

The impact of fiscal policies on poverty and vulnerability levels among the middle class in Egypt Working paper series on the middle class









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## The impact of fiscal policies on poverty and vulnerability levels among the middle class in Egypt Working paper series on the middle class

Working paper No. 6



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#### **Key messages**



The Arab region is diverse in terms of its economic structure and social classes.

Given the current macroeconomic challenges and shrinking fiscal space, improving equity and efficiency of fiscal policy choices remains one

improving equity and efficiency of fiscal policy choices remains one of the common concerns across countries in the region.



indebtedness for working and lower middle-class households. In addition, fiscal support measures are needed.



Indirect taxes adversely affect the working and lower middle classes more than other social classes, as noted in the case of Egypt.

Tax policymakers should strive to enhance equity and progressivity, which requires tax reforms including the lowering of taxes on goods and services on which the working and lower middle classes are particularly reliant.



Targeting methods need to be improved to reduce leakages of transfers to upper middle-class households.

Targeting method also need to consider geographic location of households, whether rural and urban, and their vulnerabilities to assess the amount of transfers, such as in Egypt.

#### Introduction

The Arab region is diverse in terms of its economic structure. A challenge that most countries in the region face is their shrinking fiscal space for financing development and improving equity across population groups. In the past decade, public social expenditure in the Arab region has remained inadequate and has been inefficient, impeding the delivery of essential social services, including to middle-class households. More recently, limited fiscal space has been apparent in the Arab region's inability to respond effectively to the repercussions of the COVID-19 pandemic<sup>2</sup> which has adversely affected the pace and equity of recovery.

The past decade has also witnessed a decline in growth in the Arab region and reduced Government revenue. This has impeded the financing of development and efforts to achieve the Sustainable Development Goals (SDGs). The need to increase tax revenues has remained a major challenge for most countries in the region and, to address that challenge, several countries have implemented tax reforms in the past decade. For a number of reasons, however, improvements to taxation systems have often failed to result in the desired increase in public revenue. More importantly, taxation systems have largely failed to improve tax equity.<sup>3</sup> Indeed, many tax reforms have significantly increased the tax burden on the middle class and the poor, as Governments have increased their reliance of taxes on goods and services, while tax leakages and inefficiencies, including in individual and corporate taxation, have tended to benefit the rich.

While macro-level data confirm such findings, there is insufficient micro-level information or research to conclude the distributional consequences of fiscal policy choices across countries in the region. The limited availability



of household-level data for such analysis is a major constraint in most Arab countries. This paper illustrates how fiscal policy reforms can help promote equity at the macro level and provides household-level data from Egypt as an example to assess the effectiveness of fiscal policy reforms in addressing poverty and vulnerability among middle-class households. The analysis particularly focuses on the impact of direct transfers to households to augment their income and the indirect taxes paid by households on their consumption. The overall aim of the paper is to help policymakers and other relevant stakeholders understand the effectiveness of fiscal policy choices on different social classes.



Fiscal policies on the allocation of resources for social spending are a key policy lever that can be used to support and promote inclusive growth and equity. An equally important and interrelated consideration is that inclusive growth and equity accelerate the achievement of social justice. Social justice ensures equal rights and access to resources and opportunities for all, while also removing barriers to the empowerment of disadvantaged groups and their capacity to make decisions about their lives. Improving equity through fiscal policy choices is therefore important in fostering empowerment, promoting sustainable progress and enhancing social justice. Fiscal policy choices, in that context, can be analysed from two sides, namely the expenditure side and the revenue side.

## A. Impact of expenditure choices on equity and progress towards the achievement of the Sustainable Development Goals

Over the past two decades, nearly all Arab countries have made significant gains in health, education and poverty reduction. Yet, those gains have not been enjoyed by all members of society. As illustrated in figure 1, for example, a lack of quality education and health-care services plays a major role in driving multi-dimensional

poverty in the Arab region. In the majority of the countries reviewed, the combined effect of poor education and health care on poverty exceeds 50 per cent of total deprivation, according to the Multidimensional Poverty Index. It should be noted, moreover, that low living standards are also one of the main driving forces of poverty.

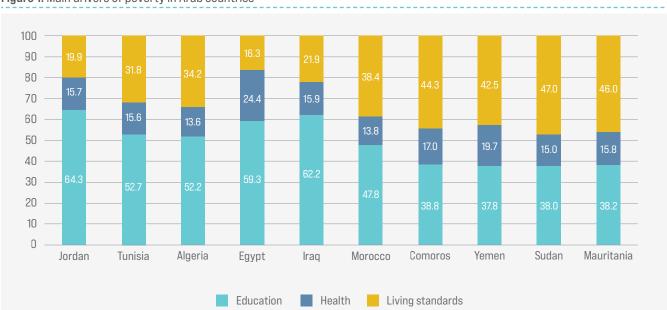


Figure 1. Main drivers of poverty in Arab countries

Source: ESCWA, 2019. Rethinking inequality in the Arab region. United Nations publication.

0.8 0.8 0.6 0.6 0.4 0.4 0.2 0.2 5 10 15 20 25 30 35 40 5 10 15 20 25 30 40 45 45 Π Social expenditure (percentage of GDP) Social expenditure (percentage of GDP) World Arab states ······· Linear (world)

Figure 2. Association between public social expenditure and national Inequality-adjusted Human Development Index (IHDI) scores

Source: ESCWA, 2022.

Furthermore, the region's social spending policies have, overall, been less than efficient in improving equity in terms of human development. Crosscountry evidence suggests that progress in human development is strongly associated with increasing public social expenditure to targeted sectors, such as education and health.<sup>4</sup> As shown in figure 2, there is a strong positive correlation

between public social expenditure and Inequality-adjusted Human Development Index (IHDI) scores. The efficiency of social expenditure in the Arab region in terms of improving IHDI as a broader social development outcome is nearly 20 per cent lower than the global average, and nearly 50 per cent lower than the average performance of high-income countries.<sup>5</sup>

## **B.** Taxation and its impact on equity and progress on the Sustainable Development Goals .....

Tax revenues are an essential resource for the provision of public goods and services and the financing of initiatives to achieve the SDGs. Countries in the Arab region are characterized by low tax mobilization rates relative to the size of their economies and inefficient and poorly designed taxation systems, which have not been effective in bridging inequality gaps. This

undermines national development strategies and the achievement of the Goals.<sup>6</sup> Although tax reforms have been enacted across countries in the Arab region in the past decade as part of efforts to improve revenue mobilization, those reforms have not spurred the desired increase in public revenues, not least because of significant tax revenue leakages.

