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Tariff cuts, capital mobility and income responses in Malawi

Abstract

The primary objective of this paper is to investigate the impact of tariff cuts and capital mobility on income and other selected variables in Malawi. This is carried out against a background of the country's active participation in regional integration and trade reforms. The study employs a Computable General Equilibrium model to carry out the analysis. The study finds that when capital is immobile, a tariff cut increases labor income in the non-agricultural sector. However, labor income in the agricultural sector is not affected. Capital income increases in commercial agriculture and decreases in the non-agricultural sector. In smallholder farming, capital income is affected by a very small margin. The study also finds that when capital is immobile, a tariff cut has an adverse effect on capital income in smallholder agriculture. It is further demonstrated that foreign aid has a Dutch disease effect on the Malawi economy. Doubling foreign aid to the country increases consumption and adversely affects the production side of the economy.

Introduction

In recent years, Malawi has implemented several trade policies from various international trade agreements to which the country is a signatory. These include the Malawi-South Africa non-reciprocal free trade agreement signed in 1990; the Malawi – Zimbabwe reciprocal trade agreement of 1995; the Common Market for Eastern and Southern Africa (COMESA) free trade area ratified in 2000; and the 2001 Southern African Development Community (SADC) Trade Protocol, among many others. These regional agreements introduced duty free access of products among member states except for the SADC Trade Protocol, which placed import restrictions on imported livestock commodities such as eggs and chicken meat under the protocol premise of infant industry protection (Chirwa, 2004). Malawi is also a member of the World Trade Organization (WTO) (since 1995), the European Union Everything but Arms (EBA) non-reciprocal multilateral agreement, the European Union – African Caribbean and Pacific (EU-ACP) countries' Cotonou agreement, and the African Growth Opportunity Act (AGOA) non-reciprocal multilateral agreement with the United States of America[1].

Malawi's ratification of these regional agreements and trade protocols was mainly aimed at removing barriers to international trade, which included elimination of import and export licensing, reduction of tariffs and surtax rates and introduction of export incentives. In addition to an active exchange rate policy since 1982, government also reduced the scope of import and export licensing in 1989; abolished the negative list of imported commodities in 1994; provided for additional tax

incentives for the exportation of non-traditional agricultural products under the Export Incentives Act and Investment Promotion Act in 1992; abolished all licensing requirements on imports and exports except for items related to health, security, and environmental considerations in 1997; reduced the maximum tariff on imports from 70 percent in 1988 to 25 percent in 1998; and carried out a phased reduction in tariff rates and base surtax rates from 1989 (Chirwa, 2004). Malawi has implemented many other trade reforms aimed at diversifying the export base, encouraging efficient import substitution, ensuring appropriate price and income policy, expanding the role of the private sector in the marketing of smallholder crops, increasing efficiency and improving incomes of smallholder farmers, increasing efficiency of land use and improving the macroeconomic environment (Ibid, 2004).

While the country has been active in the implementation of trade reforms, the impact of tariff cuts on economic activity in Malawi is yet to be understood. This study, therefore, sets out to contribute to the literature by investigating the impact of the tariff cuts in various capital mobility scenarios on income and other selected variables in Malawi, particularly in the wake of the country's active participation in regional integration and trade reforms. The study employs a Computable General Equilibrium (CGE) model to carry out the analysis. The paper presents three simulation experiments of tariff and foreign aid cuts and attempts to show their impact on selected identifiers of economic activity. The three experiments include a 50 percent cut in tariffs coupled with fixed government savings and activity specific capital; a 50 percent cut in tariffs with fixed government savings and mobile capital; and a 100% increase in foreign savings with default closures.

The study finds that when capital is immobile, a tariff cut increases labor income in the non-agricultural sector. However, labor income in the

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[1] See Chirwa, E. (2004) for a detailed presentation of the trade agreements.

agricultural sector is not affected. Capital income increases in commercial agriculture and decreases in the non-agricultural sector. In smallholder farming, capital income is affected by a very small margin. The study also finds that when capital is immobile, a tariff cut has an adverse effect on capital income in smallholder agriculture. It is further demonstrated that foreign aid has a Dutch disease effect on the Malawi economy. Doubling foreign aid to the country increases consumption and adversely affects the production side of the economy.

