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Sensitive Products in Trade Negotiations: What Options for Africa

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Abstract:

Efforts continue to revive the Doha Round of WTO trade negotiations. The potential for a successful outcome of restarted talks continues to rest on market access for agricultural products. Agriculture market access negotiations must deal with politically "sensitive" products that cannot bear the full weight of tariff reductions. The Uruguay Round created a precedent for sensitive agricultural products by requiring tariff rate quotas (TRQs) for a volume of imports to assure some increased market access. The objective of this paper is precisely to assess the impact of the sensitive products on agriculture market access for African Countries. The paper also simulates through a global CGE model what could be the consequences of the new tariff structure resulting from this formula and the treatment of sensitive products on African economies. Our simulations show that the inclusion of sensitive products would restrict the gains of African countries essentially because it would maintain the tariff peaks.

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1. Introduction

The question of market access is of crucial importance for Africa. The question of market access is especially crucial for their development agenda. There are to important perspectives on market access for African countries. is the first perspective is attributable to the restricted nature of African markets and to the need for the continent to open up to export markets in order to support growth dynamics and efforts to diversify production structures. Hence, African countries are keen to have an outcome in the market access pillar that reflects this desire of diversification and the attendant growth dynamics. The second perspective relates to the openness of the international markets for African exports. How easy it is or not for agricultural products from Africa to competitively enter the international markets, especially the developed and advanced developing countries agricultural markets. Since negotiations began under the Doha Round, African countries have sought to achieve an ambitious reform agenda, particularly in the agricultural sector, which remains highly protected especially by some of the developed countries. For example, tariffs applied to agricultural imports by the Organization for Economic Cooperation and Development (OECD) countries are too high on average. There is also wide dispersion in tariff levels, and a significant number of tariff peaks are applied to some of the more highly protected products.

For several reasons that are now well articulated in current negotiations, agriculture is very important to developing countries and to Africa in particular. First, it represents the main source of employment, accounting for nearly 70 per cent of the total in the least developed countries (LDCs), 30 per cent in the middle-income countries and just 3 per cent in the developed countries.[2] In addition to employment, agriculture continues to play a key role in most of these countries economic growth profiles. Consequently, the cultivation of

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[2] Several studies show the importance of the agricultural sector in developing countries and in Africa. See, for example:
- FAO, *Agriculture towards 2015*, Rome 2000.
- OECD, *Agricultural policy reform: Development and prospects*, Paris 2000.

subsistence crops helps provide food and ensures food security for the people. At the same time, export crops account for a sizeable proportion of export revenues in many African countries. Finally, agriculture plays a crucial role in poverty reduction strategies because the majority of poor people live in the rural areas.

These reasons generally explain the importance given to the agricultural sector by African countries in the context of international trade negotiations. Improving the current conditions of the international markets in agricultural products and giving more attention to their concerns could lead to a better integration of their economies in the global market place and promote economic growth.

The Hong Kong Declaration ensured that a single approach for developed and developing country Members meets all the objectives of the Doha mandate. Tariff reductions will be made through a tiered formula that takes into account their different tariff structures. The LDCs would be exempt from all tariff reduction commitments. The tariff reductions would be made using bound rates, with deeper cuts in higher tariffs. The number of groups and the thresholds for the definition of the groups are still being negotiated as part of the modalities to be established under the Doha Round. The text of the Framework Agreement specifies that there should be "deeper cuts in higher tariffs, while the type of formula, the number of bands and their thresholds remain under negotiation".

The Agreement envisages the existence of a category of "sensitive products" to which lesser reductions could be applied mainly for developed countries. While the exact conditions of special and differential treatment remain to be established, the text does nonetheless allude to proportionality, which would allow developing countries to implement lesser tariff reduction over longer periods of time.[3]

The objective of this paper is precisely to assess the impact of the sensitive products on agriculture market access for African Countries. We also simulate through a CGE model

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[3] As already indicated, the LDCs will be exempt from all reduction commitments.

what could be the consequences of the new tariff structure resulting from this formula and the treatment of sensitive products on African economies.

This paper is structured as followed; after this general introduction, the second section proposes a reflection of the treatment of sensitive products in the Doha Round. An assessment of the impact of sensitive products in agricultural market access through various tiered formula is then proposed. In that perspective, Section 3 presents the methodology used and the various scenarios tested. Section 4 highlights the main economic results from the simulations. Finally, Section 5 concludes.

2. The Doha round and the concept of sensitive products

The November 2001 Doha Ministerial Declaration committed to development as an integral part of its mandate and further that this would be achieved through accommodation of sufficient flexibility for developing countries in the eventual Doha Round final agreement. It is in this context that the concept of sensitive products appeared for the first time. Indeed, the July 2004 agreed Framework for Establishing Modalities in Agriculture introduced three novel elements to the Market Access pillar aimed at mitigating the impacts of mandatory tariff cuts: (i) "Sensitive Product" (SSP) and (ii) "Special Product" (SPP) exceptions and (iii) a new Special Safeguard Mechanism (SSM). The SPP and SSM pertain to the Special and Differential Treatment provisions for use by developing countries only, while both developed and developing countries can resort to the SSP provision. While the SSM envisages equipping developing countries with a set of new rules to protect themselves against commodity import surges, designating a product as "sensitive" would provide exemption from the full application of the agreed upon tariff rate cutting formula, thereby facilitating the adoption of more ambitious market access provisions for the rest of agriculture. Conceptually, the arguments that sensitive products would enable the attainment of more ambitious market access provisions in agriculture seem contradictory. In particular, given that there are no criteria for their selection being discussed per se, it is

difficult to see the link between sensitive products and high ambition. Neither do the proposals that tariff rate quotas expansion will provide the payment for less than formula cuts in the designated sensitive products.

