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The Impact of Fiscal Policy Shocks on Ethiopian Economy: Evidence from Import Tariff and Direct Tax Using Stage CGE Modeling Approach

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Abstract

Fiscal policy is one of the macroeconomic policies, which play a decisive role on economic growth especially in developing economies, which have many economic and social bottlenecks. This study examines the impacts of fiscal policy shock on Ethiopian economy by applying static computable general equilibrium (Stage CGE) model, which allows quantifying the impacts of fiscal instrument shocks on the economy and welfare of households. Fiscal problems like small tax revenue and consistent fiscal deficit put its own major influences on developing economies performance. The study uses 2009/10 Ethiopian SAM as an input for the model and applies three simulation scenarios. In the first simulation, tariff cut affects GDP and household welfare negatively. In the second simulation, increasing direct tax has negative impact on total GDP. The other alternative simulation scenario is reducing direct tax, which showed a positive change on the total GDP. The study suggests that the government should reduce direct tax to improve economic performance. In addition, liberalizing tariff is not advisable for Ethiopian economy.

Keywords: Fiscal policy, tariff cut, direct tax, Stage CGE model, Ethiopia economy

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Introduction

Economic performance of a nation depends on many factors, which includes physical and human capital endowment, technological progress, institutions and population growth (Todaro and Smith, 2012). Another extremely important factor affecting economic growth is the set of macroeconomic policies, which are fiscal, foreign exchange and monetary policies. Fiscal policy is concerned on government spending and taxation, which is linked to government expenditure plan and taxation structure of an economy (Bernanke et al., 2001 and Black et al., 2013). Studying the impact of fiscal policy on once country economy is very decisive to have a sound economic environment. Since designing proper fiscal policy enables the government to attain economic objectives like reducing unemployment, price stabilization, income distribution, and economic growth.

The historic myth of fiscal policy in macroeconomic concern starts from Keynes who argues that understanding economic fluctuations and market failure should take into consideration and the role of government is necessary to manage this kind of economic events and to stimulate economic activities (Bernanke et al., 2001 & Vane et al., 2005).

Ethiopia has many economic and social bottlenecks, manifested by poor infrastructure and inadequate social services that require intervention of the government. Beside these, different studies find out that the role of government intervention via its spending and taxation policy plays an important role for economic growth. Studies also assure fiscal instruments contribute significant role for developing countries economic growth through creating employment opportunities, R & D, and infrastructural development (James et al., 2014).

The current government of Ethiopia has taken different Fiscal policy reforms, which includes, decentralized budget administration, and amendment of tax policies like exemption of taxes on exports, introducing VAT, tariff exemption on capital goods for huge investments and other incentives. Besides, government made a reform on margin tax rate on income tax from 89% in the previous regime to 35% (Abebe and Alemayehu, 2005). Those fiscal policy reforms have played a decisive role for Ethiopian economic growth especially for the last sixteen years (1999/2000 - 2014/15) the county's economy was grown by 9% on average as indicated government report.

Learning from different reviews about fiscal policy of developing countries economy; small tax revenue due to weak tax administration, narrow tax base, and high tax evasion; high and cumbersome trade tax and negative fiscal balance is the major challenges for developing countries economy. Kefela (2009); Dan and Claudius (2010) assure these problems are series specially SSA countries including Ethiopia; Because of these developing countries economy unable to generate adequate tax revenue to finance economic and social development programs. Statistical facts also show that SSA countries could collect total tax revenue, 15% of their GDP on average from 2011 to 2015(NPC, 2016). In line to this, the share of tax revenue to GDP in Ethiopia is smaller, compared to SSA countries average. This manifested by the fact that, tax revenue collected as percentage of GDP was 8.16% in 2010/11 and 9.2% in 2011/12 (IMF, 2016).

Dan and Claudius (2010) also identify cumbersome customs procedure and high tariff is the major obstacle for Ethiopian trade performance and which result to small share of trade to GDP and small tax revenue. Even though this problem set as obstacle; tariff is the major source of government revenue which takes the highest share. For instance, in 2012/13 tariff revenue was 30.8% , and 27.06% in 2015/16; while direct tax in the same fiscal year takes the share 29.3% and 31% respectively.

Statistical facts and studies have confirmed that economies which rely on domestic tax bases secure sustainable economic growth (Hagen and Wyplosz, 2008; Yan, 2012). In line with this, broadening domestic tax is taken as policy option by most developed countries and it is effective in generating enough revenue and to finance government budget thereby sustainable growth would be achieved. For instance, OECD (2015) shown that most of European counties collected high tax revenue about 30% of their GDP on average from 1985 to 2015; however, this reality is bit far in Ethiopia context.

It is a clear cut that changing taxation policy of a country affects the economic performance as well as the welfare of households. Maio et al. (1999) argue trade liberalization (removal of tariff) could not improve the economic growth of Africa in the long run, rather deteriorate social and economic indicators. While Dorosh et al. (2000) argues that liberalizing trade can encourage the

economic performance of Africa; Taylor and Estevadeordal (2008) also argue, liberalizing tariff on imported capital and intermediate goods has apositive result in promoting developing countries economic growth.

The impact of tariff reduction (trade liberalization) in case of Ethiopia is inconclusive. Kebede (2011) tariff reduction improves Ethiopian economic performance and welfare of households; while Bisrat (2009) also argue complete removal of tariff in the ethiopian economy hampers the overall economy performance and worse welfare of households in the short run, however, it has positive impact in the long run. Belay et al. (2016) also argue tariff cut affects the overall economy negatively and results to get worse household welfare.