For the most part, the enacted tax reforms have also fallen short of improving tax equity, as many of those reforms have focused on increasing taxes on goods and services, instead of focusing on personal and corporate tax rates or taxing the wealthy. While the reforms had resulted in some progress, the share of personal income tax in total taxes remains low and stagnant in most countries. The share of revenue raised through taxes on the wealthy also remains negligible. The corporate tax share is also low and has not increased over

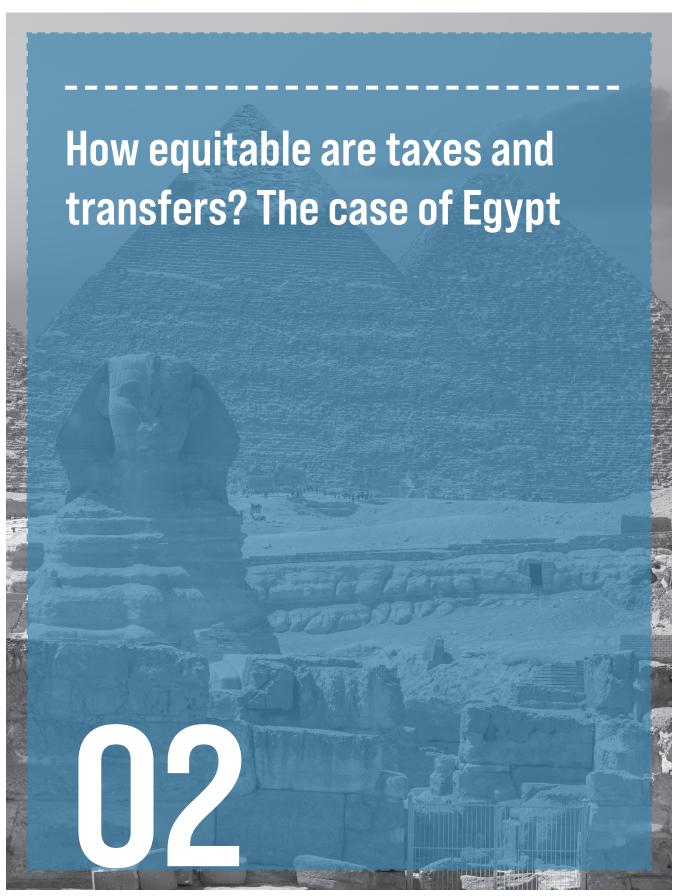
time (figure 3). The share of taxes from goods and services is high and has increased over time in several countries. The result is that the burden of indirect taxes falls more on the poor and the middle-income population than on the rich, which adversely affects equity. Furthermore, multiple tax exemptions and taxation rates often reduce equity in the administration of value-added tax (VAT) and burdens the poor and the middle class more than the richest sections of population.<sup>7</sup>





Source: Sarangi and others, 2022.

**Note:** For Lebanon, the purple section represents revenues from direct taxes, and the green section includes property tax and other tax revenues. For Tunisia, revenues from goods and services taxes include revenues from VAT, consumption duties and other indirect taxes.



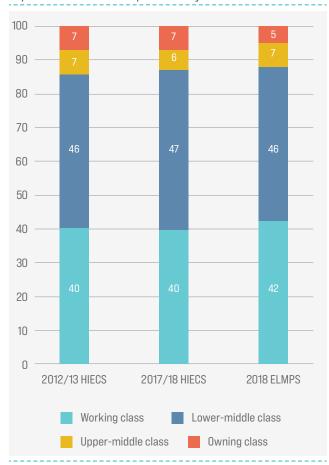
The reference points for the following analysis are the 2012/2013 and 2017/2018 Household Income, Expenditure and Consumption Surveys (HIECS) of Egypt. We use the data provided by the Economic Research Forum of Egypt<sup>8</sup> to assess the redistributive impact of taxes and transfers on different social classes.

### A. Identifying middle-class households in household income, expenditure and consumption surveys .....

The determination of the social class of households follows the methodology developed by Khawaja.9 According to that methodology, the class determination of households depends upon the position of household members in the labour market, and specifically their occupations, employment status and the size of the business establishment in which they work. The occupation codes of household members are taken from the Egyptian Labour Market Panel Survey (LMPS). Sufficiently detailed occupation codes are not available in HIECS, so the social class of households is imputed into HIECS by matching households with the most likely households in LMPS. Details concerning the methodology for imputation are provided in annex 1.

As illustrated in figure 4, the analysis reveals that the social class distribution of households surveyed in the 2017/2018 HIECS is in line with the social class distribution in the 2018 LMPS. In the 2017/2018 HIECS, approximately 40 per cent of households were working class, 47 per cent were lower middle class, 6 per cent were upper middle class, and 7 per cent were owning class. For the 2012/2013 survey, the resulting class distribution showed 40 per cent of households in the working class, 46 per cent in the lower middle class, 7 per cent in the upper middle class, and 7 per cent in the owning class.

**Figure 4.** Social class distributions in Egypt according to Labour Market Panel Surveys and Household Income Expenditure and Consumption Surveys



**Source:** Authors' calculations based on data compiled through the HIECS with data provided by the Economic Research Forum and LMPS of Egypt.

**Note:** Henceforth, in this paper, the year "2012" is used to refer to the 2012/2013 HIECS and "2017" is used to refer to the 2017/2018 HIECS.

#### Methodology - impact of taxes and transfers on the middle class

The analysis in this paper assesses the impact of fiscal policy choices (taxes and transfers) on the middle class in Egypt at two points in time, namely in 2012/2013 and in 2017/2018, using household survey data. Various methodologies can be used to assess the impact of taxation and transfers on household welfare.<sup>a</sup>

The effectiveness of fiscal policy has been studied by scholars as well as by researchers at the World Bank and the International Monetary Fund (IMF), who have used various methods of incidence analysis.<sup>b</sup> This paper follows the most recent contribution to incidence analysis, namely the methodology developed by Lustig and Higgins.<sup>c</sup> That methodology considers a comprehensive list of adjustment to income concepts and combines micro and macro data in order to assess the impact of fiscal policy on poverty and inequality. The methodology used has several advantages over previous incidence analysis methodologies, which do not take into account household-level unit data, as discussed in a 2016 study on Jordan.<sup>d</sup>

Per Lustig and Higgins,<sup>e</sup> various income concepts are set out in annex 2 to the present report. In terms of notations, the concepts are as follows:

Market income:  $Y^m = W + IC + SC + IR + RT + P$ 

Net market income:  $Y^n = Y^m - DT - SS$ 

Disposable income:  $Y^d = Y^n + T$ Post-fiscal income:  $Y^{pf} = Y^d + IS - IT$ 

Where.

