Institute for International Integration Studies

IIIS Discussion Paper

No.307 / November 2009

IIIS Discussion Paper No. 307

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The Economic Partnership Agreement between Uganda and the EU: Trade and Poverty Impacts

Ole Boysen and Alan Matthews[‡,*]

Abstract

This paper analyses the poverty impacts of an economic partnership agreement (EPA) between Uganda and the EU. As Ugandan exports are also eligible for duty-free access to the EU under the Everything But Arms scheme the main EPA-induced change will be the requirement to liberalise EU exporters' access to the Ugandan market. Fears have been raised that this could threaten the livelihoods of poor people through lower prices for agricultural commodities, crowding out of vulnerable industries, and loss of government revenue. In an attempt to address these concerns, we assess the impact potential of an EPA using descriptive statistics of Ugandan trade, social accounting matrix, and household budget survey data. Subsequently, we quantify the impacts on the economy and poverty, in particular, by conducting a simulation study based on a combined CGE-microsimulation model. The descriptive analysis suggests very limited scope for trade liberalisation with the EU and that the poor, in particular, have only weak links to formal markets. The results from the simulation of alternative EPA scenarios show minor but positive macroeconomic impacts indicating potentially low economic adjustment costs. Whether the very small poverty effects emerge positive or not depends on the selection of sensitive products in the EPA. Nevertheless, the very poorest appear to lose under all scenarios.

1 Introduction

During the Economic Partnership Agreement (EPA) negotiations with the African, Caribbean and Pacific (ACP) countries a range of fears were raised about the possible adverse effects on their economies (see, e.g., Bilal and Rampa, 2006; Delpeuch, 2007; Oxfam, 2006). These included the possible welfare-reducing effects of trade diversion from more efficient third country suppliers to EU exporters, the possibility that more competitive EU imports would undermine local industry and lead to a process of de-industrialization, the impact of competition from subsidised EU food production on domestic food security, the potential impact of the loss of tariff revenue on EU imports

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for the provision of government services and, in general, the risk that these agreements would exacerbate rather than reduce overall poverty levels. Recent literature has used a variety of modeling approaches to examine these concerns, without any overall consensus emerging (see ODI (2006) and the references cited therein).

This chapter addresses these concerns for the case of Uganda. We intend to analyze the poverty impact of the trade provisions of a full EPA between the EU and the East African Community (EAC) of which Uganda is a member. In the interim EPA signed in December 2007, the EU and the EAC agreed to establish a free trade area. For such a free trade area to be compatible with WTO rules, GATT Art. XXIV requires that "substantially all trade" between the constituent territories must be liberalized. The European Commission interprets this phrase to mean that 90% of the bilateral trade value must be liberalized where the liberalization can occur asymmetrically.[1] As under the interim EPA the EU will abolish 100% of its tariffs on EAC imports (with transitional periods for rice and sugar), the EAC has to liberalize 82.1% of its imports.[2] The EAC's tariffs on EU imports will be phased out gradually in three tranches starting in 2010 and completed in 2033; the first non-zero tariffs will be eliminated in 2015. The ultimate list of those sensitive tariff lines which will be exempt from liberalization at the conclusion of the transition period is not yet known. Stevens et al. (2008), in analyzing

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* This paper will appear as a chapter in Morrissey, O. (ed.), Economic Partnership Agreements and EU Trade Policy Towards ACP Countries, London, Routledge (2010, forthcoming). It is a shorter version of an earlier IIIS Discussion Paper No. 261 by the same authors. The research reported in this chapter has been supported by the Advisory Board for Irish Aid under its Framework Agreement on Policy Coherence project grant to the Institute for International Integration Studies, Trinity College Dublin. The authors would also like to acknowledge financial support received under the "Agricultural Trade Agreements (TRADEAG)" project, funded by the European Commission (Specific Targeted Research Project, Contract no. 513666) and the "New Issues in Agricultural, Food and Bio-energy Trade (AGFOODTRADE)" (Small and Medium-scale Focused Research Project, Grant Agreement no. 212036) research project also funded by the European Commission. We are grateful to colleagues in the Bank of Uganda and the Uganda Bureau of Statistics for assistance with the household survey data. The views expressed in the chapter are the sole responsibility of the authors and do not necessarily reflect those of either Irish Aid or the European Commission.

[1] Another interpretation appearing in the literature is that liberalization of 90% of all tariff lines with no major trade sector excluded from liberalization is necessary to comply with GATT rules. Yet others argue that a liberalization of less than 90% of the bilateral trade value is sufficient in the case of developing countries (Fontagne et al., 2008, p. 30).

[2] Calculated using the 2006 trade and tariff data described later.

the interim EPA, find that 593 tariff lines (Harmonized System) where Uganda had actual imports – corresponding to 42.9% of Ugandan import value from the EU – are not listed in the interim EPA, either for liberalization or exemption. Hence, the agreement is rather preliminary at this stage.

In the absence of an elaborated EAC tariff liberalization schedule, we have constructed three alternative scenarios for such possible schedules, reflecting different priorities for the Ugandan negotiators. In each scenario sufficient tariff lines are exempted from liberalization to account for 17.9% of initial EU imports. We use the nominal 2006 revenue from each tariff line as a reflection of the sensitivity the government has attached to the product in the past. The EPA-EAC scenario optimizes the list of sensitive products with respect to overall EAC interests, i.e., the tariff revenue for the EAC as a whole is maximized; the EPA-UGA scenario gives higher weight to Uganda's interests; and finally the EPA-AG scenario prioritizes the protection of Uganda's agricultural sectors. We examine the likely impact of each scenario on the poverty headcount, and the depth and severity of poverty, in Uganda.

Uganda as an LDC has enjoyed duty-free access to the EU markets under the EU's Cotonou Agreement until its cessation and replacement through EPAs but since 2001 also under the Everything But Arms (EBA) scheme which remains in place indefinitely.[3] We thus simplify the analysis of measuring the poverty impacts of the EPA's trade provisions by examining solely the requirement that Uganda as an EAC member reduces over time its tariffs on EU imports.[4] We perform our simulations using a combined computable general equilibrium (CGE) - microsimulation model which enables the quantification of the adjustment impacts on the economy following EPA liberalization and the impacts on overall poverty. The Uganda CGE model is a static, non-monetary model based on a 1999 Uganda social accounting matrix (SAM). The SAM has been updated to better match the factor income shares as observed in the household survey. A pre-experiment generates a synthetic SAM for 2006 which takes the 2006 import tariffs

[3] Transition periods to full duty-free access were in place for rice (1 September 2009) and sugar (1 October 2009).

[4] We recognize that rules of origin can be an important determinant of the effectiveness of trade preferences and that more generous rules of origin in an EPA as compared to the EBA could provide an additional stimulus to Ugandan exports to the EU. This potential gain to Uganda from an EPA is not measured in the analysis in this paper.

into account, in particular, Uganda's implementation of the EAC custom union's common external tariff (CET) and internal tariff elimination. Starting from this synthetic baseline SAM, the CGE model provides the post-simulation factor returns and commodity prices for the microsimulation that follows in a second step. The microsimulation projects these figures on to a detailed household income distribution derived from the 2002/2003 Uganda National Household Survey (UNHS) generating a counterfactual income distribution for poverty analysis.

While recognizing the limitations of the model used in this chapter, we conclude that the introduction of the trade provisions of an EPA between Uganda and the EU would have a very small poverty effect which may be positive or not depending on the list of sensitive products exempt from liberalization. The small magnitude of the impacts is driven, in part, by the relatively low share of the EU in current Ugandan imports and the relatively low average tariff which these imports currently face. Much of the effect would be due to a relative shift of resources out of import-competing sectors and into coffee production. But despite the possibility of reducing the poverty headcount, the very poorest would lose income in all of our EPA scenarios. It is important to underline that these are comparative static results, and that these effects in practice would play out over an extended 25-year time scale in which the nature of the Ugandan economy will undergo substantial change which will likely dwarf the poverty impacts which we identify.

We develop this argument in the following sections. Section 2 uses trade, household survey, and social accounting matrix data to provide an initial intuitive feel for the likely poverty impact potential of trade liberalization under the EPA. Section 3 describes the data and the combined CGE-microsimulation model used for the analysis. The quantitative results from the formal modeling are set out in Section 4, while Section 5 presents our conclusions.

2 The poverty impact potential of EPA trade liberalization

In this section we examine data on existing trade relations between Uganda and the EU as well as data on the structure of Ugandan economic activity and household survey data to obtain an impression of the magnitude of the trade shock and its impact potential for

the Ugandan economy and the poor population arising from the implementation of the EAC EPA.[5]

McCulloch et al. (2001) identify three main channels via which trade liberalization reform might translate into poverty impacts: the consumption, the enterprise, and the government channels. Import tariff liberalization reforms initially affect the prices of the imported commodities and their substitutes on the domestic market. As consumers, individuals are affected by changes in consumption goods' prices which change the purchasing power of their incomes (the consumption channel). As producers, their profits directly depend on prices for inputs and outputs, or, as workers, price changes affect enterprise profits and thus factor demand which materializes in employment and wage changes (the enterprise channel). As citizens, people are affected if tariff revenue loss induces changes in government policies regarding direct transfers, taxes, and provision of public goods and social services (the government channel). Apart from these immediate, static, monetary impacts, trade liberalization might also affect peoples' livelihoods in indirect and dynamic ways, for instance, by increasing incentives for investment and innovation and thus economic growth as well as by altering the vulnerability of the economy and households to negative external shocks, e.g., by encouraging specialization in a small number of goods.[6] Nevertheless, in the following we look only at the impact potential of the three static channels.