Ali et al. (2014) argue on his study, taxation effects on pakistan economy; increasing income tax affects the economy negatively through reducing consumption as well as reducing saving and investment. Macek (2014) also confirm an increase in corporate and personal income tax affect economic growth negatively.

As studies result shown about the impact of tariff reduction on Ethiopian economy is inconclusive; which is some of the finding suport tariff reduction and explain the postive impact while others argue tariff reduction is not effective in improving Ethiopian economic growth. However,currently Ethiopia is on the way of WTO accession request. Following, the accession request the country is forced to revise taxation policy in order to fulfill the membership criteria. One of the criteria that member counties are expected to fulfill is; "tariff rates on goods must considerably lower and service market must be more open to the international market" (Marković, 2009). However, reducing tariff may result to increase fiscal imbalnce or deficit and reduce government saving and investment.To manage this fiscal imbalance, government forced to see various policy options; one of the options is revising direct tax policy to replace the lost revenues through tariff reduction. In this respect, the share of direc tax to total government revenue which is generated from domestic tax base is smaller compared to import tariff. The main aim of this study also to analyse what could be the efects of this policy shock on the Ethiopian economy.

There are studies that have been conducted so far related to the impact of fiscal instruments on Ethiopian economy. Some studies have used CGE modeling (Fekadu, 2007 and Bisrat, 2009) while others used time series econometrics and most of them focused on the impact of trade liberalization/tariff removal/ on the Ethiopian economy. However, no much studies show the combined effects of tariff and other tax policy shocks on Ethiopian economy. The aim of this study is to bring additional knowledge in the area of fiscal policy through examining the combined effects of fiscal instruments on the Ethiopian economy by applying static CGE modeling analysis. Therefore, the study addresses the impact of fiscal policy shock on Ethiopian economy through concentrating on the following research questions: what are the impacts of changing direct tax on the economy and welfare of households? What are the impacts of tariff cut on Ethiopian economy and households' welfare?

Literature Review

Theoretical Literature

There is no feasible consensus about the impact of fiscal policy on economic growth between different economic schools and studies. Opponents argue government operations are bureaucratic and inefficient rather than promoting growth. Classicalists and monetarists argue fiscal policy through increasing government spending would increase aggregate demand and increases interest rate, which leads to crowding out private investment, without affecting output level (Heijdra, 2009). Mountford and Uhlig (2002) also find out and argued increasing government spending or positive shock results crowd out both residential and non-residential investment but it doesn't affect consumption, in addition and increase in tax has a contractionary effect on output, consumption and investment. On the other hand, proponents of government intervention on economic activity argue fiscal policy plays stimulating and stabilizing role to economic growth.

Following the great depression, classical models challenged when market was irresponsible to manage itself and Keynes develop AD/AS model which conceptualize change in aggregate output in the short run determined by aggregate demand. In line with this, government plays an active role through it fiscal policy actions to improve the economy; when economic downturn happened. In addition to this, fiscal policy has multiplier effect on output through government expenditure and tax multiplier (Heijdra, 2009 and Mishkin, 2012). Perotti and Blanchard (1999 & 2002) find

out positive government spending shock affects output positively and positive tax shock affects output negatively, which holds Keynesian model.

In the contrary, Blinder (2004) the case against discretionary fiscal policy; find out monetary policy plays prominent role to stabilaze the economy than fiscal policy even if it affects aggregate demand in the short run. On the other hand, Carlos and Ethan (2008), and Parker (2011) supports the expansionary impact of fiscal policy on the economic growth of a country through stimulating aggregate demand when the economy is at recession.

Barro (1990) and Romer (1994) on the endogenous growth model; fiscal policy is responsible factor and endogenous part of economic growth through its instrument taxes and expenditures. Government spending on human capital development, science and technology and infrastructural development is an important spending category. Thus, infers government interference is an essential and necessary for developing economies.

Besides this fiscal policy is described with the tax dimension which is the source of government revenue. In connection with this, many studies discussed fiscal multiplier issues including tax multiplier. Crichton and Vegh, (2012) identified tax rate as a true instrument to measure tax policy and they argue tax multiplier has contractionary impact on output; which means tax hikes results to contract out put through reducing aggregate demand and investment. Favero et al. (2015) and Giavazzi et al. (2016) on fiscal adjustment and its output effects; argued reducing government expenditure is almost costless; while increasing tax results to long lasting recession through affecting investment and consumption. Reducing government spending does not show Keynesian effects, in the contrary, tax hikes show Keynesian effects. Here the impact of fiscal policy on output depends on the model used and the data they used.

Empirical Evidences

A number of studies examined the impact of fiscal policy in general and tariff liberalization as well as direct tax (income tax reform) in particular on economic growth but there is no conclusive result. Some argues fiscal policy stimulates economic growth of developing countries while others argue it is not effective.

Kneller (2000) examined the effects of public expenditure and tax on economic growth in order to test endogenous growth model and found that a positive and significant result on productive expenditures (education, health, and R&D); while non-productive public expenditure (social security, administration and others) is insignificant compared to productive spending. Besides this, increasing distortionary tax (income tax) reduces economic growth significantly; and non-distortionary tax (consumption tax) has negative effect but insignificant effect on economic growth.

