

Impact of Exports on Economic Aggregates of Pakistan

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ABSTRACT

The study employs CGE model, on the data provided in SAM 2007-08 for Pakistan designed by Dorosh et al. (2012), to investigate the impact of Pakistan's exports on the major aggregates of the economy. To this end, three experiments have been conducted, exports are increased by 5% in the first simulation (SIM-I), in the second simulation (SIM-II) by 10% and in the third simulation (SIM-III) by 15%. The findings of the study reveal that increase in exports has favourable impact on the performance of macroeconomic variables of the economy i.e. GDP, public and private consumption, savings and investment. Domestic output level of most of the commodities has risen except mine, food manufacturing and other manufacturing. Incomes and expenditures of all the households have risen that results in rise of utility level of all the households. Moreover, all the households have also recorded an increase in the values of compensating variation which implies higher level of welfare for households. However, the value of compensating variation for non-agriculture households has risen more than that of agriculture households indicating pro-urban effect. Equality among the households has improved as the inequality indices have registered declining trend. The study suggests that export promotion measures should be incorporated in poverty alleviation, income equality and economic growth strategies.

Key words: *economics, export, aggregates, CGE model, economic growth, sustainable development, Pakistan, poverty alleviation*

JEL Classification: B22, D58, O4, Q01, I30, I32

INTRODUCTION

Trade openness plays an important role in the economic growth of a country and helps a country to achieve higher economic growth, (Anderson and Babula, 2008), through efficient utilization of resources and transmitting economic growth from one region of the world to another. In international trade much importance is assigned to exports because exports have a profound impact on the output of a country. The importance of exports goes back to the mercantilist time. In view of mercantilists international trade is a "single-pie" and they stressed on 'more exports and less imports'. Exports are a means of valuable foreign exchange earnings which enables us to import our indispensable inputs (technology and machinery). Exports lead to employment generation, optimal utilization of resources and economic development of a country. That is why exports are considered to be an engine of economic growth. Domestic monopolies are vanished and the availability of goods is made at lower prices on one hand and

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incomes of the people are raised through employment generation on the other hand. These lower prices and higher incomes raise the consumption level (welfare) of people. Exports have impacted the GDP of Pakistan positively and there is a strong long-term relationship between Exports and GDP of Pakistan, (Shirazi and Manap, 2004).

The literature on the history of export performance of Pakistan shows bleak picture of the export performance of Pakistan. During 1950s and 1960s, export performance of Pakistan remained poor either because it did not receive serious attention or due to limited capacity. In general Pakistan exports showed an increasing trend both in terms of value and quantity. The rate of growth of exports remained very slow till 1972 but after that it accelerated. On the other hand, imports have increased more than exports due to which Pakistan has always confronted the problem in deficit in balance of trade (BOT) with exceptions of a few years (1950-51, 1954-55 and 1972-73).

The growth rate of the world output and trade witnessed deceleration in 2011 due to detrimental impact cast by the deteriorating global environment. Growth rate of the world output declined from 5.3% in 2010 to 3.9% in 2011. In the same manner growth rate of the world trade decelerated from 13% in 2010 to 5.8% in 2011. But quite opposite to it, growth rate of Pakistan's exports accelerated from 9.06% in 2009-10 to 28.61% in 2010-11 and Pakistan's imports grew at the rate of -0.32 in 2009-10 to 16.43 in 2010-11. This indicates inflating volume of Pakistan external trade. Pakistan's exports are characterized by high concentration in commodity and export markets. However, shift in the nature of Pakistan's exports has been seen from primary products to manufactured products. The share of primary products in Pakistan's total exports was 33% in 1971 which has declined to 18% in 2011. Similarly, the share of semi-manufactured goods in Pakistan's total export was 24% in 1971 which has now declined to 12% of total exports in 2011. On the other hand the share of manufactured goods has increased from 44% in 1971 to 70% in 2011 (Pakistan's Economic Survey, 2011-12).

