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Effectiveness of fiscal policy in Jordan: Impact on growth, poverty and inequality

Niranjan Sarangi* [▲]

N R Bhanumurthy

Khalid Abu-Ismaïl



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Niranjan Sarangi: First Economic Affairs Officer, Economic Development and Integration Division (EDID), United Nations Economic and Social Commission for Western Asia (UN-ESCWA), Beirut; Email: sarangi@un.org.

N R Bhanumurthy: Professor, National Institute of Public Finance and Policy (NIPFP), New Delhi; Email: nrbmurthy@gmail.com.

Khalid Abu-Ismaïl: Chief, EDPS/EDID/UN-ESCWA, Beirut; Email: abu-ismaïl@un.org.

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Abstract

The fiscal space study assesses the pattern of public expenditure policies in Jordan and its impact on growth, poverty and inequality during the period 1991-2013. For Jordan, the impact fiscal multipliers in the case of current expenditure, capital expenditure as well as aggregate expenditure is found to be 2.5, 0.9, and 1.2. Although the current expenditure multiplier is higher than that of capital expenditure in the impact year, peak multiplier for capital expenditure is 5.8 and it takes three years to see the maximum impact on growth. The role of public investment is therefore absolutely important. Within current expenditure, subsidies, compensation to employees and social benefits have positive impact multipliers.

The role of transfers has turned out to be an important factor in reducing poverty and inequality in Jordan. By adding transfers to net income, the net effect on disposable income is to reduce poverty by a significant portion: by 46.8 per cent in 2006, 44.4 per cent in 2008 and 46.2 per cent in 2010. Similarly, by adding transfers to net income, the net effect on disposable income is to reduce inequality (gini) by 10 per cent in 2006, 11.4 per cent in 2008 and 10.7 per cent in 2010. Further, by adding pensions into transfers, the results get more strengthened.

The incidence of transfers shows an impressively progressive pattern. The incidence of indirect taxes is more regressive. The direct taxes show mild progressivity. The higher deciles contribute more taxes, but the highest decile in particular shows a reverse trend, indicating that the rich tend to pay less tax than the middle income deciles, which needs to be looked into more carefully with detail fiscal records.

1. Introduction

Fiscal policy and its nexus with growth and development is an important topic for empirical analysis in the Arab countries, given the limits to monetary policy in these countries. The 2008 global economic crises, the 'Arab Spring' of 2010-12, conflicts in parts of the region and the plunge in oil prices in 2014-15 have affected the fiscal accounts of most Arab countries but to a varying degree depending upon the structure and level of development of the economies. Many countries in the region had undertaken fiscal expansion measures in response to these events although there were hardly any analyses, *ex ante*, to understand the impact of fiscal measures in reviving aggregate demand or their impact on development outcomes such as poverty and inequality.

In this study, we attempt to understand two critical issues regarding effectiveness of fiscal policy in Jordan. *One*: the impact of government expenditures on growth, via the size of various fiscal multipliers; *Two*: the impact of redistributive fiscal policy on poverty and inequality. The choice of the country is due to several factors: Jordan's economy is highly volatile to global economic shocks, the monetary policy is not independent due to a pegged exchange rate, and the economy has a high public debt. The combination of global economic downturn and the conflict in Syrian Arab Republic has significantly affected the economy in terms of overall growth and volatility of growth.

There has not been much improvement in tax revenues over decades, but demand for increasing expenditure is enormous, for stabilizing the economy and also to fund social welfare measures. Where monetary policy is limited, the pressure on fiscal policy is enormous to enhance growth, reduce poverty and inequality and to induce employment creation in a long term perspective in the context of achieving the SDGs. By many ways, Jordan symbolizes a good sample for a middle income Arab country that is affected by spillover effects of multiple economic and political crises although it is not directly in crises. Last but not the least, availability of reliable long term fiscal data and harmonized household budget survey data for Jordan prompted us to undertake such analysis.

The following section analyses the stylized facts on macroeconomic and poverty challenges in Jordan. In doing so, it focuses on the period during 1990-2015, particularly since the period Jordan adopted structural adjustment programmes. The third section analyses the impact of fiscal policy on growth via estimating the fiscal impact multipliers by using a Structural VAR (SVAR) model. The fourth section analyses the redistributive impact of fiscal policy on poverty and inequality in Jordan, which helps in understanding the nexus between fiscal measures and critical development outcomes. The fifth section discusses the findings of the estimations and possible policy implications for Jordan.

2. Macroeconomic policy and poverty challenges

2.1 Fiscal situation

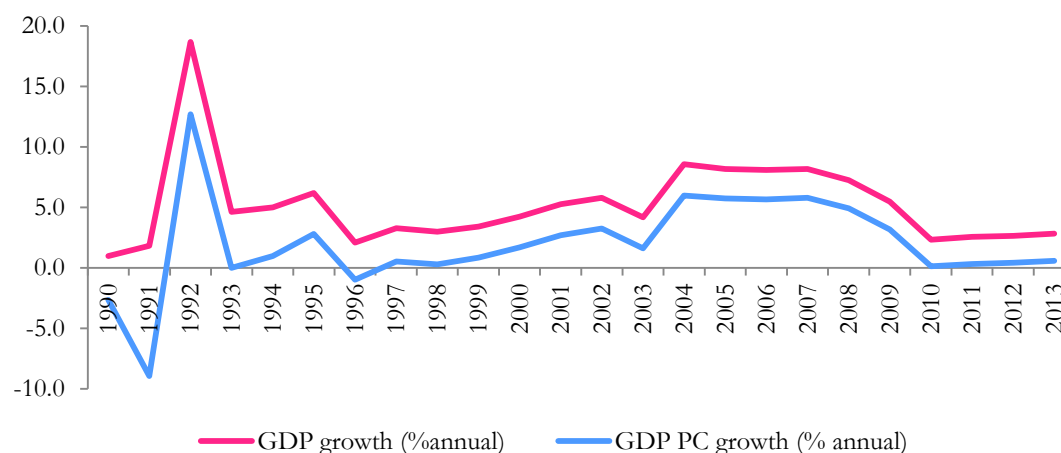
Macroeconomic challenges peak in 2013

Jordan faced severe macroeconomic challenges in the late 1980s and early 1990s with high volatility in economic growth and extremely high public debt (% of GDP). Financing requirements influenced the decision to adopt the IMF structural adjustment programme in 1989, which led to public expenditure reforms and supported restoration of macro-fiscal imbalances over time.

Economic growth started picking up from the mid-1990s, remained reasonably high and reached a peak of 8.2 per cent by 2007. Since then, with the onset of global financial and economic crises in 2007, Jordan's economic growth started decelerating and dropped sharply to 2.3 per cent in 2010. Having a high growth in population of above 2 percent, the real per capita growth therefore became nearly zero.

Between 2010 and 2013, economic growth was exacerbated by multiple shocks arising from the regional instability post Arab spring, including most importantly the conflict in Syrian Arab Republic and the influx of refugees. During this later period, growth has remained uncertain and per capita growth rate remained less than one per cent (figure 1).

Figure 1: GDP and per capita GDP growth, 1990-2013



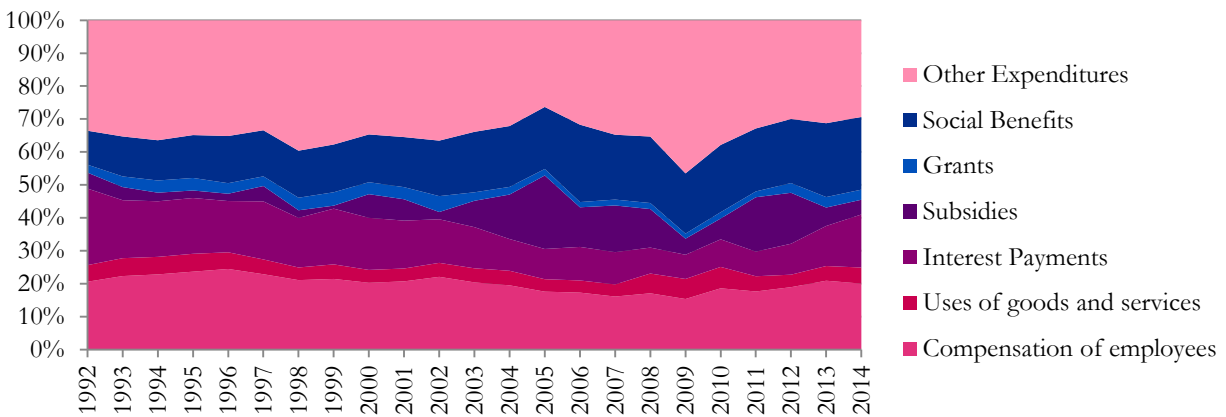
Source: World Bank (2015)

Fiscal pressures started increasing since the global crises and rise in food and fuel prices in much of 2008.¹ They increased government's subsidy budget and forced the government to remove fuel subsidies and introduce automatic price adjustment mechanism in 2008. However, increase in public expenditure on subsidies and transfer payments (social protection) continued after 2010 due to social pressure mainly to avoid any political instability and the spread of Arab

¹ IMF (2009).

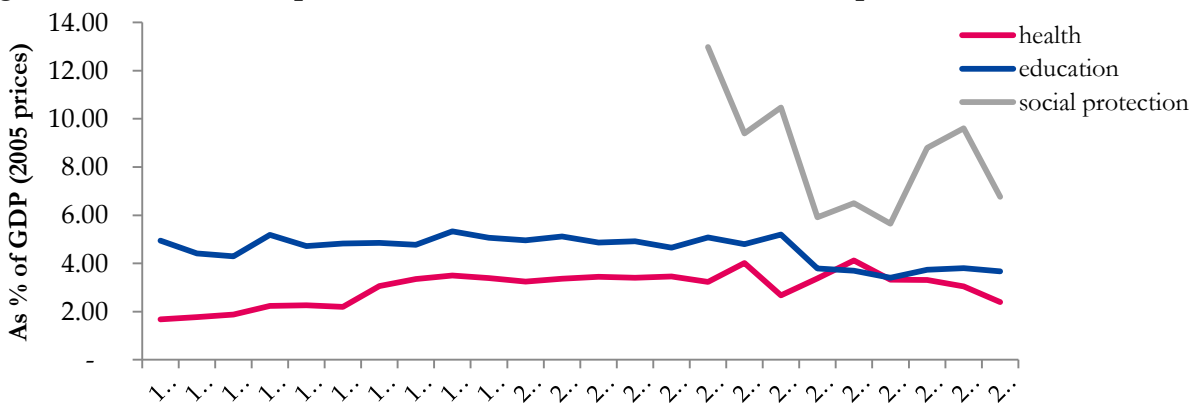
spring into Jordan (figure 2 and 3). Another part of the increase in public expenditure was due to implementation of countercyclical macroeconomic policy, particularly increase in capital spending, to support economic activity in the aftermath of global crises. The increasing public expenditure along with softening domestic revenues and economic recession resulted in high and increasing fiscal deficit and public debt (as per cent of GDP) in recent years although public debt has not been projected as unsustainable² (figure 4). These measures, however, were not sustainable due to limited fiscal space.³ The government introduced few fiscal tightening measures in 2012, such as reforming generalized subsidies as well as some tax and non-tax measures, which started helping fiscal consolidation since 2013.⁴ The impact of the fiscal consolidation is evident in the evolution of the structure of expenditure where a discernable reduction in subsidies (as percent of GDP) is noticeable after 2013 (Figure 2). At the same time, rising debt has led to increase in interest payments (as percent of GDP).