Annabi et al. (2005) examined the impact of trade liberalization on growth and poverty in Senegal by employing CGE (micro simulation model analysis), and found full tariff removal leads to increase poverty and inequalities in the short run. In the long run, trade liberalization enhances capital accumulation particularly in the industrial and service sectors and brought a significant increase in welfare and decrease in poverty. Bhasin and Obeng (2005) examined the impact of trade tax removal on poverty and income distribution of Ghana through increasing VAT. The study was made using two senarios; i.e. eliminating import related tax and increasing 100 % VAT, and elimination of export tax accompined with 100% increase in VAT. The finding shows the incedences, and depth of poverty and income distribution among households were improved in the first scenario. While in the second scenario they finding shows t the incedence, and severty of poverty increase and income distributions were worsening.

Baris and Metin (2017) examines the effect of reducing personal income tax on welfare and macroeconomy of Turkey through applying static CGE and found that, postive effect on the overall economy and mixed welfare effect which is negatively affect welfare of poor households and positive effect to rich households welfare.

Dartanto (2009) conducted a study on measuring the effectiveness of fiscal policy in alleviating poverty incidence in Indonesia by using CGE-MSM and found different results through simulating different fiscal instruments. Among the findings the increased transfer financed either by increasing VAT rate or increasing income tax rate was not effective to alleviate poverty; because both progressive transfer and VAT results for inflation which worsens welfare of poor households.

On other side government spending on education, health and infrastructures financed through increasing income tax shows a significant result in reducing poverty incidence.

Seid (2007) used sequential dynamic CGE model to analyze the potential impact of trade liberalization on poverty and inequality in case of Ethiopia. The study was incorporated the linkage between trade liberalization, growth, income distribution and poverty and examined the effect of gradual and rational liberalization. The finding shows that, a negative effect on real GDP in the short run. As the study indicates, the effect of trade liberalization on poverty, welfare, income distribution and growth is inconclusive and it depends on time duration. Alekaw (2011) examined the effects of tariff reduction on income inequality and growth by applying CGE-MSM and find out tariff rate reduction followed by increasing other tax revenue source is insignificant effect on the economy as whole, poverty reduction, and income distribution in Ethiopia. Nevertheless, replacing tariff revenue lost by increasing direct tax has some positive effect in promoting growth, increase in social welfare, reducing poverty and narrowing income inequalities, but it was insignificant.

On the other hand, Jibril (2012) exmined the impact of public spending on economic growth and poverty reduction in case of Ethiopia through using dynamic CGE analysis. The study find out that public spending contributed significant role to growth of the macro economy, welfare and poverty reduction. According to Eshete Z.S. (2014), composition of public spending and efficiency has an impact on economic growth and household welfare in Ethiopia. The study was conducted through applying recursive dynamic CGE model. It discloses that the role of government through expanding public investment in productive economic activities and improving its efficiency gives an encouraging result in the growth of GDP as well as the welfare of households. Sang-ho (2015) examined the effect of fiscal spending on employment and welfare with CGE analysis in Korea. According to the study, fiscal spending influences positively both employment and welfare through increasing job creation, education and healthcare services.

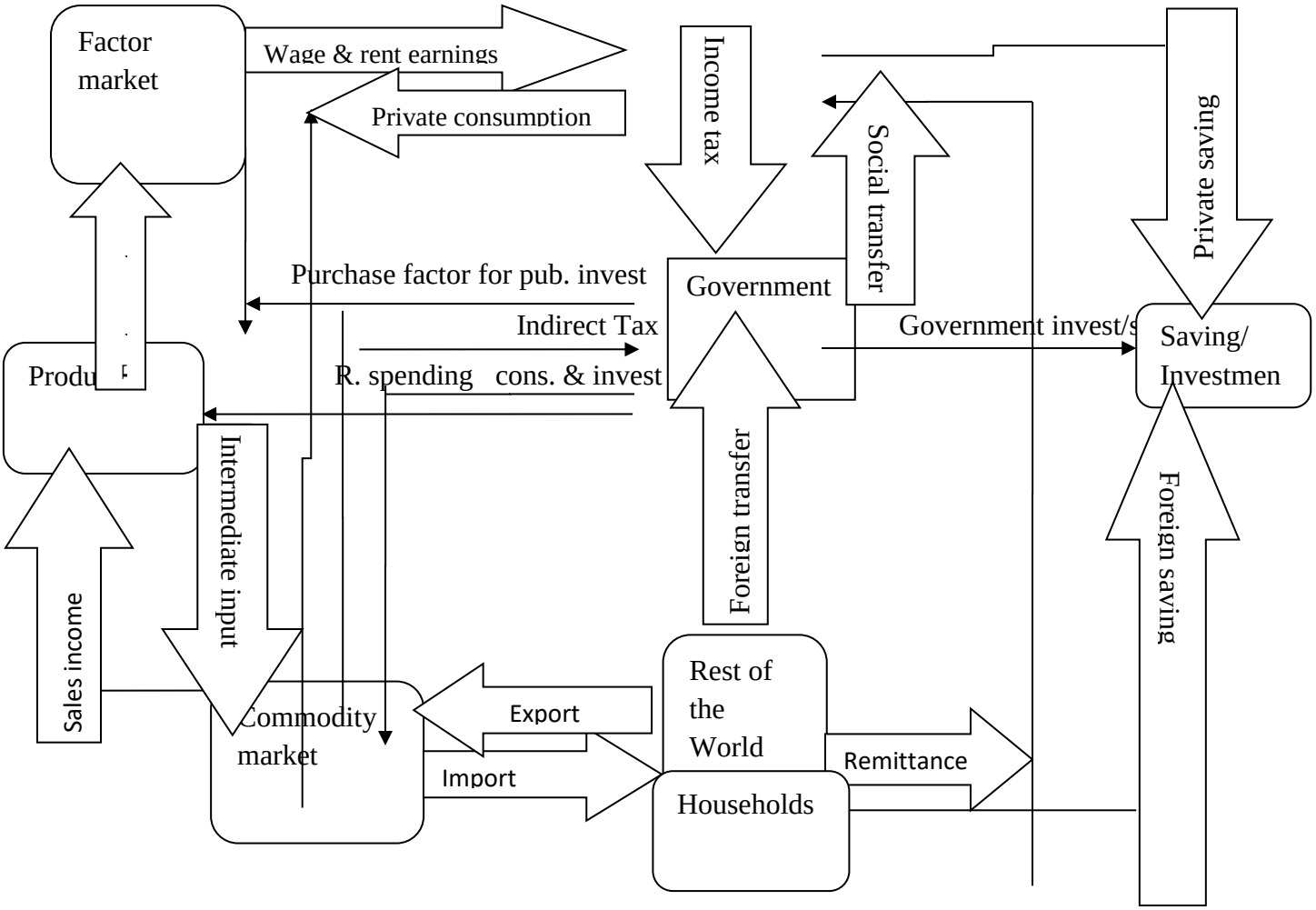
As discussed both in theoretical and empirical review there is no consensus among economic schools as well as researchers. The reason for those conflicting results methodological difference, time variation, economic structure of the country and other political reasons may contribute its

