

# Trade liberalisation with African socio-economic structures and imperfect markets

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## Abstract

Recent research has demonstrated that the benefits of free trade tend to go to better off countries that can produce more value added, while the poorest countries become producers of primary goods. Moreover, the poorest countries often suffer from distorted macroeconomic conditions as well as in many ways imperfectly functioning markets. It is suggested that factor markets represent a primary channel for trade policy transmission to social structures as well as poverty. The simulations show considerable changes in prices and use of primary factors following the implementation of new trade policy regimes in developing countries.

Inside a country, even if the overall impact of trade liberalisation were positive, increased inequality results in little, if any, improvement to the poorest people. Dualism in the factor markets, characterised with large informal sector, combined with cruelly imperfect information can create structural rigidities that may prevent the gains from macro-policy interventions, such as trade liberalisation, to fully translate into poverty reduction. Unless the new trade policy regime is accompanied with other policy reforms, it can lead to aggravation of disequilibria.

Thus, a central assumption in this paper is that the economic impact of a free trade agreement in a developing country greatly depends on its economic structures, in particular functioning of the labour market. The presence of dualism and the existence of an exogenous downward rigidity of the wage of some labour categories are peculiar characteristics to many developing countries. Typically, a substantial part of the population is in informal sector where the salaries are often infinitesimal. When the assumption of perfect functioning of labour market is relaxed, the gains from a macro-level policy change can be significantly reduced.

The factor market effects are demonstrated by case studies, which include simulations of possible future trade liberalisation or regional integration regimes in three countries in Sub-Saharan Africa, using the GTAP model. Possible changes in production structure due to the new policy regimes can be anticipated by studying the industry specific simulation results. The paper then looks into the underlying structural phenomena and market imperfections in order to identify the eventual inadequacies in the simulation results on one hand, and possible policy alternatives to improve the poverty reduction impacts on the other hand.

Simulations show that the relative demand for unskilled labour to skilled raises, and production shifts from industrial sectors towards agricultural goods and raw materials. While this can increase the share of formal sector in agricultural production as paid labour is required for production growth, it can also sharpen the inequalities as the number of workers in sectors with higher value-added decreases, thus creating a small group of rich people and a large working class earning very little. This is because the results tend to be driven by increased exports of processed goods from developed countries. If this increase is very big, it may effectively make Africa a destination of those commodities produced in developed world that cannot be sold elsewhere, which would deteriorate the Africa's capacity to provide itself of the production of these commodities.

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## **1 Introduction**

Recent research has demonstrated that the benefits of free trade tend to go to better off countries that can produce more value added, while the poorest countries become producers of primary goods. Moreover, the poorest countries often suffer from distorted macroeconomic conditions as well as in many ways imperfectly functioning markets, and even if the overall impact of trade liberalisation were positive, increased inequality often results in little, if any, improvement to the poorest people. Dualism in the factor markets, characterised with a large informal sector, combined with cruelly imperfect information can create structural rigidities that may prevent the gains from macro-policy interventions, such as trade liberalisation, to fully translate into poverty reduction. Therefore, unless the new trade policy regime is accompanied with other policy reforms, it can lead to aggravation of disequilibria.

Recent research on the effects of trade policy regimes in developing countries has been abundant, but most of the studies have concentrated on longer-term macro effects. So far surprisingly little attention has been paid to the imperfectly functioning markets and underlying social structures, which may have significant short and medium-term implications inside a country. Therefore, it seems increasingly important to gain better understanding on the mechanisms by which the social structures affect the economic performance and vice versa.

Thus, a central assumption in this study on the effects and socio-economic conditions is that the impact of trade liberalisation on income poverty in developing countries greatly depends on their economic structures, in particular the functioning of the labour market. Typically, a substantial part of the population is in the informal sector where the salaries are often infinitesimal. When the assumption of perfect functioning of the labour market is relaxed, the gains from a macro-level policy change can be significantly reduced. Further, changes in economic conditions can, in turn, lead to significant changes to the market structures.

This paper builds on Kerkelä and Niemi (2002) in the general approach and factor market considerations. The simulation has been updated and greatly simplified in order to concentrate on the changes in factor allocations between sectors in a generic trade liberalisation scenario. Two low-income Sub-Saharan African countries, Mozambique and Zambia, have been selected for more detailed study of the institutional and market structures.

## **2 Current Trade Liberalisation Initiatives in Sub-Saharan Africa**

Several different regional and global trade policy initiatives are under discussion in Sub-Saharan Africa. Most importantly, these include the implementation of Doha development agenda, regional integration and creation of customs unions among African country groups, and the on-going negotiations on economic partnership agreements (EPA) with the European Union.