Figure 2: Structure of government expenditure, 1990-2014



Source: Ministry of Finance, Jordan

Figure 3 Government expenditure on health, education and social protection



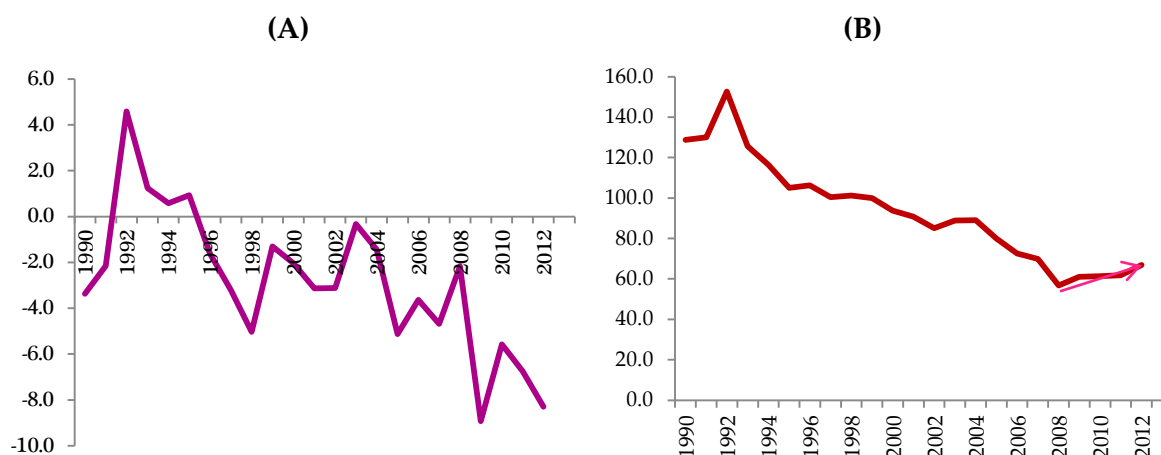
Source: IMF (2015b).

² IMF (2014b).

³ Iversen and Abu-Ismail (2012).

⁴ IMF (2014b).

Figure 4: Fiscal Deficit (A) and Government Gross Debt (B), 1990-2013



Source: World Bank (2015)

Bolder macroeconomic adjustments in 2014-2015 singles out Jordan among Arab countries

The macroeconomic challenges above led the Government of Jordan to adopt a strong fiscal tightening measures as shown below in table 1. The table shows a significant decline in expenditure by nearly 9 percentage points (from 38% in 2014 to 29 % of GDP in 2015). This has enabled the government to significantly reduce its borrowing and, hence, the pace of rise in its debt obligations and help bridge the resource gap between savings and investment even with a slight increase in the current account deficit. The strong fiscal adjustment in 2015 has singled out Jordan as the only Arab country which has reduced its fiscal deficit in 2015 compared to 2010 (Table 2 and figure 5) despite having a significant increase in its debt obligations (by 22.9 percentage points).

Table 1: Main macroeconomic indicators for Jordan, 2014-2015

	2014	2015
GDP, constant prices (% change)	3.1	2.9
Total investment (% of GDP)	21.3	20.3
Gross national savings (% of GDP)	14.4	13.0
General government revenue (% of GDP)	27.9	26.1
General government total expenditure (% of GDP)	37.9	29.1
General government net lending/borrowing (% of GDP)	-10.0	-3.0
General government primary net lending/borrowing (% of GDP)	-6.4	0.6
General government gross debt (% of GDP)	89.0	90.0
Current account balance (% of GDP)	-6.8	-7.4

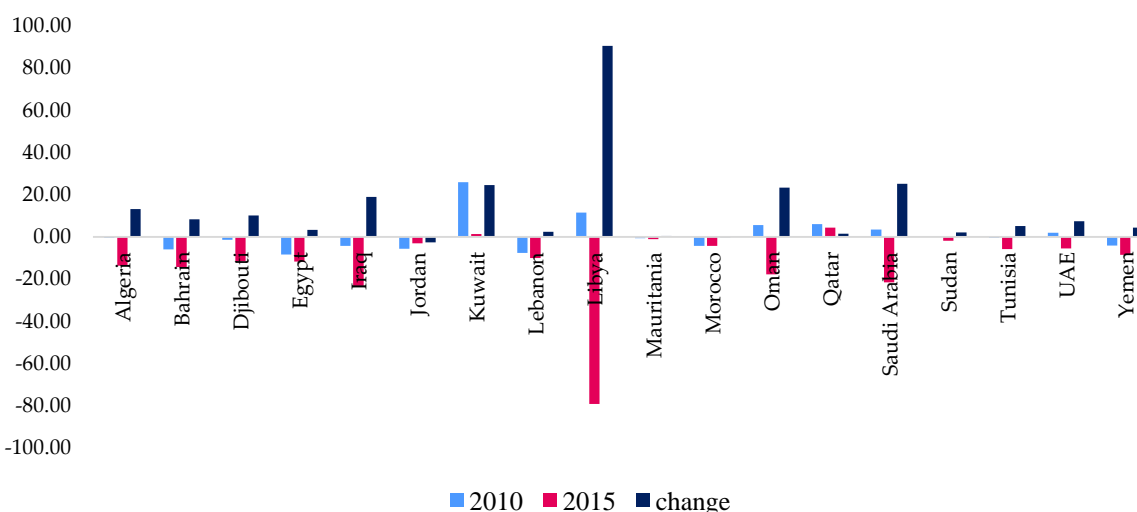
Source: IMF (2015c).

Table 2: Government revenues, expenditure and debt for Jordan, 2010-2015

	Gov. gross debt (% GDP)			Gov. revenue (% GDP)			Gov. expenditure (% GDP)		
	2010	2015	change	2010	2015	change	2010	2015	change
Algeria	11.7	10.2	-1.5	36.6	29.6	-7	37	43.3	6.3
Bahrain	29.7	66.7	37	22.7	18.4	-4.4	28.5	32.6	4
Djibouti	50.6	52.4	1.9	35.1	37	1.9	36.4	48.5	12.1
Egypt	73.2	90	16.8	25.1	23.7	-1.4	33.4	35.4	2
Iraq	53.6	75.7	22.1	45.4	36.6	-8.8	49.6	59.7	10.2
Jordan	67.1	90	22.9	24.9	26.1	1.2	30.4	29.1	-1.4
Kuwait	11.3	9.9	-1.4	70.7	55.6	-15.1	44.8	54.3	9.5
Lebanon	138.4	132.4	-6	21.9	19.1	-2.9	29.5	29	-0.5
Libya	1.6	50.5	48.9	64.9	21.3	-43.6	53.4	100.4	47
Mauritania	80.3	84.3	4	21.9	30.1	8.2	22.5	31.1	8.6
Morocco	49	63.9	14.9	26.8	25.8	-1	31.1	30	-1
Oman	5.9	9.3	3.4	40.6	40.5	-0.1	35	58.2	23.2
Qatar	38.4	29.9	-8.5	35	40.2	5.2	29	35.7	6.8
Saudi Arabia	8.4	6.7	-1.7	37.5	28.9	-8.7	34	50.4	16.5
Sudan	73.1	71.5	-1.6	19.3	9.8	-9.5	19	11.6	-7.4
Tunisia	40.7	54	13.3	23.5	22.8	-0.7	24	28.4	4.5
United Arab Emirates	22.2	18.9	-3.4	34.7	31.3	-3.3	32.7	36.8	4.1
Yemen	42.4	67	24.6	26.1	11.3	-14.9	30.2	19.8	-10.5

Source: Ibid

Figure 5: Fiscal deficit, 2010, 2015 and change



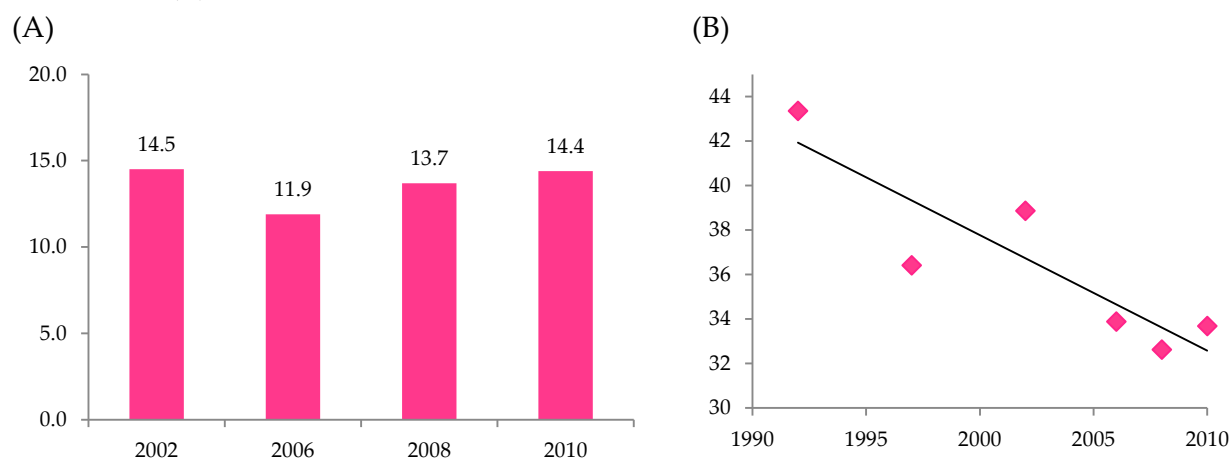
Source: Ibid

2.2 Poverty and inequality

Public expenditure and its composition is crucial for impacting poverty and inequality

The impact of above shifts in public expenditure on social outcomes is critical to this study. Jordan suffers from chronic high unemployment, which hovers around 13 per cent since 2010. Unemployment among the youth is about 31 percent, among the highest in the world. Further, unemployment rates tend to be highest among the educated youth. Poverty remains a concern. In 2010, 14.4 per cent of the population was poor, by the upper poverty line (this is used as the official poverty line in Jordan). It is worthy to note that poverty was 11.9% in 2006 and 13.7% in 2010 (Figure 6A). This implies that poverty was on the rise even before the decline in growth and severe fiscal austerity measures described above, which are expected to have increased poverty further in the period from 2010 to 2015.

Figure 6: Poverty headcount rates according to NPL and the \$2.5 per day PL (A) and Gini Coefficient (B)



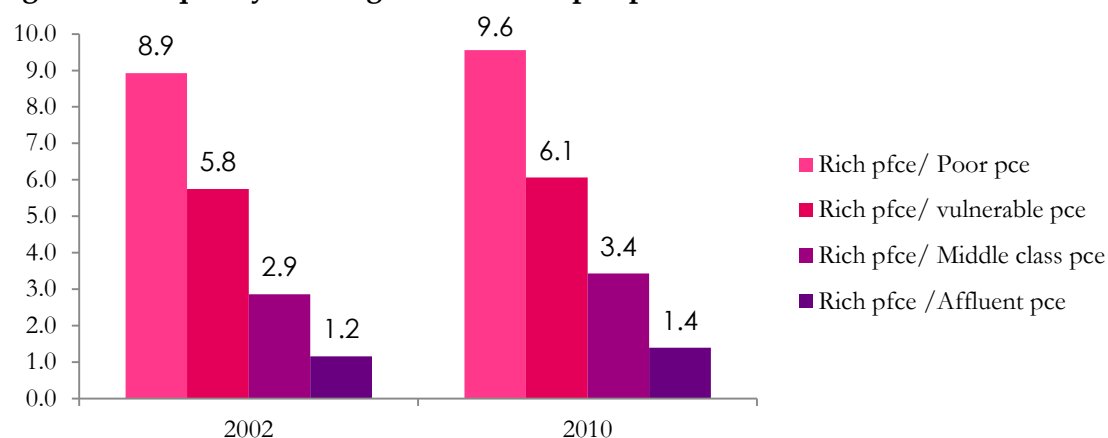
Source: World Bank (2015) and Jordan household survey data

Note: ** calculations based on 25 per cent of sample.

