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## **Working Paper**

# **Fiscal policy on public social spending and human development in Arab countries**

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United Nations

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## Executive summary

Governments in the Arab countries have largely resorted to reductionary public expenditure policies, ever since they adopted liberalization and privatization policies around the 1990s. In the recent past, crises situations in many parts of the region during the early 2010s, oil price plunge and its stability around a new normal from 2014, and forced expenditure reforms by many countries from 2014 have raised uncertainties in public expenditure policies across the Arab countries. Without having any fiscal rule, public social spending has witnessed ups and downs across the countries. Importantly, public expenditure in health and education remain largely neglected although the region lags behind the global averages of mean years of schooling and in several health outcomes.

How does that impact human development? Building a panel-data-set of ten Arab countries, spanning the time between 1990 and 2015, this paper assesses whether public social spending has direct and positive impact on human development dimensions, including growth, mean years of education and life expectancy. Impact multipliers of social expenditure on growth, and impact coefficients of health and education expenditure on respective achievements were estimated. A dynamic panel-estimation is modeled separately for health and education impact coefficients, using least square dummy variable bias corrected (LSDVC) fixed effects, and a two-step generalized method of moments (2S-GMM), while controlling for governance, corruption, and non-linearity.

The model estimates suggest that public education spending does have a positive and significant impact on education achievements, and the impact is stronger for the oil-poor countries than that of the oil-rich countries. Public health spending has an insignificant impact on health outcomes but that is due to the fact that out-of-pocket expenditure has a strong positive impact on health outcomes. Negligence of public investment in health has severe implications for the poor and middle class of the region, particularly when the region is experiencing rising poverty and high stunting. The long-term impact coefficient of public spending on education on achieving mean years of schooling suggests that that by increasing public education spending by 1 percent of GDP, the region can catch up with average years of education at global level within 6 years.

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## I. Introduction

The allocation of public resources to different sectors has a critical impact on the economic and human development of a country. Studies suggest that a mere increase in public expenditure doesn't improve growth or human development, but allocations to health and education contribute significantly to building human capital and boosting growth. Growth may or may not be "virtuous" to poverty reduction, but the nexus between economic growth and human development becomes "virtuous" where benefits of growth are redistributed to the poor, and the larger section of population.

The state has a central role in making choices about allocating resources for improving human development. The critical state expenditure that impacts human development is the social allocation ratio, defined as the proportion of total government expenditure devoted to the human development sectors, or social spending, as percentage of the total income. Another important ratio is the priority ratio, defined as the proportion of total human development sector expenditure allocated to priorities, which may vary by country and development stage. Therefore, even if the public expenditure ratio is the same between two countries, a higher social allocation ratio, and particularly a higher priority ratio to human development sectors will contribute to higher human development achievements, as in the case of Kenya compared to Malawi in the 1980s.<sup>2</sup>

The transmission channel between economic growth and human development is researched relatively well by several scholars.<sup>3</sup> A theoretical two-way link between human development and economic growth is presented by Ranis and Stewart (2005). According to the authors, the strength of the links can lead to either *virtuous* or *vicious* cycles, depending upon the positive or negative feedback effect between growth and human development. The authors argue that growth-human development linkages flourish (or deteriorate) through the combined effects of the allocation mechanisms of the growth process and the redistributive fiscal policy. The allocation mechanisms can be analysed mainly in two ways. First, individuals can achieve higher human development through improvement in social expenditures by the government, i.e., through improving public provisioning of services in health and education, and social protection. Here, the role of fiscal policy is principally distributive. In turn, the redistributive transfers can secure an optimal steady

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<sup>2</sup> See Ranis and Stewart 2005.

<sup>3</sup> See Behrman 1990a, 1990b, 1993, 1996; Roemer 1990; Strauss and Thomas 1995 among others.

state growth if the allocations are designed without efficiency losses through distortion neutral lump sum taxes and transfers (Hicks 1939, Kaldor 1939).

Second, if the growth process is inclusive by itself, the allocation mechanism ensures that growth reaches, and benefits, the poor households more than proportionate to that of the average individuals (Kakwani et al, 2004).<sup>4</sup> It would improve income of the poor, and therefore it would lead to improving human development achievements through increased expenditure on nutrition, education and so on. Higher human development would in turn improve the productive capacity and growth of the economy as a whole. The role of fiscal policy, here, is more than just redistribution. Instead, it aims to provide a prudential environment that (1) allows public investment to support growth and structural transformation; (2) provides fiscal space for countercyclical fiscal policies to protect the poor against exogenous shocks; (3) and delivers merit public goods, primarily health and education, that increase human capabilities and permanently enhance participation in the growth process (Roy, 2015).

According to McKinley (2010), inclusive growth works when people acquire access to the services that can ameliorate their capabilities in seizing economic opportunities. Such services include health, education, clean water, and sanitation. Thus, improvement in human development will in turn enhance their capability to get actively involved in growth creation, and would ultimately accelerate income and output growth. For instance, advancing inclusive strategies, such as wage-led growth and cash transfers to the poor, can help boost economic growth. Wage growth can support demand through consumption effects, and induce higher productivity growth (Stockhammer, 2015; and Bhaduri and Marglin, 1990). One study argues that keeping real wage growth below productivity growth to increase the international competitiveness of the European Union has had detrimental effects, particularly in increasing inequality, lowering the share of wages in national income, and supporting an unsustainable growth model (Onaran, 2015).

In general, there is increasing recognition that not only the quantity of growth, but patterns of growth, particularly related to equity, are crucial for reducing poverty. In the Arab region, economic growth has been fairly high over the last four decades, but it has been led by oil revenues appropriated by a few, without significantly improved incomes for the poor, or enough jobs for a

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<sup>4</sup>Also see alternative arguments by Dollar and Kraay 2002; Kakwani 1993, Dagdeviran et al 2001.

rapidly rising educated labour force (Sarangi, 2015). Chronically high unemployment rates, and perceptions regarding the divergence between growth and individual well-being spurred the demand for social justice in the Arab uprisings (ILO and UNDP, 2013; ESCWA, 2014). Several reports and studies have concluded that the Arab region's growth process has not been inclusive; rather it has largely benefitted the rich, and inequalities within and across societies have widened over time. High and rising youth unemployment, increasing informal employment for the educated youth, vulnerability of middle class to poverty, and ultimately the 'Arab Spring', an extreme form of peoples' demand for social justice, are testimony to growing inequality in the Arab societies.

The drivers of growing inequality are rooted in both demand and supply-side barriers in the Arab economies, although their relative importance may be subject to argument. Lack of structural transformation, quality education, fragmented labour markets, as well as political instability and crises are all contributing factors (UN and LAS, 2013; ESCWA, 2015). From the perspective of human development, achievements in quality of education and health are crucial for driving the non-income dimensions in human development. The latter has been a big challenge for the Arab countries although they have done fairly in improving economic growth.

The region has progressed well on the education goal (MDG 3) in terms of quantitative achievement of the MDGs. Several countries, such as Algeria, Bahrain, Egypt, Kuwait, Morocco, Oman, Qatar, Tunisia, and the United Arab Emirates, are close to universal primary enrolment, with a net rate above 95 per cent. But education quality has not kept pace, including in terms of equipping people (skills) to compete in the labour market, fostering innovation in research and development, and more broadly, in creating a knowledge economy. Besides, the average years of schooling in the region significantly lie behind that of the global average, which can be seen as a constraint in pushing the frontiers of producing goods and services or knowledge.

In health achievements, the region lags behind the developing regions of the world. Overall, the region has improved life expectancy years as well as infant and maternal mortality rates (Figure 8). Across the region, the proportion of underweight children aged under 5 increased from 14.5 per cent in the 1990s to 15.3 per cent in 2010 (UN and LAS, 2013). In Arab LDCs, more than one in three children are underweight. Chronic malnutrition among children, measured by stunting, has risen in many countries, particularly conflict-affected countries and LDCs such as the Comoros,



Djibouti, the Sudan, and Yemen. Stunting is also high in Egypt, Iraq, and the Syrian Arab Republic. On average, 22.2 per cent of Arab children were stunted in 2014 (ESCWA, 2015).

Analyzing the allocation mechanisms that countries have experienced during the growth processes in recent decades may explain some of these outcomes. Evidence on public expenditure patterns suggest that health and education expenditure as a share of GDP have almost remained stagnant for most countries; in fact, education expenditure as a share of GDP (in the oil-poor countries) has witnessed a decline since 2008. Access to public social services is increasing and costly. A report on Arab Middle Class shows that out of pocket spending on health and education has gone up, which is taking a large share of their disposable income to the extent of 7-8% of consumption expenditure of poor, or 10-11% of that of middle class population (ESCWA 2014). Lack of adequate social protection is a major challenge. Three-quarters of the population do not receive any assistance, a rate similar to sub-Saharan Africa and South Asia. Arab countries have failed to adopt important international social protection laws (El-Jourchi, 2014). Therefore, it is important to examine the role of fiscal policy on public expenditure policy and their impact on human development outcomes such as education and health in a long term perspective.

Research on public social spending and its impact on human development outcomes is scanty in the Arab region. Building time-series data on public social spending, and its composition, in the Arab region is part of the problem, as reliable data in many of these countries is rare. To fill this gap, we have meticulously looked into IMF and national sources in building a data series on government finance statistics for 10 Arab countries for the period since 1990 onwards.

Given this background, the *second* section of the paper discusses fiscal policy on social spending allocations and their linkages with growth. The *third* section describes the pattern of public social expenditure and its association with achievements in health and education outcomes in the region. The *fourth* section provides an estimation strategy toward examining the impact of social expenditures on health and education achievements. The *fifth* section discusses the results. The final section discusses the conclusions and implications for policy.

## II. Fiscal policy on social spending allocations and economic growth

An assessment of fiscal policy of Arab governments with regard to public social expenditure since the 1990s, the period from which most Arab governments followed liberalization policies, provides interesting insights about the changing role of the state in health and education achievements, or in promoting human development in general. The paper uses the IMF definition of public social expenditure from the functional classification of Global Financial Stability Report (GFS), which is a sum of expenditures in health, education, social protection and housing. In addition to analyzing the public expenditure on health and education (based on functional classification), the section also discusses trends in social sector benefits and subsidies (by the economic classification) along with overall total expenditure, and thus, trying to pinpoint what has happened to total expenditure and social expenditure over the 1990s, and how the size and composition of social spending impacted health and education achievements.

### IIA: Declining government sizes in the 1990s, increasing unpredictabilities in government sizes in the 2010s

Fiscal policy in the region is highly related to movements in oil prices. While it directly influences expenditure in oil-rich countries, it also influences the public expenditure patterns of oil importers due to its impact on oil subsidies, current account balances, inflation and so on. According to Diwan and Akin (2015), the 1970s witnessed expansionary fiscal policy by many governments due to the oil-price boom and high economic growth. The 1980s experienced several forced policy adjustments in public expenditure due to the collapse of oil prices and revenue losses. Public expenditures, on average, peaked in the early 1980s at about 50% GDP, but by the early 1990s, they were down to about 30% GDP. The decline in government sizes were rooted in adoption of policies for aggressive fiscal consolidation, privatization and liberalization by most Arab countries, which are largely in line with the policy recommendations of the Washington Consensus. With the continuation of the same policies, the government sizes continued to decline in the 1990s up until mid-2000s. The reversal to the declining trend occurred in the mid-2000s, which is not due to any fiscal rule or discontinuity of the liberalization policies, but due to other factors, which we discuss below for the oil-rich and oil-poor country groups separately.

Figure 1. Public Expenditure in Arab countries (1990-2015)

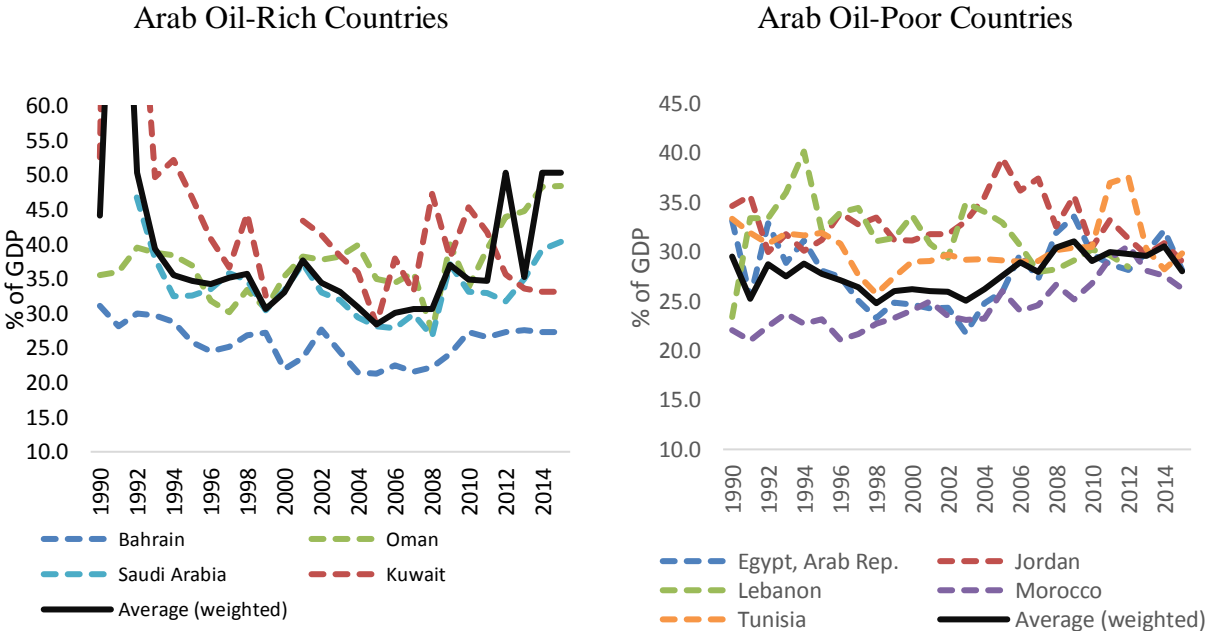
shows the size of government, measured by the expenditure to GDP share of the oil-rich and oil-poor countries since 1990. In the oil-rich countries, the size of government was relatively high during the early 1990s, varying between 30 to 52 per cent in most countries. The exceptionally high expenditure to GDP in Kuwait during 1990-91 was due to the influence of war, but thereafter it sharply declined. Excluding these two exceptional years, the expenditure to GDP share in the oil-rich countries, on average, shows a sharp declining trend from about 40 percent in 1993 to 28 percent in 2005. Most countries seem to converge around the average, with the lowest and highest being 21 to 35 per cent for Bahrain and Oman respectively in the year 2005.

Contrary to the trend of the 1990s, the size of expenditure to GDP ratio, on average, increased from 28 percent in 2005 to 50 percent in 2015, albeit with high year to year fluctuations. But the general increase in expenditure in the oil-rich countries can be attributed to the impact of a rising trend in oil prices during 2006-2013, except for that in the year 2009, and the consequent increase in oil revenues. The spike in 2011-12 can also be attributed to the increase in expenditure in salaries and benefits that were extended to people in order to avoid the spread of discontent in the Arab world to the oil-rich countries. However, in 2014, all Arab oil-rich countries had to face the plunge in oil price and the consequent decline in revenues, which put their high government expenditure levels at stress. Reducing government expenditure is never easy and it often carries potentially negative political consequences. A short term shock in oil price is usually absorbed by the governments, without necessarily revising the government expenditure downward. Unfortunately, with the plunge in oil price and its prolonged stability at a new low level since 2014, the oil-rich countries found it difficult to finance the high public expenditure that they had allowed earlier, and that urged them to start implementing expenditure cuts and reforms in subsidies and introduce other fiscal measures to respond to the reduction in revenues recently. Therefore, the latest period since 2015 would show a decline in expenditure sizes.

