IMPLICATIONS OF FISCAL REFORMS ON HOUSEHOLD WELFARE AND INCOME INEQUALITY - A CGE ANALYSIS OF PAKISTAN ECONOMY

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ABSTRACT: *High fiscal and external sector imbalances, high aggregate demand, unsustainable GDP growth, high unemployment and poverty levels have always marred the economy of Pakistan. Foreign capital inflows play pivotal role in helping an economy through financing the imbalance between income and expenditure. However, their impact on poverty in the recipient economy is a controversial issue. This study provides a quantitative assessment of selected fiscal adjustment policies on budget deficit and income distribution in Pakistan. For this, four tools were considered – cut in government consumption expenditure, decrease in transfer payments to households, increase in sales tax and increase in income tax - to achieve fiscal balance. The Computable General Equilibrium model for Pakistan is used to conduct simulations in order to assess the impact of the variables on budget deficit. The model (CGEM-Pak) is essentially a real-side model. Simulation results of experiment are related to: Effects on macro level, quantity impact, and effects of fiscal adjustment on households vis-à-vis household factor income, household income, household consumption expenditure, and households welfare.*

1. INTRODUCTION

The macroeconomic framework of Pakistan portrays a lacklustre picture of the economy. The economy of Pakistan is witnessing downturn GDP growth, ever widening budget deficit and double digit inflation. These macroeconomic imbalances have resultant in high unemployment and widespread poverty and these issues are confronting the policy makers. Moreover, Pakistan has experienced a consistent expenditure gap in its history, requiring the use of deficit financing to meet budgetary expenditure needs.

Theoratically, every mode of budget deficit financing is associated with macroeconomic imbalances. [1], Their financing through different means have different effects. Moreover, Pakistan's public debt has surpassed the sustainability threshold limits, 60% Debt to GDP ratio, as prescribed in the Fiscal Responsibility and Debt Limitation Act (FRDL), 2005. On the non-availability of budgeted external financing has forced the government to look toward domestic resources and around 60 % of the total financing requirements were met through non-bank sources and borrowing from the central bank as well [2]. Now this unsustainable public debt and continued excessive State Bank of Pakistan (SBP) borrowing have unleashed macroeconomic imbalances. Government fixes the responsibility of it on high interest payments, large subsidies, growing security spending and narrow tax base which has led to a wide fiscal gap with a direct bearing on debt sustainability [3].

The governments comprehending the gravity of the situation started the process of consolidation with the promulgation of Fiscal Responsibility and Debt Limitation Act (FRDA) in 2005. This legal framework accompanied with institutional mechanism, in the form of Debt Policy Coordination Office (DPCO), will provide a rule based fiscal policy. It will ensure that the debt does not get accumulated. It has been observed that that sustainable fiscal discipline is considered essential for preventing any kind of macroeconomic imbalances. According to State Bank of Pakistan [2], Pakistan's Public Debt to GDP ratio is 62.1 percent. The legal framework in the form of the FRDL, 2005 for sound debt management has been breached for the third consecutive year. The Act envisages

the attainment of a public debt to GDP ratio of 60 percent by 2013; and an annual 2.5 percentage point reduction in this ratio after achieving 60 percent benchmark. Though this benchmark was achieved in year 2007, but could not be sustained afterward. To bring the stabilization in the economy, Pakistan has developed a macroeconomic stabilization programme supported by the IMF in 2008. Even the de facto lender of last resort has been unable to rescue Pakistan's economy from fiscal problems.

The fiscal deficit has become a chronic problem for Pakistan, the budgeted estimates for fiscal year 2011 was initially estimated 4.0% of the GDP. But it was later on revised, due to severe flood devastation, in consultation with IMF to 4.7 % of the GDP. The fear is that even this target may not be achieved and it may even cross it. Then it would be a serious issue. Under Stand-By Agreement (2008) of IMF, Pakistan was required to have fiscal deficit 4.2 % of GDP 2008/09[1], but which could not be achieved and it reached to 5.3 % of GDP. Similarly the Government could not achieve the target of fiscal reduction to 3.3 % of GDP 2009/10 which actually attains 6.3 % of GDP level. Now this persistent increase in fiscal deficit has serious macroeconomic issues. Firstly, the government has been excessively borrowing from State bank of Pakistan, which also against the policy recommendations of IMF. This kind of borrowing is inflationary in nature and also causes interest rates to climb. Secondly, persistent failure on the part of the government of Pakistan left with only single option of default [both technical and financial]. Lastly, the government will have to eliminate subsidies on oil, food and electricity. This will have severe affect on the poor strata of society.

This is a catch-22 situation where government cannot further stick to the policy of financing government spending from issuing of debt. If the government withdraws the fiscal stimulus to control spending too soon, there is the risk of regressing into further economic downturn as comprehended by [4]. The situation demands fiscal austerity from the economic managers of the country. The contractionary fiscal policy with specific and targeted fiscal adjustments can curtail the fiscal deficit and restore

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[1] Clause 7 of the Agreement.

the macroeconomic balances. But this fiscal deficit reduction is a tough task for economic stabilization and at the same time, it is considered to be politically the most difficult decision to implement.

The studies provide evidence that the fiscal consolidation attempts are not always contractionary. However, the attributes of fiscal adjustments like size, composition, persistency and of course timing are considered to be important for their success. There are competing views on the government spending between Keynesian and Classical economists. The former advocates government deficit spending as part of the fiscal policy response to an economic contraction. While the latter believes that increased government spending intensify an economic contraction by shifting resources from the private sector, which they consider productive, to the public sector, which they consider unproductive. Now the economic situation under amounting public debt with ever-widening fiscal deficit requires fiscal consolidation through government spending cut. This fiscal contraction does not always result into an economic downturn. But this public spending gives rise to interest groups that may resist cuts. Likewise, the transfer payments of government consumption outlay are also considered to be politically untouchable. Transfer payments along with taxes and government subsidies are considered to be as three major ways that government redistributes income [5]. These payments through avariety of public assistance and social security programmes are designed to raise the living standards of the poor and provide livelihood to those who have not had other source of income. But the successful stories of fiscal adjustments are those which are carried out by cutting transfer payments and these adjustments are more permanent and expansionary in nature [6;7; 8; 9].

Taxation and government expenditure are linked together in terms of the government's overall fiscal or budget positions. Pakistan's long period of stagnant and inelastic revenue growth with deficit financed government spending demands fiscal strictness as now the government will have to start financing its budgets through tax revenues, not the issuing of new debt. The empirical literature on fiscal consolidations through imposing further taxes show contradictory findings. For example, rise in taxes increases private consumption and reduction in taxes may not increase the welfare of the households [10,11], increases in taxes reduce profits and investment [12], and fiscal adjustments focusing tax increase tend not to last and are contractionary [6].

Anticipating the gravity of the fiscal situation, this study is aimed at assessing quantitatively selected fiscal adjustment policies on the budget deficit and income distribution in Pakistan. For the purpose, four fiscal policy options are evaluated to achieve fiscal balance namely – 2.07 % reduction in government consumption expenditure, 28.85 % decrease in transfer payments to households, 4.16% across the board increase in indirect tax (sales tax), and 5.79 % increase in direct tax (income tax) on non-poor urban households.