Finally, in so far as inequality is concerned, there are two narratives. The first is shown in Figure 6B and indicates a significant and consistent decline in inequality (measured by the Gini coefficient) in expenditure since 1990. There is however another story presented in the Arab middle class report⁵ which highlights the fact that HIESs are often unable to capture the expenditure of the richest decile of the population due to several technical and other considerations. If the bias from excluding this group is more significant in Jordan (as in the case for other Arab countries) then the true extent of expenditure and income inequality may be higher than is revealed by official statistics. Figure 7 investigates this hypothesis by offering a rough estimate of the size of this gap between the rich and the rest for Jordan and present an alternative explanation whereby expenditure inequality is seen to be rising since 2002.

⁵ ESCWA 2014.

Figure 7: Inequality is rising from another perspective



Note: pfce – per capita final consumption expenditure from national accounts; pce – per capita expenditure from national budget expenditure surveys. The classification of poor, vulnerable, middle class and affluent classes are taken from Abu-Ismail and Sarangi 2015.

Source: ESCWA (2014).

Medium term macroeconomic outlook indicates tough trade-offs

The above discussion indicates that Jordan faces a very challenging medium term outlook. On the one hand the regional political outlook is far from settled and could still have major ramifications on domestic growth and political stability. In addition the likelihood of moving to a lower global equilibrium on oil prices will surely affect the ability of GCCs to sustain their migration and investment policies which may in turn negatively affect oil-poor and labor rich countries such as Jordan. This may contradict with the rather optimistic post adjustment scenario proposed by the IMF in table 3 below which shows a relatively smooth transition championed by a return to the historically high growth rates of the early 2000s and a significant decline in debt.

On the other hand the trend of rising poverty and probably rising inequality in the context of a harsh fiscal adjustment poses several macroeconomic and political economy challenges of their own. The problem is that it is still too soon to tell the impact of these adjustments on poverty due to the lack of any recent HIES. However, given the shallow nature of poverty in Jordan and other Arab countries the concentration of a large proportion of the population directly above the extreme poverty line, the possibility remains that such an impact may have been significant.

Table 3: IMF medium term macroeconomic outlook for Jordan

	2016	2017	2018	2019	2020
GDP, constant prices (% change)	3.7	4.5	4.5	4.5	4.5
Total investment (% of GDP)	21.6	22.2	22.5	22.8	23.1
Gross national savings (% of GDP)	15.1	16.0	16.9	17.8	18.2
Gov. revenue (% of GDP)	27.0	27.0	26.8	26.6	26.4

Gov. total expenditure (% of GDP)	30.2	30.3	30.1	29.6	29.6
Gov. net lending/borrowing (% of GDP)	-3.2	-3.3	-3.3	-3.0	-3.2
Gov. Primary net lending/borrowing (% of GDP)	0.5	0.3	0.1	0.4	0.2
Gov. gross debt (% of GDP)	86.6	83.2	79.5	75.7	71.7
Current account balance (% of GDP)	-6.5	-6.2	-5.6	-5.0	-4.9

Source: IMF (2015c).

3. Impact of fiscal policy on growth: Fiscal multipliers

Estimation of fiscal multipliers

In the literature, the issue of fiscal multiplier was formally introduced by Kahn (1931) and later conceptualised by JM Keynes in his *The General Theory* in 1936. By definition, multiplier is nothing but the quantification of the impact of public expenditure on the output. In other words, it suggests that if the public expenditure changes by one unit how much units of change is expected from the output. Keynes suggest that the government expenditure (irrespective of the nature of expenditure) multiplier could be more than one, which suggest that one unit change in government expenditure could lead to more than one unit change in the output. This suggests that any expenditure that is made by the government could have expansionary impact on the output. Further, as the government expenditure in period t could stimulate higher expenditure in $t+i$ period, the government expenditure is also expected to have *cumulative* impact on output and not just in the period of initial expenditure, *impact* multiplier.

Simple specification of finding fiscal multiplier can be explained as below. In the closed economy setup, given the initial change in government expenditure ΔG_t and marginal propensity to consume (c), change in output ΔY_t can be specified as k times that of change in the government expenditure (ΔG_t). Here k is called as fiscal multiplier and that equals to $1/(1-c)$. However, in the case of open economy, as imports tend to be leakage in the system, the fiscal multiplier could decline with the extent of imports. In that context, the fiscal multiplier can be written as $[1/((c(1-t)+m))]$, where m is the marginal propensity to imports.

The studies on estimating fiscal multipliers were not very many in the past as most of the countries, as part of globalisation, have retorted more to open-economy macroeconomic issues that resulted to the monetary policy dominance of fiscal policy. However, with the onset of global financial crisis in 2008 and the consequent attempt by most of the countries to revive aggregate demand through standard Keynesian expansionary fiscal policy measures have resulted in revival of interest in this area. One of the biggest challenges that was during the introduction of fiscal stimulus was the unknown nature of the impact or effectiveness of the various types of government spending as well as tax incentives on reviving aggregate demand. In the United States, large part of the discussions during the introduction of stimulus measures

was about the size of fiscal (both expenditure and revenue) multiplier. Some have argued that it was 1.5⁶ while some have suggested it could be 1.73.⁷ Many other studies around that period suggested much lower multipliers.⁸

There are other significant studies that suggested that the sizes of multipliers are dynamic and could vary depending on the economic environment. In other words, one should expect different multipliers during recession, as experienced in 2008, and in expansionary phases.⁹ This can also depend on the space for other macroeconomic policies such as monetary and trade policies. As it happened recently, when the interest rates hit zero lower bound in many advanced countries, the studies suggested that in such a situation given the limits to monetary policy there was no other option other than fiscal expansion. In such a situation the size of the multiplier could be more than one.¹⁰ On a similar line, a study by Ilzetzki et.al (2011), by using SVAR framework, suggest that the size of multiplier depends on the quality of expenditure as well as the extent of development. Government consumption expenditure multiplier found to be higher in developed countries compared to developing countries. Similarly, the multipliers in open economies are found to be lower than in closed economies¹¹. In our view, the size of fiscal multipliers are always dynamic and time-varying and needs to be examined on a regular basis in order to make robust public policy for achieving macroeconomic stability. In the words of Cogan (2009), “Macroeconomists remain quite uncertain about the quantitative effects of fiscal policy. This uncertainty derives not only from the usual errors in empirical estimation but also from different views on the proper theoretical framework and econometric methodology”. This suggests that there is a need for estimating multipliers on a regular basis that includes use of new data as well as new and robust methodologies.

3.1 Methodology

In the literature, the studies show that there are different quantitative approaches to estimate the fiscal multipliers. Most popular in the recent period is the use of structural vector autoregressive (SVAR) model,¹² which capture the dynamic impacts (shocks) of changes in government spending on output after introducing some restrictions (mostly recursive). Another approach that can be used is the structural macroeconometric modelling following the tradition of Tinbergen-Klein-Goldberger models. However the later approach demands more

⁶ Romer & Bernstein, 2009

⁷ Zandi, 2008

⁸ Barro, 2009; IMF 2010.

⁹ Auerbach and Gorodnichenko, 2011

¹⁰ see Woodford, 2011; Christiano, et.al, 2009

¹¹ See Bose & Bhanumurthy (2015) for detailed empirical review.

¹² see Blanchard and Perotti, 2002

disaggregated data to capture all the transmission channels in the economy. As the data availability is a serious concern in the Arab region, here we have adopted SVAR model, which is generally found to be robust in the literature.

The SVAR model is an extension of simple and unrestricted VAR models in which the theoretical restrictions are imposed on some of the parameters and addresses the issue of contemporaneous relationships between the variables in the model. In the model we have used three core variables: government expenditure, government revenues as well as GDP. Here to capture the size of expenditure multipliers, we have ordered government expenditure before the GDP and then revenue receipts. Since government expenditure is generally treated as autonomous while government revenues depend on the GDP, such ordering has been adopted¹³. Further, this ordering would also help in capturing the impact of expenditure on revenues through GDP growth. In addition to this, as oil prices are very crucial for the Arab region and changes in the oil prices have a significant impact on the macro behaviours, this has been used as exogenous variable in the model. Further, based on the existing studies, output gap has also been introduced as exogenous variable as with positive (negative) output gap, the economy would tend have larger (less) absorptive capacity for more government expenditure and hence it will affect the size of the multipliers.

As the quality of expenditures does matter for growth, mainly three types of government expenditures were considered: government consumption expenditure, government capital expenditure and total expenditure (other government expenditures such as grants, interest payments, subsidies, use of goods and services, social benefits and compensation of employees were also considered as the data for these variables were available for Jordan). The data on all these variables are taken from IMF Databases. For estimating output gap, we have used Hodrick Prescott filter to separate the trend component and then estimated the gap from the GDP growth rate series. All the expenditures and revenue are converted to real by using price index. Following Espinoza & Senhadji (2011)¹⁴, in the SVAR model, the variables are introduced in growth rate form. By this the impulse responses that are derived would give us simple elasticities. To derive multiplier from elasticity, we divide this by government expenditure to GDP ratio.

The most important component of SVAR model is the list of restrictions. In a 3-variable VAR model the restrictions are given on the unobserved structural innovations parameters which are derived from the observed residuals from each equation. This can be written as below.

$$e^G = u^G$$

¹³ This is largely consistent with the Blanchard & Perotti (2002) ordering

¹⁴ Similar method is used in Jain & Kumar (2013) in the case of India.

$$e_t^Y = C_{21}u_t^G + u_t^Y$$

$$e_t^R = C_{32}u_t^G + u_t^R$$

where G, Y, and R denote government expenditure, output and government revenues respectively, while u's are observed residuals from three equations while e's are unobserved innovations that are derived from SVAR model after imposing the above restrictions. It may be noted that this is more of a recursive SVAR with one change. Here, in this ordering, contemporaneous impact of expenditure on the revenues is restricted to zero as revenues depend largely on the output growth rather than public expenditures.

3.2 Estimation results

In the case of Jordan, as the disaggregated data on various expenditures were available, we have estimated multipliers for various types of expenditures. The database used for this is from 1992 to 2012 for government consumption expenditure, government capital expenditure as well as total government expenditure. However, in the case of disaggregated expenditures we have used data only upto 2010 as there were noise in the data after 2010. It may be noted in the tables below that we have estimated impact multiplier as well as peak multiplier. The impact multiplier is based on the impulse response in the period of shock. However, to understand the maximum impact, we estimated the cumulative impulse responses and chosen the period in which the cumulative response is maximum and also identified the year of peak as well.

