WPS7286

Policy Research Working Paper 7286

Policies, Prices, and Poverty

The Sugar, Vegetable Oil, and Flour Industries in Senegal

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WORLD BANK GROUP
Macroeconomics and Fiscal Management Global Practice Group
June 2015

Policy Research Working Paper 7286

Abstract

Like many countries in Sub-Saharan Africa, Senegal has struggled to develop its industrial sector in the face of import competition. For basic food products, there is an implicit trade-off between the objectives of maintaining employment and lowering the cost of living, both of which figure prominently in current government policy. Conflicting pressures have led to a rather inconsistent policy mix of high levels of protection with price ceilings. The products of the three industries examined here—sugar, vegetable oil, and flour—account for roughly 14 percent of the consumption basket of the poor, so distortions in their prices can have a significant effect on poverty reduction. This paper compares domestic prices in Senegal with world prices since 2000, and then explains the difference by examining the protection enjoyed by these industries, along with their market structure. The analysis finds that high protection and market power have resulted in domestic prices which were often two or three times the equivalent world price. Tightening of price ceilings and some liberalization have taken place recently, but consumers have continued to pay above world prices for sugar and edible oil in 2014. The paper estimates that if this differential were eliminated, the purchasing power of households around the poverty line would increase by 3 percent, 227,000 people would move above the poverty line, and the national poverty rate would drop by 1.9 percentage points. The cost to consumers far exceeds the total wage bill paid by these industries. Further liberalization of these industries is recommended, along with phasing out price controls and shifting government policy from protecting traditional enterprises to the promotion of new export-oriented ones.

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Policies, Prices, and Poverty:
The Sugar, Vegetable Oil, and Flour Industries in Senegal

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1. Introduction

In the 1960s and 1970s, Senegal, like many other developing countries, opted for import-substitution industrialization with high import barriers and pervasive government intervention in industry, including price controls. Following the economic crises of the 1980s, in the 1990s and 2000s Senegal switched to market liberalization, increasing competition and opening to international trade. Yet some important "sensitive" industries have retained special protection and the new government has implemented price controls in some of these same sectors. In this paper, we focus on the sugar, edible oil and flour sectors, which have recently been the focus of controversy with various interest groups seeking protection and government support.

The case for free trade and deregulation is that the "invisible hand" of competitive markets delivers goods that people want to consume at the lowest possible cost. Market prices, if undistorted, provide information and incentives to producers and consumers. For example, if demand increases, market price will rise, raising firm profits and inducing entry of new firms, driving the price back down. An increase in costs of production also raises price, as firms cut back production and/or pass on the costs to consumers, which is unpleasant for consumers but necessary for firms to stay in business and to encourage consumers to switch to alternatives. In these ways, price adjustments clear the market through the forces of supply and demand, without any government intervention. Government price ceilings intended to help consumers are often appealing politically, but attempts to set price below equilibrium levels prevents market adjustments and may entail shortages, often leading to black markets. Restriction of competition is in the interests of producers but harms consumers and society as a whole by limiting choice and competition while encouraging smuggling. Especially for a small economy like Senegal, where it may be difficult to support more than one or two domestic producers, openness to international trade is an important form of competition, disciplining the market power of domestic monopolies, while providing opportunities to raise incomes through exports of products in which Senegal has comparative advantage.

On the other side of the debate, there are persuasive arguments for government interventions in the economy in cases of infant industries, public health, natural monopolies, inequality and other market failures or imperfections. Some nascent industries may require assistance to become competitive. Moreover, markets in developing countries are likely to be subject to greater imperfections than in developed countries. On the flip side, however, government capabilities to address market failure are also more limited in developing countries, increasing the possibility that interventions will be misdirected and captured by special interests. Well-intentioned government protections often backfire, shielding inefficient firms at high cost to the rest of the economy, and reinforcing corruption and rent-seeking (Krueger 1990). More often than not, infant industries never become competitive and require indefinite protection. Overall, economic theory suggests that special protection to particular industries can be justified in some circumstances but must be as carefully targeted as possible to the market failures they are intended to address and limited in time, with the goal of fostering equity and growth rather than shielding special interest groups. Performance targets, such as level of exports, can be an important form of discipline, while governments

must also be prepared to apply sanctions. This is the lesson from East Asian industrial policies (Westphal 1990).

An additional difficult problem concerns the distributional consequences of price fluctuations of basic necessities. Volatile world prices pose a challenge to any country, but particularly small developing countries like Senegal in which these products are important for both local production and consumption. Rising prices are a boon to producers but entail hardships to low-income consumers who spend a high share of their income on these essential consumer items. Conversely, falling prices benefit consumers but can lead to layoffs and even bankruptcies for local producers. Senegal faces two separate policy issues relating to pricing, which should not be confused but are not always easy to separate in practice: 1) whether to raise or lower domestic producer and consumer prices relative to world levels and 2) whether to smooth domestic price fluctuations. The issue is further muddied by the fact that developed country policies are often highly protectionist and have major impacts on world market prices. This last point does not alter the fact that Senegal is a price taker and cannot do anything about larger players' policies. Moreover, just because the US and the EU, among others, protect domestic interest groups does not imply that Senegal should emulate them.

This paper analyzes the performance and pricing in the sugar, vegetable oil and wheat-flour-bread industries, assesses current policies and make recommendations for policy reforms that aim to serve the general interest of Senegalese society.

2. Methodology

As in our previous work (Golub and Mbaye 2002), we combine qualitative and quantitative approaches. The quantitative analysis examines domestic and international prices and trends in production, consumption, exports (if any) and imports. The qualitative analysis discusses the history and recent performance of these sectors in Senegal. We focus in particular on the trade and other policies applied to these sectors. We attempt to discern how policies are actually practiced as well as their statutory descriptions.

We rely on three types of information:

1. Press reporting and previous studies on the industries in question,
2. Statistical data on prices, production and trade volumes, costs of production etc.,
3. Interviews with key actors in the industries: officials, entrepreneurs, retailers, etc.

3. Senegal in the World Market

As a very small developing country, Senegal is a price taker and is subject to trends in the world market in each of the three industries under study. Even in peanut oil, where it is one of the world's largest exporters, Senegal currently accounts for a small share of world output, though it has contributed more than one-third of total exports and could do so again. Commodity prices are generally highly volatile, and sugar, wheat and vegetable oils are no exceptions. Volatility is driven by shifts in supplies and demands in the major producing and

consuming countries, including changes in economic policies, in a context of relatively inelastic short-run supplies and demands. Figure 1 displays world prices for wheat and sugar (panel a) and three kinds of vegetable oils relevant for Senegal (panel b).

Sugar. Sugar is neither particularly healthy for consumers nor generally considered a strategic industry that generates dynamic technological spillovers. However, it is an important part of the local consumption basket of households rich and poor. It is also appreciated by policy makers as a rural-based industry which can help less developed regions. Developing countries have become the largest producers and exporters of sugar, led by Brazil, which, over the past two decades, has invested heavily to expand production and as of the 2012/2013 fiscal year, was the world's largest producer (38.6 Mt) and exporter (27.7 Mt) of sugar. India (27.4 Mt) and Thailand (9.9Mt) are ranked second and fifth, respectively, in sugar production, while Thailand (8 Mt) is ranked second in sugar exports (OECD-FAO 2011), USDA 2013a). Developed countries, particularly the US and EU, have long maintained high levels of protection of domestic sugar producers due to strong producer interest groups, with both US and EU prices at 50-100 percent above world levels in recent years, following sugar market reforms in the EU in 2006 which approximately halved the level of protection (France AgriMer 2010). Almost no economists support the special protections accorded to sugar in developed countries—in fact sugar protection is often the classic example in textbooks of the foolishness of protectionism. It is also worth noting that the support that developed countries provide to their sugar industries does not subsidize exports but rather supports domestic prices and limit imports. The impact of these measures is to reduce world trade and lower world prices. Much of traded sugar has traditionally been managed through bi- or multilateral agreements with administered prices well above world levels, resulting in the free market being very thin and trading at prices often below costs of production. In recent years, however, trade between developing countries has increased, with Brazil becoming the largest exporter by far. About one third of world production is now traded, about double the ratio for wheat, with developing countries accounting for more than half of global sugar imports as well as the bulk of exports. Senegal produces about half of its domestic consumption for household and industrial use and imports the other half, as discussed further below.

Wheat flour. Wheat is the world's most actively traded grain and is not particularly restricted. About one-sixth of global production is traded. Most varieties of wheat are best produced in countries with temperate climates. The U.S., the EU, Canada, Australia, and Argentina have been the most important wheat exporters but Central Asia and Eastern Europe, particularly Kazakhstan, Russia, and Ukraine, are rising in importance (USDA 2013b). Although Senegal produces no wheat, one of the legacies of French influence is a preference for French-style baguette, with about 3 million consumed per day. Senegal imports most of its wheat from France. Wheat is used primarily for flour milling which in turn is used mostly for producing bread. Wheat accounts for about 80% of the cost of flour. Wheat is much more actively traded than flour, with the latter accounting for less than 10 percent of trade, due to both ease of shipping for wheat and greater import protection of flour (FAO 2009).

Vegetable Oils. Overall, in the world oilseed market, approximately 160 Mt of oil was produced in the 2012-2013 fiscal year of which 65.1Mt or 41 percent were traded

(USDA 2013a). A variety of vegetable oils are available in the world market, with different characteristics (CME 2010). As discussed below, groundnuts have been Senegal's predominant cash crop since the colonial era and Senegal is a major producer of peanut oil. Peanut oil is relatively expensive, however, so most of the peanut oil produced in Senegal is exported with domestic consumption dominated by cheaper imported palm and, until recently, soybean oils. Argentina, Brazil, and the E.U. were the world's largest exporters of soybean oil in 2012-13, exporting 3.8 Mt, 1.5 Mt, and 0.8 Mt, respectively. Indonesia and Malaysia are the largest exporters of palm oil at 20.1 Mt and 17.2 Mt respectively (USDA 2013c). Although South-East Asian countries, particularly Malaysia and Indonesia, are the most competitive producers of palm oil, Senegal imports mostly from Côte d'Ivoire, given that Ivoirian imports are exempt from customs duties.

4. Market Structure, Policies, and Prices in the Three Industries

4.1. Overview of Senegalese Industrial Development and Trade Policies

As in many African countries, Senegal adopted Import Substitution Industrialization Policies (ISI) in the 1960s and 1970s, involving high trade barriers and substantial government involvement in industry. Following the economic crisis of the 1980s, Senegal, again like most other countries in Africa, turned to structural adjustment policies, involving privatization, deregulation and liberalization, culminating in the 1994 devaluation and related structural measures. Market competition was established as the norm in Senegal under law 94-63 of August 22, 1994. With the structural adjustment programs and the resulting reductions in import tariffs and quotas, Senegal was rated as one of the developing countries making the most progress in trade liberalization (Hinkle and Herrou Aragon, 2002). However, important safeguard clauses were introduced by decree 95-77 of January 20, 1995, providing substantial discretion to the government to control prices for "sensitive" products. In recent years, political conflicts and social unrest (strikes, hoarding of stocks, shortages—whether contrived or not-—and factory shutdowns) have opposed traders, domestic producers, and the government in price setting.

At the same time, regional integration progressed within the West African Economic and Monetary Union (WAEMU), involving a single currency, the CFA franc, and harmonization of trade and other tax policies.[1] These two trends came together in 2000 with the creation of the Common External Tariff (*Tarif Exterieur Commun*, or TEC). The TEC involved a substantial streamlining and reduction of trade barriers. The TEC dramatically reduced the infamous complexity and lack of transparency of Senegal's tariff structure by consolidating tariffs into 4 categories, with the top import duty rate, applicable to consumer goods, of 20 percent. The other major WAEMU tax on imports is the Value Added Tax

[1] Importantly, WAEMU is limited to the Francophone countries of West Africa (Senegal, Cote D'Ivoire, Niger, Mali, Burkina Faso, Benin and Togo) along with Lusophone Guinea Bissau, but does not include neighboring Anglophone countries, particularly The Gambia, thus maintaining substantial regional disparities in policies despite harmonization within WAEMU. Senegal is also a member of the Economic Community of West African States (ECOWAS), as is The Gambia, but ECOWAS has made little progress in integrating trade policies in practice (Golub and Mbaye 2009).

(VAT). WAEMU sets the range for the VAT at 15-20 percent, with countries having discretion within that range. The VAT is currently set at 18 percent on all goods in Senegal, although some exceptions can be granted. Other smaller fees, applicable to all imports, include the statistical levy, ECOWAS (Economic Community of West African States) and WAEMU fees, and the fee for the port handlers association COSEC. These add up to about 3 percent. To the extent that it applies equally to imports and domestic goods, VAT does not provide protection to producers,[2] but raises prices to consumers.

WAEMU provides for two types of special tariffs for industries under duress, consistent with WTO-permitted "safeguards" or "escape clause" provisions, the Special Import Tax (*Taxe Conjoncturelle à l'Importation*, or TCI) and the Degressive Protection Tax (*Taxe Dégressive de Protection*, or TDP), with the TCI more widely used. Normally the TCI is set at 10 percent, as it is for flour when the price falls below the reference price. A special reference price mechanism is applied to sugar, as described below.

If no TCI or TDP taxes apply, the maximum rate of import taxation, taking into consideration customs duties, VAT and other taxes, is about 45 percent. Excluding VAT, the maximum nominal rate of protection to producers is a relatively moderate 23 percent. The effective rate of protection to processing can be considerably higher, however, to the extent that inputs enter with lower customs duties or are exempt from VAT.

In March 2013, the 15 ECOWAS Member States adopted a new tariff regime for West Africa that will supersede the WAEMU TEC. Under this regime, a new maximum rate of 35 percent can be applied to goods that "contribute to the promotion of the regions' economic development." Actual implementation is still pending on negotiations on sensitive products like sugar, pharmaceuticals, as well as a request from Cabo Verde for special treatment. The ECOWAS maximum import duty of 35 percent is considerably above WAEMU's 20 percent, and is to be applied to flour and palm oil, among others. When implemented, the new TEC will result in a considerable increase in Senegalese tariffs.

4.2. Sugar

Market Structure. Since 1972, sugar production in Senegal has been controlled by the *Compagnie Sucrière Sénégalaise* (CSS) on an area of 9,600 hectares near Richard Toll in the Senegal River valley. Annual production reached about one million tons of sugar cane in 2013, or 100,000 tons refined. In the import-substitution era, sugar, like other domestic manufacturing, benefited from high levels of protection. Until 2009, CSS had the sole right to import sugar for sale to consumers, although smuggling from The Gambia and Mauritania has been a persistent phenomenon in sugar as in other protected sectors (Boone 1989, Golub and Mbaye 2009). The sugar industry is one of the sectors that maintained continued high levels of import protection through the structural adjustment and liberalization eras. As noted above, sugar is protected by a special TCI safeguard duty such that duties and taxes are levied on a reference price rather than the actual market price, if the import price is below the

[2] In the case of sugar, however, the VAT is applied to the reference price rather than the import price, so it does contribute to additional protection of the domestic producer.

reference price. Since 1999, the reference price has been at 325,056 CFA francs per ton, a figure well above world prices during most of the 1999-2013 period. This mechanism provides an endogenous level of protection, which has often been very high, as detailed below.

The CSS employs around 6,000 workers, with an approximate payroll of CFAF 16 billion in 2013, making it the second largest employer in Senegal after the government. Many of these are part-time workers hired for harvesting. CSS dominates the economy in the northern city of Richard Toll, on the banks of the Senegal River, from which it draws the water with which it irrigates its sugar crop. The CSS is a vertically integrated firm growing, cutting, refining, packaging and transporting sugar cane for consumption throughout the country. Cutting is done manually rather than mechanized, substantially boosting employment, reportedly as part of an agreement with the government. Both the growing of sugar cane and the operation of the CSS plant are quite impressive, comparing favorably to Brazil's yields, according to the CSS. However, unlike Brazil whose crop is rain-fed, the CSS incurs high costs of irrigation. Around 2010, at a time of high world prices of sugar, the CSS committed to expansion of its production raising its cultivated land from 9,600 to 11,700 ha, aiming to raise refined output from 100,000 to 150,000 tons, although it is not clear how a 20 percent increase in area leads to a 50 percent increase in production, to satisfy Senegal's entire domestic demand, while at the same time lowering average costs and prices to consumers. Up to 2014, this had not occurred due to problems of access to land.