own effects. However, the reasons listed as citrus paribus most studies result show that fiscal policy towards capital spending has a significant influence on the economy.

Figure 1

Circular flow of the economy under government intervention

Figure (1) shows the circular flow of the economy under government intervention. The study designs this figure for the convenience to conceptualize and analyze the effect of government intervention in the economy through its taxation and spending policy.



Source: Based on Literature

Fiscal policy enables the government to direct the economy through expenditures and taxation policies. Governments may want to increase its revenue to finance their budget gap or to mobilize additional resources or stimulate the economy. To achieve this target government, intervene to the

economy through fiscal policy. This policy influences households and the economy at large directly or indirectly. To increase government revenue government, change its taxation policies; in such case households affected directly or indirectly. An increase in income tax influences the households through reducing their disposable income and consumptions. In the reverse when government reduce income tax, increases household's disposable income; this leads to an increase in consumption, saving and stimulate aggregate demand in the economy at large.

On the other hand, government intervenes to the economy through its spending policy. Collected revenues through tax are used to finance public goods such as infrastructure like road, electric utility, communication and others, health care, education, security and other government services. Government also plays an important role through conditional cash or other technical transfer to poor households in the form of safety net programs and other social transfer, which enables to improve household welfare. Government can influence firms directly through providing subsidies to promote the economy like tax incentives, which is tax holyday, and other incentives. Besides this, Government influences the factor market through reducing unemployment by increasing expenditure to create employment opportunities and directly involves in the factor market through hiring labor and capital goods for public investment.

Government influences the commodity market through direct purchase of final commodities and intermediate inputs for public investments. When government apply expansionary fiscal policy or increase its spending, results to increase aggregate demand and stimulate commodity market which promote economic growth. However, an expansionary fiscal policy may result to inflationary pressure if not managed well.

Data and Methodology

This chapter discusses model specification, sources of data and method of data analysis. The study focuses on examining the impacts of fiscal policy shock on the overall Ethiopian economy and household welfare. The study used static compatible general equilibrium (CGE) model. Source of data for this study is Ethiopian 2009/10 SAM, National Bank of Ethiopia, Ethiopian Central

Statistics Agency, Ministry of Finance and Economic Development, and others. The study used Ethiopian 2009/10 SAM as a benchmark data source.

Specification of CGE Model

CGE model is widely used model, which uses real economic data to estimate how the economy responds to policy changes like trade, taxation, public expenditure and other external factors. Beside this, using CGE model enables to capture various economic variables at a time and asses its policy impact. CGE model specification in this study follows the work of McDonald (2007, 2009) and Lofgren et al. (2002).

The study uses 2009/10 Ethiopian SAM as input to examine the impact of fiscal policy shock on Ethiopian economy and household welfare in particular. Many studies have used different methodologies to know the impacts of fiscal policy on Ethiopia economy and welfare of the society (Abdu & Melesse, 2014, Teshome, 2006, Tewodaj eta al, 2008) used econometrics analysis and others have also used CGE modeling but they focused on the impact of tariff removal on the Ethiopian economy (Tadele, 2005, Fekadu, 2007, Seid, 2012). Among the models, this study use static compatible general equilibrium (CGE) model due to the following advantages. (1) It enables to cover broad representation of economic variables in the economic system and to compute the impacts of policy shocks on the economic system. It also enables to capture the response of economic agents i.e. firms, households and government. (2) CGE models provide a framework to simulate policy changes and trace the effects on key economic variables (Lofgren et al, 2002, McDonald, 2007).

From fiscal policy perspectives, the study examines the impact of changing direct tax, and tariff cut on Ethiopian economy and welfare of households. To do such policy shock analysis the study used static CGE model. The model designed with many equation blocks, i.e. “trade, commodity price, numeraire, production, factor, household, government, capital, foreign institutions and market clearing or closure” (McDonald, 2007).

Simulation Scenarios

Economic policy changes affect different stakeholders i.e. government, households, and firms. Various economic policies are designed by the government. Among these policies, fiscal policy is the major one. Governments use fiscal instruments to mobilize resources and enhance economic growth as well as to control market instability. From those fiscal instruments, government spending and tax takes major place. In order to analyze the effects of those fiscal instruments on Ethiopian economy; the study applies three different scenario or simulation experiment, which includes, reducing tariff, increasing direct tax, and reducing direct tax.