The fiscal stance of oil-poor countries is at a different level than that of the oil-rich countries. On average, the oil-poor countries have witnessed a consistent decline in size of government from about 30 percent in 1990 to 25 percent in 2005. Among the sample countries, Morocco has steadily increased its total expenditure to GDP share from 21 per cent to 26 per cent between 1990 and 2005, while other countries witnessed a declining trend. Since 2005 onwards, the oil-poor countries, on average, witnessed an increase in government expenditure (% of GDP) and it reached

30 percent in 2014. This increase in expenditure in oil-poor countries is mainly due to increase in the subsidies, as discussed in the next section, which sharply spiked after the continuous increase in oil price since 2005 until 2014. Furthermore, some of these countries were in a crises situation after the so called ‘Arab Spring’ in 2011, which forced them to increase public spending at discretion to avoid the spread of the revolution, even when the economies were experiencing loss of economic growth. These unforeseen situations contributed to increasing uncertainties in public expenditure as well as they raised concerns of rising debt and debt sustainability by 2014. Since 2014, there is another twist to the fiscal policy stance in these countries. With the galloping deficits and rising debt, most countries had to resort to IMF extended fund facility and adopted fiscal adjustment polices. Reforming subsidies and cutting government expenditure remain their main priority. The low oil-prices supported them in reducing the oil-import bill. However, given their large deficits and lack of fiscal rules in adopting expansionary or reductionary fiscal policies, the countries continue to face the uncertainties in public expenditure in recent years.

**Figure 1.** Public Expenditure in Arab countries (1990-2015)



Source: Authors, based on IMF 2016.

In sum, since the 1990s till mid-2010s, public expenditure to GDP shares have witnessed a downward trend in most countries, including oil-poor and oil-rich countries. With a decline in

public sector, public welfare institutions have declined steadily (Diwan and Akin 2015). While such policies affect all segments of the population, it particularly created damaging impact on the poor who rely on government services to support their social mobility. During 2005-2014, the oil-rich countries have increased public expenditure to GDP ratio, on average, due to their enhanced fiscal stance, led by the rising oil prices and increasing oil revenues. During the same period, the oil-poor countries also witnessed increase in public expenditure to GDP ratio, on average, but that was mainly because of the increasing subsidies linked to increased oil import bill. Contrary to the situation in oil-rich countries, the rising public expenditure negatively affected the fiscal stance in oil-importing countries. In addition, some of them faced the ‘Arab Spring’ that resulted in loss of growth on the one side and increased the uncertainties in expenditure on the other. During the later period, particularly following the plunge in oil prices since 2014, the oil-rich countries introduced several measures of expenditure reduction in order to contain deficits. The oil-poor countries have adopted aggressive fiscal adjustment policy package of IMF to cope with the rising deficit and debt concerns although they have some cushion due to the low oil-import bill. Therefore, the last three to six years have raised uncertainties and unpredictabilities that forced the Arab governments to look into policy adjustments more carefully.

The next section explores how these developments impacted the allocations to public social spending.

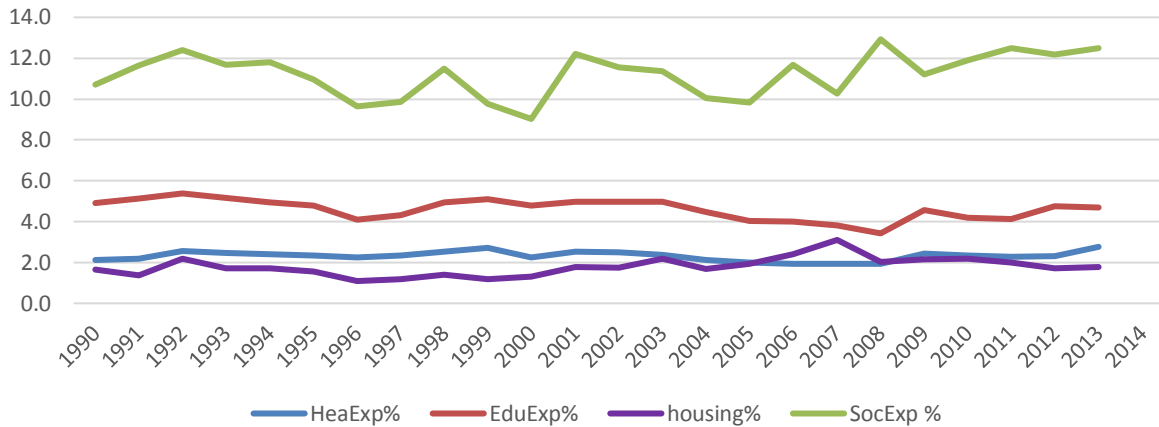
## **IIB. Social expenditure allocations to health and education remained neglected**

Figure 2 and Figure 3 show the trends in average social, health and education expenditure, as a share of GDP, by governments in oil-rich and oil-poor middle-income countries. In the oil-rich group, the average expenditure on education, as a share of GDP, was almost stagnant during the period 1990-2013. It stood at 4.7 per cent of GDP in 2013, which is the same level as in 1990. There are episodes of declining expenditure on education such as during 1992-1996, 2003-2008, and 2009-2011 and thereafter a slight increase during 2011-2013. Health expenditure, as a share of GDP, was stagnant at around 2 per cent during the period 1990-2008, except for a couple of years during 1998-1999. Since 2011 however, there has been a slight increase in health expenditure, which stands at 2.8 per cent of GDP in 2013 from 2 percent in 2011. The expenditure on housing is less than 2 per cent and it is almost stagnant over the same period. The total social

expenditure (as a share of GDP) shows a fluctuating pattern over time, but particularly since 2005 it shows an increasing trend. While expenditure shares in education and housing remain almost stagnant, and that of health reported a slight increase recently, the increase in share of total social expenditure since 2005 is largely due to the increasing share of subsidies, which can be linked to the rising oil prices since 2005.

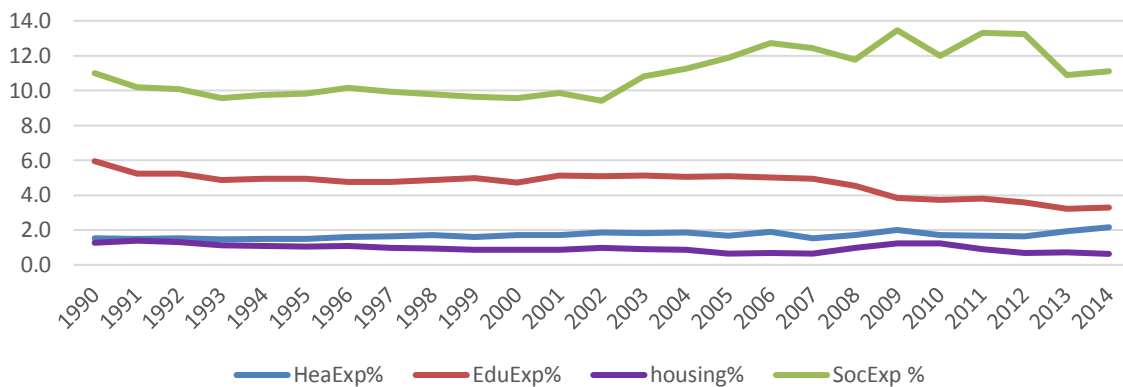
In the oil-poor group of countries, the average health expenditure share of GDP remained almost stagnant during the entire period 1990-2014. The average share of education expenditure too remained largely at a level around 5 per cent during 1990 to 2008. Since 2008, there has been a visibly noticeable downward trend of education expenditure as a share of GDP, which reached 3.3 per cent of GDP in 2014. This is also coupled with the low growth rate during the period 2008-2014 in the oil-poor countries due to the global economic slowdown. During the period 1990-2004, the share of health expenditure remained stagnant around 2 percent and that for housing expenditure remained neglected and declined from 1.3 percent to 0.6 percent. The total social expenditure was showing hardly any movement during 1990 to mid-2000s, after which it started a significant rising trend. This rising expenditure share is largely due to rise in expenditure in fuel subsidies (which is counted as part of social protection component of social expenditure) following the rising trend in oil price and the increase in oil import bills. For instance, the share of social protection expenditure in Egypt shows a remarkable increase after the oil price rise since 2005 (Annex E). Therefore, the total social expenditure as a share of GDP shows an increasing trend, particularly since mid-2000s, although share of expenditure in health remained stagnant, that in housing declined, and that in education declined during the same period.

*Figure 2. Public social, health and education expenditure (% of GDP) in oil-rich countries*



Source: Authors own calculations; Data source: IMF

**Figure 3. Public social, health and education expenditure (% of GDP) in oil-poor countries**



Source: Authors own calculations; Data source: IMF

We acknowledge that the figures on subsidies may not be precise before the year 2005, as they were often financed off budget. In the Arab countries, subsidies were mainly in food and fuel. The food subsidies have declined over the past fifty years between 1960-2010 through “stealth” reforms, especially in the oil-poor countries, from a height of about 9.7% to about 1.1% of GDP (Diwan and Akin 2015). In the oil-rich countries, subsidies started at higher levels and remained high, as this was one of the main ways in which these oil producers transferred some oil income to their citizens. This can largely be seen as an appeasement policy to contain the rich and the middle class who are the major beneficiaries of these subsidies. However, the subsidy bill continues to increase with the increase in price of oil since the mid-2000s. According to IMF, these subsidies represented about 8.5% per cent of regional GDP, and 22% of total government revenues

during 2010, much larger than that in other developing regions.<sup>5</sup> Within the region, levels of subsidies varied, but 12 of the 20 countries in the region have subsidies above 5% of GDP.<sup>6</sup> About half of all subsidies in the Middle East go to petroleum products, followed by electricity (IMF 2013 report). Furthermore, most countries responded to the uprising in 2011 with increased public-sector salaries, expansion of public sector employment, and increases in subsidies, cash transfers, pensions and so on. This measure was taken in times of relatively high oil prices, and consequently increased the overall spending on subsidies in both oil-poor and oil-rich countries.

The subsidies consume a significant part of revenues in oil-rich countries. Since the fall in oil prices in 2014, the oil-exporters were pushed to cut public expenditure by reforming mainly energy subsidies. The energy subsidies bill reduced from \$190 billion in 2014 to an estimated \$86 billion in 2016 (IMF, 2016). In Qatar, fuel prices were allowed to fluctuate according to a formula taking into account global fuel prices, production, and distribution costs within the country as of 2016 (IMF, 2011). In Oman, the industrial price for natural gas doubled (IMF, 2016). In 2015, the federal Government of the UAE announced that gasoline and diesel prices will be deregulated, with prices set monthly based on global levels and applying equally to citizens and expatriates, which led to a price increase (Hegarty, 2017). The United Arab Emirates have also increased electricity and water tariffs in January 2015. Determining how the savings from reforming the subsidies are used is however difficult, due to the number of confounding factors, but particularly due to the lack of detailed, up to date data (Hegarty 2017).

Recently, several of the oil-poor countries introduced public expenditure reforms in order to contain the high and increasing debt. Given the opportunity of low oil price, the reforms in oil importing countries focused on fuel products and electricity prices, while food subsidies remained largely untouched, since their fiscal cost is relatively small and their social sensitivity is relatively high (IMF, 2016). For example, in 2012, Jordan decided to gradually lift petroleum, LPG, and electricity subsidies. To provide some relief from rising fuel prices, the government announced that poor households (below an annual income of USD 14,100) would receive a cash payment of USD 99. Around 70 per cent of the population would receive cash transfers (El-Katiri and Bassam, 2017). Jordan resumed a monthly fuel price adjustment mechanism in January 2013 (IMF, 2016).

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<sup>5</sup> In absolute terms, about 50% of global energy subsidies are disbursed in the MENA region.

<sup>6</sup> For example, in 2011, energy subsidies represented 41% of government revenues in Egypt, 24% in Yemen, 22% in Jordan and 19% in Lebanon, in contrast to “only” 10% in Kuwait, 15% in the UAE and 18% in Saudi Arabia.



In 2012-13, Tunisia raised fuel prices on an ad hoc basis, and re-introduced an automatic price formula for gasoline in 2014 to allow for convergence to international prices over time. Mauritania adopted a new automatic diesel price formula in 2012 that raised domestic fuel prices to international levels and increased electricity tariffs for the service sector a year later (IMF, 2016).

Morocco decided to freeze energy prices in 2011, as a reaction to protest in neighboring countries, at a time when oil price was high. Morocco's energy subsidy bill grew to almost the size of the overall fiscal deficit, as much as spending on investment, and more than the spending on health and education combined, by the end of 2012. In 2013, initial reforms of energy prices reduced the cost of subsidies by almost 50 per cent, to 10 per cent of government spending. Morocco announced far-reaching domestic pricing reform for petroleum products between late 2013 and early 2014. (El-Katiri and Bassam, 2017). However, electricity prices, already among the region's highest, initially remained unchanged, but were increased in July 2014, while LPG, primarily used as a cooking and heating fuel, remains heavily subsidized. Morocco's total subsidies—including food and fuel -- which had peaked in 2012 at 6.6 per cent of GDP, fell to around 3.9 per cent of GDP in 2013 (El-Katiri and Bassam, 2017).

In sum, total public social spending has witnessed ups and downs during the period 1990-2014, without adoption of any fiscal rule across the Arab countries. In the oil-poor countries, public social spending increased during mid-2000s to 2014. But much of it are high subsidy bills due to increase in oil prices since 2005. Expenditure in education and health sectors remain neglected. The uncertainties after 2011 contributed to further increase in discretionary expenditure by governments. Mounting deficits forced several governments in the oil-poor countries to introduce expenditure adjustments during 2013 and 2014. The oil-rich countries witnessed an increasing share of social expenditure during 1990-2014 and much of the increase is due to rising fuel subsidies and also due to high oil revenues, a small part of which is spent on social sector. They reported a slightly increasing trend in share of expenditure in education and health sectors during 2011-2013, given their comfortable fiscal stance. The pattern might have changed after the plunge in oil-price in 2014 when oil-rich countries also adopted expenditure reforms to contain mounting fiscal deficits. We could not find supporting dis-aggregated data for the latest years. Overall, all countries in the region have been witnessing ups and downs in social spending although the reasons vary across country groups.

## IIC. Changing dynamics between social spending growth and economic growth

The association between economic growth and real public social expenditure<sup>7</sup> growth provides interesting insights about how economic growth benefits were redistributed during the period since 1990s. In a welfare enhancing framework, for each 1 percent GDP growth, a higher than 1 percent growth in public social spending will occur. We divided the period between 1990 and 2014 into three sub-periods, 1990s, 2000-2008 and 2008-2014. The first sub-period is the period when most Arab countries applied fiscal consolidation policies aggressively and much of the region moved from state to market led economies; the second sub-period is the period of high growth in most Arab countries until the global economic downturn in 2008; and the third sub-period is the period following the global recession that impacted economic growth negatively in the oil-poor economies and it is also the period of unpredictability in growth and fiscal stance due to crises situations in many Arab countries.

The figure 4 shows the correlations in the 1990-2000. The early 1990s being the starting phase of implementing liberalization and privatization policies, many Arab countries put emphasis on improving macroeconomic balances and growth while they tried to consolidate government expenditure steadily. During this period, a high GDP growth is associated with relatively slow growth in public social expenditure. For some countries, the total amount of government expenditure shrunk towards the late 90's (Diwan and Akin, 2015), which resulted in a negative growth in public social expenditure. On average, a fitted line shows a non-convincing trend between growth in GDP and growth in social expenditure across countries. But for most countries, the growth of public social expenditure was lower than that of their economic growth. Only for Saudi Arabia, the rate of growth of public social spending was significantly higher than that of economic growth.

