El Salvador
Poverty and Social Impact Analysis on CAFTA:

A Partial Equilibrium Estimate of the Treaty's Welfare Impact on the Salvadoran Population

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Introduction

This paper provides a Poverty and Social Impact Analysis (PSIA) of the effects of the Central American Free Trade Agreement (CAFTA) on the Salvadoran population. For this purpose, it presents estimates the first-order welfare effect of the treaty in El Salvador using a simple partial equilibrium methodology. It is similar to the exercise that Claus Pörtner has recently conducted for Guatemala.[1] As discussed in the methodological section below, this paper estimates the impact of the reduction in import tariffs of key agricultural products on consumers' and producers' welfare following the implementation of the CAFTA, considering that the net consumers of these commodities are likely winners, while net producer are likely losers. The identification of potential losers by product, region (urban and rural), Department, and income level are expected to guide policy responses and mitigation efforts to help the affected people, particularly the more vulnerable poor households.

After some background in Section I, Section II describes the key elements of the CAFTA agreement. Section III presents the estimates of the CAFTA's welfare impact, including the description of the methodology and its limitations, the data used, and the results. Section IV discusses the policy implications of the analysis. And Section V concludes.

I. Background

Evolving Economic Conditions

El Salvador is one of the founders of the Central American Common Market (CACM) established in 1960. Under high tariff protection, the CACM facilitated rapid industrialization in the 1960s and early 1970s, which in the case of El Salvador was financed by agriculture surpluses mainly generated by coffee, the country's principal export crop. In the late 1970s there were signs that import substitution opportunities were quickly becoming exhausted, as manufacturing growth in El Salvador decelerated substantially (Table 1.1). In the 1980s, the Central America region, including El Salvador, became engulfed in a conflict, with sharp declines in the country's GDP and sectoral growth rates. At the same time, some countries (Costa Rica, Nicaragua and Honduras) suffered a severe external debt problem owing to the lack of adjustment to the oil shocks and/or excessive expansionary policies, and the regional conflict. The debt crisis and the conflict affected adversely the CACM, and regional trade dropped substantially. According to the Central American Economic Integration Secretariat, regional trade was US$250 million in 1970, increased to US$1,000 million in 1980, but receded to US$500 million in 1986.

[1] Pörtner, Claus (2003): "Expected Impact of CAFTA in Guatemala", mimeo. Monge, R., F. Castro, D. Saavedra (2004): "La Agricultura Nicaragüense ante el CAFTA" have conducted a similar exercise for Nicaragua. Note that Pörtner's analysis precedes the conclusion of the negotiations, while Monge's follows it.

The region experienced profound changes during the 1990s. The internal conflicts came to an end and all countries underwent major structural reforms. Regional trade expanded rapidly back to US$1,000 in 1992 and to US$3,200 million in 2002, as efforts were made to establish a more efficient regional payment system, to eliminate non-tariff barriers (NTBs), and to establish a custom union among the participating countries. In late 2002, the CACM countries approved a new Central American Import Tariff schedule (CAUCA III), with most of the external tariffs unified.

Table 1.1: El Salvador's GDP and Sector Growth, 1960s-1990s
(Simple average of annual rates)

	1960s	1970s	1980s	1990s
GDP	6.0	3.9	-1.9	4.9
Agriculture	3.8	3.8	-2.5	2.2
Manufacturing	8.7	3.1	-3.3	5.3
Services	5.6	4.1	-1.2	5.6
Memo: Latin America's GDP	2.3	3.5	-0.1	1.6

Source: Marques (2004).

In El Salvador, traditional agricultural exports (coffee, cotton, sugar) saw their contribution to the country's value added decline since the 1960s, while services and industry rose in importance. Agriculture's contribution to GDP dropped from 42 percent in the 1960s to 14 percent in the 1990s; services increased from 36 percent to 58 percent; and industry rose from 23 percent to 28 percent. In the industry the faster growing subsector has been the export processing zones or "*maquila*", mostly of apparel. These changes have been accompanied by a large out-migration to the US, where over 2 million Salvadorans or about one-third of the total Salvadoran population, is estimated to live today. The Government of El Salvador dollarized the economy in 2001, owing in part to the large amount of remittances received from the emigrant workers (currently equivalent to 15 percent of the GDP).

