India, Brazil, South Africa and China: Is the South Big Enough?

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1. Introduction

Global trade is dominated by developed economies (the global 'North') and the majority of operational trade agreements involving developing or middle income countries (the global 'South') have included at least one developed country partner, i.e. North-South agreements. Arguments that advocate increased economic integration between developing (and middle income) countries, i.e. pure South-South agreements as a preferable option for developing countries.have routinely met with the basic objection that the countries of the South are not economically large or developed enough to make such agreements desirable. Looking at the list of collapsed and unsuccessful efforts in this direction, a well-known textbook on regional integration concludes that the formation of preferential South-South trade agreements is "to a large extent a waste of time and resources". But various developments over the last decade or so have stimulated renewed interest in the idea of South-South agreements. Not only have the major economies of the South realised high growth rates, especially China and India, their manufacturing capacities have become increasingly sophisticated; this suggests that South-South trade may be increasingly viable both in terms of the scale and content of trade. Moreover, the arguably increasingly aggressive approach of developed countries towards trade agreements with developing countries has given extra incentives to policy makers in South to search for alternative trade opportunities.

It is against this background that there has been increased bilateral dialogue between policy makers in the major economies of the continents of the South – Brazil in South America, South Africa in Africa, India in South Asia and, to a lesser extent, China in East Asia – and exploratory negotiations to establish various bilateral trade agreements. What is less clear is the extent to which such South-South trade agreements offer prospects for sustained economic benefits within the regions of the South as opposed to socio-political benefits. This study explores this issue.

The analyses reported in this paper are derived using the GLOBE model with a 27 sector, 14 region and 5 factor aggregation of the GTAP database. The choice of sectors and regions emphasises the regions of the South and the commodities that are particularly important in trade between regions of the South. Using these data, and time series of additional trade and macroeconomic data, the development of South-South trade over the last 30 years is

reviewed. This indicates that for most of the period South-South trade remained minimal and grew at a relative slow rate, but in the more recent past there is evidence of increased growth and intensity of South-South trade.

The simulations evaluate the potential benefits from the development of trade agreements between Brazil, South Africa and India (IBSA) and IBSA and China and compare these South-South integration scenarios with a multilateral trade liberalisation scenario under a potential Doha Round agreement.

The paper is organized as follows: Section 2 briefly reviews some unresolved controversies surrounding the potential role of South-South trade in economic development and surveys observed long-run time series trends. Section 3 provides a non-technical outline of the global CGE model employed in this paper. Section 4 outlines the trade liberalization experiments explored in this study. Simulation results are presented and discussed in section 5.

2. South-South Trade

There has been considerable debate during the 1980 and early 1990s about the potential for South-South trade to provide an 'engine' for growth in developing countries. It is clear however that in those discussions there was no consensus among the proponents of South-South trade about the theoretical and other reasons for advocating such a policy. For some advocates, e.g., Amsden (1987), at least part of the argument rested on the infant industry argument, while structuralists often argued the case on the grounds of asymmetric distribution of the gains from trade and other economists argued that the rise of 'new' protectionism – non tariff trade barriers etc., - in the North meant that growth opportunities were greater in the South. Over and above these economic arguments were arguments rooted in politics that urge the South to seek its own development path that was less reliant on the North.

Despite these debates and multiple efforts to establish bilateral trade agreements among countries in the South, the trading relationships of the South continue to be dominated by imports from and exports to the North. This is not altogether surprising. The majority of global trade remains concentrated in the OECD countries and shares of world trade accounted for by the OECD countries exceed their shares of global GDP, despite the fact that many

developing countries have appreciably greater trade dependency ratios[1] than the OECD countries. Structural differences between regions are also an important consideration: typically countries of the South export relatively less processed commodities and import relatively more processed commodities, and their manufacturing sectors are less able to respond to the demands of OECD consumers. However there are reasons to believe that things may be changing.

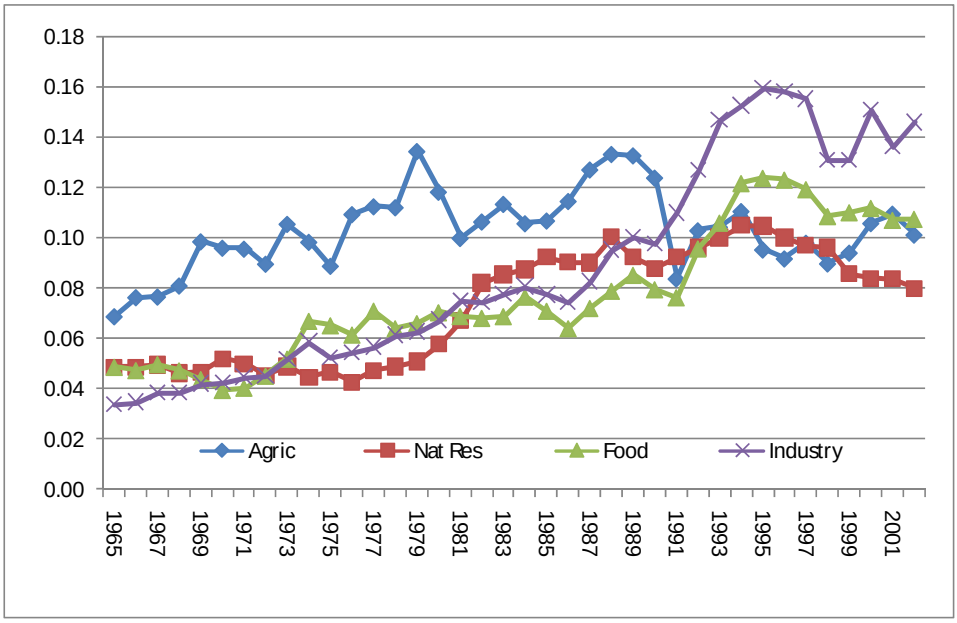
One major reason why some experts believed that South-South trade offered limited potential was purely a matter of size: in effect the countries of the South were not big enough to support enough intra-South trade to provide an engine for growth and development. This form of argument underpinned the conclusions drawn from many empirical analyses of bilateral agreements involving only regions of the South and was often expressed in terms of the hub and spoke analogy with the conclusion that no country was large enough to act as the 'hub'.

Indeed time series data on merchandise trade would seem to support this type of argument. Intra-South trade remains relative small (Figure 1). Intra South trade accounted for some 3 to 6 percent of global exports (valued fob) in 1965. For agricultural commodities this grew steadily until the early 1970s and then levelled off while exports of natural resource and food products was steady until the mid 1970s and then grew steadily until the mid 1990s before levelling off. However, intra-South trade in industrial commodities grew steadily until the end of the 1908s and then sharply through the 1990s before levelling off in the late 1990s. This expansion in trade in industrial products is especially interesting because it suggests the possibility that the South is becoming increasingly capable of competing in industrial product markets, which pessimists often suggested was not likely. There is some support for this in the South-North trade data, Figure 2. These data indicate that the South may be increasingly penetrating the North's markets, although the share of industrial commodity trade entering the North from the South has levelled off since the end of the 1980's, which suggests that there are limits to the degree of penetration that the South has achieved.

