JOURNAL OF BUSINESS & ECONOMICS
Volume No. 14 (1), pp. 61–75
doi:10.5311/JBE.2022.27.6

RESEARCH ARTICLE

Implications of Structural Adjustment Programs (SAPs) on the Economy of Pakistan

Hasnain A. Naqvi *[1], Muhammad Azhar khan [2], and Ghulam Moeen ud Din [3]

[1,2] *Department of Economics, University of Hafr Al-Batin, Saudi Arabia*
[3] *Department of Economics, Punjab College of Commerce, Islamabad, Pakistan*

Received: May 13, 2022; Accepted: June 10, 2022

Abstract: This paper discusses the implication of the Structural Adjustment Programs (SAPs) on the welfare of the Household and Inequality in Pakistan. To examine the policies below mentioned plans for the economy of Pakistan, Computable General Equilibrium Model is employed. Fiscal strictness and trade liberalization policy is selected from the structural adjustment programs to be analysed for their implication based on CGEM. The analysis considers a combination of these two elements. This paper aims to analyse the impacts of the removal of tariffs on the country's trade deficit and its revenue loss. It considers various factors such as the increase in income tax, the reduction in government spending, and the rise in sales tax. The results revealed that a reduction in the expenditure of government can surpass erstwhile fiscal perspectives regarding the emblems of the welfare of household's welfare as well as economy-wide. The results were quite encouraging in terms of avoiding budget deficits and covering losses resulting from the abolition of tariffs.

Keywords: Structural adjustment program, welfare, inequality, computable general equilibrium, trade liberalization, trade deficit, tariff, income tax, sales tax, expenditure of government
JEL Classification Codes: C68, H74, D63, H87

*hnaqvi@uhb.edu.sa

1 Introduction

The study aims to analyse the effects of Pakistan's trade liberalization and fiscal policies on the country's economy. Primarily, this article is focused to assess the impact of strict fiscal policies and trade liberalization on household welfare and inequality. Moreover, it will also examine the impact on important economic variables of Pakistan's economy by applying a Computable General Equilibrium (CGE) model. The research findings can help understand the potential effect of IMF recommendations on Pakistan's economy, and more importantly, it can help the policymakers in the government to devise future policies.

Countries having short-term liquidity problems seek help from the IMF (International Monetary Fund) in the form of loans. Countries normally face problems like the balance of payment, exchange rate stabilization, and maintenance of foreign reserves. Pakistan is normally facing such problems and historically, has been seeking financing from IMF and World Bank (WB). Both institutions have been very critical to the macroeconomic conditions in Pakistan. Pakistan has received direct or indirect support from IMF and WB to manage its balance of payment deficit, stabilization of volatile exchange rate, and maintain its foreign reserves. Other donor agencies also provide financial support to Pakistan whenever there is a good understanding and higher level of confidence between Pakistan and IMF.

Pakistan has to fulfil the lending conditions set by the lending agencies like IMF even at the cost of public disapproval. However, some of the conditions related to cut in tariff and budget deficit are hard to fulfil due to the public disliking, as the governments need public support to secure the next five years term. A disagreement has been observed between IMF and Pakistan on the issues related to tariff and budget deficit cuts, which the government of Pakistan sometimes refuses, to avoid public anger as is evident in IMF's Structural Adjustment program of 1982 and 1988, and Standby Arrangement (1993).

In 1993, Romer (1993) argued that inflation is less common in small and open economies than in developed ones. He tested this idea in Pakistan using annual time-series data from 1973 to 2005. The study found that various factors, such as real gross domestic product growth, interest rate, and wheat support price, have negative effects on Pakistan's inflation. It also noted that the country's openness, which is measured through the trade to GDP ratio, also has negative effects.

Shahbaz M. et al (2008) investigated by utilizing the quarterly time-series data (1991Q1-2007Q4) of the Pakistan economy, applying Advanced Autoregressive Distributed Lag Model (ARDL) for co-integration and Error Correction Model (ECM) for short-run results. The study revealed that the flow of foreign direct investment, remittances from abroad, and credit to the private sector can positively affect the country's economic growth. On the other hand, free trade and inflation can slow down the growth rate in the short run. REA Khan, MA Nawaz, and A Hussain (2011) studied the effects of the SAP on various macroeconomic variables of Pakistan using the annual time series data from 1981 to 2001. The four policy tools of the SAP have been studied to analyse their effects on various aspects of the economy. These include the reduction in the budget deficit, increasing indirect taxes, and adjusting the exchange rate. The reduction in the budget deficit has affected various aspects of the economy, such as employment, inflation, and income distribution. While the indirect tax has also affected the distribution of income and employment, it is observed that the reduction in the budget deficit has led to a positive inflation rate. The exchange rate led to higher inflation and unemployment. It also raised the inequality of income dis-

tribution. Through subsidies, the government was able to reduce the per-capita income. The implementation of SAP has negatively affected the various socio-economic variables of Pakistan. Against the finding of the study, the government is considering getting a loan from the International Monetary Fund.