Importantly, CSS is also a major importer of sugar. CSS describes itself as responsible for assuring domestic availability of sugar, and imports accordingly to fill the gap between its production and domestic demand. Until 2009, CSS had monopsony power in importing sugar legally for consumer use, with industrial users allowed to import for their own use and exempt from the TCI variable levy. Smuggling from The Gambia and Mauritania provided some competition despite harsh crackdowns that have landed several large informal traders in jail along with huge fines (Golub and Mbaye 2009; Benjamin and Mbaye 2012, Chapter 4). In 2009, private traders were permitted to import limited quantities of sugar and the volume of imports has risen sharply since then. Just a few large traders, represented by the UNACOIS association,[3] seem to be involved. Since then, an open conflict between CSS and the UNACOIS has broken out. The UNACOIS traders view the CSS monopoly as completely unjustified and a violation of the 1994 liberalization of markets. The UNACOIS also points out that CSS is unable to produce enough to satisfy domestic production despite all the protection that is accorded. Under these circumstances, they say, the CSS should not be importing at all, let alone have monopsony status in imports. CSS management retorts that UNACOIS traders are unreliable and opportunistic, only bringing in sugar when world prices are lower than domestic prices, and often simultaneously engaging in smuggling sugar in and out of the country, requiring CSS to meet any resulting surpluses and shortages in domestic availability.

Policies. As a finished product, sugar imports are subject to the highest applicable TEC tariff rate of 20 percent, a VAT rate of 18 percent and the other small taxes and fees

[3] Union Nationale des Industriels et commerçants du Sénégal, an association of the most important informal sector actors, operating primarily in commerce and other services such as transportation.

noted above, cumulating to 44.68 percent (see Appendix 1). In addition, sugar benefits from a special TCI variable levy (*péréquation),* with a reference price (*prix de déclenchement*) used to establish duties assessed rather than import price. The computation of the reference price is discussed below. If the import price is below the reference price, all duties levied, including VAT, are assessed on the reference price. Moreover, additional duties are levied equal to the difference between the import price and the reference price, so that the TCI acts as a variable levy (*valeur mercurial*).

Let P_w be the world price, $\hat{P}$ be the reference price, Q the volume of imports and t the overall WAEMU statutory import tax rate on final products (equal to 44.68 percent). Taxes levied T are equal to

$$(1)\quad T = \left(\hat{P} - P_w\right)Q + Qt$$

Dividing T by $P_w Q$, i.e., the value of imports at world prices, yields the *ex post* statutory tax rate $\hat{t}$ under the perequation, which can be shown to collapse to:

$$(2)\quad \hat{t} = \frac{\hat{P}}{P_w}(1 + t) - 1$$

That is, the tax rate depends on the ratio of the reference price to the world price, along with the normal tax rate, providing endogenous protection. If the world price of sugar is well below the reference price, extremely high rates of import protection can apply. Appendix 1 illustrates a case where the CIF import price of sugar is 250,000 CFAF per ton, compared to the reference price of 325,056 CFAF per ton. The overall nominal level of protection is above 80 percent in this case. Thus, sugar is subject to endogenous and potentially very high protection.

In practice, actual protection has been considerably lower than the *ex post* statutory rate implied by equation (2), until recently. Table 1 computes the actual *ex post* tax rate versus statutory tax rates based on equation (2) on sugar using unpublished customs data on import values, weights and duties collected. The first four columns of Table 1 show the ratio of taxes collected (adding customs duties, VAT, and other levies) to reported import values. These rates are surprisingly low, with the overall rate very close to the ordinary WAEMU top bracket of 45 percent in most years, even though the reference price is far above the world price (column 5). Partial exceptions occur in 2003-2004, with overall tax rates rising to close to 60 percent, but this rate is still far too low to be consistent with equation (2). Effective tax rates based on world prices rather than customs values are higher, however, because customs values of imports are apparently adjusted upward, although it is not clear exactly how customs is doing this. The customs data enable computation of an implicit "unit value of imports", by dividing value of imports by weight (column 6). The resulting customs unit value of imports for sugar are generally well above world prices (about double until 2010) yet below the reference price, as can be inferred from the fifth and sixth columns of Table 1.

Considering the gap between customs unit values and world prices enables computation of the "adjusted actual tax rate" that is obtained by dividing taxes paid by

imports valued at world prices rather than the customs value of imports. The results are shown in column 7. Since world prices are about half of customs unit values until 2010, the adjusted tax rate rises to about 80-100 percent over 2000-2009. Yet these high *de facto* tax rates are still far below the rates called for under the reference pricing scheme described above, as shown in the final column of Table 1, which is based on equation (2). Instead of the 100 percent or so actual tax rates, the reference price formula (2) calls for tax rates from 200 to close to 400 percent through 2009. In 2010-2013, however, both the adjusted *ex post* tax rate and the statutory tax rate from equation (2) drop sharply. This reflects the sharp increase in world prices, discussed below, which largely eliminated the gap between the reference price and world prices. The gap between actual and statutory tax rates has also dropped precipitously. In fact, in 2012 both of these rates are computed to be about 55 percent, only slightly higher than the normal top 45 percent rate. In short, statutory protection of sugar in Senegal was extraordinarily high until about 2010; now it is merely quite high. Actual protection measured by import tax receipts was also very high but far less than statutory protection. Since 2009, actual protection has actually dropped even more than statutory protection and the gap between them has narrowed sharply, due to rising world prices and stabilizing and even declining domestic prices.

The fact that industrial imports are exempt from the reference price mechanism and thus taxed at the normal rate of 45 percent could explain part of the puzzle. However, non-CSS industrial imports are a relatively small proportion of total imports (about 20,000 tons out of total imports of 143,000 tons in 2011). It seems, however, that CSS imports are classified as industrial and are therefore exempt from the tariff surcharges associated with the reference price mechanism.[4] A government memo puts CSS imports in 2011 at 60,000 tons, or half of imports for consumer use. Thus, CSS apparently pays import duties at well below the rate implied by the reference price, when the reference price is below the world price. When world prices approach reference prices, the implicit subsidy to CSS imports associated with exemption from the reference price disappears.

The reference price was established in September 1999 at 325,056 CFAF per ton, with some variations depending on the type of sugar, and has remained at that level since then.[5] WAEMU was supposed to adjust this reference price periodically but until now has not done so. This price was in principle set by WAEMU but undoubtedly influenced by national government request, and justified by the above-mentioned distortions in the world market due to EU and US policies in support of domestic producers, although the effects of these distortions subsequently have diminished, as noted above. It was based on an un-weighted average of three prices in 1999: 1) the US support price, 2) the EU support price, and 3) the world market price plus estimated freight costs. This method of calculation has been criticized given that the US and EU prices are aimed at their domestic markets, and there is no clear rationale for using domestic US and EU prices for setting prices in Senegal. Since the US and EU had highly protectionist policies at that time (and still do to a lesser

[4] « Note sur le Sucre », undated government memorandum.

[5] The reference price is set according to WAEMU document Règlement No 06/99/CM/UEMOA "Portant Adoption du Mécanisme de la Taxe Conjoncturelle à L'Importation au Sein de l'UEMOA". See Annexe, p.5. This annex also provides for an alternative formula consisting of a weighted average of world price (30 percent weight) and domestic average cost (70 percent weight).

extent), the Senegalese reference price was very high relative to world market prices when it was established and, as discussed in the following section, this reference price remained very high until about 2010, when the gap narrowed considerably. WAEMU is now considering a revision of the reference price according to the alternative formula, which is a weighted average of the world price (30 percent weight) and the CSS average cost (70 percent weight).[6] Clearly such a formula could be highly favorable to the CSS to the extent that the US and EU have scaled back their protection. Moreover, it will be difficult for the Senegalese government to independently measure CSS's costs and it will likely have to rely on CSS's own estimates. Such a system also provides little incentive for CSS to control costs and raise efficiency. If this new pricing mechanism is implemented, sugar protection could again rise sharply.

The government has vacillated in the face of conflicting pressures in the sugar sector. On the consumption side, in late 2012 the new government of Macky Sall imposed a price ceiling of 590 CFAF per kilo, considerably bringing down the price of sugar to consumers. In May 2013, CSS revealed that it had accumulated 46,000 tons of unsold sugar—equivalent to about a third of annual consumption—and threatened to shut down its production and lay off workers. The government responded with a ban on further UNACOIS imports until CSS's inventories were sold off, including blocking a 15,000 ton shipment of sugar at the port.[7] Complaints from UNACOIS led the government to back off, releasing that shipment, with the CSS renewing its threats to shut down production. In the midst of this standoff, the government opted to lower the value added tax on sugar, officially by adjusting the base on which the tax is levied rather than the reference price or the tax rate itself so as to remain consistent *de jure* with WAEMU stipulations on the VAT rate. The new effective VAT rate on sugar is about 6 percent.

Prices. Figure 2 compares Senegal's domestic prices to world prices for sugar, adjusted for trade costs and VAT.[8] Figure 2 shows that Senegalese retail prices for sugar were far above world prices throughout 2000-2013, although with considerable variations and a declining trend since 2007. Between 2000 and 2011 domestic prices were between 3-5 times world prices, a huge implicit subsidy from consumers to producers. In 2012 the ratio of domestic prices to world prices dropped to a little above 2, due to a further increase in world prices, which have been on an upward trend since 2007 in CFAF terms, and a decline in domestic prices, perhaps due to liberalization of imports and, in 2013, a new price ceiling. World prices were also far below the reference price until recently. The increase in world prices since 2009 narrowed the differential, but they have since fallen back to 2009 levels. The relationship between domestic and international price differentials and Senegal's policies is discussed further in section 5.

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[6] See previous footnote.

[7] «Etat du Sénégal et UNACOIS/ Jappo : la guerre est ouverte autour du sucre» http://www.pressafrik.com/Etat-du-Senegal-et-UNACOIS-Jappo-la-guerre-est-ouverte-autour-du-sucre_a105505.html, June 13, 2013.

[8] Domestic retail prices are obtained from the Senegalese statistical agency ANSD. World prices are from Index Mundi and adjusted by trade costs, wholesale-retail margin and domestic value added taxes. See Appendix 2 for a discussion of the adjustments made to world prices to make them comparable to domestic retail prices.

Production and Trade. Figure 3 shows production and recorded imports of sugar in Senegal (there are no exports) over 2000-2012.[9] Production has held steady at about 100,000 tons of year, about 85 percent of which is in the cheaper crystalized form rather than in cubes. Imports, as recorded by Senegalese statistics, have trended upwards and increased sharply since 2008, suggesting rising consumption and possibly declining smuggling, but the domestic price still greatly exceeded the world price, although to a lesser extent than a few years earlier. However, consumption data from household surveys do not show such a substantial increase in per capita consumption since 2008. Some of these imports may reflect a substitution of legal imports for illegal smuggling as the price differential has narrowed. CSS management implausibly claims that sugar is now being smuggled out of Senegal into neighboring countries, but CSS also revealed that in May 2013 it had a large stock of unsold sugar. So what is the reason for these additional imports contributing to excess supply? The rise in sugar imports coincides with the liberalization of the CSS monopsony, with the CSS and the UNACOIS traders now competing in the import market, and together importing more than the market will bear. Such an outcome of liberalization is not surprising given the very high price differentials between domestic and world markets seen in Figure 2.

4.3. Vegetable oil.[10]

Market structure. Senegal produces and exports peanut oil, while importing cheaper palm and soybean oil for domestic consumption. Peanuts have been Senegal's predominant cash crop since the colonial era, and Senegal is a major producer of groundnut oil. As in other African economies, in the first decades after independence, control of the cash crop switched from the colonial power to a government-operated marketing board. In Senegal, the *Office National de Coopération et d'Assistance au Développement (*ONCAD*)* oversaw all stages of production and distribution in the first decades after independence, including providing inputs and credit to smallholder farmers, then purchasing, transporting, processing and marketing the output. Until the middle of the 1970s, groundnuts were the mainstay of the Senegalese economy: the sector's contribution to GDP was about 20 percent, and it accounted for more than 70 percent of employment and was by far the most important export commodity. Towards the end of the 1970s, however, a steady decline set in, in part due to declining rainfall and desertification. Poor management of the sector also played a major role (Golub and Mbaye 2002). Declining performance and the need for more investment led the government to gradually disengage from the sector, culminating in the privatization of SONACOS in 2005. Unfortunately, the reforms failed to improve the sector's performance: low yields, distribution problems, poor access to credit and other basic services to producers, industrial losses, etc. Combined with increased informal processing, this led to a dramatic decrease in exports.

Although the market was partially liberalized in the 1990s, until 2005 the government retained a near monopoly on the purchase and processing of groundnuts through the

[9] Production data are from the Senegalese statistical agency ANSD. Trade data is from Senegalese customs.
[10] This section draws heavily on World Bank, « Etude diagnostique de la chaine de valeurs arachide au Sénégal : Propositions de réformes », 2015.

parastatal SONACOS, which produced peanut oil and oilcake, primarily for export. The SONACOS was heavily involved in the cultivation of the crop, extending credit, distributing seed and fertilizer to the peasants, and through its affiliate SONAGRAINES which collected the crop for the SONACOS factories. Farmers increasingly diverted their products to the parallel market. The SONACOS factories had old equipment and suffered from excess capacity (Golub and Mbaye 2002). The World Bank recommended that it be split up and sold to a couple of investors in order to promote competition and avoid the "too big to fail" syndrome. However, in 2005, after many delays, the SONACOS was privatized with the French firm ADVENS taking over all its assets and creating SUNEOR. The state retained a minority share (15% in 2014), and 5% has been set aside for employees.

SUNEOR was engaged in two separate product lines involving vegetable oils. First, it processed peanuts into peanut oil and a byproduct, oilcake for animal feed, both of which are exported, although to different markets. Secondly, it imported unrefined vegetable oils, particularly soy oil, which it refined and sold on the domestic market, given that these oils were much cheaper than peanut oil. SUNEOR had a refining capacity of 100,000 tons for imported vegetable oil. SUNEOR also produced small amounts of other products such as vinegar and margarine.

A number of other firms operate in the vegetable oil market. On the side of peanuts and peanut oil, NOVASEN was established before SONACOS was privatized. NOVASEN initially specialized in edible peanuts, but has been unable to overcome the challenges facing this potentially lucrative export, particularly satisfying demanding European food safety norms. The company has shifted to production of peanut oil and refining imported oil. It has recently been split up into a peanut oil pressing arm, COPEOL, and an imported oil refining operation, OLEOSEN. These are jointly owned by a French alliance made up of Castel and Sofiproteol. CAIT produces groundnut oil for the small local market of higher-income consumers. Imports of vegetable oils have been rising rapidly, with SUNEOR facing several competitors on the import side, of which the largest is OLEOSEN. SENARH also imports vegetable oil but does not refine it, and has recently been taken over by OLEOSEN.

Côte d'Ivoire has made major investments in palm oil production, with the goal of supplying the regional market. The West Africa Commodities company in Senegal imports refined oil from Côte d'Ivoire. SIEGEM is another smaller importer. Some traders affiliated with UNACOIS are also involved in importing Ivoirian oil. Despite these competitors, SUNEOR retained a dominant position in both production of crude peanut oil and refining of imported vegetable oils, controlling approximately 2/3 of the market. SUNEOR has indicated that refining imported vegetable oil is no longer profitable and that it may shut down its soya oil refining operations and focus on peanut oil.

Policies. Policies towards production and export of peanuts and peanut oil must be distinguished from policies towards imports of other oils. Government policies are subject to similar conflicting pressures from producers and consumers, as in sugar, and result in similarly convoluted policies.

The organization of the peanut value chain in Senegal is of critical importance for the economy and poverty alleviation but has proven very difficult to solve. As in other cash crop systems there is a fundamental tradeoff between competition and coordination, with regard to pricing, research and extension, provision of credit and inputs, collection of the crop and payment to farmers, as described by Poulton et al (2004) for the cotton industry. Smallholder farming requires organization and assistance from either large private firms or the state for input provision and quality control that is difficult to reconcile with decentralized competition. Under the previous state-operated marketing boards inputs were typically provided on credit, with the loans being repaid through a deduction from the purchase price at the time of collection. More recently, governments have tended to subsidize input purchases by producers.