With the EU, the Lomé Convention has permitted almost completely duty-free access for most of the products from ACP countries. Some sensitive agricultural products, whose imports were regulated by protocols, are exceptions for this general policy. These commodities are beef and veal, sugar, bananas and previously rum, for which the quotas have now been abolished. In the new convention, the protocols for sugar, beef and veal have been maintained. If the non-reciprocal preferences granted temporary under Cotonou agreement were not accepted by the WTO, the ACP countries and the EU would have to base their trading relationship on different regimes.

The example of Southern African countries illustrates how the trade policy changes can lead to very different outcomes in countries with significantly different development levels. Among the countries in this study, Botswana represents a relatively well off economy; while it is classified a developing country, it does not belong to the poorest ones (LDCs). Zambia and Mozambique, in turn, are classified LDC-countries and therefore entitled to most preferential trade treatment.

In other contexts, regional groupings (free trade areas or any other blockings) have been seen as negotiating partners with European Union. For example, the Impact studies (McQueen 1999) picked four groups of regional agreements to a closer look. These groups were EAC (East African Cooperation) consisting of Kenya, Tanzania and Uganda, SADC (Southern African Development Community) consisting of 14 southern African countries (also South Africa) and two French monetary communities (UDEAC-CEMAC in Central Africa: 6 countries and UEMOA – West African Monetary Union, 7 countries).

## **3 Local Poverty and Inequality Impacts of Trade Liberalisation**

Since the signing of Millennium Declaration by 152 heads of state in September 2000, and adaptation of the Millennium Development Goals, the emphasis in development interventions throughout the world has explicitly been on poverty reduction. This has also been reflected in research, e.g. in recent study by Hertel et al. (2000), which combines GTAP data and other multilateral sources with household surveys, focuses on the poverty impacts of multilateral trade liberalization. Winter et al. (2004) demonstrate the distributional changes always inherent in trade

liberalisation, which may reduce the well-being of some people, at least on short term. They further suggest that while the role of institutions in determining price transmission has been stressed, further research is needed on the transmission of the price changes to the local level.

A theoretical framework for the analysis of dynamic effects of trade liberalization on personal income distribution has been provided by Fischer (2001). Bourignon and Verdier (2000) suggest a political economy model analyzing the dynamics of inequality and economic development where education is playing a key role.

When analyzing the effects of global trade liberalisation in the least developed countries, poverty and inequality are closely related to each other. When talking about poverty reduction, we mean especially people living in absolute poverty. From this definition follows that increasing inequality deepens the poverty problem, as increased wealth in one end of the distribution reflects more people without any wealth. Thus, in the worst case, increasing inequality can offset (or more) the global welfare gain.

The role of social and institutional structures for country's development is complex. Factors, such as human capital level in the country, the size of the middle class, health conditions, family structures, the share of labour force in informal agriculture and the urban population, are on one hand contributing to the production possibilities and policy effectiveness. On the other hand, these factors have direct impact on utility and thereby on country's welfare.

The change in macro-economic conditions may affect interactions within families and within local communities and thus explain the variety of growth experiences. Social interactions give easily raise to phenomena like increasing returns, multiple equilibria and market failures but in contrast to traditional development economics, explain where they come from. Within a group of countries with widely heterogeneous cultures, as the developing countries are, these kind of explanations are indeed worth a more careful study.

#### **4 Factor Market Considerations and the Role of Informal Sector**

In last couple of years, a few studies on different aspects of Southern African trade policy scenarios have been made using CGE models.<sup>2</sup> The benefits of free trade go to better of countries that can produce more value added, while the poorest countries become producers of primary goods. In this respect, it is suggested, e.g. in a recent study by Hertel et al. (2001a), that factor markets represent a

primary channel for trade policy transmission to social structures as well as poverty. There are a couple of quantitative studies<sup>3</sup> showing considerable changes in prices and use of primary factors following the implementation of new trade policy regimes in developing countries. The changes in factor demand should be connected to the discussion on capacity building and improving social structures.

The economic impact of a free trade agreement in each developing country depends, among other factors, on its economic structures, in particular functioning of the labour market. The presence of dualism and the existence of an exogenous downward rigidity of the wage of some labour categories are peculiar characteristics to many developing countries. Typically, a substantial part of the population is in informal sector where the salaries are often infinitesimal. When the assumption of perfect functioning of labour market is relaxed, the gains from a macro-level policy change can be significantly reduced.<sup>4</sup> Basu (2004a&b) has demonstrated that in presence of an endogenous wage distortion in a developing dual economy, an efficiency wage in the urban sector triggers rural-urban migration, and because of the endogenous nature of the distortion, this migration reduces the severity of distortion by creating more jobs and reducing the actual wage differential between the sectors.