Besides the above contention on how sensitive products could help achieve high ambition, the real fears among developing countries are that this is a concept designed to wriggle out of any substantial reduction commitments in agricultural tariffs. This is in line to the allusion that sensitive products, rather than being instruments that would facilitate ambitious tariff cuts reduction, would on the contrary, limit the kind of ambition that would be beneficial to African countries. It is not surprising then that "sensitive product" is now an issue on which WTO countries are deeply divided. Different developed countries WTO members have large differences in interpretation on this concepts scope and application. The issue of sensitive products is a critical element of the market access pillar and hence of the agriculture negotiations. And since as noted above no criteria have been designed to select sensitive products, WTO members may designate an appropriate number, to be negotiated, of tariff lines to be treated as sensitive, taking account of existing commitments for these products. However, the Hong Kong declaration specifies that the principle of 'substantial improvement' will apply to each product." Substantial improvement" will be achieved through combinations of tariff quota commitments and tariff reductions applying to each product. However, balance in the agriculture negotiations will be found only if the final negotiated result also reflects the sensitivity of the product concerned. Some MFN-based tariff quota expansion will be required for all such products. A base for such an expansion is yet to be established, but it is expected it will take account of coherent and equitable criteria to be developed in the negotiations. In order not to undermine the objective of the tiered approach, for all such products, MFN based tariff quota expansion will be provided under specific rules to be negotiated taking into account deviations from the tariff formula."

The number of sensitive products is crucial. Proposals range from 1% of dutiable tariff lines to 15%. However, members are looking more for a deviation from the normal tariff cuts instead of a total exclusion. On this deviation, the WTO members have to decide which range, or which percentage, of the "normal" formula cut are going to be applied to sensitive products.

Tariff Quota Expansion

In terms of the negotiations so far, while the Agreed Framework is clear that "some MFN-based tariff quota expansion will be required for all such products", there is however a disagreement on the interpretation of this statement. Some countries consider that all sensitive products should have a "core" or minimum level of tariff quota expansion with an additional amount based on the size of the deviation from the general tariff cut. Other countries disagree, arguing that tariff quota expansion is primarily a function of the deviation from the reduction under the tiered formula and that it could not lead to an access commitment that would be higher than what would have been presumed to occur should there have been no shelter from the full tariff cut.

The discussion to date has focused on three different basic approaches to tariff quota expansion for sensitive products.

- *Current levels of domestic consumption:* it was the basis used for creation of tariff quotas in the Uruguay Round and its proponents argue that it is the only method that will yield equitable results in line with the mandate. Those that disagree with the approach of using domestic consumption have stated that the resulting tariff quota increases using this method are much larger than could be justified as compensation for deviation from the tariff reduction formula. In addition, they argue that there are significant problems getting consumption data at tariff line level.
- *Existing bound tariff quota commitments:* this method would avoid the alleged consumption data problem. However some countries consider that some tariff quotas

established as a result of the Uruguay Round were very small compared to domestic consumption, and even applying an additional increase to these relatively small tariff quotas may not represent a significant gain.

- *Current import levels:* the use of the current import levels of sensitive products as the base is justified on the basis that the increase in the tariff quota should be viewed conceptually as compensation for not applying the formula reduction in tariffs. However, the opponents of this approach consider that in some cases current imports are at very low levels. Furthermore, in some cases import licensing systems or other factors associated with administration of tariff quotas may be acting to restrict import volumes and thus in some instances the existing import levels are lower than the quota volumes themselves. Therefore, current import levels are not representative of true demand in many cases.

3. The Sensitive Products and their Implications for Africa's Results from the Doha Negotiations: A CGE application

The issues of sensitive products are very crucial in the on-going Doha negotiations to the point that they occupy a position of deal breaker at least on market access pillar of the agriculture negotiations. It is for this reason that for Africa, it is important to have a clear understanding of the economic impacts of these products with respect to the final outcome of the agriculture negotiations. Several proposals are being negotiated with respect to the percentages that will constitute sensitive products coverage. In this section, a number of scenarios are analyzed in order to have a deeper understanding of the implications of the sensitive products on African economies. The simulation analysis of the scenarios is undertaken using the now widely used GTAP model and database. This section discusses in detail the methodology applied for the empirical analysis. The discussion starts by reviewing the literature on agriculture market access and underlining the importance of the

market access pillar in the potential gains that African countries could benefit from this round. The model, the calibration and the various scenarios tested are then presented.

3.1. Empirical evidence on the importance of the market access pillar

Market access, domestic support and export subsidies have been acknowledged within the Doha mandate as sources of global economic costs of agricultural trade. A lot of empirical studies have been undertaken in order to understand and assess the importance of each pillar. This has had direct influence on the weight of effort trade negotiators put in the current process of negotiation. The intuition behind the results is rather evident. Indeed, agricultural market access barriers (essentially tariffs) are much more important than domestic subsidies. The amounts of support provided through market access barriers in developed and developing countries are much more greater than the supports provided through subsidies. Furthermore, trade barriers distort both production and consumption whereas domestic support only distorts production. Finally, market access barriers vary much more across countries and commodities and hence generate larger costs than do domestic support measures.

Recent studies highlight the fact that the main hypothetical gains that the Doha Development round could generate have to be seen in the market access pillar. African countries (and more generally developing countries) have to face a dilemma – on the one hand, African countries have been pushing hard for liberalization of the agricultural sector in the QUAD countries[4]. On the other, however, there has been an insistence in maintaining preferential market access. Strictly speaking, the two goals are not compatible: further multilateral liberalization of agriculture will inevitably erode the margin of preferences. The challenge, therefore, is to pursue both goals in a way which does not harm African interests.

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[4] See for example, Ben Hammouda and al (2005), Anderson, K., and W. Martin (2005)

African trade negotiators will have to use a lot of skill and judgment to strike a balance between the two objectives (Mold, 2005). Because of concern that OECD tariff reductions will translate onto worsening export performance for the LDC's (principally the African countries), trade preferences have proven a "stumbling block" to developing country support for multilateral liberalization (Francois, Hoekman, Manchin, 2005). Indeed, many African country worry about the potential negative effects of an erosion of their preferential access. These worries are justified looking at the results obtained by Bouët, Mevel and Orden (2006). They show that the average agricultural protection is reduced by the ambitious scenario (most ambitious modalities present on the US and EU proposal) compared to the unambitious scenario (less ambitious modalities present on the US and EU proposal), especially in the Rest of OECD, Developed Asia, and the EU. And therefore, important preference erosion with an ambitious liberalisation scenario. This confirms that the imposition of a cap on agricultural tariffs and limited exemptions from tariff liberalization under sensitive/special product clauses have large consequences on market access.

