Impact of COVID-19 on Money Metric Poverty in Arab Countries

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Abstract

This paper estimates the impact of the COVID-19 pandemic on income poverty and the cost of poverty eradication in 14 non-Gulf Cooperation Council (GCC) Arab countries, based on most recent economic growth forecasts provided by the United Nations World Economic Forecasting Model (WEFM), using grouped household income and expenditure survey data. There are four main results. First, regardless of how it is measured, poverty in Arab countries was on the rise before COVID-19. Thus, the current pandemic only further exposes and accentuates existing structural deficiencies driving poverty and inequality in the region. It is not their fundamental cause. Second, the impact is expected to be significant in 2020 and then stabilizes in 2021, but with an additional 16 million people projected to be in poverty using national poverty lines. Third, the impact on extreme poverty rates is relatively strong, with an estimated additional 9 million people in the Arab region living under the $1.9 poverty line by 2021. Fourth, the cost of closing the poverty gap in 2021 is expected to reach $45 billion (in 2011 purchasing power parity) for the national poverty line and $12 billion for the $1.9 poverty line in the base-case growth scenario. This is not high compared to available resources in the region.

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Introduction

The Arab region, like the rest of the world, will be strongly affected by the COVID-19 pandemic. The pandemic is expected to result in losses in gross domestic product (GDP) and wealth in excess of US$500 billion in 2020 (Abu-Ismail and Hlasny, 2020). The International Labour Organization (ILO) estimates the region may lose more than the equivalent of 6 million full-time jobs in 2020 due to losses in working hours; unemployment will especially affect informal workers in the services sector (ILO, 2020). Moreover, the Arab region is particularly vulnerable to food shortages. A protracted worldwide pandemic may impact global supply chains, production, transportation and distribution of food products, resulting in lower food exports by food-producing countries and higher local food prices. This would directly affect the poor in Arab countries given their large dependence on food imports.

Most Arab countries are ill-prepared to face the expected economic and social ramifications of the pandemic. Since 2010 the region has faced a series of shocks and encountered serious development setbacks. Indicators of anemic long-term growth, high youth unemployment and low productivity growth have characterized the region over the past three decades. Occupation, conflict and political instability have also led to widespread human suffering, which has worsened since 2010, with strong negative impact on the region's poor and middle class (ESCWA, 2014). Furthermore, although extreme poverty is relatively low in middle-income Arab countries, a large share of population is vulnerable to it. Hence, even minor shocks to household income are expected to have a relatively higher impact on poverty compared to other developing regions at the same level of income per capita (Abu-Ismail, 2020).

Given this context, the primary motivation of this paper is to examine the impact of the COVID-19 pandemic on two measures of income poverty, the headcount poverty ratio and the poverty gap ratio, in Arab countries. The paper first examines trends in headcount poverty ratio from 2010 to 2018 in the 14 non-Gulf Cooperation Council (GCC) Arab countries for which household income and expenditure survey data are available, using a variety of national and international poverty lines to reflect the incidence of extreme and moderate poverty. It then projects these estimates to 2021 under the assumption that household consumption would be impacted in the same order of magnitude as national income to capture the potential impact of the COVID-19 pandemic. The paper is structured as follows: section 2 briefly describes the data sources and methodology; section 3 summarizes the results; section 4 provides some concluding remarks.

I. Methodology and data sources

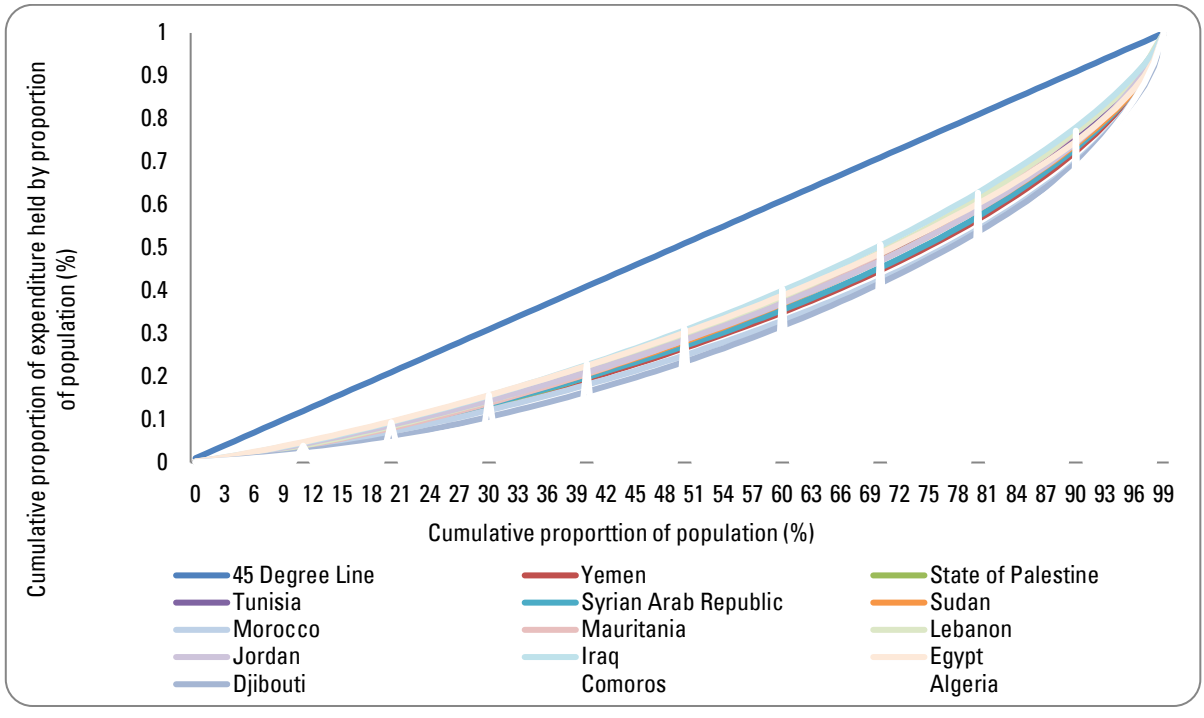
Household income distribution and GDP growth data sources

The fundamental determinants of money metric poverty are the mean per capita consumption expenditure, the poverty line and the distribution of consumption expenditure. Following Kakwani and Son (2006), given an appropriate poverty line, any change in the poverty rate over time can be attributed to an economic growth component and a distribution component. Holding growth in per capita consumption constant, the poverty rate is expected to increase as the degree of inequality increases (and vice versa).1 Holding the distribution of income constant, the poverty rate is expected to increase as the growth in per capita consumption increases (and vice versa).

It follows that the main data sources required to estimate the poverty headcount ratio, ex ante, are the distribution of expenditure and the growth rate of mean expenditure per capita. This study relies on grouped data on the distribution of consumption expenditure among households (ranked from lowest to highest) which is needed to estimate the impact of poverty. This data is often the only option available for researchers to compute poverty measures when access to unit record data is limited. This information is available from national sources in reports published by the statistical authorities and is also provided by the World Bank's PovcalNet based on most recent household surveys.