A large number of facilities/incentives have been given to the exporters to inflate the volume of exports from Pakistan. These incentives are targeted to make exports zero-rated (exporters pay no tax on sales abroad). These facilities include export financing (in domestic and foreign currency), Export Credit Guarantee, concessionary rate of income tax (under the income Tax Ordinance 1979), Common Bonded Warehouse Scheme, Export Marketing and Product Up-gradation Fund, Duty Drawback Scheme, and Export House Scheme (Haque and Kemal, 2007).

This shows that there have been no systematic trend in Pakistan's exports growth over the years that calls for its analysis as it can impact different economic aggregates in a significant way. This study aims to unfold the nexus between export and various economic aggregates in Pakistan.

REVIEW OF LITERATURE

Economists have employed CGE models for the analysis of economic policies and for the appraisal of costs and benefits accrued to nations through economic integration and trade liberalization, for example, Oslington (2005), Akerman (2005), Bouet et al. (2004) and Kurzweil (2002).

To simulate the fiscal policy, Bhattarai and Trzeciakiewicz (2016) developed a Computable General Equilibrium Model to analyze fiscal policy in United Kingdom. They found that investment and public consumption causes high GDP multiplier in short run. In long run, whereas, private investment and capital income tax have high impact on GDP. Moreover, this study also explored effectiveness of public outlays and consumption taxes.

Naqvi, et al. (2011) developed CGE model of Pakistan to analyze the impact of Agricultural Income Tax on Household Welfare and Inequality. The model analysed the economic implications of Agricultural Income Tax and reduction in sales tax for production activities to adjust the budget surplus. The objective of this experiment was to determine the possibility of

implementation of agricultural income tax in case of Pakistan and to analyse its benefits at macro and household level. Two variables were considered in this experiment i.e., imposition of agricultural income tax, and decrease in sales tax rates. The article concluded that the imposition of agricultural income tax is beneficial in terms of household and economy-wide welfare indicators.

Bouet et al. (2010) appraised the gains and losses accrued to members and non-members of South Asia from South Asian Free Trade Agreement (SAFTA) by using CGE model. The study assessed the costs and benefits of both the cases: including the sensitive products envisaged in SAFTA and excluding them from the process of trade liberalization. Full trade liberalization (including sensitive products) had been considered to cause trade diverting effects in terms of income that was reduced due to tariff-cut. Liberalization of sensitive products was thought to be non-beneficial for LDCs of the region. The pattern of distribution of gains among the factors of production promised higher incomes for unskilled labourers, hence, pro-poor. However, the consequences of SAFTA were deemed to cause low tariff income for almost all of its members.

Ahmed and O'Donoghue (2009) analyzed the impact of variations in external balance of Pakistan developing country on the various economic entities of the economy by employing CGE model. The study integrated the economy into 33 sectors and gauged the impacts of changes in import prices and external savings on these aggregates. Simulation results of the study ascertained that increase (50%) in foreign savings led to expansion of imports and contraction of exports. The sectors expected to face reduction in their exports were cement, leather, textile and livestock. Under these conditions the factors expected to receive increased incomes were non-agriculture unskilled wage labour and agriculture wage labour. A rise in import prices especially petroleum and industrial raw material led to decline in exports. The state of poverty and income inequality was aggravated.

Gilbert (2008) investigated the impact of integration of the South Asian economies under SAFTA on the welfare, poverty and income distribution of the concerned countries through CGE model. The main contribution of this study in the existing literature was that it took into account the whole South Asian region, not a single country for CGE approach. The findings of the study revealed that almost all of the countries except Bangladesh would gain from trade liberalization, though the gains would be modest because these countries had similar export structure. In case of Bangladesh, unilateral reforms had been proposed to be the best option. The trade reforms stipulated to be brought about under the auspices of SAFTA had been perceived to cast positive impact on overall welfare. Thus, regional integration was deemed to be pro-poor especially in Bangladesh and India. However, income inequality was liable to rise.