This paper is arranged into different sections. Section-2 describes the Computable General Equilibrium Model of Pakistan (blocks – price, production and commodities, Institutions), Section-3 gives model closure, and Section-4 explains data and model calibrations. Methodologies to measure welfare and inequality are discussed in Section-5. Simulations are implemented in section 6 to see the inequalities, while Section-7 details the experiment at a macro level, households' welfare, and inequality. Finally, Section-8 concludes.

2 Key Terms and Concepts

2.1 Computable General Equilibrium Model (CGE)

CGE models are also known as Applied General Equilibrium Model (AGE) and it is composed of equations for the model variables and a database in line with the model equation. These types of models are effective to forecast economic reactions using actual data to various changing conditions like economic policies, technology, and other related factors. The equations are neo-classical and assume cost-minimizing behaviour by producers, average cost pricing, and household demands based on optimizing behaviour. However, many of the CGE models don't conform perfectly to the theoretical general equilibrium hypothesis. For example, the models may allow for:

- Non-market clearing for unemployed labour and commodities.
- Absence of perfect competition
- Unchanged demands under different price levels
- Different types of taxes
- External factors like pollution

2.2 CGE model database

- Consist of tables showing transaction values, like, as the value of gas utilized by the fertilizer industry. The database is normally prepared as a table of input-output or as a Social Accounting Matrix (SAM). The database may also cover the whole economy at the country level or the world level. Moreover, it differentiates among the different categories of households, commodities, sectors, and primary factors.
- Also include elasticities like parameters without that annex behavioural response, e.g., export demand elasticities determine the change in the export volume with the change in export prices. Another elasticity is known as Armington elasticity which measures how close substitutes are to the products of different countries that can be used as input for production.
- Expenditure elasticity measures the response of income change to demands.

3 Computable General Equilibrium Model of Pakistan

The model's framework is static as devised by Lofgren et al (2001). It follows the SAM (2001-02) integration of activities, commodities, factors, and institutions. The CGEM-Pak is a general equilibrium model that is used to analyse the effects of the Structural Adjustment Program on the economy of Pakistan. It is constructed using the framework of Lofgren et al., 2001. The model is static that captures the country's economic activities. It follows the SAM (2015) segregation of institutions, factors, commodities, and activities. The model highlights the interaction and performance of these sectors. Moreover, the equation handles the constraints of micro and macroeconomics very well.

3.1 Price Block

An important feature of the model is its handling of the prices comprehensively. This model assumes that every activity produces one commodity only. The producer of the commodity charges an export price *(PE)* by adding taxes to the producer price *(PX)*. The interaction of the producer of the commodity and export prices would determine the final supply price in the domestic market *(PD)*. As the emphasis shifts to consumption from production, the domestic demand price *(PD)* emerges from the domestic supply price. Import prices *(PM)* are determined after adding a tariff on the value of the imported items. The value of composite commodities *(PQ)* is finalized through a comparison of domestic and import prices. And the market price will be determined after applying the sales tax on the value of composite commodities.

3.2 Production and Commodity Block

An element of the model that determines the combination of inputs and outputs of the selected firm to maximize profits in the economy is known as the production block. In this CGEM-Pak model, activities execute production and generate revenue by selling the produced commodities. These revenues are then utilized to procure the raw materials and the payment of manufacturing overheads. The model further assumes that profit maximization of the activities depends upon the production function, neoclassical substitutability for factors, and fixed coefficient of intermediate inputs.

CGEM-Pak recognizes nine production sector activities that combine basic factors with intermediate goods to estimate an output level. The activities include agriculture (A-AGRI), mining (A-MINE), food manufacturing (A-FMINE), textile (A-TEXT), cotton (A-YARN), leather (ALEAT), and other manufacturing (A-MANF), energy (A-ENGR), and services (A-SER). The model also adjusts eleven factors of production: Six categories of labour - LA-AGL (own large-farm), LA-MF (own medium-farm), LA-SF (own small-farm), LA-AGW (agriculture wage), LA-SKU (non-agriculture unskilled), and LA-SK (non-agriculture skilled), Four types of land, LN-LG (large-farmland), LN-MG (irrigated medium-farmland), LN-SG (irrigated small-farmland), LN-DR (non-irrigated small farmland) - and one category of capital (K).