2. REVIEW OF LITERATURE
The effects of fiscal policy on the macroeconomy have been extensively deliberated upon in scholarly and empirical literature. A brief review of the empirical literature on the fiscal adjustments has been presented here in order to have an understanding of nature, size, composition and timings of successful adjustments and their impact on growth and households. The attributes of fiscal adjustments like size, composition and persistency are considered to be important for their success. Others [6,9], found that the composition of adjustment is more important than its size for maintaining a reduction in the stock of public debt and promoting growth. They also found that the expenditure cuts specifically for spending on transfers and government wages increase the likelihood of success of fiscal adjustment efforts. [13,7,14] argue that both the size and the composition of fiscal consolidations are important. Besides size, studies found that the persistence of the consolidation is important for success in terms of maintaining the reduction in the debt-to-GDP ratio achieved after a fiscal adjustment episode [15;16; 17; 18].

The studies show that the fiscal consolidation attempts are not always contractionary. Moreover, fiscal corrections that rely mostly on spending cuts, government wages and transfers, tend to be expansionary whereas those relying mainly on tax increases are contractionary [18]. On the other hand a fiscal consolidation based on tax increases is short-lived while a cut in public employment transfers and government wages is long-lived [9]. In [19], the authors find that while fiscal consolidations tend to have short-run contractionary effects, they can be expansionary in the long run, provided that they do not rely excessively on cuts in productive government expenditure. [20] show that large and back-loaded fiscal adjustments have the highest probability of success[2]. Fiscal consolidations based on expenditure cuts, increase the probability of approaching and achieving fiscal sustainability, but are insufficient to maintain it unless accompanied by revenue reforms.

There exits a trade-off relation between growth and equality mediated by fiscal consolidations[14]. Different strategies of fiscal adjustment bring about different economic consequences. While expenditure-based adjustments perform better in terms of subsequent economic growth than do revenue-based adjustments, the latter are less harmful in terms of income distribution. Similarly, in the case of transition economies, larger scale expenditure-based adjustments are most successful in addressing the fiscal imbalances than those that relied on revenue increases[18]. The paper finds little evidence of expansionary fiscal contractions, but fiscal contractions were not associated with a significantly negative impact on growth. Fiscal consolidation achieved through cuts in selected current expenditures, while protecting or increasing capital spending, tends to be more lasting [21]. It is evedent that fiscal adjustments, those based upon spending cuts and no tax increases are more likely to reduce deficits and debt over GDP ratios than those based upon tax increases [22]. In addition, adjustments on the spending side rather than on the tax side are less likely to create recessions.

[23] analyze the impact of fiscal policy relating to subsidies (production and consumption), government current

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[2] An episode of fiscal adjustment is defined as a year (or set of years) in which the general government primary budget balance improves by at least 0.5 percentage point of GDP per year. In Front-loaded adjustments more than 50 percent of the total deficit reduction is achieved in the first half of the time period covered by the episode and if not then it is considered to be a back-loaded one.

expenditure and expenditure on health and education on incomes of various urban and rural households in Pakistan. They conclude that the structural adjustment programmes have a worse distributional impact on urban and rural households incomes in Pakistan. [11] show that though the subsidies to the food-grains improve the welfare and growth and the increase in Government expenditure on education and health increase the well-being of the households, but this increase may show a downturn with the excessive expenditure on these. Excessive expenditure on subsidies also results in the decline of welfare of the households. [24] finds that tax reforms under fiscal adjustment restriction have not involved any substantial short-run decrease in income, the supply of labour or in the stock of capital in Brazil. Neither were interest rates increased nor wages depressed. Moreover, the proposed tax reform generated positive welfare gains for 70 percent of individuals.

The fiscal adjustments have also political consequences. The studies show that fiscal adjustments are not politically costly and fiscally prudent governments are not voted out of office. The governments that aggressively tackle escalating deficits are often rewarded by their voters, especially for brief and sharp fiscal adjustments [8; 9]. But their timing, duration, size, and composition can be influenced by institutional and political constraints. The positive effects of a budget consolidation also depend on economic, political and fiscal circumstances [25]. Adjustment episodes launched in countries where governments enjoy a parliamentary majority and do not face imminent elections, are found to be more successful [20].

3. COMPUTABLE GENERAL EQUILIBRIUM MODEL OF PAKISTAN

The Computable General Equilibrium Model of Pakistan (CGEM-Pak) follows the static model framework developed by [25]. It pursues the SAM[3], 2001 [26] desegregation of activities, commodities, factors and institutions. The equations of the model explain the interactions of these sectors and ensure that both micro and macroeconomic constraints are satisfied. Specifically, they ensure that requirements regarding factors of production and commodity markets, savings and investment, the government budget constraint, and current account balance are met.".

The following closure rules are adopted for the model. For current account balance, Foreign Savings (FS) is fixed, and hence a flexible exchange rate (EXR) clears the current account. For savings/investment account, savings-driven investment is assumed, therefore savings are fixed, and Investment adjustment factor (IADJ) is flexible, permitting investment to adjust. For capital market, it is assumed that capital is activity-specific and fully employed. This means that the price of capital is fixed and factor price distortion adjusts to clear the market. Note that capital is the only factor which is used in all types of activities. There are four types of land in our model and all types are being used in agriculture sector, which has only one activity (agriculture). For land market, it is assumed that all types of land are fully employed and hence price of land will clear the market. There are four types of agriculture and two types of

non-agricultural labour in the labour market of the model. They are mutually exclusive and there is no mobility between them. The assumption for four types of agricultural labour is that they are fully employed and hence price of labour will clear the market. In CGEM-Pak, non- agriculture sector has eight types of activities and each type of activity uses two types of labour (non-agriculture labour; skilled and unskilled). Full employment is assumed for non-agriculture labour. Moreover, labour is fully mobile and a unique wage clears the labour market.

The sets, parameters, exogenous variables, endogenous variable and equations can be provided on request.

4. DATA AND MODEL CALIBRATION

Fiscal year 2001-02 is selected as the bench mark year as the most recent, comprehensive and consistent data set was available in the form of Social Accounting Matrix (SAM). It is a 114 x 114 matrix developed by [26]. This dataset is not only micro-consistent, but satisfies all equilibrium conditions and properties of CGEM-Pak. A standard calibration procedure, developed by [27], is followed based on a base year dataset (SAM 2001-02). Most of the model parameters are calibrated directly from the benchmark data, such as input-output coefficients (IO), shares in the returns to factors by household types and parameters of the Cobb-Douglas functions. The CES and CET functions are taken from existing literature. Other coefficients are implicit in the benchmark data, given the functional forms used in the model equation and other parameters. Thus calibrated, the model reproduces the initial year in the absence of any shock. Generalized Algebraic Modelling System (GAMS) software [28] is used for all model computations.

Ideally, trade elasticities should be estimated econometrically from cross section and time series data. Given limited resources as well as data constraints, it is not possible to estimate elasticity parameters for this study. Therefore elasticity parameters employed by different studies examining similar questions for comparable developing economies have been used.