The first simulation scenario (SIM-1) this simulation considers the current policy dimension; currently the government on the ways of world trade accession request. One of the criteria that member counties are expected to fulfill is; "tariff rates on goods must be considerably lower and service market must be more open to the international market" (Marković, 2009). Import tariff simulation is applied through classifying commodities in to two categories, which are import competitive commodities, which is tariff protected and non-import competitive commodities. In 2009/10 SAM Ethiopia imported 38 commodities from these 19 commodities are subject to import tariff. In this study, some commodities (textile, paper, chemical, cloth and food) are tariff protected based on WTO infant industry agreement and the rest non import competitive commodities are subject to tariff reduction. Based on this, the study takes 50% tariff rate reduction for all non-import competitive commodities.

The second simulation scenario (SIM-2) is increasing direct tax by 10 %. In this scenario, the study analyzes the impact of increasing direct tax on the economy in general and households in particular. This is because increasing direct tax enables the government to generate additional revenue to cover additional expenditure. Based on this, the study simulates direct tax by increasing 10 % through using income tax rate in the model.

The third alternative simulation scenario (SIM-3) is reducing direct tax by the same percentage in the second scenario. In this simulation scenario, the study investigates the impacts of reducing direct tax on the economy in general and households in particular, because theoretically the impact of reducing tax motivates investment (saving), consumption demand and the economy in total. The

reason for selecting 10% simulation for SIM-II and SIM-III is by approximating the average economic growth from 2010/11 - 2014/15, which was 10 %.

Result and Discussion

The impacts of tariff cut on different Economic variables:

Impact of tarrif on factor income

As indicated in table (5.1) 50% tariff cut shows significant changes on the income of factors. Following tariff cut the income to capital increased by 0.9167%; this is besically because of an increase in the demand for capital goods by activities. Since reducing tariff enables the firm to consume more factors and leads to an increase in the demand for factors. In addition, tariff reduction may attract FDI which increase the demand for factors. For instance activity business services, activity metal, and activity vehicle increases their demand for by 28.64,12.41, and 12.87%, respectively.

In the same way income to labor also shows a positive changes. Which is because of an increment in the factors price of labor. Factor labor takes the dominant factor income share. This assures that the country's economy is labor intensive economy. As shown in the table 1 labor income changes significantly as compared to other factors which is about 5.5499%. In general following tariff cut the price of factors increased and results to increase the income to factors.

Table 1

Percentag change in factor income

Factors	Percentage change in factor income
Capital	0.9167
Labor	5.5499
Land	2.9750
Livestock	1.3745

Source: own computation from simulation result

The impact of tariff cut on households income and expenditure

In the simulation (SIM-I) tariff cut has a positive impact on household income. As indicated in the table 2 following the tariff cut, rural non-poor households gain the highest income change as compared to other household categories by 4.0952%, this is because of an increase in the price of factors. In addition, tariff reduction leads to depreciation of exchange rate, which promotes remittance from the rest of the world and increases the income of households who gain income from remittance. This makes beneficial large urban non-poor households who gains the highest share of remittance compared to other households by 12.99% of their total income. Tariff cut also results to decrease the prices of industrial commodity; this enables to increase household's consumption level.

On the other hand tariff cut results to increase expenditure of rural poor and non poor households by 1.5534% and 0.7061% respectively; since those households highly consume agricultural products which are not imported. In the simulation result the price of agricultural products increased. For instance the price of fruit, maize, teff and wheat increase by 0.755,0.758, 0.760, and 0.764% respectively. Because of this, consumption expenditure of rural households increased. While expenditure of large urban poor and non-poor households expenditure reduced by 0.0542 and 0.888% respectively. This due to a decrease in the price industrial and service commodities. For example the price of other manufctured goods reduced by 1.743%. This results households can consume more with least cost.

Table 2

Percentage change in household's income and expenditure because of tariff reduction

Households	**Income**	**Expenditure**
Rural poor households	3.7326	1.5534
Rural non-poor households	4.0952	0.7061
Large urban poor households	0.8835	-0.0542
Large urban non- poor households	0.9008	-0.8883

Source: own computation from simulation result

The impacts of tariff cut on macro variables

Impact on export: tariff cut by 50% promotes export of many commodities. For instance, export of commodities (cut flowers, coffee, oilseeds, chat, fruit, dairy and others) increased significantly. Tariff cut results to reduce the price of imported commodities; which enables the firm to access intermediate commodities with least cost. This promotes production of export commodities and able to compete in the international market in terms of price.

Impact on import: the reduction in tariff reduces the price of commodities imported and increases volume of imports. For instance, the volume of import of on other manufacturing commodities, tea, and non-metal, metal, vehicles and others show an increment.

Impact on government consumption: reducing tariff result to decrease in government revenue and results to diminish government consumption by 0.3125%.

***Impacts on private consumption*:** as indicated in table 3, tariff cut results to reduce private consumption by 0.1735%. This is because of a decrease in the supply of composite commodities. Even though the volume of imported commodities increased, domestic supply of some commodities, which are mainly used for household consumption, has decreased. The reason for reduction in domestic output is an increase in factor price, which leads to increase production cost and results to decrease domestic production. For instance, the supply of agricultural commodities like teff, barly, enset, fruit, vegetables and others show a negative change. This supply gap results to an increase in the consumer price of commodities and leads to reduce private consumption.

Impact on GDP: the overall impact of tariff cut on Ethiopian economy is negative and which result to diminish the country's GDP by 0.0329%.