W = gross (pre-tax) wages and salaries

IC = income from capital

SC = self-consumption from own production

IR = imputed rent for owner occupied housing

RT = remittances

P = pensions from contributory social security system

DT = direct taxes on all income sources

SS = contributions to social security

T = direct transfers from government

IS = indirect subsidies (food, fuel prices and so on)

IT = indirect taxes

In order to arrive at income concepts, a number of adjustments were made to the harmonized data set derived by the Economic Research Forum from the HIECS. Given the data structure, market income data were not available. The data set provides a net market income (Y<sup>n</sup>) variable, which includes all incomes excluding direct taxes and social security contributions. The amount of direct taxes and social security contributions are not available from the data set, however. We obtained the disposable income (Y<sup>d</sup>) for

each household by adding direct transfers received by households to net market income (Y<sup>n</sup>). However, the Economic Research Forum data on transfers covered all governmental and private transfers, including those provided through social insurance, assistance, inter-household transfers, charities, remittances, disability pensions, allowance benefits, and child/family benefits. According to our income definition, remittances from abroad and pensions should be treated as part of regular income. These are not public transfers through social programmes. Therefore, foreign remittances and pensions were deducted from transfers for those households that receive such incomes, and augmented to net market income (Y<sup>n</sup>).

The post-fiscal income (Y<sup>pf</sup>) captures net income of indirect taxes paid through consumption, but not indirect subsidies received. The computation of indirect subsidies received by households through subsidies on food, energy and other essential provisions was not possible due to a lack of adequate data on the volume and type of food and fuel consumed. For taxes, we applied commodity tax rates to consumption expenditure in order to compute the total indirect taxes paid for consumption of all items, which was then deducted from disposable income to arrive at post-fiscal income. A limitation of this variable is that it tends to lower the post-fiscal income for those households that consume a significant proportion of the subsidized items. In theory, many of the subsidized items are intended for poor and low-income households. However, much of the fuel subsidies are enjoyed by wealthier households.<sup>f</sup> Food subsidies apply to all households. Therefore, it can be argued that the downward bias of post-fiscal income is applicable to all households in the sample and not just poor households.

National poverty estimates are based on consumption expenditure per capita. According to the national definition, the poverty rate in Egypt in 2017/2018 was 32.5 per cent and 26.3 per cent in 2012/2013.9 For disposable income, the threshold of income that corresponds to exactly the same poverty rate was used. That ensures that the poverty rates are the same regardless of whether the consumption- or income-based definition is used.

**Note:** The Economic Research Forum data cover 50 per cent of the sample households assessed in the national surveys, but the estimates based on the data are representative at the national level.

Item-specific indirect tax rates are obtained from the Official Gazette of Egypt, available at manshurat.org.

- <sup>a</sup> Essama-Nssah, Boniface, 2008. Assessing the redistributive effect of fiscal policy. Working Paper, No. 4592. Washington, D.C.: World Bank; Bastagli, Francesca, David Coady and Sanjeev Gupta, 2012. Income inequality and fiscal policy. IMF Staff Discussion Note, No. SDN/12/08. Washington, D.C.: International Monetary Fund; Lustig, Nora and Sean Higgins, 2013. Estimating the incidence of social spending, subsidies and taxes. CEQ Working Paper No 1. New Orleans, Louisiana: Commitment to Equity Institute.
- <sup>b</sup> Gupta, Sanjeev, Keiko Honjo and Marijn Verhoeven, 1997. The efficiency of Government expenditure: Experiences from Africa. IMF Working Paper WP/97/153; Chu, Ke-young, Hamid Davoodi and Sanjeev Gupta, 2000. Income distribution and tax and government social spending policies in developing countries. Working

Paper, No. WP/00/62. Washington, D.C.: International Monetary Fund; World Bank, 2013. Inclusion matters: The foundation for shared prosperity. Washington: The World Bank; International Monetary Fund (IMF), 2014. Fiscal policy and income inequality. Washington, D.C.: International Monetary Fund; Sdralevitch, Carlo and others, 2014. Subsidy reform in the Middle East and North Africa: Recent progress and challenges ahead. Washington, D.C.: IMF; International Monetary Fund (IMF), 2015. Fiscal policy and long term growth. Washington, D.C.: International Monetary Fund.

- <sup>c</sup> Lustig and Higgins, 2013.
- <sup>d</sup> Sarangi, Niranjan and others, 2015. Effectiveness of fiscal policy in Jordan: Impact on growth, poverty and inequality. Working Paper (December). United Nations publication.
- <sup>e</sup> Lustig and Higgins, 2013.
- f IMF, 2014.
- <sup>9</sup> Central Agency for Public Mobilization and Statistics (CAPMAS), 2018. Characteristics of poor families An analytical study based on income and expenditure research 2017/2018. Cairo.

### B. Impact of taxes and transfers on poverty and the vulnerability of middle-class households ......

#### 1. Lower middle-class householdsare

#### key consumers and vulnerable to

#### adverse fiscal or inflationary pressures

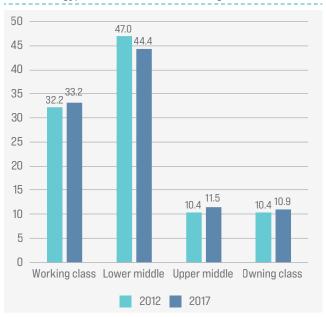
As illustrated in figure 5, the consumption expenditure of middle-class households, including households in both the lower and upper middle classes, constituted more than half of total consumption expenditure in both 2012 and 2017. The consumption expenditure of lower middle-class households constituted the largest share of total consumption expenditure in the country, with average per capita annual consumption at 12,152 Egyptian pounds (LE) (equivalent to \$683) in 2017 (only 1.4 times above the national poverty line). As shown in figure 6, the average per capita consumption of upper middle-class households was double that of lower middle-class households, at LE 24,575 (equivalent to

\$1,382). However, upper middle-class households constituted only 7 per cent of all households in 2012 and 6 per cent of all households in 2017.

The savings of lower middle-class households are negligible, with spending constituting 91 per cent of their disposable income in 2017. The working class spends 97 per cent of its disposable income. Meanwhile, upper middle-class households spend on average 72 per cent of their disposable income. Therefore, any fluctuation in income streams or price increases tend to increase the vulnerability of working-class and lower middleclass households more than that of households in other social classes. To cope, working-class and lower middle-class households tend to adjust their consumption or increase their household debt. For instance, a 10 per cent increase in consumption expenditure, when pushed by inflationary pressures, would force lower middleclass households to lower their spending or increase their borrowing, while a mere 3 per cent

increase in the consumption expenditure of working-class households would force them to borrow or lower their spending, which often means cutting their expenditure on essential goods and services. This finding is particularly

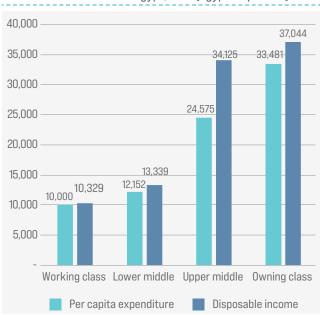
**Figure 5.** Share of consumption expenditure of different social classes in Egypt, 2012 and 2017 (Percentage)



**Source:** Authors' calculations based on data compiled through the HIECS of Egypt with data provided by the Economic Research Forum.