Figure 1 plots the Lorenz curves (a graphical representation developed by Max O. Lorenz in 1905 for representing inequality of the wealth distribution) associated with this grouped data for the 14 Arab countries in 2018. The figure indicates that there is generally not much difference between Arab countries in terms of within country inequality, and that the level of this inequality is relatively moderate, with a population-weighted average of the Gini index of 32.9 per cent in 2018. Several recent studies have pointed out that this result is misleading and that the region may actually have extremely high inequality levels after accounting for top incomes missing from the household surveys (ESCWA and Economic Research Forum, 2019)

Figure 1. Lorenz curves for Arab countries included in the study



Source: Lorenz curves are based on World Bank PovcalNet (accessed May 2020).

Table 1. GDP and private consumption per capita growth, 2019-2021, projected and pre-COVID-19

	GDP per capita growth (%)					Private consumption per capita growth (%)				
Country	**2019**	**2020**	**2021**	**2020**	**2021**	**2019**	**2020**	**2021**	**2020**	**2021**
Mauritania	2.2	-4.3	0.4	1.9	2.0	2.0	-1.3	-2.5	2.3	2.6
Comoros	0.0	-2.9	-0.1	1.0	1.4	0.6	-2.1	0.5	1.5	2.3
Djibouti	5.3	0.0	4.5	4.6	4.9	6.0	-8.2	20.0	5.5	5.6
Algeria	-0.7	-4.6	0.4	0.4	0.8	1.7	3.0	-3.5	1.4	1.7
Egypt	3.9	-3.4	4.2	3.8	3.1	2.5	-10.4	9.3	4.8	3.5
Iraq	0.9	-8.4	1.8	2.5	3.4	-0.4	-6.6	-4.7	0.3	0.9
Jordan	-0.7	-5.7	2.7	1.2	1.4	0.4	-7.0	8.2	2.4	2.5
Lebanon	-1.2	-12.8	2.3	0.8	2.2	-0.1	-14.1	2.1	1.7	2.1
Morocco	1.5	-3.9	1.6	1.8	2.6	0.0	-2.5	0.8	2.4	3.1
State of Palestine	-1.1	-9.8	0.6	0.0	0.0	0.0	0.4	-2.9	1.4	2.3
Sudan	-4.9	-6.7	-2.4	-2.9	-1.9	-3.4	-8.7	-4.5	-2.5	-1.4
Syrian Arab Republic	4.9	-5.4	-2.8	1.2	-1.1	5.8	-6.9	-0.9	2.6	0.1
Tunisia	0.3	-6.0	2.1	0.9	2.0	1.1	-5.1	3.3	1.9	2.8
Yemen	-1.6	-10.3	-2.5	1.3	2.1	-3.0	-14.1	-4.8	0.1	1.1
Average	0.8	-5.7	1.2	1.5	1.7	0.6	-6.9	1.2	1.9	1.8

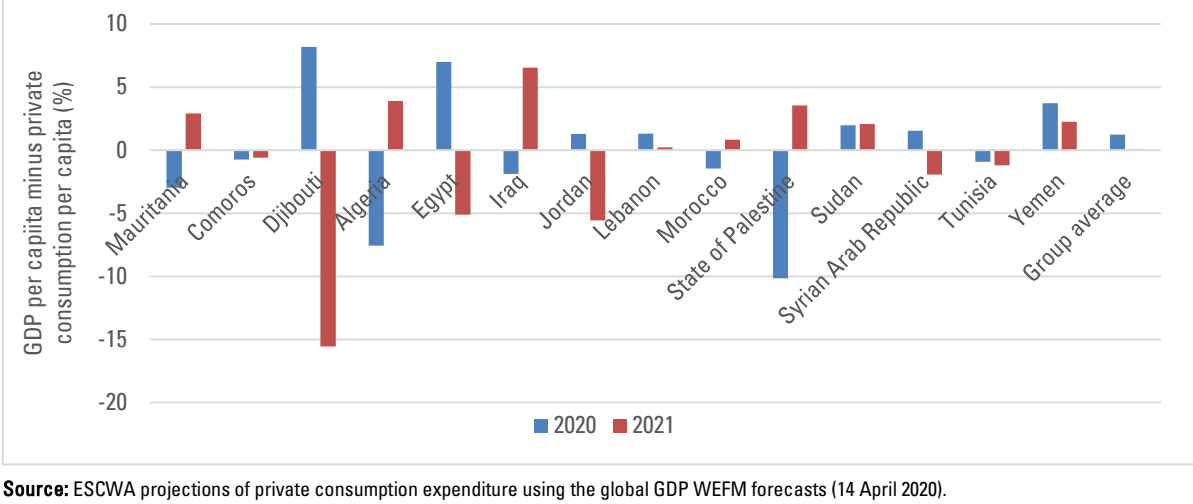
Source: ESCWA projections of private consumption expenditure and United Nations Department of Economic and Social Affairs (DESA) GDP forecasts (April 2020).

For the growth forecasts, this paper relies on the projections by UN DESA, which are based on the World Economic Forecasting Model (WEFM).[2] The latter is founded on work by the London Business School (LBS) and the National Institute of Economic and Social Research (NIESR).[3] The model applies a cointegration/error correction framework (see, for example, Johansen, 1988) and has a relatively simplified context in which long run relationships are specified in line with standard macroeconomic theory and core behavioral relationships are specified as error-correction processes. Following Altshuler and others (2016), the model also has the following three core features:

1. Cointegrating relationships are estimated either as part of a two-step process, applying dynamic ordinary least squares (OLS) procedures to first identify the long-run equations and then fitting the dynamics around the cointegrating relationships or by applying instrumental variable techniques in a single equation framework that jointly estimates the cointegrating relationships and the dynamics.[4]
2. Dynamic and static homogeneity properties are imposed in the price system where appropriate.
3. Expectations are modelled as an adaptive process.
4. Policy variables can be endogenized via rule-based processes.

Table 1 reports the GDP growth forecasts derived from the WEFM as provided by United Nations Department of Economic and Social Affairs (DESA) as of 14 April 2020. These forecasts are the basis for the base-case or projected scenario (PSC) for headcount poverty. An ESCWA team then used the WEFM to replicate these aggregate GDP growth results, but with the assumption that private consumption expenditure would bear the bulk of the macroeconomic adjustment shock. This yields the disaggregated forecasts of private consumption expenditure which are the basis for the potentially higher poverty impact and is referred to as the lower growth scenario. Table 1 also reports the pre-COVID-19 growth forecasts provided by the same source.

Figure 2. Difference between forecasted GDP and private consumption per capita using the WEFM, 2020-2021 (GDP per capita minus private consumption per capita)



Source: ESCWA projections of private consumption expenditure using the global GDP WEFM forecasts (14 April 2020).

While there is little difference for the regional growth rates, one notable observation from table 1 and figure 2 is the significant differences between the GDP and private consumption expenditure growth forecasts at the country level. Consistent with the assumption that private consumption would bear the macroeconomic adjustment burden, the GDP forecasts are generally less negative, with an average of -5.7 compared to -6.9 for private consumption per capita for the 14 countries. The largest country-level differences in favor of GDP are shown for Egypt, Djibouti and Yemen. However, this is not the case in all countries. In Algeria, Iraq, Mauritania and the State of Palestine, private consumption per capita projections in 2020 were noticeably less negative than the GDP per capita. In this regard, it is important to take into account the following observation regarding the macroeconomic model results: while the fall in private consumption is likely to be more than that of GDP for most countries, due to the way the scenario was implemented, this is not necessarily the case in all countries as each is subjected to different simultaneous shocks as a result of shutting down exposed sectors for a number of months. The size of these shocks depends on how large these sectors are in relation to the economy as a whole. In addition, there is also a negative demand shock from the rest of the world which impacts on the country's exports. This is determined via the trade matrix which factors in the negative shock to exports coming from the rest of the world. If the fall in exports is large enough, as in the case for oil producers such as Algeria and Iraq, GDP could fall by more than private consumption as shown to be the case for some countries in figure 2.