Producers can earn the highest level if there is a constant return to scale. Factors with constant elasticity of substitution (CES) are the primary choice for the producers. Any change in the relative factor return would cause a substitution of the factor to achieve a value-added composite. Profit maximization means that factors earn income when

marginal revenue and marginal cost become equal to each other. The marginal revenue and marginal cost are calculated based on endogenous relative prices. Once the factors are finalized, they are combined with fixed share intermediates using Leontief specification. The proportionate use of intermediates per unit of production and their ratio of the value-added is suggested by the technology instead of the producer's decisions.
The following characteristics of the CGEM-Pak are defined by the production and commodity block.
a) Domestic output and input
b) Distribution of domestic out to exports and local markets.
c) Accumulation of domestic market supplies.

A CES Cobb-Douglas production is used to explain the association between the factors utilized and the activity level. An essential element of the model is related to the specifications of foreign trade and its interaction with the local market. The classical theory of trade explains an item or a good as traded well where the locally produced goods are the perfect substitute for the corresponding imported goods. Consequently, the domestic price becomes the same as the international price. Moreover, when the domestic goods and imported goods are perfect substitutes, the trade policies can generate a higher level of trade activities as compared to a situation where the products are not perfect substitutes.

The model also uses Armington's (1969) approach as an alternate approach considering a situation where domestic and imported products are not perfect substitutes. This approach is based on the assumption that countries produce goods that may not be identical to each other but are substitutes for each other at various levels. This specification is useful not only to adjust cross hauling (export and import of same goods in the same period) in trade data but also to overcome the problem of specialization (Mujeri, 2002). Since internationally traded goods are the imperfect substitute for domestic goods, any change in the price of the imported goods can trigger a change in the domestic goods. Consequently, abandoning the assumption of perfect substitution can resolve the issue of specialization. This is particularly relevant and important for developing countries like Pakistan where the locally produced products differ from the imported products significantly in terms of quality.

Moreover, the model uses a higher level of aggregation for each sector to represent a package of various goods, so it is highly justified to propose that imported and domestic products are not perfect substitutes. The constant elasticity of transformation (CET) function governs the decision of substitution between domestic and foreign production to establish the difference between domestic and imported goods. Profit maximization is the basic motive to sell products in national and international markets. Export prices are the result of exchange rate mechanisms, taxes, and subsidies. Pakistan being a smaller player in world trade cannot influence the international market prices, so it is assumed that Pakistan would accept infinite elastic international demand at a fixed price. The ultimate exports ratio to domestic commodities is based on the association of the relative prices of the types of goods.

It is assumed that energy is produced and consumed domestically, so there will be no import or export of energy as a product. The overall demand for any commodity is met through domestic production and/or imported commodities. It will determine the total available commodity also known as a composite commodity. The users of these commodities tend to minimize costs by switching between domestic and imported products based

on their substitutability. And this behaviour is administered by the CES Armington specification (Armington, 1969). Thus, the supply of the composite commodity is based on the intermediate and final demand of the product. As mentioned earlier, intermediate demand is calculated by sector-wise production composition and technology whereas, final demand depends upon the composition of aggregate demand and income.

3.3 Institution block

According to the model, institutions earn their income from many sources. Factors of production are the household income sources. Factors like land, labour, and capital are used for value addition and hence paid for their activity. And ultimately the income reaches the institutions that provide these factors. In CGEM-Pak, as mentioned above the nine household groups earn their income from factors like land and labour. Factor income is not only distributed to the households but also to the providers of these factors, for example, the government and the businesses earn their income according to the provision of capital. In other words, households, enterprises, and governments receive their share of income from these factors.

The government collects a larger portion of its revenue from taxes than it does from other sources. Therefore, it has to borrow from the domestic market to fund its budget. The government is considered a consumer in the CGEM-Pak, and the consumer commodities are fixed exogenously. And the government's transfer to households is fixed in nominal terms and CPI indexed.

On the other hand, enterprises earn their revenues from their capital investments. Their expenditures are the payments made to households and these enterprises don't consume commodities. The savings of these enterprises depend on their income and expenditure difference.