Since the early 1990s, El Salvador has been a leading force in the regional integration, not behind protective barriers as in the 1960s, but under the so-called "open regionalism" banner. In June 1989, El Salvador initiated a major trade liberalization reform; then it had 25 tariff rates ranging from 0-290 percent; by April 1990, with very few exemptions, the number of rates had been reduced to 9 and the range to 1 to 50 percent; by December 1994 there were 3 tariff rates of 5, 10 and 20 percent. Most non-tariff barriers were eliminated when El Salvador became a member of the WTO in 1994. According to the World Bank, by the late 1990s El Salvador had one of the lowest average tariffs (5.7 percent) and tariff dispersion (3.3 percent standard deviation) in Latin America.[2] At regional level, El Salvador has moved to eliminate most barriers to trade and establish a

[2] Only Costa Rica with 3.3 percent and Uruguay with 4.6 percent had lowest average tariff, but they had larger tariff dispersion: 7.8 percent and 4.3 percent respectively. Chile has a virtually unified tariff of 10 percent. Lederman, Daniel and al. "Trade Structure, Trade Policy and Economic Policy Options in Central America", mimeo, World Bank, November 2002.

real customs union with its CACM partners. It has also led free trade negotiations with several countries. During the last several years, CACM has signed free trade agreements with Mexico, Panama, the Dominican Republic, Chile, and most recently with the US (CAFTA). Trade negotiations are underway with Canada and the rest of the hemisphere (Free Trade Area of the Americas, FTAA) and are planned with the European Union.

Currently in El Salvador, all tariffs are *ad valorem* and the great majority of tariff positions are between 0-15 percent: final consumption goods have a tariff of 15 percent; intermediate goods, 10 percent if produced in Central America and 5 percent if not produced in Central America; petroleum, 1 percent; and raw material and capital goods, 0 percent. Some goods with tariffs exceeding 15 percent include rice, sugar, dairy, and pork. As in many other developing countries, El Salvador's tariff structure is marked by escalation and provides higher levels of effective protection for producers of processed agricultural goods (Table 1.2).

Table 1.2: Estimates of Effective Protection of Selected Products a/

	% Value Added	% Nominal Tariff	Effective Protection Final Product		Effective Protection Substitute Product		Effective Protection Industrial Input Substitute	
Corn	64	15,20	White corn	22	Wheat	-1	Yellow corn	-1
Beans	78	20	Red bean	25	Black beans	25	Bean flower	6
Rice	58	40	Paddy rice	33	Processed	60		
Sorghum	83	15	In grain	18			Yellow corn	-1
Sugarcane	65	40	Sugar	60	Processed	60		
Vegetables	90	15	Fresh veg	17	Frozen	17	Tomato conc.	6
Citric	96	15	Lemmon	16	Fresh	16	Orange juice	-0.1
Fruits	95	15	Fresh	16	Fresh	16	Fruit past	-0.1
Meat	54	0-15	Meat	29	Meat	29	Meat	29
Dairy	34	20,40	Dairy	69	Dairy	69	Dairy	69

a/ Effective Protection estimates for 1999.
Source: Synthesis Consultores Internacionales (1999)

In recent years, the Government of El Salvador has instituted a price support scheme for local agriculture. Under this scheme, the agro industrialists agree to buy local production at a price that is negotiated in advance, and, in turn, the authorities allow them to import certain quantity of the products duty free or at a reduce tariff. Table 1.3 shows these quotas ("*contigentes arancelarios*") and the tariffs that apply.