Table 4: Size of fiscal multipliers for Jordan

Type of expenditures	Impact multiplier	Peak multiplier (peak year in the brackets)
Aggregate public expenditure	1.150659	1.150659(1)
Current expenditure	2.447	2.447(1)
Capital expenditure	0.8979	5.82464(3)
Government grants	-0.03219	-0.03219(1)
Use of goods and services	0.33	0.955294(3)
Interest	0.067488	0.067488(1)
Social benefits	0.214547	1.252784(2)
Subsidies	2.851394	2.851394(1)
Compensation of employees	0.89883	0.89883(1)

Note: Some of the impulse response function graphs are presented in the appendix.

Source: Authors' calculations based on IMF data.

From the table, it may be noted that the size of impact fiscal multipliers in the case of current expenditure, capital expenditure as well as aggregate expenditure is found to be 2.5, 0.9, and 1.2. The size of current expenditure multiplier is higher than capital expenditure in the impact year. However, more interesting is the peak multipliers. Here it suggest that peak multipliers are 2.5 in the case of current expenditure, same as impact multiplier, suggesting that there is no dynamic impacts of current expenditure on growth after the year of shock. Similar result is found in the case of aggregate expenditure as well. However, it is interesting to know that peak multiplier for capital expenditure is 5.8 and it takes three years to see the maximum impact on growth in the case of capital expenditure in Jordan. There are other multipliers for disaggregated government current expenditure. Curiously, government subsidy has higher multiplier and the rest of them have multiplier of less than one, suggesting that the returns to such expenditures are much lower. Further, government grants shows that it would have contractionary impact on growth although mainly the grants are for the general government expenditure except a tiny portion of it is for the foreign governments.

Issues for discussion

First, Ilzetzki et al. (2011) had identified the importance of three characteristics of the economy in influencing the size of the fiscal multipliers: the degree of openness, the exchange rate regime, and the level of public debt. Broadly, fiscal multipliers are lower for relatively open economies (exports plus imports higher than 60 percent of GDP), higher in economies with fixed exchange rate regimes, and lower in countries with high public debt (above 50 per cent of GDP). In a subsequent study, Abdih et al (2010) classified the countries in the Middle East and North Africa region into these three categories for analyzing differences in benefits from a fiscal stimulus package. They concluded that expansionary fiscal policy will be less effective in case of countries that are having the combination of fixed exchange rate, open economy and high public debt.¹⁵ The case of Jordan appears to follow this category.

Second, the type of expenditure, such as current and capital expenditures, influences the size of the fiscal multiplier. According to some, the excess of capital expenditure tends to be unproductive at the margin and can undermine growth (Devarajan et al 1996). A recent study of countries in the Gulf Cooperation Council (GCC) shows that the long-run fiscal multiplier varies in the 0.3–0.7 range for current expenditures and 0.6–1.1 for capital spending (Espinoza and Senhadji 2011). The overall low fiscal multiplier in the GCC economies is expected because these economies have no independent monetary policy (pegged exchange rates) and fiscal expansion can suffer from leakages due to large remittances and imports. In large and open economies with flexible exchange rate, such as Indian economy, the capital expenditure

¹⁵ On the contrary, the countries having a flexible exchange rate, closed economy and low public debt are more likely to benefit from expansionary fiscal policy measures (Abdih et al 2010).

multiplier is 2.45, which is two and half times that noted for transfer payments expenditures and other current expenditures. In case of Jordan, the capital expenditure multiplier has a significant long term impact than the current expenditures.

Third, the relative importance of different accounts within current expenditures is an important subject of analysis, as current expenditures are more likely to change due to contemporary economic policy decisions. Current expenditures are also influenced by the tax policies that influence the current revenues. The aim of the tax policies is not only mobilizing revenues but also redistribution of resources toward reducing poverty and inequality. Increase in expenditure in certain sectors such as in social protection, health and education also help toward building quality human capital are considered as growth enhancing over long run with feedback effect from increasing human development.¹⁶ The poverty and inequality effect of fiscal policy is thus the subject of analysis in the following part of the study.

4. Impact of fiscal policy on poverty and inequality

Redistributive fiscal policy

This section examines the impact of fiscal policy on poverty and inequality by looking into the effectiveness of redistributive effects of fiscal system and the incidence of taxes and transfers. A significant number of studies have assessed the distributive impacts of tax and expenditure policies, particularly with respect to their impact on reducing inequality and poverty.¹⁷ The so called conventional wisdom is that direct taxes are more progressive in nature while the reverse is the case for indirect taxes. A more comprehensive assessment of fiscal policy in several Latin American countries, including Argentina, Bolivia, Brazil, Mexico, Peru, and Uruguay, is provided by Lustig et al. (2013) using a comparable methodology (Lustig and Higinis 2013). Their study demonstrated a number of interesting conclusions such as direct taxes are progressive, but the redistributive impact is small; indirect taxes are regressive as the poor end up in paying a higher share of their incomes as against that of the rich and therefore indirect taxes can off-set the poverty-reducing impact of cash transfers, as seen in Bolivia and Brazil. Their study provided some consistent evidence across all countries in their sample that in-kind transfers, particularly expenditure on health and education, tend to be more income equalizing and can have a higher impact than even the cash transfers.

The findings from the Latin American country studies do reconfirm the key role of government expenditure in influencing income distribution and poverty reduction albeit there are differences in impact across countries. These differences could occur due to big governments or

¹⁶ Beherman 1993;1996; Ranis and Stewart 2005.

¹⁷ See Essama-Nssah (2009), Bastagli et al (2012), and Lustig et al. (2013).

due to high or low redistribution levels. There are other reasons behind such differences as well that include the degree of decentralization of public finance; the extent of the informal sector; the distributive effects of other public policies—such as price controls on goods and services; minimum wages; among others.¹⁸ In addition, crises impacts fiscal policies as well as development outcomes significantly as noted in many Arab countries, in addition to the negative consequences of global economic crises in 2008.

This study assesses the impact of fiscal policy on poverty and inequality in Jordan by taking into account three points in time -- the period before global economic crisis (2006) when Jordan's economic growth reached a pick, the period just after the economic crisis that hit economic growth (2008) and in the aftermath when Jordan's economic growth has been sluggish (2010). We used harmonized household surveys on budget expenditures, obtained from Economic Research Foundation (ERF), which enabled us to undertake this exercise.

4.1 Methodology

The effectiveness of fiscal policy has been studied by scholars as well as by the World Bank and IMF staff by using various methods of incidence analysis.¹⁹ This study follows the latest contribution to the incidence analysis by Lustig and Higgins (2013). Their methodology takes into account a comprehensive list of adjustment to income concepts and combines micro and macro data in order to assess the impact of fiscal policy on poverty and inequality. It has therefore several advantages over the previous incidence analysis methodologies that had not considered household level unit records data. Using this methodology, Lustig and her colleagues have produced a series of studies on Latin American countries.²⁰ By following the same methodology, our purpose is to have a comprehensive possible assessment for Jordan as well as to allow a comparative analysis with those for Latin American countries. However, there are some data limitations for Jordan, particularly with regard to estimating the in-kind transfers through indirect subsidies on food, fuel, health and education expenditures.

Following Lustig and Higgins (2013), various income concepts are illustrated in appendix Figure 16. In terms of notations, the concepts are as follows:

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

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

Disposable income: $Y^d = Y^n + T$

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

¹⁸ See a review of literature in Cuesta 2013; Heshmati and Kim 2014.

¹⁹ See applications of incidence analysis in Gupta et al 1997; Chu et al 2000; World Bank 2013; IMF 2014a; Sdravlevitch et al 2014; IMF 2015a.

²⁰ See a number of working papers by scholars of Commitment to Equity:
<http://www.commitmenttoequity.org/>.

Where,

W = gross (pre-tax) wages and salaries

IC = income from capital.

SC = self-consumption from own production

IR = imputed rent for owner occupied housing

RT = Remittances

P = pensions from contributory social security system

DT = direct taxes on all income sources

SS = Contributions to social security

T = direct transfers from government

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

IT = Indirect taxes

Some data adjustments were made to the ERF harmonized data of Jordan's national household budget surveys in order to arrive at the income concepts.²¹ Given the data structure, we obtained the disposable income for each household. The market income concepts (Y^m and Y^n) were calculated backward from the disposable income (Y^d) as per the identities of Y^m and Y^n . The difference between the gross and net income essentially gives direct taxes and employees contributions to social insurance. The pensions are treated as gross income (as Y^m). There are two alternatives to use pensions in the income concepts. Pensions could be used as regular income as they are based on employees' contributions, but pensions could also be used as transfer payments as a significant part is provided by the employers, in case of Jordan it is the government. Lustig and Higgins (2013) have used these two concepts to undertake sensitivity analysis, and we also used pensions in both ways to check how it impacts poverty as well as the distribution of income.

Post-fiscal income (consumable income) is usually calculated as disposable income plus indirect subsidies (such as in food and energy price subsidies) minus indirect taxes (such as value added taxes and excise sales taxes etc). Given the ERF data variables, the indirect subsidies (IS) were not possible to compute from household consumption due to lack of adequate information about the volume and type of food and fuel consumed. However, the indirect tax (IT) component was possible to compute by applying the commodity tax rates to total consumption on particular items. The total indirect taxes paid for consumption of all items²² gives an effective

²¹ The ERF data constitute 25 percent sample households of national survey data but the estimates based on the data are representative at the national level.

²² Item specific indirect tax rates are obtained from: <http://www.ey.com/GL/en/Services/Tax/Worldwide-VAT--GST-and-Sales-Tax-Guide---XMLQS?preview&XmlUrl=/ec1images/taxguides/VAT-2015/VAT-JO.xml>.

tax rate which is then applied to the income concepts. Since indirect subsidy amount was not possible to obtain for the consumption of commodities such as rice, edible oil, sugar, flour, and powdered milk and fuel, we also keep these commodities out of calculation of the indirect tax paid on them.

Hence, the post-fiscal income is calculated only by subtracting the indirect tax from disposable income, which will tend to lower the post-fiscal income for those households that consume much of the subsidy items. Ideally, much of the subsidized items are intended for the poor. However, a study by IMF (2014b) shows that much of the fuel subsidies in Jordan are enjoyed by the wealthier households, while the bottom 40 per cent of population get only 14 to a maximum 40 per cent of total subsidy given to various fuels and to electricity (appendix figure 17). The food subsidy also suffers from targeting leakages as it is well distributed among all population quintiles. However, the bottom 40 per cent of the population gets nearly half of the subsidies given to bread (appendix figure 18). Therefore, the downward bias of post-fiscal income is applicable to all households in the sample, not just the poor households.