Clearly, opportunistic behavior by farmers as well as input providers is a potential serious threat to the viability of such an integrated system. Until 2005, as noted previously, the parastatal SONACOS played a dominant role. The quality of SONACOS's performance was controversial. Some claim that politicization and lack of efficiency characterized the SONACOS but former officers disagree. It was hoped that privatization would improve the situation. In principle a large multinational firm with expertise in peanut cultivation and distribution could do this effectively although regulation would still be necessary in the absence of competition. Such a firm has an incentive to assist farmers and pay a favorable price to obtain a high-quality crop, particularly if farmers can sell on the parallel market. However, the problems of disorganization and opportunistic behavior have continued, with SUNEOR relying on government support to producers and focusing more on importing and refining imported oils. In 2014, the peanut industry was again in crisis.

One of the major problems confronting SUNEOR is obtaining an adequate supply of peanuts to crush into oil. Prices are set through negotiations of the stakeholders before the season, in principle, linked to world prices, but in practice governments have been unwilling to accept a fall. Thus, in some years producer prices will exceed world prices and in some years will fall below. If market prices are set below world prices or rise after producer prices have been set, farmers and traders have a short-run incentive to sell on the parallel market rather than deliver to oil processors. In anticipation of this possibility of opportunistic behavior, oil processors or intermediaries may be reluctant to provide credit and inputs to farmers. Binding contracts and enforcement of agreements are crucial to limit the collective failure of the system. In 2011, the government liberalized the marketing and purchase of peanuts from farmers, thus providing more opportunities for competition and options for farmers but reducing the scope for sector-wide coordination. Chinese traders became particularly active and purchased at considerably higher prices than the oil processors. However, this foreign demand threatened the viability of local processors and does not appear to be a reliable long-term alternative.

A related longstanding problem involves provision of credit and debt repayment. In the current system, private intermediaries (*Operateurs Privés Stockeurs*, or OPS) have been at the center of the difficulties. The OPS borrow from local banks, buy the peanuts from the peasants and resell to the oil producers. But the OPS have frequently either defaulted on their obligations to peasants (the "*bons impayés*") or paid low prices while sometimes failing

to deliver the crop to industrialists. These conflicts involving financing translate into inadequate supply of inputs to farmers, resulting in lower yields, and the cycle of underperformance continues into the next season.[11]

Given the intractable difficulties of the peanut sector, SUNEOR had increasingly relied on the other side of its business, importing and refining soybean oil. Until recently, SUNEOR maintained a *de facto* monopsony on legal imports of unrefined vegetable oil given its dominant market share and protections accorded by the government. SUNEOR faces competition from imported palm oil from Côte d'Ivoire, a member of WAEMU, and South-East Asia. Palm oil is generally less expensive than soybean oil on world markets (see Figure 1b). Refined vegetable oils are subject to the maximum customs duty rate of 20 percent, but given its origination in WAEMU, Ivoirian palm oil should enter duty free, although still subject to VAT. Unrefined soybean oil enters at a lower customs duty rate of 10 percent.

The Senegalese government implemented a succession of special import taxes between 2002 and 2008 to protect SONACOS/SUNEOR against competing imports of refined vegetable oils, particularly palm oil:

- 2002-2005. TCI of 10 percent.
- 2002-2008. Specific tax of 12 percent.
- 2006-2007. Safeguard tax of 25 percent.

In 2010, the government instituted an import ban on oil containing more than 30 percent saturated fats, aiming at palm oil from Côte d'Ivoire and Asia, under the guise that these oils pose health risks due to high saturated fats. Ivoirian exporters were also accused of transshipping Asian palm oil. UNACOIS traders mounted a counter-campaign, sponsoring a public forum with two nutritional experts who debunked the claims that palm oil adversely affects consumers' health.[12] The WAEMU commission ruled that this measure contravened the regional custom union, which forced the Senegalese government to retract the measure in late 2010.

Table 2 shows the actual and effective tax rates on imports of palm oil, similar to Table 1, taking into consideration any discrepancies between customs pricing, as measured by import unit values, and world prices, similarly to the case of sugar above. The implicit tax rate calculated with the reported customs values of imported palm oil is considerably lower than for sugar, and customs unit values are much closer to world prices than for sugar, although still somewhat variable and always above world price. An additional noteworthy aspect here as for the other goods is the variation over time in applied tax rates for both customs duties and VAT rates. Actual *ex post* tax rates (tax revenues divided by customs values) increase sharply in 2003-2006 and drop in 2007, which does not fully correspond to legislated changes in tax rates. This suggests substantial discretionary action by the government in application of tax rates and/or values. Adjusting tax rates to reflect the discrepancy between customs unit values and world prices, as described for sugar above, pushes up the tax rates, although to a lesser extent than for sugar. The adjusted tax rate using

[11] See "Quand L'Arachide Sénégalaise Retrouve un Second Souffle," *Leral.net*, November 25, 2012.
[12] "La Guerre des Huiles Bat Son Plein," *Jeune Afrique*, January 5, 2010

imports valued at world prices is more variable than the tax rate implicit in customs values. The customs unit values relative to world prices rose considerably in 2003-2006, pushing up the adjusted tax rate further, and also suggesting that customs may have reinforced import protection by raising customs values above invoice prices. The final column shows the statutory tax rates for refined oils, but unrefined soybean oil are taxed at lower rates and palm oil from Côte d'Ivoire is exempt from customs duties.

Prices.[13] Figure 4 compares the evolution of domestic producer prices for peanuts to world prices of peanuts and peanut oil, from the 1990/91 to the 2012/13 growing seasons, setting each of the series equal to 100 in 1990/91 to compare trends over time. It can be seen that world prices of peanuts in unprocessed form have increased relative to world peanut oil prices, confirming the advantages of exporting edibles if quality control measures can be instituted (Mbaye 2005). The Senegalese producer price for peanuts has until recently shown the same trend of world peanut oil, although with less volatility.

Figure 5 compares Senegalese domestic retail prices of soybean oil to the world price of palm oil adjusted for trade costs and VAT over 2000-2014. No reliable Senegalese retail price data are available for refined palm oil, but the ratio of the domestic price of soybean oil to the world price of palm oil provides a suitable measure of the cost to consumers of protection since world palm oil prices are generally somewhat below world soybean oil prices, and consumers have demonstrated a revealed preference for cheaper palm oil when protection is lowered. Domestic soybean oil prices also consistently exceed world soybean prices although by a lesser margin than for world palm oil prices.

Production and Trade. Production of peanut oil varies due to fluctuations in the size of the peanut crop, as well as the magnitude of peanuts sold in unprocessed form. The latter increased sharply in 2012 as Chinese buyers entered the market following the 2011 liberalization and purchased at considerably higher prices than SUNEOR was offering, with peanut oil production declining accordingly. Figure 6 shows that until 2012, exports of peanut oil have been much larger than exports of peanuts in raw form. Unprocessed peanut sales increased sharply in 2011 and 2012, while peanut oil exports collapsed in 2012, coinciding with the rising world prices of peanuts noted above, the liberalization of the market, and the entry of new purchasers, mainly Chinese traders.

Imports of palm and soy oils are together much larger than production and exports of peanut oil (Figure 7), despite peanut oil being one of Senegal's main exports. Figure 8 shows that over 2000-2010, soybean oil imports (mostly unrefined) substantially exceeded palm oil imports (refined), reflecting the high rates of protection provided to SUNEOR for its soy oil refining over this period. As import controls were relaxed, palm oil imports soared in 2011-2012, with soybean oil imports falling correspondingly, leaving the total level of imports roughly constant. In 2014, SUNEOR switched its focus to peanut oil and exited from refining imported vegetable oils, which had become unprofitable.

[13] In the case of vegetable oil, price comparisons are more difficult than for sugar or flour due to a multiplicity of varieties with varying qualities and origins. See Appendix 2 for further discussion.

4.4. Wheat flour and bread

Market structure. As the former capital of French West Africa, Senegal has had unusually strong French influence. One manifestation of this influence is that French style baguettes have become a staple consumption item, even though wheat cannot be produced in Senegal. Flour imports have declined to very small levels since the early 2000s. Thus, Senegal imports and processes nearly all the wheat used for its estimated daily consumption of 3 million baguettes.

There are four flour producers, with the largest being the *Grands Moulins de Dakar*, controlled by the same family that owns the sugar monopoly CSS, with about 65 percent market share of the flour market. Thus, flour is not a monopoly but like sugar and vegetable oil, is characterized by limited competition.[14] Millers manage their own imports of wheat, from which they produce flour as well as animal feed, with higher profit margins on the latter. Flour is sold to bakeries on credit.

Bread is supplied by a competitive market with about 1,000 bakeries around the country. Reportedly, the number of bakeries is shrinking due to losses. Bakeries distribute bread through informal and unreliable transport services. Profit margins on bread are very low or even negative, as one would expect in a highly competitive industry, confronted with a price ceiling and rising costs. Bakeries say that the rising cost of flour, which represents a large share[15] of the cost of making bread in Senegal, as well as increases in other costs of other inputs such as gasoil and electricity, are squeezing their margins. They also decry the costs of distribution (transportation and stores) as well as the fact that they are obligated to repossess unsold bread which they can then resell at only 50 CFAF, less than a third of the original price. Thus, according to the bakery representative, many bakeries have or will soon go out of business.

Baguette made with white flour, like sugar, is not particularly healthy for consumers, lowers demand for locally-produced grains, and contributes to trade deficits. Thus, there appears to be little basis to support this industry for either consumption or production externalities, or macroeconomic balance, but given the extent to which baguette has become a mass consumption food, rapid price increases would likely cause social unrest.

Policies. There are numerous government interventions in the wheat-flour-bread value chain in Senegal. Wheat is subject to a low statutory import duty of 5 percent as well as the usual small additional import taxes, but has been exempt from VAT since 2002, for an overall statutory import tax rate of about 8 percent. Flour, however, is subject to the

[14] There are reports that two new companies are preparing to enter the Senegalese market. If so, competition could increase significantly.

[15] Flour producers claim that the flour accounts for about 30-35 percent of baguette costs, while the representative of bakeries puts it at 60-65 percent. The cost of flour was estimated to represent 25-35% of the price of bread in South Africa during the 2000s. "Report on the Section 7 Committee Investigation into the Wheat-to-Bread Value Chain", National Agricultural Marketing Council, 2009. It may be similar in Senegal since imported wheat is probably cheaper than the domestically produced wheat in South Africa, but labor costs are lower in Senegal. In France the share of flour costs is lower, only about 10 percent, due to much higher labor costs. *Influence Du Cours Du Blé Sur Le Prix De La Baguette www.fdsea60.fr*

maximum import duty rate of 20 percent as well as the usual 18 percent VAT. In addition, like sugar, the usual taxes on flour are supplemented by a TCI duty when the price of imported flour is below a threshold price of 201,400 CFAF per ton, but at a fixed rate of 10 percent rather than the variable levy for sugar. Thus, the import taxes on flour cumulate to about 55 percent when the price is below the reference price and 45 percent if the price is above the reference price (see Appendix 1 for more details). Given that wheat is the main ingredient in flour, accounting for about 80 percent of costs of production, the effective rate of protection on flour is very high. These duties are apparently high enough to have almost completely eliminated legal imports of flour. Some smuggling of flour from The Gambia occurs (Golub and Mbaye 2009) but less than for sugar.

Tables 3 and 4 show that the actually applied tax rates on wheat and flour over 2000-2013, using customs data, are largely consistent with the above-described statutory provisions, but flour displays considerable year-to-year variations in applied rates that apparently reflect discretionary adjustments by customs in both tax rates and valuations as in sugar and vegetable oil. The customs valuations for flour are not very meaningful after 2002, however, given that flour imports dropped sharply starting in 2003 to very low levels, so these calculations are based on very small import volumes.

Until recently, the retail price of flour has not been officially regulated, although it was set in consultations with the government. On the other hand, the government sets the price ceiling for baguette with a government-set weight of 210 grams.[16] As the bakeries and their trade representative have repeatedly pointed out, controlling the price of bread is highly problematic in a situation where flour prices are free to move. For this reason, in late 2012 the new Senegalese government moved to fix the price of flour. Given that wheat accounts for about 80 percent of the cost of flour, however, and that the Senegalese government has no control over the world price of wheat, any fixed price of flour is likely to be contentious and subject to revision, as has indeed been the case in Senegal. Consequently the government has wavered on setting the new flour price ceiling, first lowering it to 18,890 from 20,600 CFAF for a 50 kg bag, and then raising it back to 20,000 CFAF after pushback from the flour producers. At the time of writing, flour producers demanded a reduction in the VAT similar to that accorded to sugar, claiming that they are making losses at the controlled price of 20,000 CFAF. The underlying problem is that price ceilings on flour and bread are not viable when wheat prices fluctuate in the world market.

Bakeries are also subject to government regulations regarding distribution, with sales restricted to kiosks devoted solely to selling bread, ostensibly for sanitary reasons. The argument is that general stores will not handle bread safely, for example cutting bread with the same knife as cutting soap, cheese or other items. This is unwarranted—there are far more efficient ways to control the rather limited health risks this regulation is purported to prevent. In any case the regulation is not widely adhered to.

As in sugar and vegetable oil, intense political pressures are shaping policies but there are differences in the organizational dynamics. Imports are less controversial, with no

[16] The price was set at CFAF175 in 2013 but reduced to CFAF150 in 2014.

domestic production of wheat and insignificant imports of flour. Moreover, while the flour industry is quite concentrated, bread production and distribution is close to perfectly competitive. Flour is similar to the other two sectors insofar as protection accorded to millers amounts to helping the strong (the millers) while hurting the weak (bakeries).

Prices. Figure 9 shows the domestic price of flour in Senegal and the implicit world price of flour derived from the world price of wheat.[17] Senegalese retail prices of flour exceeded world prices by an average of about 30 percent from 2000-2010, with considerable fluctuations, roughly corresponding to import duties. In 2011-2013, however, the gap narrowed sharply with domestic prices less than 10 percent above world levels, reflecting a combination of rising world prices and tightened domestic price controls.

As discussed above, bread prices have been subject to tighter price controls than flour, until recently. A 210 g baguette requires 250 g of flour, and flour in turn is about half the cost of a baguette.[18] Figure 10 shows the ratio of the cost of one half kg of flour to the price of a baguette, providing a very rough measure of the cost to price ratio of making bread. The complaints of bread producers about squeezed margins are partially supported insofar as this ratio is above 1.0 and has trended upward since the early 2000s, but this indicator is too simple to be conclusive.

Production and Trade. Figure 11 shows imports of flour and wheat since 2000. Imports of flour constituted about 10 percent the value of wheat imports in the early 2000s, but have since declined to almost zero, indicating that the level of protection provided by the above-described tariffs is sufficient to exclude imports of flour. Wheat is imported mostly from France, with about 10 percent from Canada.

5. Comparison and Analysis of Protection and Prices

Market Structure. Table 5 summarizes market structure for the industries in question. Domestic production of sugar is controlled by a monopoly while vegetable oil and flour are oligopolies with a dominant firm. Thus, competition is very limited on the production side. Imports of flour are negligible, but are significant for both sugar and edible oil. In both of the latter instances, the dominant producers have had substantial monopsony or oligopsony power, with very large market shares of imports, although recent partial liberalization has entailed the entry of UNACOIS traders. Table 5 also reports that sugar, vegetable oil, and flour and bread are now subject to price controls.

Statutory Nominal and Effective Protection. Table 6 shows statutory nominal and effective rates of import taxation on these industries, based on the customs duties, value added tax rates and other levies discussed above, as of 2011. The effective rates of protection are rough estimates of the protection provided to value added, taking into consideration rates of protection of the main inputs and their approximate shares of total costs. In the case of sugar, as noted above, the tax rate is endogenous as it depends on the

[17] See Appendix 2 for technical details.

[18] Bread and flour industry representatives present somewhat different estimates of the share of flour in bread costs. See footnote 15.

gap between the reference price and the world price. Nominal rates of taxation on final products are relevant for consumers, as they indicate the wedge protection places between domestic and international prices. For producers, effective rates of protection depend on tariffs on final products relative to input tariffs. If input tariffs are lower than final goods tariffs, as in the case of vegetable oil, oil processors received much higher implicit protection than nominal rates indicate. High input tariffs on flour, on the other hand, means that flour producers are in effect being subsidized and bakeries taxed. The rates of import taxation relevant to consumers include the VAT rates while the rates of protection for producers exclude VAT since it applies in principle to both imports and domestic production.