[1] Defined as the ratio of total imports and exports to GDP.

Figure 1: Intra-South Merchandise Trade

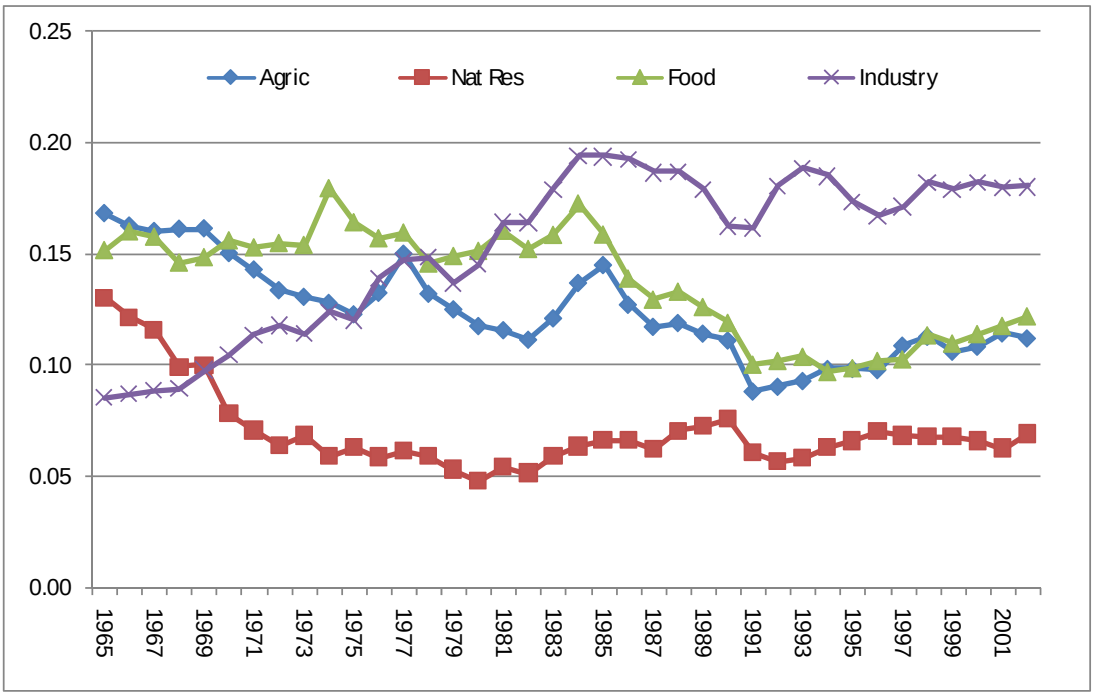
(Exports (fob) from South to South as shares of aggregate commodity groups)



Source: Authors' calculations from GTAP v6 Time series trade data.

Figure 2: South-North Merchandise Trade

(Exports (fob) from South to North as shares of aggregate commodity groups)

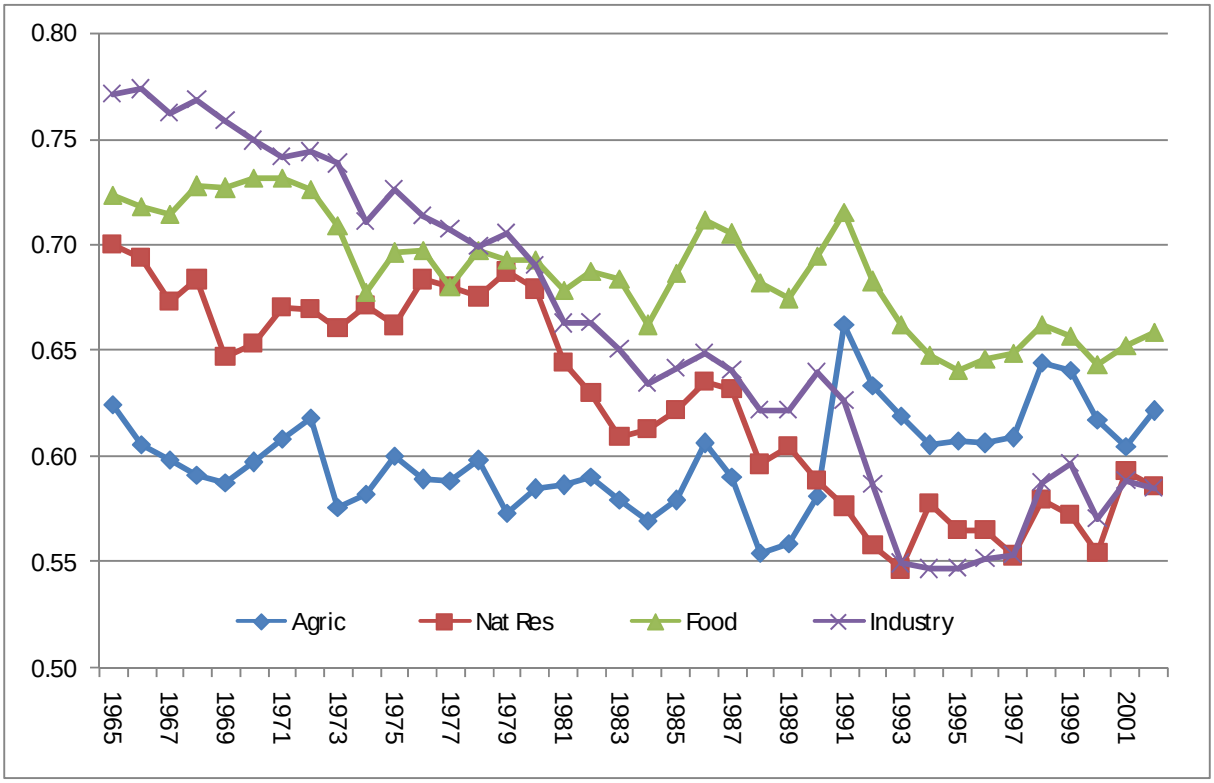


Source: Authors' calculations from GTAP v6 Time series trade data

However perhaps the strongest suggestion of an increasing presence of the South in global trade is the declining shares of global exports accounted for by intra-North trade as shown in Figure 3. Most interestingly, it is again trade in industrial products that shows the most pronounced decline, which indicates the desirability of looking more closely at what is happening with exports of industrial products.

Figure 3: North-North Merchandise Trade

(*Exports (fob) from North to North as shares of aggregate commodity groups)*



Source: Authors calculations from GTAP v6 Time series trade data

The more detailed data on industrial product trade indicates that the apparent growth of the share of exports from the South comes from a limited number of countries and these are concentrated in East and South Asia. Thus while the South may in aggregate appear to be becoming relatively more important, the patterns are more complex than a simple North-South categorisation might suggest. This provides an important argument for why this analysis concentrates on the major economies of the 'South's' continents – China, India, Brazil and South Africa.