Table 1.3: Agricultural Quotas, 2003

	Quota MT	Tariff Under Quota	Tariff Outside Quota
White corn	36,288	15	20
Yellow corn	349,000	0	15
Rice, rough	83,915	0	40
Pork	955	0	40
Cheddar cheese	750	15	40

Source: Policy and Strategies Unit, Ministry of Agriculture

In addition to the Generalized Preferences System (GPS), which grants trade preferences to many developing countries, El Salvador has benefited since the early 1980s from the trade preferences in the US market provided by the Caribbean Basin Initiative (CBI).[3] In 1983, the US approved the CBI that extended trade benefits to 24 Caribbean and Central American countries. The CBI provides these countries with duty-free access to the US market for most products. In 2000, the US Congress enacted the Caribbean Basin Trade Partnership Act (CBTPA) which expanded the CBI, allowing duty-free and quota-free treatment for certain apparel assembled in qualified CBI countries, and applying reduced duties to other previously-excluded products. In 2001, nearly 25 percent of the total US imports from the beneficiary countries entered the US under the enhanced trade benefits of the CBTPA.

Evolving Social Conditions

Social conditions in El Salvador have also changed significantly during the last decades. Between 1978 and 1989, real GDP per capita dropped by 32 percent mostly because of the conflict. As a result, migration flows to the US accelerated. During the 1990s, poverty has declined sharply, particularly in urban areas.[4] In 1991, poverty affected 66 percent of the population; 33 percent of the population was in extreme poverty and another 33 percent in moderate or relative poverty (Table 1.4). Total poverty was higher in the rural areas (71 percent) than in urban areas (60 percent). By 2002, total poverty had declined to 43 percent; 19 percent of the population was in extreme poverty and another 24 percent in relative poverty. Poverty continued to be higher in rural areas (56 percent) compared to the urban areas (34 percent). At present, 41 percent of the population lives in rural areas and 59 percent in urban areas.

Table 1.4: Headcount Poverty, 1991, 1995, 2002

(Percentage)

	1991			1995			2002		
	Nation	Urban	Rural	Nation	Urban	Rural	Nation	Urban	Rural
Total	66	60	71	54	46	64	43	34	56
Moderate	33	32	34	32	31	35	24	22	27
Extreme	33	28	37	22	15	30	19	12	29

Source: DICESTYC's Household Surveys

[3] According to United States Trade Representative the GSP is a program designed to promote economic growth in the developing world. It provides preferential duty-free entry for more than 4,650 products from 144 designated beneficiary countries and territories. The GSP program was instituted on January 1, 1976, and authorized under the Trade Act of 1974 for a 10-year period. It has been renewed periodically since then, most recently in 2002 through 2006.

[4] The official poverty lines are based on the minimum caloric intake. The extreme poverty lines correspond to the monthly cost of basic food baskets that provide a minimum caloric requirement (about 2,200 Kcal/day) for a family of four members. The official poverty lines use different consumption baskets for urban and rural areas to achieve the same minimum caloric requirement. The general poverty lines are obtained by multiplying the extreme lines by a factor of two to allow for non-food expenditures. The cost of these bundles of food is updated with new prices every year.

Other social indicators also improved substantially during the 1990s. Between 1990/91 and 2000, illiteracy declined by 8 years and education enrollment at pre-primary, primary and secondary levels increased noticeably (Table 1.5). On health, life expectancy augmented by 4.5 years while infant mortality declined sharply. Access to basic services also improved: access to water reached 76 percent of households in 2002 compared to 55 percent in 1991; access to sanitary installations reached 93 percent of households in 2002 up from 78 percent in 1991; electricity now reaches 88 percent of households, compared to 70 percent at beginning of the period.

Table 1.5: Selected Social Indicators

	Illiteracy a/	Gross Enrollment Pre-Primary (%)	Gross Enrollment Primary (%)	Gross Enrollment Secondary (%)	Life Expectancy at birth (years)	Infant Mortality Rate(per 1000 live births)	Under 5 Mortality Rate (per 1000 live births)
	2000						
El Salvador	20	44	109	54	70	29	35
LAC	11	58	130	86	70	29	37
	Change since 1990/91						
El Salvador	-8	24	28	29	4.5	-16	-19
LAC	-4	11	24	37	2.5	-12	-13

a/ Population 15 years and older.
Source: DIGESTYC and World Bank's WDI

In spite of progress made in improving social conditions and reducing poverty, it should be noted that in rural areas about one-third of the population is still in extreme poverty and nationwide 20 percent of the population cannot afford the minimum food basket.