Previous studies show also that the question of sensitive products will be at the heart of the Agricultural Market Access Negotiation (Jean, Laborde, Martin, 2006; Anderson, Martin, 2005). Indeed, various simulations carried out tend to show that there is substantial binding overhang in agricultural tariffs: the average bound rate in developed countries is almost twice as high as the average applied rate, and in developing countries the ratio is even greater. Thus large reductions in bound rates are needed before it is possible to bring about any improvements in market access. To bring the global average actual agricultural tariff down by one-third, bound rates would have to be reduced for developed countries by at least 45 percent, and up to 75 percent for the highest tariffs, under a tiered formula (see also Anderson and Martin, 2005).

These studies show also that *even large cuts in bound tariff do little if "sensitive products" are allowed, except if a cap applies.* If Members succumb to the political temptation to put limits on tariff cuts for the most sensitive farm products, much of the prospective gain from Doha for Africa could evaporate. Even if as little as only 5 percent of HS-6 agricultural tariff Lines in developed countries are classified as sensitive, the effects of the negotiations could be very limited (Ben Hammouda, Karingi, Lang, Oulmane and Sadni Jallab, 2005). Anderson and Martin (2005), have arrived at a similar conclusion whereby in their study they show that an even narrower definition of sensitive products at the level of 2 percent of HS-6 agricultural tariff lines in developed countries, the effect could be shifted. The degree of ambition is the most important criterion so that Africa can benefit from the liberalization. More precisely, it seems that the differentiation between developed countries and developing country would bring the most important gains for the African countries. However, one should mention that if developed countries included as sensitive products, products where preferences are granted, it could contribute to limit the preference erosion. In this paper, we focus our analyse only on the market access pillar. Our objective is to identify what are the consequences of sensitive products in terms of market access for African countries and what is the optimal amount of sensitive products both in terms of offensive and defensive interests.

3.2 The Model

GTAP is a multi-region computable general equilibrium (CGE) model designed for comparative-static analysis of trade policy issues (Adams et al. 1997)[5]. There are four types of behavioral parameters in GTAP: elasticities of substitution (in both consumption and production), transformation elasticities that determine the degree of mobility of primary

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[5] The interested reader can find all the relevant information about this model, both its structure and possible applications in the remarkable book published by Thomas W. HERTEL (1997), Global Trade Analysis. Modelling and Applications. Cambridge University Press.

factors across sectors, the flexibilities of regional investment allocation, and consumer demand elasticities. The parameters that describe demand behavior in initial equilibrium for the representative private household are region-specific. Consumer behavior in GTAP is based on the Constant differences of elasticities (CDE) expenditure function, which is most naturally calibrated to income and own-price elasticities of demand (Hertel et al., 1991). The CDE specification allows for more flexibility in specifying varying degrees of substitution between consumer goods purchases. This specification is also less restrictive in how one specifies correlations between household wealth and private goods consumption patterns.

Production: The producers of a given sector in a given country make a product intended for the domestic and the foreign market. This production assumes that there are no returns to scale. Production is carried out based on five production factors (skilled and unskilled workers, capital, land and natural resources), as well as intermediate consumption. The level of the intermediate consumption involved is assumed to be proportional to the level of production. In line with Armington's (1969) formulation, the intermediate consumption is an aggregate of domestic and imported varieties. The producers thus minimize costs linked to the production factors using Leontief's production function between intermediate consumption and value-added inputs. This is assumed to be a constant elasticity of substitution (CES) between the different production factors. The different markets are assumed to be in pure and perfect competition.

The final demand: The standard GTAP version distinguishes between government demand and private demand. We have ignored this hypothesis and we assume that the final demand comes from one single regional representative agent. It collects all the revenue generated in the economy. This revenue is distributed between the final demand and savings. In line with the GTAP model, we assume that a fixed amount of the revenue is allocated to savings. The regional agent maximizes its welfare function by distinguishing between domestic and

foreign goods in line with Armington's (1969) hypothesis for the same sector and distributes the consumption between the sectors according to a CES function.

Bilateral trade: In each region there are two types of demand for imported goods: the final good and the intermediate good.[6] The import aggregate is thus the sum of the two components. This aggregate is a CES function of the imports from all partner countries. Bilateral trade is thus subject to two types of tax (export tax and customs duty), and a transport cost. The transport cost is assumed to be proportional to the volume of trade. The transport sector is assumed to be a service sector that is set up in perfect competition by the producers of all the regions, with an Armington specification and a constant elasticity of substitution. The level of imports of a given product from a given country in a given region is thus determined by minimizing import costs given the free on board (FOB) prices.

Demand: The demand side is modeled in each region through a representative agent, whose utility function is intra-temporal, with a fixed share of regional income allocated to savings and the rest being used to purchase final consumption.[7] Consumption trade-off across sectors is represented through a Cobb Douglas utility function.

Supply: Production makes use of five factors: capital; skilled labour; unskilled labour; land; and natural resources. The first three are generic factors; the last two are specific factors. The production function assumes perfect complementarity between value added and intermediate consumption. The structure of value-added is intended to take into account the well-documented skill-capital relative complementarity. Constant returns to scale and perfect competition are assumed to hold in agricultural sectors.

Capital, markets clearing and macroeconomic closure: The capital good is the same whatever the use sector, and capital is assumed to be perfectly mobile across sectors within

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[6] In GTAP there are three, including the public good.
[7] The structure of the demand function is shown in Appendix 6.

each region. At the regional-wide level, capital stock is assumed to be constant in the core simulations of this paper. Natural resources are also perfectly immobile and may not be accumulated. Both types of labour (skilled and unskilled), as well as land, are assumed to be perfectly mobile across sectors, while production factors are assumed to be fully employed. As for macroeconomic closure, the current balance is assumed to be exogenous (and equal to its initial value in real terms), while real exchange rates are endogenous.

3.3 The GTAP Database and the Study Aggregation

Data description

The GTAP model is used together with the GTAP database which, like the model, captures individual and composites of countries. In this exposition, Version 6 of the database is used. The base year for this version is 2001 and recognizes 87 regions as well as 57 sectors and 5 factors of production. Thus, for each individual or composite region, there are 57 sectors whose data is captured in the overall GTAP database. As previously indicated, not all countries are individually captured in GTAP. However, each economy is indirectly included in the database as part of a given composite region or as part of the rest of the world. Thus, global macroeconomic consistency holds.