3. The Model

The GLOBE model (McDonald *et al*., 2007) is a member of the class of multi-country, computable general equilibrium (CGE) models that are descendants of the approach to CGE modeling described by Dervis *et al*. (1982). The model is a SAM-based CGE model, wherein the SAM serves to identify the agents in the economy and provides the database with which the model is calibrated. The SAM also serves an important organizational role since the groups of agents identified in the SAM structure are also used to define sub-matrices of the SAM for which behavioral relationships need to be defined. The model is a direct descendant and extension of the single-country and multi-country CGE models developed in the late 1980s and early 1990s[2] and is implemented using the GAMS (General Algebraic Modeling System) software.

International Trade

Domestically produced commodities are assumed to be imperfect substitutes for traded goods. Import demand is modeled via a series of nested constant elasticity of substitution (CES) functions; imported commodities from different source regions to a destination region are assumed to be imperfect substitutes for each other and are aggregated to form composite import commodities that are assumed to be imperfect substitutes for their counterpart domestic commodities The composite imported commodities and their counterpart domestic commodities are then combined to produce composite consumption commodities, which are the commodities demanded by domestic agents as intermediate inputs and final demand (private consumption, government, and investment)..

Export supply is modeled via a series of nested constant elasticity of transformation (CET) functions; the composite export commodities are assumed to be imperfect substitutes for domestically consumed commodities, while the exported commodities from a source region to different destination regions are assumed to be imperfect substitutes for each other. The composite exported commodities and their counterpart domestic commodities are then combined as composite production commodities; The use of nested CET functions for export supply implies that domestic producers adjust their export supply decisions in response to changes in the relative prices of exports and domestic commodities. This specification is

[2] For examples of earlier models, see Robinson *et al*., (1993), and Lewis *et al*. (1995). The World Bank global CGE model described in van der Mensbrugghe (2006) has a common heritage.

desirable in a global model with a mix of developing and developed countries that produce different kinds of traded goods with the same aggregate commodity classification, and yields more realistic behavior of international prices than models assuming perfect substitution on the export side.[3]

Agents are assumed to determine their optimal demand for and supply of commodities as functions of relative prices, and the model simulates the operation of national commodity and factor markets and international commodity markets. Each source region exports commodities to destination regions at prices that are valued free on board (*fob*). Fixed quantities of trade services are incurred for each unit of a commodity exported between each and every source and destination, yielding import prices at each destination that include carriage, insurance and freight charges (*cif*).[4] The *cif* prices are the 'landed' prices expressed in global currency units. To these are added any import duties and other taxes, and the resultant price converted into domestic currency units using the exchange rate to get the source region specific import price. The price of the composite import commodity is a weighted aggregate of the region-specific import prices, while the domestic supply price of the composite commodity is a weighted aggregate of the import commodity price and the price of domestically produced commodities sold on the domestic market.

The prices received by domestic producers for their output are weighted aggregates of the domestic price and the aggregate export prices, which are themselves weighted aggregates of the prices received for exports to each region in domestic currency units. The *fob* export prices are then determined by the subtraction of any export taxes and converted into global currency units using the regional exchange rate.

There are two features of the price system in this model that deserve special mention. First, each region has its own numéraire such that all prices within a region are defined relative to the region's numéraire. We specify a fixed aggregate consumer price index to define the regional numéraire. For each region, the real exchange rate variable ensures that the regional trade-balance constraint is satisfied when the regional trade balances are fixed. Second, in addition, there is a global numéraire such that all exchange rates are expressed relative to this numéraire. The global numéraire is defined as a weighted average of the exchange rates for a

[3] While the nested CET specification is widely used in both single and multi-country trade-focused CGE models, it is not used in the GTAP model.

[4] Bilateral data on trade margins are not available in the GTAP database. Instead, trade margin services are assumed to be a homogeneous good; they are not differentiated by country of origin.

user defined region or group of regions. In this implementation of GLOBE the basket of regions approximates the OECD economies.

Fixed country trade balances are specified in “real” terms defined by the global numéraire. If the global numéraire is the US exchange rate and it is fixed to one, then the trade balances are “real” variables defined in terms of the value of US exports. If global numéraire is a weighted exchange rate for a group of regions, as in this case, and it is fixed to one, then the trade balances are “claims” against the weighted average of exports by the group of regions in the numéraire.

Production and Input Demand

Production relationships by activities are defined as nested Constant Elasticity of Substitution (CES) production functions. Activity output is a CES aggregate of the quantities of aggregate intermediate inputs and aggregate value added, while aggregate intermediate inputs are a Leontief aggregate of the (individual) intermediate inputs and aggregate value added is a CES aggregate of the quantities of primary inputs demanded by each activity. Producers are assumed to maximize profits, which determines product supply and factor demand. Product markets are assumed to be competitive, and the model solves for equilibrium prices that clear the markets. Factor markets in developed countries are also assume to have fixed labour supplies, and the model solves for equilibrium wages that clear the markets. In developing countries, however, we assume that the real wage of unskilled Labour is fixed and that the supply of unskilled Labour is infinitely elastic at that wage. So, labour supply clears the market, and aggregate unskilled employment is endogenous rather than the real wage. In this specification, any shock that would otherwise increase the equilibrium wage will instead lead to increased employment.

Final Demand

Final demand by the government and for investment is modeled under the assumption that the relative quantities of each commodity demand by these two institutions is fixed—this treatment reflects the absence of a clear theory that defines an appropriate behavioral response by these agents to changes in relative prices. Households are utility maximisers who respond to changes in relative prices and incomes. In this version of the model, the utility functions for private households are assumed to be Stone-Geary functions.

Macro Closure

All economy wide models must incorporate the standard three macro balances: current account balance, savings-investment balance, and the government deficit/surplus. How equilibrium is achieved across these macro balances depends on the choice of macro "closure" of the model. For this exercise a "neutral" or "balanced" set of macro closure rules is specified. [5] This macro closure ensures the model is focused on the effects of changes in relative prices on the structure of production, employment, and trade. While it may be of interest to examine the impact of trade liberalization on, for example, asset markets and macro flows, such a focus is better studied using macro-econometric models which incorporate asset markets than using a CGE model which focuses on changes in equilibrium relative prices in factor and product markets. The strength of the multi-country CGE model is that it elegantly incorporates the features of neoclassical general equilibrium and real international trade models in an empirical framework, but it also abstracts from macro impacts working through the operation of asset markets.

Current account balances are assumed to be fixed for each region (and must sum to zero for the world). Regional real exchange rates adjust to achieve equilibrium, as discussed earlier. The underlying assumption is that any changes in aggregate trade balances are determined by macroeconomic forces working mostly in asset markets, which are not included in the model, and these balances are treated as exogenous. This assumption ensures that there are no changes in future 'claims' on exports across the regions in the model, i.e., the net asset positions are fixed.

Changes in aggregate absorption are assumed to be shared equally (to maintain the shares evident in the base data) among private consumption, government, and investment demands. The underlying assumption is that there is some mix of macro policies that ensures an equal sharing of the benefits of any increase in absorption or the burden of any decrease among the major macro "actors": households, government, and investment, i.e., final demand allocations are distributionally neutral. To satisfy the savings-investment balance, the household savings rate adjusts to match changes in investment. Government savings are held constant; direct income tax rates on households adjust to ensure that government revenue equals government spending plus government savings. The tax replacement instrument, direct taxes on households, is likely to be less distorting than the trade taxes that it replaces but there are reasons to be skeptical about its appropriateness in the context of many least developed

[5] Other alternatives were explored but are not discussed in this paper.

economies (see Greenaway and Milner, 1991). One potential consequence of this assumption is that the results for the least developed economies may be more positive than otherwise.