Panda and Kumar (2008) explored the relationships among trade liberalization, economic growth, food security and poverty through CGE model constructed for India. The study used the data provided in the SAM for India for the year 2003-04. The simulation results of the study depicted that trade liberalization had a negligible impact on the growth of GDP. It was the only agriculture sector that benefited from both unilateral and multilateral trade liberalization in GDP while non-agriculture GDP remained invariant in face of unilateral liberalization and declined under multilateral liberalization. Both wages and consumer prices rose but wages rose more than prices; hence, real incomes of all households soared. Due to rise in real income, income poverty plummeted. Consequently, lower income groups of both rural and urban sections witnessed a decline in food intake in terms of calories while others increased the intake of nutrients.

Siddiqui (2007) investigated and compared the effects of liberalization of agriculture trade in the domestic and the world economy on the economic growth of Pakistan by employing both static as well as dynamic CGE frameworks. The study used the data provided in Pakistan Social Accounting Matrix for the year 2002 (SAM 2002). The simulation results of the study depicted that liberalization of agriculture trade whether at domestic level or international level had favourable impact on the economic growth of the country. However, the effects of liberalization



of agriculture trade at international level were found to be stronger than those of liberalization at domestic level. Complete liberalization of agriculture trade was expected to increase the incomes of both rural and urban households. However, long run consumption of rural households increased more than that of urban households. The distribution of income was, in the short run, improved while it was worsened in the long run.

Cockburn et al. (2006) investigated and compared the effects of trade liberalization on different economic aggregates of seven African and Asian countries by using CGE model. Roles of relative factor endowment, initial tariff structure, trade pattern, production pattern and income and consumption patterns were given much consideration in explaining the results. The findings of the study demonstrated that trade liberalization had varying effects on different commodity sectors and household groups. Manufacturing sector had gained while agriculture sector had lost under trade liberalization process. The urban households benefited while rural households lost in terms of welfare. Nonetheless, overall trade liberalization raised the level of welfare and reduced poverty. Wages of households increased more than the increase in domestic price of consumer goods. The pro-urban effect of trade liberalization was considered to be due to substantial fall in the returns to land.

Adam and O'Connell (2000) employed CGE model to investigate and compare the gains accrued from aid and trade preference to a recipient developing African country. The findings of the study substantiated that the gains from trade preference were dominant over the gains from aid. The study advocated for transfers (whether in the form of aid or trade) that promote capital accumulation in the receiving country. Through capital accumulation, a developing country was thought to shift from raw exports to manufactured exports. This shift, in turn, was deemed to enhance welfare effects of donor assistance. Transfer of resources via aid impacted the manufactured exports and total domestic output adversely. Contrarily, trade preferences increased domestic output and consumption. Fiscal distortions attached more importance to aid than trade because export subsidy given to promote exports would result in increased fiscal burden.

METHODOLOGY

The study has employed Computable General Equilibrium (CGE) model designed on the pattern of Lofgren et al. (2002), on the data provided in SAM 2007-08 for Pakistan designed by Dorosh et al. (2012), to investigate the impact of Pakistan's exports on its economic aggregates. The framework of mathematical equations is based on the neo-classical assumptions of optimizing behaviour of economic agents: maximization of utility and output, and minimization of costs¹. Trade elasticities for different commodities in Pakistan have been borrowed from Ahmed et al. (2008). Three experiments have been conducted to gauge the impact of increase in Pakistan's exports on various economic aggregates of Pakistan. In the first simulation (SIM-I) Pakistan's exports have been increased by 5%, in the second simulation (SIM-II) by 10% and in the third simulation (SIM-III) by 15%.

