.

<sup>36</sup> Also see Bibi and Nabli, 2010.

<sup>37</sup> Deaton. 2003.

<sup>38</sup> In support of this finding, it may also noteworthy to mention that Ali (2009) argued that inequality trends have been increasing in the Arab region since the 1990s as the gini coefficient increased at an annual rate of 1 per cent during 1990s and 2000s. He estimated the gini by using the quintile observations for selected Arab countries. Another study by Diwan (2012) suggested that the rise in inequality and the relatively low performance of Arab economies in terms of job creation could be related to the type of State-business relations that have developed over time in the region.

<sup>39</sup> Son and Kakwani 2004. It may be noted that  $L(p)$  is the percentage of income that is enjoyed by the bottom 100xp percent of the population.

<sup>40</sup> See Shorrocks 2013.

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- <sup>41</sup> The study used a seven sector disaggregation and the dataset comprised 52 developing countries as compared to the three sector disaggregation and 39 developing countries in Gutierrez et al (2007).
- <sup>42</sup> Shapely 1953.
- <sup>43</sup> See Gutierrez et al 2007 for the detail proof of the method.
- <sup>44</sup> The income poverty rate tends to show a poor association with the multi-dimensional poverty index (Alkire and Foster, 2011). However, the discussion on MPI is beyond the scope of this paper.
- <sup>45</sup> The equivalent of \$1.25 a day (2005 PPP) poverty line is estimated as \$1.90 a day (by 2011 PPP) (World Bank 2015).
- <sup>46</sup> See Ferreira et al 2013.
- <sup>47</sup> IMF 2015.
- <sup>48</sup> World Bank n.d.
- <sup>49</sup> Abiad et al 2012.
- <sup>50</sup> World Bank 2015.
- <sup>51</sup> UNSD n.d.a.
- <sup>52</sup> Generally, the ratio is calculated as poverty cut off divided by mean per capita expenditure. But all variables here are based on per capita value added instead of per capita expenditure. However, inclusion of this indicator doesn't affect partial elasticity of poverty.
- <sup>53</sup> The estimations with robust standard errors are largely similar to the OLS estimates. However, the standard errors are more accurate, considering large variance of some residuals. We therefore present both the significance levels of coefficients along with robust standard errors.
- <sup>54</sup> Dabla-Noriss et al 2013.
- <sup>55</sup> Sarangi et al 2015.
- <sup>56</sup> Abu-Ismael et al 2015.
- <sup>57</sup> Ranis et al 2000.
- <sup>58</sup> UN, 2014b.
- <sup>59</sup> Ostry et al 2014.
- <sup>60</sup> Stockhammer, 2015; and Bhaduri and Marglin, 1990.
- <sup>61</sup> Onaran, 2015.
- <sup>62</sup> UN and LAS, 2013.
- <sup>63</sup> UNCTAD, 2009.
- <sup>64</sup> Ranis and Stewart, 2005.
- <sup>65</sup> ESCWA 2014b.
- <sup>66</sup> ESCWA 2014b.
- <sup>67</sup> ESCWA 2014.
- <sup>68</sup> See the ILO Recommendation on national social protection floor (ILO 2012c)
- <sup>69</sup> ESCWA 2012.