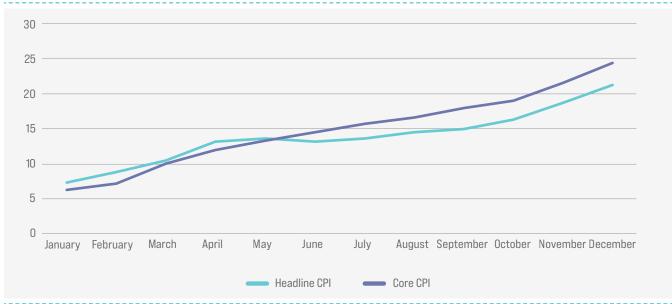
significant: as shown in figure 7, the inflation rate in Egypt has been over 10 per cent since March 2022, making the working and lower middle classes particularly vulnerable to deprivation or increased indebtedness.

**Figure 6.** Expenditure and disposable income per capita of different social classes in Egypt, 2017 (Egyptian pounds)



**Source:** Authors' calculations based on data compiled through the HIECS of Egypt with data provided by the Economic Research Forum.

Figure 7. Inflation rates in Egypt, January-December 2022 (Percentage)



Source: CAPMAS and Central Bank of Egypt.

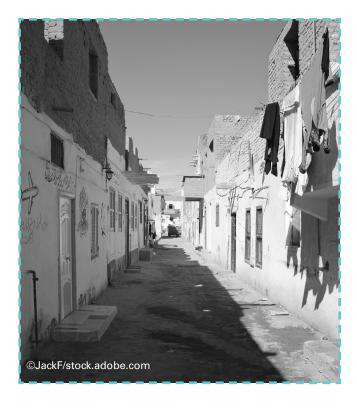
# 2. Fiscal policy choices had a stronger poverty-reducing effect in 2017 than in 2012, but the overall effect remained muted due to the indirect tax burden on poor families

Figures 8 and 9 show poverty rates in Egypt over time as measured using a range of income indicators. Those figures capture the estimated change in poverty rates due to direct transfers received through various Government programmes and the impact of indirect taxes on consumption patterns. 10 The poverty rate in Egypt stood at 26.3 per cent in 2012 but increased to 32.5 per cent in 2017, according to the disposable income threshold. The poverty rate by net market income (before households received any direct transfer payments), was 42.5 per cent in 2017. The poverty rate in 2017 was 39.5 per cent as measured using post-fiscal income, clearly showing the effect of indirect taxes, which increased poverty rates by almost 7 percentage points. Therefore, the net effect was only a 3 percentage point reduction in poverty. In 2012, indirect taxes more than offset the povertyreducing effect of transfers, leading to an increase in poverty by 0.4 percentage points.

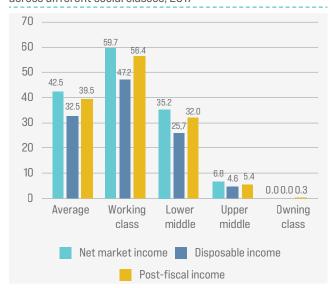
The poverty rate in Egypt stood at 26.3 per cent in 2012 but increased to 32.5 per cent in 2017, according to the disposable income threshold. The poverty rate by net market income (before households received any direct transfer payments), was 42.5 per cent in 2017.

# 3. Direct transfers have a stronger poverty-reducing effect for working class households than for lower middle or upper middle households, but indirect taxes mostly offset the benefits of those transfers

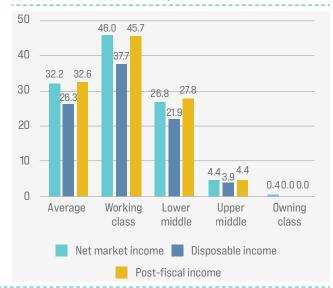
As shown in figures 8 and 9, all social classes except for the owning class report poverty rates, and poverty rates are highest among the working class. In 2017, while the national poverty rate was 32.5 per cent, the poverty rate among working-class households stood at 47 per cent. Similarly, the poverty rate was 25.7 per cent among the lower middle class, 4.6 per cent among the upper middle class. 4.6 per cent among the upper middle class. As compared to 2012, poverty rates increased across all social classes by 2017, with the sharpest increase occurring among working-class households.



**Figure 8.** Impact of fiscal policy choices on poverty rates across different social classes. 2017



**Figure 9.** Impact of fiscal policy choices on poverty rates across different social classes. 2012



Source: Authors' calculations based on data compiled through the HIECS of Egypt with data provided by the Economic Research Forum.

Note: Net market income (gross income excluding direct taxes) is defined as income before households receive transfers.

Disposable income includes net income and income from transfers. Post-fiscal income, in this case, equals disposable income minus indirect taxes paid by households on their consumption of goods and services, as noted in the relevant survey.

The increase in poverty in 2017 occurred despite the fact that the poverty-reducing effect of fiscal policy choices was stronger in 2017 than in 2012, with a stronger positive impact for the working class than for the lower middle class. Figure 8 shows that direct transfers had a strong impact on reducing poverty rates across all social classes in 2017, but that the adverse effect of indirect taxes largely offsets those benefits. For instance, in 2017, transfers accounted for a 12.5 percentage point decrease in poverty among the working class, but indirect taxes increased poverty by 9.2 percentage points. The net impact was therefore only a 3.3 percentage point decrease in poverty among the working class. In 2012, indirect taxes largely offset the impact of transfers on poverty reduction across all social classes.

Among the lower middle class, direct transfers contributed to a 9.5 percentage point reduction in poverty rates in 2017, while indirect taxes contributed to a 6.3 percentage point increase in poverty, resulting in a net 3.2 percentage point reduction in poverty. In 2012, indirect taxes not

only offset the benefits of transfers but also led to increase in the poverty rate of 1 percentage point.