Finally, the results of this lower growth scenario show a higher volatility in private expenditure than GDP. This is not consistent with the permanent income hypothesis or stylized facts on macroeconomic adjustment during periods of crisis in many developing countries. It is therefore important to re-emphasize that this lower growth scenario should be interpreted only as an indication of the maximum potential negative impact on household consumption.

Poverty estimation methodology

Money metric poverty can be measured using various indexes. The most common measures are the headcount ratio (the ratio of those with consumption expenditure below the poverty line to total population) and the poverty gap (the ratio showing the mean shortfall with respect to the poverty line, across the entire population). Following Kakwani and Son (2006), Abu-Ismail, and others (2005) and Abu-Ismail and Hlasny (2020), the methodology presented here projects headcount poverty and poverty gap ratios over time based on elasticities of growth and distribution.

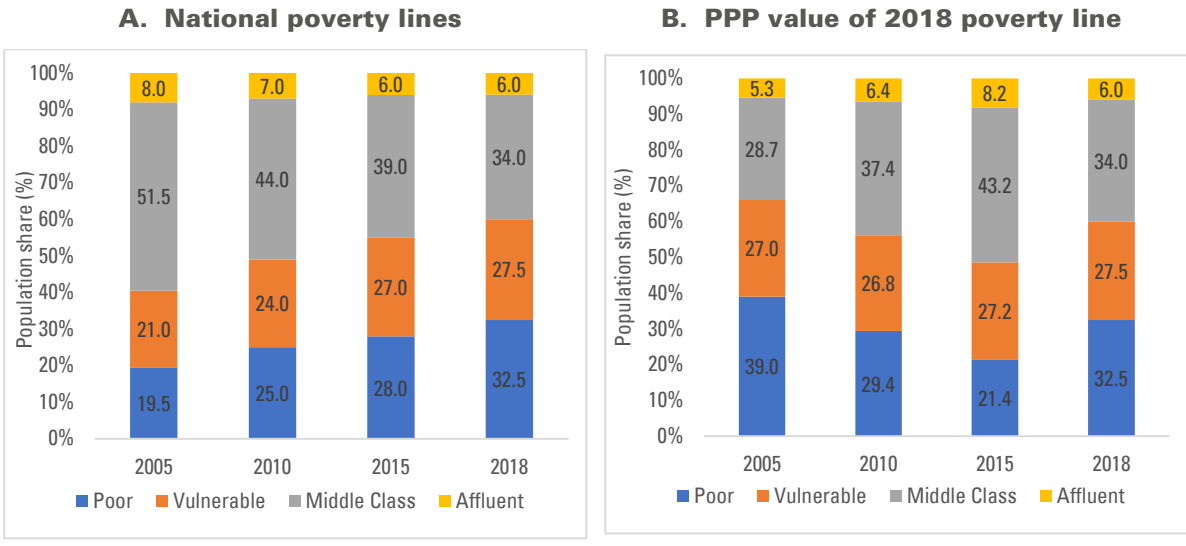
Poverty lines can be determined in absolute terms (the cost of basic needs) or in relative terms (such as one half of the median expenditure). Generally, absolute poverty measures are more suited to developing countries while relative poverty measures are more commonly applied in developed economies. Absolute poverty lines can be tailored to national definitions of the cost of basic needs which are evaluated in local prices and are household specific (meaning they vary according to household size, location and other characteristics) or they can be fixed (in real terms) by holding their value constant over time and across countries using purchasing power parity (PPP) exchange rates. The literature on global poverty comparisons is based on the

latter estimation approach. In principle, they are supposed to proxy for the ability to purchase a minimum basket of goods and services across the world, as in the case of the $1.90 a day poverty line which is used for extreme poverty comparisons.[5]

Experts have questioned whether the fixed poverty lines approach produces consistent and comparable results for extreme poverty across countries.[6] Critics have pointed to biases due to the choice of rock bottom norms of expenditure unrealistically applied to the entire world and the fact that the data from which PPPs are derived were not intended for measuring prices faced by the poor. Are these biases significant enough to change the regional and world narrative on poverty levels and trends? As argued by Abu-Ismail, Abou Taleb and Ramadan (2012), this may very well be the case when compared to national poverty lines which are superior to PPP-based poverty lines as they are household-specific and therefore tailored to the local food consumption patterns and prices, and demographic and other characteristics of the household such as their size, composition and age.

These issues, among others, show why setting the thresholds for poverty has remained contentious and more or less arbitrary, without universal acceptability, with some poverty lines being more suitable for specific regions or country contexts than others.
In an ideal world, the preferred choice would be having harmonized national poverty lines that are based on country-specific national definitions yet, at the same time, allow for an acceptable degree of methodological coherence and comparability across countries. In the real world, countries define their national poverty lines for different reasons and using different approaches. However, a review of national poverty assessment methodologies adopted in many of the countries included in this study shows many national poverty lines were constructed based on a comparable cost of basic needs approach. Arab countries can claim a large degree of consistency in terms of constructing welfare aggregate (treatment of imputed rent and consumer durables for example) and in the measurement approach used to define lower and upper poverty lines to allow for cross-country comparability.[7] This is not unexpected given that most of the 14 Arab countries included in this study have followed the standard World Bank approach in their national poverty assessment reports.[8]

Figure 3. Population distribution across economic groups in Egypt using national (A) and PPP (B) poverty and vulnerability definitions, 2005-2018



Source: Authors' calculations based on World Bank Povcal.net and Abu-Ismail and Sarangi (2015).

Notes: The 2011 PPP equivalent to national per day poverty line is $3.45 and $4.75 for the vulnerability line (which is equivalent to the national upper poverty line). The PPP equivalent of the upper middle class line estimated in Abu-Ismail and Sarangi (2015) is $10.5. Therefore, any individual with an income above $10.5 per day is considered to be affluent.

A clear example of the weakness of using PPP measures for long-period analysis is highlighted in the case of Egypt. In figure 3A, national poverty and vulnerability rates, shown for the period from 2005 to 2018, were derived from the standard poverty measurement methodology adopted by the World Bank.[9] As described earlier, these estimates are based on a methodology that ensured consistent and comparable estimate of the cost of basic needs based on given household specific characteristics and local prices. In theory, if we take the PPP value of the 2018 poverty line and project backwards to 2005, this should give a reasonably close proxy to headcount poverty ratios derived from national poverty lines in figure 3A. However, as shown in figure 3B, the discrepancies are such that the trend itself is different (possibly due to not adequately capturing the currency devaluation effect in 2018). Whereas national poverty lines yield a result of increasing poverty and vulnerability and therefore a squeezed middle class from 2005 to 2015, the PPP narrative yields an opposite trend. In fact, in order to get the same headcount poverty ratio in 2005, the PPP value of the 2018 national poverty line would have to be reduced by 22 per cent, from $3.45 to $2.7 per day. This means that to replicate the same national (and in this case more accurate) headcount poverty rates, the PPP value of the poverty line would have to change significantly over time.