4 Model Closure

For the current account balance, it is assumed that the foreign savings are fixed and that a flexible exchange rate can clear the account. For savings and investment accounts, it is assumed that investments are driven by savings, so the saving is taken as fixed, whereas the flexible factor is the investment adjustment factor, allowing the investments to regulate. In the capital market, capital is considered fully utilized while being activity specific. The cost of capital is taken as fixed and thus allowing the change in factor price distortion to accommodate the market. It is worth noting that capital is the only factor that is utilized in all the models' activities. The model considers four different land categories, used for agricultural activity. Moreover, it is assumed that all types of land are being utilized fully, hence the price of land will clear the market. The model classifies labour into six different types in the labour market, four of them are employed in agriculture, and two types are considered non-agriculture labour. They are assumed to be mutually exclusive and immobile between the agricultural and non-agricultural types of labour. In the agricultural sector, the labour is assumed to be fully employed, thus the market will be cleared through the labour price. Non-agricultural labour which comprises skilled and unskilled labour is employed in eight different types of activities. Non-agricultural labour is assumed to be fully employed, highly mobile, and have a unique wage system that will clear the labour

market. The endogenous variables, exogenous variables, parameters, equations, and sets are provided in tables 1 through 5.

5 Data and model calibration

The latest and most consistent data set (Social Accounting Matrix) was prepared by Dorosh, Niazi, and Nazli (2015) which is a 114 × 114 matrix. The data set is fully in line with the CGEM-Pak in terms of micro consistent, and equilibrium settings and characteristics. The year 2001-02 is taken as a base year for the analysis purpose.

The calibration procedure is based on the benchmark year data set (SAM 2001-02), the procedure was initially used by Mansur and Whalley in 1984. Model parameters like input-output coefficient (IO), shares as a return to factors by households, and Cobb-Douglas functions, are directly calibrated from the benchmark data. The functions of CET and CES are borrowed from the literature, while additional coefficients are available in the standard data. For model equations and parameters, the functional form of the data is used. After calibration and without the existence of any shock, the model regenerates the initial year. For model calculations, Generalized Algebraic Modelling System (GAMS) software (Brooke et al., 1997) is used.

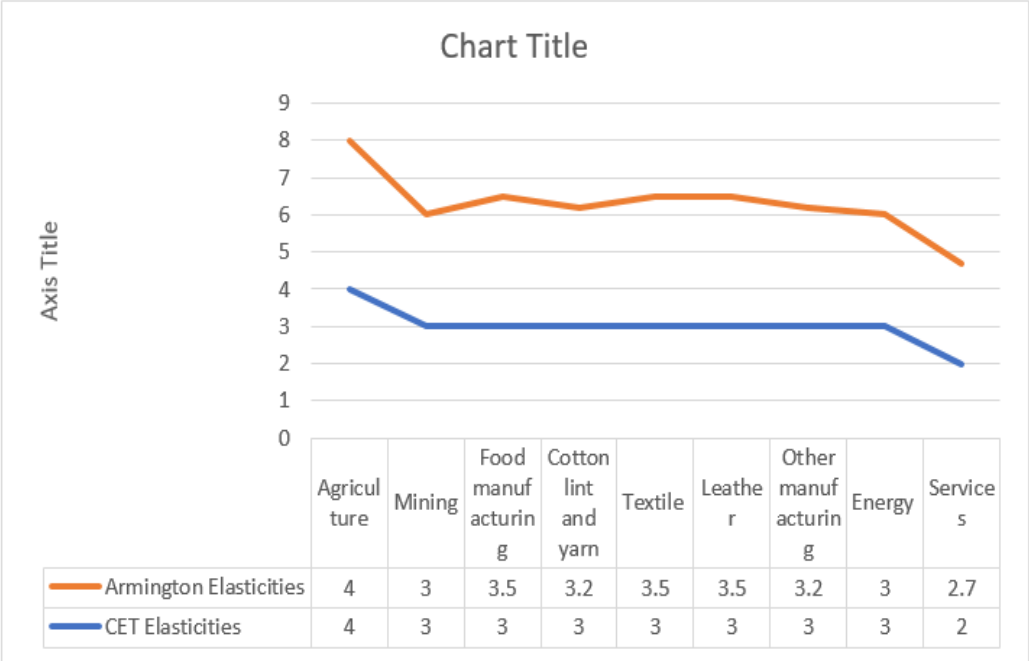
Due to limited resources and data constraints for the research, the elasticity parameters used are the same as used in similar studies conducted in comparable economies. However, under the ideal circumstances, trade elasticities should have been projected through cross-section and time-series data econometrically. The Armington elasticities adopted from certain economies are mentioned in Table 1, and Table 2 contains the trade elasticities for CGEM-Pak. For relatively disaggregate models Armington elasticities are highly important for model calculations.