The reduction of Uganda's import tariffs will be associated with a reduction in domestic prices due to the availability of cheaper imported substitutes. The magnitude of the direct price effect of import liberalization depends on the size of existing import trade barriers, the size of the tariff cuts, and the substitutability of imported with domestic goods. In an extended view, it also depends on how much the specific tariff lines are decreased relative to each other and on the general equilibrium effects working through the entire economy. How these effects translate into real income effects for each individual depends initially on the composition of their expenditure and income sources.

Through which import sectors will the EPA affect the economy? Uganda is strongly import dependent with imports amounting to 29% of Uganda's GDP but exports only to 12% (1999 SAM). As illustrated in Table 1 based on 2006 import value and tariff data,

[5] The data is described in detail in Section 3.

[6] These two channels are discussed in Bannister and Thugge (2001) and Winters (2002).

the EU's share in Uganda's global imports amounts to 19%. 96% of EU imports are concentrated in the three sectors: manufacturing, petroleum and chemicals, and other agriculture (this table only shows those sectors in which imports take place; the full list of sectors used in the SAM is shown in Table 2). Imports of manufactures are by far the main imports from the EU yet they account for only 13% of total manufacturing imports to Uganda. While the EU import share is high for some agricultural products, their import volumes are insignificant. The overall trade-weighted import tariff for the EU is just 5.5%. Within the three main import sectors, there is a moderately high tariff of 6% on manufacturing but only a 2% tariff on petroleum and chemicals, and the tariff on other agriculture is negligible. Thus, assuming imperfect substitutability between imported and domestic goods, only in the manufacturing sector do we expect substantial initial impacts of the EPA in the form of a drop in prices.

Table 1: Importance of the EU as a source of imports for Uganda, 2006

	Value of global imports	Per cent of global imports	EU share in global imports	Average tariff faced by EU imports
	UGS million	%	%	%
Coffee	2	0.00	0.00	0.00
Other Cash Crops	66	0.00	0.00	24.88
Maize	8,061	0.17	0.04	50.00
Sorghum/Millet	26,207	0.56	0.09	25.00
Horticulture	15,717	0.34	0.08	25.00
Other agriculture	214,533	4.59	1.19	0.07
Livestock	816	0.02	0.01	12.54
Forestry	1,342	0.03	0.00	0.22
Fishing	93	0.00	0.00	12.25
Meat and dairy processing	8,297	0.18	0.02	46.92
Coffee processing	1,726	0.04	0.00	14.05
Grain milling	37,828	0.81	0.05	12.62
Other beverages	43,024	0.92	0.24	15.00
Textiles and leather	212,933	4.55	0.11	20.13
Manufacturing	2,500,612	53.49	13.24	6.22
Fertilizers	22,582	0.48	0.05	0.00
Petroleum and chemicals	1,572,419	33.63	3.72	1.95
Utilities	8,187	0.18	0.00	–
Private services	535	0.01	0.00	11.78
Total/Weighted average	4,674,979	100.00	18.86	5.48

Source: Own calculations based on 2006 SAM; tariff data based on own computations from UNCTAD Trains data for 2006.

What are the expected effects on domestic sectors? Table 2 shows the structure of domestic industry and trade based on the 1999 Uganda SAM. Uganda's production

activity is strongly concentrated in the agricultural sector, generating 46% of Uganda's value added, followed by the services (35%) and industrial (19%) sectors. The manufacturing and petroleum and chemicals sectors account for only 5% and 1% of output, respectively. 75% of domestic demand for manufactures is satisfied through imports while at the same time manufacturing accounts for 23% of Uganda's exports. This hints at complementarities rather than competition between imports and domestic production of manufacturing goods. The petroleum and chemicals sector is small and domestic demand is largely satisfied by imports.

Table 2: The structure of Uganda's domestic industry and trade, 1999

	Share of total output	Share of total value added	Share of total exports	Export share (ratio of exports to sector output)	Import share (ratio of imports to sector output)	Sector share of total import tariff revenue	Import tariff	Imports as a share of domestic demand
	%	%	%	%	%	%	%	%
Coffee	2.56	3.06	–	–	0.00	0.00	6.60	–
Other Cash Crops	1.28	1.30	–	–	0.00	0.00	6.60	0.02
Maize	1.94	2.86	0.87	3.02	–	–	–	–
Sorghum/Millet	2.36	3.48	–	–	–	–	–	–
Cassava	1.81	2.67	–	–	–	–	–	–
Sweet potatoes	1.73	2.55	–	–	–	–	–	–
Matooke	4.35	6.41	–	–	–	–	–	–
Horticulture	4.68	6.89	1.21	1.72	–	–	–	–
Other agriculture	3.75	5.52	2.09	4.12	0.84	0.31	6.58	6.52
Livestock	5.03	7.34	–	–	0.13	0.05	6.60	0.54
Forestry	1.35	1.51	–	–	0.02	0.01	6.60	0.36
Fishing	1.73	2.20	4.11	15.87	0.01	0.01	6.60	0.22
Meat and dairy processing	0.93	0.42	–	–	2.24	0.82	6.58	33.99
Coffee processing	3.13	0.33	41.92	98.43	0.00	0.00	6.60	1.89
Grain milling	0.59	0.26	–	–	0.67	0.25	6.60	18.76
Other beverages	8.38	4.73	8.36	6.86	1.85	0.68	6.58	4.24
Textiles and leather	0.94	0.59	0.46	3.33	9.22	3.39	6.58	67.92
Manufacturing	4.75	3.22	15.75	23.36	48.39	38.48	14.24	74.90
Fertilizers	–	–	–	–	1.37	0.52	6.84	100.00
Petroleum and chemicals	1.00	0.44	–	–	20.07	49.94	44.54	84.20
Utilities	1.05	1.31	1.81	14.46	0.18	0.07	6.60	4.04
Construction	10.52	8.00	–	–	0.17	0.06	6.61	0.34
Commerce	10.60	12.24	–	–	0.69	0.25	6.58	1.36
Transport	7.56	4.95	8.31	9.16	6.73	2.46	6.54	17.18
Private services	12.32	13.94	15.12	10.23	7.41	2.71	6.55	12.60
Public services	5.66	3.79	–	–	–	–	–	–
Total or weighted average	100.00	100.00	100.00	8.34	100.00	100.00	17.90	15.70

Source: Own computation from the 1999 Uganda SAM.

On the export side, by far the most important commodity is processed coffee with 42% of total exports, followed by manufacturing and private services. The agricultural and food processing sectors in total comprise 59% of total exports. 98% of processed coffee

output is exported. This indicates a strong dependency on coffee exports and the agriculture and food processing sector in general.

Looking at the entirety of Uganda's imports, these are dominated by manufacturing commodities accounting for 48% of total imports, followed by petroleum and chemicals 20%, and textiles and leather 9%.[7] Agricultural commodities play a minor role in imports. The very low import significance and an average import tariff rate of 6.6%[8] indicate that liberalization of agricultural trade will have only a small impact on the economy. In contrast, imports in the industrial sectors are relatively important and tariff rates average 20%.[9] In these sectors, liberalization is expected to impact relatively strongly on domestic prices. The same applies to a lesser degree to the services sector which has an average tariff of 6.5%.

Revenue from import tariffs accounts for a large share, 31.5%, of total government revenue and is thus a very important income source for the government.[10] Imports of manufactures and petroleum and chemicals provide the bulk of import tariff revenue. The loss of tariff revenue will require the government to introduce offsetting measures either reducing government transfers or public services or raising some alternative tax rates. Some tariffs can easily be replaced by excise taxes in a revenue-neutral manner as the Ugandan government has done with petroleum tariffs. Other revenue-raising measures will obviously directly affect individual welfare. Unfortunately, the household budget survey we use includes no data about income from government transfers or the value of public services provided by the government and thus we can only partially evaluate the impacts of shocks working through the government channel.

The preceding discussion touches qualitatively on the potential impacts of trade liberalization under an EPA on Uganda's economy but leaves open the question how this will impact on poverty. In order to explore this question, we need to assess the

[7] Differences in sectoral shares in imports between Tables 2 and 3 may be due to both real structural change in the import pattern between 1999 to 2006 as well as to differences in the mapping used to aggregate trade items to SAM sectors during aggregation.

[8] This is the trade-weighted tariff average.