This limitation is important to consider in interpreting the results of this paper, especially when reporting the trend in headcount poverty over an extended period of time, as our results would overestimate poverty in the base year compared to the national figures. Given the

demographic weight of Egypt, the implication is that regional headcount poverty rate in 2010, the base year, is slightly overestimated. To minimize these problematic features of applying the PPPs, the projection period is limited to 2019-2021 though the growth forecasts of the WEFM are made available till 2030. As argued in Abu-Ismail and Hlasny (2020), although these limitations are important to recognize, the proposed methodology offers the best available option for a rapid assessment of the impact of COVID-19 on national and regional headcount and poverty gap ratios.

Although the focus is on results from country specific or national poverty lines, this paper also reports the headcount poverty ratios and COVID-19 impact for two poverty lines that have been fixed across the 14 countries: the $1.9 poverty line which is used for monitoring SDG1 and is also a reasonable proxy for extreme food poverty and the $3.5 per day line which is the population-weighted average value of the national poverty lines for the 14 Arab countries in this study.

Taking into account these limitations and consistent with the methodology in Abu-Ismail and Hlasny (2020), the baseline and projected poverty headcount and poverty gap ratios reported in this study were derived from applying the following five-step procedure:

1. The first step is to compute the baseline 2010 and 2018 headcount poverty and poverty gap ratios. Thanks to the World Bank's user friendly poverty data portal and interface PovcalNet, this is a complex task made easy.[10] Thus, using most recent household income and expenditure surveys (HIES) accessible, the headcount poverty in Arab countries are computed in 2010 and 2018 based on the PPP equivalent of the most recent lower national poverty lines and based on the fixed $1.9 and $3.5 poverty lines. The poverty lines themselves were constructed as a result of iteratively deriving the values that reproduce published headcount ratios at national poverty lines.
2. The second step is to project the headcount poverty ratios for the period from 2019 to 2021. This is also completed using the function provided by PovcalNet which allows users to estimate results using their own distributions. Thus, using grouped data provided by PovcalNet, which are plotted in figure 1 and based on GDP growth forecast of the World Economic Forecasting Model (WEFM), the headcount poverty and poverty gap ratios were derived from the PovcalNet based on adjusting mean per capita household expenditure in 2018 to correspond to the forecasted growth rates.
3. In the third step, using the Gini elasticities reported by PovcalNet associated with the projected headcount poverty ratios in step 2, headcount poverty and poverty gap ratios are adjusted to capture a modest distributional shock corresponding to a 1 percentage point rise in the Gini index in 2020 and 2021. The result yields the projected scenario (PSC) for the poverty headcount ratio.
4. The first three steps are repeated to project headcount poverty rates for the reference (pre-COVID-19) growth scenarios based on the projections of the WEFM. The results would yield the reference scenario (RSC) for the poverty headcount ratio. The difference between the poverty headcount ratio of the reference and projected growth scenarios would yield the poverty impact.

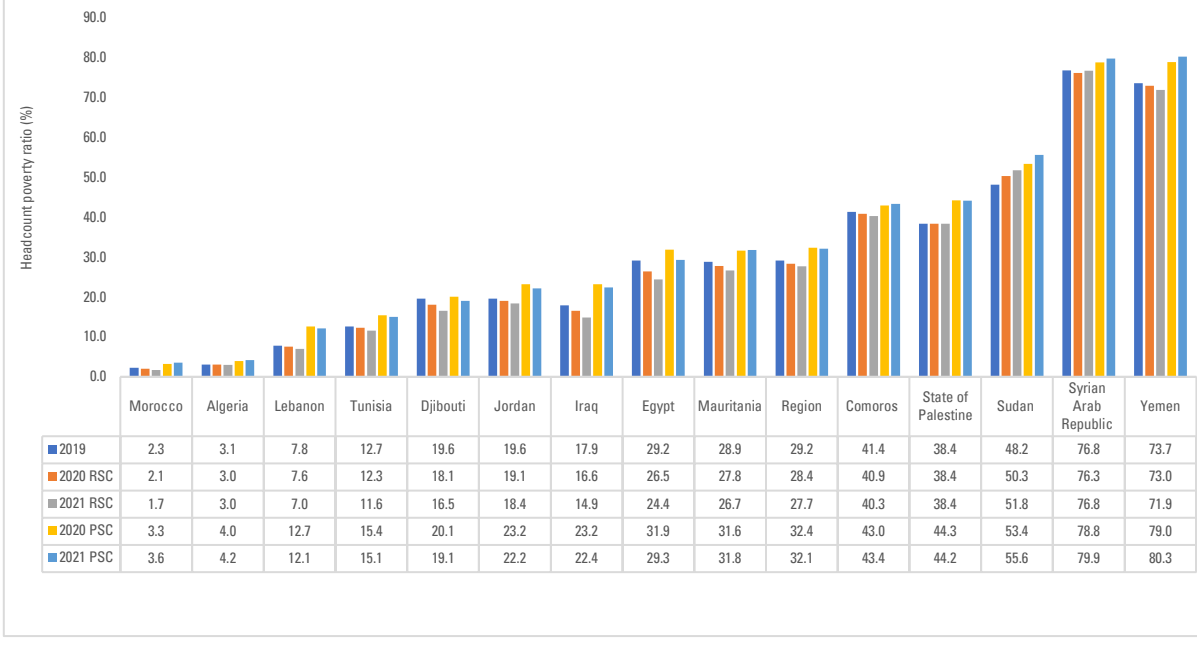
5. Finally, the cost of closing the poverty gap is computed using the poverty gap ratios associated with the poverty lines and mean consumption expenditure as reported PovcalNet by multiplying the poverty gap ratio with the population size and the value of the poverty line.

II. Results

The country and aggregated regional results from using this procedure are shown in annex tables A.1-A.12. Tables A.1-A.4 report the results for the national poverty lines, tables A.5-A.8 for the $1.9 per day poverty line and tables A.9-A.12 for the $3.5 poverty line. There are four main findings which are briefly summarized in this section.

First, regardless of the choice of poverty line, poverty was on the rise in the Arab region even before COVID-19. The population-weighted average for the 14 non-GCC countries based on our projected base-case scenario is 29.2 per cent in 2019, which is equivalent to 101.4 million people. The trend since 2010 shows poverty was significantly less using these same poverty lines at 22.8 per cent, or 66.4 million people. Likewise, the headcount poverty results for the $1.9 poverty line more than doubled from 2010 to 2019 which is far more than the increase in poverty incidence using the $3.5 (which rose from 25.3 per cent to 30.9 per cent) or national poverty lines (which rose from 22.8 per cent to 29.4 per cent). These results are easy to interpret particularly given the impact of conflicts in Syria and Yemen.

Figure 4. Headcount poverty projections for reference (RSC) out and projected (PSC) growth scenarios using national poverty lines, 2019-2021



	Morocco	Algeria	Lebanon	Tunisia	Djibouti	Jordan	Iraq	Egypt	Mauritania	Region	Comoros	State of Palestine	Sudan	Syrian Arab Republic	Yemen
2019	2.3	3.1	7.8	12.7	19.6	19.6	17.9	29.2	28.9	29.2	41.4	38.4	48.2	76.8	73.7
2020 RSC	2.1	3.0	7.6	12.3	18.1	19.1	16.6	26.5	27.8	28.4	40.9	38.4	50.3	76.3	73.0
2021 RSC	1.7	3.0	7.0	11.6	16.5	18.4	14.9	24.4	26.7	27.7	40.3	38.4	51.8	76.8	71.9
2020 PSC	3.3	4.0	12.7	15.4	20.1	23.2	23.2	31.9	31.6	32.4	43.0	44.3	53.4	78.8	79.0
2021 PSC	3.6	4.2	12.1	15.1	19.1	22.2	22.4	29.3	31.8	32.1	43.4	44.2	55.6	79.9	80.3

Source: Author's estimates based on grouped household expenditure data using PovcalNet and PPP value of the most recent national poverty lines.