A rough estimate of statutory nominal protection in recent years for sugar is taxation of 100 percent on consumers and subsidy of 80 percent on producers. The effective rate of protection for sugar producers is not much higher than the nominal rate due to the vertically-integrated nature of the CSS.[19] On the other hand, both the flour and refined vegetable oil sectors feature a large share of imported inputs in the final product price. Moreover, the inputs used by these two industries enter with low import duties. This translates into very high effective rates of protection for producers. Nominal rates of protection affecting consumers for flour and vegetable oil are substantial but not as high as sugar. The bread producers suffer from large negative protection given that they face a price ceiling combined with high tariffs on the main input, flour.

Analytical Framework for Policy Assessment. As seen above, Senegal's policy mix towards sugar, vegetable oil and flour involves a combination of 1) import tariffs 2) non-tariff barriers and 3) price ceilings. The first two tend to raise domestic prices while the third holds down those prices. Figure 12 adapts the standard partial equilibrium analysis of protection in a small country to this policy mix. D and S represent domestic demand and supply of the product. Senegal is assumed to be a price taker in the world market at a world price of P_w. Under free trade, domestic quantity demanded is D_1 and quantity supplied is S_1 with imports being the difference between them, D_1-S_1. With an import tariff, the domestic import price rises to P_T, leading to a rise in domestic quantity supplied to S_2, a fall in domestic demand to D_2, and a corresponding decline in imports. Non-tariff barriers (NTBs) in the form of quantitative restrictions, similarly to a tariff, lower imports and raise prices further to P_{NTB}, except that no government revenue is generated. [20] A binding price ceiling, however, lowers the domestic price to $\bar{P}$. The effects of these combined policies depend on where the price ceiling is set relative to P_{NTB} and P_T. In Figure 12, $\bar{P}$ is above P_T but below P_{NTB}, as has been the case sometimes in Senegal, as discussed below. In such a situation, the policies impose a high cost on consumers, which can be measured by the loss of consumer

[19] The effective rate of protection (ERP) is computed as follows when the tariff on final product is t_F and the tariff on imported inputs is t_I and the share of the input in total cost is a.

$$\text{ERP} = \frac{t_F - a t_I}{1 - a}$$

Attention is restricted to the largest input in these calculations.

[20] For simplicity the diagram ignores the fact that the domestic market is imperfectly competitive. Allowing for domestic monopoly power increases the protective effect of quotas or other non-tariff barriers limiting foreign competition (Bhagwati 1965).

surplus A+B+C+D+E. The offsetting gain in producer surplus A (labor and capital income) is far less than the loss to consumers if the industry in question is inefficient. In addition, the government gains tariff revenue D and importers gain quota or monopsony rents E.[21] B and D are the usual deadweight losses of protection. A tighter price ceiling reduces the losses to consumers and the quota rents. Of course, if tariff and non-tariff barriers are eliminated, the price ceiling is redundant, unless set below P_W in which case it will entail shortages and higher black market prices.

Protection and Domestic Prices. Figure 13 summarizes the comparisons between domestic and international prices discussed above for the three sectors. Sugar prices in Senegal were extraordinarily high relative to world prices until about 2009, sometimes more than three times world prices. Domestic vegetable oil prices have also been very high relative to world prices, typically about double, with large variations. From the mid-2000s until 2011 the differentials between domestic and world prices have narrowed considerably for sugar and vegetable oil, due mainly to rising world prices, partial liberalization of imports and more stringent price ceilings. In 2012-13, the differentials rose again for these two products due mainly to falling world prices. As of early 2014, Senegalese consumers were still paying about two times the world prices for sugar and vegetable oil. For flour the differentials have been much smaller but often still substantial until 2010, averaging about 30 percent. In the last few years, the gap between domestic and world prices for flour has largely disappeared due to stringent price ceilings.

How much protection is actually accorded to the three industries in question in view of the combination of tariffs, non-tariff measures and price ceilings? Three alternative measures of protection are 1) the statutory level of duties, 2) the actual level of duties collected and 3) the actual differential between domestic and world prices. If import taxes are the only form of protection, the three measures should yield similar results. Figure 14 compares the price ratios reported in Figure 13 to the price ratios implied by the statutory and actually applied import taxes shown in Tables 1, 2 and 4. [22] For sugar, Figure 14a indicates that actual tariff protection as reported in Table 1 implies domestic prices about double world prices (statutory protection is endogenous due to the reference price mechanism and closely tracks world prices by design). However, until recently Senegalese retail sugar prices were often 3 to 4 times higher than world prices. Thus, a substantial component of the price differential between domestic and world sugar prices cannot be explained by actual tariff protection, suggesting that protection is in part applied through NTBs rather than customs duties, which in turn creates market power.[23] In the last few years, the ratio of domestic Senegalese retail price of sugar to world prices has declined substantially, and has become closer to the level predicted by import taxation. For vegetable oil, the differential between domestic and world prices has been much more volatile and consistently above the levels of statutory and applied import tax duties, likely reflecting the implementation of NTBs on palm oil imports and the monopsony power of SUNEOR during much of this period. In the case

[21] The analysis ignores VAT revenues as these are levied on both domestic production and imports. VAT revenues will fall under protection because consumption drops.
[22] In Figure 14, unlike Figure 13, import taxes include VAT in view of the discretionary use of VAT at times.
[23] A recent study by Cadot and Gourdon (2014) finds that NTBs significantly raise domestic prices for staple food products in many African countries, including Senegal.

of flour (Figure 14c), differences between the statutory and actual tariff protection and the observed differential between domestic and world prices have been considerably less than for sugar and vegetable oil.[24] The sharp drop in retail flour prices in the last few years to levels well below those implied by protection likely reflects the implementation of binding price controls.

Welfare Effects. The previous analysis has shown that the sugar, vegetable oil, and wheat flour sectors have been characterized by a combination of limited competition in both production and trade, high rates of import protection to value addition, and price ceilings. In the cases of sugar and vegetable oil, the dominant incumbent firms have, at least until recently, apparently benefited from substantial monopsony power. What are the pros and cons of these policies?

The most important justification for government intervention is to protect employment in these industries. Senegal's manufacturing sector has been struggling since the 1980s. At the time of our previous study (Golub and Mbaye 2002) the Senegalese textile and tuna-canning factories were in severe difficulties and now they have all but disappeared.[25] With over 6,000 employees, CSS is Senegal's largest employer after the government, and the vegetable oil and flour milling firms are among the few major remaining formal manufacturers left in Senegal. If protection is removed, these firms too could disappear. Is Senegal to have no manufacturing sector at all?

On the other hand, import protection can involve a very large disguised subsidy from consumers to the protected sectors, as illustrated in Figure 12. This cost to consumer is in theory measured by the change in consumer surplus but can be approximated as the difference between the domestic price and the world price, adjusted for transport costs and wholesale-retail costs and margins, multiplied by total consumption.[26] Table 7 shows the results of this calculation for annual averages over 2000-2010 and 2011-13. Import restrictions are estimated to have raised the domestic price of sugar by about 60 percent in 2011-13, at a cost to consumers of CFAF 247 per kg, for a total cost of CFAF 43 billion, triple the CFAF 15 billion average annual labor compensation bill of the CSS over this period.[27] Inclusion of the approximately 7 billion CFAF in import duties collected as an additional social benefit of protection still leaves costs to society double the benefits.[28] In 2000-2010, the protection of the sugar industry was even more costly relative to labor compensation, as it more than doubled the domestic price.

[24] In Figure 14, for vegetable oil, prices are for soy oil but actual protection is measured for palm oil, given that soy oil is mostly imported in unrefined form subject to lower import duties than refined oil. Palm oil is imported refined.

[25] One tuna cannery was recently reopened by Korean investors.

[26] This calculation understates the loss of consumer welfare since it does not capture the effect of protection on reduced consumption as illustrated in Figure 12.

[27] The total payments to workers provide an upper bound on the gains from protection accruing to workers. The figures for labor compensation cited in this section include fringe benefits (obtained from the CUCI database).

[28] VAT revenues are ignored as these depend on consumption rather than imports and VAT revenue will decline as consumption falls under import protection as noted previously.

The estimated unit cost to consumers of protection of vegetable oil processors was considerably lower as a share world prices than for sugar over 2000-2010 but the total cost is higher at 49 billion CFAF given the larger share of vegetable oils in consumer expenditure compared to sugar. The annual cost to consumers of vegetable oil protection in 2000-2010 was about CFAF 50 billion, 9 times the industry's wage bill of CFAF 5.7 billion or 5 times if customs duties of nearly CFAF 4 billion are included as a benefit of protection. In 2011-2013, the domestic price of vegetable oil was also about 60 percent higher than the world price and the annual cost to consumers of vegetable oil protection rose to over CFAF 60 billion, and more than 10 times labor compensation. In the case of flour, the subsidy was considerably smaller than for the other two sectors in 2000-10, but still substantial in absolute terms at CFAF 14 billion, amounting to about 4 times the wage bill of CFAF 3.6 billion. In 2011-13, however, the gap between domestic and world prices nearly vanished for flour.

In the case of sugar and vegetable oils, it appears that incumbent firms have in the past received large quota rents accruing to their monopsony status. It is very hard to see any social rationale for such a situation, except perhaps that domestic production is so uncompetitive that it has to be cross-subsidized by granting quota rents to producers.

Sugar, vegetable oil and bread are important elements in the consumption of the poor. The 2011 poverty survey, ESPS 2, found that they accounted for 14 percent of total consumption among the poorest quintile of the population, and only a little less for the next quintile. In an earlier analysis of 2006 data, it was estimated that sugar prices in Senegal were roughly 90 percent higher than those in The Gambia, 58 percent higher for vegetable oil, and 33 percent higher for wheat flour (Golub and Mbaye 2009). Reducing sugar prices to Gambian levels would have raised 150,000 people above the poverty line. Lowering vegetable oil and flour prices to Gambian levels would have allowed another 220,000 people to escape poverty.

A similar calculation was made for the period 2011-13, taking into account the evolution of prices. While domestic flour prices approximated world prices during this period, sugar and vegetable oil prices in Senegal remained about 60 percent above world prices. Eliminating this difference would have raised consumption levels of the poor by 3 percent and enabled about 227,000 people to move above the poverty line.[29] The national rate of poverty would have declined by 1.9 percentage points, which is more than what was actually achieved between 2006 and 2011.[30]

Protection and subsidies can be justified for infant industries, but the sugar, vegetable oil, and flour sectors hardly fulfill the criteria for infant industries. More generally, protection eliminates the necessity to be competitive. Even worse, protection based on political clout rather than economic logic undermines the legitimacy of the government.

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[29] Sugar and vegetable oil, other than peanut oil, account for 7.4% of the consumption basket of the third quintile, which includes those households around the poverty line of 46.7%. Peanut oil was excluded as it is assumed that it is produced at the household or community level and therefore not affected by the market price. These households would have spent only 4.6% of their income if they had paid world prices, as saving of 2.8%.

[30] The national poverty rate declined from 48.3% in 2006 to 46.7% in 2011, or 1.6 percentage points.

High protection and price distortions may also backfire insofar as it leads to smuggling. The high differentials between domestic and world prices observed in Figure 14 and Table 7 for sugar and vegetable oil have long given rise to smuggling into Senegal from neighboring countries, particularly The Gambia (Boone 1989, Golub and Mbaye 2009). Some indication of the magnitude of smuggling can be obtained by comparing Senegal's imports to The Gambia's (Figure 15). For vegetable oils and especially sugar, The Gambia imports much more per capita than Senegal, providing indirect evidence of large-scale smuggling.[31] In the case of sugar, The Gambia imported more in absolute terms than Senegal in most years, until 2010 when Senegalese imports jump sharply. Assuming that consumption is the same per capita in the two countries, and recognizing that The Gambia produces no sugar, while noting that Senegalese official imports are about 2/3 of domestic production, Senegalese imports from smuggling are calculated to be about equal to official imports over 2000-2009. Vegetable oil smuggling into Senegal is also significant although the volume is not as large as for sugar and more difficult to estimate. For rice, by contrast, there is no indication of smuggling, which is consistent with the liberalization of the Senegalese rice market since 1990.

In summary, consumers have been paying a high price, literally and figuratively, for the disguised subsidies to domestic producers, although to a considerably lesser extent since 2010. Reducing protection contributes to poverty reduction. Moreover, high levels of protection undermine the sense of fairness and stimulate large-scale smuggling, which in the case of sugar have been about equal to official imports over the 2000s. The decline in actual protection in recent years is due more to price controls and falling world prices than trade liberalization.

6. Policy Recommendations

Sugar, vegetable oil, and flour are among the few remaining formal private sector manufacturing sectors in Senegal. These industries, like others (Golub and Mbaye 2002, Mbaye 2005) seem unable to survive without stringent protectionist measures. Thus, the problems of these industries must be understood in the larger context of the obstacles blocking sustained private sector growth in Senegal, namely an unfavorable business climate and erratic policies that have created an economy that revolves around special protections and rent seeking. A fundamental reorientation in economic policies is in order. Government interventions should be targeted more carefully to clear-cut market failures. There is no justification for protection of sugar, vegetable oil and flour beyond that provided by WAEMU's common external tariffs. Special protection should be phased out and the focus should instead be on investing and restructuring so as to raise productivity and competitiveness. In this regard, a value-chain approach addressing constraints at the various stages of the production process is in order.

Government policies at present are incoherent due to inconsistent objectives of helping both producers and consumers and a lack of overall vision. Sugar, vegetable oil, and

[31] Data are unavailable for wheat and flour for The Gambia.

flour are characterized by domestic monopolies or near-monopolies. Trade protection severely limits competition from imports, resulting in higher prices, which the government has recently ameliorated through price controls in the cases of sugar and flour. While a combination of discretionary import tariffs and price controls could in principle mimic simultaneous liberalization of import barriers and domestic prices, such a strategy is very difficult to manage. There are difficult tradeoffs involved but the present configuration of policies does not serve the general interest of promoting efficient production and inexpensive products to consumers. In general, the government should gradually deregulate and open these sectors to competition as the best way to sustainably bring down the cost of living, while taking measures to promote greater productive efficiency as the most sustainable way to maintain and create jobs. If protection is lowered, price controls become unnecessary since prices will drop through market forces. Discretionary and non-transparent protective measures such as adjustments to customs valuations are particularly damaging insofar as they induce rent-seeking and lack of trust in the fairness of state actions. That still leaves a potential problem of price fluctuations, but these are more bearable if the overall level of prices is lower. In times of world price spikes, the government could consider temporary reductions in import taxes, to be restored when prices are lower.

Sugar. The CSS sugar monopoly has the highest level of overall protection in Senegal, which has entailed very high domestic prices relative to world prices. Recently the gap has narrowed due to a combination of higher world prices, liberalized imports, and a price ceiling on retail sugar. There is no reason why the CSS should be a sugar importer, let alone a monopsonistic importer. The measures currently privileging the CSS as an importer should be eliminated. Some protection of production is justified to preserve employment in Richard Toll, but the level of protection at present is exorbitant and provides little incentive for CSS to improve efficiency. It is dismaying that despite decades of high protection, the industry has not been able to become internationally competitive. Continued protection should be conditional on developing a strategy to raise productivity. This may involve expansion, though the demands of the more efficient horticulture export industry should be taken into account. Mechanization of cane harvesting may be another option, recognizing that manual cane cutting is not normally a viable long-term solution. The TCI should be scaled back to 10 percent and gradually removed so that sugar is protected by the regular TEC rate of 20 percent.[32] Simultaneously, the government should eliminate the price ceiling on retail sugar prices, as liberalization will entail substantial decline in price, obviating the need for price controls. Reducing protection will also eliminate the incentive for smuggling.

The price of sugar should be allowed to move with world market prices, with the government role limited to ensuring that the market is competitive and possibly providing temporary tax breaks or subsidies in times of very high world prices. CSS argues that traders only buy when prices are low, resulting in surpluses, and drop out of the market if prices are high, creating shortages. But this is because the consumer price is fixed. If the domestic price and import trade are liberalized traders will be able to make a profit regardless of the import price and shortages and surpluses will be eliminated. Thus, CSS should not have monopsony power and should not be encouraged to expand to the extent that it satisfies the entire market.

[32] The tariff rate could rise to 35 percent if the ECOWAS proposed common external tariff is implemented.

Import competition will provide a valuable discipline and the government's main role should be to ensure that infringements of competition do not occur.

Given the volatility of world sugar prices and the sensitivity of sugar prices for Senegalese consumers, the government could consider some measures to smooth prices, perhaps by adjusting the VAT. Liberalizing the market, however, will lead to lower prices on average relative to the high levels at which they have been maintained, obviating the need for such stabilizing measures, which are difficult to implement effectively.