Table 3

Percentage change in macro variables because of tariff cut

Variable	(%) Changes
private consumption	-0.1735
government consumption	-0.3125
investment	0.9351
import	1.0861
export	2.3346
GDP	-0.0329

Source: own computation from simulation result

The impact of direct taxes on Economic variables:

The impact of increasing direct tax on household income

It is known that the impact of increasing income tax on an individual tax payer households is negative. This means an increase in tax may reduce the dispoasable income, saving and consumption. In the model households gain their income from factor income, inter household transfer, governement transfer and remitance from the rest of the world.

An increase in direct tax reduces households income, and consumption expenditure which leads to reduce the demand for commodities. In the simulation result an increase in direct tax affect households like, large urban non poor and non farm non poor households negatively. Because of an increase in direct tax / income tax/ by 10%, the income households decreased by (0.1034%) ,(0.0961%). This basically, an increase in direct tax results to decrease income from some factors like capital, skilled and semi-skilled labor. Due to 10% increment in direct tax, income from capital, skilled and semi skilled labor reduced by 0.1108, 0.1425 and 0.1333 percent respectively. This is because of a reduction in demand for those factors, and this leads to decrease their price and results to decrease the income of four households in table(5.4); since large urban non poor and non farm non poor households gain their income mainly from capital, skilled and semiskilled labor. For instance in Ethiopian SAM 2009/10 non farm non poor households gain 39.92 % of their income from capital and 22.39 % from skilled labor.

On the other hand consumption expenditure of large urban non poor and non farm non poor households decreased by (4.71%) and (6.16%) respectively. Due to a decrease in consumption spending; demand for industrial commodities affected negatively. In 2009/10 Ethioapian SAM large urban non poor household spend the highest share of their expenditure on industrial commodities(38.4%). Eventhough an increase in direct tax affects some households income, consumption and saving negatively; it affects other households positively. This is because of an increase in direct tax leads to increase government revenue and result to increase government transfer to poor households in the form of infrustructure development, saftynet, health and eduction.

Table 4

Percentage change in income and expenditure due to increasing direct tax at 10%

Household type	Households income	Households consumption expenditure
Rural Farm Poor	0.591	4.342
Rural Farm Non Poor	0.144	5.914
Non-Farm Poor	-0.077	1.009
Non-Farm Non Poor	-0.096	-6.164
Urban Poor	-0.079	1.996
Urban Non Poor	-0.103	-4.714

Source: own computation from simulation result

Besides this an increase in direct tax results to diminish the income of some factors like capital, skilled and semi-skilled labor. This is because of a reduction in demand for these factors, and this leads to decrease their price and results to decrease the income of the bove listed four households in table 4; since they gain their income mainly from capital, skilled and semiskilled labor. For instance non farm non poor households gain 39.92 percent of their income from capital and 22.39 % from skilled labor.

The impacts of increasing direct tax on macro variables

An increase in direct tax affects macro economic variables like GDP, export, import, private consumption and government consumption in different way. As indicated in table 5, the demand side of the economy is dominated by private consumption. In connection with this the study analyses the effect of increasing direct tax on those demand side macroeconomic variables.

According to the simulation result in table (4.4) increasing direct tax has negative impact on the over all GDP of the country. This is because of three basic reasons (I) an increase in direct tax results to decrease private consumption by 0.0035%. When government increase tax, the income of households decreased, this affects consumption expenditure and saving negatively. In the model income tax is negatively related to households expenditure. Following the reduction in consumption spending of households, the demand for commodities consumed by households reduced and then results to decrease the demand for composite commodites; (II) an increase in direct tax result to an increase price of commodities. An increase in the price of commodities, exporters prefer the domestic market rather than exporting to the rest of the world. In the model when domestic price of commodities increase the quantity export is decreased. Because of this and other related reasons export demand reduced by 0.0626%; (III) an increase in direct tax result to decrease import. This is basically because of two reasons, which is the income and price effect. An increase in direct tax results to reduce the demand for composite commodities, since households income is reduced because of an increase in tax. This results to decrease consumption spending, reduce the demand for commodities, and finally results to decrease import by 0.0253%.

On the other hand, increasing direct tax results to increase price and leads to shortage of foreign currency to import commodities. Following an increase in the price of commodities in the domestic market, the quantity of export has decreased and resulted in shortage of hard currency to import commodities. In addition, in the model GDP is the function of the weighted sum of factor income and tax revenue. Because of an increase in direct tax, the income of some factors decreased. For instance, income to capital, skilled and semi-skilled reduced by 0.1108, 0.1425 and 0.1333% respectively; this result to decrease the overall GDP. Even if different scholars argue that an increase in tax affects investment negatively. For instances (Vartia, 2008), (Sofia et al, 2014) finds an evidence that increasing corporate and personal income tax affects productivity negatively. However, in this study, the simulation result shows an increase in direct tax results to increase investment demand. In the model, investment is equal to saving, and total saving is the sum of government saving and private saving. In line with this, an increase in direct tax increases government revenue and saving. This in turn results to increase government consumption spending and saving by 0.0092% and 1.54%, respectively.

In the Ethiopian SAM 2009/10, investment spending takes the highest share from the total government spending by 52.36%. Because of this, an increase direct tax increases government investment, which results to increase total investment by 0.0075%. In addition to this fact; as Ethiopian SAM 2009/10 indicates the share of saving or investment is government (41%), private (34%) and the rest of the world (25%).This shows that government investment overwhelm other private saving and investment. This means increasing tax does not always reduce investment. Specially in developing economy, government investment takes the hihghest share compared to private and the rest of the world. Because of this and other related reason an increase in direct tax increases total investment demand through increasing government saving.