In the period 2000-2008, public social expenditure growth tended to show strong correlation with growth of GDP and it remained greater than proportionate to the GDP growth for most countries (**Error! Reference source not found.**). During this period, GDP growth picked up and remained moderate for most countries, varying between 4 to 7 per cent. But growth of public social expenditure was relatively higher than the economic growth for most countries, except for

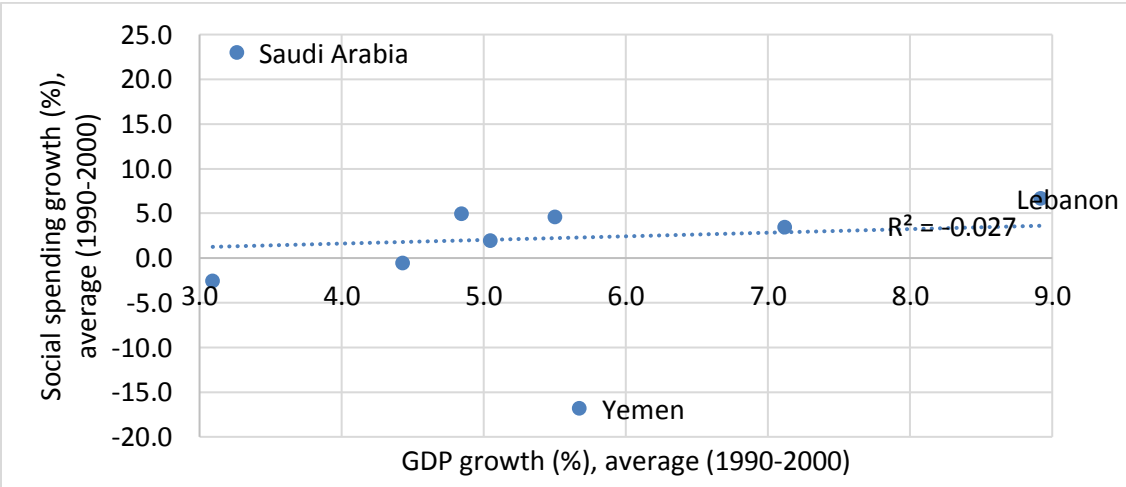
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<sup>7</sup> Real social expenditure is arrived at by deflating the consumer price index inflation from nominal public social expenditure.

Lebanon, Oman and Yemen. Among the three countries, Lebanon and Oman showed positive growth in public social spending, while growth was negative for Yemen. Therefore, the association between the two shows a stronger positive relationship.

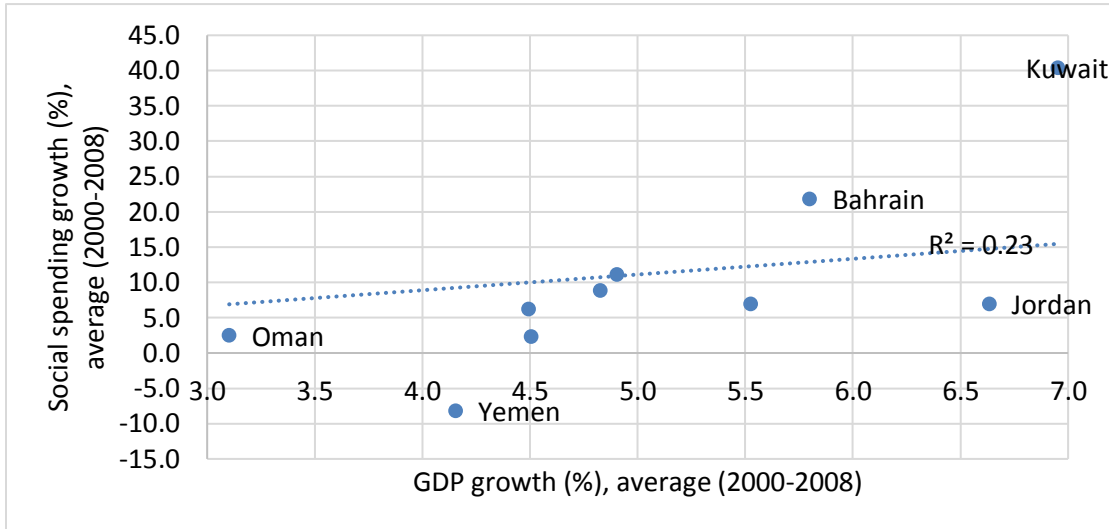
In the latest period from 2008 to 2015, the association between the two growth rates shows inconclusive relationship across the countries. For five countries, the growth of public expenditure remained higher than that of their economic growth, while the reverse was the case for the other five countries. For Kuwait, Saudi Arabia and Yemen, the growth rate of social expenditure remained much higher than their corresponding economic growth rates. It may be noted that during this period the GDP growth for all countries remained lower than the previous period, and in particular, the growth in the oil-poor countries remained low due to the crisis following the Arab spring. Populist measures, including enhancement in salaries and subsidies were extended by the governments in order to avoid the spread of the crises. High oil prices during the years 2011-2013 also pushed up the subsidy bills, particularly for the oil-importers. Therefore, despite low or negative growth in some countries during the early period of 2010s, the growth in public social spending remained high. Albeit, much of these spending has very little contribution to growth and human development, because there was no systematic investment in health and education sector. Given the nature of subsidies, most of it are poorly targeted and are wasteful expenses for the state exchequer. This type of extension in public social spending led to increase their fiscal stress and debt burden during 2013-15.

**Figure 4.** Growth of public social expenditure vs. growth of GDP during 1990s



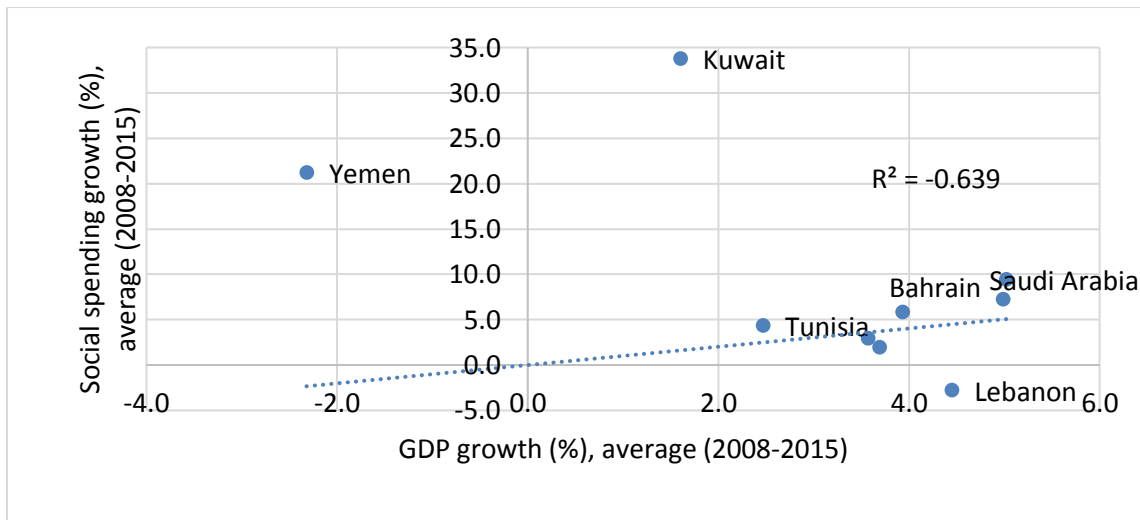
Source: Authors' own calculations; Data source: IMF

**Figure 5.** Growth of public social expenditure vs. growth of GDP during 2000-2008



Source: Authors' own calculations; Data source: IMF

**Figure 6.** Growth of public social expenditure vs. growth of GDP during 2008-2015



Source: Authors' own calculations; Data source: IMF

In sum, the association between growth in public social spending and economic growth across countries shows changing patterns over the past two and a half decades. The period between 2000-2008 witnessed a strong positive association between the growth in public social spending and

economic growth. But the 1990s and the period between 2008-15 witnessed non-deterministic association between the two. However, in the 1990s, the growth of social expenditure was lower than the economic growth for many countries. In 2008-15, the pattern reversed in several countries where growth of social spending was higher than their economic growth. Such a pattern in the latest years indicates to counter-cyclical fiscal behavior. However, they are not designed by fiscal rules but rather most of the social expenditure came in the form of subsidies and salaries to counter the discontent in the society following the global economic downturn and crises situations, as discussed in the earlier section. In general, pro-cyclicality of expenditure (Box 1) and lack of fiscal rules in public expenditure allocations is almost evident over the years.

***Box 1. Lack of fiscal rules and pro-cyclicality of expenditures in Arab countries***

Figure 7 shows the correlation coefficient between the cyclical components of real government expenditure, real government social expenditure, and real output, during the period since 1990 till 2014.<sup>8</sup> The correlations between real output and real expenditure are significant for seven out of the 10 countries, which implies that public expenditure in the Arab countries follow the cyclical trends of output (See also Abdih et al., 2010). With respect to association between real output and real social expenditure, the correlations between the cyclical components of the two indicators is positive for most countries, but they are not as strong as the correlations between cyclical components of real output and real total expenditure. It may be expected because we have observed that the association between growth in public social spending and economic growth across countries have witnessed changing patterns during the past two and half decades. While they move together during the 1990s and 2000s, the pattern reversed during the recent period since 2008. Notably during 2010-13, many countries in the region increased their social expenditure as a coping mechanism to avoid the spread of the Arab Spring, even though the oil-poor countries of the region recorded a loss of economic growth. Furthermore, expenditure shares on health and education, on average, have remained almost stagnant over the years, albeit there is a slight decline since 2008 due to a notable reduction in the share of education expenditure in oil-poor countries. Therefore, variation in social expenditure overall has been

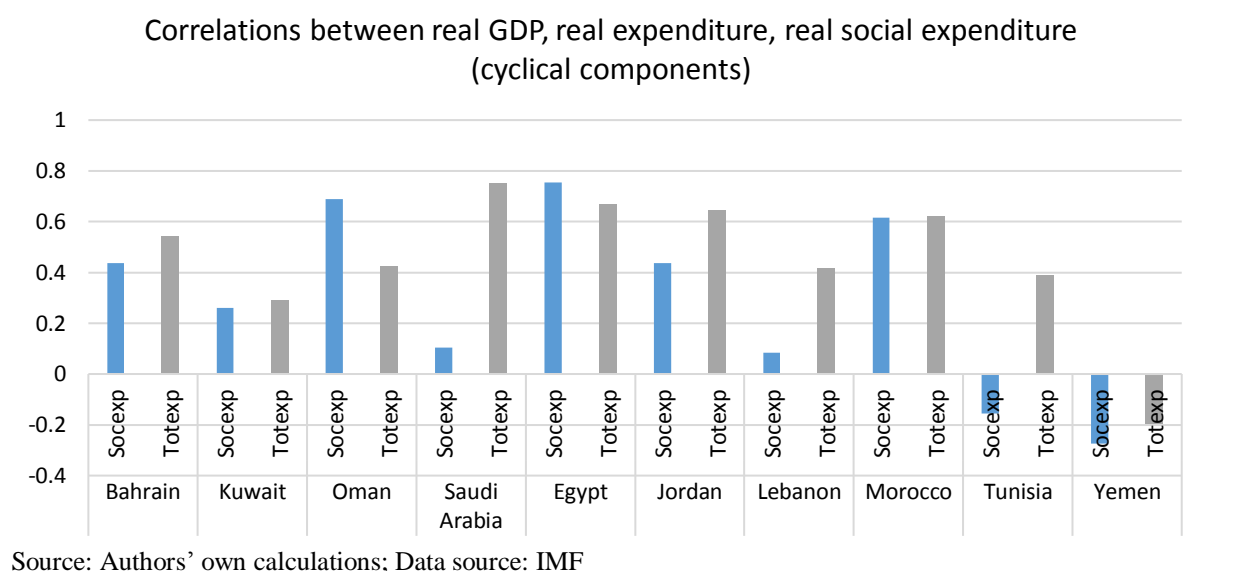
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<sup>8</sup> The cyclical component of the series is arrived at by using HP-filter on annual data.

linked to ad hoc policy decisions to hand out mainly increased salaries and subsidies, the later being highly sensitive to fluctuations in oil prices.

Nevertheless, the pro-cyclicality of total expenditure is hard to explain in Arab countries. Some explanations offered for why smoothing does not occur to relate to the possible existence of electoral fiscal cycles (Blaydes 2008). Other explanations relate the lack of counter-cyclical fiscal policy in the region to the implicit social contract and rentier nature of Arab economies (Elbadewi and Soto 2011; Alesina et al 2008).

**Figure 7.** Correlations of cyclical components of real GDP, real expenditure and real social expenditure



### IID. How does public social spending matter for growth?

Now, we move to assess the importance of public social spending on growth. Previous studies, such as Baldacci et al 2004, argued that social spending in education and health leads to higher economic growth, through their positive and significant impact on the accumulation of human capital. The feedback effect of increased human capital to improve productivity and growth is also established in the two-way relationship between economic growth and human development (Ranis and Stewart 2005), as explained in the introduction of the paper. Since we are discussing the issue of social expenditure, by itself it implies redistribution policy of governments which influences social outcomes. But it is fair to acknowledge that there may be questions on the allocation patterns

and the desired social benefits of social expenditure through the feedback effect, as we discussed earlier in the context of allocations to health and education versus subsidies. If the social expenditure is not targeted to improve human capital, one would deduce that the feedback effect between social expenditure-human capital-growth may be broken.

Going a step further, our purpose is to examine whether public social expenditure shocks can be considered good for economic growth at any given year or in the short term. In order to do so, we estimated impact multipliers of various types of public expenditure by employing a structural vector autoregressive (SVAR) model, a similar approach following Espinoza & Senhadji (2011). The fiscal multipliers measure the short term impact of various types of government spending (as well as tax incentives) on aggregate demand (output). The sizes of multipliers are dynamic and could vary depending on the business cycle or the macroeconomic environment. It may also depend upon the quality of expenditure, the extent of development and openness among others.<sup>9</sup>

Previous studies on fiscal multiplier in Arab countries have estimated the multiplier for total spending, current and capital spending, but they have not estimated a social spending multiplier. The social spending, as defined here, comprises of spending on health, education, housing and social protection. By definition, it has some discretionary components that may not necessarily follow an autoregressive process, such as subsidies and/or transfers. However, for the Arab countries in our sample, the subsidies are prevalent throughout the period of our analysis. Furthermore, the implicit 'social contract' in the context of rentier economies makes the place of subsidies and transfers almost like a permanent part of government spending, which significantly affect consumption of the poor and the middle class. In this respect, examining social expenditure multipliers has its own merit.

Building a large enough consistent data series on social spending is a major challenge for most countries in the Arab region. The sample size for a typical country could be around 20 observations, whereas a typical VAR requires longer time series observations for reliable estimation. A recent IMF study, therefore, opted for pooling data across countries to estimate the

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<sup>9</sup> See Abdih et al 2010; Ilzetzi et.al 2011; Espinoza & Senhadji 2011; Baum et al. 2012.

multiplier rather than estimating it country-by-country (Cerisola et al. 2015). We face the same challenge, as we are using the IMF definition of social spending. However, we could build the series of social spending and other components of public spending for a handful of countries, such as Egypt, and Jordan, from 1990 onwards. With 26 observations, we restricted our estimation to a 3-variable VAR with lag length up to 3 periods, for Egypt. Box 2 explains the methodology of the SVAR model used for this estimation.

The estimated impact and peak multipliers of various types of expenditure for Egypt are presented in the Table 1. The data used for this is from 1990 to 2015. The impact multiplier is based on the impulse response in period 1. However, to understand the maximum impact, we estimated the cumulative impulse responses and choose the period in which the cumulative response is maximum and also identified the year of peak. Impact fiscal multipliers in the case of current expenditure, capital expenditure and aggregate expenditure are all very negligible in the case of Egypt. Even the peak multipliers are low, although capital expenditure peak multiplier show some dynamic effect of expenditure in a five year period. The low fiscal multiplier of total expenditure for Egypt in our results matches with a similar finding from another study on this subject that used a Vector Error Correction (VEC) model, and quarterly data, to estimate the fiscal multiplier.<sup>10</sup> A recent IMF study found relatively higher impact multipliers for the oil-importing countries in the MENAP region as a whole, which is 1.0 for government consumption, 0.6 for current spending, and 1.2 for government investment spending (Cerisola et al. 2015). The oil-importing groups are quite diverse and the results may not be appropriate for all countries, because the multipliers are sensitive to the country context and time. For Egypt, the low fiscal multiplier may be expected because economic growth has seen a declining trend in the recent past although there is a rise in expenditure.