Following this introduction, the rest of the paper is organized in five sections. Section 1 is a brief outline of Malawi's economic background and trade reforms. A review of the literature follows in Section 2. An abridged description of the CGE Model for Malawi and simulation experiments of hypothetical tariff cuts are presented in Section 3. Section 4 is a discussion of the study results; and the final section summarizes and concludes the paper.

1. Economic background and trade reforms: a brief outline of Malawi

Malawi is a landlocked country bordering Tanzania to the northeast, Zambia to the northwest and Mozambique to the east, south and west. The country has a total area of 118,484 square kilometers, of which 24,420 square kilometers is water. It is one of the poorest countries in the world with a narrow economic base[1], a low per capita income (USD253), a high population density (128.8 people per square kilometer), prohibitive costs of external trade (following its landlocked position), few known mineral resources, and high rates of unemployment and infant mortality (Malawi Government and the United Nations, 1993).

When the country attained independence from the British in 1964, it managed to achieve high growth rates of real gross domestic product (GDP) estimated at 6 percent between 1964 and 1970 and 7 percent between 1971 and 1979. However, in the early 1980s, the external environment deteriorated and the Malawi economy went into a deep recession, which persisted through the 1980s. Some of the factors that led to the recession include intensification of civil war in Mozambique with a subsequent flooding of refugees into Malawi and disruption of Malawi's cost effective rail route to the Mozambican sea ports of Beira and Nacala, the 1979 oil crisis, and drought in 1980. Failure of the

economy to adjust to these shocks revealed structural weaknesses in the design of the country's macroeconomic framework. The country embarked on trade policy reforms in 1980-81 as part of International Monetary Fund's (IMF) supported Structural Adjustment Programs (SAPs) that were specifically designed to bail the country out of a looming economic crisis.

Throughout most of the 1980s, Malawi maintained a large number and wide dispersion of tariff bands, high tariff protection against imports, restrictive licensing requirements on imports and exports, pervasive non-tariff barriers, and surrender requirements on export proceeds (Mbekeani, n.d.). The trade reforms driven by the SAPs were primarily aimed at streamlining import procedures by eliminating licenses and their bureaucratic requirements, simplifying the import regime by amalgamating tariffs, reducing dispersion by cutting the number of tariff bands, reducing protection by progressively cutting tariff rates, and equalizing domestic taxes between imports and domestic goods (Ibid, n.d.). A consequence of this backdrop is that the country's tariffs were reduced from 30.7 percent in 1994 to 13.1 percent in 2001.

In February 1988, the Malawi government combined customs duties and import levies into one tariff schedule. In the same year, government reduced maximum tariffs on private imports from 70 percent to 45 percent of the cost, insurance and freight (cif) value. Between 1992 and 1993, the country eliminated the differential in the surtax levied on imports and domestic goods. In 1994, the export surrender requirement was abolished, except for tea, sugar and tobacco. A 10 percent temporary export levy on tobacco and sugar was reduced to 8 percent in 1995. In April 1996, the maximum tariff rate was reduced from 45 percent to 40 percent, which led to a decline in the weighted average import tariff rate of about 15 percent. In 1997, government eliminated all licensing requirements on imports, with the exception of items related to security, health and the environment. The export levy on tobacco and sugar was also reduced further from 8 percent to 4 percent. The import duty on raw materials for the manufacturing industry was eliminated while the maximum rate on finished products was reduced from 40 percent to 35 percent. In the same year, 1997, the temporary export levy on tobacco, tea and sugar was reduced from 10 percent to 4 percent. Corporate tax on firms in export processing zones was eliminated. The export levy was also eliminated. Two years later, the maximum tariff rate was reduced to 25 percent.

Since 1990, Malawi has also entered into trade agreements with a number of bilateral and

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[1] Malawi is a predominantly agrarian economy. Agriculture accounts for nearly 36.27 percent of the country's gross domestic product and 80 percent of the country's exports, employs an estimated 84.5 percent of the labor force and generates 82.5 percent of foreign exchange earnings (Malawi Government, 2004). The economy is monoculture, with tobacco production generating about 60 percent of the country's total export earnings (Ngalawa, 2014).

multilateral partners, which has led to the country implementing a number of policy reforms consistent with the respective agreements. These trade agreements are mainly aimed at stimulating trade between the country and its partners through the reduction or even elimination of both tariff and non-tariff barriers. The country signed a non-reciprocal trade agreement with South Africa in 1990 and a reciprocal trade agreement with Zimbabwe in 1995. It also joined the World Trade Organization (WTO) in 1995. In 2000 and 2001, the country ratified the Common Market for Eastern and Southern Africa (COMESA) free trade agreement and the Southern African Development Community (SADC) Trade Protocol, in that order. In 2008, SADC and COMESA joined with the East African Community to form a single free trade area called the African Free Trade Zone, consisting of 26 countries with an estimated GDP of US$624 billion.