Bilateral trade data is a critical component of the GTAP database. It is these bilateral trade flows that transmit policy and growth shocks between countries. Indeed, trade shares are important in explaining the simulation results. Bilateral trade is also important when looking at the terms of trade implications. The global bilateral data is sourced from the United Nations COMTRADE data. This is supplemented with individual countries global trade information and trade totals or aggregate bilateral trade statistics such as those available from the IMF, FAO and World Bank.

Another important sub-component of the GTAP database is data protection. Data is both explicit and implicit. It is explicit in the sense that tariff or export revenue and anti-dumping data by commodity and region are available. It is implicit in the sense that bilateral trade data is available both in market and world prices. The key sources of the protection data vary. Agricultural tariffs are obtained from the Economic Research Service, the EU and the applied or Most-Favoured Nation (MFN) rates. Merchandise tariffs, on the other hand, are available from the World Integrated Trade Solution project of the World Bank and UNCTAD (details of WITS are presented in the section discussing the SMART methodology). Domestic support protection data is obtained from the OECD's producer subsidy equivalent tables and can be divided into output subsidies, input subsidies, land-based and capital-based payments.

Sectoral and geographical aggregations

For the present study, 96 regions have been aggregated into 8 subregions, and 57 sectors have been identified. A complete description of the sectoral and geographical aggregation is posted in Annex 1. All of the macroeconomic, trade and protection data refer to the common reference year 2001.

3.4. Sensitive products versus market access gains: The scenarios tested

In order to assess the overall effect of the sensitive products on African economies, we test five scenarios. Indeed, since the objective is to see Africa's net benefits in the face of sensitive products, one tariff cut scenario for developed countries and one for developing countries is used in the analysis with a variation of the percentages of the sensitive products. The tiered formula is kept constant, and the different scenarios for sensitive products are differentiated by the percentages selected for these products. We only focus here at the market access pillar. *Ceteris paribus*, the others pillars (domestic support and exports

competitions) are not modified. This assumption will allow us to identify the impact of sensitive products within the market access pillar, which is precisely the objective of this research.

Table 1: Tiered formula coefficients to accompany analysis of sensitive and special products on African economies

Tariff band (%)	Cuts by developed countries	Cuts by developing countries	LDCs
0-20%	65%	20%	No liberalization
20-40%	75%	25%	
40-60%	85%	28%	
Above 60%	90%	30%	

The Sensitive Products Scenarios tested

Five scenarios will be analysed in the case of sensitive products using the tiered formula defined. Paragraphs 28 – 30 of the Framework for Establishing Modalities in Agriculture provides for a "Single Approach: a Tiered Formula" to achieve "substantial improvements in market access". The "principles" that are already agreed in the July "Framework" include the following modalities: Tariff reductions will be made by using "a single approach" for developed and developing country Members using "a tiered formula" to achieve "progressivity" in reductions, i.e. deeper cuts in higher tariffs (with flexibilities for sensitive products). Substantial improvements in market access will be achieved for all products and reductions will be made from bound rates. Substantial overall tariff reductions will be achieved as a final result from negotiations. Furthermore, operationally effective special and differential (S&D) provisions for developing country Members will be an integral part of all elements. From this perspective, "proportionality" will be achieved by requiring lesser tariff

reduction commitments or tariff quota expansion commitments from developing country Members (Para. 40). However, there are still some pending issues. Indeed, elements that are to be determined in the negotiations include: The number of tariff bands (tiers) and the thresholds for defining the bands; The type of tariff reduction formula to be applied to each tariff band; The role of a tariff cap in a tiered formula; and Treatment of tariff escalation in tariff reduction formula. It is important to note that as of now, there has been no differentiation between developed and developing countries in using the sensitive products. The choice of these products and the lines to be excluded is arbitrary and the method adopted is as follows: the most highly taxed lines will probably not be affected by the tariff reductions. For this reason, no tariff reduction has been applied to the lines for which the tariffs are the highest. We have specified the 5 following scenarios to analyse the impact of sensitive products on market access.

- Scenario SENSP1: No sensitive products
- Scenario SENSP2: 1% of tariff lines designated as sensitive products.
- Scenario SENSP3: 4% of tariff lines designated as sensitive products.
- Scenario SENSP4: 8% of tariff lines designated as sensitive products.
- Scenario SENSP5: 8% of tariff lines designated as sensitive products for developing countries and 4% for developed countries.

4. Economic Results

4.1. *The effects on income and on production structures: GDP and value added*

The foregoing simulations show that Africa would experience more GDP growth without sensitive products. On average, North Africa's GDP would increase by 0.24 per cent, whereas in sub-Saharan Africa, the growth rate would be less significant at between 0.16 per cent (Table 2). However, these growth rates are among the highest in comparison to other regions. Developing countries, among them Africa ones, would enjoy significant gain

from this liberalisation. This higher share is partly because they have relatively high tariffs themselves; therefore, they would reap substantial efficiency gains from reforming their own protection. In the same vein, Anderson and Martin (2005) show that subsidy disciplines are important, but increased market access in agriculture without the inclusion of sensitive products by developed countries is "crucial". They illustrate how high applied tariffs on agricultural relative to non-farm products are "the major reason for food and agricultural policies contributing 62% of the welfare cost of current merchandise trade distortions". Subsidies to farm production and exports are only minor additional contributors: 3 and 1% respectively, compared with 58% due to agricultural tariffs. Our simulations clearly show that for Africa as a whole, the least favourable scenarios are those that include categories of "sensitive products". These products are subject to less significant tariff reduction.

Table 2: The impact on GDP (% variation)

Regions	S1 (no)	S2 (1%)	S3 (4%)	S4 (8%)	S5 (8%,4%)
EU27	0.07	0.07	0.07	0.07	0.07
RowDvped	0.43	0.4	0.4	0.36	0.4
RowDving	0.11	0.11	0.11	0.11	0.11
Cairns_Dvped	0.7	0.64	0.64	0.59	0.64
Cairns_Dving	0.05	0.05	0.04	0.05	0.05
USA	-0.01	-0.01	-0.01	-0.01	-0.01
SSA	**0.16**	**0.15**	**0.15**	**0.15**	**0.15**
NorthAfrica	**0.24**	**0.23**	**0.23**	**0.22**	**0.22**

Sources: Simulations done using GTAP 6.2.