Table 14 shows the [29] elasticities adopted in selected countries, whereas trade elasticities for CGEM-Pak are given in Table 15. It must be noted that trade elasticities such as the value of Armington play a vital role in the relatively disaggregate models.

In essence, the equations of the model describe the interrelationship of macro economy while the SAM provides actual values for the coefficients in these equations through the calibration process. The model will be solved primarily for equilibrium to make sure that the base year data set is reproduced. Afterwards, it would be possible to check the model with a change in the value of one of the exogenous variables. The model will then be re-solved for equilibrium (as before) and the changes in the values of the endogenous variables. These values will then be compared to those of the base-year equilibrium to establish the impact of the exogenous shock.

5. WELFARE MEASURES

Among all possible welfare measures, Equivalent Variations (EV) and Compensating Variations (CV) are used in the paper to address the winner-loser issue when the policy is executed. EV is a measure of how much more money a consumer would pay before a price increase to avert the effects of the price increase. Otherwise-stated, the amount of money which would have to be given to or taken away from an individual to make them as well-off as they

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[3] Social Accounting Matrix

would have been after the prices change [30]. Whereas CV refers to the quantity of additional money, an agent would require to reach its initial utility after a change in prices, or a change in quality of product, or the introduction of new products. Mathematically EV and CV can be written as:

$$EV_h = \left(\frac{CPIH_h^0}{CPIH_h^1} \right) EH_h^1 - EH_h^0$$

$$CV_h = EH_h^1 - \left(\frac{CPIH_h^1}{CPIH_h^1} \right) EH_h^1$$

Where EV_h and CV_h are Equivalent Variations and Compensating Variations of household h, $CPIH_h^0$ and $CPIH_h^1$ are consumer price index of household h at base year and after simulation respectively, and, EH_h^1 and EH_h^0 Consumption expenditure of household h at base year and after simulation respectively.

6. EXPERIMENTS: FISCAL ADJUSTMENTS TO ELIMINATE BUDGET DEFICIT

Fiscal strictness is the main instrument to eliminate the budget deficit. From the SAM- 2001 [26] information, the government had negative savings of Pak Rs. 8457 million, indicating that the recommendations to the government to address the existing budget deficit are relevant. The simulations examine what effects the four alternative fiscal measures, to address the government's negative savings, would have on the economy. The measures are: expenditure cut through a reduction in government spending by Pak Rs. 8457 million, which required either a 2.07% reduction in total government consumption expenditure[4] or 28.85% reduction in transfers from government to the households; fiscal adjustments through an increase in indirect taxes to raise Pak Rs. 8457 million as additional government revenue. This means raising pre-simulation indirect taxes by 4.16%; fiscal adjustment through higher direct taxes (income tax) to raise Pak Rs. 8457 million as extra government revenue. This could be achieved by raising pre-simulation direct tax rates for Non-poor urban households by 5.79%. Each measure is defined as follows:

1) SIM1 = Fiscal adjustment through 2.07% reduction in government expenditure on commodities and services.
2) SIM2 = Fiscal adjustment through 28.85% reduction in government expenditure on transfers to households.
3) SIM3 = Fiscal adjustment through 4.16% across-the-board increase in indirect taxes.
4) SIM4 = Fiscal adjustment through 5.79% increase in direct taxes on non poor urban households.

7. SIMULATION RESULTS OF EXPERIMENT

a. Effects on macro level

Results of these experiments are shown in Table 1. As expected, reduced government spending negatively (SIM1) affects domestic production, resulting in a contraction in

[4] Government's expenditures are Pak. Rs. 25 million and 408915 million on food manufacturing and services, respectively- SAM 2001-02

output for the services sector. Since the services sector is the major contributor in total domestic output, i.e., 45.27%, hence a 0.04% decrease in the output of services sector led to 0.011% decrease in the GDP of the country. There is also a decrease in private consumption, which decreases the economy wide welfare indicator, i.e., economy wide CV and EV. However, there is a marginal increase in the output of the rest of the sectors.

In case of SIM3 (28.85% reduction in transfers to households), just as expected, private consumption ws directly affected (-0.23%), and hence decreased economy wide CV (0.23%) and EV (0.23%). This fiscal adjustment also marginally reduced output of food manufacturing, textile and energy sector by 0.03%, 0.02%, and 0.03%, respectively. Marginal increases in the output of rest of the sectors were obtained.

The fiscal adjustment measures of reducing government spending, SIM1 & SIM2, also have their impact in terms of trade performance. There is an increase in exports and imports as a result of reduced government spending. However, the increase in exports is more than imports, indicates an improvement in trade balance. Furthermore, an increase in investment is also obtained. Increase in investment under SIM1 and SIM2 is 1.781%, and 0.426%, respectively. This can be attributed to the fact that a cut in government expenditure is meant to free up funds for investment.

In the case of SIM3, a 4.16% increase in sales tax across the board leads to a decrease in government and private consumption by 0.027%, and 0.16%, respectively. The experiment also shows that a fall in consumption directly effects economy wide welfare (decrease in CV and EV by 0.165 %). Moreover, under this fiscal adjustment a fall in domestic output was observed. The percentage falls are Food manufacturing (-0.01), Cotton lint/yarn (-0.08), Textile (-0.09), Other-manufacturing (-0.1) and Energy (-0.06). It is important to note that these are the sectors where either sales tax was already high or were subsidized [31].

In the case of SIM4, direct taxes affect disposable income available to such households for consumption purposes. Thus, increasing direct taxes leads to a fall in final consumption. This is reflected by the fall of private consumption by 0.24%, which leads to fall in economy wide CV and EV by 0.235%.

b. Quantity Impact

Quantity impact of SIM1 is presented in figure 6. There was a positive impact on exports as all sectors showed an increase in export supply, the highest being in leather sector (0.57%) followed by services (0.44%). However, imports of all sectors showed a mix result as imports of mining, cotton yarn and other-manufacturing increased, while rest of the sectors showed decrease in imports, the highest decrease being 0.73% in services sector followed by 0.42% in agriculture sector. This fiscal adjustment shows good impact in terms of trade performance (overall increase in exports by 2.35% and decrease in imports by 1.59%). Increase in exports can be attributed to the fall in cost of production, led by fall in factor prices. This was accompanied by a reduction in imports because reduced government spending dampens the economy. This leads to an overall fall in demand for goods and services imports. Reduction of government consumption expenditure by 2.07% on services and food manufacturing translated in to reduction in demand for domestically produced and imports

of both sectors 0.731%, and 0.06%, respectively. This fall leads to decrease their quantity of composite goods supplied domestically, i.e., decrease by 0.07%, and 0.04%, respectively. This explains the decrease in the domestic composite supply of agriculture by 0.02% as major input of food manufacturing sector is agriculture.