Malawi is also a signatory to many other trade agreements including the European Union Everything but Arms (EBA) non-reciprocal multilateral agreement, the European Union– African Caribbean and Pacific (EU-ACP) countries' Cotonou agreement, and the African Growth Opportunity Act non-reciprocal multilateral agreement with the United States of America. The country has also signed bilateral trade agreements with many other countries, including Botswana, Mozambique, China, India and Malaysia.

2. Literature review

One of the earliest explanations on the role of trade liberalization on labor and capital was presented by Stolper and Samuelson (1941). Based on the Heckscher-Ohlin theory of trade, the Stolper-Samuelson theorem describes the effects of free trade on income distribution among production factors. Its basic result is that protectionism increases the returns of the scarce production factor – labor in developed countries and capital in developing countries (Carneiro and Arbache, 2003). Openness, as argued by Krueger (1983), can contribute to higher employment levels of unskilled labor, and lower income and wage inequality in developing countries. Indeed, there are reasons to believe that trade regime affects the demand for labor, indicating that labor income will fluctuate as trade policies change following a country's implementation of international trade agreements (Carneiro and Arbache, 2003).

There are many studies that have investigated various aspects of trade liberalization and the results are mixed. Emini, Cockburn and Decaluwe (2005), for instance, used a CGE micro-simulation model to investigate the impact of the Doha Round of negotiations in Cameroon. The study observed that world trade liberalization significantly reduced poverty at national level, while Cameroon's own trade liberalization measures had adverse poverty and inequality impacts despite giving rise to higher aggregate welfare. On the whole, the Doha Round was found to be poverty reducing for Cameroon. Emini, Cockburn and Decaluwe (2005) showed that cuts in Cameroon's tariffs under the Doha scenarios were very small and consequently, their impact on the economy was also relatively small.

Mbabazi (2002) also used a CGE model to analyze the short-run welfare effects of tariff liberalization in Uganda. She observed that there are differential gains for households and concluded that it is misleading to analyze aggregate welfare gains. The study argued that even though the pattern of benefits differs from year to year, there are only minimal welfare gains largely accruing to agricultural households. Mbabazi (2002) suggested that targeted intervention to cushion those that lose out in the process of trade liberalization would ensure equitable gains for all households (see also Rodrick, 1999).

In a study of Brazil, Carneiro and Arbache (2003) assessed the impact of trade liberalization on labor reforms, also using a CGE model. Results of the study showed that trade liberalization contributes to improvements in economic welfare through greater output, lower domestic prices and higher domestic demand. Consistent with Mbabazi (2002), Carneiro and Arbache (2003) revealed that the effects of trade liberalization on household welfare cannot be generalized. They observed that trade liberalization tends to be appropriated by the most skilled workers in the most trade-oriented sectors, which contradicts the predictions of the Heckscher-Ohlin theorems.

Nicita (2009) analyzed the distributive effects of tariff liberalization in Mexico. The study examined the impact of tariff liberalization from the viewpoint of households both as consumers and as owners of factors of production, allowing for imperfect domestic price transmission. Findings of the study suggest that tariff liberalization in Mexico reduced prices of both agricultural and manufacturing products and increased the wage gap between skilled and unskilled laborers. On the whole, the tariff liberalization had a net positive impact on households, largely due to an overall reduction in the cost of consumption goods. The study observes that the overall positive effect of tariff liberalization covers-up significant differences in the distribution of gains both across income levels and across geographic regions. Richer households are found to have gained more than poorer households.

In a study of Morocco, Lofgren (1999) employed a CGE model to analyze the short-run equilibrium effects of reduced protection of agriculture and industry. Simulation results indicate that reduced agricultural protection would generate significant aggregate welfare gains while a large part of the disadvantaged rural population would lose considerably. The outcome is less favorable for rural households over a relatively longer time period where labor migration between agriculture, the rest of the rural economy and urban areas is feasible. If policymakers are concerned with both aggregate and rural well-being, the results present a dilemma, which can be resolved by compensatory measures targeting the rural population. In this event, trade liberalization would have to be accompanied with government transfers to owners of rainfed agricultural resources, or moderate improvements in rural skill levels or productivity in rural non-agriculture, leading to the gains from trade liberalization being shared somewhat evenly among all household groups.