Table 1: Selected Countries' Armington Elasticities

Country	Source		Armington Elasticity
Australia	Alaouze et al.	1977	2
Chile	Vincent	1986	2
Colombia	Vincent	1986	0.50 to 5.00
India	Vincent	1986	0.50 to 5.00
Ivory Coast	Vincent	1986	2
Kenya	Vincent	1986	0.50 to 5.00
New Zealand	Comber	1995	1.64 to 3.50
Philippines	Kapuscinski and Warr	1992	2
Philippines	Kapuscinski and Warr	1996	0.04 to 3.80
South Korea	Vincent	1986	Less than 2.00
Turkey	Vincent	1986	0.20 to 2.00

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

Table 2: Selected Commodities' Trade Elasticities



	Agriculture	Mining	Food manufacturing	Cotton lint and yarn	Textile	Leather	Other manufacturing	Energy	Services
Armington Elasticities	4	3	3.5	3.2	3.5	3.5	3.2	3	2.7
CET Elasticities	4	3	3	3	3	3	3	3	2

It can be said that the interrelationship of the macro-economy is explained in the model equations, while the coefficients in these equations receive actual values from the social accounting matrix. To reproduce the base year data set, the model will be solved to reach equilibrium. At this point, by changing the value of any of the exogenous variables a shock will be given to the model, and the model will be run again to reach equilibrium and to record the impact on the values of endogenous variables. Then a comparison will be made between the endogenous values of the base-year equilibrium before and after the introduction of exogenous shock.

6 Welfare Measures

The paper focuses on Equivalent Variations (EV) to address the winner-loser issue as a welfare measure when the policy is implemented. EV measures the amount of money a consumer is willing to pay before the price increase takes effect. In other words, it is the money earned or spent by individuals to strengthen their financial position after the change in prices (Gravelle, Rees, 1987).

It can be expressed as:

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

7 Inequality measures

Inequality measures like Theil-T, Theil-S, Theil-L, and Hoover Indices are applied to gauge the trade policy impact on inequality. The model used in this study will only capture the inequality between the household groups because of the data limitations. A version of Theil-T/ Theil-S/ Theil-L/ Hoover indices is applied to determine inequality. The Hoover is considered to be the easiest of all inequality measures ranging between 0 and 1 (0% to 100%). Here the index would mean a value derived by multiplying the total value of all income sources with the Hoover Index to generate the share of all resources and this share has to be reallocated to achieve a perfect equivalence state.

The Theil-T represents the minimal inequality with a value '0' and the highest level of inequality at 'ln(N). In other words, as the value moves away from '0', the inequality will keep on increasing.

Let us suppose that
Y = Households' Income
YH_h = Subgroup's income
N = Population
N_h = Population of Subgroup
TT = Theil-T

Theil-T can be expressed as:

$$TT = \ln\left(\frac{\sum\limits_h N_h}{\sum\limits_h YH_h}\right) - \frac{\sum\limits_h YH_h \ln\left(\frac{N_h}{YH_h}\right)}{\sum\limits_h YH_h}$$

and Theil-L can be written as:

$$TL = \ln\left(\frac{\sum\limits_h YH_h}{\sum\limits_h N_h}\right) - \frac{\sum\limits_h N_h \ln(\frac{YH_h}{N_h})}{\sum\limits_h N_h}$$

"symmetrized" Theil index can take the following form:

$$TS = \frac{1}{2}[TT - TL]$$

Substituting values of TT and TL in the above equation:

$$TS = \frac{1}{2}\sum_h \ln\left(\frac{YH_h}{N_h}\right)\left(\frac{YH_h}{\sum\limits_h YH_h} - \frac{N_h}{\sum\limits_h N_h}\right)$$

Hoover Index can be expressed as:

$$HI = \frac{1}{2}\sum_h \left|\frac{YH_h}{\sum\limits_h YH_h} - \frac{N_h}{\sum\limits_h N_h}\right|$$

8 Experiment

The government's fiscal policy is directly affected by trade liberalization, so the following simulations would replace the expected loss in revenue or the deficit. The designed simulations show zero tariffs and at the same time government's budget deficit and the losses.

The budget deficit of Pakistan increased to PKR 58,028.38 million from PKR 8,457 million in the year 2001-02 (the benchmark year). This enormous increase in the budget deficit was caused by the abolition of tariffs. The government could bridge this huge gap either by reducing 14% of the expenditure or raising the government revenues by a 28% increase in sales tax, or 39% of income tax. So, the budget deficit is 14% of government expenditure or 28% of sales tax, or 39% of income tax, in the pre-simulation period. These possible sources of revenue to make up the budget deficit are dealt with one by one in the model. In this section two of the very significant conditions of SAP (1988) are fulfilled through the policy simulation; the conditions have already been discussed in the introduction.

The goal of these experiments is to find a way to compensate for the revenue losses caused by the implementation of international trade liberalization and the existing budget deficit.