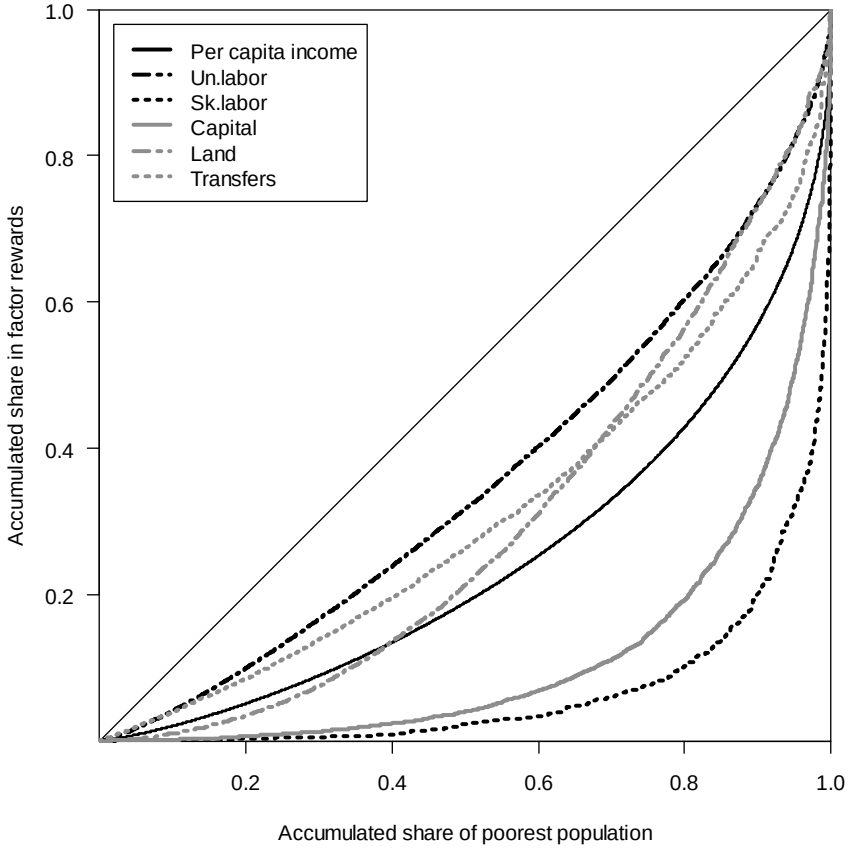
[9] These are the tariff rates prior to Uganda's adoption of the EAC CET in 2005. Before running our scenarios we conduct a pre-experiment to implement the 2006 tariff structure in the SAM.

[10] Government income, as implicit in the SAM, is composed of 15.4% income taxes, 31.5% import tariffs, 18.9% commodity taxes, and 34.2% transfers from abroad.

impact on individuals' real incomes and therefore turn to the 2002/2003 household budget survey data (UNHS).

Looking at the (imputed) income sources of households in the UNHS, most income for the poorest deciles comes from unskilled labour (65% for the very poorest decile) and some from transfers and land. With increasing per capita income, unskilled labour and transfer incomes decrease steadily in importance while skilled labour and capital returns increase in importance in total income so that the latter two become the main income sources for the richest deciles. Reliance on land returns is largest amongst the middle per capita income deciles. But although the poorer deciles draw most of their incomes from unskilled labour it does not mean that higher returns to unskilled labour will mainly benefit the poor. Figure 1 describes the distribution of factor rewards across the population in the fashion of Lorenz curves. The Lorenz curve compares the cumulative share of each factor or income source with the cumulative share of the population. Only about 30% of the returns to unskilled labour accrue to the lower half of the income distribution. Land returns benefit poor people to an even smaller extent. But returns to capital and skilled labour are the most unequally distributed since the richest 10 to 20% reap 85 to 90% of the total returns.

Figure 1: Lorenz curve and factor ownership distribution



Source: Own computation from the imputed household incomes.

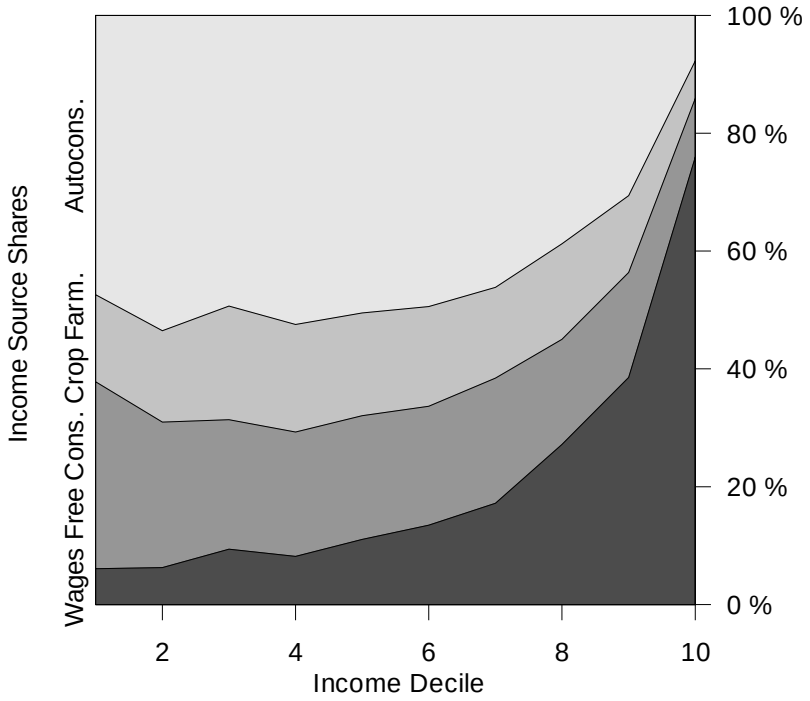
Figure 2 shows the average share of each observed income source in total household income for each per capita income decile. While wages are negligible as a source of income for the poorest population decile, accounting for only 6% of its total income, its share increases disproportionately over the deciles until it accounts for 76% of the income of the richest decile.[11] The share of free consumption consisting, for example, of transfers from other households, the government, or abroad, is rather constant around 21% with a peak in the lowest decile and a low point in the highest decile. Crop farming provides a roughly constant share of about 17% in income for the poorest eight deciles and then drops for the richest two. Autoconsumption, meaning subsistence farming and the consumption of own produce, amounts to a fairly constant share of about 50% for the first six deciles and then drops at an increasing rate to account for only 8% of the incomes of the richest decile. There is a strong shift in the importance of income sources from autoconsumption (or subsistence farming) to wage incomes in moving from the

[11] This and following discussions refrain from judging the direction of causality of the observed relationships.

poorest to the richest deciles. The poorest decile draws 79% of their income from auto- and free consumption, while the richest decile earns 76% of its income from wage employment alone.

Consequently, in the lower income deciles we expect little direct effect on income from wage level changes as most of their income derives from free and autoconsumption. On the other side, there might well occur a strong indirect effect from the restructuring of the economy as rising wages draw more people into wage employment. Since subsistence farming is independent of market prices, it will not experience any direct price effects. But there will be direct price effects on incomes from crop farming and transfers of free goods.

Figure 2: Sources of observed income as shares of total income by per capita income decile in percent

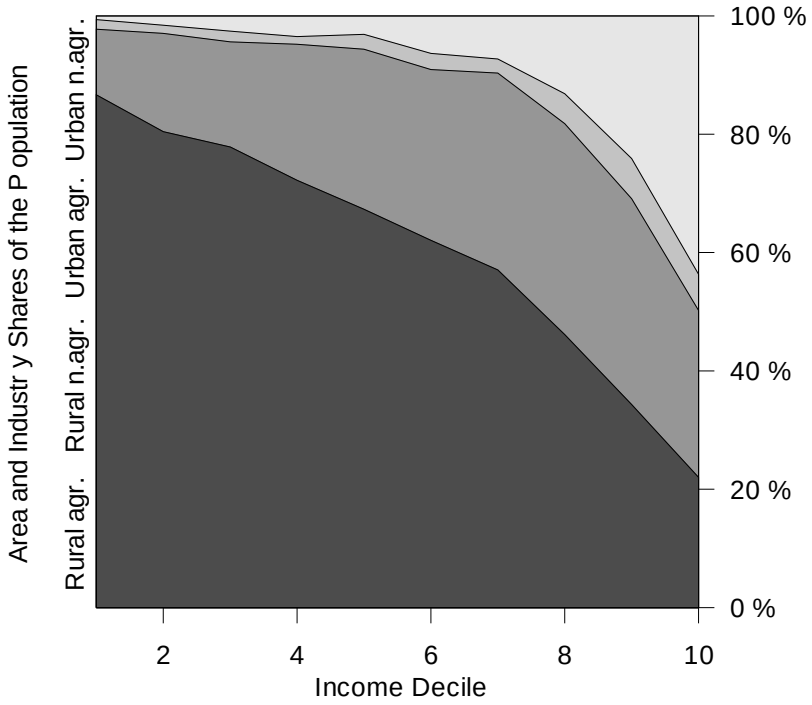


Source: Own computation from the UNHS.

Figure 3 shows the distribution of the population across income deciles by their affinity to rural areas and agriculture. 86% of the population live in rural areas and only 14% in urban areas. 64% are directly connected to agriculture and another 26%, the rural non-agricultural population, are likely to have a strong indirect dependency on the agricultural sector. But the distribution changes drastically with increasing per capita income. While virtually all people in the lowest decile live in rural areas (98%) and 88%

are directly associated with agriculture, the latter decreases over the deciles to only 28% in the richest decile. Similarly, the share of people living in urban areas increases from 2% in the poorest to 50% in the richest decile.[12] Furthermore, the importance of agrarian occupations declines rather strongly with rising income to account for only 28% of the richest decile. This highlights the dependency of the poorer households in particular but also of the Ugandan economy in general on the agricultural sector. Therefore, trade liberalization impacts on the agricultural sector are likely to affect largely and especially the poorer population.