The table 3 show the growth of value added using the various liberalization scenarios with and without sensitive products. In the case of sub-Saharan Africa, it is evident that ambitious scenarios without the inclusion of sensitive products, would make for increased value added in those sectors where the initial level of protection is highest hence the very large increase in the value added of products such as cereal grains, oil seeds, sugar, cattle, wool... On the other hand, a tiered formula with the introduction of sensitive products would

offer the least beneficial scenario to sub-Saharan Africa in terms of real value added and therefore in terms of GDP growth.

The same observation applies to North Africa, though more sectors would suffer a drop in the value added. As in the case of sub-Saharan Africa, however, the sectors that had the highest levels of initial protection would witness a very considerable increase in their value added with the application of ambitious tariff liberalization formulas. With the application of an ambitious formula that does not include sensitive products, such sectors as paddy rice, cereals, meat among others stand to gain in value added.

4.2.The impact of sensitive products on welfare

Regardless of the formula used, market liberalization leads to an improvement in both welfare in North Africa and in sub-Saharan Africa. However, the improvement in welfare is greater in Africa when an ambitious tariff reduction formula without the inclusion of sensitive products is applied. It emerges that the scenario with no sensitive product offers the best welfare gains for Africa as a continent. (Table 4) This is partly due to the fact that in this scenario there are greater increases in subsidies and this means that resource allocation is easier in the absence of market access restrictions (for example, imported inputs can become less expensive). The comparison of the scenario 3 and 4 clearly indicates that the inclusion of a special and differential treatment concerning the sensitive products will considerably increase the welfare of African countries (More than 50 US Million $ if the volume of sensitive products for developed countries represents 4% of the tariff lines.

Table 3: Sensitive products and the impact on Sectoral value added (% Variation)

Sectors	S1 (No SP) SSA	NorthAfrica	S2 (1%) SSA	NorthAfrica	S3 (4%) SSA	NorthAfrica	S4 (8%) SSA	NorthAfrica	S5 (4%, 8%) SSA	NorthAfrica
Paddy_rice	-9	**-0.45**	-8.46	-0.6	-8.5	-0.63	-7.97	-0.5	-8.03	-0.45
Wheat	-7.03	-13.53	-7.54	-13.29	-7.22	-12.82	-7.14	-11.87	-6.67	-12.08
Cereal_grain	**-0.24**	**-0.54**	-0.41	-0.99	-0.38	-0.99	-0.37	-1.21	-0.35	-0.81
Vegetables	-0.46	2.1	-0.41	1.83	-0.32	1.85	-0.26	1.7	-0.31	1.95
Oil_Seeds	**3.84**	1.64	2.04	1.21	2.03	1.17	0.87	0.93	2.18	0.92
Sugar_cane	**16.33**	-1.84	15.29	-1.87	15.27	-1.82	14.18	-1.76	15.32	-1.75
Plant_fiber	1.04	0.18	1.33	0.47	1.22	0.4	1.2	0.52	0.98	0.3
Crops	-2.17	-11.76	-1.99	-10.84	-1.89	-10.84	-1.74	-10.19	-1.97	-10.45
Cattle	**24.44**	**16.84**	20.75	11.48	21.01	11.68	17.82	8.06	20.98	12.06
Animal_Prod	-1.07	-3.57	-1.07	-3.3	-1.06	-3.28	-1.04	-3.02	-0.95	-3.08
Raw_Milk	-1.89	-1.11	-1.97	-1.08	-1.78	-1.06	-1.73	-0.96	-1.67	-1
Wool	**4.24**	-0.7	3.64	-0.35	3.63	-0.4	3.06	-0.2	3.64	-0.45
Forestry	-0.07	-0.02	-0.02	0.56	-0.03	0.29	0	0.18	-0.04	0.07
Fishing	-0.17	0.08	-0.22	0.08	-0.21	0.08	-0.25	0.08	-0.17	0.07
Meat_Cattle	**63.21**	**66.05**	53.75	45.35	54.42	46.17	46.23	32.03	54.18	47.47
Meat_Prod	-9.27	-13.16	-8.63	-11.99	-8.58	-12	-8	-11.02	-8.19	-11.19
Dairy_Prod	-8.53	-5.32	-8.52	-5.18	-7.93	-5.07	-7.56	-4.57	-7.66	-4.72
Proces_rice	-17.85	0.49	-16.87	0.51	-16.96	0.47	-16.13	0.54	-16.02	0.43
Sugar	**53.69**	-4.72	50.34	-4.6	50.27	-4.51	46.75	-4.26	50.31	-4.37
Food_Prod	-3.76	-0.59	-3.54	-0.56	-3.53	-0.6	-3.34	-0.52	-3.4	-0.61
Bev_Tob	-1.13	-1.7	-1.07	-1.6	-1.07	-1.6	-1.03	-1.5	-1	-1.5
indus_Sector	-0.98	-0.72	-0.75	-0.32	-0.8	-0.34	-0.62	-0.13	-0.84	-0.44
Services_Sec	0.03	0.1	0.04	0.15	0.04	0.14	0.04	0.17	0.04	0.12

Sources: Simulations done using GTAP 6.2.

Table 4: The impact on the Welfare (US Millions $)

Regions	S1 (no)	S2 (1%)	S3 (4%)	S4 (8%)	S5 (8%,4%)
EU27	3419.83	3545.17	5815.89	3634.31	3557.6
RowDvped	17939.56	16653.61	16438.39	15366.49	16702.97
RowDving	4012.61	3928.31	3306.94	3808.45	3876.55
Cairns_Dvped	6547.75	6127.45	5786.17	5595.6	6067.83
Cairns_Dving	4946.08	4661.75	4447.43	4263.9	4482.18
USA	1751.93	1705.02	677.67	1597.46	1618.48
SSA	**842.9**	740.58	**702.95**	673.43	**755.26**
NorthAfrica	**664.57**	550.01	**566.68**	489.06	**566.24**

Sources: Simulations done using GTAP 6.2.