II. The CAFTA Agreement

The CAFTA agreement between the US and El Salvador, Costa Rica, Guatemala, Honduras, Nicaragua signed in mid-2004 and approved by the El Salvador National Assembly on December 17, 2004, eliminates most trade barriers between the US and these countries.[5] When implemented, most product categories from CAFTA countries would enter the US duty-free. For US exporters, CAFTA would offer guaranteed reciprocal access for most products, including agricultural products. For CACM countries, only a few products most notably sugar and apparel would still remain under quota and restrictive rules of origin in the US. CAFTA includes also important agreements on government procurement, investment, cross border trade in services,

[5] The agreement with the five Central American countries and the US was signed on May 28, 2004. On August 5, 2004 the US reached a similar agreement with the Dominican Republic which has been "merged" into CAFTA.

financial services, telecommunications, electronic commerce, intellectual property rights, transparency, and labor and environment standards.

No products were excluded from the agreement. Liberalization will occur through tariff reductions, tariff-rate quota (TRQs) expansion, and combination approaches.[6] The US will provide the same tariff treatment to each of the five countries, but will make country-specific commitments on TRQs. El Salvador has negotiated a separate schedule of commitments providing access for US products. Tariffs will be eliminated for all products, except sugar for the US and white corn for El Salvador.

After Central America, the US is El Salvador's major trading partner; 20 percent of El Salvador export value goes to the US (60 percent to CACM) and 33 percent of import value comes from the US (21 percent from CACM). For agricultural products the export share is even higher.[7] As discussed, most of the El Salvador industrial exports already entered the US duty free under the CBTPA. However, under CAFTA there will be fewer restrictions and a permanent access. For El Salvador, 97 percent of industrial exports will enter the US duty free immediately; only tuna in water and shoes will have to wait ten years to enter duty free. For US companies, 78 percent of the industrial products will enter duty free immediately; medicines, cosmetics, paints, steel products, aluminum products, chemicals and a few others, will enter duty free in five years. *Maquila* products elaborated with North America Free Trade Agreement countries (Canada, Mexico and US) or regional textiles will enter the US duty free immediately.

As for agricultural products, 89 percent of the El Salvador exports such as plants, fruits, coffee, and the so-called ethnical products (*pupusas, tamalas, semita, horchatas, beans, etc.*) will enter the US duty free immediately. Tobacco, ice cream, beef, cheese, milk, and peanuts, peanut butter will enter duty free only after 15 to 20 years. In turn, 55.3 percent of US exports will enter El Salvador duty free immediately.

Special provisions apply to several agricultural products *imported from the US* which are considered sensitive either because they (1) are important in the consumption basket of the Salvadoran households; or (2) employ a large number of small Salvadoran producers/workers. Table 2.1 shows the products that are considered to be essential in the diet of the Salvadorans and that are used to calculate the country's poverty line. The "basic food basket" was obtained from the last household expenditure survey in 1991. Table 2.1 also shows the relative importance of these items in the consumer price index, which is based in the same 1991 survey. Thus, for the Salvadoran consumer and particularly for lower income consumers, the sensitive products from this perspective are: corn, wheat, beans, rice, meat (poultry, pork, beef), and dairy. Note that sugar and eggs though significant are not imported; note further that fruits, vegetables, and shortenings do not meet the above criteria.[8]

[6] TRQs involve zero duty access for a specified quantity of imports.

[7] According to FUSADES (2004), for agricultural and agro industrial products the shares are the following: 25.6 percent of El Salvador exports go to the US; 30 percent of El Salvador imports are from the US.