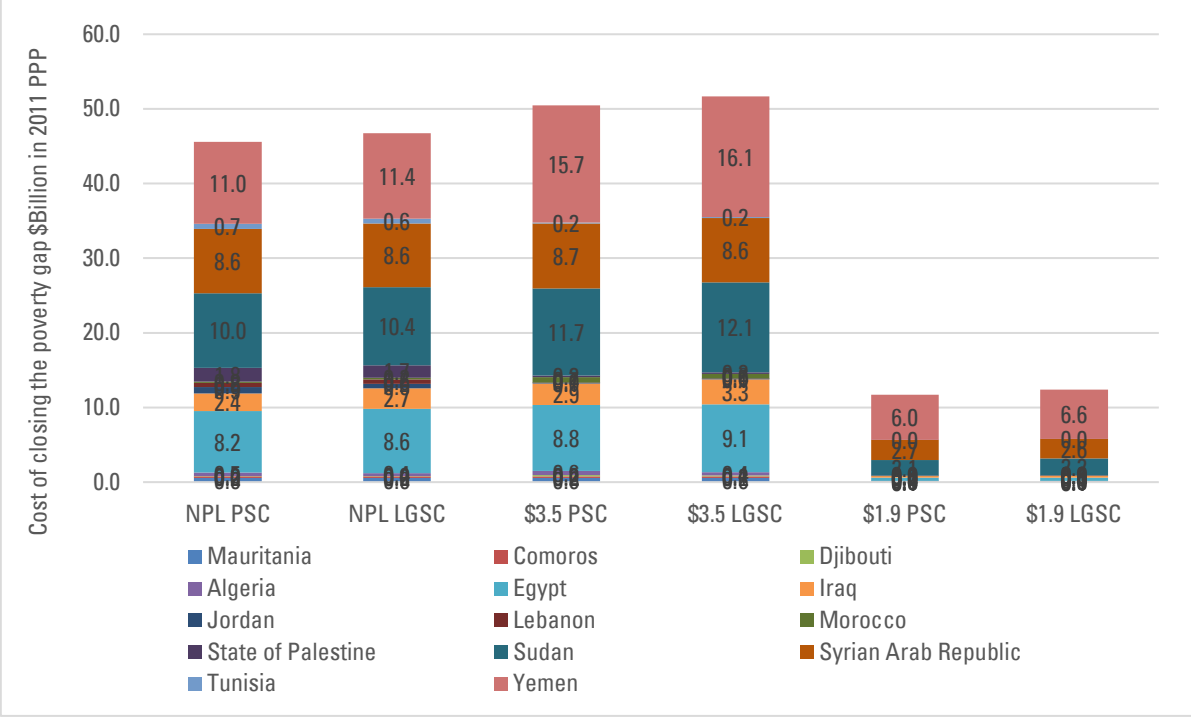
Second, the impact on headcount poverty is expected to be significant in 2020 but it stabilizes in 2021. The projected headcount base-case scenario poverty rates rise to 32.4 per cent in 2020 but then reduces slightly to 32.1 per cent in 2021 (figure 4). This brings the projected base-case scenario total number of poor in the fourteen countries to 116 million in 2021, the bulk of whom (over 80 per cent), reside in four countries: Egypt, Yemen, Syrian Arab Republic and the Sudan (annex table A.2). Under the reference (pre-COVID-19) growth scenario for 2021, the weighted average headcount poverty ratio is 27.7 per cent (100 million poor). Thus, the poverty impact of the pandemic using the base-case GDP growth forecasts is estimated to be equivalent to a 4.4 per cent rise in the headcount poverty ratio by 2021. In terms of population size, this is equivalent to an additional 16 million people. Replacing GDP per capita growth with the lower growth scenario based on modelled private consumption per capita growth estimates nudges the regional headcount ratio to 33.3 per cent in 2021, or an additional 20.2 million poor population from the reference pre-COVID-19 growth scenario.

These results for the national poverty lines are comparable to those resulting from $3.5 PPP poverty line where the base case regional headcount ratio is projected to reach 34.1 per cent in 2020 and 33.9 per cent in 2021 bringing the number of poor to 122.5 in 2021 equivalent to an additional 15.7 million from the reference (pre-COVID-19) growth scenario. In the lower growth scenario, these estimates rise to reach 126.9 million poor in 2020 and 125.4 million poor in 2021. The former yields a difference of 19.6 million additional poor in the lower growth scenario.

Third, and perhaps more relevant to the SDG target indicator 1.1 which aims to reduce the $1.9 headcount poverty ratio by half by 2030, the results not only indicate the region is off track but also that there will be a significantly stronger impact relative to the 2019 baseline. Thus, as shown in tables A.5-A.6, the projected base-case headcount ratio for the $1.9 is estimated to reach 11.7 per cent in 2021, equivalent to 42.2 million people which rises to 45 million poor in the lower growth scenario. In the per-COVID-19 scenario the region's 2021 number of poor based on the $1.9 poverty line in the base-case growth scenario is estimated at 33.3 per cent. Therefore, the pandemic is expected to increase the number of extreme poor in the fourteen countries by 9.1 million.

Finally, the cost of closing the poverty gap associated with the base case and lower-growth scenarios is high in absolute terms but, as argued in Abu-Ismail and Hlasny (2020), quite modest relative to the region's resources. The results give a range of $45 billion to 51.7 billion for the cost of closing the poverty gaps for the national poverty lines and $3.5 per day poverty lines. For the $1.9 poverty line, the cost ranges from $11.7 billion to $12.4 billion for the projected and private consumption growth scenarios, respectively. As shown in figure 5, the highest cost for the national poverty line and $3.5 per day estimates is in Yemen followed by the Sudan and then by Egypt and the Syrian Arab Republic which have similar cost estimates. However, for the $1.9 the highest cost is for Yemen followed by Syrian Arab Republic. This is plausible due to the relatively higher incidence of extreme poverty and poverty gap ratios for both countries.

Figure 5. Cost of closing the poverty gap for projected (PSC) and lower-growth (LGSC) scenarios using national poverty lines and $1.9 and $3.5 poverty lines, 2021 $ billions in 2011 PPPs



Source: Author's estimates based on grouped household expenditure data using PovcalNet and PPP value of the most recent national poverty lines.

III. Conclusion

This study has presented the results for 14 Arab region countries in various stages of economic development and in various economic and political circumstances. An assortment of data from DESA and the World Bank – and by extension from household budget surveys – was used to estimate the distribution of income and the depth of poverty in the region and to assess the resources required to close the region's poverty gap. This exercise and its results have a number of limitations. The first obvious limitation is that using data across data sources and across countries may not always give accurate results. However, the most crucial limitation is data quality and availability. A recent World Bank paper identified gaps in availability, access, and quality of household budget surveys (HBSs) in the Middle East and North Africa (MENA) region, used to measure monetary poverty. The paper concluded that the availability and timeliness of welfare data in the MENA region is among the poorest world-wide.11 When collection of consumption data is not possible, imputation based on grouped data, such as in this paper, is the second best option to measure monetary poverty.