Wheat, flour and bread. Bread has become a basic necessity in Senegal and the price cannot be allowed to rise sharply. Nevertheless, the complicated mix of protection to flour millers and price ceilings on flour and bread is unviable and undesirable. Baguette is made entirely from imported grain and is not a particularly healthy food. In the longer term, it would be desirable to promote the production of local grains both to boost rural incomes and promote consumer well-being, as already supported under the WAAPP project.[33] A mixture of promotion policies and especially market forces can be deployed. First, the level of protection to millers should be scaled back with the elimination of the TCI. Second the price controls on flour should be eliminated. It is not possible to control the price of flour given that the price of wheat is determined in the world market. Price controls on bread should be gradually liberalized and bakeries deregulated, with some government subsidies in the short run if wheat prices are high, in the form of VAT reductions on flour and customs duty reductions on wheat. Higher prices of bread will encourage consumers to substitute locally-produced grains and thus should not be avoided in the long run. Government should simultaneously provide assistance to farmers growing millet, sorghum and other grains, and also fund public campaigns about the benefits of consuming bread made with these grains. One possibility is to designate all or part of the customs duties and VAT collected on wheat and flour for promotion of the production of composite flour and research and development of breads using these local grains. Bureaucratic regulations on production and distribution of bread should be eliminated.

Vegetable Oils. This sector is the most difficult and important due to the remaining importance of peanut cultivation in generating income for many Senegalese. Policy must distinguish between production and consumption issues, since peanut oil is mostly exported while consumption is dominated by cheaper palm and other vegetable oils.

On the side of peanut cultivation, due to the nature of small-holder farming, larger public or private organizations must oversee the input provision, planting, harvesting, transport and distribution of peanuts. Difficult tradeoffs between competition and coordination and related incentives for engaging in opportunistic behavior and lack of contract enforcement make this an intractable problem. In principle, a multinational company with global experience could do this well. In practice, so far privatization has failed to improve the long-standing difficulties in seed and credit provision, research and extension, pricing and debt servicing. The system should ensure that farmers receive favorable prices

[33] The World Bank-supported West Africa Agricultural Productivity Project is supporting the incorporation of local cereal (millet, maize) in bread and cake making, providing equipment to bakeries. This has proven successful and the number of bakeries involved increased from 50 in 2014 to 230 in 2015.

over the longer term, but at the same time, contract enforcement on repayment of loans is essential to prevent opportunistic behavior. Thus, in years where world prices rise relative to pre-agreed producer prices, farmers should be prevented from selling on the parallel market rather than delivering the crop to the parties they have contracted with; conversely when market prices fall below producer prices, purchasers must not renege on their commitments to farmers. It is beyond the scope of the present paper to ascertain institutional arrangements that best balance competition and coordination in the Senegalese peanut value chain such that producers receive both stable and relatively high prices, obtain high quality inputs and extension services, and deliver their crop and repay their debts as agreed. However, a crisis in the sector in 2014, with the risk of bankruptcy at SUNEOR, prompted a government request to the World Bank to conduct such a study.[34] This study emphasizes increased competition at the processing level, and direct contracting between processors and producers.

Local vegetable oil refiners apparently benefit from declining but still substantial protection and some monopsony power, going beyond the TEC tariffs, judging from the large disparity between domestic prices of vegetable oil and world prices. There is no justification for any particular import protection beyond that provided for under the TEC, particularly since imports do not compete much with domestic production of peanut oil, and value added and employment in refining of imported vegetable oils is quite low. Unfortunately, the new TEC being finalized under ECOWAS calls for an increase in the tariff on palm oil from 20 percent to 35 percent. This provides all the more reason to remove any other forms of protection. It is time to separate the interests of groundnut producers and processors, from those of vegetable oil consumers.

7. Conclusions

The sugar, edible oil, and flour sectors are fraught with controversy, with the government facing difficult choices and pressures from competing interest groups. There are no easy answers. The government faces intractable tradeoffs between conflicting objectives: 1) maintaining employment in these industries, 2) keeping prices of these basic consumer items low, to help the poor and head off social unrest, 3) limiting incentives to smuggle cheaper products from neighboring countries, and 4) obtaining fiscal revenues to finance essential public goods. The only way of lowering prices to consumers by administrative fiat while supporting producer prices through high levels of protection is to provide government subsidies or tax breaks that bleed the budget. High levels of protection may support employment in these sectors, but hurt consumers and encourage smuggling. In effect, consumers are subsidizing the few jobs created, and especially the owners of these industries. For historical reasons, these tradeoffs between consumers, traders, producers and fiscal revenues are particularly acute in sugar and vegetable oils, but also manifest themselves in the wheat-flour-bread value chain. These conflicting pressures have resulted in incoherent policies, with high and non-transparent protection to producers combined with price controls to benefit consumers. These offsetting policies result in highly variable rates of protection as the balance between protecting producers and shielding consumers shifts erratically, while ratcheting government intervention in price setting that politicizes economic policy.

[34] World Bank, « Etude diagnostique de la chaine de valeurs arachide au Sénégal : Propositions de réformes », 2015.

Overall, the level of protection accorded to the incumbent firms in these sectors, in the form of customs duties and *de facto* monopsony, is too high, especially for sugar and vegetable oil. Lowering these levels of protection is the best way to bring consumer prices down, and will substantially obviate the need for price controls, which are difficult to administer and set at appropriate levels. Furthermore, discretionary and non-transparent customs practices that manipulate the level of protection through variations in import valuations rather than announced changes in statutory protection should be eliminated to maintain a level playing field and avoid corruption.

If world prices spike the government can consider temporary reductions in import duties and VAT rates. To boost competitiveness rather than protect rents, governments should replace protection with targeted assistance to overcome the most binding constraints and improving the business climate. In the case of sugar, this may mean expansion, or mechanization of harvesting, without, however, providing subsidies or privileged access to land and water to CSS relative to other users, notably horticultural producers. In the case of peanuts, processors need to work more closely with farmers, providing assistance to improve yields and quality, in return for guaranteed access to their harvest through contracts. In the case of bread, the production and use of local grains should be promoted, building on recent research to promote the production of composite flour and the marketing of breads using local grains.

More generally, these battles over rents are a side-show to the deeper issues of reducing poverty and raising incomes. To raise incomes, labor-intensive economic growth is required. Growth in turn depends on developing a competitive economy that can export goods and services that other countries' consumers want to buy. Senegal's past performance has been disappointing. Traditional exports are in trouble and export diversification remains limited, with little dynamism in labor-intensive sectors that could promote equitable growth. Rather than protecting import-competing industries, Senegalese policy should focus on export competitiveness. Industries with export potential include edible groundnuts, fishing, tourism, horticulture, mining, telecommunications and possibly light manufacturing. Senegal needs to make more progress in resolving long-standing obstacles to competitiveness identified more than a decade ago (Golub and Mbaye 2002): corruption and red tape; poor public services, notably electricity; and adversarial relations between workers and employers.[35] The government has recently embarked on an ambitious program to improve the business climate which will need to be sustained in the coming years. Its new Plan Senegal Emergent, with its focus on exporting industries, holds promise for the future, but will require a shift in focus from the vested interests of the past to a new generation of entrepreneurs.

The following table summarizes the public policy objectives, the current set of policies, and recommended changes.

[35] Similar constraints were documented in the 2009 Investment Climate Assessment by the World Bank.

Summary of Recommendations

Goals	Promote Domestic Production	Lower Consumer Prices
Current Policies	Tariffs and Import Licensing	Price Controls
Overall Recommendations	1. Target government interventions to sector-specific bottlenecks and improve the overall business climate, particularly electricity supply.	2. Eliminate special protections and discretionary customs practices. Lower import duties to TEC maximum rate of 20 percent. 3. Consider temporary reductions in import duties and VAT rates when world prices are high, raising them back when prices are low. 4. Remove all price ceilings gradually.
Sugar	1. Assess CSS expansion plan against other options for use of land and water	2. Eliminate the TCI variable levy; liberalize imports. 3. Phase out price ceiling.
Vegetable Oils	1. Review SUNEOR's role in integrating the peanut and peanut oil sector, and its possible withdrawal from the refining of imported oil. 2. Assess world market for unprocessed, inedible groundnuts 3. Improve contract enforcement.	4. Remove non-tariff barriers to imports of refined and unrefined palm oil and other vegetable oils. 5. Eliminate price controls.
Wheat-Flour-Bread	1. Use revenues from taxes on wheat and flour to create a fund to promote research, development and marketing of local cereals.	2. Eliminate the TCI import duty on flour 3. Eliminate price control on flour. 4. Gradually allow bread prices to reach market-clearing levels. 5. Eliminate excessive regulations of bakeries. 6. Consider temporary reductions in VAT rates when world prices are high.

References

Benjamin, Nancy, and Aly Mbaye, with Stephen Golub and others (2012), The *Informal Sector in Francophone Africa: Firm Size, Productivity and Institutions*, World Bank, 2012

Bhagwati, Jagdish (1965), "On the Equivalence of Tariffs and Quotas," in R.E. Baldwin and others, eds, *Trade Growth and the Balance of Payments: Essays in Honor of Gottfried Haberler* (Chicago: University of Chicago Press).

Boone, Catherine (1989). *Merchant Capital and the Roots of State Power in Senegal 1930-1985*. Cambridge University Press: New York.

Cadot, Olivier and Julien Gourdon, "Assessing the Price-Raising Effect of Non-Tariff Measures in Africa," *Journal of African Economies* 23(4), pp. 425-463.

CME Group (2013). "An Overview of Edible Oil Markets: Crude Palm Oil vs. Soybean Oil." August 2010. CME Group. 19 July. <http://www.cmegroup.com/trading/agricultural/files/Overview-of-Edible-Oil-Markets.pdf>

FAO (2009). "Agribusiness Handbook: Wheat Flour Production."

France Agrimer (2010). « The Sugar Reforms in the United States and Europe ».

Golub, Stephen and Aly Mbaye (2002), "Obstacles and Opportunities for Senegal's International Competitiveness: Case Studies of the Peanut Oil, Fishing and Textile Industries," *World Bank Africa Region Working Paper Series* No. 37, September.

Golub, Stephen and Aly Mbaye (2009), "National Trade Policies and Smuggling in Africa: The Case of The Gambia and Senegal," (with Aly Mbaye), *World Development*, March.

Hinkle, Larry and Alberto Herrou-Aragon, Keiko Kubota (2003), "How Far Did Africa's First Generation Trade Reforms Go? An Intermediate Methodology for Comparative Analysis of Trade Policies," *World Bank Working Paper*.

Krueger, Anne O., (1990) "Government Failures in Development," *Journal of Economic Perspectives*, Summer.

Mbaye, Aly, (2005), "Sanitary and Phytosanitary Requirements and Developing Country Agro Food exports: An Assessment of the Senegalese Groundnut Sector". *World Bank Agriculture and Rural Development Discussion Paper*.

OECD-FAO (2011), « Agricultural Outlook 2011-2020 ».

Poulton, Colin, Peter Gibbon, Benjamine Hanyani-Mlambo, Jonathan Kydd, Wilbald Maro, Marianne Nyulansted Larsen, Afonso Osorio, David Tschirley and Balard Zulu, "Competition and Coordination in Liberalized African Cotton Market Systems," *World Development* 32 (3), 2004.USDA(2013a), « Wheat Data » Economic Research Service.

USDA (2013b), Sugar: World Markets and Trade. United States Department of Agriculture.

USDA (2013c), « Palm Oil: World Supply and Distribution ». United States Department of Agriculture.

Westphal, Larry E. (1990), "Industrial Policy in an Export-Led Economy: Lessons from South Korea's Experience," *Journal of Economic Perspectives*, Summer.

World Bank (2013), "Réduire les Taxes sur le Sucre, l'Huile Végétale, le Riz et le Pain : L'Impact sur la Pauvreté, mimeo.

Appendix 1
Import Taxation of Sugar, Refined Vegetable Oils, and Flour

Final products are normally taxed at a cumulative rate of 44.68 percent in Senegal, in line with WAEMU provisions, as follows

- Customs duties: 20%,
- Statistical levy: 1% ;
- Value added tax: 18%,
- WAEMU "solidarity" levy : 1%
- ECOWAS levy: 0.5%
- COSEC levy: 0.4%.

Example: For imports valued at 1 million CFA francs, duties and taxes are:

- Customs duties: 1,000,000 x 20% = 200,000,
- Statistical levy: 1,000,000 x 1% = 10,000,
- Value added tax: (1,000,000 + 200,000 + 10,000) x 18% = 217,800,
- WAEMU "solidarity" levy : 1,000,000 x 1% = 10,000,
- ECOWAS levy: 1,000,000 x 0.5% = 5,000,
- COSEC levy: 1,000,000 x 0.4% = 4,000.

Total duties and taxes: 446,800 F CFA.

In addition, special safeguard taxes have often been applied to the three products in question, particularly the Taxe conjoncturelle à l'importation (TCI). Currently there is no TCI on refined vegetable oil, so the 44.68 rate applies. For flour and sugar, TCI taxes are currently in force. In both cases, the TCI applies only when the declared import price is below a threshold or reference price.

Flour

Imported flour is subject to a 10% TCI if the declared price is below the reference price of **201,400 CFA/ton**.

1st Case: the import price is less than the reference price, in which case the import taxes cumulate to **54.68%.**

2nd Case: the import price is above the reference price, so the cumulative tax rate is 44.68%.

Sugar

Sugar for domestic consumption is subject to a special TCI with a variable levy (« péréquation ») as discussed in the text and represented in equations (1) and (2). Sugar imported for industrial use is not subject to the TCI and variable levy, in which case the tax rate of 44.68% applies. If the price is below the reference price, duties of 44.68% are applied to the reference price rather than the declared price, as in the case of flour. Additional duties equal to the gap between the declared price and the reference price are also collected. The reference price for crystallized sugar, by far the largest category of imported sugar, is 325,056 CFA per metric ton.

Consider an example of imports of 10 tons.

1st Case: the declared CIF price is below the reference price. If the CIF price is 250,000 CFA per ton, the values of imports are as follows:
Declared CIF value = 2,500,000 CFA.
Reference value: 325,056 x 10 = 3,250,560 CFA.
Variable levy = 3,250,560 – 2,500,000 = 750,560 CFA.

The other duties and taxes are based on the reference price, as follows:

- Customs duties: 3,250,560 x 20% = 650,112,
- Statistical levy: 3,250,560 x 1% = 32,505.6,
- Value added tax: (3,250,560+650,112+32,505,6) x 18% = 707,971,
- WAEMU "solidarity" levy: 3,250,560 x 1% = 32,505,
- ECOWAS levy: 3,250,560 x 0.5% = 16,252.8,
- COSEC levy: 3,250,560 x 0.4% = 13,002.24.

Total taxes: 1,452,349.24 CFA

Total duties and taxes + Variable levy = 1,452,349+ 750,560 = 2,202,909

2nd Case: the CIF declared price is above the reference price. In that case, the taxes are calculated as for other final products, including refined vegetable oil and flour as described above, for a cumulated rate of 44.68%.

Appendix 2

Technical notes on Comparisons Between Domestic and World Prices

World price data are from Index Mundi online http://www.indexmundi.com/commodities/. Domestic prices are from the Senegal's Agence Nationale de la Statistique et de la Demographie (ANSD). The sugar price is for powdered (crystalized sugar). Vegetable oil price is soybean oil, one liter. There are several brands of soybean oil reported by ANSD. The cheapest variety was selected.