[8] Most fruits and vegetables that are imported are imported duty free from the region (Guatemala and Honduras) or from Mexico. Specific products within the vegetables (US$38 million total imports in 2003),

Table 2.1: Basic Food Baskets Used to Calculate the Poverty Line

	Urban (Grams)	Rural (Grams)	Weights in Consumer Price Index (percent) 1/
Tortillas (white corn)	233	402	2.81
Beans	79	60	0.83
French bread (wheat)	49	0	2.64
Rice	55	39	0.92
Meat	60	14	5.45
Shortening	33	14	1.60
Eggs	28	30	2.08
Milk, liquid	106	31	4.87
Fruit	157	16	2.09
Vegetables	127	0	1.38
Sugar	69	65	1.63
Total	996	671	26.3

1/ the Weights in the consumer price index are as follows: Food: 39.8 percent; Housing: 3.75 percent; Dressing: 7.27 percent; and Miscellaneous: 29.18 percent
Source: DIGESTYC

The number of Salvadoran producers and workers for several agricultural products are shown in Table 2.2. White corn, beans, dairy, meats show up again as important from an employment perspective. In contrast, rice does not appear that important from this perspective, as it employs only 6,000 people. Note that sorghum (together with yellow corn) is used to prepare animal feed and therefore is not a directly represented in the food basket; coffee and sugar are not imported.[9] In sum, the following may be considered sensitive products: white corn, wheat, beans, rice, meat (poultry, pork, beef), and dairy.

Table 2.2: Agriculture Producers and Workers, 2001 a/

	Producers/Workers (000)
White corn/sorghum	250
Coffee	135
Dairy	125
Beans	100
Sugar	48
Meats	29
Rice	6
Other	77
Total Agriculture a/	520
Total Labor force	2451
Agriculture/Total Labor force (%)	21

a/ Includes agro industries.
Source: Ministry of Agriculture and DIGESTYC

fruits (US$50 million) and shortening (US$80 million) groupings are imported from outside the region but no single product appears to be significant in terms of employment or participation in basic food basket.

[9] El Salvador does not produce yellow corn.

Indeed, these are the products that receive special treatment in the CAFTA agreement. The special provisions are as follows. Tariffs will be phased-out according to specific schedules or stages negotiated on a product basis as shown in Table 2.3. Phase-out periods will be immediate, 5 years, 10 years, 12 years, 15 years, and 18 to 20 years for chicken leg quarters, rice and dairy products. As a general rule, tariffs will be reduced in equal annual installments over the phase-out period. For specified products, tariff reductions will be back-loaded, with no cuts in the initial years of the phase-out period and larger cuts in the later years of the phase-out period.

Table 2.3: CAFTA's Tariff Liberalization Stages

(Number and percentage of product categories liberalized by stage)

	US		El Salvador		
	No	%	No	%	Imports
A Duties removed immediately (some products retroactive to 1/1/04)	6,404	60.2%	1,971	31.3%	
B Duties removed in 5 equal annual stages, year 1 through year 5	6	0.1%	426	6.8%	Wheat flour
C Duties removed in 10 equal annual stages, year 1 through year 10	8	0.1%	665	10.6%	
D Duties removed in 15 equal annual stages, year 1 through year 15	13	0.1%	89	1.4%	Beans, Sorghum
E Staggered duty reduction begins in year 7; duty-free in year 15	0	0.0%	0	0.0%	
F Duties removed in 10 equal annual stages, year 11 through year 20	0	0.0%	0	0.0%	Dairy
G Goods continue to receive duty-free treatment	3,261	30.7%	2,924	46.5%	
H Goods continue to receive most-favored-nation treatment	0	0.0%	0	0.0%	White corn
I Staggered duty reduction begins in year 1; duty-free in year 10	18	0.2%	0	0.0%	
J Duties removed immediately in accordance with WTO commitments	730	6.9%	0	0.0%	
K Duties removed as of January 1 of year 1.	17	0.2%	0	0.0%	
L Duties apply according to special provisions; duty-free in year 10	1	0.0%	0	0.0%	
M Staggered duty reduction begins in year 1; duty-free in year 10	0	0.0%	152	2.4%	
N Duties removed in 12 equal annual stages, year 1 through year 12	0	0.0%	17	0.3%	
O Staggered duty reduction begins in year 7; duty-free in year 15	0	0.0%	0	0.0%	Yellow corn, Pork
P Staggered duty reduction begins in year 11; duty-free in year 18	0	0.0%	0	0.0%	Rice, Chicken legs,
Q Staggered reduction begins in year 4; duty-free in year 15	0	0.0%	0	0.0%	Beef
Subject to tariff-rate quotas	178	1.7%	44	0.7%	
Total tariff provisions	10,636		6,288		

Note: Product categories are shorthand for eight-digit harmonized tariff schedule provisions.
Source: SIECA (www.sieca.org.gt/canasta/resumenes/resumen1.asp) and Griswold and Ikenson (2004).