On a global level, the Cairns group but more particularly the developing one benefit the most from an improvement in their welfare which stands to gain considerably with the application of an ambitious formula without the inclusion of sensitive products. The total gains, allocation efficiency gains and the terms of trade gains are reported. As the latter two are not the only sources of welfare variations (real income variations also come from variations in land supply and the stock of capital, tariff-quota rents, and other sources), the two last columns do not add up to the real income gain. But in most cases these are the two main sources of real income variations. Allocation efficiency gains are always positive, while terms of trade effects can be positive or negative. This explains why some countries/zones may lose from full trade liberalization

As can be seen in Table (4.1 and 4.2) and figure 1, such growth is largely the result of a marked improvement in their terms of trade (+0.3 % for SSA countries and 0.16% for North Africa with an ambitious formula without sensitive products) and productivity efficiency. Indeed, the allocative effects are very high within a scenario where no sensitive products are allowed. The more we include sensitive products, the weaker the allocative gains will be for African countries (Table 4.2). Allocation efficiency gains are large when initial protection is high, initial protection has a high dispersion across sectors, or in the case of initially very open economies because the effect is higher when initial imports are relatively large for a given decrease in tariff.

Decomposition of the welfare: Allocative effects and terms of trade effects revisited

Table 4.1 Allocative effects (in US Millions $)

Allocative Effect	S1 (no)	S2 (1%)	S3 (4%)	S4 (8%)	S5 (8%,4%)
EU27	6050.56	5826.87	6142.55	5683.32	5893.85
RowDvped	20036.01	18602.7	18565.65	17012.93	18581.98
RowDving	5095.61	5025.19	4849.24	4847.5	4791.85
Cairns_Dvped	7924.96	7345.14	7249.89	6686.19	7304.69
Cairns_Dving	905.84	895	855.02	883.41	873.47
USA	-941.06	-794.15	-928.16	-647.79	-796.79
SSA	**516.09**	493.32	480.54	469.14	479.42
NorthAfrica	561.02	538.6	546.45	510.65	518.02

Sources: Simulations done using GTAP 6.2.

Table 4.2 Terms of Trade effects

Terms of Trade Effect	S1 (no)	S2 (1%)	S3 (4%)	S4 (8%)	S5 (8%,4%)
EU27	-2618.16	-2269.32	-344.28	-2040.55	-2326.66
RowDvped	-2265.98	-2104.73	-2357.16	-1775.15	-2027.99
RowDving	-1028.13	-1052.37	-1626.97	-1002.38	-863.7
Cairns_Dvped	-1229.04	-1082.4	-1403.32	-967.42	-1106.43
Cairns_Dving	4472.98	4178.65	3944.51	3757.33	4005.71
USA	2212.17	2046.31	1524.08	1823.94	1972.3
SSA	332.58	251.95	225.57	208.22	280.81
NorthAfrica	98.66	10.13	17.13	-21.43	45.67

Sources: Simulations done using GTAP 6.2.

Figure 1: The impact of sensitive products on Terms of Trade
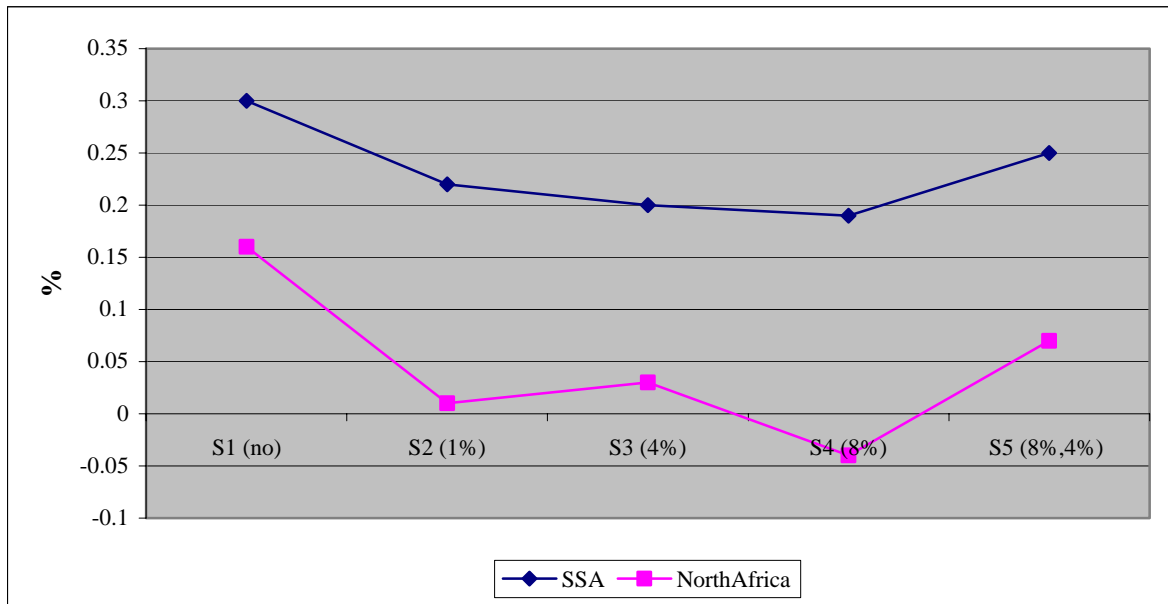
Sources: Simulations done using GTAP 6.2.

5.3   The impact of the various scenarios on trade

The following section looks at the potential impact of the various liberalization scenarios on trade. First, the changes that could occur in the trade structure of African economies will be examined before looking at the terms of trade.

The impact of the scenarios on Africa's exports and imports

In varying degrees, all the scenarios show an increase in exports in Africa as a whole for the sectors whose value added increases. (Table 5) On a continental level, there is a greater increase in the volume of exports with a scenario with no sensitive products. Indeed, this scenario leads to a significant reduction in tariff peaks that many African countries face. This scenario should also be the most favourable in terms of export revenue. The increase in exports would be greatly reduced with the introduction of sensitive products. This shows the

importance of reducing tariff peaks and opening up market access to allow African exporters to benefit more from international trade. Scenarios that include ambitious agricultural liberalization are the most favourable for major African exporters. On the other hand, the inclusion of sensitive products could eliminate these increases and even lead to losses in terms of the volume of exports. It is quite clear that the elimination of the tariff peaks and an ambitious liberalization, obtained by means of the harmonizing formula, would have the most positive impact on Africa. The countries with the most competitive agricultural structures could obtain significant economic benefits from this type of liberalization scenario. Some countries could suffer from erosion in their tariff preferences and, in some cases, from opening up their own markets too quickly to international competition. Nonetheless, the losses brought about by the erosion in preferences seem relatively minor in most cases, especially in the context of the significant gains that other countries can reap using the same scenarios of ambitious liberalization. Finally, it seems advisable for countries whose national production may be challenged by a significant increase in imports to make use of the S&D treatment. Within the framework of the Hong Kong Ministerial Declaration, these countries can make use of the "special products" category that has been established to promote rural development.