On the side of estimation of the headcount poverty and costs of poverty eradication, the evidence on the short- and long-term implications of the COVID-19 pandemic is being continuously revised. This paper has strived to incorporate the most updated projections, and the results have changed somewhat across successive versions of the study. For example, an earlier version based on the far more optimistic United Nations and International Monetary Fund regional growth projections in March yielded a significantly lower estimate of the regional poverty impact of 8.3 million additional poor population in the base-case scenario (ESCWA, 2020a). It is assumed that the impact will change with updated future projections. As in the case of a recent paper on wealth inequality and the cost of poverty reduction (Abu-Ismail and Hlasny, 2020), the main purpose of this paper is to get the correct order of magnitude of the impact, rather than provide a precise figure. In any case, that would not be possible without further analysis at the national level.

Another major limitation is that there is still much speculation on the real economic impact of the pandemic, even for 2020. There are two restrictive assumptions. First, is that the current GDP per capita growth forecasts accurately reflect changes in the macroeconomy. Given the high volatility of current economic growth forecasts and unprecedented level of uncertainty surrounding their potential impact of COVID-19, any results based on these forecasts should be considered with caution.

A second major assumption relied on in this study is that these macroeconomic growth projections are an adequate reflection of the change in microeconomic behaviour and that the mean consumption at the household level will adjust accordingly. This is a relatively strong assumption given that, due to the nature of the impact and its direct impact on vulnerable

and lower middle-income groups, in many Arab countries one may expect the impact to be more amplified at the household level. In addition, in the past decade, as highlighted in the ESCWA and Economic Research Forum (ERF) report on inequality (ESCWA and ERF, 2019), the relationship between mean consumption growth in household surveys and growth in national accounts has been quite problematic and, in some countries such as Egypt, yielding inconsistent or implausible trends. For example, in a number of countries, there is has been a consistently declining ratio of survey-based estimates of consumption expenditure to those derived from national accounts. Other than accounting differences, this growing discrepancy is a strong indicator of growing inequality if higher non-response rates by the ultra-rich are positively correlated with rising income.

A third major limitation is that no one really has an idea how the COVID-19 crisis will affect inequality. Although the COVID-19 crisis is expected to affect all income groups, we assume that the lower earning group is more directly and significantly subjected to consumption losses. This is due to the well-established stylized fact that low-income households have a larger share of their heads employed in informal service sector activities that are strongly affected by the current recession. Low-earning households are less able to rely on their savings and wealth to smooth consumption during the current crisis relative to higher income households. Thus, the paper conservatively assumes that the current crisis will lead to a mild increase in the population-weighted Gini – to reach 34.9 per cent in 2021 for the 14 countries under this assessment – with an acknowledgement that this may only reflect the best-case scenario in the actual change in income distribution.

Notwithstanding these limitations, the findings in this paper offer several important insights on the possible order of magnitude of the poverty impact of the COVID-19 and thus they fulfill their intended objective of creating room for policy dialogue on possible national and regional fiscal interventions.

A key finding is that, regardless of how it is measured, poverty was on the rise even before COVID-19. This is not surprising given the structural deficiencies in economic policies and governance systems that systematically produce conflicts and anti-poor socioeconomic results (ESCWA and ERF, 2019). The pandemic only further exposes these existing deficiencies and, given the high vulnerability of the middle class to fall into poverty, accentuates their negative impact. But it is not their fundamental cause. Against this political economy backdrop, it is easy to understand the relatively high projected rise in the number of poor, especially the extremely poor population, compared to the pre-COVID-19 scenario. In technical terms, this is due to the high elasticities of growth and distribution at that $1.9 per day poverty line given that there is a significant share of the population whose income lie between the $1.9 and $3.5 per day income thresholds. Thus, any minor shift in income will produce a much higher poverty impact and as a result of the COVID-19 pandemic. In terms of the implications for global poverty comparisons, the stylized fact that the incidence of extreme poverty is significantly lower in Arab countries than in other developing regions, may not continue to hold.

Finally, an important policy recommendation: these gloomy results should not be interpreted to imply that the policy options to mitigate the negative poverty impact or to reverse these trends are limited. In fact, with the resources

available the region should be quite ambitious and set its target towards poverty eradication, rather than poverty reduction. The cost of closing the poverty gap associated with national poverty lines in the base case scenario is around $45 billion (in 2011 PPPs) and less than one third of that is required for eradicating extreme poverty ($12 billion). As argued in Abu-Ismail and Hlasny (2020), this is a miniscule share of the wealth of the top decile, especially in the seven middle-income countries making short-term fiscal policy interventions such wealth taxation a feasible policy option in these countries.

Annex tables

Table A.1 Headcount poverty ratios (%) using national poverty lines - projected scenario

	2010	2018	2019	2020	2021
Mauritania (3.5)	40.5	30.9	28.9	31.6	31.8
Comoros (3.6)	45.2	41.4	41.4	43.0	43.4
Djibouti (2.2)	24.2	20.7	19.6	20.1	19.1
Algeria (3.4)	6.0	3.1	3.1	4.0	4.2
Egypt (3.45)	29.4	32.5	29.2	31.9	29.3
Iraq (3.3)	21.8	18.0	17.9	23.2	22.4
Jordan (5)	13.1	17.7	19.6	23.2	22.2
Lebanon (8.5)	6.3	7.8	7.8	12.7	12.1
Morocco (2.7)	6.3	3.1	2.3	3.3	3.6
State of Palestine (7)	36.1	38.4	38.4	44.3	44.2
Sudan (3.3)	44.5	46.0	48.2	53.4	55.6
Syrian Arab Republic (3.5)	13.0	78.8	76.8	78.8	79.9
Tunisia (5)	25.8	12.7	12.7	15.4	15.1
Yemen (2.7)	25.9	73.6	73.7	79.0	80.3
Regional average (3.5)	22.8	30.0	29.2	32.4	32.1

Source: Author's estimates based on grouped household expenditure data using PovcalNet and PPP value of the most recent national poverty lines ($ per day in 2011 PPPs reported in brackets next to country name).

Table A.2 Number of poor (millions) based on headcount poverty ratios using national poverty lines (%) - projected scenario

	2010	2018	2019	2020	2021
Mauritania (3.5)	1.4	1.4	1.3	1.5	1.5
Comoros (3.6)	0.3	0.3	0.4	0.4	0.4
Djibouti (2.2)	0.2	0.2	0.2	0.2	0.2
Algeria (3.4)	2.2	1.3	1.3	1.7	1.9
Egypt (3.4)	24.3	32.1	29.3	32.6	30.6
Iraq (3.3)	6.5	6.9	7.0	9.3	9.2
Jordan (5)	1.0	1.8	2.0	2.4	2.3
Lebanon (8.5)	0.3	0.5	0.5	0.9	0.8
Morocco (2.7)	2.0	1.1	0.8	1.2	1.3
State of Palestine (7)	1.4	1.8	1.8	2.1	2.2
Sudan (3.3)	15.4	19.2	20.6	23.4	25.0
Syrian Arab Republic (3.5)	2.8	13.3	13.1	13.8	14.6
Tunisia (5)	2.7	1.5	1.5	1.8	1.8
Yemen (2.7)	6.0	21.0	21.5	23.5	24.5
Regional average (3.5)	66.4	102.4	101.4	114.9	116.3

Source: Author's estimates based on grouped household expenditure data using PovcalNet and PPP value of the most recent national poverty lines ($ per day in 2011 PPPs reported in brackets next to country name).