Factor Market Clearing

The implications of two alternative factor market clearing conditions were investigated. In the first, it was assumed that there was full employment and full factor mobility in all factor markets. This specification can be viewed as an archetypal free market model; but the presumption of full employment in all economies is questionable. Hence the second alternative considered the case where there are excess supplies of unskilled labor in developing regions (China, India, Other East Asia, Rest of South Asia, SACU, and Rest of sub-Saharan Africa). When there is unemployment, the real wage is held constant and the supply of unskilled labor adjusts following a policy shock. The results reported are for the second case.

Sectoral and Regional Aggregation

The model is calibrated to a social accounting matrix representation of the GTAP 6.0 database (Dimaranan (ed), 2006; McDonald and Thierfelder, 2004) that contains combines detailed bilateral trade, and and protection data reflecting economic linkages among regions with individual country input-output data which account for intersectoral linkages within regions for the benchmark year 2001. The Armington elasticities of substitution are drawn from the GTAP behavioural data base. The aggregation of the GTAP data employed in the present study distinguishes 27 activities and corresponding commodity groups, 13 regions and 5 primary production factors as listed in Table 1.

Table 1: Sectoral, Regional and Factoral Disaggregation of the Model

Commodities /Activities	**Regions**
Cereal grains	Brazil
Oil seeds	Argentina
Other crop agriculture	Uruguay
Animal agriculture	Chile
Minerals nec	Venezuela
All other extractive	China
Vegetable oils and fats	India
Sugar	SACU - Southern African Customs Union
Animal products	European Union
Other food products	USA
Textiles	Rest of Americas
Leather products	East & South East Asia
Wood and paper products	Rest of the World
Petroleum and chemical products	(Globe)
Mineral products nec	
Ferrous metals	
Metals nec	
Metal products	**Factors**
Motor vehicles and parts	Land
Transport equipment nec	Unskilled labour
Electronic machinery and equipment nec	Skilled labour
All other manufactures	Capital
Utilities	Natural resources
Construction	
Trade	
Transport	
All other services	

The Southern African Customs Union (SACU) includes South Africa, Botswana, Namibia, Lesotho and Swaziland.

4. The Experiments

Doha

The impacts of a possible Doha Round agreement at the WTO are simulated using a representation of a possible multilateral agreement. The Doha simulation reflects a scenario in which a multilateral agreement is reached at the WTO covering agriculture and non-agricultural sectors. However, since the precise structure of any such agreement remains for the present speculative the precise scenario implemented is necessarily stylised. Specifically, it is assumed that agricultural and non-agricultural tariffs are reduced by 36 percent by developed countries and by 24 percent by developing countries. In addition domestic agricultural subsidies are reduced by one-third in the simulation and agricultural export

subsidies are eliminated. In the simulations tariffs and subsidies are reduced from tariff and subsidy equivalent rates, rather than the bound rates that countries adopt at WTO negotiation; typically it may be expected that the bound rates are not less than actual applied rates, and while this may be the case for tariff equivalent rates it more difficult to be certain. The use tariff and subsidy equivalent rates are chosen in preference to the bound rates so as to probe the impact of actual changes in trade interventions on domestic prices and global supplies. Reductions of bound rates that did not reduce tariff and subsidy equivalent rates would not lead to any change in trading patterns and world prices and therefore would not allow analyses of the impacts of trade policy on the economy, sectors and households.

India – Brazil – South Africa FTA: IBSA

The March 2005 Ministerial Meeting of the India-Brazil-South Africa Dialogue Forum (IBSA) has envisaged the formation of a trilateral free trade area among these three countries. In recognition of the fact that Brazil and South Africa are already members of customs unions, the October 2007 IBSA Summit affirmed its commitment to work towards a SACU-MERCOSUR-India FTA. Since enthusiasm of other MERCOSUR members for such an agreement appears to be limited at present and MERCOSUR has still no comprehensive CET system in place,[6] this scenario contemplates the establishment of a FTA between Brazil, India and SACU involving the complete removal of import tariffs on trilateral trade flows.

IBSAC

This speculative scenario combines the IBSA FTA with an FTA between China and the IBSA group that covers again all commodity groups.

India – Enlarged MERCOSUR - South Africa – China FTA: IMSAC

This scenario extends the IBSAC experiment by taking additional account of envisaged further integration steps among the MERCOSUR partners. It includes the complete elimination of import duties that are still imposed on a limited range of "sensitive" products among the original MERCOSUR members Brazil, Argentina and Uruguay[7], and the full accession of the new member Venezuela and the associate member Chile with full elimination

[6] See Inter-American Development Bank (2007).

[7] Paraguay is not identified as a separate region in the GTAP 6 database and can therefore not be included in the simulation analysis.

of import duties among all five countries.[8] In this experiment, the whole enlarged MERCOSUR area participates in the FTA with India, SACU and China.

5. Simulation Results

The effects of the four simulation experiments on aggregate real trade flows and the terms of trade are reported in Table 2 for all regions distinguished in the model. Table 3 shows the resulting percentage changes in real absorption, gross domestic product and consumer welfare by region while Table 4 contains aggregate employment effects in the regions with unlimited supply of unskilled labour. In line with the nature of the South-South trade liberalisation scenarios under consideration, the following discussion focuses primarily on the results for Brazil, India, China and the SACU bloc. Tables 5 to 6 show the sectoral effects on gross output, exports and imports for these four regions.

Table 2: Aggregate Real Trade *(Percentage Changes)*

	Imports				Exports				Terms of Trade			
	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac
Brazil	2.03	0.37	2.23	2.23	1.93	0.25	1.24	1.66	0.10	0.10	0.57	0.48
Argentina	1.98	-0.04	-0.46	7.77	1.29	-0.02	-0.19	3.06	0.17	-0.02	-0.28	1.89
Uruguay	1.04	-0.01	-0.10	1.15	1.15	0.00	-0.12	1.65	0.08	0.00	-0.01	0.01
Chile	1.01	-0.04	-0.05	1.78	0.80	-0.01	-0.01	1.49	-0.06	-0.02	-0.04	-0.22
Venezuela	0.97	-0.09	-0.24	2.56	1.31	0.00	0.00	1.21	-0.60	-0.08	-0.21	1.06
China	0.86	0.00	1.28	1.87	0.20	0.00	1.03	1.47	0.33	0.00	-0.01	-0.11
India	0.73	0.93	1.90	2.61	0.24	1.45	2.95	4.57	0.42	-0.03	-0.11	-0.64
SACU	1.24	2.32	3.02	3.11	0.88	1.13	1.79	1.90	-0.15	0.19	0.06	0.02
European Union	0.28	-0.01	-0.01	-0.02	0.16	0.00	-0.01	-0.02	0.07	0.00	0.00	-0.01
USA	0.37	0.00	-0.01	-0.02	0.45	0.00	-0.01	-0.02	0.12	0.00	-0.01	-0.02
Rest of Americas	0.62	0.00	-0.01	-0.06	0.87	0.00	0.00	-0.03	-0.34	0.00	-0.02	-0.04
East & South East Asia	1.26	0.00	-0.02	-0.03	0.89	0.00	0.00	0.00	-0.07	0.00	-0.02	-0.02
Rest of the World	0.86	-0.02	-0.02	-0.02	1.08	-0.01	-0.02	-0.03	-0.41	-0.01	0.00	0.00

[8] Chile acquired the notional status of associate membership in 1996, while Venezuela joined MERCOSUR officially as a full member in July 2007. However, at present tariff barriers between these two countries and the original MERCOSUR partners continue to exist. Tariffs between Venezuela and the original MERCOSUR members will only be gradually dismantled until 2014 according to the current timetable See Inter-American Development Bank (2007) for detailed information on the policy background for these scenarios.