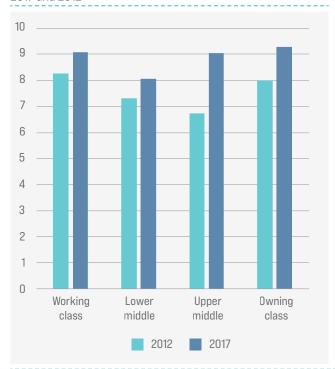
Impacts were more muted among upper middle-class households. In 2017, the upper middle class experienced a 2.2 percentage point reduction in poverty due to direct transfers, while indirect taxes led to an increase in poverty of 0.8 percentage points. In 2012, the stronger impact of indirect taxes resulted in an increase in poverty among the upper middle class that more than offset the benefits stemming from the direct transfers received by upper middle-class households. It is, however, important to analyse the type of transfers received by upper middle-class households and the reasons for those transfers.

An examination of the responsiveness of poverty rates to transfers reveals that, for the working and lower middle class, a 1 per cent increase in income due to transfers is associated with about 1 percentage point reduction in poverty. Analysing the data from 2017, we find that transfers accounted for 11.8

Importantly, the share of indirect taxes in total consumption expenditure of working-class and lower middle-class households increased in 2017 as compared to 2012. The tax share of expenditure for the upper middle and owning class also increased.

per cent of disposable income for the working class, resulting in a significant 12.5 percentage point reduction in poverty within this group. Similarly, for the lower middle class, transfers contributed to a 9.6 per cent increase in income and a 9.5 percentage point reduction in poverty. A significant part of transfers also goes to the

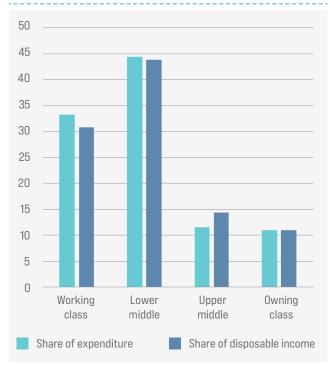
**Figure 10**. Indirect taxes (share of total expenditure), 2017 and 2012



upper middle class, which contributes to an increase in their income by 6.7 per cent, and a reduction in poverty rate of the upper middle class by 2.2 percentage points. Comparing these findings to those of 2012, we observe a consistent trend.

Importantly, and as illustrated in figure 10, the share of indirect taxes in total consumption expenditure of working-class and lower middleclass households increased in 2017 as compared to 2012. The tax share of expenditure for the upper middle and owning class also increased. However, the tax burden is felt more acutely by the working class and lower middle class because of their higher share of consumption relative to their share of disposable income, as compared to that of other social classes (figure 11). Indeed, despite improvements in the progressivity of indirect taxation regimes in Arab countries in 2017 compared with those in 2012, the burden of indirect taxes remains particularly high for working-class and lower middle-class households.

**Figure 11**. Share of total expenditure and share of disposable income, 2017



Source: Authors' calculations based on data compiled through the HIECS of Egypt with data provided by the Economic Research Forum.

#### 4. Fiscal policy choices had a stronger

#### inequality-reducing effect in 2017

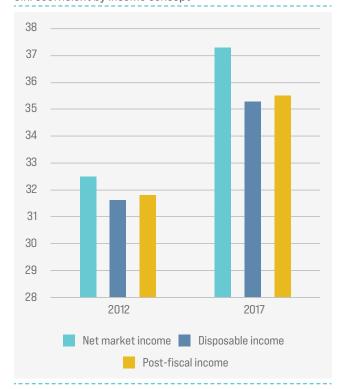
#### than in 2012

Figure 12 illustrates the estimated wealth distributional effect of fiscal policy choices, calculated by estimating the impact of those choices on the Gini coefficient. If transfers are added to net market income, the net effect on disposable income is a reduction in inequality of about 2.5 percentage points in 2012 and 5 percentage points in 2017. The post-fiscal Gini coefficient shows that inequality declined between 2012 and 2017 as improvements in inequality achieved through transfers outweighed the slight increases in inequality stemming from indirect taxation. Indeed, the net effect of fiscal policy choices on reducing inequality was about 4.5 percentage points in 2017, up from 2 per cent in 2012.

Rural-urban inequality in Egypt is also evident from the fact that more than 90 per cent of rural households were either working or lower middle class in both 2012 and 2017. Rural Egyptians suffer from lower-than-average incomes and higher poverty rates than members of urban households. In 2017, the average per capita disposable income of rural households was some 32 per cent lower than that of urban households. Rural households also received lower numbers of public transfers in 2017 on average (LE 5,500 (equivalent to \$309) per household) than urban households (LE 5,800 (equivalent to \$330) per household).

Rural-urban inequality in Egypt is also evident from the fact that more than 90 per cent of rural households were either working or lower middle class in both 2012 and 2017.

**Figure 12**. Redistributive impact of fiscal policy on inequality: Gini coefficient by income concept



**Source:** Authors' calculations based on data compiled through the HIECS of Egypt with data provided by the Economic Research Forum.

#### 5. The incidence of transfers

demonstrates that progressivity has increased in recent years, but the

owning and upper middle classes

receive a significant share of the

#### benefits stemming from those transfers

Figures 17 and 18 show the incidence of transfers and indirect taxes across the social classes, expressed as a percentage of disposable income. The incidence of transfers shows a progressive pattern in both 2012 and 2017, as the working class and lower middle class received a higher share of income from transfers than the upper middle and

owning classes. Transfers contributed about 7.1 per cent of disposable income for the working class in 2012 and became more important for that class by 2017, when they accounted for more than 11 per cent of their disposable income. Lower middleclass households also derive significant benefits from transfers, which accounted for 5.7 per cent and 9.6 per cent of their disposable income in 2012 and 2017, respectively. The share of disposable income provided by transfers for the upper middle and owning classes is significantly smaller, however, but further research is required to fully understand why those households are often eligible to receive direct transfers. Despite a significant proportion of direct transfers going to the upper middle and owning classes, which indicates that there is considerable scope for improving the targeting of financial assistance, transfers are still helping to improve equity in Egypt.

## 6. Indirect taxes tend to be regressive and adversely affect the working and lower middle classes more than other

#### lower middle classes more than othe

#### social classes

The working and lower middle classes paid a higher proportion of their disposable income in indirect taxes in both 2012 and 2017. In fact, the burden of indirect taxes increased over the period in question: in 2012, indirect taxes were, on average, the equivalent of 7.4 per cent of disposable income for the working class, 6.3 per cent for the lower middle class, 5.5 per cent for the upper middle class, and 6.8 per cent for the owning class; whereas in 2017, indirect taxes, on average, accounted for 8.8 per cent, 7.3 per cent, 6.5 per cent, and 8.4 per cent of disposable income across the four social classes, respectively. Notably, in the 2016–2017 fiscal year, Egypt transitioned from a goods and services tax system with a standard rate of 10 per cent to a VAT-based taxation system. VAT was set at 13 per cent, but

increased to 14 per cent the following year. This explains why all social classes paid higher indirect taxes in 2017 as compared with 2012.