Table A.3 Headcount poverty ratios (%) using national poverty lines, lower growth scenario

	2010	2018	2019	2020	2021
Mauritania (3.5)	40.5	30.9	29.1	30.2	32.1
Comoros (3.6)	45.2	41.4	41.1	42.3	42.4
Djibouti (2.2)	24.2	20.7	19.5	22.7	15.4
Algeria (3.4)	6.0	3.1	3.1	2.9	3.6
Egypt (3.4)	29.4	32.5	30.5	38.0	30.6
Iraq (3.3)	21.8	18.0	18.0	22.2	26.1
Jordan (5)	13.1	17.7	16.6	20.2	16.2
Lebanon (8.5)	6.3	7.8	7.8	13.1	12.7
Morocco (2.7)	6.3	3.1	3.1	4.1	4.7
State of Palestine (7)	36.1	38.4	38.4	38.4	40.4
Sudan (3.3)	44.5	46.0	47.5	54.1	58.1
Syrian Arab Republic (3.5)	13.0	78.8	76.5	79.0	79.3
Tunisia (5)	25.8	12.7	12.7	15.1	14.2
Yemen (2.7)	25.9	73.6	73.8	80.9	83.6
Regional average (3.5)	22.8	30.0	29.4	34.1	33.3

Source: Author's estimates based on grouped household expenditure data using PovcalNet and PPP value of the most recent national poverty lines ($ per day in 2011 PPPs reported in brackets next to country name).

Table A.4 Number of poor (millions) based on headcount poverty ratios using national poverty lines (%), lower growth scenario

	2010	2018	2019	2020	2021
Mauritania (3.5)	1.4	1.4	1.3	1.4	1.5
Comoros (3.6)	0.3	0.3	0.3	0.4	0.4
Djibouti (2.2)	0.2	0.2	0.2	0.2	0.2
Algeria (3.4)	2.2	1.3	1.3	1.3	1.6
Egypt (3.4)	24.3	32.1	30.6	38.9	31.9
Iraq (3.3)	6.5	6.9	7.1	8.9	10.7
Jordan (5)	1.0	1.8	1.7	2.1	1.7
Lebanon (8.5)	0.3	0.5	0.5	0.9	0.9
Morocco (2.7)	2.0	1.1	1.1	1.5	1.8
State of Palestine (7)	1.4	1.8	1.8	1.8	2.0
Sudan (3.3)	15.4	19.2	20.4	23.7	26.1
Syrian Arab Republic (3.5)	2.8	13.3	13.1	13.8	14.5
Tunisia (5)	2.7	1.5	1.5	1.8	1.7
Yemen (2.7)	6.0	21.0	21.5	24.1	25.5
Regional average (3.5)	66.4	102.4	102.4	120.9	120.4

Source: Author's estimates based on grouped household expenditure data using PovcalNet and PPP value of the most recent national poverty lines ($ per day in 2011 PPPs reported in brackets next to country name).

Table A.5 Headcount poverty ratios (%) for $1.9 per day poverty line, projected scenario

	2010	2018	2019	2020	2021
Mauritania	7.7	6.4	5.9	7.2	7.6
Comoros	18.1	16.9	16.9	18.3	19.0
Djibouti	19.5	16.5	15.0	15.5	14.7
Algeria	0.5	0.3	0.3	0.4	0.5
Egypt	2.1	3.3	2.5	3.3	2.8
Iraq	2.8	2.1	2.0	3.2	3.3
Jordan	0.1	0.2	0.2	0.4	0.4
Lebanon	0.0	0.0	0.0	0.0	0.0
Morocco	1.7	0.7	0.6	1.0	1.2
State of Palestine	0.2	1.0	1.1	2.0	2.5
Sudan	16.0	12.1	14.1	17.9	20.1
Syrian Arab Republic	0.7	43.4	40.0	43.7	46.0
Tunisia	2.1	0.2	0.2	0.3	0.4
Yemen	11.5	51.9	53.1	60.6	62.8
Region	4.3	9.4	9.4	11.2	11.7

Source: Author's estimates based on grouped household expenditure data using PovcalNet.

Table A.6 Number of poor (millions) based on headcount poverty ratios using $1.9 per day poverty line (%), projected scenario

	2010	2018	2019	2020	2021
Mauritania	0.3	0.3	0.3	0.3	0.4
Comoros	0.1	0.1	0.1	0.2	0.2
Djibouti	0.2	0.2	0.1	0.2	0.1
Algeria	0.2	0.1	0.1	0.2	0.2
Egypt	1.7	3.2	2.5	3.3	2.9
Iraq	0.8	0.8	0.8	1.3	1.4
Jordan	0.0	0.0	0.0	0.0	0.0
Lebanon	0.0	0.0	0.0	0.0	0.0
Morocco	0.5	0.3	0.2	0.4	0.4
State of Palestine	0.0	0.0	0.0	0.1	0.1
Sudan	5.5	5.1	6.0	7.8	9.0
Syrian Arab Republic	0.2	7.3	6.8	7.7	8.4
Tunisia	0.2	0.0	0.0	0.0	0.0
Yemen	2.7	14.8	15.5	18.1	19.2
Region	12.4	32.3	32.7	39.6	42.4

Source: Author's estimates based on grouped household expenditure data using PovcalNet.

Table A.7 Headcount poverty ratios (%) for $1.9 per day poverty line, lower growth scenario

	2010	2018	2019	2020	2021
Mauritania	7.7	6.4	6.0	6.7	7.7
Comoros	18.1	16.9	16.7	17.9	18.4
Djibouti	19.5	16.5	14.8	17.4	11.8
Algeria	0.5	0.3	0.3	0.3	0.4
Egypt	2.1	3.3	2.8	4.7	2.7
Iraq	2.8	2.1	2.1	3.3	4.6
Jordan	0.1	0.2	0.2	0.4	0.3
Lebanon	0.0	0.0	0.0	0.0	0.0
Morocco	1.7	0.7	0.7	1.0	1.3
State of Palestine	0.2	1.0	1.0	1.2	1.8
Sudan	16.0	12.1	13.5	18.0	21.5
Syrian Arab Republic	0.7	43.4	39.4	44.0	44.9
Tunisia	2.1	0.2	0.2	0.3	0.3
Yemen	11.5	51.9	54.0	64.3	68.7
Region	4.3	9.4	9.5	11.9	12.4

Source: Author's estimates based on grouped household expenditure data using PovcalNet.

Table A.8 Number of poor (millions) based on headcount poverty ratios using $1.9 per day poverty line (%), lower growth scenario

	2010	2018	2019	2020	2021
Mauritania	0.3	0.3	0.3	0.3	0.4
Comoros	0.1	0.1	0.1	0.2	0.2
Djibouti	0.2	0.2	0.1	0.2	0.1
Algeria	0.2	0.1	0.1	0.1	0.2
Egypt	1.7	3.2	2.8	4.9	2.8
Iraq	0.8	0.8	0.8	1.3	1.9
Jordan	0.0	0.0	0.0	0.0	0.0
Lebanon	0.0	0.0	0.0	0.0	0.0
Morocco	0.5	0.3	0.3	0.4	0.5
State of Palestine	0.0	0.0	0.0	0.1	0.1
Sudan	5.5	5.1	5.8	7.9	9.7
Syrian Arab Republic	0.2	7.3	6.7	7.7	8.2
Tunisia	0.2	0.0	0.0	0.0	0.0
Yemen, Republic	2.7	14.8	15.7	19.2	20.9
Region	12.4	32.3	32.9	42.2	45.0

Source: Author's estimates based on grouped household expenditure data using PovcalNet.