**Table 1:** *Size of fiscal multipliers for Egypt*

| Type of expenditures         | Impact multiplier | Peak multiplier (peak year in the bracket) |
|------------------------------|-------------------|--|
| Aggregate public expenditure | 0.02              | 0.02 (0)                                   |

<sup>10</sup> Alnashar 2017 (paper presented in ERF annual conference in Jordan in 2017)



|                     |      |          |
|---------------------|------|----------|
| Current expenditure | 0.01 | 0.01 (0) |
| Capital expenditure | 0.16 | 0.34 (5) |
| Social expenditure  | 0.04 | 0.17 (6) |

Note: The calculations are preliminary.

Source: Authors' calculations based on data from IMF.

Importantly, we noted that the social expenditure multiplier is higher than that of the current expenditure, but lower than that of the capital expenditure multiplier. This indicates that there is a positive and direct impact of social expenditure on growth in the short period, which is stronger than the current as well as aggregate expenditure. If much of social expenditure were channeled to health and education, the peak multiplier of social expenditure would be higher because part of the health and education expenditure goes to building infrastructure (capital expenditure).

**Box 2: Fiscal multiplier methodology**

There are different quantitative approaches to estimate the fiscal multiplier (Batini et al. 2014). The most popular in the recent period is the use of a structural vector autoregressive (SVAR) model (Blanchard and Perotti, 2002), which captures the dynamic impacts (shocks) of changes in government spending on output. The application of a SVAR is essentially an extension of the unrestricted VAR in which theoretical restrictions on some of the parameters are imposed to address the issue of contemporaneous relationships between the variables in the model. The VAR can be written as follows:

$$AX_t = \alpha + \sum_{i=1}^p B_i X_{t-i} + u_t$$

In reduced form:

$$X_t = A^{-1}\alpha + \sum_{i=1}^p A^{-1}B_i X_{t-i} + A^{-1}u_t = A_0 + \sum_{i=1}^p A_i X_{t-i} + v_t$$

Where  $X_t$  is the vector of variables,  $A_0$  is the vector of constants,  $i$  is the optimal lag up to  $p$ ,  $t$  is time and  $v_t \sim N(0, \Omega)$ . Unless the  $A$  matrix is an identity matrix, the residuals in the reduced form will be contemporaneously correlated, depending upon the structure of the variance-

covariance matrix  $\Omega$ . In the unrestricted VAR we do not care about it. But that can bias the impulse response functions (IRFs). In SVAR, we identify it by putting restrictions on the components of the A matrix (coefficients of the contemporary relationships of variables), based on some theoretical justifications.

We estimated the fiscal multipliers of total government expenditure, current expenditure, capital expenditure and social expenditure in order to understand the differential influence of the pattern of expenditure on output growth. All the expenditures, revenue and GDP variables are converted to constant prices in 2010 by using price index. With 26 observations between 1990 and 2015, we used a three variable VAR: real government expenditure, real GDP, and real government revenues. We introduced exogenous variables into the model, such as changes in international oil prices, output gap,<sup>11</sup> growth of global output as an indicator of the strength of world economy, and monetary factors such as growth of broad money and inflation. The optimal lag  $i$  used was set to 3, as indicated by the lag specification tests. Following Espinoza & Senhadji (2011), in the SVAR model, the variables are introduced in growth rate form. By this the impulse responses that are derived would give us the elasticities. To derive multiplier from elasticity, we divide this by government expenditure to GDP ratio.

We have applied a recursive SVAR, but with one change. In our ordering, first, the government expenditure is taken as autonomous, second, there is contemporaneous impact of expenditure on output, and third, the contemporaneous impact of expenditure on the revenues is restricted to zero, but revenues depend on the output growth. Therefore, we have ordered government expenditure before the GDP and then revenue receipts in identifying the restrictions. This can be written as:

$$\begin{aligned} v_t^g &= u_1^g \\ v_t^y &= C_{21}v_t^g + u_t^y \\ v_t^r &= C_{32}v_t^y + u_t^r \end{aligned}$$

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<sup>11</sup> We estimated output gap as the deviation of the potential output (trend component) from the actual output. With negative (positive) output gap, the economy would tend have larger (less) absorptive capacity and hence spending shocks tend to have larger (less) effect on output (Baum et al. 2012).

where  $g$ ,  $y$ , and  $r$  denote government expenditure, output and government revenues respectively in real terms, while  $u$ 's are observed residuals from three equations and  $v$ 's are unobserved innovations that are derived from SVAR model after imposing the above restrictions.

### III. Linkages between public social spending and health and education achievements

The rate of increase in the human development index (HDI) of the Arab region, after taking off in the 1970s and 1980s, has slowed down markedly since the 1990s.<sup>12</sup> Early improvements in human development were, like elsewhere, easier to achieve, coming from a low base, and they were also boosted by the high expenditures on social sectors in the early period characterized by the rise of the state, and the first oil boom. Progress has become more constrained in the recent past, partly because incremental advancement is harder, but also in large part because the budget share going to health and education has remained almost stagnant, or declined in recent period. In this context, this section looks into the fiscal policy of governments on allocation of resources to health and education sectors and its impact on improving human development in a dynamic context, by taking into account the endogeneity of progress in health and education. Our focus here is on the critical indicators of human development that are built up over a long period of time, such as attained mean years of schooling and life expectancy years.

#### *Education*

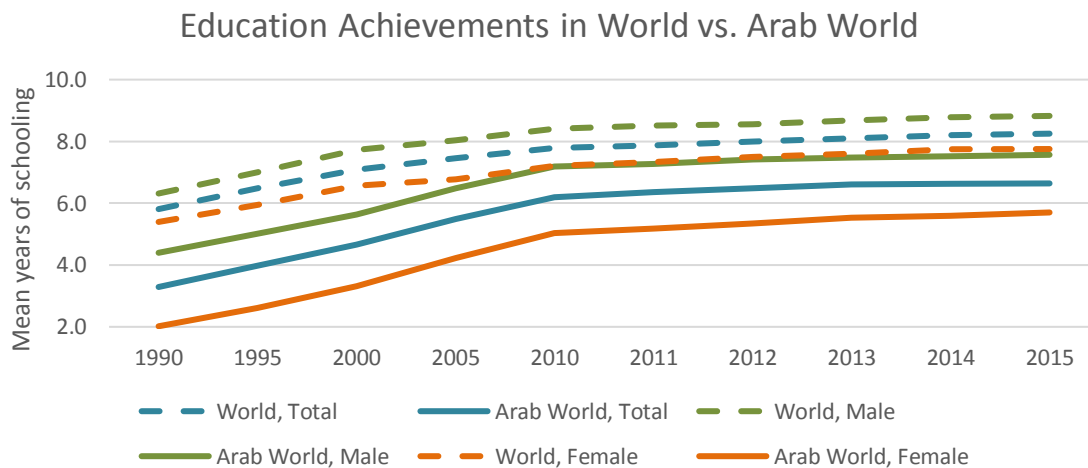
The *attained* mean years of schooling achieved by the current generation (who are 25 years or older) is an important indicator to reflect the quality of human capital and human development in the region. The latest data shows that the average years of schooling in Arab countries is 7.3, against the world average of 8.4 in 2015 (Figure 8). In 1990, the difference in the mean years of schooling between the world and the Arab region was above 30 per cent, which reduced to about 20 per cent in 2014. Therefore, the two averages show a tendency to converge between the last two and half decades, but at a very slow rate.

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<sup>12</sup> A UNDP study looks at the evolution of the HDI, and measures the performance of the health and education systems in all regions during 1990-2010 in comparison to its evolution in the period 1970-2010. A slowdown can be observed in all countries, but it is particularly marked in the region (UNDP 2010). Also see ESCWA, 2016, Arab Development Outlook: Vision 2030.

In terms of mean years of schooling, Arab countries made some progress towards gender parity as the two corresponding lines tend to converge in Figure 8. However, this is happening at a very slow rate and the gap between male and female mean years of schooling is still wider than the global average. Other indicators of education also show slow catch-up with that of the world. For instance, the proportion of the population that has achieved at least secondary education is only about 38 per cent, whereas the global average is about 58 per cent (UN and LAS 2013).

**Figure 8.** *Development of education achievements over time*



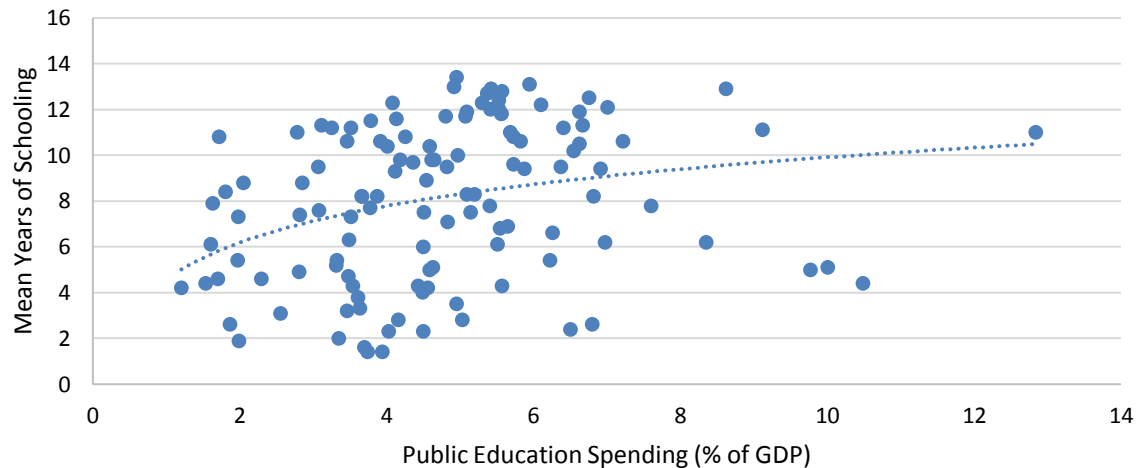
Source: Authors' own calculations; Data source: UNDP 2017.

There is also the widely-recognized problem that an indicator of years of schooling does not incorporate quality considerations. It is generally assumed, for example, that the quality of education in many Arab countries has deteriorated over recent decades, while the private cost of acquiring education has risen. But it would likely take a significant effort to collect relevant and reliable data on the quality dimensions of education as well as the private costs involved in acquiring it.

Figure 99 shows the correlation between public spending on education (% of GDP) and mean years of schooling worldwide in the year 2010. The overall positive correlation shows, on average, that countries with a higher public investment in education are associated with higher education achievements. Of course, one cannot infer a causal relationship from this association, but the

results of other research indicates a positive influence of public spending on education achievements (e.g. Baldacci et al., 2008).

**Figure 9.** Correlations between mean years of schooling and public education spending (% of GDP), World in 2010



Source: Authors' own calculations; Data source: IMF, UNDP

In our sample of Arab countries, the correlations between public education spending and mean years of schooling are somewhat ambiguous. While some countries like Yemen, Saudi Arabia, Egypt and Morocco show clear signs of a positively correlated development over time, the bigger part of the sample shows other results. Egypt, Lebanon, Oman and Jordan show stagnating public investment in education, and still increasing education attainment. Kuwait and Bahrain even seem to have a negative correlation.

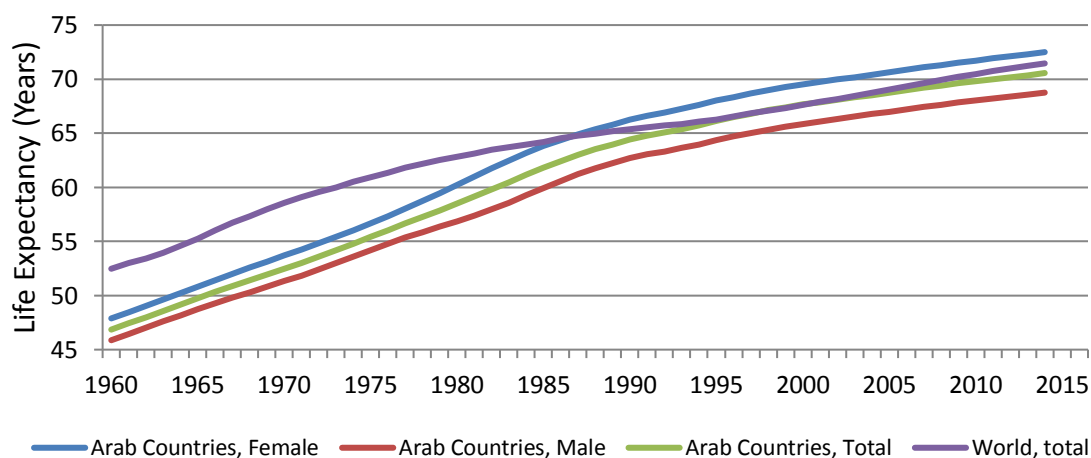
These counterintuitive results can partially be explained by the relatively low importance of public against private education investment in these countries. We do not have exact data on the amount of private investment in education, but a look at the percentage of enrolment in primary education in private institutions gives us an approximation of the importance of the private education sector. Except for Egypt, all the countries that do not show a positive correlation have an extraordinarily big private education sector. While the world average on primary enrollment in private institutions is at 13.4% in 2014, the average for Arab countries is much higher, such as Oman (16.9%), Bahrain

(32.9%), Jordan (34.5%) Kuwait (41%) and Lebanon (73.9%).<sup>13</sup> The burden lies on the poor and the middle-class households more than others (ESCWA 2014).

### Health

The Arab region does not appear to have below-average achievements on the health indicator of life expectancy. While the global average is 71.5 years, the average for the Arab region is 70.6 years (Figure 810). The corresponding averages for the males and females are 68.7 and 72.5 years respectively, while the gender gap in life expectancy has increased since the 1960s. It would be difficult to improve on life expectancy as a general register of progress on health. There are diminishing marginal returns inherent in a life expectancy indicator since there will be slower overall progress in the increase in the number of years at the upper end of the age scale.<sup>14</sup>

**Figure 10.** Development of health achievements over time



Source: Authors' own calculations; Data source: World Bank (2017)

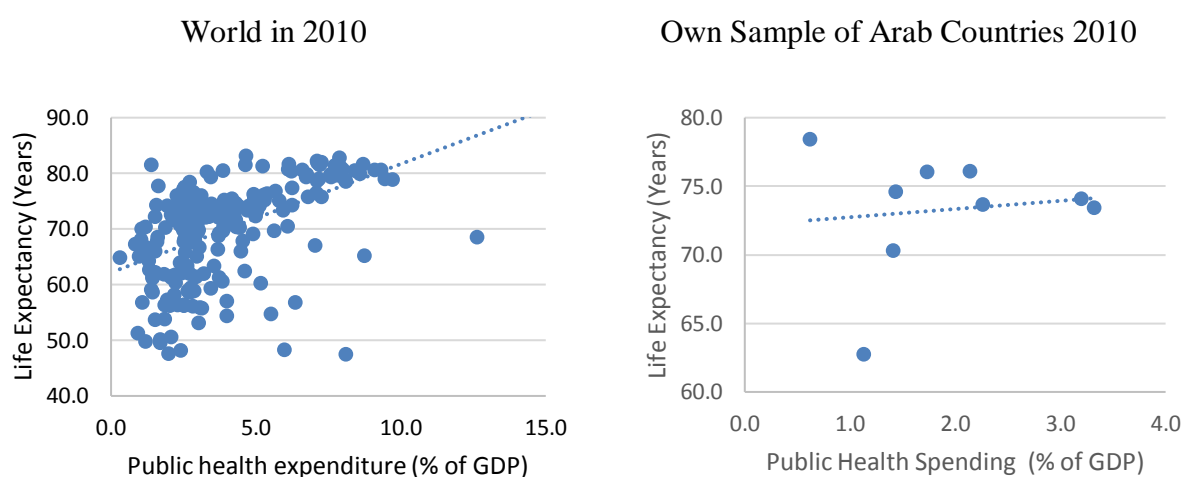
Progress in reducing the child mortality rate and infant mortality rate (IMR) is following the worldwide trend and has improved significantly during the period 1990-2013. Only two Arab countries had achieved an under-five mortality rate ranging between 10 and 20 deaths per 1,000 live births in 1990, and thus had joined the group of “low-mortality countries”. However, by 2011,

<sup>13</sup> World Bank 2017. World Development Indicators.