The ERF data on transfers included all government and private transfers such as social insurance, assistance, intro-household transfers, charities, remittances, disability pensions, allowance benefits, child/family benefits etc. According to our income definition, remittances from abroad should be treated as part of regular income but not transfers. Therefore, foreign remittances were deducted from transfers for those households that are receiving income from abroad and augmented to their regular income. Further, we use two concepts of transfers, one without pensions (benchmark scenario) and the other transfers with pensions (sensitivity analysis). The effectiveness of transfers (or other indicators) was calculated by using the formula:

$$G(y^n) - G(y^d) / (T / GDP)$$

Where,

$G(y^n)$ – gini of net market income

$G(y^d)$ – gini of disposable income

T – direct transfers from government

GDP – gross domestic product at current price w.r.t the year of survey

Another issue is estimation of poverty rates (headcount ratios) from income reportage, as national poverty estimates are based on consumption expenditure per capita. Applying the consumption poverty line tends to significantly overestimate poverty. According to national definition, Jordan's poverty rate in 2010 was 14.4 per cent, which corresponds to the upper poverty line as per the basic needs approach in defining poverty.²³ In order to find the income poverty line, we ordered the households according to their disposable income and find out the

²³ See Abu-Ismaïl and Sarangi 2015 for poverty rates of Arab countries by lower and upper poverty lines.

threshold at which poverty rate equalizes consumption based poverty rate. Therefore, the poverty rates remain same as per consumption or income definition.

4.2 Estimation results

Using the incidence analysis and the national accounts, we managed to calculate the variables on taxes and transfers for 2006, 2008 and 2010, presented as a summary in the table 5. The incidence analysis nearly matches the transfers as per cent of GDP with that from national accounts in 2006 and 2008 (in financial statistics, transfers are considered as social benefits and subsidies by the economic definition). Incidence analysis shows a bit higher transfers in 2010 than that from financial statistics. Taxes (direct and indirect) are consistently underestimated in the incidence analysis than that appears in the financial statistics. These differences could be possible to account for by undertaking a data imputation exercise for matching the figures from financial statistics with aggregate of survey responses. However, the survey data are only 25 per cent of the total sample. Using such data for imputation purpose could lead to biased estimates; else the full sample is accessible for data imputation. It must be acknowledged that other studies from Latin America also found similar discrepancies although to a much lesser extent due to high quality data. Improving data (both fiscal data as well as survey data) is a must for a more precise analysis of fiscal policy effectiveness, which Alvaredo and Piketty (2014) also suggested by examining fiscal data for all Arab countries. Despite these limitations and given the harmonized data at hand, the estimates across the years do indicate a consistent pattern and therefore the incidence analysis on poverty and inequality is worth reviewing.

Table 5: Taxes and benefits as percent of GDP

	2006		2008		2010	
	From financial statistics	In incidence analysis	From financial statistics	In incidence analysis	From financial statistics	In incidence analysis
Transfers (W/O pensions) (% of GDP)	9.9	9.6	9.0	8.2	6.8	8.8
Direct taxes (% of GDP)	4.4	1.7	3.9	1.7	3.3	1.8
Indirect taxes (% of GDP)	12.4	6.4	10.9	6.2	10.7	6.7

Source: Authors' calculations

Impact on poverty and inequality

Jordan's poverty rate was 12 per cent in 2012, which increased to 13.7 per cent in 2008 and then to 14.4 per cent in 2010. These rates are as per the disposable incomes in respective years. The effect of fiscal policy on poverty can be measured using the typical indicators such as the headcount ratio for market income (Y^m) and income after taxes and transfers (Y^p). Figure 8

below shows the poverty rates by different income concepts and estimated change in poverty rates w.r.t market income at three points in time. Direct taxes and social security contributions imply only a small increase in poverty by 4.25 per cent up to 5.36 per cent during 2006 to 2010. This is expected due to the fact that the payers of direct tax and social security contributions are largely non-poor people. Adding transfers to net income, the net effect on disposable income is to reduce poverty by a significant portion: by 46.8 per cent in 2006, 44.4 per cent in 2008 and 46.2 per cent in 2010. Adding indirect taxes paid, poverty reduced by 35.2 per cent, 26.6 per cent and 33.7 per cent in 2006, 2008 and 2010 respectively. The effectiveness of transfers (without pension) to poverty reduction was 1.2, 1.5 and 1.6 at the three points in time respectively.²⁴

The redistributive effect of fiscal policy can be measured by the difference between the market income Gini and the Gini for income after taxes and transfers. If the difference is positive (negative) then the fiscal adjustment is more equalizing (unequalising) for income distribution. Figure 9 plots the Gini coefficients by different income concepts and estimated change in Gini coefficients w.r.t market income Gini. It is interesting to note that the direct taxes and social security contributions have negligible effect in equalizing income distribution. But adding transfers (without pensions) to net income, the net effect on disposable income is to reduce inequality by 10 per cent in 2006, 11.4 per cent in 2008 and 10.7 per cent in 2010. The post-fiscal gini contribute to reducing inequality by about 10 per cent in 2006, and about 12 per cent in 2008 and 2010. The effectiveness of transfers (without pension) turned out to be 0.45, 0.64 and 0.57 in 2006, 2008 and 2010.²⁵

The role of transfers has turned out to be an important factor in reducing poverty and inequality in Jordan. Of course, by adding pensions into transfers, the results get more strengthened. Evidence suggest that the social assistance programmes seems to be relatively better targeted in Jordan, where 43 per cent of the people in the poorest quintile benefit from such programmes as against 6 per cent in the richest quintile. In fact, in Jordan, the benefit incidence of such programmes among the poorest quintile is larger than that in other Arab countries as well as higher than the world average (33 per cent).²⁶ Therefore, the story of transfers impacting poverty and inequality reduction appears to make better sense, unlike the evidences that much of the indirect transfers (subsidies on fuel and food) are not so well targeted to the poor.

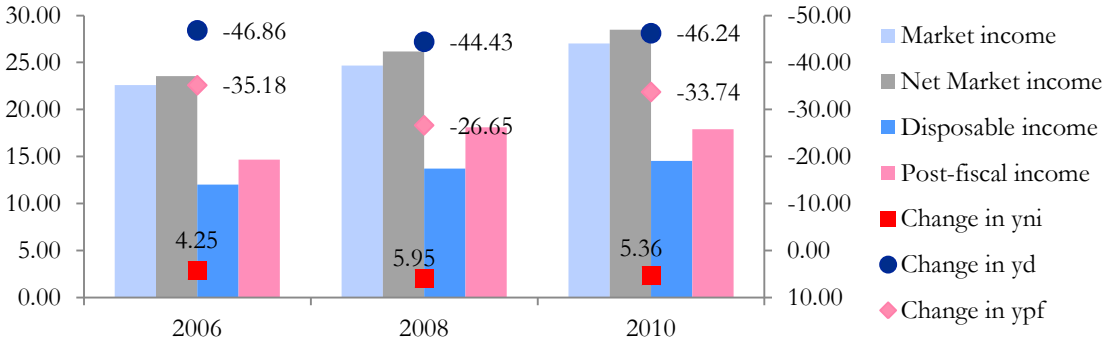
²⁴ A sensitivity analysis was undertaken by using pension as part of transfers. In that case the effectiveness of transfers (with pension) to reducing poverty was 1.6 in 2006, 1.6 in 2008 and 1.3 in 2010. The higher values indicate the larger role of pensions in reducing poverty, but the effectiveness is declining over time. However, we prefer to present and discuss all results of the benchmark scenario considering that pensions are part of deferred income in Jordan. The non-contributory part of the pension is treated as transfer in any case.

²⁵ The net effect of transfers, including pensions, should have a higher equalizing effect on income than if the transfers do not include pensions. We indeed find such confirmation of such results. However, for the purpose of analysis we treated pensions as deferred income as mentioned in earlier note.

²⁶ World Bank 2013.

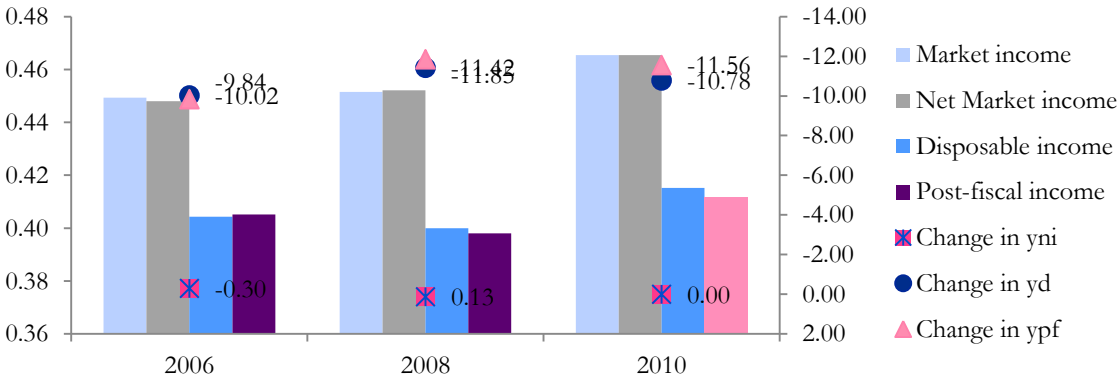
How well such results associate with that noted in case of Latin America and other areas? The Box 1 shows the evidences of redistributive impact of fiscal policy on poverty and inequality in several countries, drawn from Lustig 2015. Some of the conclusions largely match with the story from Jordan. The direct transfers (cash) always tend to be more equalizing. However, it may not hold always for poverty reduction. For instance, the market income poor were made poorer by taxes and transfers (post-fiscal) in Brazil and Columbia. This is possible due to high consumption taxes of basic goods. As Lustig (2015) wrote, “redistributive success is determined primarily by the amount of resources devoted to (collected from) direct transfers (direct taxes) and their progressivity, and the presence of unequalizing net indirect taxes.” According to a review of public expenditure globally, direct taxes and cash transfers together contribute to reduce income inequality by about one-third on average in advanced economies; However, the fiscal redistribution is more limited in developing countries, which reflects lower tax and spending levels and the less progressive composition of both taxes and spending (Francesc 2015). It is therefore important to review the incidence of taxes and transfers for Jordan.

Figure 8: Redistributive impact of fiscal policy on poverty



Source: Authors’ calculations based on ERF data

Figure 9: Redistributive impact of fiscal policy on inequality



Source: Authors’ calculations based on ERF data

Box 1: Redistributive impact of fiscal policy: Evidences from other countries

Figure 10: Fiscal policy and changes in poverty rates

Changes in headcount ratio: Market to post-fiscal adjusted income

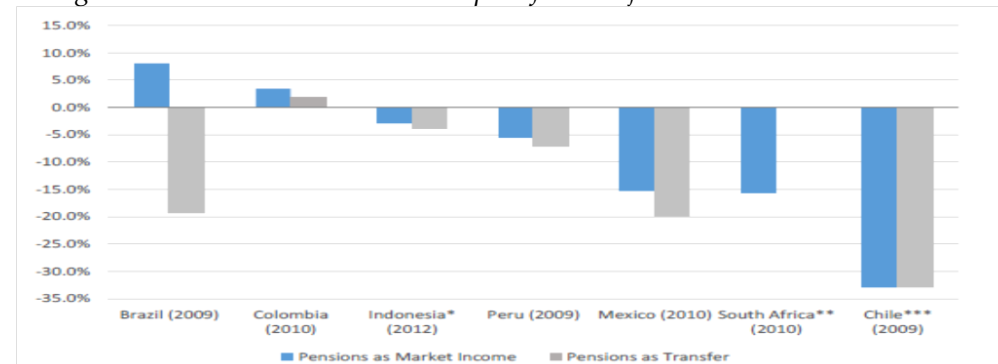
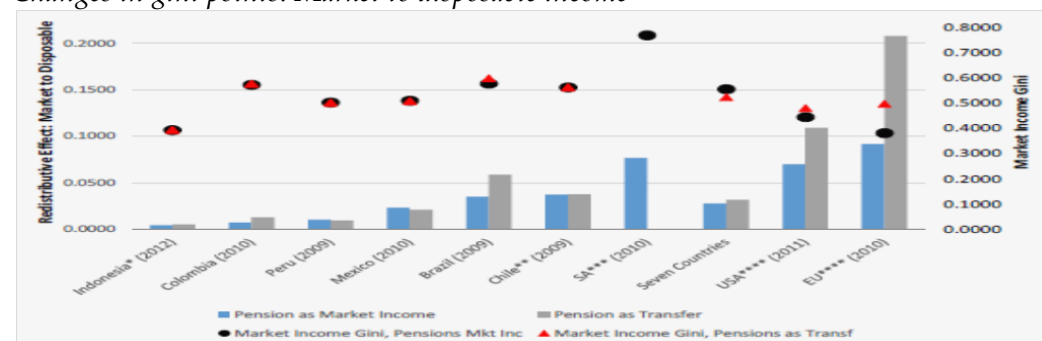


Figure 11: Fiscal policy and changes in income inequality

Changes in gini points: Market to disposable income



Source: Lustig 2015.