INTERPRETATION OF RESULTS

Macro level

The GDP (at fixed cost) of Pakistan has registered growth of 1.474%, 2.911% and 4.314% in SIM-I, SIM-II and SIM-III respectively (table 1). This rise in GDP can be attributed to increase in investment, higher level of activities, increase in household incomes and hence higher savings. Investment has grown by 0.942%, 2.011% and 3.193% in the respective three experiments. This increase in investment is in line with theory as rise in institutional incomes and consequent rise

¹ Mathematical equations and economic aggregation can be provided on demand.

in their savings have resulted in higher investment. Government consumption has inflated by 0.702%, 1.418% and 2.141% while private consumption has risen by 0.936%, 1.859% and 2.769% due to rise in the incomes of institutions coupled with fall in the prices of various consumer goods and fall in the price of imports in terms of domestic currency due to appreciation of domestic currency.

Table 1. National Income Accounts (% Variation)

	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
GDP at Factor Prices	3377101.000	1.474	2.911	4.314
Government Consumption	408940.000	0.704	1.418	2.141
Investment	534109.000	0.942	2.011	3.193
Exports	677841.000	3.716	7.491	11.325
Imports	1030150.000	1.181	2.517	3.993
Net Indirect Taxes	251634.000	-0.163	-0.177	-0.059
Private Consumption	3037997.000	0.936	1.859	2.769

Source: research by authors

Both exports and imports have grown but the growth rate of exports is higher than that of imports (table 2 and 3). Exports have grown by 3.716%, 7.491% and 11.325%. This surge in exports is in conformity with economic literature as it is mainly due to rise in activity level, consequent increase in output and rise in GDP. Moreover, increase in imported inputs has led to increase in domestic output which in turn has increased the quantity of commodities to be exported. Imports have registered growth rate of 1.181%, 2.517% and 3.993%. This positive growth of imports is mainly the result of fall in the price of imports due to appreciation of domestic currency and increase in foreign exchange reserves due to more exports.

Table 2. Quantity of Exports for Commodities (% Variation)

Commodities	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Agriculture	26415	2.924	6.085	9.478
Mine	5292	6.755	13.305	19.635
Food Manufacturing	112975	1.890	3.868	5.928
Cotton Lint/Yarn	60824	1.595	3.232	4.908
Textiles	216278	1.734	3.452	5.157
Leather	15385	2.903	5.790	8.667
Other Manufacturing	122350	6.667	13.247	19.725
Services	118322	0.689	1.339	1.956

Source: research by authors

Table 3. Quantity of Imports for Commodities (% Variation)

Commodities	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Agriculture	36087	17.960	37.678	59.154
Mine	95779	0.720	1.487	2.296
Food Manufacturing	57923	14.577	30.111	46.564
Cotton Lint/Yarn	7297	14.472	29.952	46.421
Textiles	18918	15.603	32.514	50.730
Leather	1178	14.615	30.337	47.159
Other Manufacturing	807118	3.609	7.198	10.766
Services	53953	13.118	27.215	42.307

Source: research by authors

Domestic output

Output of most of the commodities has shown rising trend except mine (C-MINE), food manufacturing (C-FMAN) and other manufacturing (C-MANF) as shown in table 4.

Table 4. Level of Activities (% Variation)

Activities	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Agriculture	1364731	0.000	0.000	0.000
Mine	28424	-1.665	-3.156	-4.496
Food Manufacturing	673967	-0.174	-0.342	-0.503
Cotton Lint/Yarn	224415	0.289	0.561	0.820
Textiles	545403	0.530	1.029	1.500
Leather	35937	1.220	2.415	3.588
Other Manufacturing	646118	-0.724	-1.342	-1.866
Energy	189246	0.060	0.117	0.170
Services	3067054	0.059	0.106	0.142

Source: research by authors

The highest rise in the output of leather and textile is witnessed. The output of leather (C-LEAT) has increased by 1.220%, 2.415% and 3.58% respectively in the SIM-I, SIM-II and SIM-III. The output of those commodities has increased whose producer price and domestic price have risen and the commodities whose producer price has fallen their output has shrunk (table 5). However, the fall in the output of mine (C-MINE) is at the highest rate, it has observed the fall of 1.665%, 3.256% and 4.496% in the respective three experiments. On the other hand the quantity of domestic output sold domestically has fallen (table 6). Supply of composite commodities in domestic market has increased (table 7).