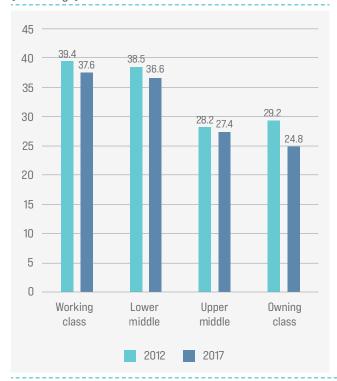
#### 7. The tax exemptions and tax rates

#### on food and non-food items tend to

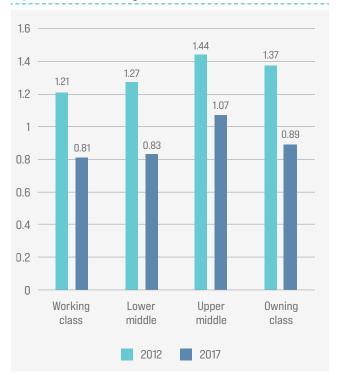
#### reduce regressivity

Most staple food products are exempt from indirect tax in Egypt, which explains the small share of indirect taxes paid in that category. The pattern also suggests that the burden of taxes on food and beverages is slightly lower for the working and lower middle classes than the upper middle and owning classes. In 2017, food expenditure accounts for roughly 37 per cent of total expenditure for the working and lower middle classes but only one quarter of total expenditure for the owning class. Taxes accounted for 0.81 and 0.83 per cent of food expenditures for the working and lower middle classes, respectively, as compared to 1.07 and 0.89 per cent for the upper middle and owning classes, respectively. In 2012, the pattern was similar across social classes, but the taxes on food constituted a higher share of total food expenditure. However, on non-food items, the working and lower middle classes pay a much larger share of their expenditure as taxes as compared to that of the upper middle and owning classes. In 2017, taxes accounted for about 14 per cent of non-food expenditure for the working class and more than 11 per cent for the lower middle class, while it constituted about 9 per cent for the upper middle class and less than 11 per cent for the owning class. In 2012, the pattern was almost similar across social classes though the share of taxes in non-food expenditure was higher than that in 2017. These findings highlight the regressivity of taxes on non-food items, which adversely affects the working and lower middle classes more than other social classes. The exemptions on food items tend to reduce the regressivity but the impact is much smaller.

**Figure 13**. Food expenditures as a share of total expenditures (Percentage)

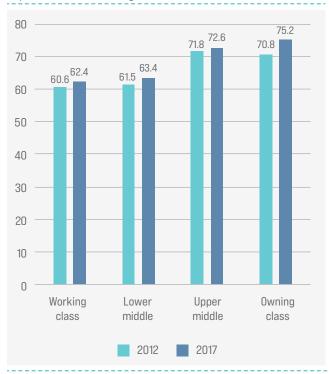


**Figure 14.** Taxes on food expenditures as a share of total food expenditures (Percentage)

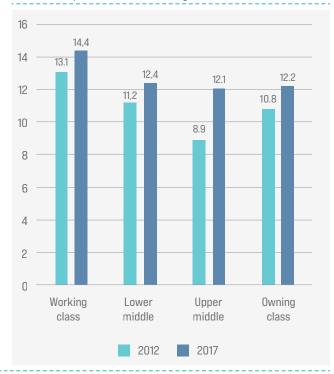


Source: Authors' calculations based on data compiled through the HIECS of Egypt with data provided by the Economic Research Forum.

**Figure 15**. Non-food expenditures as a share of total expenditures (Percentage)



**Figure 16**. Taxes on non-food expenditures as a share of total non-food expenditures (Percentage)



Source: Authors' calculations based on data compiled through the HIECS of Egypt with data provided by the Economic Research Forum.

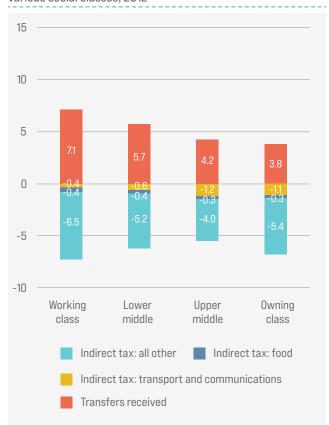
Within non-food items, taxes on transport and communications are relatively progressive. In 2017, those taxes placed the highest burden on the owning class, followed by the upper middle class, while the burden was lowest among the working class. As a share of disposable income, taxes on transport and communications were 2 per cent for the owning class, 1.4 per cent for the upper middle class, 0.8 per cent for the lower middle class, and only 0.5 per cent for the

**Figure 17**. Incidence of transfers and indirect taxes across the various social classes, 2017



working class. Similarly, schedule taxes, which exceeded the standard VAT rate, were applied on high-end consumer goods and services, including automobiles and mobile telecommunication services. The findings suggest interesting insights for policy. Tax policymakers should strive to enhance equity and progressivity, which requires reducing taxes on goods and services on which the working and lower middle classes are particularly reliant.

**Figure 18**. Incidence of transfers and indirect taxes across the various social classes, 2012



Source: Authors' calculations based on data compiled through the HIECS of Egypt with data provided by the Economic Research Forum.