Incidence of taxes and transfers

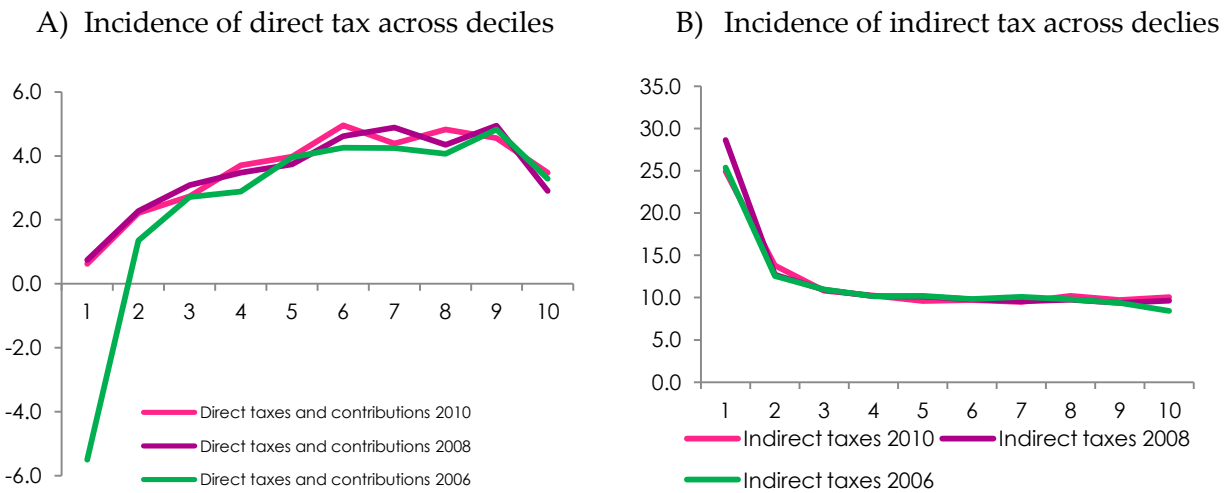
Figures 12 and 14 show the incidence of direct and indirect taxes as well as incidence of transfers across the deciles with respect to market income (Y^m). The direct taxes show mild progressivity in all years (figure 12A),²⁷ but particularly in 2006, reflecting the exemption of low income bracket workers and the negative income tax. The higher deciles contribute more taxes, but the highest decile in particular shows a reverse trend, indicating that the richest tend to pay less tax than the middle income deciles. The pattern is consistent in all the three points in

²⁷ The Kakwani coefficients also indicate mild progressivity of direct taxes and the reverse for indirect taxes.

time. This issue needs to be looked into more carefully with more detail fiscal records as factors such as tax evasion are wide spread in Jordan as also in other Arab countries.

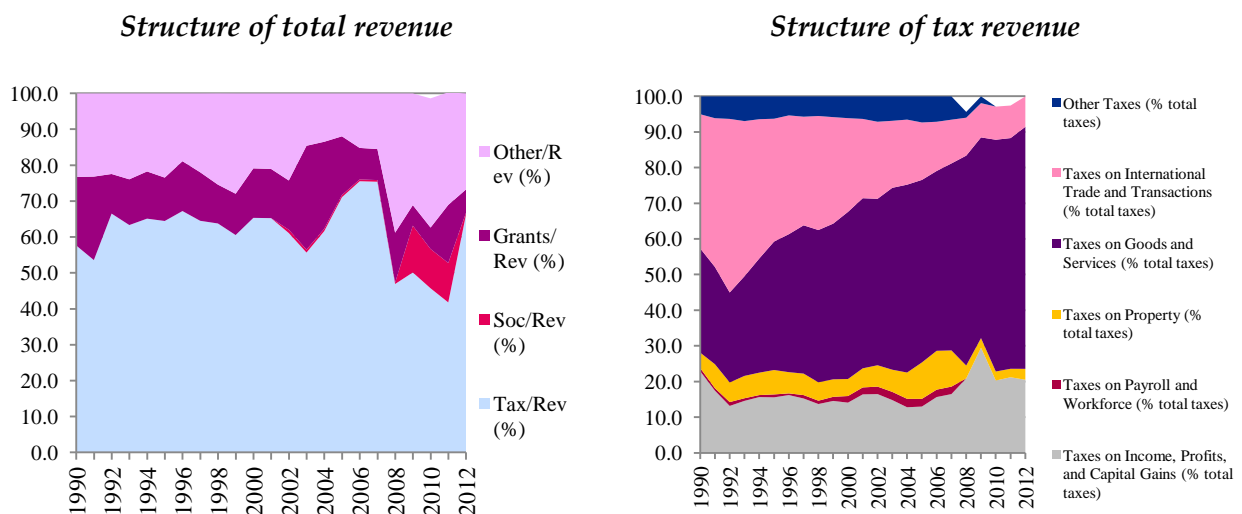
The incidence of indirect taxes is more regressive, as shown in figure 12B. This indicates that the lower 40 per cent of the population end up paying a larger share of budget in terms of indirect taxes as compared to the higher decile groups. Figure 12B shows that there is hardly any improvement in the direct tax contribution over the years since the 1990s. But major increase in contributions to tax revenue has come from taxes on goods and services (indirect taxes).

Figure 12: Incidence of direct and indirect taxes across market income deciles



Source: Authors' calculations

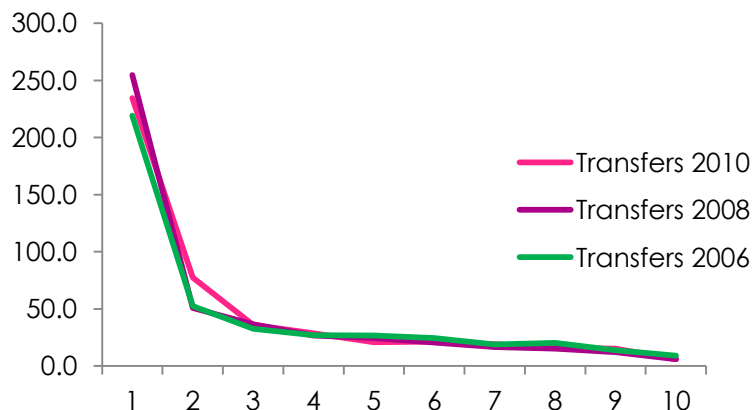
Figure 13: Structure of government total revenue and tax revenue



Source: IMF (2015b)

The incidence of transfers shows an impressively progressive pattern. The bottom 40 per cent of population gets a higher share of the transfers than that goes to the richer deciles. The middle class also gets some benefits out of the transfers,²⁸ while the share of the richest decile is negligible. It corroborates with the fact that transfers are more equalizing and also more poverty reducing in case of Jordan. Nevertheless, the spread of transfers also indicate scope for better targeting.

Figure 14: Incidence of transfers by market income deciles



Source: Authors' calculations

5. Findings and policy implications

The study has analyzed the impact of public expenditure on growth by using SVAR modeling to estimate the fiscal impact multipliers for various expenditure components. The focus of the study is the period since Jordan adopted structural adjustment programmes since the 1990s. The second important contribution of the study is to analyse the redistributive fiscal policy impact on poverty and inequality by using the latest method of incidence analysis. For this part, the study relies on ERF harmonized household budget survey data for the latest three rounds combined with national accounts data.

Several interesting findings emerged from the analysis. For Jordan, the impact fiscal multipliers in the case of current expenditure, capital expenditure as well as aggregate expenditure is found to be 2.5, 0.9, and 1.2. The role of public investment was noted to be crucial for boosting growth as the peak multiplier for capital expenditure is 5.8 and it takes three years to see the maximum impact on growth. The current expenditure multiplier is higher than that of capital expenditure

²⁸ According to a recent study on social policies in the Arab countries, the middle class significantly benefits from social policies and have relatively good social protection, especially within formal sector jobs (Prasad 2014).

in the impact year. Within current expenditure, subsidies, compensation to employees and social benefits have positive impact multipliers. In fact, government subsidy has higher multiplier than the other expenditure components.

The role of transfers has turned out to be an important factor in reducing poverty and inequality in Jordan. By adding transfers to net income, the net effect on disposable income is to reduce poverty by a significant portion: by 46.8 per cent in 2006, 44.4 per cent in 2008 and 46.2 per cent in 2010. Similarly, by adding transfers to net income, the net effect on disposable income is to reduce inequality by 10 per cent in 2006, 11.4 per cent in 2008 and 10.7 per cent in 2010. Further, by adding pensions into transfers, the results get more strengthened.

The incidence of transfers shows an impressively progressive pattern. The incidence of indirect taxes is more regressive. The direct taxes show mild progressivity. The higher deciles contribute more taxes, but the highest decile in particular shows a reverse trend, indicating that the rich tend to pay less tax than the middle income deciles, which needs to be looked into more carefully with detail fiscal records.

These findings can be extended for fiscal policy analysis for the Arab countries in various ways. In general, public investment can play an important role for long run growth, while the current expenditure choices are important for boosting growth in the immediate period. The impact factors vary by country context depending upon the macroeconomic as well as human development situation. For Jordan, our results indicate that the multiplier effects of government subsidies, employees' compensation as well as capital expenditure choices are all important for boosting growth. The government transfers have a strong poverty reducing impact too. Therefore, compromising social expenditures or its gradual phasing out for fiscal consolidation should not be the only option rather potential of raising domestic revenues and other options of enhancing the fiscal space need to be considered. Assuming that a cycle starts with expenditure leading to growth, it is important that the tax policies need to be calibrated to maximize current revenues in order to make the expenditures sustainable. Further, the aim of the tax and expenditure policies should not only revenue maximization and growth but also redistribution of resources toward achieving equity and reducing poverty.