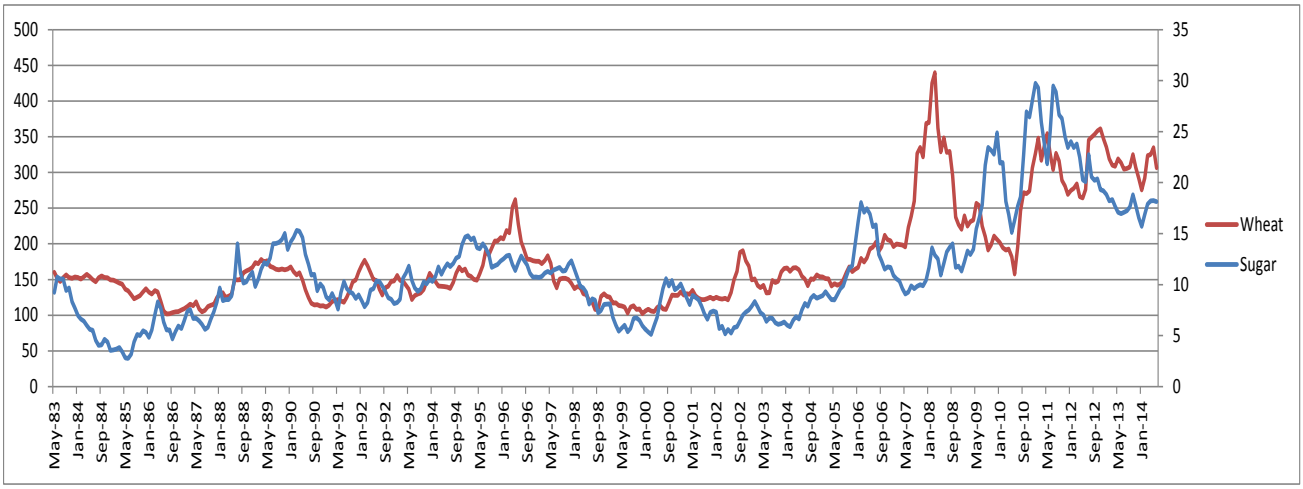
Comparisons of domestic and world prices require several adjustments to the latter: trade costs, processing margins in some cases, wholesale-retail markups, and Value Added Taxes (VAT). While VAT raises consumer prices relative to world levels it does not protect domestic industry, since VAT is, at least in principle, applied equally to domestically-produced and imported goods. International prices are generally reported as FOB. As is usual, we assumed a 10 percent international shipping cost to convert to CIF and port costs of another 10 percent. Wholesale and retail margins were taken to be 25 percent, except for flour which is sold to bakeries in larger volumes so the markup was lowered to 20 percent. VAT is assumed to be the usual rate of 18 percent on all final products, although in practice VAT rates are sometimes adjusted on a discretionary basis in section 5.

World vegetable oil prices are reported in metric tons whereas retail prices are per liter. To convert kilograms to liters, the density of soybean oil was taken to be .91 (from Alibaba.com). Also, world vegetable oil prices are quoted in unrefined bulk form. Refining costs for vegetable oil are typically quite small, constituting about 5-10 percent of the value added of unrefined oil. This is supported by data from the Soybean Processors Association of India (http://www.sopa.org/statindex.htm), and conversations with industry experts. Another 5-10 percent is added for bottling.

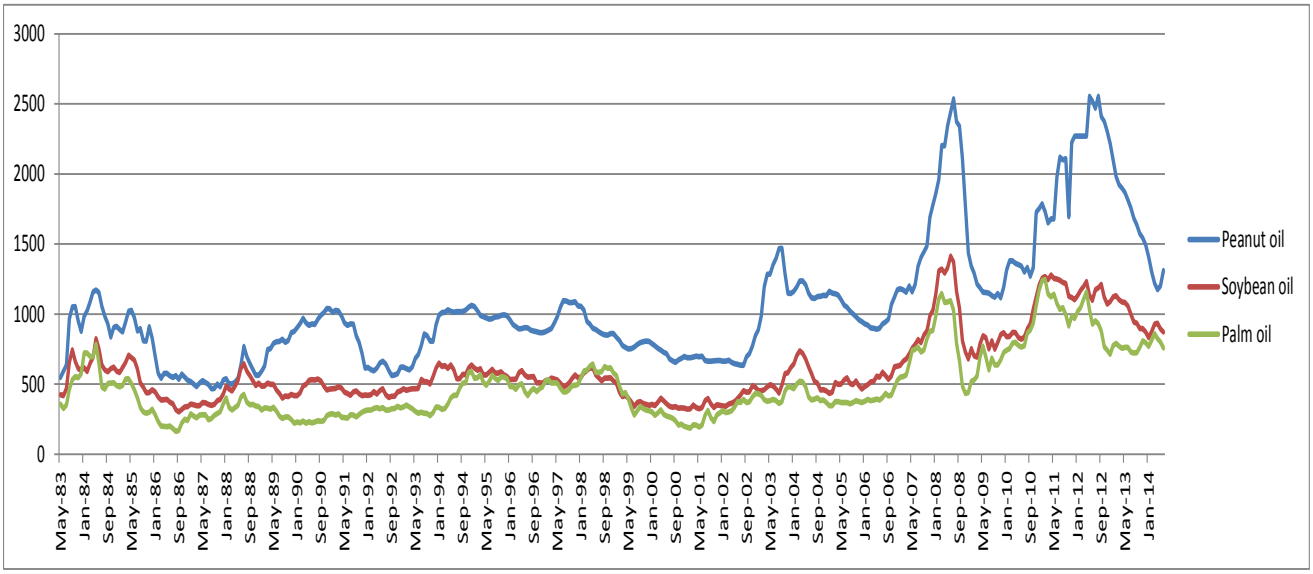
The implicit world price for flour is derived from the world price of wheat. Wheat constitutes about 80 percent the cost of flour, with a technical requirement of 1.3 kgs of wheat to make one kg of flour (FAO 2009).

Figure 1
World Commodity Prices

a. Sugar Wheat (left axis: US$ per metric ton) and Wheat (right axis: US cents per pound)

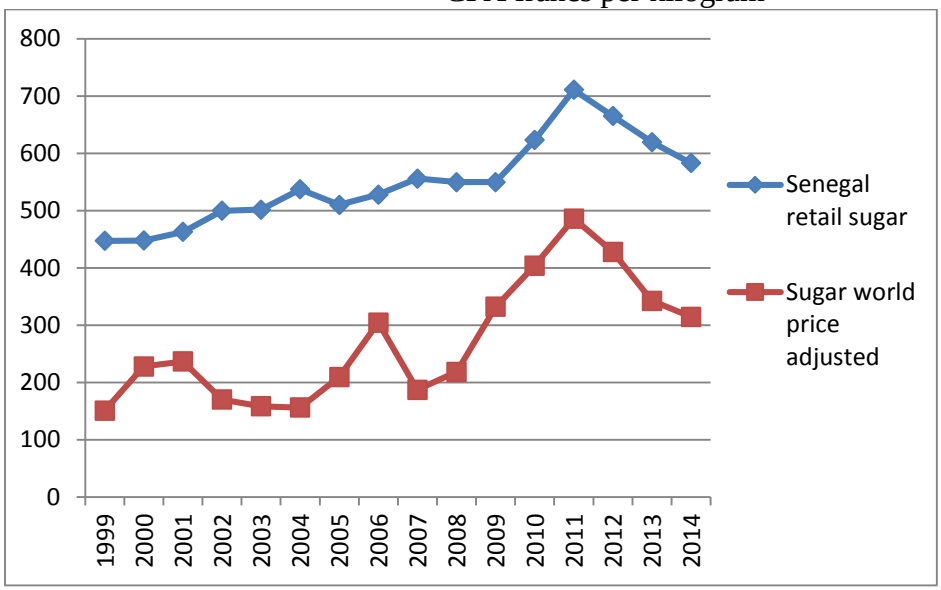


b. Vegetable Oils (US$ per metric ton)



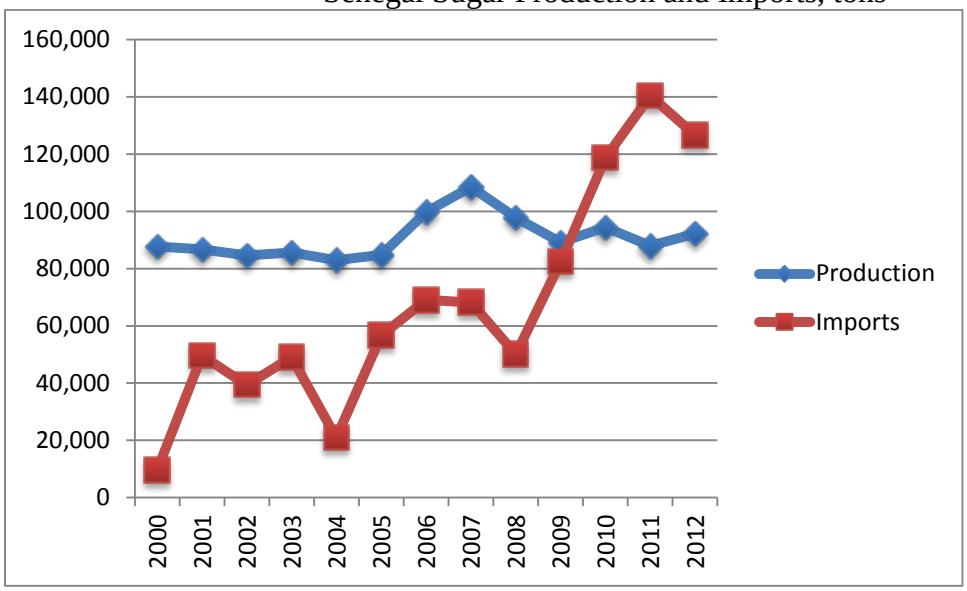
Source: Index Mundi.

Figure 2
Sugar Prices: Comparison of Domestic Senegalese Retail Price and World Price[a]
CFA francs per kilogram



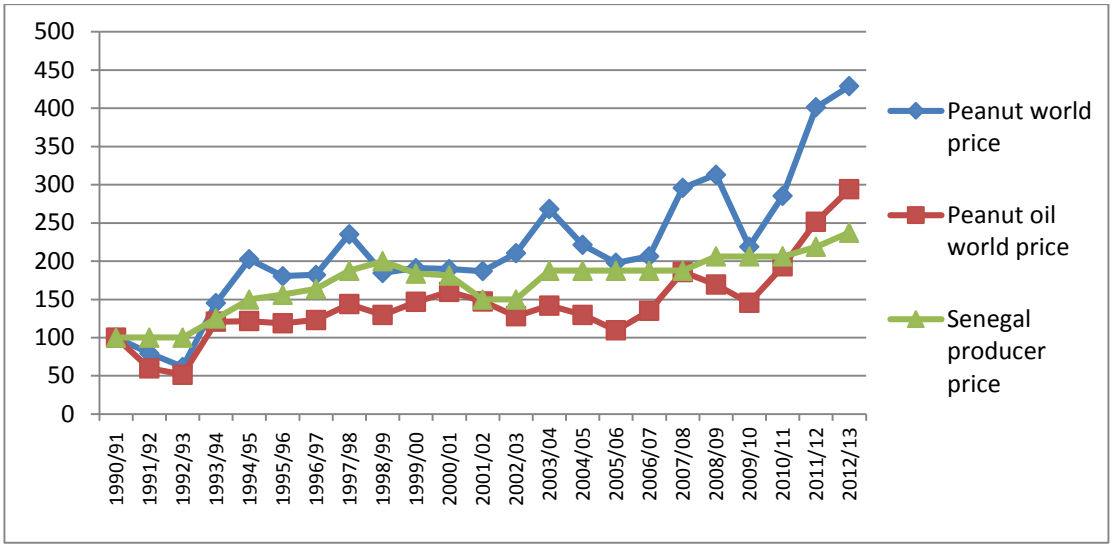
Source: Index Mundi, Senegalese Statistics, and authors' calculations.
[a]World price adjusted for trade costs, wholesale-retail margins and domestic value added taxes. See Appendix 2 for technical details on the adjustments.

Figure 3
Senegal Sugar Production and Imports, tons



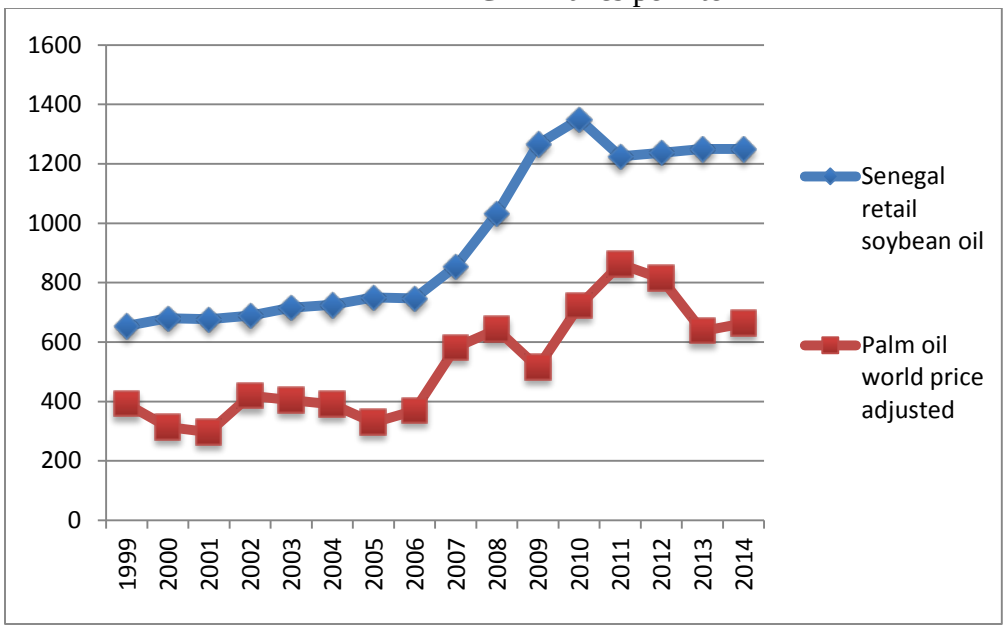
Source: Senegal ANSD, Customs.

Figure 4
Senegalese Peanut Producer Price and World Prices of Peanuts and Peanut Oil, Index 1990/91 = 100



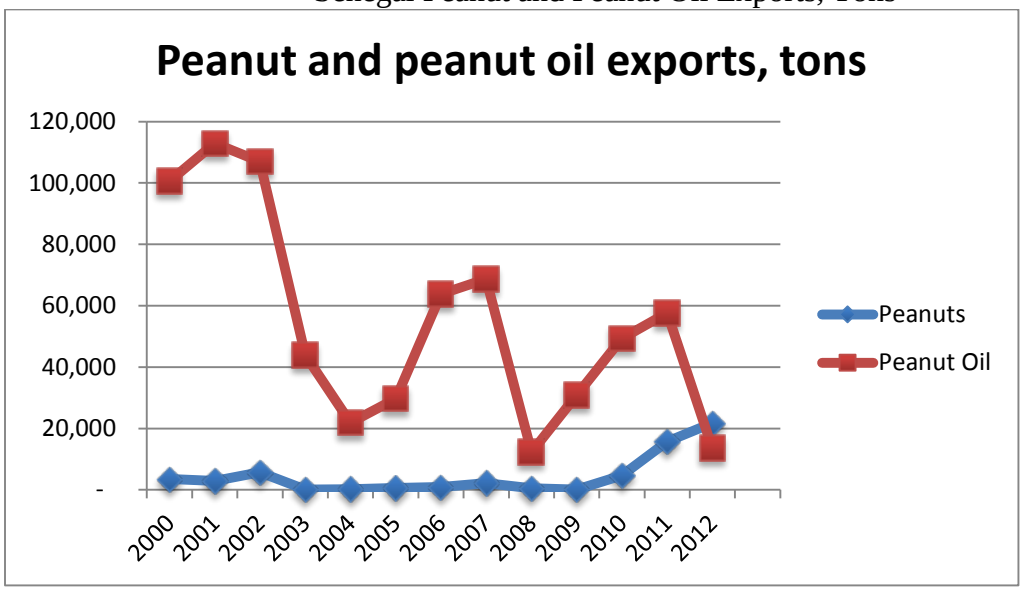
Source: Index Mundi, ANSD, and authors' calculations

Figure 5
Soybean Oil Prices: Comparison of Domestic Senegalese Retail Price and World Price of Palm Oil[a]
CFA francs per liter



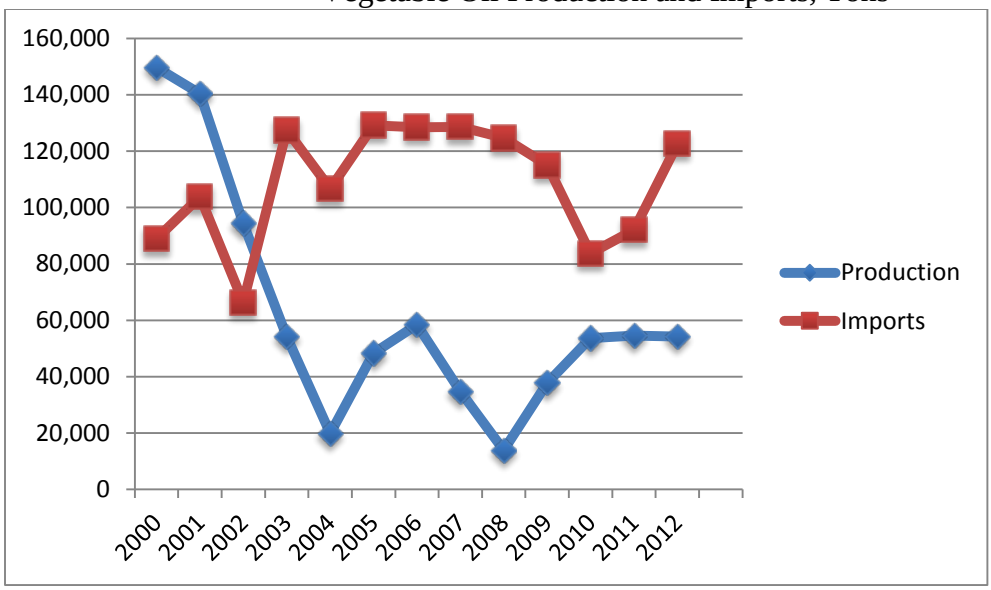
Source: Index Mundi, ANSD, and authors' calculations
[a]World price adjusted for trade costs, refining and bottling costs, wholesale-retail margins and domestic value added taxes. See Appendix 2 for technical details on the adjustments.