<sup>14</sup> The quality of life at older age tends to decline than that at younger age. Irrespective of assessing the quality of life, living longer is rational to human beings, and a good health system can support people to live longer and healthy (Nassbaum and Sen 1993).

the number of Arab “low-mortality countries” had increased to five. But the achievements fall short of the MDGs targets, and the progress is slow and uneven across the sub-regions. The LDCs of the region are lagging behind others (UN and LAS, 2013). Furthermore, several countries are facing increasing infant, child and overall mortality rates due to armed conflict. Persistent health inequities are prevalent, with high adverse health outcomes being higher among the poorest income quintiles.

**Figure 9.** Correlations between life expectancy and public health expenditure in 2010



Source: Authors’ own calculations; Data source: IMF, UNDP

The correlations of live expectancy and public health spending in 2010 (Figure 9) show a positive association both in our sample of Arab countries and in the worldwide sample. The overall positive correlation shows on average that countries with a higher public investment in health are associated with a higher life expectancy. However, the positive correlation in our sample of Arab countries is less pronounced than in the global sample. One reason for this weaker association can be found in the explanation of the health systems in Arab countries (Box 3). One of the characteristics is an unusually high share of out-of-pocket expenditure in total health expenditure, showing again that private households are carrying a high financial burden, and a deficiency in public health investment. Thus, private, not public health investment might be responsible for health advancements.

Given these stylized facts and correlations, the next section examines the allocations (public expenditures) and their impact on education and health achievements, by constructing a dynamic panel model for ten Arab countries.

#### IV. Impact of public social spending on health and education: A dynamic panel analysis

This section presents the data, methodology and estimation models for assessing the impact of social expenditure and its components on mean years of schooling and life expectancy years.

##### *Data*

The public finance data are taken from IMF GFS for building the public social spending series and its components. Out of all Arab countries, we build data series for seven Arab countries for the years 1990-2014. For three more countries, such as for Morocco, Oman and Saudi Arabia, we build the data series from the national public finance statistics. In total, we were able to build the series for ten Arab countries, five of which are oil-rich and the other five are oil-poor. We used the IMF's GFS data for most countries for the simple reason that we got more data points on the four components of social spending than that we could obtain from the national sources. In addition to public finance indicators, we included achievements in health and education outcomes from the Human Development Reports database (UNDP), governance indicators from the Worldwide Governance Indicators database of the World Bank, and other factors that may influence the outcomes for 10 Arab countries. The panel considers the year 1996 as a starting point to look back a 20 years period and also partly due to availability of governance indicators from that year.

##### *Methodology*

Previous studies on this subject indicate that the impact of public expenditure is generally positive in progressing health and education achievements globally, but the impact factors vary widely across studies. Some of the ambiguity of these results can be traced to a number of shortcomings within the design of the particular research. Baldacci et al. (2008) point out that past research suffered from data availability, measurement problems, model design (linear models predominant) and missing coverage of interactions between education and health sector, which led to underestimating the effects. Higher education can lead to improvements in health, and vice versa



(Schultz, 1999). Furthermore, variables that impact effectiveness of social spending have to be taken into account (Baldacci et al., 2008). In fact, Baldacci et al. (2008) employed several estimation techniques on a panel data of transition and developing countries to arrive at the impact coefficient of public expenditure on health and education sector, controlling for outliers, measurement error, autocorrelation, and endogeneity. Those include robust regression estimators, Feasible Generalised Least Square estimators (FGLS), fixed-effect Least Square Dummy Variable estimators (LSDV), and fixed-effect instrumental variable estimator (2SLS). They have also used system General Method of Moments (GMM) estimators for estimating the impact on average gross composite school enrollment rate. Ssozi and Amlani (2015) estimated a dynamic panel data model, using two-step GMM and system GMM estimators, to arrive at the conclusion that public health expenditure is the most significant way to improve health outcomes like life expectancy, child and infant mortality in 43 Sub-Saharan Africa countries. Therefore, recent studies have recognized the dynamic nature of achievements in the health and education outcomes.

Conceptually, the level of achievements in mean years of schooling or life expectancy years are attained years by the individuals over time, which is influenced by the accumulation as well as the current levels of attainments. Empirically, it is proved that education and health achievements grow over time, unless there is any temporary fluctuation due to crises situations in a country (UNDP, 2010). Therefore, the dynamic nature of the indicators on health and education achievements is inevitable at any given time, and for any given country. In other words, lagged level of achievement in education and health appear as regressors in the model, in addition to other indicators such as public expenditure in respective sectors, per capita income and other control variables.

Therefore, the estimation strategy takes the form of a dynamic panel model as follows:

$$y_{it} = \gamma y_{it-1} + \beta x_{it} + u_i + \varepsilon_{it}$$

where  $y$  is the dependent variable,  $x$  is a vector of regressors that includes public expenditure on social expenditure as a percentage of GDP, per capita income, governance indicators and other control variables;  $u_i$  are the unobserved time-invariant country-specific effects while  $\varepsilon_{it}$  is the observations error term.

In the panel data literature, the lagged dependent variable by construction is endogenous, which biases the estimates (Nickel 1981). For long time series panels, this is not an issue as the resulting bias is of the order  $1/T$ . We have panel of countries (N) equals to 10 and time periods (T) varying between 11 and 20 observations, which shows that our T is only moderately large. Following Bruno's (2005) small sample bias approximation technique for the unbalanced and dynamic panel estimation, we used the Least Square Dummy Variable Corrected (LSDVC) estimators. The LSDVC model allows for all  $x_{it}$  being a vector of strictly exogenous variables and  $y_{it-1}$  as the endogenous variable. This is a limitation of the model as some regressors may not be strictly exogenous, and the class of estimators is strictly speaking designed for data that are stationary.

A reasonable argument is that public expenditure on education or health is influenced by the dependent variable itself, which is the levels of education and health achievements at any given time in a country. For instance, low levels of educational attainment urge public policy attention for larger spending in education sector. Alternatively, it is also possible that past spending on education influences the level of education at present. The same logic holds for health spending and health outcomes as well. Therefore, endogeneity of the regressor on public spending would affect the impact factor. Furthermore, the estimators could be biased due to serial correlation. Taking into account the problems of endogeneity, serial correlation and the unobserved country-level heterogeneity in the dynamic panel, we estimated the two-step GMM and system GMM estimators,<sup>15</sup> following the approach developed by Roodman (2009a; 2009b).

The GMM estimation ensures that the disturbances in the equations are uncorrelated with the instrumental variables, which are the lagged levels of the series after the equation has been first-differenced to eliminate country-specific effects. The System-GMM instruments the differenced lag dependent variable with lagged levels, and it instruments the levels with lagged differences. The GMM estimator also allows for accommodating endogenous regressors other than the lagged dependent variable, as in our case public expenditure on education or health or social spending. As noted by Roodman (2009a), the Arellano–Bond estimator is designed for small-T and large-N panels. With large T, the number of instruments will be proliferated. In our case, T is moderately large. Therefore, we used appropriate lags in specifying the instruments in order to avoid too many instruments. We also used a finite sample correction to the standard errors of the two-step GMM,

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<sup>15</sup> See Arellano and Bond (1991); Arellano and Bover (1995); Blundell and Bond (1998).

to derive robust standard errors, as proposed by Windmeijer (2005). We used Sargan/Hansen-J test for the validity of the instruments and the Arellano–Bond test for autocorrelation. In summary, our specification of the model is consistent with the literature and allows for identifying the impact of social spending and other policy interventions on education and health outcomes in the Arab countries.

The education model:

The education models estimate the impact of public expenditure in education and social sectors on mean years of schooling, taking into account the endogeneity of the dependent variable and other control variables. The region has done well in terms of progressing toward achieving enrollment rates (both primary and secondary), and literacy rates,<sup>16</sup> but the region is lagging behind other regions, and the world in improving mean years of schooling. In the literature, there are a number of studies that have identified the positive and significant impact of both current and lagged public educational expenditure on improving enrollment rates and adult literacy rates. There is no reason for contesting those results. Rather, this exercise complements to the literature that public expenditure on education and social sectors contribute to improving mean years of schooling. This is an important indicator to capture the level of human capital endowment in any society, and it contributes to human development achievements as per the human development index (HDI) calculations since 2010. The indicator is relatively new, and it is not featured in previous studies the way we have treated it in this paper. Of course, it doesn't reflect quality of education but, in the absence of a quality of education indicator, the average schooling best captures returns to education as well as the strength of a knowledge society (UNDP 2010). However, for a comprehensive assessment of education capital, one must compliment mean years of schooling with quality indicators if data are available. Given this background, our dependent variable is the attained mean years of schooling achieved by the current generation (who are 25 years or older).

$$Edu y_{it} = \gamma y_{it-1} + \beta x_{it} + u_i + \varepsilon_{it}$$

$y_{it}$  is the log of mean years of schooling and  $x_{it}$  is the set of regressors comprising some endogenous  $w_{it}$  and exogenous  $z_{it}$

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<sup>16</sup> According to the Arab regional MDGs report (2013), the Arab region is doing well in achieving basic education in terms of its progress toward improving primary and secondary enrollment rates or literacy rates.

$$Edu\ y_{it} = \gamma y_{it-1} + \theta w_{it} + \delta z_{it} + u_i + \varepsilon_{it}$$

$i$  stands for the number of countries (1, 2...10) and  $t$  –are the time periods (1, ...k).  $w_{it}$  represents some endogenous regressors:

*Eduexp\_gdp*: public expenditure on education as a share of GDP

*Spending\_gdp*: total public expenditure on social sector as a share of GDP

*Ln\_gdppc*: log of income per capita

$z_{it}$  represents for some exogenous regressors:

*Gov\_ge1*: government effectiveness index of World Bank, transformed to min-max 0-5

*Gov\_cc1*: control of corruption index of World Bank, transformed to min-max 0-5

*The health model:*

Longevity, measured by life expectancy years, is a core indicator of human development and also human capital. It captures the overall health situation in a country. In addition, we also used infant mortality rates and maternal mortality rates as our dependent variables to examine the influence of public spending on health on these indicators, considering that the region still lags behind on these indicators in terms of MDGs targets. Given this background, our dependent variables ( $y_{it}$ ) on health are three: (1) life expectancy years for all individuals (life\_t); (2) infant mortality rate expressed in log transformation (ln\_imr), and child mortality rate under age 5 expressed in log transformation (ln\_mr5).

$$Health\ y_{it} = \gamma y_{it-1} + \beta x_{it} + u_i + \varepsilon_{it}$$

$x_{it}$  is the set of regressors comprising some endogenous  $w_{it}$  and exogenous  $z_{it}$

$$Health\ y_{it} = \gamma y_{it-1} + \theta w_{it} + \delta z_{it} + u_i + \varepsilon_{it}$$

With  $i = 1, \dots, 10$  (country) and time periods  $t = 1, \dots, k$ , while  $w_{it}$  represents some endogenous regressors:

*Heaexp\_gdp*: public expenditure on health as a share of GDP

*Spending\_gdp*: total public expenditure on social sector as a share of GDP

*hea\_exp\_privategdp*: total private spending on health as percentage of GDP

*Ln\_gdppc*: log of income per capita

$z_{it}$  represents for some exogenous regressors:

*Gov\_ge1*: Government effectiveness index of World Bank, transformed to min-max 0-5

*Gov\_cc1*: control of corruption index of World Bank, transformed to min-max 0-5

*Depend*: Dependency ratio, which is the ratio of dependents (less than age 14 and greater than age 64) to the working age population (age 15 to 65)

Our main hypothesis is that the impact of public expenditure depends upon its levels (size) and its efficiency, given other controls. The size of public expenditure on health, education and other social sector is available at aggregate level from either IMF or national data. We also obtained private health expenditure as a share of GDP. But it is difficult to find an accurate indicator of efficiency of public spending at the macro level. For instance, the leakages or the mistargeting of public expenditure can be assessed only at micro levels. Acknowledging this limitation, we used the government effectiveness indicator from the World Governance Indicators database as a proxy to capture the efficiency of public expenditure. Government Effectiveness captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5 (World Bank, 2017). We adjusted the indicator to range from 0-5, to allow easy interpretation of the results.

In addition to governance indicators, we used level of income per capita and dependency ratio (children and adults over working age population) to control for the level of development and demographic factors across countries. We expect that income levels do significantly affect education and health capital, through the channel of private expenditure. The reverse is also possible, which potentially can lead to endogeneity problems. We have taken care of this problem in the two-step GMM. The dependency ratio tends to be positively correlated with life expectancy and negatively correlated with the mortality indicators. This is because the numerator on dependents (both young and adult) will be larger if the fertility rate is high and the mortality rate is low, which is the case in the region.

## V. Results

### *(i) Education (Table 2)*

We started with two LSDVC models with AB estimators. Model 1 uses the full sample of 10 countries, while model 2 represents a sub-sample of 6 resource poor countries. Since a lot of former empirical research has suffered from endogeneity problems, we have calculated 3 GMM models

to address this shortcoming. Models 2 and 3 are estimations that use the two-step GMM method, with the full sample (3) and the resource poor sample (4) respectively. Column 5 shows the results of a two-step GMM regression that treats education spending and per capita income as endogenous variables.

First, the lagged mean years of schooling shows a positive and significant impact on current mean years of schooling in all models. This confirms the dynamic nature of association between education achievements in societies for our sample of Arab countries, as has been found in similar studies for enrollment rates in developing countries (e.g. Baldacci et al. 2008). In fact, it is expected as obvious. The latest Arab Human Development Report (2016) argues that family background, like parental educational attainment among the most important factors of influence for educational achievements. Well educated parents use their resources of time and money to invest more in the human capital of their children. Education is considered as the most important means of improving social mobility and increasing human development. The more aware and educated the parents, the more they tend to put emphasis on educational achievements of children.

Second, the lagged public education spending has a positive coefficient and is significant in the two-step GMM models.<sup>17</sup> The coefficient of current public education spending is positive but it is not significant. This pattern of association between public expenditure and increase in mean years of schooling indicates that the positive influence of public expenditure is not immediate, but rather develops over time, as validated by the significance of the lagged spending on education. This result was to be expected, since the indicator of mean years of schooling covers the average number of completed years of education of a country's population aged 25 years and older, and therefore represents more of a long-term achievement on education. Furthermore, the positive and significant impact of public education spending on mean years of schooling is stronger in the sample of the resource-poor countries than that we found for the resource-rich countries. This underscores the critical role of the state for extending education facilities as many in the resource-poor countries may not be able to afford the rising costs of education. The later may not be a challenge in the resource-rich countries, given their high per capita income.

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<sup>17</sup> To conduct a sensitivity analysis, we divided the sample into resource rich and resource poor countries. Lagged public education spending does not show a significant impact in the sample of oil-rich countries but it turns out to be highly significant in oil-poor countries.