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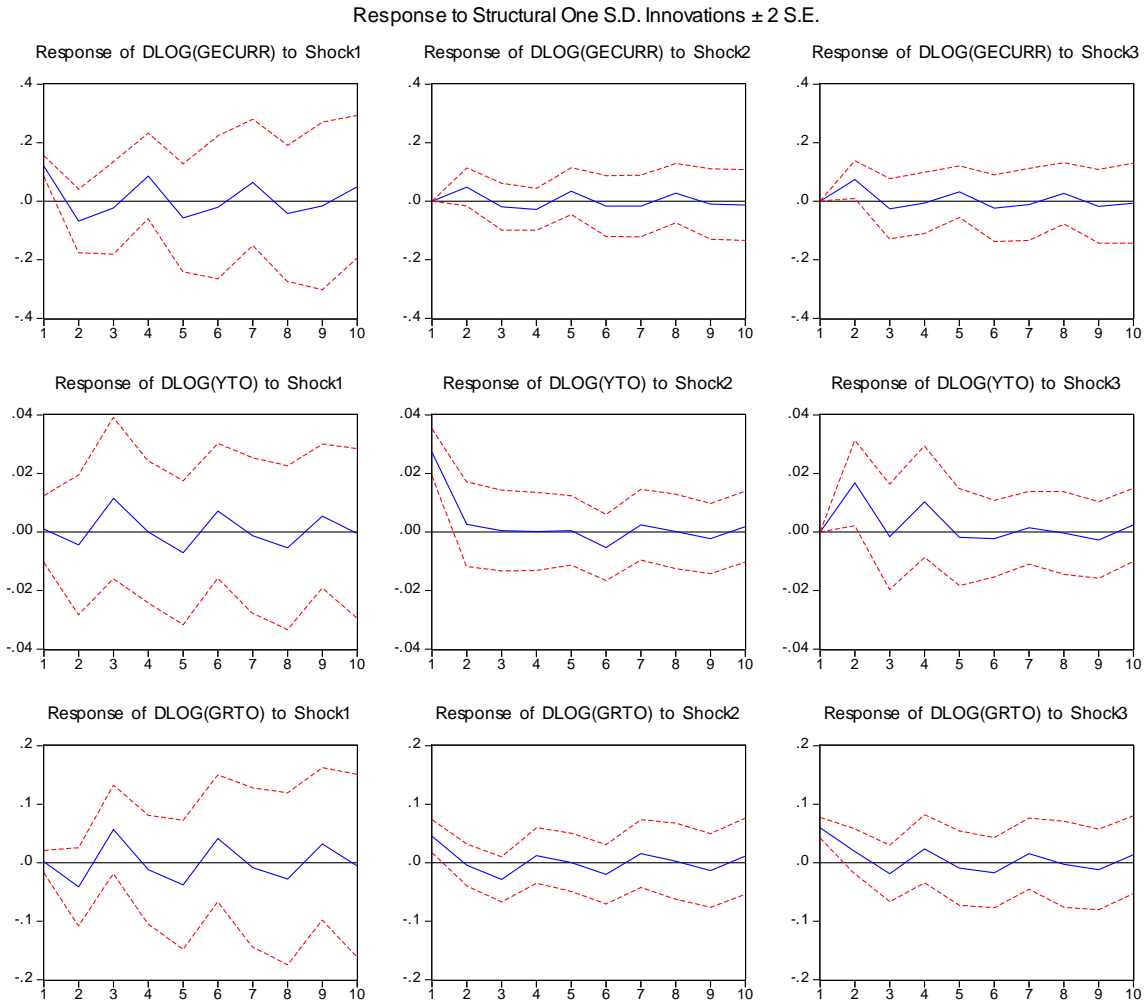
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Appendix

Figure 15: Impulse response functions for some expenditures: Jordan:

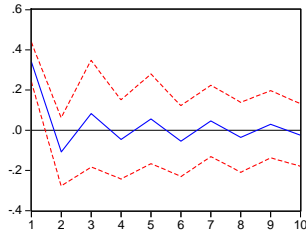
A. For Government Current Expenditure



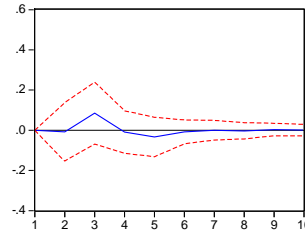
B. For Government Capital Expenditure

Response to Cholesky One S.D. Innovations ± 2 S.E.

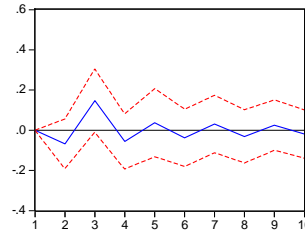
Response of DLOG(GECAPEX) to DLOG(GECAPEX)



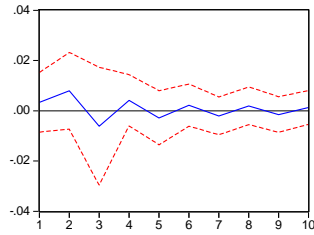
Response of DLOG(GECAPEX) to DLOG(YTO)



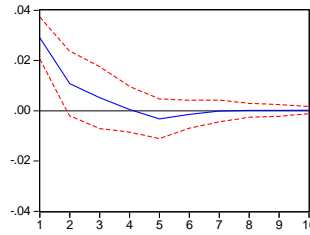
Response of DLOG(GECAPEX) to DLOG(GRTO)



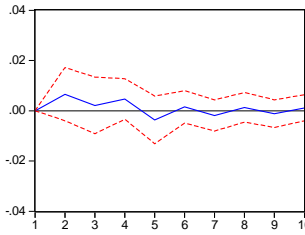
Response of DLOG(YTO) to DLOG(GECAPEX)



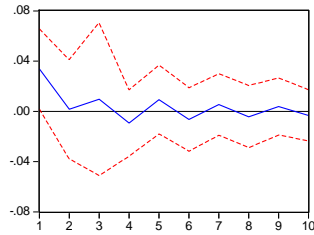
Response of DLOG(YTO) to DLOG(YTO)



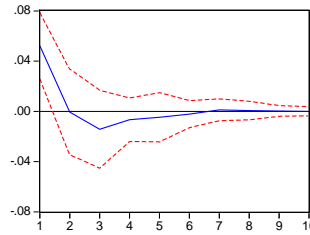
Response of DLOG(YTO) to DLOG(GRTO)



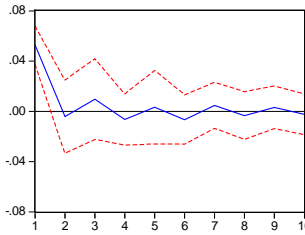
Response of DLOG(GRTO) to DLOG(GECAPEX)



Response of DLOG(GRTO) to DLOG(YTO)

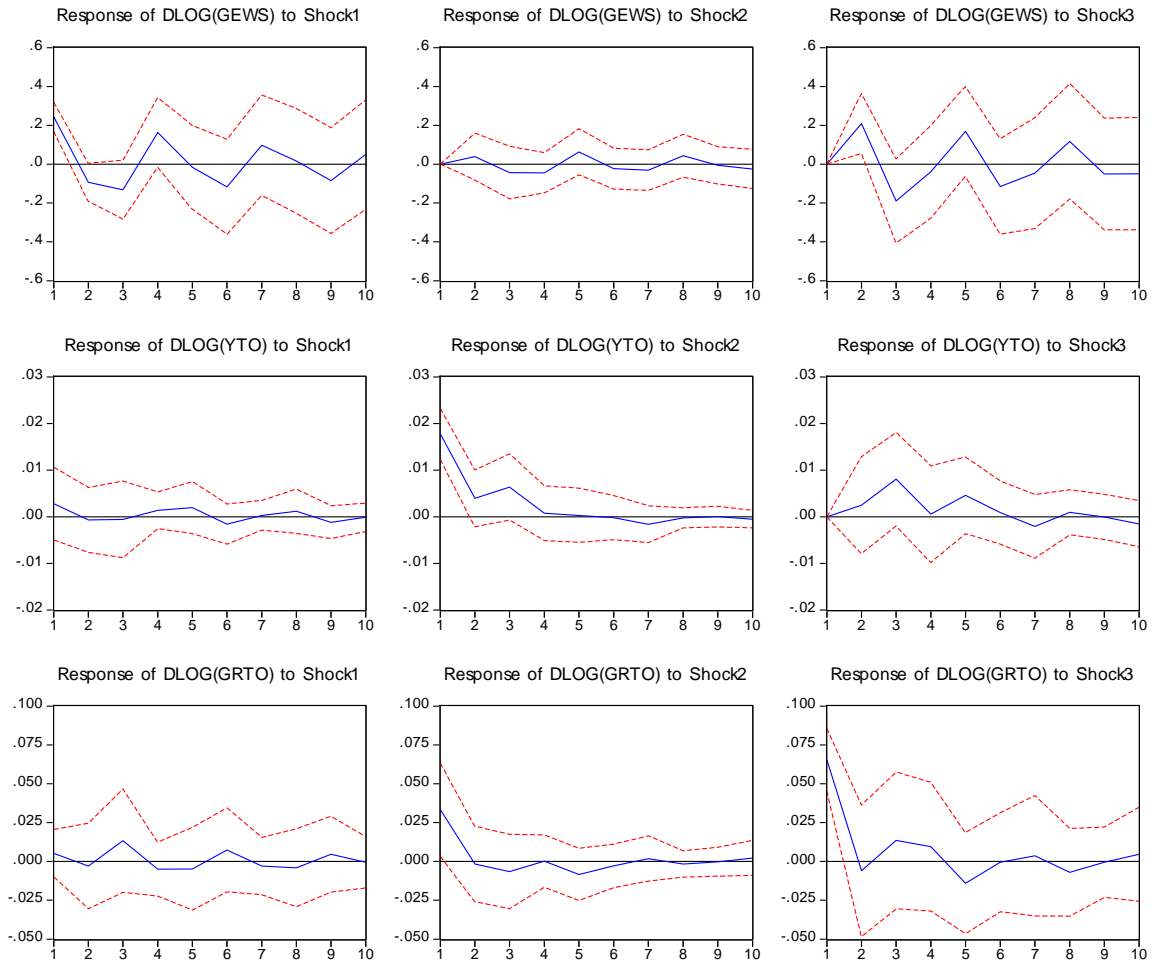


Response of DLOG(GRTO) to DLOG(GRTO)



C. For Government Compensation of employees

Response to Structural One S.D. Innovations ± 2 S.E.



D. For Government Total Expenditure

Response to Structural One S.D. Innovations ± 2 S.E.