3. Methodology: a CGE model for Malawi and simulation experiments

This study employs the CGE model of Malawi based on the work of Chulu and Wobst (2000), Lofgren (2000) and Lofgren et al. (2001). The CGE modelling strategy allows for investigation of interactions of different sectors within the economy in the wake of shocks to the economy (Carneiro and Arbache, 2003). These interactions are an important element for consideration of the effect of the removal of tariffs on selected variables (Mbabazi, 2002). The technique incorporates consumer and producer behavior as well as the interaction between other economic agents, and therefore incorporates all effects on the distribution of income and economic welfare (Go et al., 2005).

Distinguishing features of our model, which is structured in the tradition of Dervis, de Melo and Robinson (1982), include a detailed treatment of households and a division of the agricultural sector into small-scale production estates (Lofgren et al., 2001). A 1998 Social Accounting Matrix (SAM) constructed from the 1997-1998 Integrated Household Survey for Malawi is used as a primary database (see Lofgren et al., 2001; Chulu and Wobst, 2000). The model assumes that production takes place using a constant elasticity of substitution (CES) production function given by:

$$Y_a = a\psi_a \left(\sum_{f \in F} \Phi_{fa}^a NF_{fa}^{-\rho_a^{\frac{a}{a}}} \right)^{\frac{1}{\rho_a^{\frac{a}{a}}}}, \qquad (1)$$

where Y_a is total production, $a\Psi_a$ are efficiency parameters, $f \in F$ is a set of factors, Φ_{fa}^a is the share of factor f in production, NF_{fa} is the quantity

demanded of factor f in the production of a, and ρ_a^a is the CES production function exponent. Since Malawi is a small open economy, it is assumed that both export and import prices are exogenously determined. We assume that export prices are given by:

$$E_c^P = W_c^{E^P}(1 - et_c)XR - \sum_{c' \in CT} P_{c'}^Q ice_{c'c}, \qquad (2)$$

where E_c^P is the local currency unit of the domestic export price; $W_c^{E^P}$ is the foreign currency unit of world export prices; et_c is the export tax rate; XR is the exchange rate in local currency units per foreign currency unit; $c \in C$ is a set of commodities; $P_{c'}^Q$ is a composite commodity price including sales tax; and $ice_{c'c}$ is the quantity of commodity c' as trade input per exported unit of c. Import prices are assumed to take the following form:

$$M_c^P = W_c^{M^P}(1 - mt_c)XR + \sum_{c \in CT} P_{c'}^Q icm_{c'c}, \qquad (3)$$

where M_c^P is the local currency unit of the domestic import price; $W_c^{M^P}$ is the foreign currency unit of world import prices; mt_c is the import tariff rate; $icm_{c'c}$ is the quantity of commodity c' as trade input per imported unit of c. It is assumed that among the domestic non-governmental institutions, only households demand commodities (Lofgren, 2001). The household consumption function is given by:

$$Q_c^h = \phi_{ch} + \frac{\psi_{ch}\left(E_h^c - \sum_{c \in C} P_c^Q \phi_{ch} \right)}{P_c^Q}, \qquad (4)$$

where Q_c^h is household $h's$ consumption of commodity c; ϕ_{ch} is household $h's$ subsistence consumption of commodity c; ψ_{ch} is household $h's$ marginal share of consumption spending on commodity c; and E_h^c is household $h's$ consumption of commodity c. The household consumption expenditure is given by:

$$E_h^c = (1 - \sum_{i \in D} S_{ht}^i)(1 - MPS_h)(1 - T_h)(Y_h - XRtr_{rowh}), \quad (5)$$

where $i \in D$ is a set of domestic non-governmental institutions; S_h^i is the share of domestic institution i in income of domestic non-governmental institution i; MPS_h is the marginal propensity to consume for the household; T_h is the direct tax rate for the household; Y_h is household income; and $tr_{row}h$ is a transfer from the rest of the world to the household[1].