Table 5. Producer price for Commodities (% Variation)

Commodities	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Agriculture	1.000	0.393	0.744	1.056
Mine	1.000	-1.612	-2.970	-4.107
Food Manufacturing	1.000	0.432	0.842	1.235
Cotton Lint/Yarn	1.000	0.684	1.353	2.010
Textiles	1.000	0.719	1.438	2.158
Leather	1.000	0.565	1.143	1.734
Other Manufacturing	1.000	-1.272	-2.351	-3.260
Energy	1.000	0.552	1.153	1.799
Services	1.000	0.802	1.619	2.446

Source: research by authors

Table 6. Quantity Sold Domestically of Domestic Output (% Variation)

Commodities	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Agriculture	1338316	-0.058	-0.121	-0.189
Mine	23132	-3.624	-7.051	-10.296
Food Manufacturing	560992	-0.591	-1.197	-1.815
Cotton Lint/Yarn	163591	-0.198	-0.438	-0.714
Textiles	329125	-0.263	-0.574	-0.927
Leather	20552	-0.045	-0.137	-0.270
Other Manufacturing	523768	-2.477	-4.852	-7.134

Commodities	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Energy	189246	0.060	0.117	0.170
Services	2948732	0.034	0.057	0.069

Source: research by authors

Table 7. Quantity of Composite Goods Supplied Domestically (% Variation)

Commodities	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Agriculture	1374403	0.406	0.832	1.277
Mine	118911	-0.130	-0.193	-0.197
Food Manufacturing	618915	0.802	1.627	2.473
Cotton Lint/Yarn	170888	0.416	0.808	1.179
Textiles	348043	0.582	1.153	1.718
Leather	21730	0.735	1.455	2.163
Other Manufacturing	1330886	1.200	2.402	3.604
Energy	189246	0.060	0.117	0.170
Services	3002685	0.264	0.523	0.778

Source: research by authors

Incomes of households

Incomes of all households have shown soaring trend in all the three experiments but the rate of increase in incomes differ from household to household (table 9). The growth rate of incomes of households who are not concerned with agriculture sector is higher than the growth rate of incomes of those who are concerned with the agriculture sector (table 7). The income of urban poor households (H-URPR) has registered highest growth rate of 1.485%, 2.945% and 4.381% in the three experiments. The average prices (rewards) of all the factors have increased but the rate of increase in the prices of labour whether skilled or unskilled has remained higher than that of other factors (table 8). Price of unskilled labour has registered the highest rate of growth. Moreover, the output of leather and textile has witnessed substantial increase so the demand for skilled and unskilled labour has increased leading to increase in their rewards, hence, income of these households has increased. The increased outputs of domestic commodities and increased exports have indirectly increased labour demand. Resultantly, jobless workers have got employment and a source of income.

Table 8. Average Price of Factors (% Variation)

Factors	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Own Large Farm	1.059	0.659	1.230	1.725
Own Medium Farm	1.058	0.659	1.230	1.725
Own Small Farm	1.056	0.659	1.230	1.725
Agriculture Wage	1.081	0.659	1.230	1.725
Non-Agriculture Unskilled	1.058	1.878	3.740	5.485
Skilled	1.037	1.803	3.574	5.316
Large Farm	1.054	0.659	1.230	1.725
Irrigated Medium Farm	1.063	0.659	1.230	1.725
Irrigated Small Farm	1.059	0.659	1.230	1.725
Non-Irrigated Small Farm	0.979	0.659	1.230	1.725
Capital	1.067			