The results of SIM2 (28.85% reduction in government expenditure on transfers to households) are reported in Figure 2. As predicted, the measure induced recession and overall output of QD, QM and QQ fell by 0.2%, 2.22%, and 0.11%, respectively. However, overall QX (Quantity of domestic output) increased by 0.79% which may be channelled to exports as overall exports increased by 1.83%. On sectoral level, only QD, QM and QQ of mining, cotton yarn and other manufacturing sectors reported increase. Like SIM1, SIM2 also shows good impact on terms of trade performance (overall increase in exports by 1.83% and decrease in imports by 2.22%).

The results of SIM3 (raising sales tax by 4.16 %), are presented in figure 3. As expected, this measure also encouraged a decline in overall QQ (0.22%), QM (1.36%), QD (0.22%) and QX (0.04%). This policy has more pronounced sectoral effects compared to previous fiscal adjustment policies. Only QD of mining, leather and services increased by 0.06 %, 0.16 %, and 0.03 %, respectively, and a corresponding increase in QQ of these sectors by 0.05%, 0.15%, and 0.03%, respectively. Rest of the sectors, in contrast, recorded decline in QD, QM and QQ. These sectoral effects can be explained by the complex interaction of demand changes, relative price shifts and the rigidity in production. Even though, overall exports increased by 0.96%, but at sectoral level exports of cotton yarn and textile sectors declined by 0.06%, and 0.14%, respectively. It should be noted that cotton yarn and textile sectors are some of the major contributors of exportables [32]. However, regarding trade performance, a result similar to SIM1 and SIM2 is observed for SIM3 (increase in overall exports (0.96%) and decrease in overall imports (1.36 %)). This can be explained as follows. Sales tax leads to lower prices at the producer side and higher price at consumer side. Declining price at producer level makes Pakistani products look more competitive and in turn leads to higher exports.

Figure 4 shows the result of 5.79% increase in direct taxes of non poor urban households (SIM4). The increase in income tax on non-poor urban households lead to a decrease in overall QQ, QM and QD by 0.09%, 2.24% and 0.18% respectively. A similar pattern is observed at sector level. However, textile and cotton yarn sectors recorded an increase in exports, unlike SIM3. Overall exports increased by 1.76% and overall imports decreased by 2.24%. Quantity impact of fiscal adjustment is shown in Table 13.

c. Effects of Fiscal Adjustment on Households
i. Household factor income
Total factor income is divided between domestic agents in fixed share. Only household factor income share will be discussed in this section. The government and enterprise factor income is irrelevant in this discussion. Total income of each type of factor consists of activity payments, where activity payments are multiple of activity specific wages of factors and employment levels. The results of the simulations will be discussed in light of this definition and closure rules, discussed in 'Model Closure'.

Results of SIM1 for household factor income are shown in table 2. In the case of SIM1, factor income decreased for households whose wage income share was very high. The production of services sector involves only labour types LA-SKU and LA-SK. Although wage income of all types of households decreased, those households whose major share of income depends on labour income were most affected by SIM1. The share of wage income of household types H-AGW, H-NFNP, H-NFP, H-URNP, and H-URPR are 47%, 43%, 30%, 45%, and 76%, respectively [26]. All these household types with the exception of household type H-AGW, only own labour types LA-SKU and LA-SK, hence their factor income decreased. Although the remaining household types H-LF, H-MF, H-SF, and H-0F also own LA-SKU but the decline in their wage income is compensated by the increase in land and capital income.

Impact of SIM2 on factor income of household is shown in table 3. Apart from skilled labour, unskilled labour and capital, all factors' income recorded a decrease due to SIM2. The household types H-NFNP, H-NFP, H-URNP, and H-URPR who own only skilled labour, unskilled labour and capital, recorded increase in their factor income. Rest of the household types (H-LF, H-MF, H-SF, H-0F, and H-AGW) recorded decrease in their factor income.

Table 5 shows the impact of SIM3 on factor income of households. SIM3 induced depression in the output market, which in turn led factor market into depression. Hence factor income decreased across the board. The household types who own land were affected than other household types due to this fiscal adjustment.

The impact on factor income due to SIM4 is presented in Table 5. SIM4 decreased the final demand of commodities. This led to the fall of factor demand and consequently decreasing factor income. The demand of factor types LA-SKU and LA-SK increased in A-MINE, A-YARN, A-LEAT, and A-MANF. This led to an increase in their income. Since high income shares of household types H-NFNP, H-NFP, H-URNP, and H-URPR belong to factor types LA-SKU and LA-SK [26], these households experienced an increase in their factor income due to this fiscal adjustment.

ii. Household Income
Household income consists of transfers from other three agents of the economy (government, enterprise and the rest of the world) and income from factors. However, we assumed that transfers from other agents are exogenously determined; hence income of households only depends upon factor income. In terms of the effects of the SIM1 measure on income distribution, income of H-NFNP, H-NFP, H-URNP, and H-URPR decreased by 0.06%, 0.03%, 0.05%, and 0.12%, respectively (see Table 4). This is mainly due to the government's reduction in spending on services which leads to a reduction in domestic production of services (Table 1). This reduction causes decrease in wage income for skilled (LA-SKU) and unskilled (LA-SK) labour (Table 2). These two types of labour, in addition to capital, are used to produce services, and a major share of these types of labour is owned by the above mentioned types of households. Hence fall in income of the above mentioned households can be attributed to the fall in wages of skilled and unskilled labour.

In terms of the effects of SIM2 measure, income of all types of households decreased (see Table 4). This is due to the direct effect of the reduction of transfers from the

government to households. Likewise, in the case of SIM3, income of all types of household decreased. This can be attributed to fall in prices of almost all factors due to across the board increase in sales tax (Table 5). In the case of SIM3, income of household type H-NFNP, H-NFP, H-URNP, and H-URPR increased by 0.05%, 0.04%, 0.08%, and 0.05%, whereas, rest of the household types experienced fall in their income (see Table 4).

iii. Household consumption expenditure
Consumption expenditure of households in case of SIM1 is presented in Table 7. Household consumption expenditure is directly proportional to income and inversely proportional to composite prices when the share of consumption spending of household is fixed. Households' consumption expenditures in all sectors, except leather and services, decreased due to SIM1. The increase of consumption expenditure of households in leather and services sectors is mainly due to the decrease in their composite prices under SIM1 (Table 7). However, in case of households' income, income of household types H-LF, H-MF, H-SF, H-0F, and H-AGW increased and H-NFNP, H-NFP, H-URNP, and H-URPR decreased due to SIM1. But this increase is negligible (Table 6).

Results for SIM2 (Table 8) show that: together with increase in composite prices of all sectors, apart from a marginal decrease in the prices in agriculture, food manufacturing and leather, a decrease in household income (Tables 17 and 11) leads to a decrease in consumption expenditure of households for all sectors. However, household types H-LF and H-MF recorded a contrary increase in consumption expenditure in agriculture and food manufacturing sectors. A marginal decrease in the composite prices of these sectors might have been responsible for this unexpected increase.

For SIM3 (Table 9), apart from consumption expenditure on textile and leather by the household type H-URNP, all types of households reduced their consumption expenditure on all sectors. This resulted from a decrease in the income of the households across the board due to SIM3 (Table 6). Whereas an increase in consumption expenditures of household type H-URNP on textile and leather sector might be due to fall in their prices.