Factors of production in the model include agricultural labor, non-agricultural labor, land,

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[1] For the full model, refer to Lofgren (2001).

agricultural capital and non-agricultural capital. We assume these resources are owned by households, which are grouped into four major categories, namely, rural agricultural households, rural non-agricultural households, urban agricultural households and urban non-agricultural households. The agricultural activities are separated into three groups, *viz.* small-farmer crops, large-farmer crops and non-crops. The non-agricultural activities, on the other hand, are classified into two, namely, industry and services. Other institutions include enterprises, government and the rest of the world.

Government, households, firms and the rest of the world are the major players in the model. It is assumed that foreign savings from the rest of the world flow into the country through either direct savings and foreign direct investment or the purchase of domestic goods and services. Firms produce final and intermediate goods and services using resources purchased on the factor market and intermediate inputs from the product market. The goods and services produced by the firms are sold on the product market either for local consumption or for export. Households earn wages and rents from the factor market and they purchase their consumption goods on the product market. They pay taxes to government, receive government transfers and save some of their financial resources. The government consumes both locally produced and imported goods. It collects taxes from households and receives transfers from its international partners. It gives households transfers and saves some of its financial resources. All savings are channeled into investment.

The study carries out simulation experiments distinguished according to three scenarios. The first experiment (Scenario 1) assumes a 50 percent cut in tariffs plus fixed government savings and activity specific capital (*tariff_immobile*); the second experiment (Scenario 2) assumes a 50 percent cut in tariffs plus fixed government savings and mobile capital (*tariff_mobile*); and the third experiment (Scenario 3) assumes a 100 percent increase in foreign savings with default closures (*fixed_save*).

4. Simulation results

4.1. Impact of tariff cuts and capital mobility on households. We commence by analyzing the impact of two shocks, namely: an unanticipated change in international terms of trade (since a reduction in tariffs leads to changes in relative prices which impacts on the rest of the economy) and a sudden increase in foreign capital inflow or foreign savings. Specifically, we investigate the micro-level effects of a tariff reduction and shocks to foreign capital inflows. A reduction in tariff rates represents a decrease in the world price of imported goods. This implies that for the same amount of exports, the country can now buy more imports, which distorts the terms of trade, adversely affecting domestic import competing sectors.

Scenario 1, which is a 50 percent reduction in tariffs with fixed government saving and activity-specific capital is seen to have a positive impact on labor income in the non-agricultural sector and on capital income in commercial (large scale) agriculture (about 0.1 percent) (see Table 1 for details).

Table 1. Disaggregated factor income distribution (% shares)

Variable	Base	Scenario 1	Scenario 2	Scenario 3
		50% tariff cut plus fixed government savings & activity specific capital *(tariff_immobile)*	50% tariff cut plus fixed government savings & mobile capital *(tariff_mobile)*	100% increase in foreign savings with default closures *(fixed_save)*
Agricultural labor income	16.7		0.1	-0.4
Non-agricultural labor income	42.4	0.1		0.3
Capital	1.6	0.1	0.2	-0.1
Capital income in small scale agriculture	5.4	-0.2	-0.2	-0.1
Capital income in non-agriculture sector	33.9	-0.1		0.3
Total	100.0			

Source: simulations carried out by author.

Capital income in small scale agriculture and non-agriculture sectors is adversely affected, declining by 0.2 percent and 0.1 percent, respectively. The tariff reduction makes conventional domestic (primary) products relatively cheap. Since very little capital is available in small scale agriculture, the only mobile resource, labor, moves into alternative employment. The positive impact on capital in large

scale agriculture is probably due to the availability of cheaper imported production inputs such as tractors, ploughs and other equipment. Since there is increased productivity in large scale agriculture, overall labor income in the agricultural sector remains unaffected in this scenario.

Scenario 2, the simulation in which a 50 percent reduction in tariffs with fixed government saving

and mobile capital is examined, reveals that the change in relative prices leads to a fall in capital income in small scale agriculture. Since the terms of trade are now favoring large scale agriculture, there is increased investment by about 0.2 percent. Capital moves into the productive large scale agricultural sector leaving both capital income in the non-agriculture sector and the associated level of (labor) income unchanged. The increased investment in commercial agriculture leads to a higher demand for labor hence total agricultural labor income increases by 0.1 percent.