TLFS1 = Increasing sales tax by 28%.
TLFS2 = Increasing income tax by 39%.
TLFS3 = Decreasing expenditure of government by 14%.

Simulation results are discussed below.

8.1 Macro Level

Table 3 highlights the positive impact of trade liberalization along with a strict fiscal policy on the economy of Pakistan. The introduction of TLSF1 and TLSF2 triggered an increase in the GDP by 0.16% and 0.18%. However, the implementation of TLSF3 caused a reduction in GDP by 0.04%. This decrease can be associated with the attempt of the government to minimize the losses of trade liberalization through lowering government expenditures.

A remarkable rise in imports is observed in all the sims, i.e., by 8.64% (TLSF1), 10% (TLSF2), and 11% (TLSF3). This phenomenon is understandable as the tariff cuts reduced the import prices which ultimately increased the demand for imports. The import substitution sector might also have been discouraged due to the tariff cut. Therefore, all three of the simulation experiments have suggested an increase in exports by 11.3%, 12.99%, and 14.29% respectively. A lesser increase in exports is observed in the first simulation (TLFS1) due to an increase in sale tax by the government resulting in a rise in the price of imported supplies in the local markets. On the other hand, in the case of TLSF2 and TLSF3, the government raised income tax on households with paying capacity or decreased expenditures to minimize the losses of tariff.

Under all three policy measures investment shows an increasing trend. However, a lesser increase in investments is suggested under the first policy (TLFS1) as compared to TLSF2 and TLSF3, due to an increase in the sales tax. In other words, an increase in direct taxes or a decrease in government expenditures as a result of free trade indicates a favourable impact on investments. The most suitable measure for economic welfare is TLFS3, as an economy-wide increase of 1.104% and 1.105% is observed in CV and EV respectively. Whereas, implementation of TLFS 2 caused an economy-wide decline of 0.34% and 0.343% in CV and EV respectively.

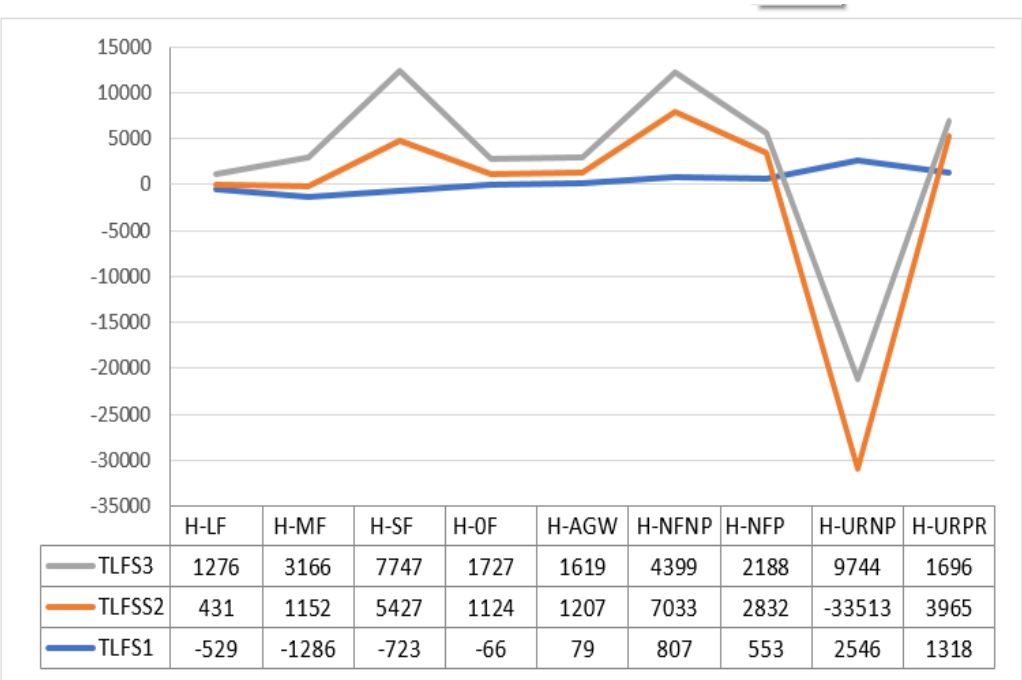
Table 3: Impact of Trade Liberalization and Fiscal Policy Liberalization on Macroeconomic Indicators (%age change from the base)