Table 10 presents the results of SIM4. Consumption expenditures of household types H-LF, H-MF, H-SF, H-0F, and H-AGW decreased for all the sectors except for the agriculture sector. This is due to the fall in the income of these households, under the influence of SIM4 (Table 6). The increase in the consumption expenditures of the households for the agriculture sector is due to the fall in its prices. Consumption expenditures of household type H-NFNP, H-NFP and H-URPR increased on agriculture, food manufacturing, leather and energy. This is due to a combination of increase in their income and decrease in the prices of the above mentioned sectors. However, consumption expenditure of these household types decreased in mining, textile and services sectors, mainly due to a rise in their prices (Table 12). Under SIM4 - fiscal adjustment via 5.79% increase in direct taxes of non poor urban households (H-URNP) – it is obvious that a lesser income would be left with household type H-URNP for consumption expenditure. Therefore, consumption expenditure of this type of household is decreased.

iv. Equivalent Variation of Households
Results of EV and CV of households due to fiscal adjustment are presented in Table 11. In response to SIM1, welfare of household types H-LF, H-MF, H-SF, H-0F, and H-AGW increased, whereas, welfare of H-NFNP, H-NFP, and H-URNP types of households decreased. SIM2 has negative impact on all types of household. However, household types H-SF, H-NFNP, and H-URNP are severely affected by this fiscal adjustment. Likewise SIM3 also decrease welfare across all types of households. In case of SIM4, all types of households recorded decrease in their welfare, apart from household types H-NFNP, H-NFP, and H-URNP, whose welfare increased.

9. CONCLUSION AND POLICY IMPLICATION
The main objective of this paper was to eliminate budget deficit with the help of different fiscal adjustments and observe its implications on Pakistan's economy. For this, four possible ways were assured – cut in government consumption expenditure, decrease in transfer payments to households, increase in sales tax and an increase in income tax - to achieve fiscal balance. It was observed that a cut in government consumption expenditure tends to outperform other fiscal stances in terms of household and economy-wide welfare indicators.

The results suggest that targeting the government's consumption expenditures tends to be a real and potent tool for reducing government budget deficit. It should be observed that the results derived from this study are conditional according to the structure of the model. Growth was not taken into account in these experiments. The model (CGEM-Pak) is essentially a real-side model. Alleviation of inequality and increment of household welfare indeed requires effective synchronization of other instruments such as monetary policy with fiscal policy.

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APPENDIX

Table 1: Impacts of fiscal adjustment measures on the Pakistan economy (% change from base)

	SIM1	SIM2	SIM3	SIM4
GDP	-0.011	0.019	0.016	0.019
Government Consumption	-2.101	0.098	-0.027	0.092
Investment	1.781	0.426	1.063	1.451
Exports	0.432	0.245	0.001	0.236
Imports	0.33	0.193	0.004	0.186
Net Indirect Tax	0.288	0.102	3.269	0.105
Private Consumption	-0.03	-0.23	-0.16	-0.24
Import Price	0.14	0.09	-0.01	0.0
Export Price	0.14	0.09	-0.01	0.1
Economy-wide EV	-0.027	-0.230	-0.165	-0.235
Economy-wide CV	-0.027	-0.230	-0.165	-0.235
Domestic Output				
Agriculture	0	0	0	0
Mining	0.16	0.02	0.06	0.025
Food manufacturing	0.07	-0.03	-0.01	-0.015
Cotton lint/yarn	0.12	0.7	-0.08	0.066
Textile	0.28	-0.02	-0.09	-0.021
Leather	0.17	0.11	0.21	0.109
Other manufacturing	0.03	0.04	-0.1	0.036
Energy		-0.03	-0.06	-0.036
Services	-0.04	0	0.03	0

Table 2: % change in factor income of Household from base in case of SIM1

	Large Farm	Medium Farm	Small Farm	Landless Farmers	Rural Agriculture Landless	Rural Non-Farm Non-Poor	Rural Non-Farm Poor	Urban Non-Poor	Urban Poor	Total
Own Large Farm	0.08									0.08
Own Medium Farm		0.08								0.08
Own Small Farm			0.08	0.08						0.16
Agriculture Wage	0.08	0.08	0.08	0.08	0.08					0.4
Non-Agriculture Unskilled	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-0.18	-1.62
Skilled								-0.1		-0.1
Labour	**-0.02**	**-0.02**	**-0.02**	**-0.02**	**-0.1**	**-0.18**	**-0.18**	**-0.28**	**-0.18**	**-1**
Large Farm	0.08									0.08
Irrigated Medium Farm	0.08	0.08	0.08	0.08						0.32
Irrigated Small Farm	0.08	0.08	0.08	0.08						0.32
Non-Irrigated Small Farm	0.08	0.08	0.08	0.08						0.32
Land	**0.32**	**0.24**	**0.24**	**0.24**	**0**	**0**	**0**	**0**	**0**	**1.04**
Capital	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.02**	**0.18**
Total	**0.32**	**0.24**	**0.24**	**0.24**	**-0.08**	**-0.16**	**-0.16**	**-0.26**	**-0.16**	

Table 3: % change in factor income of Household from base in case of SIM2

	Large Farm	Medium Farm	Small Farm	Landless Farmers	Rural Agriculture Landless	Rural Non-Farm Non-Poor	Rural Non-Farm Poor	Urban Non-Poor	Urban Poor	Total
Own Large Farm	-0.27									-0.27
Own Medium Farm		-0.27								-0.27
Own Small Farm			-0.27	-0.27						-0.54
Agriculture Wage	-0.27	-0.27	-0.27	-0.27	-0.27					-1.35
Non-Agriculture Unskilled	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.9
Skilled									0.1	0.1
Labour	**-0.44**	**-0.44**	**-0.44**	**-0.44**	**-0.17**	**0.1**	**0.1**	**0.1**	**0.2**	**-1.43**
Large Farm	-0.27									-0.27
Irrigated Medium Farm	-0.27	-0.27	-0.27	-0.27						-1.08
Irrigated Small Farm	-0.27	-0.27	-0.27	-0.27						-1.08
Non-Irrigated Small Farm	-0.27	-0.27	-0.27	-0.27						-1.08
Land	**-1.08**	**-0.81**	**-0.81**	**-0.81**	**0**	**0**	**0**	**0**	**0**	**-3.51**
Capital	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.09**
Total	**-1.51**	**-1.24**	**-1.24**	**-1.24**	**-0.16**	**0.11**	**0.11**	**0.11**	**0.21**	