Figure 6
Senegal Peanut and Peanut Oil Exports, Tons



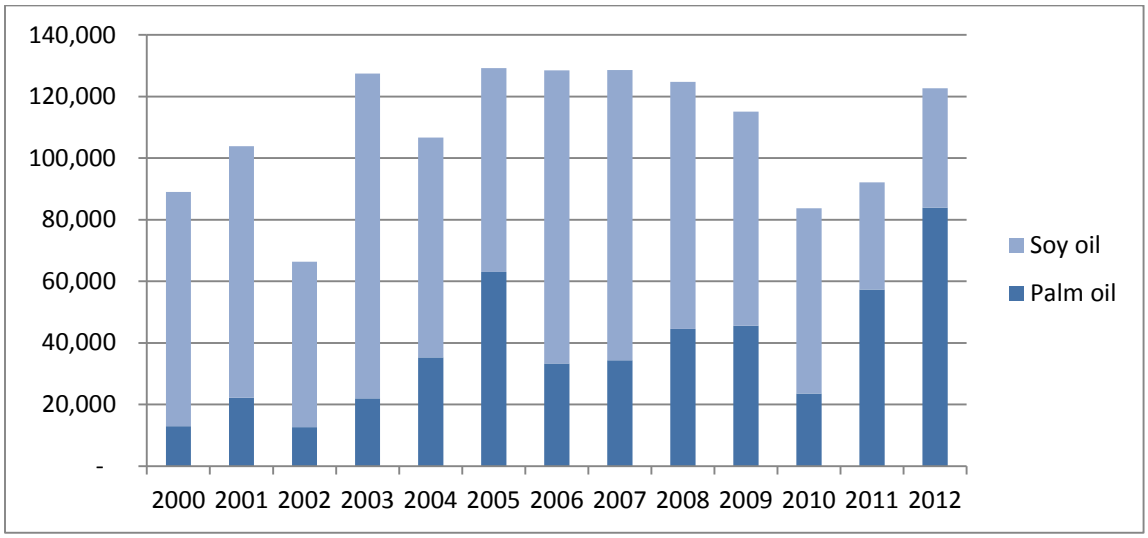
Source: Senegal customs

Figure 7
Vegetable Oil Production and Imports, Tons



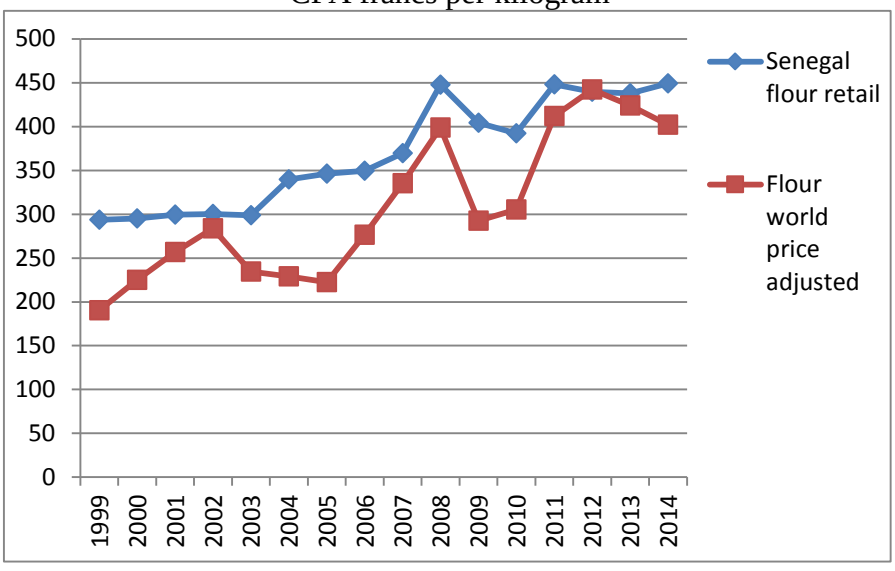
Source: Senegal ANSD, Customs.

Figure 8
Composition of Vegetable Oil Imports, Tons



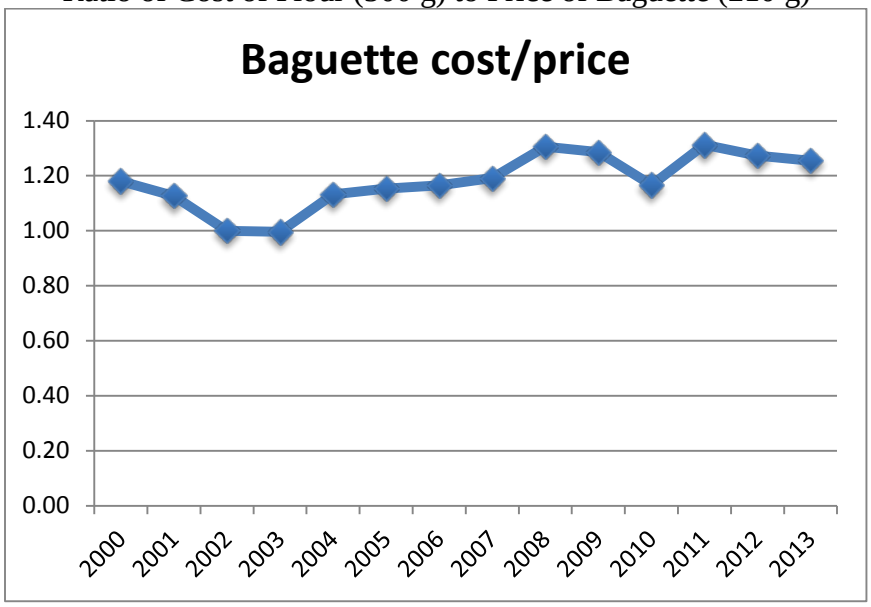
Source: Senegal customs.

Figure 9
Wheat Flour Prices: Comparison of Domestic Senegalese Retail Price and World Price[a]
CFA francs per kilogram



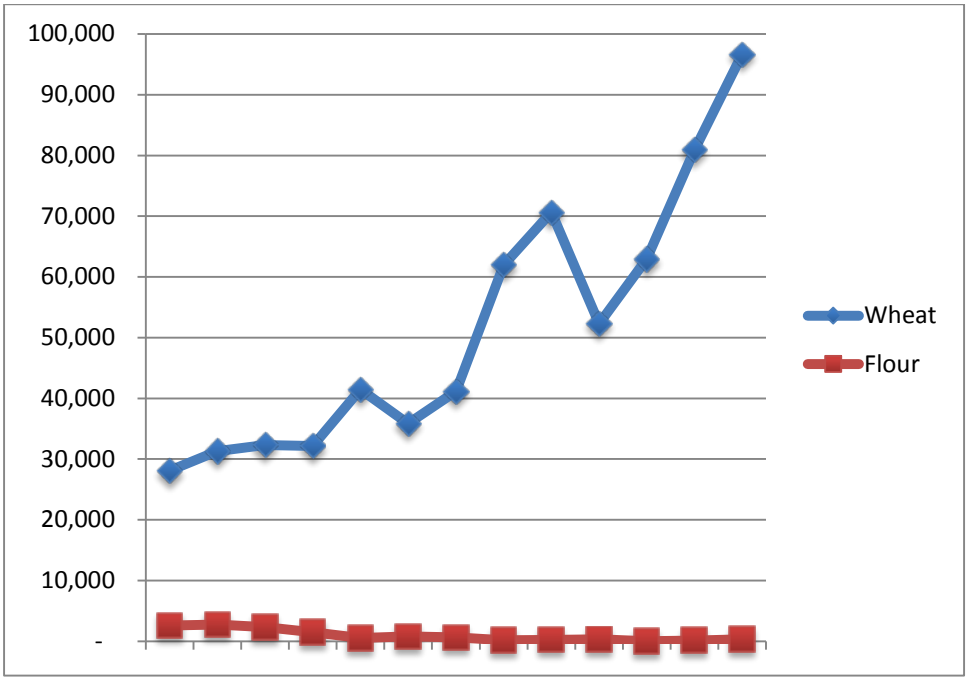
Source: Index Mundi, ANSD, and authors' calculations
[a]World price adjusted for trade costs, conversion coefficients of wheat into flour, wholesale-retail margins and domestic value added taxes. See Appendix 2 for technical details on the adjustments.

Figure 10
Ratio of Cost of Flour (500 g) to Price of Baguette (210 g)



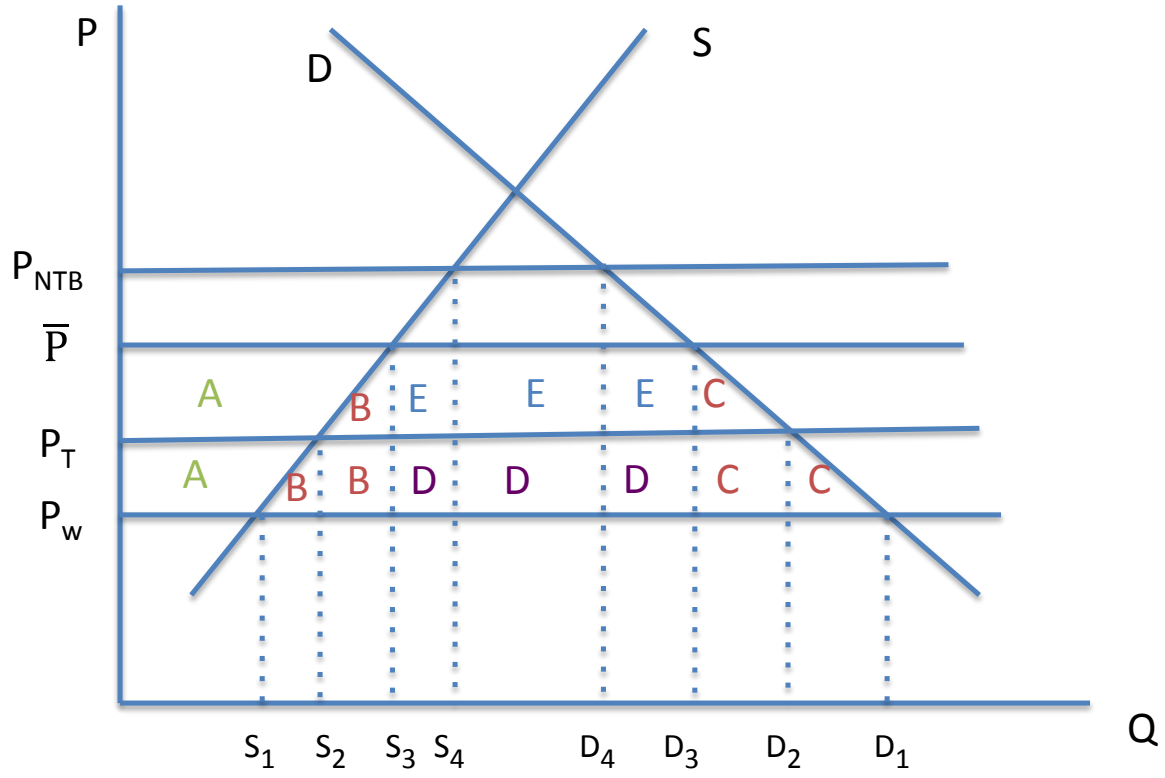
Source: ANSD and authors' calculations

Figure 11
Senegal Wheat and Flour Imports, CFA Francs, Million



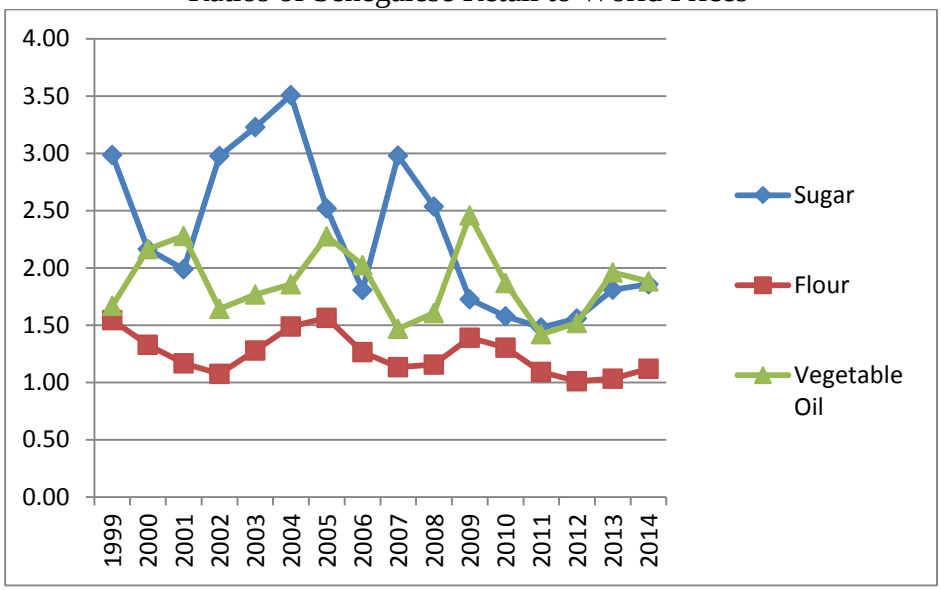
Source: Senegal customs

Figure 12
Analysis of Senegal's Policy Mix of Import Tariffs, Non-Tariff Barriers and Price Controls



A+B+C+D+E = **Consumer surplus loss**
A = **Producer surplus gain**
D = **Tariff revenue**
E = **Importer rents**
B+C = **Deadweight loss**

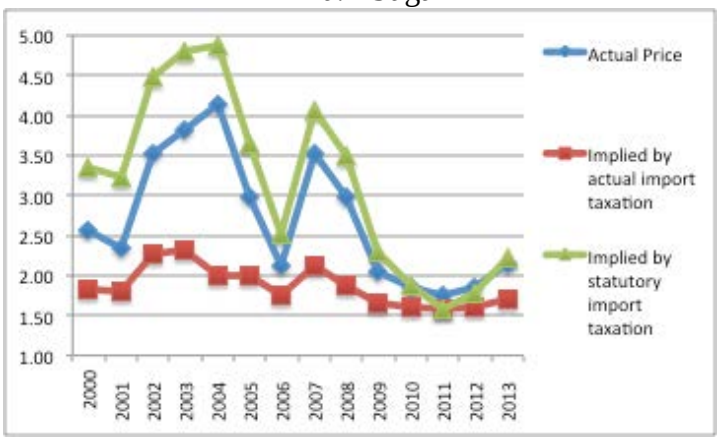
Figure 13
Ratios of Senegalese Retail to World Prices[a]



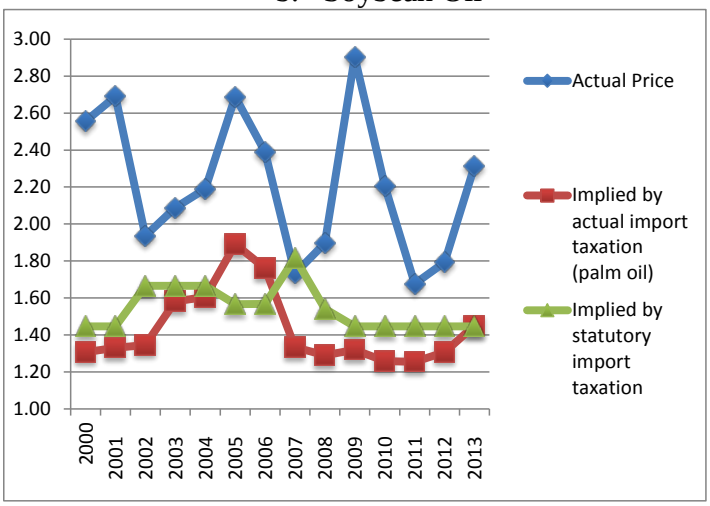
Source: Index Mundi, ANSD, and authors' calculations
[a]World price adjusted for trade costs, conversion coefficients of wheat into flour, wholesale-retail margins and domestic value added taxes. See Appendix 2 for technical details on the adjustments.