	GDP	Government Consumption	Investment	Exports	Imports	Net Indirect Tax	Private Consumption	Import Price	Export Price	Economy-wide EV	Economy-wide CV
TLFS3	-0.04	-13	5.79	14.29	11	-17.28	1.1	-15.9	36.8	1.104	1.105
TLFSS2	0.18	1.69	4.6	12.99	10	-18.07	-0.34	-18.2	34.8	-0.34	-0.343
TLFS1	0.16	0.86	2.3	11.3	8.64	4.6	0.09	-23.55	28.8	0.09	0.09

8.2 Household welfare

Economists define 'household welfare' as the welfare of an individual or society, whereas another welfare concept is the government's contributions to the people in poverty. In many countries like Pakistan, tax cuts are not considered a welfare tool for the public, instead, contributions or help from the government are taken as welfare. Efficiency and welfare are considered to be the focus of any policy analysis. To find out the impact of any policy change welfare level is evaluated before and after the policy change. Table 4 describes the changes in welfare indicators like changes in consumer price indices (CPIs), households' nominal income, and equivalent variations.

Table 4: Impact of Trade Liberalization and Fiscal Policy on households' welfare



	H-LF	H-MF	H-SF	H-0F	H-AGW	H-NFNP	H-NFP	H-URNP	H-URPR
TLFS3	1276	3166	7747	1727	1619	4399	2188	9744	1696
TLFSS2	431	1152	5427	1124	1207	7033	2832	-33513	3965
TLFS1	-529	-1286	-723	-66	79	807	553	2546	1318

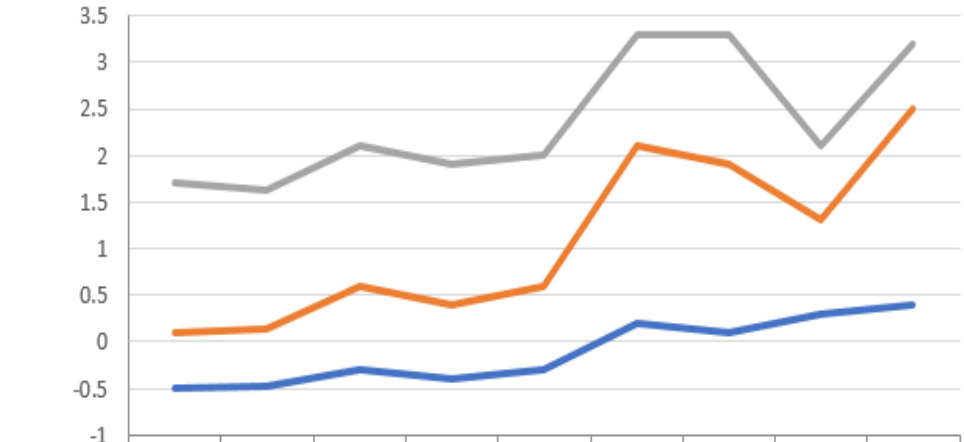
With the introduction of TLFS1, a negative change is observed in the nominal income of households of different types like H-LF, H-MF, H-SF, H-0F, and H-AGW as mentioned in table 5. The negative impact on the income is experienced through the reduction in returns of the factors owned by these households. On the other hand, households like H-NFP, HNFNP, H-URPR, and H-URNP experienced a rise in income due to increased returns of factors owned by them.

The nominal income change has to be rivalled with the consumer price index (CPI) to assess the net effect of the simulations. In general, all types of households experience a fall with the changes in the CPI. A combined effect of income and price on welfare can be calculated through the EV measure. When TLFS1 is applied, a positive EV is observed for all the households except HNFNP, H-NFP, and H-URNP. This is the result of increased income that resulted in increased expenditure. Moreover, an increase in EVs is also associated with a decrease in the consumer price index. For one of the household types, H-AGW an increase in EV is noted as a result of the decrease in income and a decrease in CPIH at the same time. Among the affected household types H-MF faces higher losses as suggested by EV values. On the contrary, the value of EV for household type H-URNP indicates a greater advantage among the households that feel the impact. When the TLFS2 is run, all types of households experience an increase in their respective EVs, which resulted from an increase in income and a decline in CPIHs. Household type H-LF and H-SF had greater values of their EVs among all the households due to a significantly greater improvement in their income as compared to CPIH. All types of households experienced an increase in their income as compared to CPIH except H-URNP. A larger increase is observed in CPIH for H-

URNP than their income resulting in a lower value for EV. These results are recorded when a 39% income tax is introduced to offset the decline in revenue and the budget deficit due to trade liberalization. The situation resulted in a serious outcome in terms of consumption expenditure as the disposable income was reduced significantly resulting in a lower value of EV.

In case of TLSF3, all types of households experience a larger increase in their income than CPIHs as indicated by the values of EV of the respective households leading to an increase in consumption. Among all household types, H-SF and H-URNP experienced a greater increase in their income than their CPIHs.