Scenario 3 examines the impact of a 100 percent increase in foreign savings occurring due to additional access to world financial markets or foreign aid inflows. This leads to an increase in domestic prices relative to world prices. The change in relative prices hurts the tradable agricultural sector as shown not only by the decline in capital income in both small and large scale agricultural sectors (0.1 percent in each case) but also a 0.4

percent reduction in agricultural labor income. This is in contrast to the expansion of the non-agriculture sector in terms of capital and labor income (0.3 percent respectively). This contraction of the tradable goods sector relative to non-tradable goods demonstrates the presence of Dutch disease.

There is a close linkage between production sectors and the market for factors of production. The role of these interactions is significant in terms of welfare outcomes (see Table 2). In scenario 1, since trade liberalization hurts the capital that is employed in large scale agriculture and non-agriculture sectors, urban high income households which rely heavily on returns to capital are adversely affected as shown by a 1.1 percent reduction in real household consumption. Households which rely less on capital returns are better off since there are no capital losses suffered. Rural high income households' real consumption increases by 1.6 percent in response to the positive impact of trade liberalization on capital in large scale agriculture and non-agricultural labor income.

Table 2. Disaggregated real household consumption

Variable	Base	Scenario 1	Scenario 2	Scenario 3
		50% tariff cut plus fixed government savings & activity specific capital *(tariff_immobile)*	50% tariff cut plus fixed government savings & mobile capital *(tariff_mobile)*	100% increase in foreign savings with default closures *(fixed_save)*
Urban low income households	1013.1	0.8	0.6	4.2
Urban high income households	1525.4	-1.1	-1.0	5.2
Rural low income households	2104.4	1.3	1.3	3.0
Rural high income households	1049.0	1.6	1.5	4.0
Total	5692.0	0.6	0.6	4.0

Source: simulations carried out by author.

Scenario 2, in which capital income in large scale agriculture rises by 0.2 percent, leads to a 0.1 percent improvement in real consumption for urban high income households, possibly due to increased returns on their investments. Rural low income households are seen to be unaffected irrespective of the assumption made about capital mobility. Urban low income and rural high income households experience slight reductions in real consumption (0.2 and 0.1 percent respectively). Since both labor and capital incomes in the non-agriculture sector are unaffected, the change in relative prices as a result of liberalization means that these households have to purchase goods at a higher price with a given income i.e. real consumption declines.

Scenario 3 shows that a doubling of foreign savings unambiguously results in higher welfare across households as measured in terms of real household consumption. Due to the expansion of the non-agriculture sector owing to increased savings, the urban high income households which are the major investors in the sector get the highest returns and thus

have the highest real consumption. They are followed by urban low income and rural high income households respectively. Although capital income in small scale agriculture declines as a consequence of increased foreign savings, rural low income households' real consumption still rises by 3.0 percent. This might be probably due to the fact that agricultural production is now reduced to a sector that simply provides raw materials for the booming non-agriculture sector. This implies that the country can more than offset its import bill and hence real consumption may improve.

4.2. Impact of trade reforms on macroeconomic performance. In this section, we consider the impact of the three trade reform scenarios on selected macroeconomic variables. Simulation results of the three scenarios are presented in Table 3. One interesting observation is that the selected macroeconomic aggregates tend to move together in the same direction and with more or less the same magnitudes for each of the first two scenarios. Thus, a 50 percent tariff cut coupled with fixed government

savings has the same impact on the macroeconomic aggregates when capital is mobile as well as when it is activity specific. Against the assumption that government savings is fixed, a 50 percent tariff cut translates into a reduction in government expenditure equivalent to the value of the revenue loss from the tariff cut and a reduction in investment (expressed as a ratio of nominal GDP) (see Table 3). As expected, tariff revenue (expressed as a ratio of GDP) goes down. The real exchange rate shows an appreciation of the local currency vis-à-vis the United States Dollar (USD), which effectively leads to an increase in imports, trade deficit, real household consumption and real absorption and a reduction in private savings.

A 100 percent increase in foreign savings is on the whole detrimental to the economy. Total real exports, purchasing power parity (PPP) real exchange rate, nominal exchange rate, domestic (non-tradable) price index, investment as a percentage of nominal GDP and private savings as a percentage of nominal GDP decline by 4.9 percent, 1.4 percent, 1.0 percent, 1.0 percent, 0.1 percent and 2.1 percent, in that order. This trial, however, increases real absorption by 1.9 percent, real household consumption by 4.0 percent, total real imports by 1.3 percent, foreign savings measured as a percentage of nominal GDP by 2.0 percent, and trade deficit as a percentage of nominal GDP by 1.8 percent (see Table 3).