Third, there is a strong positive association between mean years of schooling and level of per capita income, as shown in the GMM two-step estimation (Model 3). While it confirms the literature, it also induces us to argue that education has been largely privatized, as private expenditure in education is increasing across the Arab region. The data on private education expenditure is not available but it can be inferred from the high and increasing share of enrollment in private institutions as compared to that of the public institutions. While the world average increased mildly to 13.4% in 2014, Oman (16.9%), Bahrain (32.9%), Jordan (34.5%) Kuwait (41%) and Lebanon (73.9%) showed much higher values. This increased private education spending leads to high inequalities in education opportunities for rich and poor students in a number of countries (UN and LAS, 2013). Additionally, we see in the sample of resource-poor countries with lower per capita income that GDP per capita turns insignificant, while the impact of lagged public education expenditure increases as compared to the whole sample. From a human development perspective, public expenditure on education for this sample is important since it has the biggest need and potential for improvements.

Fourth, the government effectiveness shows a positive and significant impact in the LSDVC estimations, while control of corruption shows no significant impact on mean years of schooling. This underlines the crucial role of an effective and appropriate allocation of resources to the intended targets. These findings with regard to the importance of the government effectiveness and corruption confirm for Arab countries what other research has found in Sub-Saharan-Africa (Ssozi and Amlani, 2015) and developing countries (Hu and Mendoza, 2013). A growing amount of literature has identified governance as a key driver of (in) effectiveness of social spending: Gupta, Davoodi and Alonso-Terme (2002), Rajkumar and Swaroop (2008), Rodrik, Subramanian and Trebbi (2004) and Baldacci et al. (2008).

Finally, public social spending (total) doesn't show any significant impact on improving mean years of schooling in any of the models. We have earlier noted that much of the increase in public social spending, particularly since 2010, has been discretionary and they are mainly into subsidies and public sector salaries. Therefore, the insignificant association between total public social spending and education outcomes is expected, which suggests that discretionary social expenditure many not necessarily lead to improvement in education achievements. The education sector

expenditure solely is important for improving mean years of schooling, and it is more important for the countries with more poor people than the rich countries of the region.

*(ii) Health (Table 3)*

We calculated 3 models on health outcomes that are reported in Table 3. Model 1 and 3 estimated on the basis of the full sample of countries, while model 2 uses the sub-sample of resource rich countries. Models 1 and 2 use the AB estimator and model 3 uses the BB estimator.

First, the lagged life expectancy and mortality rates, which imply the accumulated human capital, show a positive and highly significant impact on achievements in health outcomes in all models. Our results for the Arab countries confirm the importance of the dynamic nature of health achievements, as has been found in the other studies on developing countries around the world (e.g. Baldacci et al. 2008). Undoubtedly, youth well-being is generally an indicator for future adult well-being in the life cycle of a person (UNDP, 2016).

Second, public health expenditure (% of GDP) doesn't turn out to be a significant factor in increasing life expectancy. On the contrary, private health expenditure (% of GDP) has a positive and significant impact on life expectancy. Private health expenditure includes out-of-pocket expenditure, a type of health outlay that is exceptionally high in Arab countries (see Box 3). With poor health infrastructure in public sector, people tend to prefer private health care services. It may be okay if all the people in the region can afford private health facilities. Unfortunately, it is not the case. Evidence suggests that high and increasing burden of out-of-pocket expenditure on healthcare is a major concern for the poor and middle-income households across the region (ESCWA, 2014). The problems of health systems and the low level of public expenditure on health across the Arab countries is well explained by Alami (2017) in **Error! Reference source not found.3**.

Third, government effectiveness is highly significant and its impact on life expectancy is stronger than that of private health expenditure. As described in the results of our education estimations,



the findings underline the crucial role of an effective use of resources to the intended targets. It may be noted that the indicator on 'government effectiveness' has high scores for many of the Arab countries in the region as they are represented by autocratic rulers. When it comes to implementing universal programmes, such as vaccination or immunization programmes, these governments can be more efficient and fruitful. Our interpretation is to see 'government effectiveness' through the lens of improving social justice rather than through an autocratic state.

Fourth, income per capita is positively correlated with health outcomes in the sample of resource poor countries. But increasing income per capita has diminishing returns to achievements in health, as shown by the results of the squared income per capita (Model 2). This essentially implies that increase in income after a certain level will not improve life expectancy proportionately, which is expected. Our GMM models didn't provide any significant results that can show a strong association between public expenditure and health achievements.<sup>18</sup> We would assume that there are difficulties in finding appropriate instruments for explaining health outcomes which is not captured by expenditure lags. Awareness, culture, life style, environment, technology, international health aid and several other factors can contribute to health outcomes directly than expenditure or income per capita (HDR 2010). Therefore, in addition to public expenditure on health, other factors need to be taken into account in explaining health outcomes (Ssozi and Amlani, 2015).

The results of our education model fit into the context of a branch of the literature that established a positive relationship between public education spending and education outcomes (Gupta, Verhoeven, and Tiongson (2002), Baldacci, Guin-Sui, and de Mello (2003)). The study reinstates the importance of public expenditure on education in the Arab countries. The study also indicates to the high reliance on out-of-pocket expenditure for health services in the Arab region. This has severe consequences for the poor and middle class of the region and therefore it urges public policy action on increasing health expenditure in order to provide quality public health services. This is particularly important when the region is experiencing rising poverty, high stunting among children, and slowed down of human development in recent years.

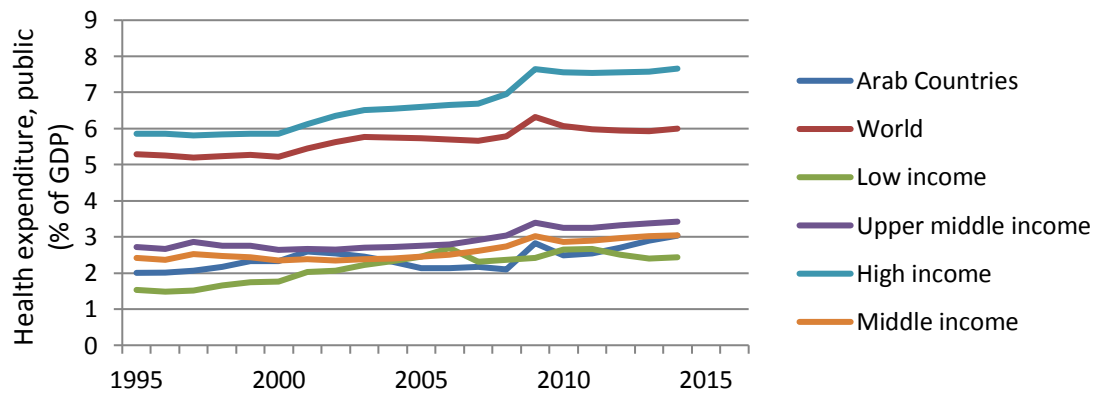
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<sup>18</sup> Also the study by Baldaci et al 2008 didn't find any significant result between public expenditure on health and health outcomes by system GMM.

**Box 3: Problems of the health care system in Arab countries**

Health schemes in the Arab World fail to involve poor, rural, and informally employed part of the population because they are most comprehensive for those that can afford it. They are mainly based on contributions, and on formal government employment. This is highly problematic in a region with some of the highest unemployment, and lowest female participation rates, in the world (Alami, 2017). Financing systems have operational and institutional flaws that hinder the effective delivery of resources and worsening horizontal and vertical inequities. The neglect of public health systems has reinforced inequities by widening the gap between needs and provision, and by emphasizing the ability to pay as a basis for accessing quality care. On average, Arab countries health-care covers about half their population, mainly for basic health issues (Alami, 2017).

Figure 10. Development of Public Health Expenditure 1995-2014.



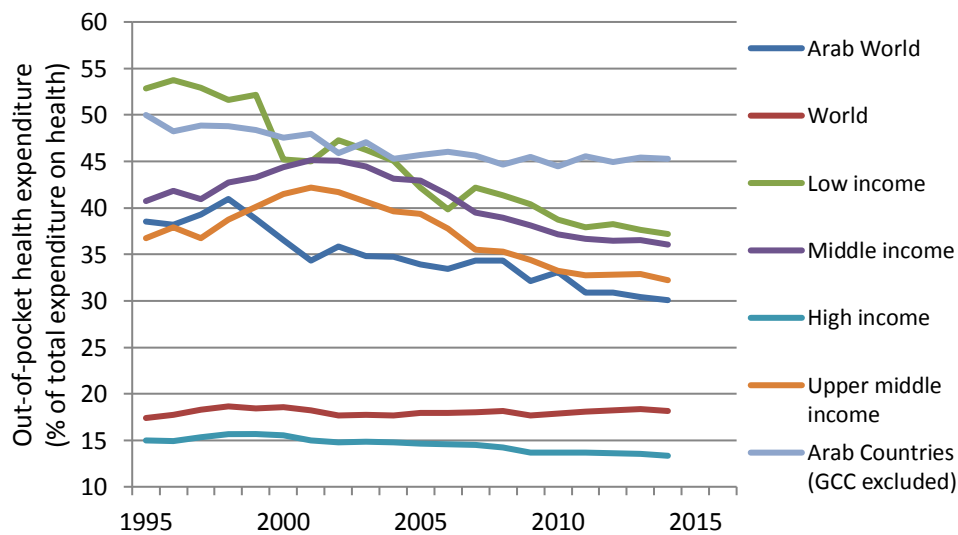
Source: Authors' own calculations; Data source: World Bank

Health systems in Arab countries mainly suffers from four problems: First, health systems design leads to citizens shouldering high financial burdens and being exposed to extensive financial risks, thus leading to high levels of health insecurity and vulnerability. Second, most Arab countries fail to implement a health system that is centered on the government and uses risk-pooling mechanisms, although being a middle-income country and having the fiscal space

to do so would suggest otherwise. Third, the current situation leads to health inequalities and contributes significantly to poverty. Fourth, poor capacity and quality of health provision and infrastructure leaves substantial sections of the population in need, especially the poor and those in rural areas (Alami, 2017). Government health spending as % of GDP tended to be below the levels of middle income countries and below the levels required to meet health needs between 1995 and 2015 (Figure 10).

The financing structure of health care in the Arab region is part of the Problem. The composition of health care finance remains dominated by government health insurance (GHI), and out-of-pocket expenditures (OOP). GHI accounts for 55%, and OOP for 32% of total health expenditure (THE) in the region. Other characteristics are very low shares of private insurance (5% of THE) and solidarity schemes (6% of THE). This stands in contrast to the world average, where GHI contributes to 22%, solidarity schemes to 37%, OOP to 18%, private insurance to 18% of THE (Alami 2017). Especially the amount of out-of-pocket expenditure is very high compared to other regions (Figure 11). OOP in the Arab region (GCC excluded) is higher than even low-income countries and while most country groupings display a clear downwards trend, its level stagnates at around 45% of THE.

Figure 11. Development of Out-of-Pocket Expenditure, 1995-2014



Source: Authors' own calculations; Data source: World Bank

In some of these countries, the burden of health care is mainly shouldered by private households. In Lebanon, Morocco, Syrian and Yemen 50% of health expenditure consist of OOP, while in Egypt it is even 72% (Alami, 2017).

Ayadi and Zouari (2017) analysed the evolution of OOP health expenditures in Tunisia since 2000 in relation to policy reforms especially since a new national health insurance fund (Caisse Nationale d'Assurance Maladie (CNAM)) became effective in 2007. They estimated the percentage of households who move below the poverty line when accounting for out-of-pocket health payments and concluded that the lasting importance of health OOP expenditures in Tunisia, their catastrophic dimension and their impoverishing effect make it necessary to look for a better allocation of the existing resources through more efficient financing mechanisms, and better institutional arrangements.

**Table 2. Education Models – Dependent Variables: Mean Years of Schooling (Logarithmic Transformation)**

| VARIABLES                                   | (1)<br>LSDVC           | (2)<br>LSDVC (RP)     | (3)<br>2S-GMM          | (4)<br>2S-GMM        | (5)<br>2S-GMM         |
|---|------------------------|-----------------------|------------------------|----------------------|-----------------------|
| Lagged Mean Years of Scho.<br>(log. trans.) | 0.957***<br>(0.0190)   | 0.969***<br>(0.0577)  | 0.754***<br>(0.0682)   | 0.708***<br>(0.170)  | 0.775***<br>(0.0819)  |
| Public Education Exp.<br>(% of GDP)         | -0.000797<br>(0.00188) | 0.000458<br>(0.00256) | 0.000921<br>(0.00146)  | 0.00585<br>(0.00484) | 0.00392<br>(0.00651)  |
| Government Effectiveness                    | 0.0197**<br>(0.00849)  | 0.0283**<br>(0.0134)  | -0.0231<br>(0.0265)    | 0.0486<br>(0.0796)   | -0.0185<br>(0.0516)   |
| Control of Corruption                       | -0.00555<br>(0.00543)  | -0.00373<br>(0.00466) | 0.00250<br>(0.0123)    | 0.0157<br>(0.0218)   | -0.0140<br>(0.0124)   |
| GDP per Capita (log. trans.)                | -0.00368<br>(0.0132)   | -0.00346<br>(0.0318)  | 0.164***<br>(0.0585)   | 0.0941<br>(0.129)    | 0.204<br>(0.129)      |
| Lagged Education Exp.<br>(% of GDP)         |                        |                       | 0.00726**<br>(0.00307) | 0.0158*<br>(0.00882) | 0.00774*<br>(0.00427) |
| Observations                                | 151                    | 92                    | 137                    | 84                   | 137                   |
| Number of n                                 | 10                     | 6                     | 10                     | 6                    | 10                    |
| AR[1] p-value                               |                        |                       | 0.2611                 | 0.2847               | 0.1940                |
| AR[2] p-value                               |                        |                       | 0.9142                 | 0.4144               | 0.8281                |
| Sargan Test p-value                         |                        |                       | 1.0000                 | 1.0000               | 1.0000                |

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1  
 Sargan Test estimated without robust standard errors

Note: We used separate analysis of each model for oil-rich and oil-poor countries. The results are not reported here as many of the coefficients were not significant. However, significant findings are discussed in the text.

**Table 3. Health Models – Dependent Variables: Life Expectancy (Total Years)**

| VARIABLES                                | (1)<br>LSDVC          | (2)<br>LSDVC<br>(RP) | (3)<br>LSDVC<br>(BB)  |
|--|-----------------------|----------------------|-----------------------|
| Lagged Life Expectancy                   | 1.033***<br>(0.0227)  | 1.052***<br>(0.0506) | 1.036***<br>(0.0243)  |
| Public Health Expenditure<br>(% of GDP)  | -0.0125<br>(0.0261)   | -0.0159<br>(0.0495)  | -0.0144<br>(0.0273)   |
| Private Health Expenditure<br>(% of GDP) | 0.0481**<br>(0.0193)  | 0.0433<br>(0.0351)   | 0.0498**<br>(0.0204)  |
| Government Effectiveness                 | 0.264***<br>(0.0654)  | 0.341***<br>(0.109)  | 0.267***<br>(0.0696)  |
| GDP per Capita (log. trans.)             | 0.722<br>(0.900)      | 4.516*<br>(2.306)    | 0.730<br>(0.958)      |
| GDP per Cap. ^2<br>(log. trans.)         | -0.0527<br>(0.0539)   | -0.297**<br>(0.135)  | -0.0533<br>(0.0574)   |
| Dependency Ratio                         | 0.00558*<br>(0.00325) | 0.00581<br>(0.00803) | 0.00590*<br>(0.00349) |
| Observations                             | 154                   | 96                   | 154                   |
| Number of n                              | 10                    | 6                    | 10                    |

Standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

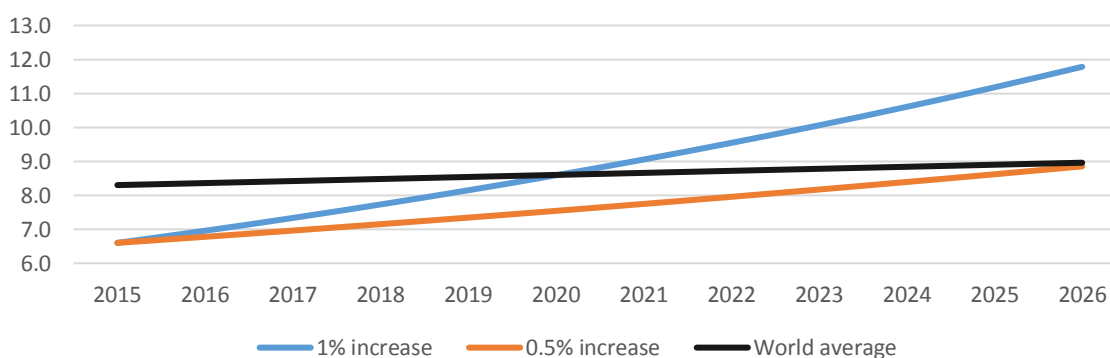
Note: We used separate analysis of each model for oil-rich and oil-poor countries. We also run models for infant and child mortality indicators as dependent variables. The results are not reported here as many of the coefficients were not significant. However, significant findings are discussed in the text.