The detailed agricultural provisions agreed are summarized in Table 2.4. Immediate market access will be provided through the creation and expansion of TRQs. Safeguard measures will be available for specified products, allowing for tariff increases after import quantities increase to specified levels. Specific triggers to activate the safeguards and duty increases are established in the agreement; the safeguards will expire when tariff protection has been phased-out. The US will apply safeguards on out-of-quota imports of dairy, peanuts, and peanut butter. El Salvador will apply TRQs to corn, sorghum, beans, rice; chicken; pork, beef excluding prime cuts, and dairy; and it will apply safeguards to

sorghum, beans, rice, chicken, pork, and dairy.[10] Noting that wheat is not produced in El Salvador and white corn will not be liberalizing, the key provisions for the sensitive products are as follows:

- **Beans**. There is no TRQ; there are no quotas. Imports are very small relative to production (1,161 MT versus 83,484 MT); most imports come from neighboring countries (Nicaragua and Honduras) and only 147 MT from US. The trigger for agricultural safeguard is only 60 MT. Tariff on US imports is 20 percent; to be phased out in equal installment during a 15-year period with no grace period (Stage D).
- **Rice.** The TRQ for rough rice of 61,000 MT is very large compared to the total production (Production paddy: 22,515 MT). Tariff is 40 percent but most imports enter duty free under the existing quota (Total Imports of rough rice: 86,810 MT; imports from US: 85,810 MT). Tariff is to be phased out starting year 11; duty free in year 18 (Stage P).
- **Poultry.** The initial TRQ of 464 MT in the third year growing to 1,391 MT in year five is very small compared to the total production (Production: 78,550 MT); TRQ will remain at 5 percent of national production. Tariff on US imports is 20 percent and 164 percent (leg quarters). Tariff is to be phased out starting year 11; duty free in year 18 (Stage P).
- **Pork.** The initial TRQ of 1,500 MT will increase by 10 percent a year; it could increase another 30 percent before triggering the agriculture safeguard. The TRQ is large compared to the existing duty free quota (Total imports: 1,399 MT; Imports from US duty free 955 MT) but small relative to total production of 8,660 MT. Tariff of 40 percent is be phased out starting year 7; duty free in year 15 (Stage O).
- **Beef (other)**. Prime beef parts already enter duty free. The initial TRQ of 100 MT would increase 5 percent a year. Tariff on US import is 15 percent. Tariff is to be phased out starting year 3, duty free in year 15 (Stage Q).
- **Milk.** The initial TRQ of 10 MT for liquid milk and 300 MT for powder milk are extremely small compared to the production and imports of 393,230 MT and 5,514 MT, respectively. Tariff on US import is 40 percent liquid milk and 20 percent for power milk. Tariff is to be phased out starting year 11, duty free in year 20 (Stage F).
- **Cheese.** The initial TRQ of 410 MT compares to imports from the US of 987 MT of which 750 MT were duty free under existing quota. Total production and imports were 2,400 MT and 9,969 MT, respectively. The TRQ will increase 5 percent a year and by 30 percent before triggering the agricultural safeguard. Tariff is 40 percent. Tariff is to be phased out starting year 11, duty free in year 20 (Stage F).