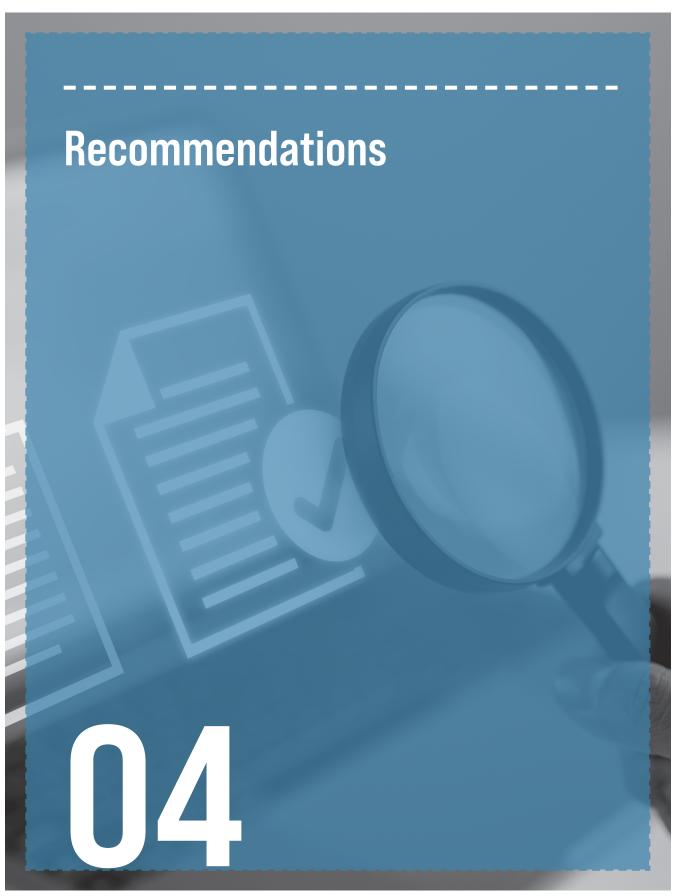
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Arab countries continue to strive to formulate and adopt appropriate fiscal policies that promote equity and enhance progressivity. At the macro level, the shrinking fiscal space for development initiatives and a rapid increase in the taxes imposed by Governments on goods and services, which now provide a significant proportion of domestic resources in many Arab countries, tend to be particularly detrimental to the working and the middle classes. The share of Government revenue raised through personal and corporate income taxes remains low, despite the implementation of a number of tax reforms. This is, in large part, due to tax leakages and inefficiencies in tax administration, which can seriously undermine tax compliance. Crossborder tax evasion and tax avoidance pose further challenges. Overall, inefficiencies in both tax collection and social expenditure are common across the region, 13 impeding the provision of essential services to the poor and middle class and undermining equity in service delivery.

At the micro level, fiscal policies have tended to have disparate effects on poverty and vulnerability across social classes in Egypt. The analysis in this paper found the following:

Lower middle-class households are major consumers and are vulnerable to adverse fiscal or inflationary pressure. For example, estimates suggest that a 10 per cent increase in consumer prices will force most lower middle-class households to lower their spending or increase their borrowing, while a mere 3 per cent increase in consumer prices will force working-class households to borrow more or lower their spending, often signifying a reduction

- in expenditures on essential goods and services. That finding is particularly significant as inflation in Egypt has stood at more than 10 per cent since March 2022, meaning that the working and lower middle classes are particularly vulnerable to deprivation or increased indebtedness.
- Fiscal policy choices had a stronger poverty-reducing effect in 2017 than in 2012, but the overall effect remained muted due to the indirect tax burden on poor families. Direct transfers can have a strong poverty-reducing effect for working and lower middle-class households, and the impact is particularly great on working-class households. However, indirect taxes tend to offset most of the poverty-reducing impact of those transfers. In 2017, the net impact was only a 3.3 percentage point decrease in poverty among the working class, and a 3.2 percentage point reduction among lower middle-class households.
- Transfers have supported progressivity over the years but a significant share of those transfers goes to the upper middle class. Further research on transfers is required to gain a deeper understanding of how transfers affect the various social classes. Indirect taxes have had a regressive impact on Egyptian society and have had a particularly adverse impact on the working and lower middle classes, even though tax policies on food and non-food items have tended to reduce regressivity. It is clear that without the current tax exemptions on food and the relatively progressive indirect taxes on transport and communications, the Egyptian tax system would be even more regressive.



Based on the findings of this analysis the following measures are recommended:

- Combine monetary and fiscal policy measures to address vulnerability of working and lower middle social classes. Controlling inflation through monetary policy mechanisms is critical for reducing the debt vulnerability of middle-class households. While controlling inflation is important, it should be coordinated with fiscal support measures to reduce the adverse economic impact of monetary tightening. Increasing transfers to the working and lower middle classes could provide a buffer against inflationary pressures.
- Prioritize providing essential public social services, particularly as the working and lower middle classes are major consumers of those services. With shrinking fiscal space, improving the efficiency in resource allocation for various social services is critical. Assessing social spending in the seven dimensions of the Social Expenditure Monitor (SEM) for Arab States<sup>14</sup> is critical for improving the level and efficiency in resource allocation for various social services

- experiencing a shortfall, including in the areas of education and health care.
- Reduce leakages of transfers and improve targeting of transfers to vulnerable populations, the majority of them being in working and lower middle classes. Factors such as the geographic location of households, their vulnerabilities and their rural or urban status should be considered when assessing appropriate transfer amounts.
- Improve equity and progressivity in tax policy and support the ongoing reforms currently under way in several countries. Rationalizing taxes, exemptions and incentives, including for income, goods and services, are critical components for minimizing tax distortions, improving equity and addressing poverty.
- Make available survey data on household income and expenditure for research and analysis of the effectiveness of fiscal policy choices on different social classes. A lack of available data is a major impediment to policy analysis.



## Annex 1. Methodology: Social class imputation for household income and expenditure surveys .....

The matching or imputation of household data gathered from LMPS and HIECS surveys was done in three steps. First, households that could be classified according to the Khawaja methodology were classified accordingly. That process captured 54 per cent of all households. Second, households without sufficient data to determine social class according to the Khawaja methodology were classified using a machine learning technique called "random forest". That group included an additional 31 per cent of households. The random forest technique helps in predicting the social class of a household in HIECS by matching its observable characteristics with similar households in LMPS. When compared with deterministic classification or parametric statistical models, the random forest technique is more effective in predicting matching households.15 Third, households with no labour force members, or 16 per cent of the sample, were imputed using a nearest neighbour algorithm following the Khawaja methodology.

Taking HIECS variables into consideration, several groups could be classified in line with the methodology presented in working paper No. 2. First, employers were classified into either the owning class or the middle class on the basis of per capita consumption. Employers with per capita expenditure in the top quintile of all households in a given year were assigned to the owning class, while the remaining employers were classified as middle class. For self-employed individuals, those with a household wealth index in the top quintile were assigned to the owning class. Additionally, some self-employed individuals could be classified as either lower middle or working class because certain one-digit occupational codes map directly to one of the four social classes. Those include self-employed individuals with occupational codes of 1, 2, 4, 6,

7, 8, and 9. Similarly, employees with one-digit occupational codes of 4, 6, 7, 8, and 9 could be mapped directly to social classes.