Figure 3: Households by their affinity to rural areas and agriculture across per capita income deciles in percent



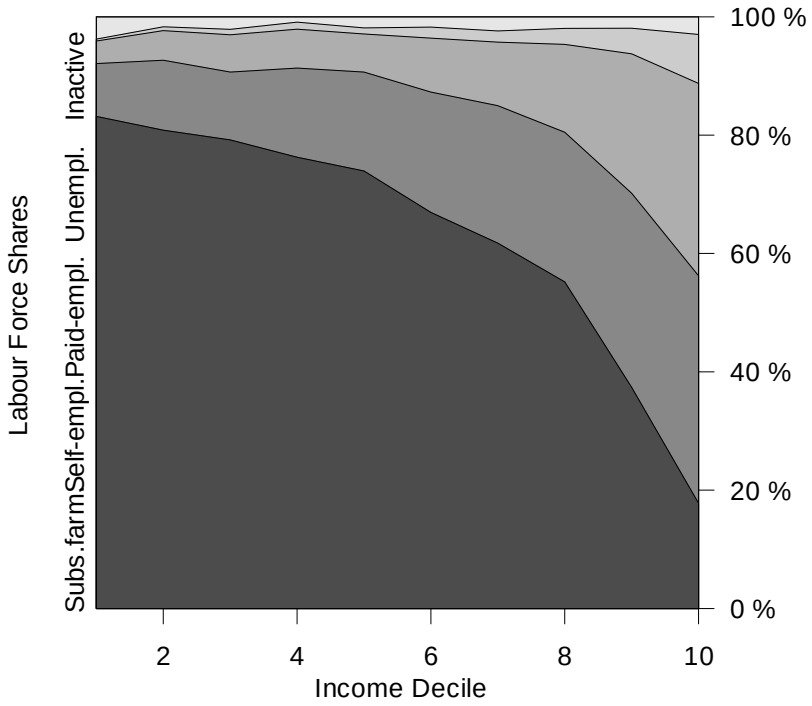
Source: Own computation from the UNHS. Affinity to agriculture is classified by the usual industry of occupation of the household head.

Figure 4 explores the usual employment status of the labour force by per capita income decile. 60% of the entire labour force is engaged in subsistence farming. The share of subsistence farmers in each decile is rapidly decreasing from 83% in the poorest to 18% in the richest decile. The share of people in subsistence farming shifts strongly towards self-employment (from 9% to 38%) and paid employment (from 4% to 33%) with increasing income. Unemployment is on a relatively low level of 3% on average with an

[12] These differences might appear less extreme if more detailed regional cost of living differences were taken into account.

increasing trend towards the richer deciles.[13] Likewise, the share of the inactive population, i.e., individuals unemployed and not actively searching for work, is 2% on average and exhibits a slightly increasing trend towards richer deciles.[14]

Figure 4: Labour force shares by employment status and per capita household income decile in percent



Source: Own computation from the UNHS.

[13] Subsistence farming and self-employment include unpaid family workers. In rural household enterprises family members are likely to be "underemployed" rather than unemployed.

[14] The inactive labour force includes in particular students and individuals, especially women, engaged in domestic duties.

The high shares of subsistence farmers and self-employed workers and the low share of paid workers in the poorer deciles point out once more that wage level changes will have little direct impact on poverty. However, trade liberalization might increase the demand for wage work and thereby increase wages and draw additional workers into paid employment. The theory of dual economies explains that this does not necessarily lead to any output loss in the subsistence or self-employment sectors as there might exist a considerable level of underemployment in the informal sector.[15] If so, increased work effort of the remaining workers can at least partly make up for the withdrawn manpower. Thus, if the additional wage income for the household comes without loss of income from subsistence farming such a shift might mean a dramatic income improvement for the household. However, we do not explicitly model this possibility in the simulations in this chapter.

Table 3 decomposes the active labour force using top level International Standard Industrial Classification (ISIC) codes, ordered by share in the total active labour force.[16] With 66%, the largest part of the labour force is absorbed by the agricultural sector (A). Another 11% work in the wholesale trade and repair services sector (G), but only 6% in manufacturing. The remaining 17% are spread across sectors with shares of less than 3% though most can be attributed to the services sector. This again emphasizes the predominance of the agricultural sector in the Ugandan economy and establishes the private services sector as the second largest sector in terms of labour force shares employed. Manufacturing is of lesser importance. Moreover, the manufacturing sector in Uganda also largely consists of the processing of agricultural goods.

[15] See, for instance, Ranis (2004).

[16] ISIC revision 3.1, accessed online from the United Nations Statistics Devision at http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=17 on 10 September 2007.

Table 3: Division of the active labour force by ISIC categories for industry of occupation

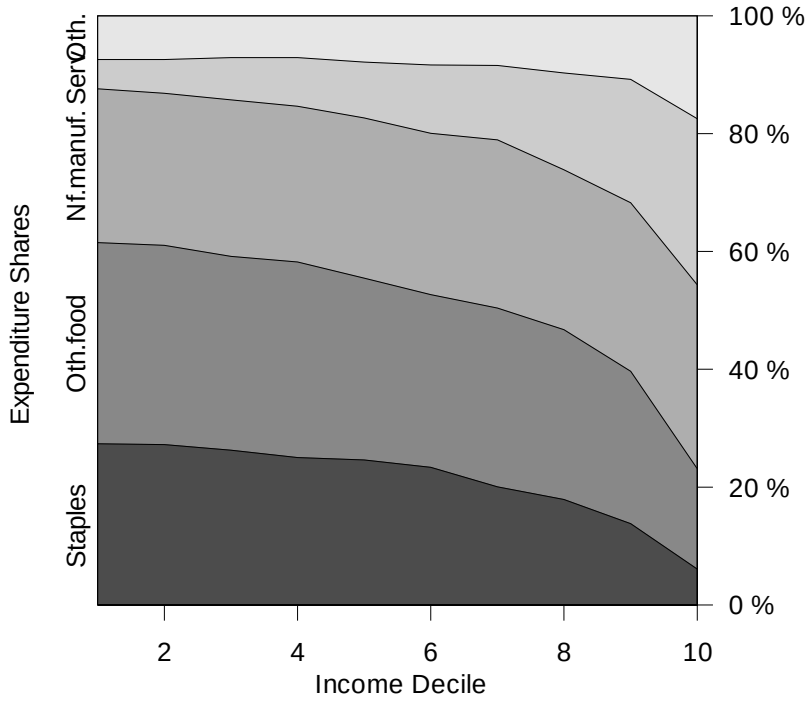
ISIC	%	Description
A	65.52	Agriculture, hunting and forestry
G	11.33	Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods
D	5.82	Manufacturing
M	2.82	Education
Z	2.78	Unknown
H	2.37	Hotels and restaurants
I	1.96	Transport, storage and communications
O	1.81	Other community, social and personal service activities
F	1.29	Construction
L	0.92	Public administration and defence; compulsory social security
N	0.85	Health and social work
B	0.85	Fishing
P	0.84	Activities of private households as employers and undifferentiated production activities of private households
K	0.41	Real estate, renting and business activities
C	0.26	Mining and quarrying
E	0.07	Electricity, gas and water supply
Q	0.05	Extraterritorial organizations and bodies
J	0.05	Financial intermediation

Source: Own computation from the UNHS data.

Having looked at the income sources we now turn to the expenditure side which determines the real purchasing power of the income for each household. Figure 5 shows the household expenditure shares that each income decile spends on different commodity groups. In line with Engel's Law, the share of food in household expenditure shrinks with increasing per capita income.[17] This trend is consistent for staple food items like cassava, sorghum, maize, and sweet potatoes but more heterogenous in the other foods group where expenditure shares on higher value foods like meat, fish, or matooke increase first but drop off for the richest deciles. A continuous and increasing upward trend is observable for expenditures for services. Richer households also spend more on the "Others" category, which in particular comprises transfers and gifts. Thus, when looking at the development of prices and purchasing power after trade liberalization, especially agricultural and processed food commodity prices have a big impact on the poorer deciles while the richer ones are relatively more affected by prices of manufacturing goods and services.

[17] See for example Deaton (1997, p. 25).

Figure 5: Expenditure shares by commodity group and per capita household income decile in percent



Source: Own computation from the UNHS. Nf.manuf. denotes non-food manufacturing commodities.

This discussion of data has explored how EPA trade liberalization might affect the Ugandan economy and different population groups within the economy. The analysis illustrates that the EU's exports to Uganda currently face only low tariffs and that Uganda's tariff elimination will have a significant impact only in the non-food manufacturing and petroleum and chemicals sectors given that, in other sectors, either imports are insignificant, the EU's share in imports is low or the Ugandan tariff is very low. The impact on the poorer deciles will be strongly related to the development in food prices in both their capacities as consumers and as producers and the development of the agricultural sector in general, although any impact will be dampened by the large share of subsistence farmers among the poor. It is clear that there is a multitude of offsetting effects making it impossible *a priori* to predict even the direction of impact on the poor population. We thus turn to describe how we quantified the likely poverty impact of the EPA with the help of simulation methods.