Imports in most sectors would increase. Nevertheless, all the scenarios show a decrease for products that were initially the most highly protected in the markets of the developed countries. This is particularly true with the full liberalisation market access scenario which does not include any sensitive products that developed countries could exclude from the tariff liberalisation. This is logical to the extent that the real value added of these products improves and their production increases along with national export capacities. Once all things are equal for these products, the local production replaces the imports. Another explanation for this drop in imports is the increase in commodity prices of which makes national products more competitive than imports.

Table 5: Sensitive products and exports performances by sector (% Variation)

Sectors	S1 (No SP)		S2 (1%)		S3 (4%)		S4 (8%)		S5 (8%,4%)	
qxw	SSA	NorthAfrica	SSA	NorthAfrica	SSA	NorthAfrica	SSA	NorthAfrica	SSA	NorthAfrica
Paddy_rice	6.11	-56.3	7.98	-53.68	7.93	-54.13	7.64	-50.78	5.87	-53.29
Wheat	**110.3**	-2.19	95.17	0.06	94.92	-1.03	81.55	-0.8	93.46	-2.55
Cereal_grain	**-0.78**	-14.23	-6.08	-13.07	-4.97	-13.1	-4.69	-12.15	-5.17	-12.99
Vegetables	6.85	**46.24**	7	44.28	7.2	44.09	7.06	41.57	6.77	43.62
Oil_Seeds	**21.56**	**512.42**	11.57	439.07	11.42	438.05	4.92	377.65	12.12	377.2
Sugar_cane	-21.59	13.12	-20.52	13.75	-20.4	11.43	-19.2	11.69	-20.46	11.66
Plant_fiber	2.36	4.73	2.71	5.65	2.56	5.07	2.4	5.29	2.16	4.68
Crops	-3.51	7.89	-2.98	9.45	-2.77	8.84	-2.53	8.86	-3.21	7.86
Cattle	**38.27**	-14.55	33.43	-12.04	33.21	-12.21	28.6	-10.5	32.59	-12.7
Animal_Prod	-3.3	-2.13	-2.88	-1.32	-2.91	-1.55	-2.66	-1.11	-3.03	-1.81
Raw_Milk	-12.04	-6.41	-10.43	-3.98	-10.63	-4.51	-9.59	-3.26	-10.89	-5.1
Wool	-3.96	2.68	-1.51	3.55	-2.41	2.5	-1.05	3.27	-2.89	2.7
Forestry	-1.42	-1.29	-1.15	2.16	-1.11	2.68	-0.98	-0.35	-1.22	-0.83
Fishing	0.36	-0.43	0.6	0.02	0.67	-0.01	0.75	0.15	0.39	-0.17
Meat_Cattle	**1036.63**	**11931.57**	885.08	8642.89	896	8757.89	763.99	6453.44	889.06	8680.3
Meat_Prod	-13.45	-5.92	-11.11	-4.01	-11.62	-3.65	-10.74	-3.11	-12.13	-4.6
Dairy_Prod	8.78	-6.36	7.27	-5.17	9.32	-4.74	8.83	-4.17	8.29	-5.29
Proces_rice	-34.39	**10.09**	-31.61	9.95	-31.84	9.35	-30.69	10.1	-31.27	8.54
Sugar	**121.01**	-48.58	113.56	-46.28	113.41	-46.57	105.63	-44.66	112.99	-46.69
Food_Prod	-3.28	10.27	-2.79	10.74	-2.71	10.31	-2.44	9.84	-3.08	9.01
Bev_Tob	**10.53**	15.08	10.3	15.03	10.22	14.42	9.65	13.58	9.58	13.75
indus_Sector	-1.64	-1.69	-1.27	-0.85	-1.4	-0.91	-1.05	-0.47	-1.4	-1.09
Services_Sec	-0.99	-0.52	-0.74	0.09	-0.62	0	-0.6	0.33	-0.84	-0.14

Sources: Simulations done using GTAP 6.2.

Table 6: Sensitive products and imports performances by sector (% Variation)

Scenario	S1 (No SP)		S2 (1% SP)		S3 (4% SP)		S4 (8% SP)		S5 (8%, 4%)	
qiw	SSA	NorthAfrica	SSA	NorthAfrica	SSA	NorthAfrica	SSA	NorthAfrica	SSA	NorthAfrica
Paddy_rice	30.06	1034.84	28.03	1000.86	28.01	1000.42	23.76	680.57	25.64	700.13
Wheat	5.93	27.57	5.73	26.76	5.52	25.69	4.94	23.45	5.3	24.04
Cereal_grain	7.7	3.31	7.33	2.9	7.28	2.97	6.52	2.58	6.85	2.68
Vegetables	20.01	17.22	19.41	15.87	18.61	15.76	17.37	13.8	17.8	14.72
Oil_Seeds	13.47	18.43	12.26	14.62	12.3	14.76	11.01	11.46	12.02	11.94
Sugar_cane	25.81	64.33	24.39	62.42	23.95	58.47	22.08	53.77	23.53	55.13
Plant_fiber	12.19	3.35	11.56	2.54	11.55	2.66	10.47	2.13	11.08	2.71
Crops	19.52	7.88	18.73	6.36	18.61	6.3	16.56	5.14	17.29	6.11
Cattle	56.59	7.19	49.34	5.24	49.19	5.48	42.42	3.79	48.46	5.1
Animal_Prod	12.03	25.17	11.04	21.79	10.88	21.29	9.56	18.4	10.53	20.69
Raw_Milk	4.32	2.3	3.42	1	3.72	1.34	3.14	0.66	3.77	1.49
Wool	23.16	16.16	19.31	14.93	19.76	15.45	16.73	12.92	19.93	13.82
Forestry	5.46	0.21	4.69	0.4	4.72	1.29	4.09	0.15	4.74	0.17
Fishing	3.94	0.27	3.17	-0.01	3.2	0.01	2.59	-0.1	3.34	0.09
Meat_Cattle	44.74	93.32	41.1	73.74	41.3	73.65	37.53	57.92	38.68	58.79
Meat_Prod	55.21	155.39	51.59	140.39	50.95	140.54	47.42	127.81	48.34	129.43
Dairy_Prod	23.2	21.58	22.67	20.94	21.53	20.5	20.38	18.38	20.73	18.92
Proces_rice	14.32	18.71	13.44	14.89	13.5	15.1	12.71	12.12	12.68	14.31
Sugar	23.53	22.18	21.98	21.9	21.98	20.89	20.56	19.25	20.81	19.5
Food_Prod	22.92	17.34	21.41	16.95	21.42	16.98	20.02	15.56	20.29	15.84
Bev_Tob	22.48	42.13	21.11	39	21.02	39.04	19.78	36.08	19.91	36.28
indus_Sector	0.3	0.34	0.25	0.24	0.17	0.2	0.22	0.2	0.27	0.26
Services_Sec	0.88	0.15	0.73	0	0.66	0.05	0.62	-0.05	0.77	0.06