Figure 14
Ratio of Senegalese Domestic to World Prices[a]: Actual and Implied by Import Taxes (Including VAT)

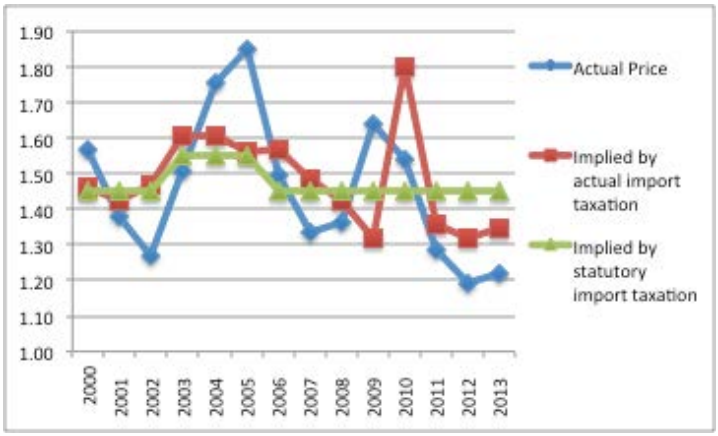
a. Sugar



b. Soybean Oil



c. Flour

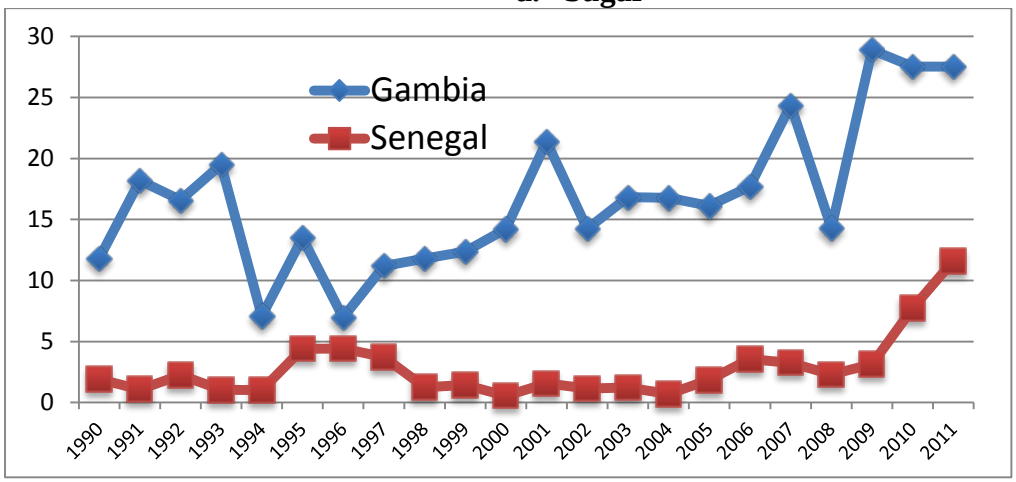


Source: Senegal customs, Index Mundi

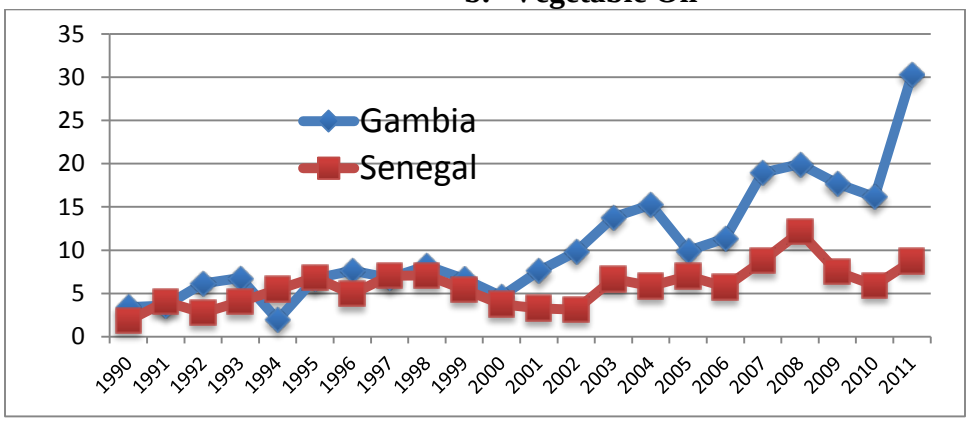
[a]World prices adjusted upwards to account for trading costs and domestic markups (see Appendix 2 for details).

Figure 15
Imports per Capita, Measured by World Exports to Designated Country (US $)

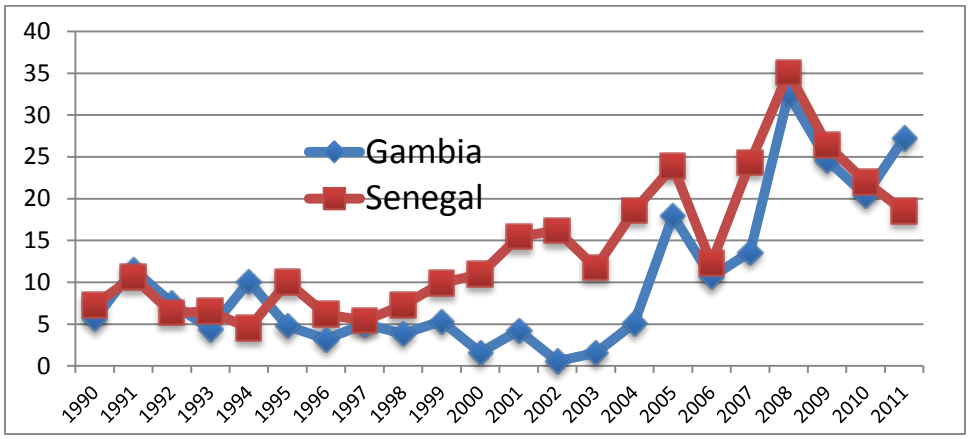
a. Sugar



b. Vegetable Oil



c. Rice



Source: UN Comtrade, World Bank World Development Indicators and authors' calculations

Table 1
Actual Versus Statutory Tax Rates on Sugar Imports

	(1) Customs Duty rate based on customs value	(2) VAT tax rate based on customs value	(3) Other tax rate based on customs value	(4) Overall Tax rate based on customs value	(5) Reference Price / World Price	(6) Customs Unit Value / World Price	(7) Adjusted actual tax rate	(8) Statutory tax rate based on world prices
2000	22%	13%	3%	38%	2.27	2.17	82%	228%
2001	23%	16%	3%	43%	2.19	1.85	79%	216%
2002	26%	28%	3%	58%	3.04	2.18	126%	340%
2003	27%	29%	4%	59%	3.27	2.20	131%	373%
2004	21%	23%	3%	48%	3.31	2.03	97%	379%
2005	22%	24%	3%	49%	2.47	2.01	98%	258%
2006	20%	22%	3%	45%	1.70	1.64	73%	146%
2007	20%	22%	3%	45%	2.76	2.44	109%	300%
2008	20%	22%	3%	45%	2.37	1.91	85%	243%
2009	20%	22%	3%	45%	2.37	2.18	97%	243%
2010	20%	22%	3%	45%	1.56	1.64	73%	125%
2011	20%	22%	3%	45%	1.28	1.51	67%	85%
2012	20%	22%	3%	45%	1.07	1.19	53%	54%
2013	21%	22%	3%	46%	1.21	1.19	55%	75%

Source: Senegal customs, Index Mundi, and authors' calculations

Columns (1)-(4) are computed as tax receipts divided by customs value of imports. Column (5) is the reference price of CFA 325,056 per ton divided by the world price. Column (6) is the imputed customs unit value, obtained by dividing the value of imports by weight of imports, as a ratio of the world price. This indicates the extent to which customs valuations are differing from world prices. Column (7) adjusts the overall tax rate (column 4) for discrepancies between customs unit values and world prices. Column (8) is the tax due based on equation (2) of the text plugging in the values from column (5).

Table 2
Actual Tax Rates on Palm Oil Imports

	(1) Customs Duty rate based on customs value	(2) VAT tax rate based on customs value	(3) Other tax rate based on customs value	(4) Overall Tax rate based on customs value	(5) Customs Unit Value / World Price	(6) Adjusted actual tax rate	(7) Statutory tax rate (refined oils outside WAEMU)
2000	7%	11%	2%	19%	1.59	31%	45%
2001	8%	14%	2%	24%	1.41	33%	45%
2002	7%	20%	4%	31%	1.11	35%	67%
2003	3%	21%	15%	39%	1.49	59%	67%
2004	5%	22%	16%	42%	1.44	61%	67%
2005	13%	23%	19%	55%	1.64	90%	57%
2006	7%	20%	16%	43%	1.77	77%	57%
2007	6%	19%	2%	28%	1.21	34%	82%
2008	2%	18%	1%	22%	1.35	29%	54%
2009	3%	19%	1%	23%	1.41	32%	45%
2010	3%	19%	1%	23%	1.15	26%	45%
2011	2%	18%	1%	21%	1.23	26%	45%
2012	4%	19%	1%	23%	1.35	31%	45%
2013	9%	20%	1%	30%	1.58	47%	45%

Source: Authors' calculations from Senegal customs data.

Columns (1)-(4) are computed as tax receipts divided by customs value of imports. Column (5) is the imputed customs unit value, obtained by dividing the value of imports by weight of imports, as a ratio of the world price. This indicates the extent to which customs valuations are differing from world prices. Column (6) adjusts the overall tax rate (column 4) for discrepancies between customs unit values and world prices. Column (7) is the overall statutory tax rate for final products.

Table 3
Actual Tax Rates on Wheat Imports

	(1) Customs Duty rate based on customs value	(2) VAT tax rate based on customs value	(3) Other tax rate based on customs value	(4) Overall Tax rate based on customs value	(5) Customs Unit Value / World Price	(6) Adjusted actual tax rate	(7) Statutory tax rate
2000	5%	10%	3%	18%	1.24	23%	18%
2001	5%	10%	3%	18%	1.21	22%	18%
2002	5%	0%	3%	8%	1.08	8%	8%
2003	5%	0%	3%	8%	1.22	9%	8%
2004	5%	0%	3%	8%	1.45	11%	8%
2005	5%	0%	3%	8%	1.24	10%	8%
2006	5%	0%	3%	8%	1.05	8%	8%
2007	2%	0%	3%	5%	1.21	6%	8%
2008	1%	0%	3%	4%	1.22	5%	8%
2009	5%	0%	3%	8%	1.08	8%	8%
2010	5%	0%	3%	8%	1.18	9%	8%
2011	5%	0%	3%	8%	1.14	9%	8%
2012	5%	0%	3%	8%	1.09	9%	8%
2013	5%	0%	3%	8%	1.19	9%	8%

Source: Source: Senegal customs, Index Mundi, and authors' calculations

Columns (1)-(4) are computed as tax receipts divided by customs value of imports. Column (5) is the imputed customs unit value, obtained by dividing the value of imports by weight of imports, as a ratio of the world price. This indicates the extent to which customs valuations are differing from world prices. Column (6) adjusts the overall tax rate (column 4) for discrepancies between customs unit values and world prices. Column (7) is the overall statutory tax rate for intermediate inputs.

Table 4
Actual Tax Rates on Flour Imports

	(1) Customs Duty rate based on customs value	(2) VAT tax rate based on customs value	(3) Other tax rate based on customs value	(4) Overall Tax rate based on customs value	(5) Customs Unit Value / World Price	(6) Adjusted actual tax rate	(7) Statutory tax rate
2000	20%	12%	3%	35%	1.33	46%	45%
2001	20%	14%	3%	36%	1.17	42%	45%
2002	20%	22%	3%	44%	1.05	47%	45%
2003	22%	24%	7%	52%	1.17	61%	55%
2004	21%	23%	7%	50%	1.21	61%	55%
2005	18%	19%	6%	43%	1.29	56%	55%
2006	24%	26%	15%	65%	0.88	57%	45%
2007	26%	28%	16%	70%	0.69	48%	45%
2008	20%	22%	3%	45%	0.94	42%	45%
2009	8%	20%	2%	30%	1.05	32%	45%
2010	24%	26%	8%	58%	1.37	80%	45%
2011	20%	22%	4%	46%	0.77	36%	45%
2012	20%	22%	3%	46%	0.70	32%	45%
2013	20%	22%	3%	46%	0.75	34%	45%

Source: Senegal customs, Index Mundi, and authors' calculations

Columns (1)-(4) are computed as tax receipts divided by customs value of imports. Column (5) is the imputed customs unit value, obtained by dividing the value of imports by weight of imports, as a ratio of the world price. This indicates the extent to which customs valuations are differing from world prices. Column (6) adjusts the overall tax rate (column 4) for discrepancies between customs unit values and world prices. Column (7) is the overall statutory tax rate for final products.

Table 5

Summary of Market Structure: Sugar, Flour-Bread, and Vegetable Oil, 2013

	Market Structure	**Price Ceiling**
Flour	4 Millers; Grands Moulins 65% share	20,000 CFA per 50 KG bag
Sugar	CSS Monopoly on Production; CSS had monopsony on imports; Imports partially liberalized in 2009	580 CFA per kg (crystalized sugar)
Peanut and Vegetable Oil	SUNEOR (67 percent market share) and NOVASEN refine domestic peanut oil; SUNEOR partial monopsony on imported unrefined oil. Peanut liberalization in 2011	Price ceiling on soybean oil sold in bulk form ("en fut").
Bread	Competitive Market	175 CFA for 210 g baguette

Source: Senegal government, press reports

Table 6
Nominal and Effective Rates of Production, Based on Statutory Tax Rates
Sugar, Wheat, Flour, 2011

	Nominal Consumer Tariff	Nominal Producer Tariff	Main input	Input Tariff	Input share	Effective Producer Tariff
Sugar	100	80	Gasoil	8	0.2	98
Refined Edible Oil	45	24	Crude Veg Oil	0	0.8	120
Flour	55	34	Wheat	8	0.8	138
Bread	0	0	Flour	54	0.6	-81

Source: Authors' calculations based on Senegal official documents and interviews

Table 7
Implicit Cost to Consumers and Subsidy to Producers Associated with Protection, Sugar, Flour and Palm Oil, 2000-2010 and 2011-2013

				2000-2010			
	Domestic Retail Price (CFA per kg)	World Price adjusted (CFA per kg)	Ratio Domestic / World Price	Unit Cost to Consumers (CFA per kg)	Total Cost to Consumers (CFA billion)	Total Labor Compensation (CFA billion)	Customs Duty Revenues (CFA billion)
Sugar	524	237	2.21	287	43.1	11.5	4.9
Vegetable Oil	948	536	1.77	412	49.5	5.7	3.9
Flour	349	278	1.26	71	14.2	3.6	0.1
				2011-2013			
	Domestic Retail Price (CFA per kg)	World Price adjusted (CFA per kg)	Ratio Domestic / World Price	Unit Cost to Consumers (CFA per kg)	Total Cost to Consumers (CFA billion)	Total Labor Compensation (CFA billion)	Customs Duty Revenues (CFA billion)
Sugar	666	419	1.59	247	44.4	14.7	6.7
Vegetable Oil	1360	848	1.60	512	61.5	5.4	3.9
Flour	442	426	1.04	16	4.8	4.0	0.1

Source: ANSD (production and retail prices), Deuxième Enquête de suivi de la pauvreté au Sénégal (ESPS II) (consumption), Index Mundi (World prices), and authors' calculations.