The phenomena related to the dualism in the factor markets as well as to the social and institutional structures often coexist with severely distorted macroeconomic conditions, for example following a humanitarian crisis. The structural rigidities combined with cruelly imperfect information can lead to aggravation of disequilibria and prevent the gains from macro-policy interventions to fully translate into poverty reduction.

The open question on the impact of policy reforms is strongly connected to the functioning institutions. Model simulations can give directions on the pressures for changes in production structure and improving efficiency but the final outcome is still dependent on the responses of the actors within the economy. If trade policy (apart from liberalization in capital movement) is seen as a development strategy it is clear that the transmission mechanism to social structures has to be identified. In capacity building programs the role of social structures is often obvious and we also want to recognize their impact on positive growth.

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<sup>2</sup> These studies include, among others, Decaluwé et al. (1998, 2000 and 2004), Kerkelä et al. (2000), Wolf (2000), Lewis et al. (2001), Hertel et al. (2001a), Ianchovichina et al. (2001) and Kerkelä and Niemi (2002).

<sup>3</sup> For example Decaluwé et al (2001) and Kerkelä and Niemi (2002).

<sup>4</sup> This result has been clearly seen e.g. in a study on a customs union within West African French Economic and Monetary Community (UEMOA) by Decaluwé et al. (2004).

The role of social structures for country's development is complex. In this study, there are merely two specific aspects of this complexity we look more in detail. On one hand, we may want to find background explanations for the initial state of variables, which in turn are driving the simulation results. This does not change the results produced by the model nor affect the conclusions that can be drawn from the experiments but it may give a hint for policy makers about the measures that could turn the final outcome more favourable to poorest countries. On the other hand, we can look at the mechanisms exogenous for the simulation model and evaluate their implications to the simulation results. For example, we may consider country's capacity in converting its unskilled labour to skilled, i.e. education, and then ask if the real world outcome would be different from the one proposed by our model, if the policy makers increased the capacity building. At present, this kind of analysis remains merely qualitative.

## **5 Trade Policy Simulations**

The factor market effects are demonstrated by case studies, which include simulations of possible future trade liberalisation or regional integration regimes in three countries in Sub-Saharan Africa, using the GTAP model (Hertel et al. 2001) and database (Dimaranan & McDougall, 2005). A simple simulation with 7 regions and 10 commodities is used to illustrate the changes in endowment allocations and their contribution to the overall welfare change. The simulation assumes a hypothetical removal of all duties on imports to the group of industrialised countries (OECD members and all countries already in European Union or about to join the Union very shortly) from all other regions, but not within the industrialised countries.

The impacts of different trade policy scenarios discussed above have been studied through GE simulations in many recent studies. This paper is based to a great extent on Kerkelä and Niemi (2002), where the factor markets and socio-economic structures were discussed under different trade policy options between the European Union and Sub-Saharan African countries. However, while the implications of the different versions of trade opening are obviously not identical, the general direction and especially the impact on factor markets are quite similar. As the purpose of this study is not to evaluate a specific policy initiative but to demonstrate the role of factor markets and further the potential impact of institutional and socio-economic conditions, the simplified simulation scenario is suitable.

The trade policy opening scenario is implemented as a change of all tariff levels to zero from other regions to industrialised countries. The analysis is static by its nature; it does not take into account the long run effects of capital accumulation that may be induced by trade policy changes (see e.g.

Baldwin 1992). It calculates the distortions that increase or decrease in the trade policy changes and evaluates the changes that would result in production levels, factor prices and in commodity prices, both internationally and domestically.

The standard closure with GTAP assumes the economy to be initially in the long run equilibrium where all the factors of production; land, labour and capital are fully utilized, which implies that the supply cannot adapt to increases or decreases in demand. We may call this closure a Heckscher-Ohlin closure since all the results can be derived from demand equations. This is why the role of institutions and social structures, influencing these very factors and raising the question whether the factor rewards may be improved, is worth profound studying.

For more detailed study of the institutional and market structures, I have selected two poor Sub-Saharan African countries, Mozambique and Zambia. South Africa and Botswana are also left as single-country regions for purposes of comparison, and because the former is clearly the most powerful economy in the region and the most important (potential) trading partner for both example countries. Other countries are grouped in three large regions: 'Rest of Sub-Saharan Africa' includes all other Sub-Saharan African countries. 'Industrialised countries' include OECD members and all countries already in European Union or about to join the Union very shortly. All other countries are included in 'Rest of the World' region.