For individuals who could not be classified by the Khawaja methodology due to data limitations, a random forest algorithm was used to determine social class. By applying the random forest algorithm, the most likely social class of a household was determined based on observed characteristics, including, one-digit International Standard Classification of Occupations (ISCO) occupational codes of household members, employment status, ownership of assets or asset classes, and dwelling information. The random forest technique classifies households into a selected number of nodes, including the four social class categories, and estimates the probability that each observation belongs to each node. This process is repeated 100 times, and the algorithm utilizes chi-square automated interaction detection (CHAID) and constructs 100 classification trees to improve the accuracy of predictions. This is a superior technique to predictions in a single classifier such as a parametric probabilistic modelling, particularly for out-of-sample units.16

Once all classification techniques were completed, households were classified according to the highest possible social class present in a household according to the Khawaja methodology. For example, if a household had a self-employed individual in the owning class and an employee classified as lower middle class through the random forest calculation, the household would be assigned to the owning class. In total, 17 per cent of households were classified by individuals indicated as employers using per capita consumption expenditure, 10 per cent were classified according to per capita expenditure and

occupational codes for self-employed individuals, 27 per cent were classified by occupational codes for employees, and 30 per cent were classified using the random forest technique.

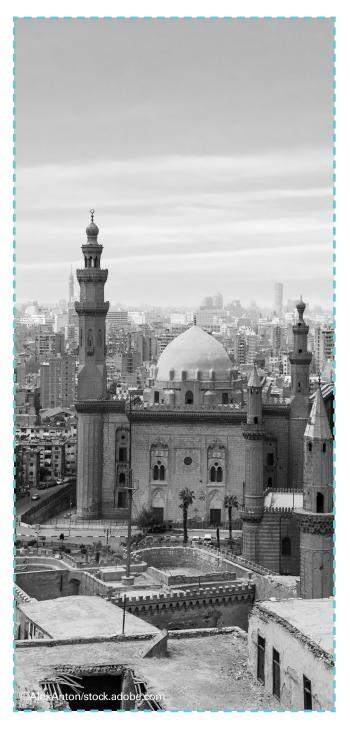
Households with no labour force members, which included 16 per cent of all households, were imputed using a nearest neighbour clustering algorithm following the Khawaja methodology used in LMPS. Households were grouped according to region and urban/rural status if available, which resulted in a total of 41 groups for 2017 and 27 groups for 2012. The household was then assigned the same social class as the household within their group with the nearest per capita expenditure. For cases in which two comparison households were roughly equivalent to the one in question based on per capita expenditure, the asset index was used as a second criterion to determine the correct class.

While the random forest technique provided estimates for the shares of working-class and lower middle-class households in the 2017/2018 HIECS, which was closer to the 2018 LMPS, small sample sizes posed challenges in predicting the owning and upper middle classes. When checks were done, households with employees that had an occupational code of 2 were found to be underrepresented in the upper middle class. To correct inaccurate class distribution in the HIECS and bring it in line with LMPS, an asset index threshold was used to move 4.6 per cent of the sample to the upper middle class in 2017. This was based on the share of households in the upper middle class in LMPS. The same threshold

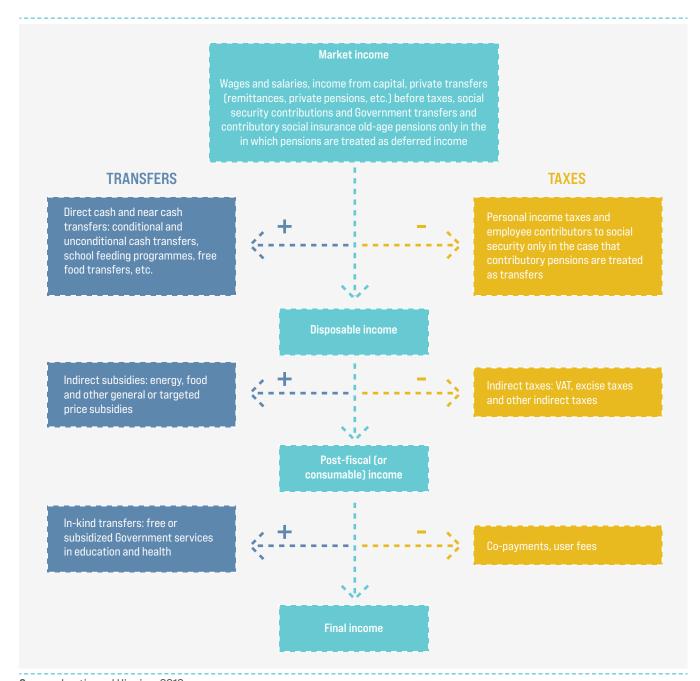
Rural-urban inequality in Egypt is also evident from the fact that more than 90 per cent of rural households were either working or lower middle class in both 2012 and 2017.

was applied to the 2012 survey and resulted in moving 4.4 per cent of households to the upper middle-class category.

The calculations carried out in the present paper draw on a database of households with occupation and social classes combined with income and consumption pattern data, which facilitates fiscal incidence analysis.



#### Annex 2. Income concepts .....



Source: Lustig and Higgins, 2013

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#### **Endnotes**

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- 7 Sarangi, Niranjan and others, 2022.
- 8 Economic Research Forum (ERF), 2023.
- 9 Khawaja, Marwan, 2022.
- 10 The difference between the poverty rates as defined by disposable income and net market income represents the effective reduction in poverty due to transfers. Similarly, the difference between the poverty rates calculated for disposable income and post-fiscal income shows the effective increase in poverty due to indirect taxes.
- 11 According to the methodology used in this analysis, the disposable income poverty threshold was computed exactly to match the poverty rate calculated using the consumption-based national poverty line.
- 12 Officially, the poverty rate among upper middle-class households remains low, primarily because of data discrepancies. Most upper middle-class households have reported that their incomes are insufficient to cover their consumption expenditure. Data on their indebtedness status are not available.
- 13 ESCWA, UNDP and UNICEF, 2022.
- 14 ESCWA, UNDP and UNICEF, 2022.
- 15 Ceriani, Lidia, Vladimir Hlasny and Paolo Verme, 2022.
- 16 Luchman, Joseph, 2015.



In the past decade, public social expenditure in the Arab region has remained inadequate and has been spent inefficiently, impeding the delivery of essential social services, including to middle-class households. This paper illustrates how fiscal policy reforms can help promote equity at the macro level and provides household-level data from Egypt as an example for assessing the effectiveness of fiscal policy reforms in addressing poverty and vulnerability among middle-class households. The findings reveal that lower middle-class households are key consumers but are vulnerable to adverse fiscal and inflationary pressures. In Egypt, direct public cash and in-kind transfers have had a strong poverty-reducing effect. Unfortunately, the taxes imposed on goods and services have tended to offset most of the poverty-reducing impact of those transfers. Furthermore, although the working and lower middle classes benefit more from cash and in-kind transfers than other social classes, the impact of taxes means that, on average, those transfers result in only a 3 percentage point decrease in poverty among households in those classes. To provide support to the working and lower middle classes, a combination of pro-poor monetary and fiscal policy measures, a clearer articulation of social policy priorities and a more efficient allocation of resources are needed.