*(iii) Simulated Policy Changes*

On the basis of our empirical results shown above, we simulated an increase of public health expenditure (% of GDP) and assessed the impact on mean years of schooling<sup>19</sup>. This simulation can provide insights into the effectiveness of public expenditure policies to reach specific goals of educational achievements. To assess the impact, we calculated the long term effect of public expenditure on educational achievement.

We simulated an increase of public education spending by 0.5, and 1 per cent of GDP. The long-term elasticity of a 1% increase in public education spending with regards to mean years of schooling is 0.03. Figure 12 shows the simulated increase of mean years of schooling, when public education spending is increased by the stated percentages. Note that calculations start from 2015, since it's the latest point of data for mean years of schooling. Even a small boost of 0.5% of GDP could lead improves the mean years of schooling to the world's average by 2026. A 1 per cent increase intercepts with the projected world's average after 6 years, around 2020. The mean public social spending in our sample is 10.89% of GDP, only half of the OECD average of 21% of GDP in 2016 (OECD, 2017). While there is a long way to go in improving welfare of people in the Euro model, our findings suggest that, as a first step, an expenditure switch from subsidies (e.g. fuel subsidies) to education could easily improve the fiscal space for investments in education.

**Figure 12.** Long Tern Effects of Increasing Social Expenditure on Mean Years of Schooling



Source: Authors own calculations based on estimated results; Data source for world average projections (Lutz et al., 2014); note: calculations start from 2015, since it's the latest point of data for mean years of schooling.

<sup>19</sup> We decided to assess the impact on mean years of schooling, since the GMM estimations gave us the most robust and reliable results to take as an input. As the health model GMM estimations did not show any significant results that indicate a strong association between public expenditure and health achievements, no long term elasticities were calculated.

## VI. Conclusions and policy implications:

Our study suggests several important findings and areas of public policy action. First, there has been a continuous downsize of government until mid-2000s, in terms of public expenditure to GDP shares for most countries in the region, a trend that started since the early 1990s with the adoption of liberalization and privatization policies. Resource constraints, loss of growth, increasing expenditure needs and uncertainties due to the crises situations after 2011 severely affected the fiscal stance of most oil-poor countries, which forced them to adopt reductionary public expenditure policies in recent years since 2014, reforming subsidies in particular. The oil-rich countries also witnessed a decline in government size until mid-2000s. Thereafter, they were in a better situation between 2006 and 2013 and their public expenditure to GDP increased, on average, during this period. But lately, after the plunge in oil revenues since 2014, the oil-rich countries resorted to significant reduction in public expenditure in order to contain deficits. Overall, the period since 2011 has raised uncertainties and unpredictabilities in public expenditure policies across the Arab countries.

Second, public expenditure on health and education across countries remain largely neglected. In the oil-poor countries, public social spending increased since mid-2000s. However, much of it is rather due to rising subsidy bills than to increased spending in the education and health sectors. In fact, in the education sector, the share has declined since 2008 following global economic recession and low growth in these countries. The oil-rich countries witnessed an increasing share of social expenditure overall. Although much of the increase is due to rising fuel subsidies, they witnessed a slightly increasing trend in share of expenditure in education and health sectors during 2011-2013, given their comfortable fiscal stance due to increasing oil revenues. The pattern might have changed after the plunge in oil-price but we could not find supporting data for the latest years.

Third, the association between growth in public social spending and economic growth across countries shows changing patterns over the past two and half decades. They do indicate pro-cyclical patterns during the 1990s, which was even stronger during the 2000s, but the pattern reversed in many countries during the recent period following the global economic downturn and crises situations. In the 1990s, growth rates of most countries were higher than their public social spending growth rates, which shows an allocation pattern where benefits of growth were not redirected to social sectors proportionately. During 2000-2008, most countries witnessed a greater



than proportionate increase in the social spending growth rate than their corresponding economic growth rates. After 2008 and following crises situations in many countries, no conclusive association can be seen between the two indicators. For five countries, the growth of public expenditure remained higher than that of their economic growth, while the reverse was the case for the other five countries. It may be noted that during this period the GDP growth for all countries remained lower than the previous period, and in particular, the growth in the oil-poor countries remained low due to the crises situations. Despite low or negative growth in some countries during the period of crises, the growth in public social spending remained relatively high. Albeit, much of this spending has very little contribution to growth and human development, because there was no systematic investment in the health and education sector. It rather contributed to increasing their fiscal stress and debt burden.

Fourth, social spending in education and health leads to higher economic growth, through their positive feedback effect of increased human capital and productivity, which is established in the literature. In addition, we found positive and direct impact of social expenditure on growth, which is stronger than the current as well as aggregate expenditure (for Egypt). If much of the social expenditure were channeled to health and education, the peak multiplier of social expenditure would be much higher because part of the health and education expenditure goes to building infrastructure.

Fifth, we found systematic evidence on neglect of health and education expenditures that corroborates with the low achievement in mean years of schooling and high reliance on out-of-pocket expenditure on health services. Growth in the Human Development Index has slowed down since the 1990s, after taking a jump in the 1970s and 1980s. The findings urged us to examine the impact of public expenditure on education and health, and social expenditure in general, using a dynamic panel model. The conclusions from the model are interesting and provides crucial implications for policy.

We find that, increasing public education expenditure significantly improves human capital in terms of education outcomes. Considering that the average country in our sample spends less than half of the amount on social expenses (in % of GDP) than the average OECD country, we see potential for improvement.

By strongly illustrating the dynamic human capital, our results show that all contemporary health and education achievements are highly affected by past achievements. For countries to improve on their human capital outcomes, this calls for persistent long-term strategies, considering all age brackets and stages in life. A recent report (UN and LAS, 2013) that highlights the urgent need of improving the situation of the Arab youth (15-29 years of age) in terms of education and health, gives an example of the work ahead.

Government effectiveness turned out to be immensely important for health and education outcomes. This suggests that the effective use of funds is more important than increasing public spending. In fact, improving government effectiveness is a key element in increasing human capital, that exceeds the impact of expenditure by a considerable margin. However, we may put a note that our interpretation is to see 'government effectiveness' through the lens of improving social justice rather than through an autocratic state.

Furthermore, there has been substantial differences in the effects of public social spending on health and education and government effectiveness and on health and education achievements among different groups of countries. The positive effect of increasing education spending and government effectiveness has been highest in the group of resource poor countries, while the empirical linkages in the group of resource rich countries were rather poor. This supports the view that the marginal returns of social spending tend to decline in countries with high levels of social outlays, thus rendering it more effective in less developed countries.

Our policy simulations on education achievements show that our sample of Arab countries could catch up with the world average of mean years of schooling in 6 years by increasing public education spending by 1 per cent of GDP. A 1% increase seems affordable, considering the huge potential of savings that can be generated by switching expenditure from the fuel subsidies. Hence, reforming the subsidy system and redirecting the funds into fiscal policies that better target the poor, remains a crucial task for the future.

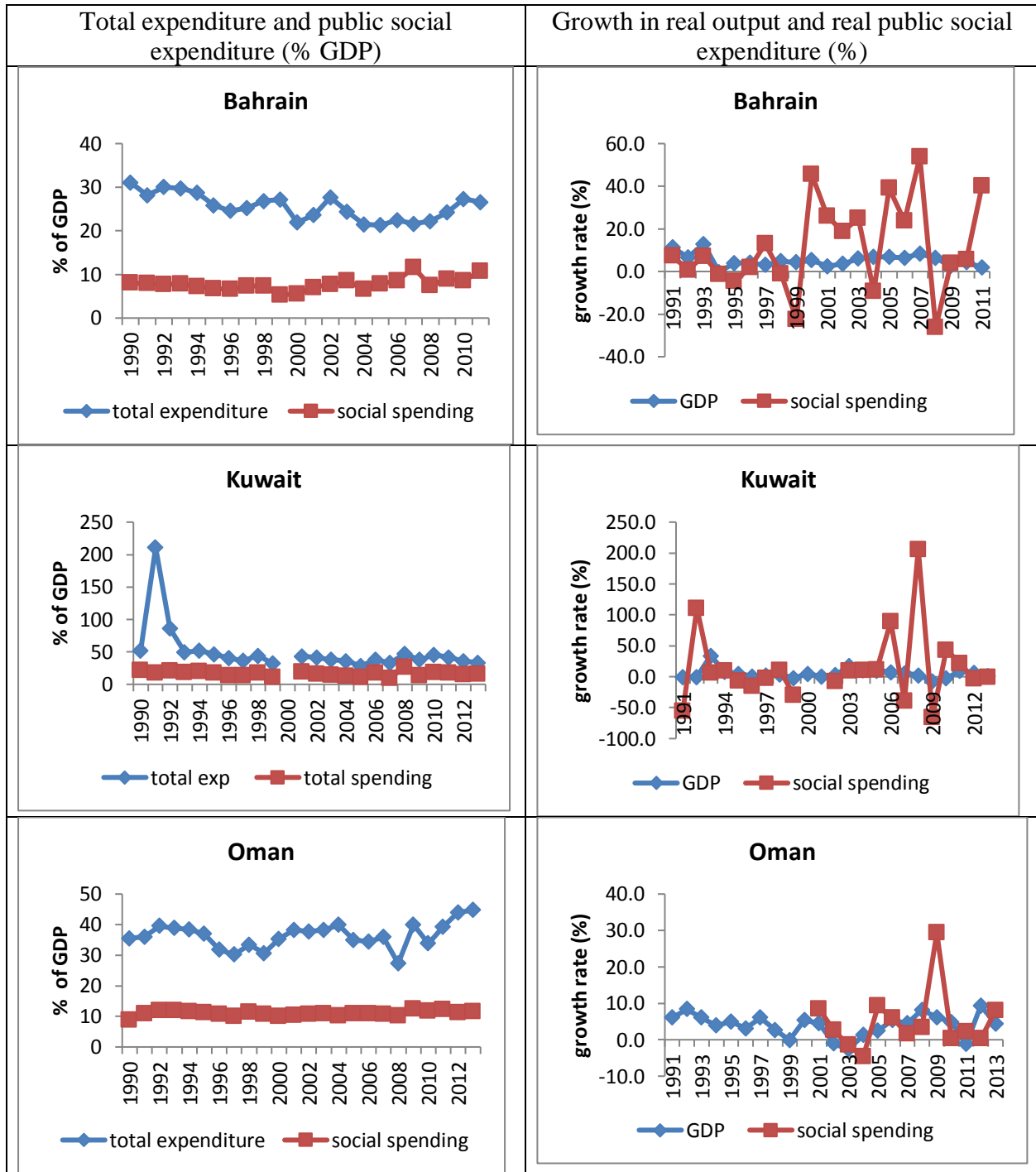
Finally, in support of our results, our findings compliment a branch of the literature that established a positive relationship between public education spending and education outcomes. It reinstates the importance of public expenditure on education in the Arab countries. The study also highlights the insignificance of public expenditure on health in progressing on health outcomes, and exposes the high reliance on out-of-pocket expenditure for health services in the Arab region. Both findings

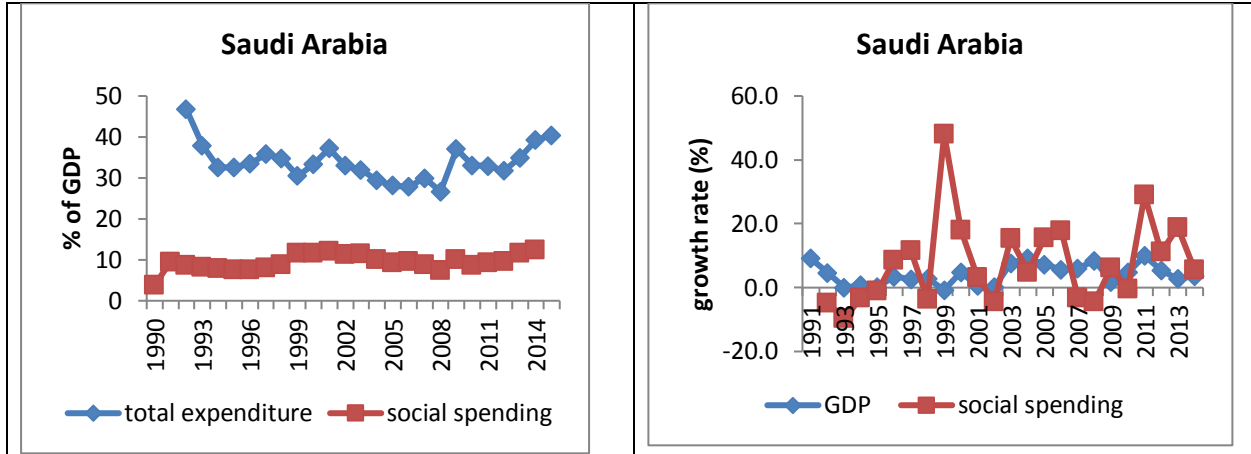
Draft in progress

have severe consequences for the poor and middle class of the region and therefore urges public policy action. This is particularly important when the region is experiencing rising poverty, high stunting among children, and sluggish human development in recent years.