3 The combined CGE-microsimulation model

The data discussion in Section 2 gives rise to very limited expected direct impacts of the EPA on the sectors important to the Ugandan poor. Additionally, the poor appear to

have only weak links to the main traded sectors and formal markets in general. But a large part of the effect on poverty might occur indirectly through changes in unskilled labour wages and in prices. Moreover, tariff reform causes a loss in government revenue which needs to be replaced by other tax instruments. Capturing these effects calls for a general equilibrium model that accounts for the reverberation of the effects of the tariff changes through all economic sectors and quantifies the various counteracting effects. But drawing conclusions on poverty effects also requires detailed information about income distribution effects which are not readily provided by standard CGE models. For this reason, the CGE model is combined with a microsimulation model which simulates the consequences of the CGE-simulated outcomes on the income distribution and allows us to draw inferences about the likely effects on poverty.

The CGE model we construct utilizes a 1999 Uganda SAM based on one originally constructed by Dorosh and El-Said (2004). The SAM comprises accounts for 26 commodities, 25 activities, 4 factors of production including both skilled and unskilled labour, 1 household as well as government and the rest of the world. In contrast to the SAM of Dorosh and El-Said (2004), we aggregated all domestic zones into a single zone and their four household types into a single household. We adjusted the payments to labour by skill level to match those observed in the household survey. Land is assumed agriculture-specific and capital is specific to non-agricultural sectors. The SAM takes account of household autoconsumption which is reflected as payments from the household directly to the activities instead of to the commodity accounts.[18,19]

In 2005, Uganda as a member of the EAC implemented the EAC's common external tariff (CET) on imports from third countries.[20] Thus, starting from the 1999 Uganda SAM, we create a synthetic baseline scenario by simulating the changes in the Ugandan economy arising from the implementation of the EAC customs union and the common tariff structure using the 2006 EAC import tariffs and abolishing all tariffs on imports

[18] The 1999 SAM has been inflated using a GDP deflator (Source: World Bank. Series Name "GDP deflator (base year varies by country)", World Development Indicators (WDI) Online, retrieved on 20 February 2008) to be compatible with the numbers of the household survey base year 2002/2003.

[19] The economic structure reflected in the 1999 SAM is shown in Table 2.

[20] Roughly, the CET applies a three band import tariff structure with 0% on raw materials, 10% on intermediate products, and 25% on finished products complemented with a list of sensitive products for which the tariffs are higher than 25%.

from EAC members.[21] The tariffs used are most favored nation (MFN) applied tariffs or preferential tariffs, whichever are lower, as of 2006 and aggregated to SAM industries using trade weighting.[22] Additionally, we substitute an ad valorem sales tax on the Petrol and Chemicals sector to avoid the drop of import tariffs in this formerly heavily protected sector becoming the dominating effect in the pre-experiment. Uganda introduced a high excise duty on gasoline, diesel, and illuminating kerosene in 2005.[23]

The CGE model is based on the IFPRI Standard Computable General Equilibrium Model in GAMS (Löfgren et al., 2002). The model is a static, non-monetary, single-country model where all representative agents optimize – rationally and fully informed – their individual benefits resulting in a market-cleared, no-profit equilibrium. Factors are assumed to be fully mobile for all factor markets. For a detailed description and mathematical formulation of the model see Löfgren et al. (2002). Further details on the calibration of the model and the specific closure rules used can be found in Boysen and Matthews (2008).

The microsimulation is based on the Uganda National Household Survey 2002/03[24] (UNHS). The UNHS consists of socio-economic, labour force, informal enterprise, and community questionnaire modules. The representative sample includes 9,711 households corresponding to 52,088 individuals. The sample coverage of the population is stated to be 97%. The sample data was cleaned and adjusted and values were imputed where necessary to get a usable and complete dataset. For details on these adjustments and imputations, see Boysen and Matthews (2008).

The microsimulation model is a non-behavioral microaccounting model which simulates the first-order effects of changes in commodity prices and factor returns given by the CGE model on household incomes based on the representative household sample collected in the UNHS. No reactions to price changes are assumed on the household side thus the simulation reflects explicitly the short-term implications on the income

[21] Kenyan imports to Tanzania and Uganda will be liberalized from 2010.

[22] UNCTAD Trains database, United Nations Conference on Trade and Development, Geneva, Switzerland. Accessed online via WITS, World Bank on 30 June 2008. The tariff rate selected is the "effectively applied rate".

[23] Excise Tariff (Amendment) Act, 2005, Uganda.

[24] Uganda Bureau of Statistics, Entebbe, Uganda, 2003.

distribution. The simulation takes into account the heterogeneity of households' income source compositions by accounting for their respective factor endowments and specific individual wages by skill levels. In order to account for changes on the expenditure side, nominal household income is divided by the household-specific CPI to yield real income. This implies that all wages of the same skill level change proportionally and that households do not react to the changes in their economic situation thus leaving their income source composition unchanged and not substituting consumption items. The neglect of any adaptive behavior represents a worst-case scenario for the household but is not far-fetched as a short-run scenario for the poorest people since they usually also lack resources and options to react quickly and comprehensively to economic changes, particularly on the income side.[25]

We measure poverty in terms of absolute poverty employing the P_α measures introduced by Foster, Greer and Thorbecke (1984).[26] We use rural and urban poverty lines which have been recovered from the adjusted household survey data so that the poverty headcounts reported in the UNHS Report on the Socio-Economic Survey (UBoS, 2003, Table 6.3.2 (a)) are reproduced. In particular, we find poverty lines of 192,707 UGS and 218,516 UGS for the 41.7% of rural and 12.2% of urban poverty headcounts, respectively. The UBoS poverty lines are based on the cost of basic needs approach, which accounts for the cost of meeting physical calorie needs and allows for vital non-food expenditure, as for instance clothing and cooking fuels, valued using the average consumption basket of the poorest 50% of the population.[27] The rural and urban poverty lines account for the differences in prices and consumption baskets for the respective subpopulations. As the income measure we use per capita income.

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[25] Taking advantage of new opportunities might require for instance training, new seeds or machinery but necessary credit is often unavailable for the poorest.

[26] Setting the parameter α in the following formula to 0, 1, or 2 computes the poverty headcount, gap, or severity index, respectively. $P_\alpha = \frac{1}{N} \cdot \sum_{i=1}^{N} \left(\frac{z - y_i}{z} \right)^\alpha \cdot I_i$ with $I_i = \begin{cases} 1 & \text{if } y_i < z \text{ and} \\ 0 & \text{otherwise} \end{cases}$, N: population size, z: poverty line, and y_i: income of individual i.

[27] See UBoS (2003, Appendix II(A), 2).

4 The poverty impacts of the Uganda Economic Partnership Agreement

4.1 The Baseline

Since the Uganda SAM used is from 1999, we conduct a pre-experiment to simulate the impacts of Uganda's implementation of the EAC customs union in 2005 including the adoption of the CET and the removal of the EAC market's internal tariffs. The tariff patterns before and after the EAC CET implementation are rather different. Many sectors experience strong import tariff hikes where Uganda previously had low tariffs and many others are cut drastically. But overall, the trade-weighted average tariff for Uganda drops by almost 11 percentage points. To a large extent, this is due to tariff cuts in the main import sectors, manufacturing, and petrol and chemicals. But Uganda has replaced the petroleum tariff by a per unit excise duty which we take into account in the pre-experiment and the counterfactual scenarios by introducing an ad valorem equivalent sales tax on petroleum and chemicals. The results of this pre-experiment form the starting point for the EPA scenarios and are shown in the EAC column in the tables in this section. Because we have only one Rest-of-World account, we do not explicitly take account of changes in the source composition of imports in this baseline update scenario in response to the change in relative tariffs. Thus, to the extent that the creation of the EAC leads to trade diversion from EU to EAC import sources, we over-estimate the extent to which Uganda's overall imports would require to be liberalized as a consequence of the EPA.