Table 3. Impact of trade reforms on selected macroeconomic variables

Variable	Base	Scenario 1	Scenario 2	Scenario 3
		50% tariff cut plus fixed government savings & activity specific capital *(tariff_immobile)*	50% tariff cut plus fixed government savings & mobile capital *(tariff_mobile)*	100% increase in foreign savings with default closures *(fixed_save)*
Real absorption	11954.2	0.3	0.3	1.9
Real household consumption	5692.0	0.6	0.6	4.0
Real exports	3049.8	6.0	6.1	-4.9
Real imports	5257.8	4.3	4.3	1.3
Real exchange rate	100.0	-0.1		-1.4
Nominal exchange rate	100.0	1.6	1.5	-1.0
Price index (non-tradable)	100.0	1.6	1.5	-1.0
Investment	14.1	-0.1	-0.1	-0.1
Private savings	28.6	-0.2	-0.2	-2.1
Foreign savings	2.0			2.0
Trade deficit	21.6	-1.9	-1.9	1.8
Government savings	-16.5	0.1	0.1	
Tariff revenue	4.6	-2.1	-2.1	
Income tax	7.3	2.1	2.1	

Source: simulations carried out by author.

It is imperative to note that the sectors that are adversely affected are on the production side of the economy while the sectors that are positively affected are mainly on the consumption side. We can safely argue, therefore, that a 100 percent increase in Malawi's foreign savings (coming in the form of foreign aid) will hurt the economy's production side by initially adversely affecting the country's exchange rate. Table 3 shows that there will be an appreciation of the domestic currency vis-à-vis the USD both in terms of PPP real exchange rate and nominal exchange rate. This reduces the competitiveness of domestic goods on the international market (exports are adversely affected); investment (measured as a percentage of nominal GDP) goes down following a cut in the production of export goods as well as the fact that imported investment goods become expensive in local currency terms as a result of the local currency appreciation; the price of domestic non-tradable goods is depressed as people's preferences tilt towards imported substitutes, which become cheaper due to the

local currency appreciation; and in view of the fact that consumption is being encouraged (because of the currency appreciation), private savings go down. It can safely be concluded, therefore, that a 100 percent increase in foreign aid has a Dutch disease effect on the economy of Malawi. This is evidenced by the observed reduction in production of traditional commodities in favor of consumption.

Summary and conclusion

The paper sets off to investigate the impact of capital mobility on macroeconomic performance in Malawi in the wake of the country's active participation in regional integration and trade reforms. A CGE model is employed to carry out the analysis using simulations drawn from hypothetical cases of trade reform scenarios. The study establishes that a 50% tariff cut coupled with fixed government savings has the same impact on macroeconomic aggregates regardless of whether capital is mobile or activity specific. The impact on

labor income in the non-agricultural sector, however, is positive when capital is activity specific; and it is negative on capital income in non-agriculture and small scale agriculture sectors. Similarly, the impact on capital income in commercial agriculture is positive when capital is activity specific whereas when capital is mobile, the impact of capital income on small scale agriculture is negative. Notwithstanding the increased productivity in large scale agriculture, overall labor income in the agricultural sector is unaffected.

The study further finds that doubling of foreign aid boosts consumption but has adverse implications on the production side of the economy. In addition, the tradable agricultural sector shrinks while the non-tradable sector expands. We argue, therefore, that an increase in foreign aid has a Dutch disease effect on the economy.

On the whole, we observe that urban high income and rural high income households are affected differently by different indicators. This underscores the fact that the Malawi government should avoid formulating policies that are broad generalizations on how households may be affected by trade liberalization. Rather, policies should be income-group specific and distinct for the urban or rural sectors.

A similar study was carried out by Mbabazi (2002), who also used a CGE model to analyze the short-run welfare effects of tariff liberalization in Uganda. While Mbabazi's analysis considered the impact of tariff cuts on Uganda's GDP as an indicator of overall macroeconomic performance in the country, this study investigates how tariff cuts would affect income and a variety of macroeconomic aggregates, thus making our study more robust than Mbabazi's. As expected, some macroeconomic aggregates would be adversely affected while others would be positively affected by tariff cuts in Malawi, underscoring Mbabazi's caution that 'it would be misleading to argue that trade liberalization appears detrimental to growth' (Mbabazi, 2002, p.13).

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