Table 3: Real Macroeconomic Aggregates *(Percentage Changes)*

	Absorption				GDP				Equivalent Variation*			
	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac
Brazil	0.29	0.06	0.20	0.26	0.22	0.03	0.03	0.13	0.48	0.09	0.30	0.42
Argentina	0.21	0.00	-0.01	0.31	0.15	0.00	0.01	-0.07	0.27	0.00	-0.01	0.35
Uruguay	0.16	0.00	-0.01	0.12	0.13	0.00	0.00	0.13	0.23	0.00	-0.01	0.18
Chile	0.26	-0.01	-0.02	0.42	0.21	0.00	0.00	0.36	0.41	-0.02	-0.02	0.66
Venezuela	-0.02	-0.02	-0.04	0.27	0.05	0.00	0.00	0.02	-0.01	-0.02	-0.06	0.36
China	0.29	0.00	0.35	0.57	0.07	0.00	0.33	0.56	0.53	0.00	0.68	1.12
India	0.13	0.03	0.08	0.16	0.04	0.07	0.16	0.35	0.18	0.05	0.13	0.27
SACU	0.43	0.28	0.40	0.43	0.35	0.00	0.16	0.20	0.63	0.40	0.59	0.63
European Union	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00	-0.01
USA	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00
Rest of Americas	0.06	0.00	0.00	-0.02	0.14	0.00	0.00	-0.01	0.12	0.00	0.00	-0.03
East & South East Asia	0.07	0.00	-0.01	-0.01	0.03	0.00	0.00	0.00	0.17	0.00	-0.01	-0.01
Rest of the World	-0.06	0.00	0.00	0.00	0.02	0.00	0.00	0.00	-0.02	-0.01	-0.01	0.00

*Equivalent variation in percent of benchmark household consumption

Table 4: Aggregate Unskilled Employment *(Percentage Changes)*

	doha	ibsa	ibsac	imsac
Brazil	0.65	0.10	0.16	0.41
Argentina	0.36	0.00	0.05	-0.26
Uruguay	0.45	0.00	0.00	0.63
Chile	0.70	-0.01	-0.01	1.21
Venezuela	0.17	0.00	0.01	0.09
China	0.18	0.00	0.68	1.15
India	0.13	0.22	0.49	0.98
SACU	0.86	0.00	0.40	0.50

A successful outcome of the Doha Round along the lines described in the preceding section is associated with net gains for all four regions. Consumer welfare as measured by the Hicksian equivalent variation rises between 0.2 percent of benchmark household expenditure in India and 0.6 percent within SACU. A detailed discussion of this scenario is provided in McDonald and Willenbockel (2008). Here we concentrate on the comparison of this multilateral trade liberalization scenario involving both the "North" and the South" with the three hypothetical "South-South" free trade agreements outlined above.

Evidently, for neither of the potential partners would the establishment of an India-Brazil-SACU FTA constitute an adequate substitute for substantial progress in multilateral trade

negotiations under the Doha Round as far as aggregate welfare gains are concerned. A glance at the respective aggregate export shares by destination and import shares by origin in Tables 8 and 9 reveals that – notwithstanding the trends reported in section 2 - the IBSA shares in total trade of each of the respective partners are small in the status quo ante and remain generally small post-IBSA in relation to trade shares with the EU, USA, and regional neighbors. Thus, Brazil's exports to ISA rise from 1.3 to 2.1 percent of its total exports, and its ISA import share rises from 1.8 to 2.2 percent, India's BSA export (import) share rises from 2.1 (3.3) to 2.5 (7.2) percent, and SACU's IB export (import) share rises from 4.3 (2.5) to 8.7 (3.4).

However, the model predicts quite substantial effects for individual sectors. The removal of India's high applied import duty rate on the order of 50 percent triggers a massive boost to Brazilian exports of vegetable oils and fats to India. The increased export demand pushes production and employment up by around 2.8 percent in this sector and also generates a significant positive backward linkage effect for oil seeds production. The only other Brazilian sector that registers an export effect of more than one percent is motor vehicles and parts. Similarly, SACU's exports of metals to India grow dramatically and induce an expansion of the SACU metals industry on the order of nearly 20 percent that pulls resources away from virtually all other South African manufacturing and primary sectors except mineral extraction and also entails a substantial contraction of metals production in India.

While the IBSA South-South free trade agreement generates far smaller aggregate trade effects and welfare gains (except for SACU) than the Doha experiment, the picture changes substantially when China and the other members of the enlarged MERCOSUR become party to the FTA.[9] Interestingly, the simulated welfare gains under the IMSAC scenario for Brazil and SACU are of a similar order of magnitude as the Doha Round gains (although the sources of these gains at the sectoral level are substantially different), while China and India are indeed significantly better off under IMSAC relative to Doha. This result suggests that in the wake of China's emergence as a major global player the conventional wisdom concerning the relative merits of pure South-South regional integration arrangements noted at the outset might be in need of a reevaluation.

[9] It should be noted that the GTAP6 2001 benchmark equilibrium incorporates pre-WTO accession import duties for China and hence the exploratory IBSAC and IMSAC scenarios reported here include to some extent tariff cuts associated with China's WTO accession.. We are planning to re-run these experiments once the GTAP7 database is available.

Finally, neither the Doha experiment nor the South-South FTA experiments generate noteworthy changes in value added or gross output shares across the broad sectors agriculture, mining, processed food products, manufacturing ex processed food and services (Table 10).