## **5.1 Macroeconomic results**

As in previous studies, the economy wide effects seem to be negative for some African economies. Significant differences between individual countries occur and effects are mainly due to strong model specific terms of trade effects (Lewis et al. 2000). However, the most striking welfare results seem to be explained by deteriorating net investments and, for minor degree, counter-intuitive allocation effects.

By decomposing the welfare results we can look at more closely what is behind the results. Most of the effects come from negative terms of trade effects. Declining prices for export goods drives the outcome. Increase in investments can be seen as positive results, especially as the model does not take into account the effect that comes through capital accumulation in the future through investments. Allocative efficiency measures the changes in the total amount of distortions, i.e. taxes. When the figure is negative, the distortions increase and vice versa.

As mentioned above, the removal of trade barriers of developing country products tends to benefit the relatively better-off countries within the group, whereas poorest countries, such as Mozambique,

are even losing welfare and important differences between these countries occur. Thus, we can suggest roughly that the benefits of free trade go to better of countries that can produce more value added, while the poorest countries become producers of primary goods.

The contribution of allocative effects to welfare is also negative for Mozambique and Zambia, which again is counter-intuitive. As a result of cheaper imports from other countries, the private consumption shifts to sectors which seem to be distorted by high domestic taxes.

## **5.2 Sector results**

Possible changes in production structure due to the new policy regimes can be anticipated by studying the industry specific simulation results. The paper looks into the underlying structural phenomena and market imperfections in order to identify the eventual inadequacies in the simulation results on one hand, and possible policy alternatives to improve the poverty reduction impacts on the other hand.

By looking at the industry results (Table 2) we can anticipate how the production structure will change due to the policies. This would in real world help in anticipating the demand for labour in different sectors. For the poorest countries, the production structure moves towards primary goods production and away from light and heavy manufacturing.

In case of Mozambique, we observe a relatively large overall decline in production. This is especially the case in sugar products, which are among the most important export commodities for Mozambique. Labour-intensive (both skilled and unskilled) manufacturing sectors experience some growth, which seems to be satisfying domestic demand. The results suggest that the production factors in Mozambique are not competitive enough for the country to benefit from increased access to world markets.

For Zambia, the overall welfare effects are also slightly negative. The improved world market access seems to result in a substantial increase in sugar production, and thereby in price increase for unskilled labour and land. Apart from slight increase in unskilled labour-intensive manufacturing production, the manufacturing and services sectors face a decline, and imports of these commodities increase.

### **5.3 Factor market implications**

Changes in factor rewards depend on derived demand from output changes. If most of the output growth will happen in agriculture, factors that are intensively used in the sectors (land) will benefit most. The results of GTAP simulation for different factors (skilled labour, unskilled labour) are likely to contribute to social structures like demand for education.

Simulations show that the relative demand for unskilled labour to skilled raises, and production shifts from industrial sectors towards agricultural goods and raw materials. While this can increase the share of formal sector in agricultural production as paid labour is required for production growth, it can also sharpen the inequalities as the number of workers in sectors with higher value-added decreases, thus creating a small group of rich people and a large working class earning very little. Further, high demand for unskilled, low-paid labour may slow down structural transition of these countries towards more educated population and efficient production capacity at higher value-added sectors.

Table 3 shows the changes in factor prices. We observe right a way different patterns of factor price changes in Mozambique and Zambia. In Zambia, the rise of price takes place on land whereas in Mozambique, there seems to be a decreased demand for all endowment commodities.

### **5.4 Potential Impact of Market Imperfections of the Results**

Fisher (2001) analyses the dynamic effects of trade liberalization on personal income distribution in a framework based on dynamic specific factors model by Eaton (1987), where all agents get equal wage but the wealth is unequally distributed and randomly redistributed to next generation as parents give unequal, arbitrary bequests to their children. Trade leads to more inequality in land-abundant countries and decreases inequality in capital-abundant countries. However, this result is reversed in long run if capital mobility is assumed. Introducing human capital as an additional variable changes the results significantly. Openness and land-labour ratios are no more significant which can be explained by two ways: returns to human capital investment may be higher than interest rate, which is amplified by opening the trade or the absence of some natural resources form of wealth from the mode.