Table 4.5

The impacts of increasing direct tax on macro variables

Variable	Percentage Changes
Private consumption	-0.0035
Government consumption	0.0092
Investment	0.0075
Import	-0.0253
Export	-0.0626
GDP	-3.521E-05

Source: own computation from simulation result

The impact of reducing direct tax on factors and households income

Reducing in tax increases disposable income or income after tax of households. In the simulation result when direct tax reduced by 10% the income of tax payers (large urban non poor and non farm nonpoor) households increased by 0.009 and 0.0084 % respectively. This positive change is basicaly because of an increase in factor income of capital, skilled and semiskilled labor. In the Ethiopian SAM 2009/10 this two households gain most of their income from capital, sikilled and semi-skilled labors. For instance non farm non poor households gain 39.92% of their income from capital and 22.39% from skilled labor. Here the question is how reducing tax increases factor income? Following the reduction in tax the demand for capital, skilled and semiskilled labor increased and results to increase the prices of those factors by 0.0097, 0.0123, and 0.0116% respectively. The reduction in tax does not only increase income; it also increase households consumption and saving. In line with this, those direct tax payer households consumption

expenditure increased by 0.41 and 0.55% respectively and their saving is increased by 1.57 percent. Eventhough the reduction in direct tax affect large urban non poor and non farm non poor housholds income, consumption and saving positively; it affects other households negatively. The first reason for reduction in the income of other household is the decrease in demand for factors which is suplied by those households. Follwing this the price of factors of unskilled labor, land and livestock decreased by 0.056, 0.05 and 0.204 % respectively. In addition to this the reduction in tax rate results to decrease government revenue and leads to reduce government transfer to poor households.

The impacts of reducing direct tax on macro variables

Reducing direct tax affects total GDP positively and which result to increase by 0.00016%. This mainly because of the following reasons (I) reducing direct tax leads to increase house hold income, consumption spending as well as demand for composite commodities and this leads to increases total private consumption by 0.0367%. (II) Following the reduction in direct tax, the demand for composite commodities increased and it promotes domestic production and import of commodities. An increase in domestic production results to decrease domestic price of commodities and promote export. On the other hand, reducing direct tax result to reduce price of commodities and promotes import. Ethiopia imports mostly intermediate commodities, which are used for inputs for further production. Because of this, reducing direct tax promote/increase import by 0.2659%. However, reducing direct tax results to decrease government revenue and consumption by -0.0967%. This in turn affects investment demand negatively. As discussed above government saving determines total investment.

Table 6

Percentage change in macro variable because of reducing direct tax

	Percentage change (real)
GDP	0.00016
Export	0.6583
Import	0.2659
Investment	-0.0786
Government consumption	-0.0967
Private consumption	0.0367

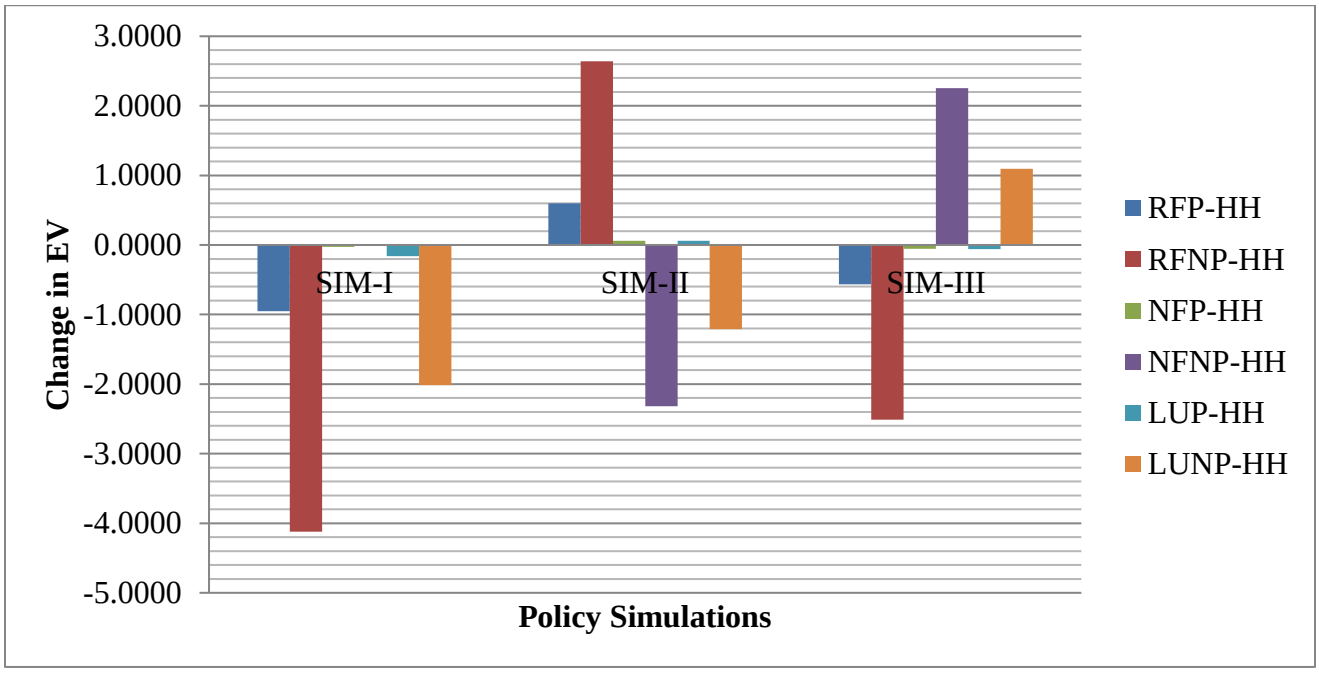
Source**:** own computation from simulation result