Table 5: Real Gross Output by Sector *(Percentage Changes)*

	Brazil				China				India				SACU			
	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac
Cereal grains	5.03	-0.07	-1.86	3.42	1.40	0.00	0.74	1.37	0.20	0.04	0.11	0.25	2.20	-1.11	-0.93	-2.18
Oil seeds	1.47	1.54	31.82	18.21	-0.27	-0.05	-17.27	-34.68	-0.02	-0.19	-0.08	-1.33	0.80	-1.77	-1.28	-1.94
Other crop agriculture	0.33	-0.03	-0.57	-0.11	0.27	0.00	0.47	0.82	0.03	0.15	0.27	0.47	0.74	-1.70	-1.39	-1.28
Animal agriculture	2.26	0.02	-0.04	0.02	0.54	0.00	0.58	1.07	0.08	0.06	0.05	0.18	1.21	-0.81	-0.70	-0.73
Minerals nec	0.17	-0.12	-0.86	-0.69	-0.50	-0.02	0.29	0.42	-0.44	-1.03	-0.58	0.39	0.17	3.20	3.71	3.78
All other extractive	0.17	-0.09	-0.53	-0.23	-0.82	0.00	0.73	0.72	-0.50	-0.14	-0.50	-2.07	0.39	-0.03	0.20	0.13
Vegetable oils and fats	0.45	2.75	6.48	3.80	-0.16	0.05	2.08	4.28	-0.87	-1.91	-1.51	-12.61	-0.72	-0.73	-0.45	-2.83
Sugar	3.27	-0.04	-0.66	-0.46	2.92	0.08	-1.97	-0.96	0.32	0.03	0.15	0.30	8.70	-1.85	-0.95	-0.81
Animal products	2.83	-0.02	-0.85	-0.43	2.11	0.01	0.85	1.73	0.49	0.10	0.32	0.63	1.56	-1.17	-1.08	-1.13
Other food products	0.74	0.06	0.31	0.21	0.49	0.00	0.61	1.10	0.26	0.07	0.23	0.40	0.94	-0.40	-0.27	-0.25
Textiles	-0.05	-0.09	-0.94	-0.50	1.72	-0.01	1.35	2.09	0.83	0.94	1.47	2.60	-1.01	-4.25	-8.75	-8.70
Leather products	1.99	-0.11	-3.64	-2.50	2.54	0.01	1.16	2.26	-0.65	1.49	3.00	4.58	-2.99	-4.09	-14.08	-14.40
Wood and paper products	0.34	-0.03	-0.61	-0.18	-0.29	0.01	0.43	0.78	-0.02	0.38	0.65	1.22	0.49	-1.33	-1.03	-0.83
Petroleum and chemicals	0.05	-0.01	0.14	0.31	-0.13	0.00	0.57	0.82	0.13	0.38	0.42	1.50	0.67	-0.34	-0.10	-0.05
Mineral products	-0.06	0.00	-0.47	-0.14	-0.05	0.00	0.18	0.28	0.12	0.31	-0.22	0.19	0.19	-1.69	-1.80	-1.71
Ferrous metals	-0.20	-0.05	-1.42	-0.32	-0.60	0.01	0.19	0.36	-0.16	0.33	0.66	1.42	0.76	-3.20	-2.00	-1.57
Metals	-0.60	-0.77	-3.49	-3.26	-1.36	-0.08	0.45	0.59	-1.04	-13.08	-13.02	-11.19	-0.48	18.36	18.21	18.17
Metal products	-0.34	0.00	-0.91	-0.22	-0.16	0.00	0.30	0.52	0.07	0.42	0.39	0.75	0.29	-2.02	-1.72	-1.60
Motor vehicles and parts	0.14	0.56	0.71	1.84	-0.40	0.01	-0.08	0.11	0.05	-0.23	0.00	0.22	-0.95	-2.90	-2.31	-2.22
Transport equipment nec	0.67	0.09	-1.14	-0.31	0.22	0.01	0.14	0.44	0.07	0.59	0.97	1.56	0.78	-4.25	-2.92	-2.55
Electronic equipment nec	-1.89	-0.14	-2.20	-1.02	-1.08	0.00	0.35	0.56	-0.34	1.13	0.83	1.51	0.53	-4.16	-2.70	-2.45
All other manufactures	-0.15	0.05	-0.93	-0.75	-0.30	0.01	0.35	0.78	-1.28	2.56	4.34	6.08	0.15	-9.27	-6.41	-6.21
Utilities	0.36	-0.03	-0.30	-0.08	0.01	0.00	0.54	0.82	0.06	-0.23	-0.03	0.43	0.40	1.59	1.91	1.99
Construction	0.03	0.00	0.00	0.01	0.00	0.00	0.03	0.04	0.02	0.03	0.06	0.09	0.15	0.13	0.20	0.21
Trade	0.47	0.09	0.21	0.33	0.15	0.00	0.53	0.89	0.13	0.13	0.28	0.53	0.57	0.01	0.24	0.29
Transport	0.54	0.07	0.06	0.19	0.06	0.00	0.46	0.77	0.13	0.20	0.45	0.84	0.64	0.33	0.60	0.65
All other services	0.27	0.05	0.11	0.15	0.24	0.00	0.39	0.63	0.11	0.13	0.26	0.42	0.38	0.22	0.34	0.37