## **6 Policy Challenges**

According to OECD's Development Assistance Committee (DAC; 2005), the amount of trade-related technical assistance and capacity building, to help developing and least-developed countries to participate more efficiently in international trade, has increased by 50% since the Doha Ministerial Declaration, in November 2001. The factor market results show that it is indeed crucial to build the internal capacities of developing countries to benefit from trade. However, more profound structural changes may be inevitable to prevent some countries falling into 'factor allocation trap', whereby the international competition forces these countries to allocate their production factors to low value added sectors, and reduces the generation of income necessary to improve the factor productivity.

As Winter et al. (2004) conclude, 'the impact of trade liberalisation on poverty will depend on the environment in which it is carried out, including policies that accompany it. Trade liberalisation should not be seen in isolation and additional policies will sometimes be needed to enhance its impact, including on poverty.'

## **7 Conclusions**

The effects of multilateral trade regime changes are naturally always likely to vary from one country to another, as the countries are different in the first place. Simulation results for both Mozambique and Zambia clearly show the tendency of poor countries to become producers of low value-added products, increasing the relative share of unskilled labour in endowment use. While this seems to emphasise the need for capacity development policies that would enable these countries to build also higher value-added sectors, further study is required to identify proper measures both in trade policy and in-country market structure and institution building.

It is shown in Kerkelä et al. (2000) that the real gdp increases in the short run closure, but by relaxing the assumption of fixed supply of factors of production the actual effects have an opposite effect both on gdp and welfare. Capacity building in response to the new demands of global markets is critical, and it seems increasingly important to gain better understanding on the mechanisms by which the social structures affect the economic performance. This is the main focus of the further study.

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Table 1: Welfare Change Decompositions

	Efficiency	ToT	I-S	Total EV
1 Mozambique	-2,86	-10,54	0,73	-12,67
2 Zambia	-3,81	-2,73	-0,09	-6,63
3 Botswana	0,25	87,78	-2,63	85,4
4 SouthAfrica	123,28	431,22	-51,27	503,22
5 RSS	187,54	862,79	117,22	1167,56
6 Industr	5381,43	-30291,96	1379,75	-23530,79
7 ROW	5314,77	28570,64	-1428,35	32457,06
Total	11000,61	-352,81	15,36	10663,16

Table 2: Industry Results: Percentage change in production

	1 Mozambique	2 Zambia	3 Botswana	4 SouthAfrica	5 RSS	6 Industr	7 ROW	
1 AgrCrops	-0,33 %	0,57 %	-1,19 %	16,98 %	1,07 %	-4,45 %	7,21 %	
2 sgr	-17,53 %	76,96 %	-5,49 %	32,13 %	67,95 %	-19,79 %	11,66 %	
3 fsh	-1,96 %	1,22 %	-8,70 %	7,40 %	5,74 %	-1,31 %	3,54 %	
4 AgrAnim	-1,06 %	1,49 %	163,49 %	4,53 %	8,46 %	-2,91 %	6,33 %	
5 Foodm	-1,21 %	0,80 %	-3,99 %	3,78 %	1,71 %	-1,82 %	4,77 %	
6 SManu	1,59 %	0,71 %	-2,40 %	-0,30 %	-0,71 %	-0,18 %	-0,40 %	
7 UManu	0,87 %	-1,36 %	-2,73 %	-0,68 %	-2,20 %	-5,49 %	9,34 %	
8 CManu	-1,61 %	-2,54 %	-10,68 %	-1,86 %	-5,28 %	0,56 %	-3,04 %	
9 Natr	0,83 %	-0,82 %	-0,64 %	-0,29 %	-1,11 %	0,30 %	-0,07 %	
10 Srv	-0,10 %	-0,36 %	-0,16 %	1,14 %	1,66 %	-0,53 %	1,53 %	
Total	-0,30 %	0,43 %	1,57 %	1,03 %	2,12 %	-0,62 %	1,71 %	

Table 3 : Percentage change in factor prices

	1 Mozambique	2 Zambia	3 Botswana	4 SouthAfrica	5 RSS	6 Industr	7 ROW	Total
Land	-0,72 %	8,54 %	338,28 %	39,61 %	9,05 %	-10,54 %	14,40 %	6,38 %
UnSkLab	-0,33 %	0,74 %	-0,54 %	1,23 %	3,15 %	-0,58 %	2,25 %	-0,06 %
SkLab	-0,31 %	-0,16 %	-1,33 %	1,15 %	2,30 %	-0,48 %	1,76 %	-0,22 %
Capital	-0,34 %	-0,12 %	1,29 %	1,35 %	1,99 %	-0,55 %	1,85 %	-0,03 %
NatRes	-0,93 %	0,85 %	-3,07 %	-1,75 %	-3,04 %	1,05 %	-1,17 %	-0,26 %