Welfare effects of tariff cut and direct tax policy change

The welfare of households in the study is captured by equivalent variation (EV). In the first simulation (SIM-1), reducing tariff by 50% increases the income and consumption expenditure of most households. However, the overall effect on the welfare of households is negative (see fig 1). Despite the decrease in the price of imported commodities, the price of non-imported commodities (staple crops, which is consumed by most households) has increased significantly. For instance, the price of teff, wheat, maize and barley has increased by 0.763, 0.8, 0.764 and 0.763%, respectively. This is mainly because of production shifts from domestically consumed commodities to commercial and exported commodities. For instance, the production of coffee and oilseeds increased by 0.22 and 4.59 % respectively; while the production of teff decreased by 0.97%. This results in deteriorating most household's welfare. For instance, the welfare of RFNPHH has reduced by 4.12. Those household consumed mostly agricultural commodities, which cover about 40.73 % of their total consumption spending.

Figure 1

Welfare effects of tariff cut and direct tax policy change



Source: own computation from simulation result based on stage CGE model

In simulation (SIM-II) the welfare of households who pay income tax is affected negatively following an increase income tax rate by 10%. For instance, nonfarm non poor household's welfare has reduced by -2.3181, because of an increase in income tax; while the welfare of other households who do not pay income tax is improved. For example, we can see the welfare of rural farm non poor households improved by 2.6383 following an increase in income tax. This is because of shift in the demand for factors supplied by those households and these results to increase the price of factors, which leads to increase household income and expenditure.

Figure 1 indicates an increase in income tax improves the welfare of most households' who do not pay income tax. For instance, the welfare of rural farm non poor and rural farm poor is improved significantly by 2.6383 and 0.5991 respectively compared to the rest of households. However, increasing direct tax reduces the welfare of tax payer households significantly.

In simulation (SIM-III) reducing direct tax by 10% results to increase the welfare of income tax payer households' and reduce the welfare of the non-tax payers (see fig 4.1). This is because of demand effects on the factor market. Following the reduction in direct tax, the demand for capital, skilled, and semi-skilled labor increased while the price of those factors increased. For instance, capital price increased by 0.00968 % after reducing direct tax; this is because of an increase in the demand for factor by capital intensive activities. This result to increases household income and improve spending pattern. However, reducing direct tax reduces welfare of non-income tax payer households because of factor demand shift.

Conclusion and Policy recommendation

Macroeconomic policies like fiscal, monetary and foreign exchange policy of a nation is the major determining factor for strong economic performance. From these fiscal policy plays an important role through promoting economic growth, income distribution and employment creation. The study there for, examines the impacts of fiscal policy shocks (tariff and direct tax) on the economy and welfare of households through applying stage CGE model.

It is obvious many scholars argue that tax cut boost economic growth. However, different evidence and studies simulation shows different and inconclusive result. A tax cut enables to facilitate economic growth through increasing income, saving, and investment. On the other hand, tax cut result to reduce government revenue, saving and increase fiscal deficit. The net impact of tax cut is uncertain and depends on the tax and financing structure.

In the simulation tariff cut improved factor income, household income and expenditure. It also results to increase import, export and investment. On the other hand, reducing tariff affects private consumption, government consumption, and GDP negatively. Besides this, tariff cut results to decrease the welfare of households.

The second simulation increasing direct tax reveals that an increase income tax has negative impact on total GDP, private consumption, import and export whereas it increases government consumption. An increase in direct tax reduces the income and welafre of tax payer househlods and improved income,consumption and welfare of the rest households who do not pay income tax. The final simulation is reducing direct tax. The result reveals that it increases total GDP, export, import, and private consumption. On the other hand, it negatively affects government consumption and investment. Cutting income tax also improves the income, consumption and welfare of tax payer households. In general reducing direct tax improves both the economy in total and the welfare of some househlods compared to the second simulatnion. In general the study assures the positive direct tax shock affects output negatively and reducing direct tax/negative shock/ results to improve output. this holds the Keynesian hypothesis.

The existing fiscal policy gives more emphasis on increasing government revenue through increasing tax revenue. To increase tax revenue, government designed different policy actions in the last two decades. Among those, introducing new tax type, increasing number of tax payers and others. Though the government increases its revenue through those policy actions, tax payer households lost their welfare because of high tax burden.

Based on the simulation result, increasing direct tax affects total GDP, private consumption, export, import and welfare of tax payer households negatively, while reducing direct tax results to improve GDP. Thus, to boost the total economy, (1) the government should reduce direct tax

significantly. According to simulation results tariff cut increases import, export and investment. On the contrary, tariff cut has negative impact on private consumption, government consumption, GDP and welfare of households negatively. Standing from this, (2) the government should not liberalize tariff.

The study has some limitations in connection with stage CGE model. Regarding the model, it does not incorporate the dynamic effect of fiscal policy shock because of the static nature of stage CGE model. In addition, the models use the neoclassical assumption of free market, perfect information and discourage government intervention. However, this is not real in developing economy where government role is prominent and information gap is critical. In addition, the study faced data limitation, which is unavailability of update SAM, which reflects the current economic performance of Ethiopia. Thus, the study used 2009/10 SAM it may have its own side effect on the simulation results. The study recommends for further research; stage CGE model does not show dynamic effects; so other researchers better to use dynamic CGE model and examine the impacts of direct tax on the economy in the long run.

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