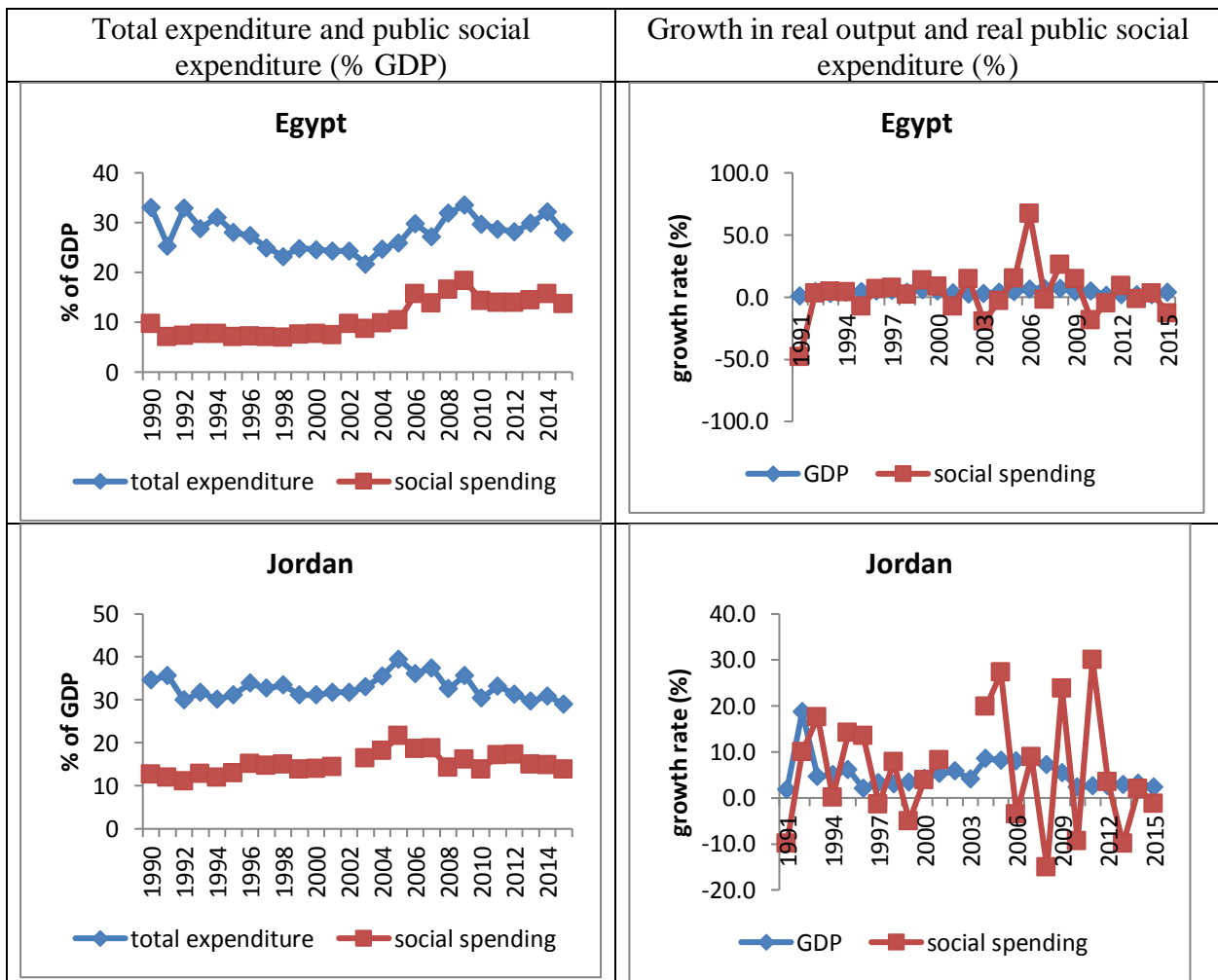
## Annex

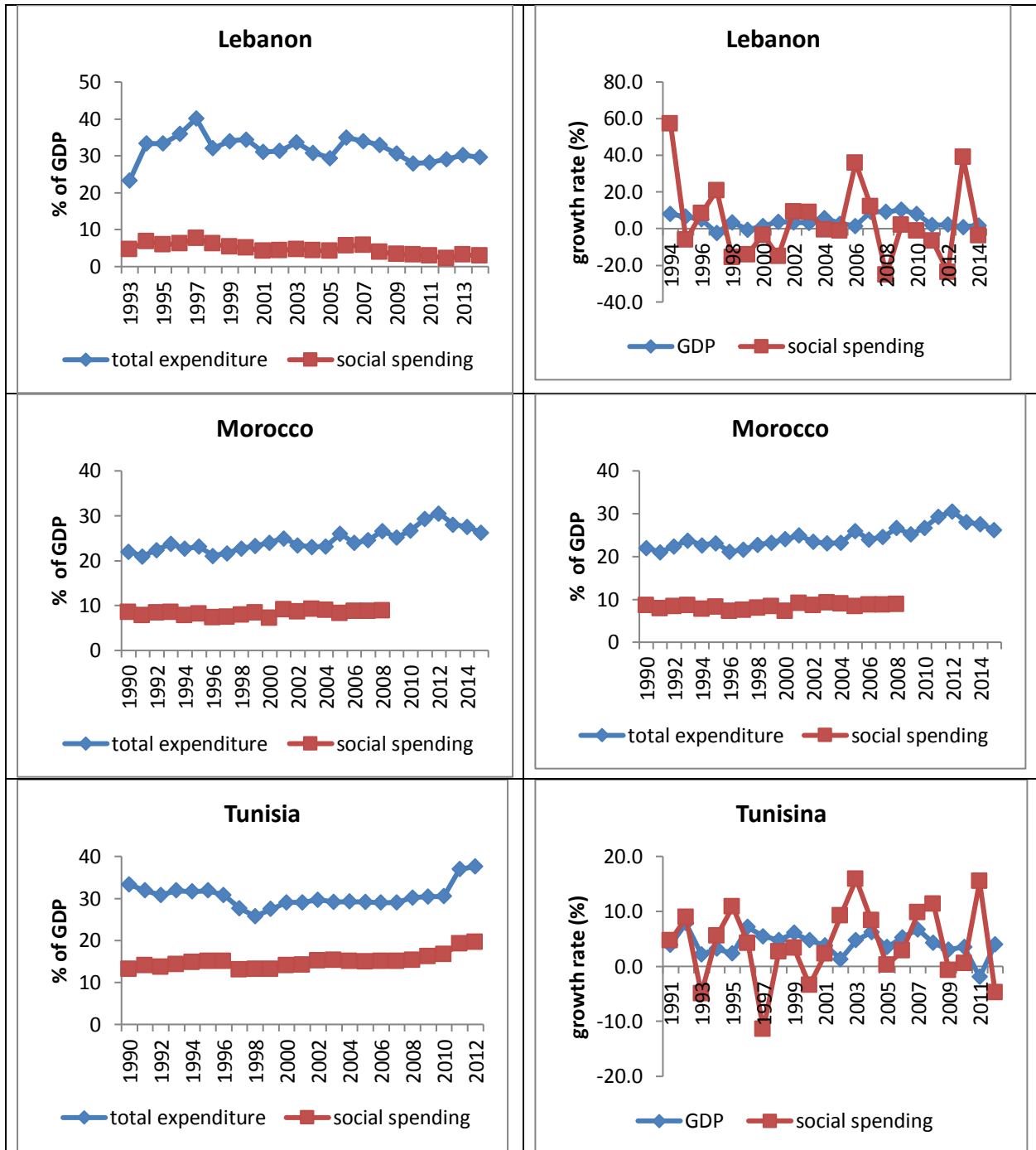
### Annex A. Oil-rich high and middle income countries (OR-HMICs)



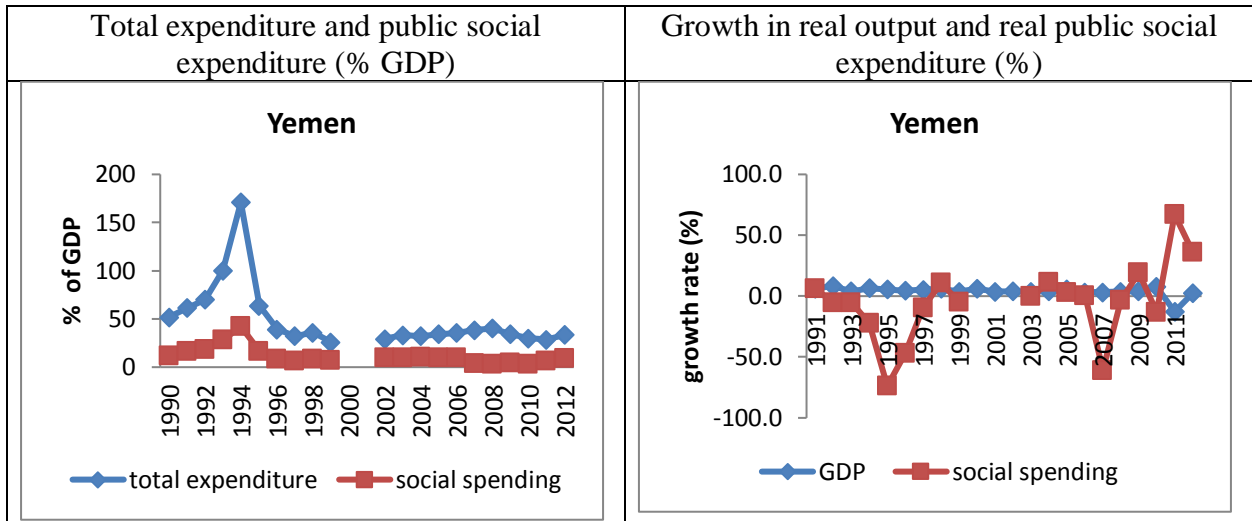


*Annex B. Oil-poor middle income countries (OP-MICs)*

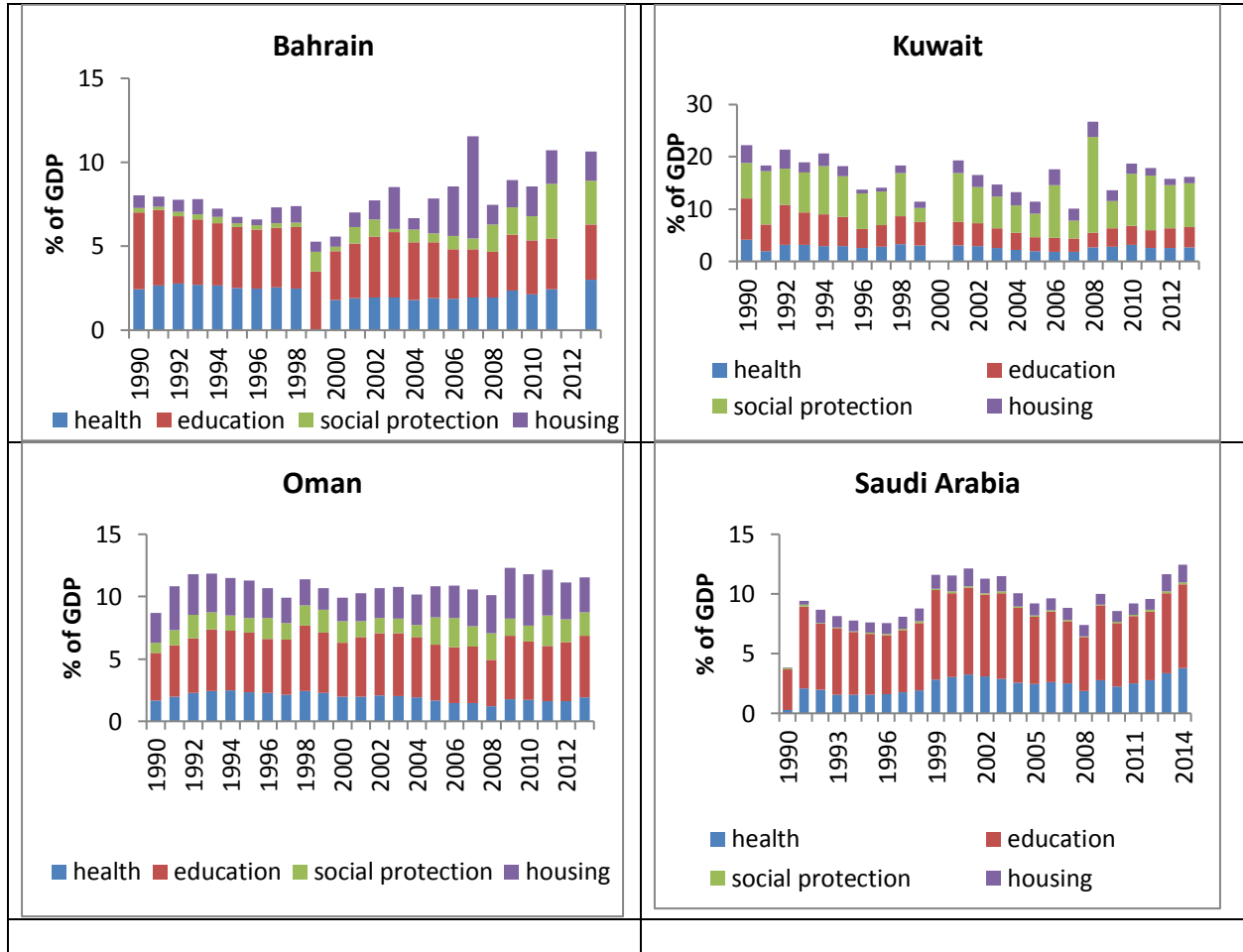




*Annex C. Low income countries (LICs)*

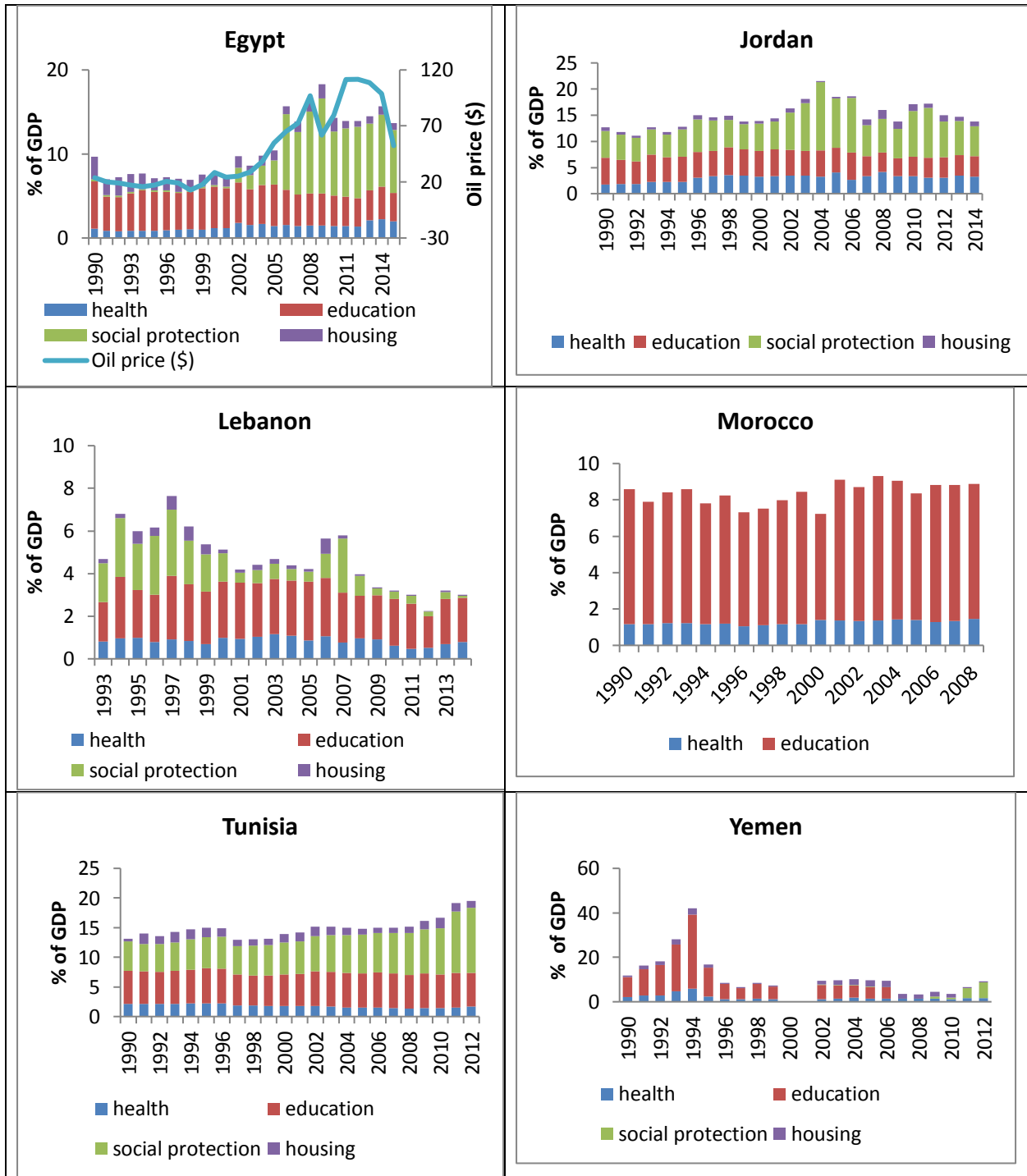


*Annex D. Composition of public social expenditure (% GDP)*





*Annex E. Oil-poor middle income countries (OP-MICs) and LICs*



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