Table 5: Impact of Trade Liberalization and Fiscal Policy on household income (Percentage change from the base)



	H-LF	H-MF	H-SF	H-OF	H-AGW	H-NFNP	H-NFP	H-URNP	H-URPR
TLFS3	1.6	1.5	1.5	1.5	1.4	1.2	1.4	0.8	0.7
TLFS2	0.6	0.6	0.9	0.8	0.9	1.9	1.8	1	2.1
TLFS1	-0.5	-0.47	-0.3	-0.4	-0.3	0.2	0.1	0.3	0.4

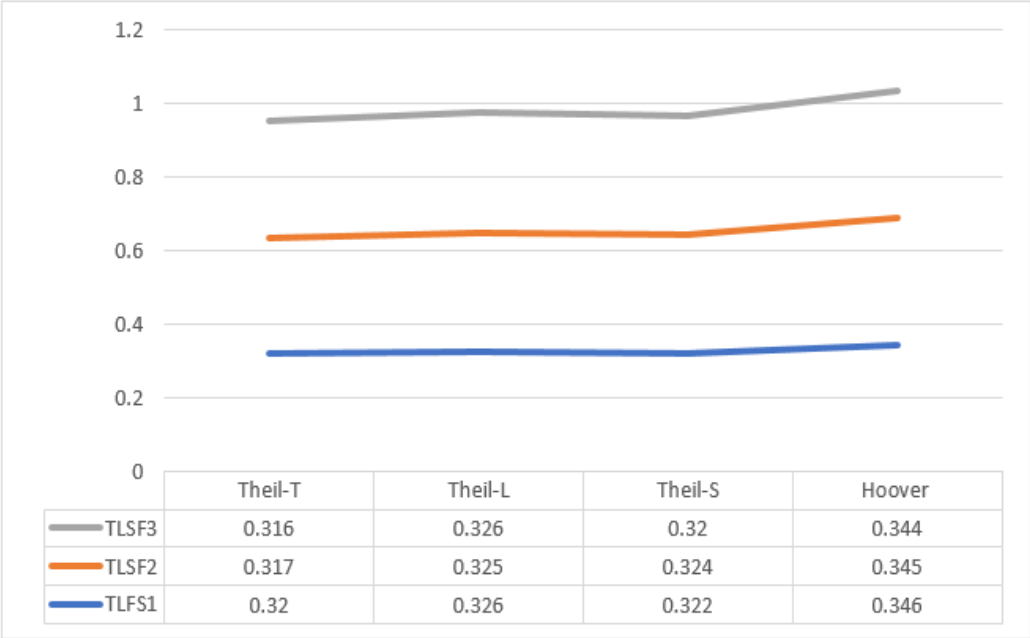
8.3 Inequality

The topic of equality and inequality has long been debated in the field of economics to find answers to questions like, "what is the nature of the relationship between equality and GROWTH?" and "does the inequality in society lead to better growth than the societies having equality?". Then there is another argument related to the equality of outcome and opportunity. The inequality indicators used in this study are Theil (Theil-L, Theil-T, and Theil-S) and Hoover indices. Both of the indices exhibit decomposition properties which enable them to examine inequality within the group, between the groups, and the total

inequality. Due to data constraints, the only inequality measured in these simulations is inequality between the groups.

The results of all three simulations (TLFS1, TLFS2, and TLFS3) are summarized in Table 6. As shown in the table inequality of TLFS1 increased and remains unchanged in TLFS2, whereas, in TLFS3 inequality decreased.

Table 6: Impact of Trade Liberalization and Fiscal Policy on household inequality



	Theil-T	Theil-L	Theil-S	Hoover
TLSF3	0.316	0.326	0.32	0.344
TLSF2	0.317	0.325	0.324	0.345
TLFS1	0.32	0.326	0.322	0.346

9 Conclusion

This study employs SAP to analyse and review the impact of the abolition of tariffs on the trade deficit and revenue losses. Three possible options were considered to conduct the research namely 'increasing income tax, increasing sales tax', and 'reducing expenditures of the government. The results indicate that reducing government expenditures is more effective than the other two fiscal options for the welfare of the household and the economy. The result strongly favours the strategy to target government consumption expenditures as the best option to control the budget deficit and losses of revenue due to import tariff abolition. It is worth noting that the findings of this study are subject to the structure of the model. CGEM-Pak is a real-side model that doesn't include national growth. Household welfare and removal of inequality require better management of monetary policy along with fiscal policy, and it requires further study to achieve the objective of increasing household welfare and eliminating inequality.

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