Table 6: Real Exports by Commodity *(Percentage Changes)*

	Brazil				China				India				SACU			
	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac
Cereal grains	16.99	-0.16	-4.74	0.01	25.00	0.01	0.57	1.58	4.22	0.63	1.43	3.09	7.96	-2.07	-1.84	-3.18
Oil seeds	2.10	0.89	55.28	32.20	3.37	-0.09	-13.14	-26.87	0.82	0.14	0.80	0.85	0.35	-2.52	-1.92	-2.02
Other crop agriculture	-0.27	-0.11	-1.56	-0.44	1.19	0.01	0.76	1.29	-0.84	0.51	1.17	2.17	0.40	-2.48	-2.01	-1.78
Animal agriculture	1.63	-0.11	-2.20	-1.45	0.21	0.00	1.62	2.48	0.41	0.39	1.33	2.40	1.33	-1.36	-1.07	-1.04
Minerals nec	0.28	-0.12	-0.88	-0.73	-0.58	-0.10	0.43	0.50	-0.46	-0.66	0.10	1.20	0.10	1.94	2.46	2.55
All other extractive	0.38	-0.27	-1.70	-0.33	-2.16	-0.02	4.51	3.53	1.26	1.11	2.59	5.01	0.31	1.69	1.73	1.34
Vegetable oils and fats	0.64	20.76	34.48	20.92	-1.29	0.09	5.51	10.53	-1.70	-0.78	1.08	-7.15	0.40	1.87	2.36	-1.66
Sugar	7.61	-0.16	-1.77	-1.33	8.17	0.12	-1.36	-0.10	3.91	0.54	2.29	3.16	13.49	-2.65	-1.33	-1.15
Animal products	13.90	-0.20	-3.41	-2.04	5.33	0.02	1.37	2.97	3.11	0.72	2.43	3.86	11.94	-2.74	-2.41	-2.36
Other food products	2.80	0.00	-0.27	-0.11	2.31	0.00	0.83	1.58	1.32	0.46	1.55	2.33	2.45	-1.23	-0.94	-0.82
Textiles	1.63	-0.16	-2.10	0.41	3.17	-0.01	3.00	3.91	1.82	2.02	3.70	5.93	1.17	-4.94	-7.87	-7.69
Leather products	3.07	-0.11	-4.28	-2.86	3.29	0.01	1.29	2.54	-1.01	2.37	4.99	7.52	-2.46	-5.22	-12.91	-13.01
Wood and paper products	1.05	-0.16	-1.63	-0.49	-0.87	0.02	0.67	1.06	0.09	1.02	2.37	3.75	0.91	-2.39	-1.81	-1.36
Petroleum and chemicals	0.98	0.09	-0.47	1.08	-0.12	-0.01	1.97	2.28	0.45	1.32	3.59	6.08	1.41	0.17	0.60	0.67
Mineral products	1.36	0.34	-0.47	0.96	0.34	0.01	0.70	0.89	0.83	1.19	1.80	3.16	1.05	-2.55	-2.27	-2.02
Ferrous metals	0.88	-0.03	-1.91	-0.33	-0.50	0.03	0.31	0.47	0.38	1.17	2.76	4.30	1.17	-3.29	-1.86	-1.25
Metals	0.83	-0.81	-4.21	-3.51	-1.75	-0.49	2.18	2.24	-0.71	-7.73	-5.28	-2.72	-0.46	19.57	19.33	19.22
Metal products	1.93	0.10	-1.78	2.38	0.07	0.01	0.48	0.81	0.68	2.34	3.37	4.65	1.21	-3.15	-2.65	-2.40
Motor vehicles and parts	2.32	1.42	2.20	7.51	-0.74	0.02	-0.10	0.07	1.20	1.13	2.16	3.19	0.71	-3.63	-2.86	-2.76
Transport equipment nec	1.40	-0.16	-2.42	-1.59	1.97	0.01	0.09	0.76	2.49	2.31	4.14	6.70	0.70	-5.27	-3.59	-3.20
Electronic equipment nec	-0.14	-0.01	-2.48	0.78	-1.49	0.00	0.77	1.02	-0.51	2.95	4.39	6.03	1.15	-5.08	-2.87	-2.53
All other manufactures	0.82	0.58	-1.55	-0.96	-0.52	0.02	0.38	0.90	-1.92	3.64	6.52	8.92	0.23	-9.80	-6.63	-6.42
Utilities	0.56	-0.21	-1.44	-1.26	-0.44	0.02	0.39	0.61	-0.58	0.37	1.39	2.72	0.10	-0.32	0.11	0.20
Construction	0.21	-0.12	-0.79	-0.79	-0.52	0.00	-0.11	-0.11	-0.38	0.39	0.89	1.38	0.26	-1.06	-0.80	-0.75
Trade	0.72	-0.05	-0.59	-0.49	-0.24	0.00	0.34	0.65	-0.19	0.35	0.86	1.45	0.60	-1.21	-0.86	-0.79
Transport	0.77	-0.05	-0.64	-0.52	-0.31	0.01	0.16	0.37	0.00	0.43	1.08	1.83	0.67	-0.85	-0.48	-0.40
All other services	0.36	-0.10	-0.74	-0.72	-0.36	0.01	0.11	0.27	-0.31	0.36	0.84	1.34	0.35	-1.03	-0.79	-0.73

Table 7: Real Imports by Commodity *(Percentage Changes)*

	Brazil				China				India				SACU			
	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac	doha	ibsa	ibsac	imsac
Cereal grains	-0.65	0.41	5.50	-8.22	-5.69	-0.01	0.38	0.12	-2.41	0.74	13.83	18.39	1.29	2.83	3.10	12.54
Oil seeds	-3.68	1.99	-12.36	-7.39	1.66	0.06	21.13	45.91	-1.23	-0.50	-0.76	-2.34	0.62	1.13	0.95	-0.27
Other crop agriculture	3.32	0.60	4.88	2.10	2.06	-0.03	1.39	1.56	1.52	-0.20	0.03	-0.97	3.13	2.07	2.46	2.43
Animal agriculture	2.63	0.38	3.60	5.36	1.22	-0.01	0.02	-0.32	0.63	-0.28	7.87	7.14	0.78	0.37	0.30	0.19
Minerals nec	0.15	0.02	0.01	0.80	0.14	0.04	0.44	0.67	0.14	-0.79	-0.79	-0.56	0.35	4.30	4.52	4.57
All other extractive	-0.05	0.19	1.57	1.58	1.87	-0.03	1.87	2.67	0.63	0.55	1.05	4.04	0.92	3.40	3.66	3.71
Vegetable oils and fats	2.25	-1.15	-11.90	-2.09	2.83	-0.19	-3.20	-7.16	1.79	3.61	3.08	25.21	4.68	2.70	2.42	9.04
Sugar	-7.89	0.75	3.56	5.07	-1.20	-0.06	2.78	2.81	-12.97	5.36	5.52	4.67	-0.83	1.93	1.59	1.54
Animal products	-9.27	0.52	4.73	-0.61	-4.32	-0.03	0.38	-0.08	-1.90	-0.26	-0.95	-2.15	-2.74	2.89	2.88	4.22
Other food products	0.87	0.22	1.34	1.68	0.11	-0.01	0.64	0.94	-0.53	-0.18	1.43	1.50	0.17	1.53	1.77	1.92
Textiles	5.85	1.46	8.10	7.59	0.88	0.00	3.00	3.23	0.71	-0.96	6.15	4.57	5.28	5.35	14.89	15.11
Leather products	3.43	0.90	13.57	10.94	0.91	0.00	0.65	0.96	1.37	0.04	1.85	2.46	6.22	3.56	23.12	24.08
Wood and paper products	3.24	0.46	2.37	2.31	1.05	-0.02	0.99	1.12	0.83	-0.17	0.01	-0.85	1.56	1.78	2.16	2.08
Petroleum and chemicals	2.13	0.46	2.08	1.99	0.84	0.00	0.85	1.07	0.49	0.46	3.53	2.15	1.13	1.66	1.73	1.74
Mineral products	2.80	0.58	2.31	2.70	0.42	-0.01	0.76	0.86	0.27	-0.21	4.80	3.72	1.27	2.45	3.48	3.45
Ferrous metals	2.90	1.03	2.28	2.01	0.60	-0.04	0.67	0.85	0.63	1.57	1.12	0.88	0.76	0.85	1.00	0.95
Metals	1.89	1.70	2.99	5.89	0.93	0.04	0.81	1.21	0.53	18.24	19.27	18.97	0.71	6.75	6.95	6.48
Metal products	5.62	0.84	3.73	4.08	0.60	-0.01	0.95	1.11	0.44	-1.03	5.89	4.92	1.72	2.28	3.35	3.30
Motor vehicles and parts	4.37	0.01	1.06	5.17	0.85	-0.02	1.44	1.58	0.57	3.20	2.39	1.65	2.87	1.94	1.82	1.78
Transport equipment nec	-0.07	0.59	2.74	3.02	1.31	-0.01	0.58	0.69	1.08	-1.31	-1.84	-3.06	0.30	1.75	1.54	1.43
Electronic equipment nec	3.17	0.26	2.30	2.04	0.93	0.00	0.71	0.91	0.78	-1.57	-0.05	-1.02	0.44	1.87	1.76	1.72
All other manufactures	6.80	0.54	11.74	11.89	0.86	0.03	2.01	2.34	1.17	-1.74	-2.48	-3.57	1.09	3.47	3.41	3.40
Utilities	-0.02	0.19	1.34	0.72	0.82	-0.03	0.68	0.95	0.90	-0.77	-1.52	-2.41	0.72	3.17	3.20	3.22
Construction	-0.21	0.17	1.10	1.11	0.74	-0.01	0.19	0.22	0.54	-0.49	-1.12	-1.72	-0.12	1.68	1.42	1.39
Trade	-0.20	0.21	1.21	1.32	0.71	0.00	0.65	0.99	0.50	-0.29	-0.68	-1.02	0.07	1.77	1.70	1.74
Transport	-0.07	0.20	1.13	1.20	0.95	-0.01	0.62	0.87	0.60	-0.36	-0.90	-1.39	0.21	2.11	2.01	1.99
All other services	-0.04	0.22	1.23	1.29	0.97	-0.01	0.50	0.69	0.66	-0.31	-0.77	-1.19	0.16	1.85	1.71	1.69