Source: research by authors

Table 9. Income of Households (% Variation)

Households	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Large Farm	93954	0.800	1.568	2.306
Medium Farm	226190	0.818	1.602	2.357
Small Farm	501515	0.937	1.847	2.735
Landless Farmers	104611	0.905	1.779	2.628
Rural Agriculture Landless	98471	0.948	1.867	2.760
Rural Non-Farm Non-Poor	400770	1.303	2.589	3.861
Rural Non-Farm Poor	134399	1.242	2.471	3.688
Urban Non-Poor	1744122	0.775	1.549	2.321
Urban Poor	181413	1.485	2.945	4.381

Source: research by authors

Welfare of households

Table 13 depicts that overall welfare of households has increased. Incomes of households have risen as a result of rise in factor rewards and higher level of activities. Higher incomes have lifted constraints to consume more (table 10) which in turn has guaranteed higher level of utility (table 12). Moreover, the welfare effect can be assessed by comparing prices of the factors owned by households and consumer prices of commodities (CPI). Table 8 represents average prices of factors while consumer price indices have been portrayed in table 11. By comparing the results of these tables it can be concluded that average factor prices have risen at higher rate than consumer prices of commodities. Consequently real incomes of households have risen.

The results about compensating variation (CV) of households reveal that the households would be better-off in the consequence of increased Pakistan's exports. All the households have positive CV. However, the highest CV is recorded by urban non-poor, non-farm non-poor, small farm and urban poor households (H-URNP, H-NFNP, H-SF and H-URPR) respectively. The highest value of CV for urban non-poor and non-farm non-poor (H-URNP and H-NFNP) is due to negative change in Consumer Price Indexes (CPIs) for these households and substantial increase in average price of factors – unskilled and skilled Labour (LA-SKU and LA-SK). The households who have witnessed negative change in their respective CPIs are Large farm, Medium farm, Non-farm non-poor, Urban non-poor households (H-LF, H-MF, H-NFNP and H-URNP). The low value of CV for Large Farm households (H-LF) is due to lower rewards of factors owned by H-LF, though it has witnessed negative change in its respective CPI. Anyhow, the lowest values of CV are recorded by Agriculture wage, non-farm and Large farm households (H-AGW, H-OF and H-LF) respectively. It is evident that the households related to agriculture have received fewer gains than households related to non-agriculture.

Nevertheless, the incomes and expenditures of all the households have soared. Consequently, an increase in utility is witnessed by all the households (table 12). However, the highest utility is recorded by Non-farm non-poor, Non-farm Poor and Urban poor households (H-NFNP, H-NFP and H-URPR). Conversely, the lowest gains in terms of utility are stipulated for Non-Farm and Agriculture wage households (H-OF and H-AGW). Such pattern of distribution of utility also confirms that more gains are promised for households engaged in non-agriculture (urban households). However, overall, economy-wide CV has risen (table 14).

Table 10. Consumption Expenditures of Households (% Variation)

Households	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Large Farm	84554	0.800	1.568	2.306
Medium Farm	214882	0.818	1.602	2.357
Small Farm	476443	0.937	1.847	2.735
Landless Farmers	99374	0.905	1.779	2.628
Rural Agriculture Landless	93542	0.948	1.867	2.760
Rural Non-Farm Non-Poor	360694	1.303	2.589	3.861
Rural Non-Farm Poor	127680	1.242	2.471	3.688
Urban Non-Poor	1408485	0.775	1.549	2.321
Urban Poor	172343	1.485	2.945	4.381

Source: research by authors

Table 11. Household Consumer Price Index (% Variation)