4.2 Scenarios

As detailed in the Introduction, our scenarios assume that the EAC has to liberalize 82.1% of imports from the EU so that 17.9% can be exempted in the list of sensitive products. Taking the 2006 tariff revenue of each line as an indicator of the line's sensitivity, we optimize the list of sensitive products according to different interest priorities. The EPA-EAC scenario assumes that the EAC as a whole tries to retain as much tariff revenue as possible and selects exempted tariff lines up to a maximum of 17.9% of 2006 EU imports accordingly. The next two scenarios give more weight to Ugandan interests. In the EPA-UGA scenario, Uganda optimizes the tariff schedule with respect to sensitive products to minimize its own tariff revenue loss. In the EPA-AG scenario, Uganda's first priority is to protect its agricultural sector and then to minimize tariff revenue loss from the remaining sectors. This means that we first exempt all

agricultural tariff lines and then the non-agricultural tariff lines. In contrast to the long phase-out period set down in the interim EPA, for our comparative-static model we assume a simultaneous implementation of the schedule, as it will be realized in 2033. Note again that our use of a single Rest-of-World account means that all imports are treated as a single aggregate in terms of source. We thus do not take account of the possibility that the EPA would lead to trade diversion away from imports from EAC partners and non-EU exporters generally in favour of EU imports. The welfare effects of this trade diversion are ambiguous because EU imports would displace higher-cost EAC imports but lower-cost imports from non-EAC non-EU exporters. It should be also noted that the EU-EAC EPA negotiation is not a stand-alone process but part of a series of EPA negotiations between the EU and ACP country groups including the neighbouring Southern African Development Community (SADC EPA states incl. Botswana, Lesotho, Mozambique, Namibia, Swaziland) and Eastern and Southern Africa (ESA incl. Comoros, Madagascar, Mauritius, Seychelles, Zambia, Zimbabwe). These other EPAs could divert trade away from the EAC and disadvantage Uganda in a way not captured in our model.

Table 4 details the number of tariff lines affected and the tariff revenue loss corresponding to each scenario. For example, in the EPA-UGA scenario, Uganda imports under 2542 tariff lines of the 5224 lines of the Harmonized System. It selects 1068 lines for exemption to maximize its tariff revenue and the trade value of imports to the EAC on these lines accounts for the targeted 17.9%. In this scenario, the Ugandan government would lose 11% of the revenue which it previously collected from tariffs on EU imports.[28] Only 781 of the lines selected for the EPA-UGA scenario overlap with lines selected for the EPA-EAC scenario. This divergence might indicate a large potential for disagreement between the EAC members in choosing sensitive products. The much higher loss in the EPA-EAC scenario confirms the conflict potential. The EPA-UGA and EPA-AG scenarios appear rather similar where the tariff loss in the latter is 12%. Finally, the EPA-FULL scenario liberalizes all imports on the EAC side as a counterfactual experiment.

[28] For this analysis, we assume that tariff revenues on Ugandan imports under the EAC CET are recycled to the Ugandan government.

Table 4: Tariff line liberalization and revenue loss with respect to imports from the EU only

	EPA-EAC	EPA-UGA	EPA-AG
No. tariff lines	3,965	2,542	2,542
No. exempted	1,133	1,068	1,070
Overlapping with EAC	1,133	781	802
Uganda tariff revenue loss	-28.1%	-10.6%	-11.9%

Source: Own computation from UNCTAD Trains for 2006.

The aggregated scenarios are shown in Table 5. The tariffs listed are the average trade-weighted tariffs for imports from the world, taking into account the eliminated tariff lines on EU imports in each scenario. From an initial EAC tariff of 7.07% the tariff drop for the three "realistic" EPA scenarios is around 1%, which is less than half of the 2.24% of a fully liberalized FTA with the EU. Apparently, Uganda is able to retain its protection to a large extent. The tariff differences in the Uganda-optimized and EAC-optimized scenarios are only noteworthy in sectors where EU imports or imports in general play no important role. Therefore, we do not expect large shocks in any particular sectors.

Table 5: Import tariff shocks for simulation scenarios

	EAC	EPA-EAC	EPA-UGA	EPA-AG	EPA-FULL
	%	Percentage point change from EAC			
Coffee	0.00	0.00	0.00	0.00	0.00
Other Cash Crops	9.50	-5.58	-4.73	-4.73	-6.58
Maize	48.42	-0.18	-0.18	-0.18	-20.60
Sorghum/Millet	24.98	-0.02	-0.02	-0.02	-7.18
Cassava	0.00	0.00	0.00	0.00	0.00
Sweet Potatoes	0.00	0.00	0.00	0.00	0.00
Matooke	0.00	0.00	0.00	0.00	0.00
Horticulture	23.82	-0.17	-0.17	-0.17	-9.75
Other agriculture	0.12	-0.02	-0.02	-0.02	-0.04
Livestock	10.99	-7.57	-0.76	-0.74	-7.77
Forestry	0.89	-0.04	0.00	0.00	-0.07
Fishing	12.21	-7.22	-0.15	-0.15	-10.65
Meat and dairy processing	11.02	-4.90	-4.94	-4.89	-8.15
Coffee processing	0.38	-0.33	-0.33	-0.33	-0.34
Grain milling	5.58	-0.36	-0.36	-0.33	-1.47
Other beverages	6.91	-2.74	-1.36	-1.29	-5.44
Textiles and leather	18.65	-1.60	-1.55	-1.55	-2.24
Manufacturing	9.11	-1.23	-1.03	-1.06	-3.06
Fertilizers	0.00	0.00	0.00	0.00	0.00
Petroleum and chemicals	2.69	-0.78	-0.66	-0.66	-0.93
Utilities	0.00	0.00	0.00	0.00	0.00
Construction	6.61	0.00	0.00	0.00	0.00
Commerce	6.58	0.00	0.00	0.00	0.00
Transport	6.54	0.00	0.00	0.00	0.00
Private services	14.35	-3.29	-1.75	-1.75	-4.58
Public services	0.00	0.00	0.00	0.00	0.00
Weighted average	7.07	-1.04	-0.87	-0.88	-2.24

Source: Own computation. EAC constitutes the base scenario to which all other scenarios are compared. Here, the CET has been implemented and all internal tariffs have been removed. EPA-EAC optimizes tariff revenues for the EAC as a whole, EPA-UGA the revenues for Uganda, EPA-AG prioritizes protection of the agricultural sector before maximizing Uganda's revenues, and EPA-FULL depicts a full import liberalization between the EAC and the EU. All tariffs are computed from 2006 UNCTAD Trains database using trade weighting. All values are trade-weighted percentage ad valorem tariffs.

4.3 CGE simulation results

An inspection of the macro results in Table 6 indicates a similar tendency for all EPA scenarios. The effect on GDP is negligible. This outcome is largely grounded in the nature of the CGE model and the choice of closures. GDP at factor cost, computed as the sum of factor incomes, is largely predetermined through the assumption of fixed

employment levels and factor endowments. The small changes occurring are a result of changes in factor and consumer prices where the latter define the nummeraire. In addition, GDP at market prices, as presented in the table, can change through changes in indirect taxes. Both imports and exports increase with exports increasing more than twofold compared to imports. This is due to the assumption of a constant trade balance which fixes the relation of aggregate imports to exports together with the very large excess of imports over exports in the initial equilibrium. To facilitate larger exports, the economic structure shifts towards the export sectors. This shift is amplified by a depreciation of the exchange rate which balances the current account after the import tariff shock. Since factor endowments are fixed in this model, the main effects at the aggregate level are small allocative efficiency gains and the redistribution of initial income between the factors of production.

Table 6: CGE simulation results: GDP composition, real exchange rate and factor returns

	EAC	EPA-EAC	EPA-UGA	EPA-AG	EPA-FULL
GDP components	Level	% change from EAC			
Private consumption	8782.52	0.02	0.01	0.01	0.02
Investments	1709.04	0.00	0.00	0.00	0.00
Government consumption	1122.32	0.00	0.00	0.00	0.00
Exports	1171.25	1.24	0.82	0.82	2.06
Imports	-2844.79	0.51	0.34	0.34	0.85
GDP	9940.34	0.01	0.01	0.01	0.02
Government income	1617.54	-0.29	-0.19	-0.19	-0.50
Real exchange rate	1.00	0.08	0.02	0.02	0.06
Sales tax rate		4.30	3.58	3.62	8.46
Factor real returns	% of total	% change from EAC level			
Labour unsk.	44.49	-0.25	-0.20	-0.20	-0.53
Labour sk.	9.28	-0.53	-0.34	-0.34	-0.89
Capital	23.60	-0.39	-0.29	-0.29	-0.76
Land	22.63	0.62	0.42	0.42	0.97

Source: Own computation. GDP component levels are in billion UGS of 2003. GDP is valued at market prices.

Government consumption and investment are fixed in the model but the impact on private consumption is minimal as well. With the chosen government balance closure, government consumption is fixed and lost tariff revenue is compensated by adjustments

of the sales tax rates. As a result, sales taxes increase between 4 and 9% relative to the initial rate.[29]

The factors capital and labour lose income in all scenarios with returns to unskilled labour decreasing less than those to skilled labour which in turn decrease less than returns to capital. Only returns to land benefit from the policy reforms with a relative increase higher than all of the decreases of the other factors. These changes in factor returns are partly explained by the structure of the SAM and partly by the chosen closure of perfect factor mobility. In the SAM, capital and skilled labour are primarily used by non-agricultural activities while land is only used by agricultural activities making these factors specific to those larger sectors. By contrast, unskilled labour is perfectly mobile across all sectors. Consequently, those specific factors gain and lose more sharply than unskilled labour which moves freely to adapt. In reality, it is likely that the market for unskilled labour is segmented to some degree, for example, between non-agricultural and agricultural sectors. This would create a wedge between the sectoral unskilled labour wages. In this case, it would be expected that some of the income gained by land is redistributed to agricultural unskilled labour while the real wage decreases in non-agricultural sectors might additionally share some of the losses accruing to capital and skilled labour and thus might turn out larger.