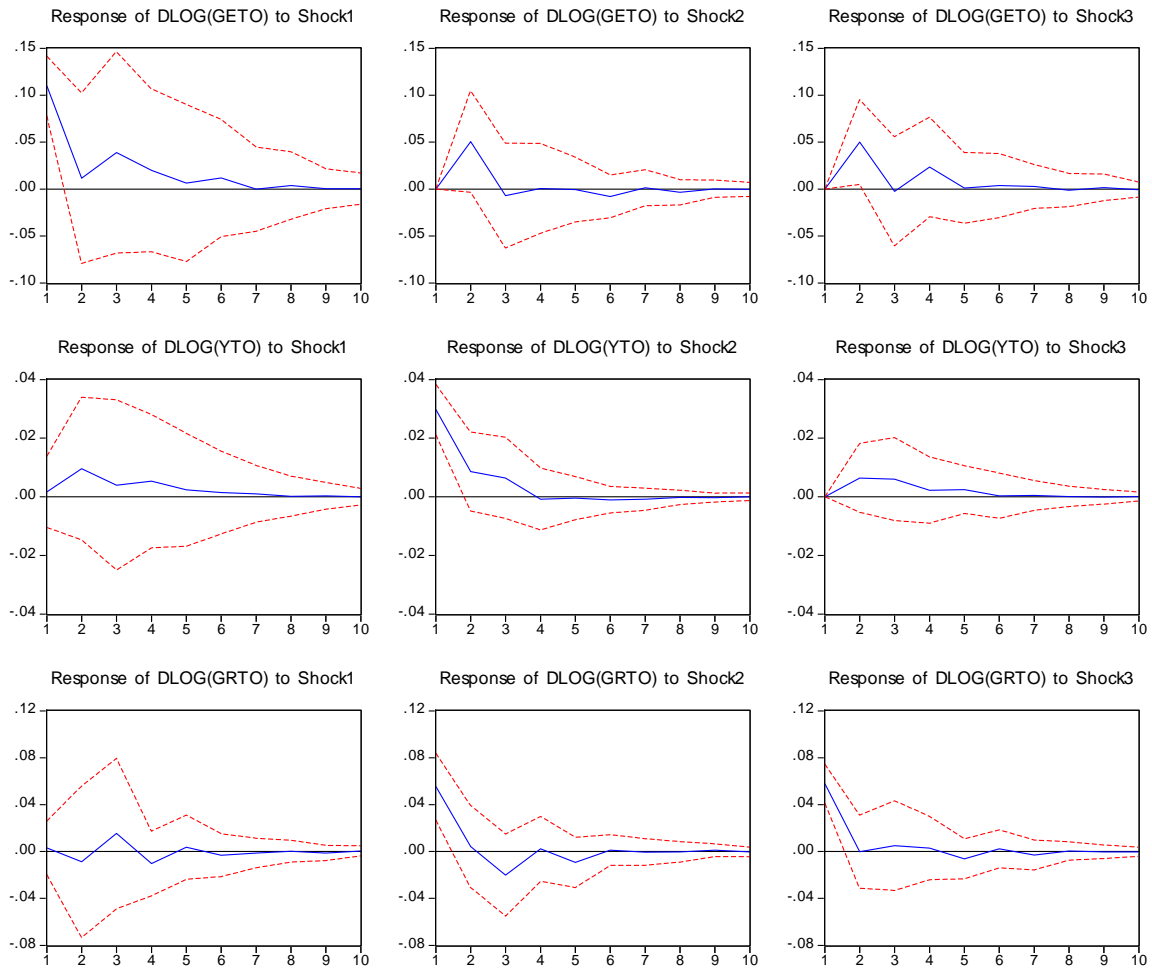
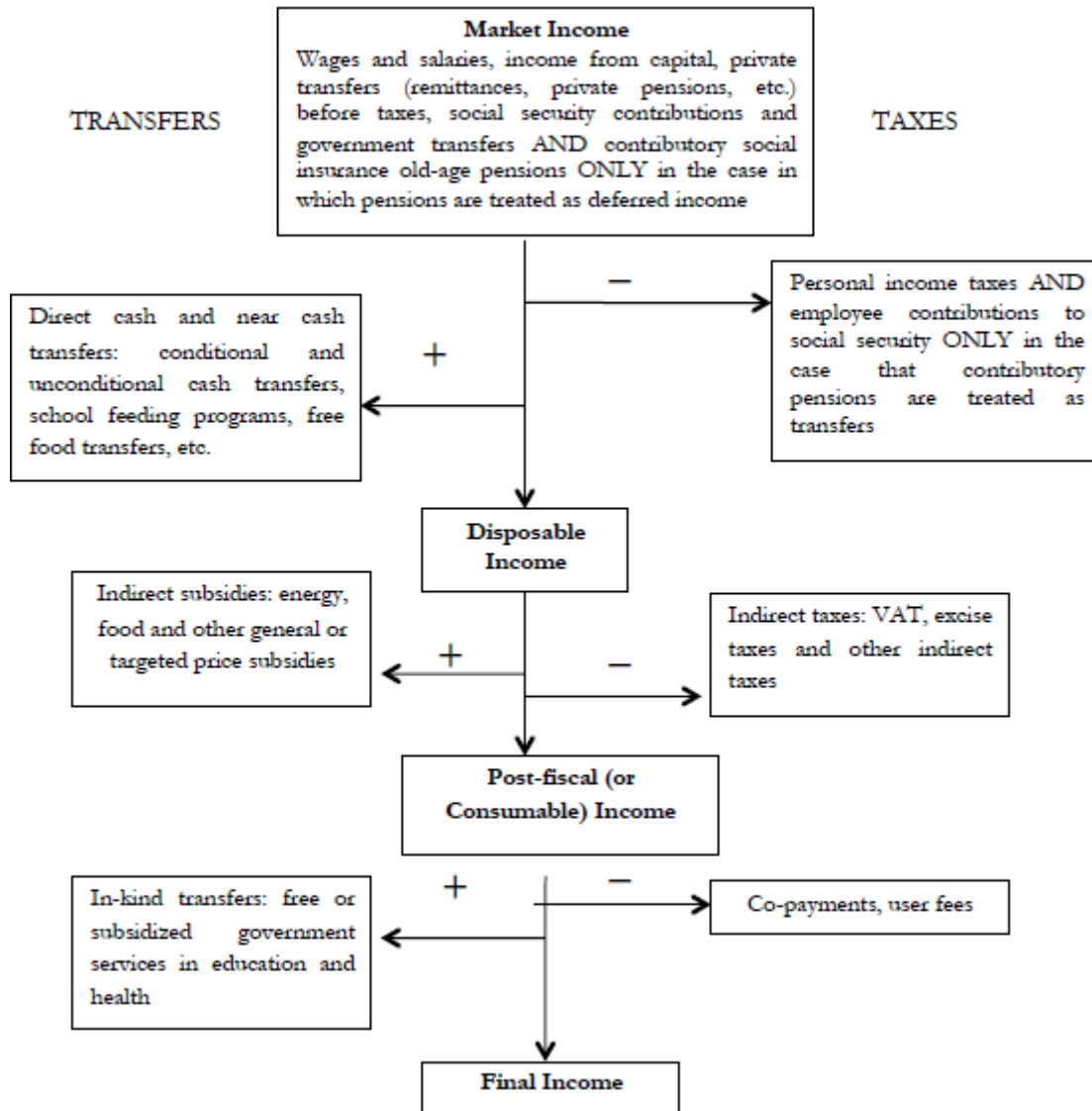
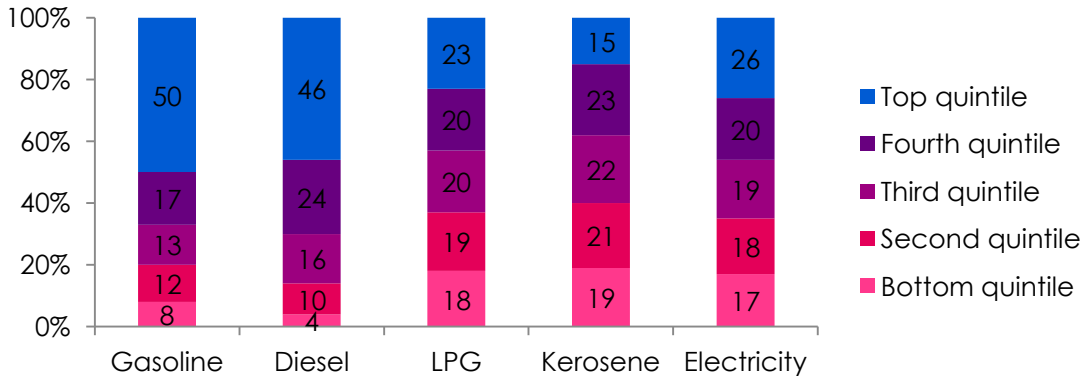


Figure 16: Income concepts



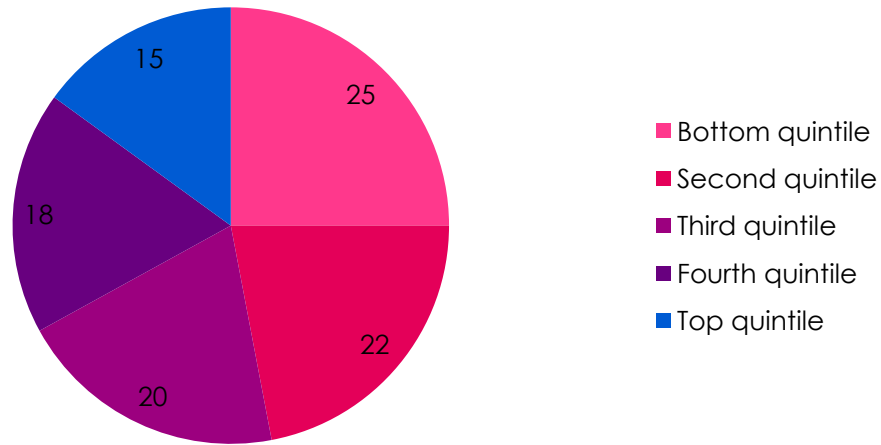
Source: Lustig and Higgins 2013.

Figure 17: Benefit shares of fuel subsidy in Jordan



Source: ESCWA 2014.

Figure 18: Benefit shares of food subsidy (bread) in Jordan



Source: ESCWA 2014.

Table 6: Redistributive effects and effectiveness of fiscal system: Poverty and Gini

	2006		2008		2010	
	poverty	gini	poverty	gini	poverty	gini
Market income	22.60	0.449	24.69	0.451	27.03	0.465
Net market income	23.56	0.448	26.16	0.452	28.48	0.465
Disposable income	12.00	0.404	13.72	0.400	14.53	0.415
Post-fiscal income	14.65	0.41	18.11	0.40	17.91	0.41
Change w.r.t. market income (%)						
Net market income	4.25	-0.30	5.95	0.13	5.36	0.00
Disposable income	-46.86	-10.02	-44.43	-11.42	-46.24	-10.78
Post-fiscal income	-35.18	-9.84	-26.65	-11.85	-33.74	-11.56
Effectiveness						
Transfers (w/o pensions)	1.20	0.45	1.52	0.64	1.59	0.57

Source: Authors' calculation based on ERF data

Table 7: Incidence of transfers and taxes (with respect to market income) by deciles

Deciles	2006			2008			2010		
	Transfers (w/o pension)	Direct taxes and contributions	Indirect taxes	Transfers (w/o pension)	Direct taxes and contributions	Indirect taxes	Transfers (w/o pension)	Direct taxes and contributions	Indirect taxes
1	219.2	-5.5	25.4	254.7	0.7	28.6	234.6	0.6	24.9
2	52.5	1.4	12.5	50.7	2.3	12.7	77.3	2.2	13.8
3	32.6	2.7	11.0	36.4	3.1	10.9	36.0	2.7	10.8
4	26.8	2.9	10.2	26.8	3.5	10.2	28.5	3.7	10.3
5	26.6	4.0	10.2	24.4	3.7	10.1	20.7	4.0	9.6
6	24.4	4.3	9.8	20.5	4.6	9.8	21.2	5.0	9.7
7	18.8	4.2	10.1	16.5	4.9	9.6	19.1	4.4	9.5
8	20.3	4.1	9.8	15.2	4.3	9.7	15.9	4.8	10.2
9	13.9	4.8	9.4	12.0	4.9	9.4	15.1	4.6	9.7
10	9.1	3.3	8.4	5.9	2.9	9.6	5.9	3.5	10.1
All	20.6	3.6	9.7	18.4	3.7	10.1	19.3	3.9	10.3

Source: Authors' calculation based on ERF data