Table 4: % change in factor income of Household from base in case of SIM3

	Large Farm	Medium Farm	Small Farm	Landless Farmers	Rural Agriculture Landless	Rural Non-Farm Non-Poor	Rural Non-Farm Poor	Urban Non-Poor	Urban Poor	Total
Own Large Farm	-0.27									**-0.27**
Own Medium Farm		-0.27								**-0.27**
Own Small Farm			-0.27	-0.27						**-0.54**
Agriculture Wage	-0.27	-0.27	-0.27	-0.27	-0.27					**-1.35**
Non-Agriculture Unskilled	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	-0.13	**-1.17**
Skilled									-0.18	**-0.18**
Labour	**-0.67**	**-0.67**	**-0.67**	**-0.67**	**-0.4**	**-0.13**	**-0.13**	**-0.13**	**-0.31**	**-3.78**
Large Farm	-0.26									**-0.26**
Irrigated Medium Farm	-0.26	-0.26	-0.26	-0.26						**-1.04**
Irrigated Small	-0.26	-0.26	-0.26	-0.26						**-1.04**

Farm										
Non-Irrigated Small Farm	-0.26	-0.26	-0.26	-0.26						**-1.04**
Land	**-1.04**	**-0.78**	**-0.78**	**-0.78**	**0**	**0**	**0**	**0**	**0**	**-3.38**
Capital	**-0.27**	**-0.27**	**-0.27**	**-0.27**	**-0.27**	**-0.27**	**-0.27**	**-0.27**	**-0.27**	**-2.43**
Total	**-1.98**	**-1.72**	**-1.72**	**-1.72**	**-0.67**	**-0.4**	**-0.4**	**-0.4**	**-0.58**	

Table 5: % change in factor income of Household from base in case of SIM4

	Large Farm	Medium Farm	Small Farm	Landless Farmers	Rural Agriculture Landless	Rural Non-Farm Non-Poor	Rural Non-Farm Poor	Urban Non-Poor	Urban Poor	Total
Own Large Farm	-0.26									**-0.26**
Own Medium Farm		-0.26								**-0.26**
Own Small Farm			-0.26	-0.26						**-0.52**
Agriculture Wage	-0.26	-0.26	-0.26	-0.26	-0.26					**-1.3**
Non-Agriculture Unskilled	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	**0.81**
Skilled									0.1	**0.1**
Labour	**-0.43**	**-0.43**	**-0.43**	**-0.43**	**-0.17**	**0.09**	**0.09**	**0.09**	**0.19**	**-1.43**
Large Farm	-0.26	-0.26	-0.26	-0.26						**-1.04**
Irrigated Medium Farm	-0.26	-0.26	-0.26	-0.26						**-1.04**
Irrigated Small Farm	-0.26	-0.26	-0.26	-0.26						**-1.04**
Non-Irrigated Small Farm	-0.26	-0.26	-0.26	-0.26						**-1.04**
Land	**-1.04**	**-1.04**	**-1.04**	**-1.04**	**0**	**0**	**0**	**0**	**0**	**-4.16**
Capital	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.09**
total	**-1.46**	**-1.46**	**-1.46**	**-1.46**	**-0.16**	**0.1**	**0.1**	**0.1**	**0.2**	

Table 6: Impact of fiscal adjustment on household income (% change from base)

	SIM1	SIM2	SIM3	SIM4
Large Farm	0.05	-0.13	-0.25	-0.11
Medium Farm	0.04	-0.14	-0.25	-0.1
Small Farm	0.02	-0.25	-0.24	-0.06
Landless Farmers	0.03	-0.19	-0.24	-0.07
Rural Agriculture Landless	0.02	-0.16	-0.23	-0.06
Rural Non-Farm Non-Poor	-0.06	-0.49	-0.19	0.05
Rural Non-Farm Poor	-0.03	-0.41	-0.21	0.04
Urban Non-Poor	-0.05	-0.19	-0.11	0.05
Urban Poor	-0.12	-0.05	-0.15	0.08

Table 7: Impact of SIM1 on Households' Consumption of commodities (% change from base)

	Large Farm	Medium Farm	Small Farm	Landless Farmers	Rural Agriculture Landless	Rural Non-Farm Non-Poor	Rural Non-Farm Poor	Urban Non-Poor	Urban Poor
Agriculture	0.007	0.0003	-0.02	-0.02	-0.03	-0.1	-0.08	-0.09	-0.2
Mining	-0.11	-0.11	-0.13	-0.13	-0.14	-0.21	-0.09	-0.2	-0.3
Food manufacturing	0.02	0.01	-0.01	-0.01	-0.02	-0.1	-0.07	-0.08	-0.16
Cotton lint/yarn								-0.17	
Textile	-0.01	-0.02	-0.04	0.03	-0.05	-0.12	-0.1	-0.11	-0.18
Leather	0.06	0.05	0.04	0.04	0.03	-0.05	-0.02	-0.03	-0.1
Other manufacturing	-0.011	-0.11	-0.13	-0.13	-0.14	-0.22	-0.2	-0.2	-0.28
Energy	0.003	-0.004	-0.022	-0.021	-0.03	-0.11	-0.08	-0.09	-0.17
Services	0.15	0.14	0.13	0.13	0.12	0.04	0.07	0.06	-0.02

Table 8: Impact of SIM2 on Households' Consumption of commodities (% change from base)

	Large Farm	Medium Farm	Small Farm	Landless Farmers	Rural Agriculture Landless	Rural Non-Farm Non-Poor	Rural Non-Farm Poor	Urban Non-Poor	Urban Poor
Agriculture	0.03	0.02	-0.09	-0.04	-0.005	-0.33	-0.26	-0.04	0.01
Mining	-0.23	-0.24	-0.35	-0.3	-0.26	-0.6	-0.5	-0.3	-0.16
Food manufacturing	-0.08	-0.09	-0.2	-0.15	-0.12	-0.44	-0.37	-0.15	-0.008
Cotton lint/yarn								-0.23	
Textile	-0.14	-0.15	-0.26	-0.21	-0.17	-0.5	-0.43	-0.21	-0.07
Leather	-0.1	-0.1	-0.22	-0.16	-0.13	-0.46	-0.38	-0.16	-0.02
Other manufacturing	-0.24	-0.25	-0.36	-0.3	-0.27	-0.6	-0.5	-0.3	-0.16
Energy	-0.14	-0.14	-0.29	-0.2	-0.17	-0.49	0.42	-0.2	-0.06
Services	-0.22	-0.23	-0.34	-0.29	-0.26	-0.58	-0.51	-0.29	-0.15

Table 9: Impact of SIM3 on Households' Consumption of commodities (% change from base)

	Large Farm	Medium Farm	Small Farm	Landless Farmers	Rural Agriculture Landless	Rural Non-Farm Non-Poor	Rural Non-Farm Poor	Urban Non-Poor	Urban Poor
Agriculture	-0.01	-0.09	-0.09	-0.08	-0.08	-0.04	-0.06	0.05	0.004
Mining	-0.77	-0.76	-0.75	-0.75	-0.75	0.71	-0.72	-0.62	-0.66
Food manufacturing	-0.38	-0.38	-0.37	-0.37	-0.36	-0.32	-0.34	-0.24	-0.28
Cotton lint/yarn								-0.53	
Textile	-0.12	-0.11	-0.11	-0.11	-0.1	-0.06	-0.7	0.03	-0.02
Leather	0.17	0.17	0.18	0.18	0.18	0.23	0.21	0.31	0.27
Other manufacturing	-0.6	-0.59	-0.59	-0.59	-0.58	-0.54	-0.59	-0.45	-0.46
Energy	-0.31	-0.3	-0.29	-0.29	-0.29	-0.25	-0.26	-0.16	-0.21
Services	-0.22	-0.22	-0.21	-0.21	-0.2	-0.16	-0.18	-0.1	0.12