Table 8: Export Shares of Brazil, China, India and SACU by Destination *(in percent)*

	Brazil					China					India					SACU				
Destination	**base**	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**
Brazil						0.5	0.5	0.5	0.6	0.6	1.4	1.4	1.6	1.6	1.6	1.0	1.0	1.2	1.2	1.2
Argentina	7.4	7.1	7.4	7.1	8.0	0.3	0.3	0.3	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.2	0.2	0.2	0.2	0.3
Uruguay	0.9	0.9	0.9	0.9	0.9	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Chile	2.1	2.0	2.0	2.0	2.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Venezuela	1.6	1.6	1.6	1.5	2.3	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1
China	4.3	4.3	4.3	8.1	6.7	12.7	12.6	12.7	13.2	13.2	5.1	5.1	5.1	5.9	5.9	3.4	3.4	3.3	3.7	3.7
India	0.6	0.6	1.2	1.2	1.1	0.7	0.7	0.7	1.2	1.2						3.3	3.3	7.5	7.2	7.1
SACU	0.7	0.7	0.9	0.8	0.8	0.3	0.3	0.3	0.5	0.5	0.7	0.7	0.9	0.9	0.9	9.8	9.4	9.4	9.3	9.2
European Union	29.0	29.3	28.8	27.7	27.5	21.6	21.5	21.7	21.3	21.3	29.9	29.9	29.8	29.6	29.5	36.5	36.4	34.4	34.5	34.5
USA	23.5	23.1	23.3	22.3	22.1	27.0	26.7	27.0	26.6	26.5	20.1	19.9	20.1	20.0	20.0	12.8	12.7	12.4	12.4	12.4
Rest of Americas	10.0	10.2	10.0	9.5	9.4	4.2	4.2	4.2	4.1	4.1	3.5	3.5	3.4	3.4	3.4	2.1	2.2	2.1	2.1	2.1
East & South East Asia	9.3	9.4	9.2	8.9	8.9	24.3	24.4	24.3	23.9	23.9	15.5	15.4	15.4	15.3	15.2	12.2	12.2	11.9	11.9	11.9
Rest of the World	10.5	10.7	10.4	10.0	9.9	7.9	8.2	7.9	7.8	7.8	23.1	23.4	23.0	22.8	22.7	18.2	18.7	17.3	17.3	17.3

Table 9: Import Shares of Brazil, China, India and SACU by Origin *(in percent)*

	Brazil					China					India					sacu				
Origin	**base**	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**
Brazil						0.8	0.8	0.8	1.5	1.2	0.7	0.7	1.4	1.4	1.2	1.3	1.4	1.7	1.7	1.6
Argentina	8.8	8.6	8.8	8.8	9.0	0.4	0.4	0.4	0.3	1.0	0.9	0.9	0.9	0.8	2.5	1.1	1.1	1.1	1.0	1.2
Uruguay	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Chile	1.4	1.4	1.3	1.3	1.6	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Venezuela	0.8	0.8	0.8	0.7	0.8	0.1	0.1	0.1	0.1	0.1	5.9	5.9	5.7	5.5	7.6	0.0	0.0	0.0	0.0	0.0
China	3.1	3.1	3.1	4.2	4.1	16.2	16.0	16.2	16.8	16.7	5.6	5.6	5.4	9.5	9.2	4.6	4.7	4.5	6.3	6.3
India	1.2	1.2	1.4	1.3	1.4	0.8	0.8	0.8	1.0	1.0						1.2	1.2	1.7	1.6	1.6
SACU	0.6	0.6	0.8	0.8	0.7	0.4	0.4	0.4	0.5	0.5	2.6	2.5	5.8	5.5	5.4	13.6	13.1	13.0	12.8	12.8
European Union	32.0	32.2	31.9	31.6	31.2	17.7	17.7	17.7	17.4	17.3	27.2	27.3	26.1	25.1	24.4	36.0	36.1	35.8	35.2	35.1
USA	23.7	23.8	23.7	23.4	23.2	10.2	10.3	10.2	10.0	9.9	9.6	9.6	9.2	8.9	8.7	11.5	11.5	11.5	11.3	11.3
Rest of Americas	5.6	5.6	5.6	5.5	5.5	2.5	2.5	2.5	2.4	2.4	4.5	4.5	4.3	4.1	3.9	1.7	1.7	1.7	1.7	1.7
East & South East Asia	11.3	11.4	11.2	11.1	11.0	40.4	40.4	40.4	39.7	39.6	22.3	22.3	21.4	20.5	19.4	12.4	12.5	12.3	12.0	12.0
Rest of the World	10.7	10.5	10.6	10.5	10.5	10.1	10.1	10.1	9.9	9.9	20.3	20.3	19.3	18.3	17.5	16.3	16.3	16.4	16.2	16.2

Table 10: Broad Sectoral Shares in Gross Output

	Brazil					China					India					SACU				
	base	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**	**base**	**doha**	**ibsa**	**ibsac**	**imsac**
Agriculture	4.5	4.6	4.5	4.7	4.6	9.3	9.3	9.3	9.3	9.2	17.1	17.1	17.1	17.1	17.1	4.6	4.6	4.5	4.5	4.5
Mining	1.8	1.8	1.8	1.8	1.8	2.6	2.6	2.6	2.6	2.6	1.4	1.4	1.4	1.4	1.4	5.1	5.1	5.2	5.2	5.2
Food Products	8.0	8.1	8.0	8.1	8.0	5.0	5.0	5.0	5.0	5.0	5.8	5.8	5.8	5.8	5.7	7.3	7.4	7.3	7.3	7.3
Manufacturing	28.1	28.0	28.1	27.9	28.0	46.1	46.1	46.1	46.2	46.2	29.7	29.7	29.7	29.8	29.9	31.9	31.8	31.9	31.9	31.9
Services	57.5	57.5	57.5	57.5	57.5	37.0	37.0	37.0	37.0	37.0	45.9	45.9	45.9	45.9	45.9	51.0	51.0	51.1	51.1	51.1

6. Concluding Remarks

The exploratory results presented above suggest that in the wake of China's emergence as a major global player the conventional wisdom concerning the relative merits of pure South-South regional integration arrangements noted at the outset might be in need of a major reevaluation. However, given the substantial changes in China's trade relations with both developed and other developing countries since 2001, a further analysis that will contribute to such a reevaluation within a computable general equilibrium framework would appear to be more fruitful following the release of the new GTAP7 database.

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