Households	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Large Farm	1.023	-0.126	-0.244	-0.355
Medium Farm	1.023	-0.130	-0.252	-0.367
Small Farm	1.020	0.082	0.156	0.222
Landless Farmers	1.021	0.140	0.268	0.385
Rural Agriculture Landless	1.020	0.204	0.392	0.563
Rural Non-Farm Non-Poor	1.022	-0.007	-0.015	-0.023
Rural Non-Farm Poor	1.023	0.143	0.272	0.390
Urban Non-Poor	1.021	-0.052	-0.098	-0.139
Urban Poor	1.022	0.136	0.261	0.377

Source: research by authors

Table 12. Utility of Households (% Variation)

Households	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Large Farm	82670	0.927	1.816	2.670
Medium Farm	210039	0.949	1.859	2.734
Small Farm	467056	0.854	1.689	2.507
Landless Farmers	97329	0.763	1.507	2.234
Rural Agriculture Landless	91732	0.742	1.470	2.184
Rural Non-Farm Non-Poor	352910	1.310	2.604	3.885
Rural Non-Farm Poor	124810	1.098	2.192	3.285
Urban Non-Poor	1379794	0.827	1.648	2.463
Urban Poor	168712	1.347	2.677	3.990

Source: research by authors

Table 13. Compensating Variation of Households

Households	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Large Farm	783.018	1531.453	2249.628
Medium Farm	2036.844	39833.94	5852.417
Small Farm	4074.444	8060.780	11972.136
Landless Farmers	759.681	1501.683	2228.701
Rural Agriculture Landless	695.911	1380.172	2054.809
Rural Non-Farm Non-Poor	4724.538	9392.037	14010.118
Rural Non-Farm Poor	1403.589	2806.924	4210.789

Households	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Urban Non-Poor	11648.041	23194.694	34648.929
Urban Poor	2322.181	4624.842	6901.769

Source: research by authors

Table 14. Economy Wide Compensating Variation

	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Total Compensating Variation	0.937	1.859	2.769

Source: research by authors

Inequality

Inequality has been a question of debate. A great deal of economic literature has been devoted to answer whether inequality retards the process of economic growth or not? A number of different techniques and indicators are used by economists to measure inequality but the most popular and common in practice are Hoover index and Theil indices: Theil-L, Theil-T and Theil-S. These indicators measure intra-group and inter group inequality. However, in this study inequality among groups has been measured. The results of these indices, as depicted in table 15, show that inequality among the household groups has decreased with the increase in Pakistan's exports as these indices have shown smaller values in SIM-I than in SIM-II and so on.

Table 15. Indices of Inequality

Indices	Base	Simulation-I (5%)	Simulation-II (10%)	Simulation-III (15%)
Theil-T	0.318	0.317	0.316	0.315
Theil-L	0.326	0.325	0.324	0.323
Theil-S	0.322	0.321	0.320	0.319
Hoover Index	0.346	0.345	0.344	0.344

Source: research by authors

CONCLUSION

The study employs CGE model, on the data provided in SAM 2007-08 for Pakistan designed by Dorosh et al. (2012). Trade elasticities for different commodities in Pakistan have been borrowed from Ahmed et al. (2008). Three experiments are performed to gauge the impact of increase in Pakistan's exports on its various economic aggregates. Pakistan's exports have been increased by 5% in the first simulation (SIM-I), in the second simulation (SIM-II) by 10% and in the third simulation (SIM-III) by 15%. The findings of the study reveal that increase in exports has favourable impact on the performance of macroeconomic variables of Pakistan's economy i.e. GDP, public and private consumption, savings and investment. Domestic output level of most of the commodities has risen except mine, food manufacturing and other manufacturing. Incomes and expenditures of all the households have risen. Resultantly, utility level of all the households has risen. Moreover, all the households have also recorded an increase in the values of compensating variation which implies higher level of welfare for households. However, the value of compensating variation for non-agriculture households has risen more than that of agriculture households indicating pro-urban effect. Equality among the households has improved as the inequality indices have registered declining trend. All this suggests that export promotion measures should be incorporated in poverty alleviation, income equality and economic growth strategies.

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