Table 10: Impact of SIM4 on Households' Consumption of commodities (% change from base)

	Large Farm	Medium Farm	Small Farm	Landless Farmers	Rural Agriculture Landless	Rural Non-Farm Non-Poor	Rural Non-Farm Poor	Urban Non-Poor	Urban Poor
Agriculture	0.04	0.05	0.09	0.08	0.9	0.2	0.19	-0.33	0.23
Mining	-0.21	-0.2	-0.16	-0.17	-0.16	-0.05	-0.06	-0.58	-0.02
Food manufacturing	-0.07	-0.07	-0.3	-0.04	-0.03	0.08	0.07	-0.45	0.11
Cotton lint/yarn								-0.5	
Textile	-0.12	-0.11	-0.07	-0.09	-0.07	0.04	0.03	-0.49	0.07
Leather	-0.07	-0.07	-0.03	-0.04	-0.03	0.08	0.07	-0.45	0.11
Other manufacturing	-0.21	-0.2	-0.16	-0.18	-0.17	-0.06	-0.07	-0.59	-0.03
Energy	-0.1	-0.1	-0.06	-0.07	-0.06	0.05	0.04	-0.48	0.08
Services	-0.2	-0.19	-0.15	-0.17	-0.15	-0.04	-0.05	-0.57	-0.01

Table 11: Impact of fiscal adjustment on EV & CV

	SIM1		SIM2		SIM3		SIM4	
	EV	CV	EV	CV	EV	CV	EV	CV
Large Farm	36.9	35.9	-109.48	-109.5	-222.5	-222.5	-92.4	-92.4
Medium Farm	77.6	77.6	-302.6	-302.6	-558.4	-558.5	-227.9	-227.9
Small Farm	117.6	117.6	-1128.12	-1127.9	-1079.8	-1079.7	-232.8	-232.8
Landless Farmers	29.1	29.1	-178.58	-178.6	-224.6	-224.6	-62.2	-62.2
Rural Agriculture Landless	19.3	19.3	-132.308	-132.3	-197.4	-197.3	-42.8	-42.8
Rural Non-Farm Non-Poor	-219	-219	-1742.8	-1772.8	-690.1	-690.1	190.4	190.4
Rural Non-Farm Poor	-38.3	-38.3	-513.5	-513.5	-258.8	-258.9	61.4	61.4
Urban Non-Poor	-640.7	-640.7	-2795	-2795.3	-1552	-1552.1	-6868.5	-6868.9
Urban Poor	-203.5	-203.5	-77.2	-77.2	-242.8	-242.8	146.9	146.9

Table 12: Price impact of fiscal adjustment (% change from base)

	SIM1			SIM2			SIM3			SIM4		
	Domestic Price	Composite Price	Producer Price	Domestic Price	Composite Price	Producer Price	Domestic Price	Composite Price	Producer Price	Domestic Price	Composite Price	Producer Price
Agriculture	0.04	0.04	0.04	-0.16	-0.15	-0.16	-0.16	-0.15	-0.16	-0.16	-0.15	-0.15
Mining	0.2	0.15	0.19	0.15	0.11	0.14	-0.02	0.52	-0.01	0.15	0.1	0.14
Food manf.	0.02	0.03	0.04	-0.06	-0.04	-0.03	-0.2	0.13	-0.17	-0.04	-0.03	-0.02
Cotton lint/yarn	0.12	0.12	0.13	0.03	0.04	0.05	-0.02	0.43	-0.02	0.03	0.03	0.05
Textile	0.06	0.06	0.09	0.01	0.02	0.044	0.01	-0.13	0.003	0.01	0.13	0.04
Leather	-0.02	-0.01	0.05	-0.04	-0.03	0.02	-0.05	-0.42	-0.04	-0.04	-0.03	0.02
Other manf.	0.18	0.16	0.17	0.14	0.11	0.13	0.03	0.35	0.02	0.13	0.11	0.12
Energy	0.05	0.05	0.05	0.11	0.01	0.01	-0.14	0.06	-0.14	-0.001	-0.001	-0.001
Services	-0.11	-0.11	-0.09	0.09	0.09	0.09	-0.03	-0.03	-0.03	0.09	0.09	0.09

Table 13: Quantity impact of fiscal adjustment (% change from base)

	SIM1				SIM2				SIM3				SIM4			
	Domestic Supply	Quantity of imports	Quantity of Exports	Aggregate Domestic Output	Domestic Supply	Quantity of imports	Quantity of Exports	Aggregate Domestic Output	Domestic Supply	Quantity of imports	Quantity of Exports	Aggregate Domestic Output	Domestic Supply	Quantity of imports	Quantity of Exports	Aggregate Domestic Output
Agriculture	-0.02	-0.42	0.4	0	-0.05	-1.03	1	0	-0.03	-0.6	0.58	0	-0.05	-1.01	0.98	0
Mining	0.34	0.38	0.02	0.16	0.19	0.23	-0.12	0.02	0.05	0.05	0.06	0.06	0.19	0.23	-0.12	0.03
Food manf.	-0.04	-0.42	0.37	0.07	-0.15	-0.63	0.35	-0.03	-0.3	-0.83	0.39	-0.01	-0.13	-0.55	0.32	-0.02
Cotton lint/yarn	0.13	0.07	0.19	0.12	0.01	-0.18	0.2	0.7	-0.1	-0.1	-0.06	-0.08	0.01	-0.18	0.2	0.07
Textile	0.01	-0.28	0.28	0.28	-0.14	-0.41	0.13	-0.02	-0.1	0.03	-0.14	-0.09	-0.13	-0.41	0.13	-0.02
Leather	0.04	-0.5	0.57	0.17	-0.08	-0.51	0.34	0.11	0.15	0.02	0.28	0.21	-0.08	-0.51	0.33	0.11
Other manf.	0.26	0.31	0.08	0.03	0.14	0.2	-0.06	0.04	0.02	0.08	-0.2	-0.1	0.14	0.18	-0.06	0.04
Energy	0.03				-0.03			-0.03	-0.1			-0.06	-0.04			-0.04
Services	-0.07	-0.73	0.44	-0.04	0.006	0.11	-0.01	0	0.03	-0.01	0.05	0.03	0.001	0.003	-0	0

Table 14: Armington Elasticities in selected Countries

Source	Armington Elasticity	Country
Alaouze et al. (1977)	2	Australia
Vincent (1986)	2	Chile
Vincent (1986)	0.5 to 5.0	Colombia
Vincent (1986)	2	Ivory Coast
Vincent (1986)	0.5 to 5.0	Kenya
Vincent (1986)	0.5 to 5.0	India
Vincent (1986)	0.20 to 2.0	Turkey
Vincent (1986)	Less than 2	South Korea
Kapuscinski and Warr (1992)	2.0	Philippines
Comber (1995)	1.64 to 3.5	New Zealand
Kapuscinski and Warr (1996)	0.04 to 3.8	Philippines

Source: Somaratne, W.G. (1998).