Table A.9 Headcount poverty ratios (%) for $3.5 per day poverty line, projected scenario

	2010	2018	2019	2020	2021
Mauritania	35.1	30.9	29.6	32.4	32.5
Comoros	43.9	39.7	39.7	41.3	41.7
Djibouti	46.7	43.9	40.9	41.9	40.5
Algeria	6.9	3.5	3.7	4.7	5.0
Egypt	30.8	34.0	30.9	33.8	31.0
Iraq	25.6	21.7	21.1	26.4	25.8
Jordan	2.8	4.3	4.5	6.1	5.3
Lebanon	0.1	0.1	0.1	0.1	0.1
Morocco	13.8	7.9	7.5	10.0	11.2
State of Palestine	5.3	7.2	7.4	9.9	9.8
Sudan	48.5	49.8	53.4	58.9	61.2
Syrian Arab Republic	13.0	79.3	77.2	79.4	80.6
Tunisia	12.2	3.9	3.8	5.1	4.8
Yemen, Republic	46.1	83.5	84.1	87.7	88.6
Region	25.3	31.5	30.9	34.1	33.9

Source: Author's estimates based on grouped household expenditure data using PovcalNet.

Table A.10 Number of poor (millions) based on headcount poverty ratios using $3.5 per day poverty line (%), projected scenario

	2010	2018	2019	2020	2021
Mauritania	1.2	1.4	1.3	1.5	1.6
Comoros	0.3	0.3	0.3	0.4	0.4
Djibouti	0.4	0.4	0.4	0.4	0.4
Algeria	2.5	1.5	1.6	2.1	2.2
Egypt	25.5	33.5	31.0	34.6	32.3
Iraq	7.6	8.3	8.3	10.6	10.6
Jordan	0.2	0.4	0.5	0.6	0.5
Lebanon	0.0	0.0	0.0	0.0	0.0
Morocco	4.5	2.8	2.7	3.7	4.2
State of Palestine	0.2	0.3	0.3	0.5	0.5
Sudan	16.7	20.8	22.9	25.8	27.5
Syrian Arab Republic	2.8	13.4	13.2	13.9	14.7
Tunisia	1.3	0.5	0.4	0.6	0.6
Yemen, Republic	10.7	23.8	24.5	26.2	27.0
Region	73.8	107.5	107.6	120.8	122.5

Source: Author's estimates based on grouped household expenditure data using PovcalNet.

Table A.11 Headcount poverty ratios (%) for $3.5 per day poverty line, lower growth scenario

	2010	2018	2019	2020	2021
Mauritania	35.1	30.9	29.8	30.8	32.6
Comoros	43.9	39.7	39.4	40.7	40.8
Djibouti	46.7	43.9	40.5	45.1	33.6
Algeria	6.9	3.5	3.3	3.0	3.8
Egypt	30.8	34.0	32.1	40.2	31.9
Iraq	25.6	21.7	21.9	26.2	29.9
Jordan	2.8	4.3	4.2	6.4	4.0
Lebanon	0.1	0.1	0.1	0.1	0.1
Morocco	13.8	7.9	7.9	9.2	9.7
State of Palestine	5.3	7.2	7.2	7.5	8.8
Sudan	48.5	49.8	52.3	59.2	63.3
Syrian Arab Republic	13.0	79.3	76.8	79.6	79.9
Tunisia	12.2	3.9	3.7	5.0	4.8
Yemen, Republic	46.1	83.5	84.6	89.5	91.2
Region	25.3	31.5	31.2	35.8	34.7

Source: Author's estimates based on grouped household expenditure data using PovcalNet.

Table A.12 Number of poor (millions) based on headcount poverty ratios using $3.5 per day poverty line (%), lower growth scenario

	2010	2018	2019	2020	2021
Mauritania	1.2	1.4	1.3	1.4	1.6
Comoros	0.3	0.3	0.3	0.4	0.4
Djibouti	0.4	0.4	0.4	0.4	0.3
Algeria	2.5	1.5	1.4	1.3	1.7
Egypt	25.5	33.5	32.2	41.2	33.3
Iraq	7.6	8.3	8.6	10.5	12.3
Jordan	0.2	0.4	0.4	0.7	0.4
Lebanon	0.0	0.0	0.0	0.0	0.0
Morocco	4.5	2.8	2.9	3.4	3.6
State of Palestine	0.2	0.3	0.3	0.4	0.4
Sudan	16.7	20.8	22.4	26.0	28.4
Syrian Arab Republic	2.8	13.4	13.1	13.9	14.6
Tunisia	1.3	0.5	0.4	0.6	0.6
Yemen, Republic	10.7	23.8	24.7	26.7	27.8
Region	73.8	107.5	108.5	126.9	125.4

Source: Author's estimates based on grouped household expenditure data using PovcalNet.

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Endnotes

1. Except in special circumstances when the value of the poverty line in significantly above the sample mean.
2. The World Economic Forecasting Model (WEFM) was developed to allow the United Nations Development Policy Analysis Division to produce consistent forecasts for the global economy for use in its flagship publication, World Economic Situation and Prospects (WESP) and the WESP Update, and for the forecasts presented at annual meetings of Project LINK. For more information on the model see Altshuler and others, 2016.
3. The LBS and the NIESR have been involved as either national modelling centers or experts in Project LINK for many years.
4. Both of these techniques avoid the bias of the two-step procedure suggested by Engle and Granger, 1987, arising in finite samples, as shown by Stock and Watson, 1993.
5. For the vast literature on the calculation of the poverty line see, for example, Ravallion, Chen and Sangraula (2008), "Dollar a Day Revisited, *The World Bank Economic Review*, vol. 23, No. 2, pp. 163 –184, and the references cited therein.
6. See Deaton, 2008, and Reddy, 2009.
7. For more details see Sarangi, et. al. (2015).
8. See for example UNDP (2004) and (2009) for Syria, UNDP (2008) for Lebanon, and Yemen, World Bank and UNDP, 2007, for Yemen, and World Bank (2005, 2010) for Egypt. All these national reports used a common household-specific cost of basic needs approach to define the food and non-food components of the poverty line following (El-Laithy, Lokshin and Banerji, 2003) which is derived from the standard World Bank methodology in Ravallion (1998).
9. For details see World Bank, "Poverty reduction in Egypt - diagnosis and strategy" Report No. 24234-EGT (2002); ad World Bank "A Poverty Reduction Strategy for Egypt", Report No. 27954-EGT (2004).
10. In cases where only grouped data is available, PovcalNet bases its poverty estimates on parameterized Beta Lorenz curve or General Quadratic Lorenz Curve, proposed by Villaseñor and Arnold (1989) and Kakwani (1980), respectively. Further details on the computational application and methods used in PovcalNet is documented in Datt (1998). The performance of the methods relative to microdata is reviewed in Minoiu and Reddy (2009).
11. Atamanov, 2020.