Sources: Simulations done using GTAP 6.2.

5. Conclusion

This study provides a quantitative estimate of the impact of sensitive products of multilateral trade reform on agricultural market access for Africa using the GTAP model. A full market access liberalisation scenario (without sensitive products) was considered and a various range of more conservative scenarios including different levels of sensitive products (1%, 4%, 8%) was simulated. Our model results indicate that benefits increase with the depth of reforms and without sensitive products that developed countries could exclude from the tariff liberalisation.

What are the implications of our findings for an African position in trade negotiations? This study underscores the vulnerability of African countries to partial trade reforms and the possible trade off between market access liberalisation and the inclusion of sensitive products. Indeed, our research has clearly indicated that the gains that African countries could benefit from the market access liberalisation could be offset if developed countries could benefit from sensitive products flexibilities. The issue of the sensitive products remains a central concern for African countries in the case of all the tiered formulas under current negotiations in the WTO. This article has clearly shown that the inclusion of sensitive products would restrict and even would anaesthetise the gains of African countries by maintaining essentially the tariff peaks.

It is therefore important for African countries to ensure that any partial trade reform incorporates adequate mechanisms to offset the losses to the continent and also gives them flexibility to deal with important development issues. In this regard, they must ensure that special and differential treatment provisions are firmly entrenched in any agreement under the Doha round of negotiations. The inclusion of special product is definitely a good step to give more policy space developing countries are looking for in this round. But, one may mention the importance of the two others pillars. Indeed, the phasing out of the export

subsidies and the elimination of all kind of anticompetitive domestic support measures (like those present in the amber or even blue boxes) should be eliminated as quicker as possible. This is one of the major prerequisite to give African countries the possibility to benefit from this multilateral round of negotiations.

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Regional Aggregation

New No.	region Code	Comprising Description	old regions

1 **EU27** European Union   Austria; Belgium; Denmark; Finland; France; Germany; United Kingdom; Greece; Ireland; Italy; Luxembourg; Netherlands; Portugal; Spain; Sweden; Bulgaria; Cyprus; Czech Republic; Hungary; Malta; Poland; Romania; Slovakia; Slovenia; Estonia; Latvia; Lithuania.

2 **RowDvped**   Japan; Singapore; Switzerland; Rest of EFTA.

3 **RowDving**   All other regions   Rest of Oceania; China; Hong Kong; Taiwan; Rest of East Asia; Cambodia; Viet Nam; Rest of Southeast Asia; Bangladesh; India; Sri Lanka; Rest of South Asia; Mexico; Rest of North America; Ecuador; Venezuela; Rest of South America; Central America; Rest of Free Trade Area of Ame; Rest of the Caribbean; Albania; Croatia; Russian Federation; Rest of Former Soviet Union; Turkey; Iran, Islamic Republic of; Rest of Middle East.

4 **Cairns_Dvped**   Korea; Canada.

5 **Cairns_Dving**   Australia; New Zealand; Indonesia; Malaysia; Philippines; Thailand; Pakistan; Bolivia; Colombia; Peru; Argentina; Brazil; Chile; Paraguay; Uruguay; Rest of Europe.

6 **USA**   United States of America.

7 **SSA**   Botswana; South Africa; Rest of South African Customs ; Malawi; Mauritius; Mozambique; Tanzania; Zambia; Zimbabwe; Rest of Southern African Devel; Madagascar; Nigeria; Senegal; Uganda; Rest of Sub-Saharan Africa.

8 **NorthAfrica**   Egypt; Morocco; Tunisia; Rest of North Africa.

Sectorial Aggregation

New No.	sector Code	Comprising Description	old sectors
1		Paddy_rice	Services and activities NES Paddy rice.
2		Wheat	Wheat.
3		Cereal_grain	Cereal grains nec.
4		Vegetables	Vegetables, fruit, nuts; Vegetable oils and fats.
5		Oil_Seeds	Oil seeds.
6		Sugar_cane	Sugar cane, sugar beet.
7		Plant_fiber	Plant-based fibers.
8		Crops	Crops nec.
9		Cattle	Cattle,sheep,goats,horses.
10		Animal_Prod	Animal products nec.
11		Raw_Milk	Raw milk.
12		Wool	Wool, silk-worm cocoons.
13		Forestry	Forestry.
14		Fishing	Fishing.
15		Meat_Cattle	Meat: cattle,sheep,goats,horse.
16		Meat_Prod	Meat products nec.
17		Dairy_Prod	Dairy products.
18		Proces_rice	Processed rice.
19		Sugar	Sugar.
20		Food_Prod	Food products nec.
21		Bev_Tob	Beverages and tobacco products.

22   indus_Sector   Coal; Oil; Gas; Minerals nec; Textiles; Wearing apparel; Leather products; Wood products; Paper products, publishing; Petroleum, coal products; Chemical,rubber,plastic prods; Mineral products nec; Ferrous metals; Metals nec; Metal products; Motor vehicles and parts; Transport equipment nec; Electronic equipment; Machinery and equipment nec; Manufactures nec.

23   Services_Sec   Electricity; Gas manufacture, distribution; Water; Construction; Trade; Transport nec; Sea transport; Air transport; Communication; Financial services nec; Insurance; Business services nec; Recreation and other services; PubAdmin/Defence/Health/Educat; Dwellings.