Like the aggregate changes, the sectoral changes of imports, exports, and domestic production exhibit similar tendencies in all EPA scenarios. Table 7 shows large relative impacts only for some rather minor import sectors. While imports increase slightly for all agricultural and manufacturing sectors apart from petroleum and chemicals they shrink somewhat for construction, commerce and trade. On the export side in Table 8, the most noteworthy increases are in coffee processing and manufacturing, two of the major export sectors. As presented in Table 9, domestic production reacts to the import liberalization by decreasing almost all production activities in the agricultural and manufacturing sectors. The single greatest beneficiaries are the coffee growing and processing sectors whose production increases between 1.3 and 3.0% depending on the EPA scenario. Moreover, utilities, construction, commerce, and transport benefit slightly from this development.

[29] This is a percentage increase and not percentage point increase applied to each previously existing sales tax.

Table 7: CGE simulation results: import quantities

	EAC	EPA-EAC	EPA-UGA	EPA-AG	EPA-FULL
	% of total	% change from EAC level			
Coffee	0.00	2.17	1.46	1.45	3.52
Other Cash Crops	0.00	13.59	11.34	11.34	15.60
Other agriculture	0.85	0.05	0.08	0.08	0.01
Livestock	0.10	19.99	2.08	2.06	20.92
Forestry	0.02	0.21	0.08	0.07	0.09
Fishing	0.01	18.13	0.20	0.20	28.24
Meat and dairy processing	1.84	3.80	3.89	3.85	6.51
Coffee processing	0.00	0.72	0.65	0.64	0.90
Grain milling	0.62	0.10	0.19	0.17	1.01
Other beverages	1.68	2.89	1.34	1.26	5.89
Textiles and leather	8.02	0.63	0.59	0.59	0.88
Manufacturing	47.40	0.19	0.17	0.18	0.52
Fertilizers	1.55	0.56	0.39	0.39	0.92
Petroleum and chemicals	24.60	-0.03	-0.04	-0.04	-0.19
Utilities	0.18	-0.73	-0.50	-0.50	-1.34
Construction	0.15	-0.76	-0.56	-0.57	-1.60
Commerce	0.63	-0.47	-0.32	-0.32	-0.86
Transport	6.16	-0.20	-0.13	-0.13	-0.34
Private services	6.18	3.33	1.68	1.68	4.50

Source: Own computation. Changes in import quantities. Rows with only zeros have been omitted.

Table 8: CGE simulation results: export quantities

	EAC	EPA-EAC	EPA-UGA	EPA-AG	EPA-FULL
	% of total	% change from EAC level			
Maize	0.79	0.09	0.02	0.02	0.26
Horticulture	1.09	0.17	0.06	0.06	0.38
Other agriculture	2.06	0.07	0.00	0.00	0.23
Fishing	3.65	0.28	0.24	0.24	0.52
Coffee processing	41.00	1.88	1.28	1.27	3.04
Other beverages	7.83	0.49	0.31	0.32	0.90
Textiles and leather	0.44	0.30	-0.04	-0.04	0.67
Manufacturing	14.82	1.25	0.75	0.75	1.99
Utilities	2.04	1.31	0.87	0.88	2.39
Transport	9.20	0.62	0.38	0.38	0.99
Private services	17.06	0.85	0.59	0.59	1.58

Source: Own computation. Changes in export quantities. Rows with only zeros have been omitted.

Table 9: CGE simulation results: domestic production activity

	EAC	EPA-EAC	EPA-UGA	EPA-AG	EPA-FULL
	% of total	% change from EAC level			
Coffee	2.57	1.86	1.27	1.26	3.02
Other Cash Crops	1.30	-0.23	-0.18	-0.18	-0.39
Maize	1.95	-0.06	-0.03	-0.03	-0.09
Sorghum/Millet	2.37	0.00	0.00	0.00	0.00
Cassava	1.82	0.00	0.00	0.00	0.00
Sweet Potatoes	1.74	0.00	0.00	0.00	0.00
Matooke	4.37	-0.06	-0.04	-0.03	-0.12
Horticulture	4.69	0.01	0.01	0.01	0.02
Other agriculture	3.74	0.00	0.00	0.00	0.02
Livestock	5.03	-0.25	-0.16	-0.15	-0.35
Forestry	1.35	-0.08	-0.08	-0.08	-0.19
Fishing	1.73	0.00	0.02	0.02	0.01
Meat and dairy processing	0.89	-1.81	-1.83	-1.82	-3.00
Coffee processing	3.14	1.86	1.27	1.26	3.02
Grain milling	0.59	-0.12	-0.10	-0.09	-0.40
Other beverages	8.45	-0.16	-0.10	-0.09	-0.32
Textiles and leather	1.02	-0.67	-0.76	-0.76	-0.86
Manufacturing	4.64	-0.05	-0.17	-0.19	-0.64
Petroleum and chemicals	0.69	-0.32	-0.24	-0.25	-0.28
Utilities	1.05	0.22	0.14	0.14	0.39
Construction	10.55	0.01	0.01	0.01	0.03
Commerce	10.59	0.08	0.04	0.04	0.11
Transport	7.56	0.15	0.09	0.09	0.23
Private services	12.51	-0.25	-0.10	-0.10	-0.28
Public services	5.68	0.00	0.00	0.00	0.00

Source: Own computation. Changes in domestically produced quantities. Rows with only zeros have been omitted.

Overall, the coffee sector appears to be the driver of the export growth. It experiences only a negligible negative import price shock and profits strongly from reduced import prices of its intermediate inputs as well as from cheaper unskilled labour which is released from the other agricultural and light manufacturing sectors. Since unskilled labour is released abundantly compared to land, the relatively land-intensive production of coffee drives up land returns. This effect is amplified by the depreciation of the exchange rate. The expansion in coffee exports simultaneously pushes expansion of the commerce and transport sectors. However, all observed allocational efficiency adjustments occur on a very low level.

4.4 Microsimulation results

What are the consequences of the CGE results for poverty in Uganda? This question cannot be answered from the above results since price (Table 10) and factor income (Table 6) changes are partially counteracting and require quantification of their respective impacts on household income. In the CGE simulation results, returns to unskilled labour, but also to skilled labour and capital, fall but the prices for staples and grain milling products increase slightly while the prices for manufacturing tend to fall, making the impact on the poor population ambiguous. The only beneficiary factor is land, which is mainly owned by households in the richer deciles. The EPA scenarios appear to have a generally minor impact on the poverty headcount P_0 of -0.06 to +/-0 percentage points. The Uganda-optimized scenarios have a slightly smaller effect on the poverty headcount while leaving the gap and severity measures unchanged. By contrast, the EAC-optimized scenario leaves the headcount unchanged but worsens slightly the poverty gap and severity measures. The impacts differ for rural and urban areas. The poverty headcount improves for rural areas while it deteriorates for urban areas. The poverty gap and severity indicators deteriorate for both rural and urban areas.[30] Details not shown here reveal that in the three "realistic" EPA scenarios, between 0.04 and 0.08% of the population fall into, while between 0.08 and 0.1% are lifted out of, poverty. Between 55 and 67% of the poor population experience a widening of their individual poverty gaps. The agricultural protection-prioritizing scenario EPA-AG shows no difference to the outcomes of the EPA-UGA scenario. The Gini index indicates a worsening of income inequality. The changes in mean real incomes by decile are biased against the poor as loss of average income in the lower deciles turns to gains for the richer deciles. This reflects the higher income shares of the richer deciles spent on manufactures and services for which prices have decreased more strongly than for basic foods and also the higher prevalence of land ownership, the only factor which gains.

[30] We underline again that the poverty effects modeled here take the changes in the factor returns of each individual household's endowments and the changes in prices of its specific consumption bundle into account. But the model disregards changes in unemployment and employment structure and the adaptive behavior of individuals.

Table 10: CGE simulation results: consumer price changes

	EPA-EAC	EPA-UGA	EPA-AG	EPA-FULL
	% change from EAC level			
Coffee	0.17	0.08	0.08	0.22
Other Cash Crops	-0.01	-0.04	-0.05	-0.21
Maize	0.03	0.01	0.00	-0.04
Sorghum/Millet	0.04	0.01	0.01	-0.03
Cassava	0.04	0.01	0.01	-0.03
Sweet Potatoes	0.05	0.01	0.01	-0.01
Matooke	0.04	0.01	0.01	-0.02
Horticulture	0.04	0.01	0.01	-0.02
Other agriculture	0.04	0.01	0.01	-0.02
Livestock	0.21	0.15	0.15	0.29
Forestry	0.09	0.05	0.04	0.02
Fishing	-0.02	-0.04	-0.05	-0.11
Meat and dairy processing	-1.36	-1.39	-1.37	-2.37
Coffee processing	-0.31	-0.25	-0.25	-0.55
Grain milling	0.05	0.03	0.03	-0.07
Other beverages	0.37	0.35	0.35	0.65
Textiles and leather	-0.82	-0.82	-0.82	-1.20
Manufacturing	-0.82	-0.70	-0.72	-2.08
Fertilizers	0.02	-0.01	-0.01	-0.03
Petroleum and chemicals	1.05	0.83	0.84	2.46
Utilities	-0.23	-0.16	-0.16	-0.47
Construction	-0.41	-0.33	-0.34	-0.96
Commerce	-0.19	-0.14	-0.14	-0.39
Transport	-0.01	-0.02	-0.02	-0.06
Private services	-0.69	-0.42	-0.42	-1.12
Public services	-0.30	-0.21	-0.21	-0.55

Source: Own computation. Changes in domestic consumer prices.