Table 15: Trade Elasticities

Commodities	Armington Elasticity	CET Elasticity
Agriculture	4.0	4.0
Mining	3.0	3.0
Food manf.	3.5	3.0
Cotton lint/yarn	3.2	3.0
Textile	3.5	3.0
Leather	3.5	3.0
Other manf.	3.2	3.0
Energy	3.0	3.0
Services	2.7	2.0

Source: Ahmad et al (2008)

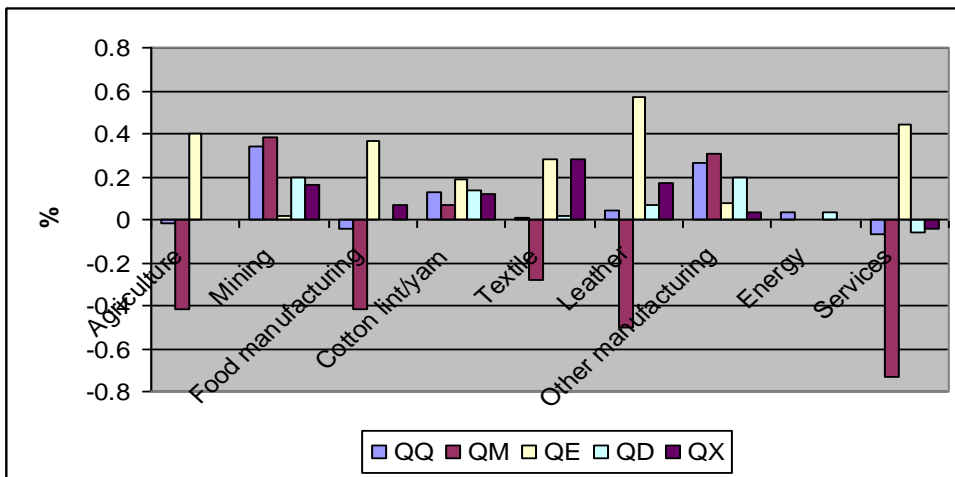**Figure 1: % change in quantities from base in case of SIM1**

Figure 2: % change in quantities from base in case of SIM2

September-October

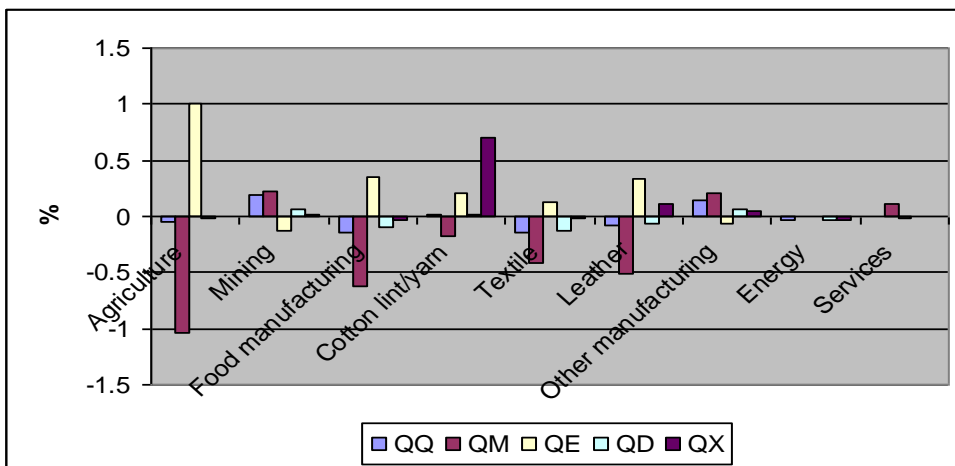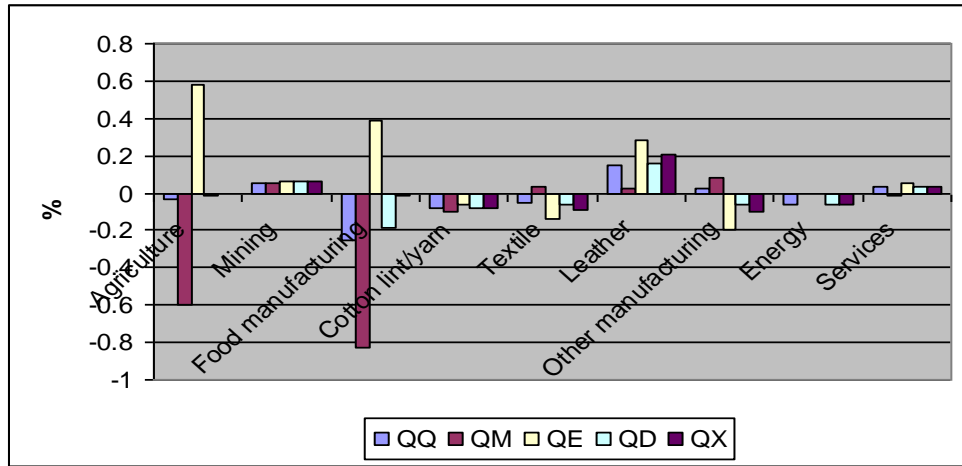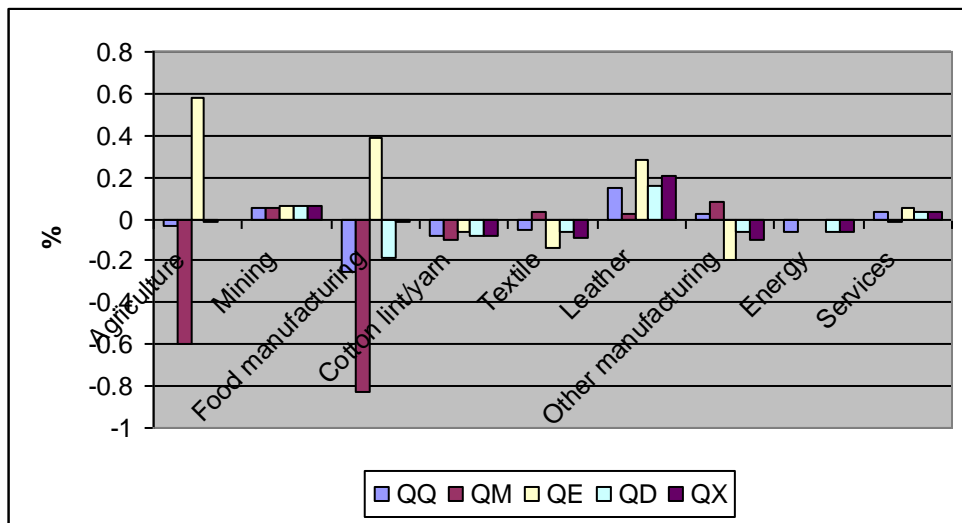**Figure 3: % change in quantities from base in case of SIM3**

Figure 4: % change in quantities from base in case of SIM4