Table 11: Microsimulation results

	EAC	EPA-EAC	EPA-UGA	EPA-AG	EPA-FULL
Poverty, national					
P_0	37.28	37.28	37.22	37.22	37.22
P_1	11.62	11.65	11.62	11.62	11.66
P_2	5.06	5.09	5.06	5.06	5.10
Poverty, rural					
P_0	41.34	41.32	41.26	41.26	41.26
P_1	12.93	12.97	12.93	12.93	12.98
P_2	5.64	5.67	5.65	5.65	5.68
Poverty, urban					
P_0	11.81	11.91	11.86	11.86	11.90
P_1	3.36	3.38	3.37	3.37	3.39
P_2	1.39	1.41	1.40	1.40	1.41
Gini	50.38	50.46	50.43	50.43	50.49
Real income					
Decile	Mean income	% change from EAC			
1.00	82807.60	-0.35	-0.16	-0.16	-0.52
2.00	125303.23	-0.22	-0.06	-0.06	-0.30
3.00	156268.52	-0.10	0.02	0.02	-0.09
4.00	186667.56	0.01	0.12	0.12	0.10
5.00	221051.59	0.08	0.17	0.17	0.22
6.00	262778.56	0.12	0.19	0.19	0.29
7.00	315409.83	0.24	0.30	0.30	0.50
8.00	402777.47	0.23	0.28	0.28	0.48
9.00	574612.84	0.28	0.30	0.30	0.53
10.00	1729785.34	0.28	0.28	0.28	0.51

Source: Own computation. The poverty figures use rural and urban poverty lines, respectively. Totals are in UGS of 2003.

5 Conclusion

In this chapter we examine the poverty impacts of an EPA agreement between Uganda and the EU and specifically its trade provisions. It focuses particularly on the implications of the required reduction in EAC tariffs as part of the implementation of a reciprocal free trade area. The qualitative analysis of the data derived from the Uganda National Household Survey (UNHS) 2002/2003 confirms that Uganda is an agriculture-based economy with most people living in rural areas and being dependent on agriculture. In particular, there is a high incidence of subsistence farming and a strong dependency of the poorest people on income from unskilled labour and, to a lesser extent, from transfers and land. They spend the largest part of their incomes on food but also a significant share on non-food manufactures.

The analysis of the impact potential of an EPA with the EU first of all highlights the relatively low share the EU has in Ugandan imports and the low average tariff of 5.5% the EU currently faces for those exports. 18.9% of Ugandan imports come from the EU which is similar to the 16.7% Uganda imports from the internal EAC market. Also, EU imports appear to be complementary to Uganda's domestic production rather than competing. The EPA impact is quantified using a single country CGE model for Uganda. Starting from the EAC's common external tariff and its free trade area, all EPA scenarios show negligible effects on GDP and a small increase in trade activity with exports increasing more strongly than imports in relative terms. The small magnitude of aggregate effects is inherent in the chosen static long-run model which is characterized by fixed factor endowments, a fixed trade balance, and perfectly mobile production factors.

Turning to the sectoral level, the impacts on all sectors are rather small. On the export side, the coffee processing sector as the largest export sector stands out with gains between 1.3 and 1.9% in exports for the three "realistic" EPA scenarios but also manufacturing expands by 0.8 to 1.3%. The coffee sector benefits from the slight depreciation of the exchange rate, reduced prices of imported intermediate inputs, as well as the negative price shocks on the other agricultural sectors, which cause wages for unskilled labour to fall. During this process, the shrinking agricultural sectors release more unskilled labour relative to land than required by the expanding highly land-intensive coffee growing sector causing unskilled labour wages to decrease and land rents to increase.

A subsequent microsimulation projecting the CGE results onto the UNHS 2002/03 quantifies the ensuing poverty effects. Both the development of factor returns and price patterns are adverse for the poor so that the poorest two deciles face a small decrease in their average real incomes whereas the richer deciles gain. On the national level we find very small poverty effects amounting to between -0.06 and zero percentage points change in the poverty headcount depending on whether Uganda is able to secure its preferred tariff exemptions in the EAC negotiations or not. This also decides whether the poverty gap remains constant or increases. In all scenarios, the poverty headcount is falling for the rural but rising for the urban population. The poverty severity tends to increase everywhere and the Gini index to worsen slightly in all scenarios. However, it

should be born in mind that the microsimulation does not allow for adaptive behavior of the households and thus overestimates the negative effects. We should also recall that the changes modelled here will in practice be implemented over a 25 year period in which the structure of the Ugandan economy will no doubt change radically.

In general, the CGE model results have to be interpreted in the light of the model's structure and assumptions. They show the economic pressures arising from adjustment towards an efficient allocation of resources as a result of the simulated shock. Our model ignores limiting factors like, for example, limited adjustment capacities of farmers and other supply-side constraints. The model could also be further developed to better reflect the realities of the labour market in Uganda, to improve on the naïve assumptions of full employment and perfect labour mobility, and to better capture the implications of trade diversion by disaggregating imports from different sources. Moreover, it does not model qualitative development. The model only allows more production of what is produced already but it does not allow for new products, technical change, quality improvements, and so forth. The same applies for trade. No trade will arise for products which the country did not trade before. Indeed, qualitative development is likely to play an important role in Uganda's response to the opportunities created by the EPA, for example, if foreign investment takes advantage of the more credible policy environment.

However, we believe that these caveats are unlikely to change the conclusion of the analysis that the EPA agreement with the EU will have only a minor impact on the Ugandan economy and Uganda's poor population. Such impacts will be additionally diminished given the long 25 year transition period agreed. Importantly, the analysis shows that such an agreement does not induce large deindustrialization effects and that the economic adjustment costs for Uganda and the poor population are quite low. Nevertheless, whether the small poverty effects are positive or not depends on the choice of the tariff lines for exemption from liberalization, although under all scenarios the ultra-poor appear to lose.

References

Bannister, G. J. and Thugge, K. (2001). International trade and poverty alleviation, *IMF Working Papers 01/54*, International Monetary Fund.

Bilal, S. and Rampa, F. (2006). Alternative (to) EPAs. Possible scenarios for the future ACP trade relations with the EU, *Policy Management Report 11*, ECDPM, Maastricht.

Boysen, O. and Matthews, A. (2008). Poverty Impacts of an Economic Partnership Agreement between Uganda and the EU, *Discussion Paper 261*, Institute for International Integration Studies, Trinity College Dublin.

Deaton, A. (1997). *The Analysis of Household Surveys: A Microeconometric Approach to Development Policy*, John Hopkins University Press for the World Bank, Washington D.C., Baltimore and London.

Delpeuch, C. (2007). One minute to midnight: Is there still time to rethink EPAs?, *Policy Brief*, The German Marshall Fund of the United States.

Dorosh, P. and El-Said, M. (2004). A 1999 social accounting matrix (SAM) for Uganda, *Working paper*, IFPRI.

Fontagne, L., Labourde, D. and Mitaritonna, C. (2008). An impact study of the EU-ACP economic partnership agreements (EPAs)in the six ACP regions, *Working Papers 2008-04*, CEPII research center.

Foster, J., Greer, J. and Thorbecke, E. (1984). A class of decomposable poverty measures, *Econometrica* **52**(3): 761–66.

Löfgren, H., Harris, R. L. and Robinson, S. (2002). A standard computable general equilibrium (CGE) model in GAMS, *Microcomputers in Policy Research 5*, International Food Policy Research Institute (IFPRI).

McCulloch, N., Winters, L. A. and Cirera, X. (2001). *Trade Liberalization and Poverty: A Handbook*, UK Department for International Development and the Centre for Economic Policy Research, London.

ODI (2006). The potential effects of economic partnership agreements: What quantitative models say, *Briefing paper 5*, Overseas Development Institute, London.

Oxfam (2006). Unequal partners: How EU-ACP economic partnership agreements could harm the development prospects of many of the world's poorest countries, *Oxfam Briefing Note September 2006*, Oxfam.

Ranis, G. (2004). Labour surplus economies, *Center Discussion Paper No. 900*, Economic Growth Center, Yale University.

Stevens, C., Meyn, M., Kennan, J., Bilal, S., Braun-Munzinger, C., Jerosch, F., Makhan, D. and Rampa, F. (2008). The new EPAs: comparative analysis of their content and the challenges for 2008 - Final Report, *Technical report*, Overseas Development Institute, London, U.K. and European Centre for Development Policy Management, Maastricht, The Netherlands.

UBoS (2003). *Uganda National Household Survey 2002/2003 - Report on the Socio-Economic Survey*, Uganda Bureau of Statistics, Entebbe, Uganda.

Winters, L. A. (2002). Trade liberalisation and poverty: What are the links?, *The World Economy* **25**: 1339–1367.

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