[10] El Salvador has also negotiated TRQs with performance requirements for corn, rice, pork and cheese. These preferences are import quota given to traditional agro industrialists that have price agreements with producers (Table 1.3), which will be eliminated at the same time as the TRQs are eliminated

Table 2.4: El Salvador's Agricultural Tariff-Rate Quotas and Safeguard Provisions

	Total Production MT 2003	Total Imports MT 2003	Imports from the US 2003	Initial Tariff %	Grace Period for Tariff Reduction Years	Years for Tariff Elimination	Initial TRQ TM	TRQ's Annual Growth Rate	Agricultural Safeguard Measures **1/**	
									Trigger Level	Tariff
White Corn	623,980	10,419	4,499	20	0	It is not liberalized	35,000	2% Simple growth	n/a	n/a
Yellow Corn	0	386,433	381,118	15	6	15	350,0000	5% Simple growth	n/a	n/a
Sorghum	140,963	230	83	15	0	15	250	5% Simple growth	110% of TRQ	Year 1-5: 100% of difference MFN-applicable tariff; Year 6-10: 75%; Year 11-14, 50%
Beans	83,484	1161	147	20	0	15	0		60 MT; growing at 10% per year	Year 1-5: 100%;Year 6-10: 75%; Year 11-14, 50%
Rice Rough	22,515 (paddy)	86810	85676	40	10	18	61,000	2% Simple growth	110% of TRQ	Year 1-13: 100%; Year 14-15: 75%; Year 16-17, 50%
Rice milled		3651	0	40	10	18	5,250	**2/**	110% of TRQ	
Chicken parts	78,550	1934	33	20	10	18	464 (3^{rd} year)	4,638 MT (12^{th} year) **3/**	130% of TRQ	Year 1-13: 100% Year 14-15: 75%; Year 16-17, 50%
Chicken leg quarters				164.4						
Pork	8,660	1399	967	40	6	15	1,500	10% Simple growth	130% of TRQ	Year 1-9: 100%; Year 10-12: 75%; Year 13-14, 50%
Beef, prime cuts	29,234	15,030	99	0	0	0	0	N/a	n/a	n/a
Beef, other				15	3	15	100	5% Simple growth	n/a	n/a
Milk, Liquid	393,230	5514	18	40	10	20	10 5/	5% compound growth	130% of TRQ	Year 1-14: 100%; Year 15-17: 75%; Year 18-19, 50%
Milk, powder		11405	47	20	10	20	300 5/	5% compound growth	130% of TRQ	Year 1-14: 100%; Year 15-17: 75%; Year 18-19, 50%
Cheese	2,400	9669	897	40	10	20	410 5/	5% compound growth	130% of TRQ	Year 1-14: 100%; Year 15-17: 75%; Year 18-19, 50%

1/ Other products subject to ASM are: vegetable oil (8,000 TM trigger growing 5 percent per year); canned meat (400 MT, 10 percent), and high fructose corn syrup (75 MT, 102/ Increase of 375 MT during the first 5 years; 1,000 MT in year 6 and 320 MT annually between year 7 and year 17. percent). 3/ Quota for years 13-18 equivalent of 5 percent of national production. 4/ 2002 5/ the TRQ for dairy is 1,070 MT
Source: FAO, CAFTA Agreements, Ministry of Agriculture and SIECA.

III. Estimate of the CAFTA's Welfare Impact

Methodology

The channels through which trade reform impacts welfare have been identified by Winters (2001) and summarized by Hertel and Reimer (2004) as follows: (a) The price and availability of goods; (b) Factor prices, income and employment; (c) Government taxes and transfers influenced by changes in revenue from trade taxes; (d) The incentives for investment and innovation, which affect long-run economic growth; (e) External shocks, in particular, changes in the terms of trade; and (f) Short-run risk and adjustment costs.

In the present exercise we focus on (a), though reference to some of the other channels will be made in the last section. The methodology used is the partial equilibrium approach. In general, to estimate the impact of trade reform on welfare accounting for several of the above channels requires using computable general equilibrium models (CGE) which are much more demanding in terms of data and time. As Hertel and Reimer (2004) indicate in their recent review of the different approaches to analyze the impact of trade on poverty, the CGE models can become quite complex "thereby making it harder to distinguish the extent to which results are driven by particular modeling assumptions or whether they are robust to model specification and largely data-driven".[11]

The partial equilibrium approach used here to estimate the impact of CAFTA on households incomes assumes that in the short run the households do not react to price changes by changing their production and consumption patterns. The theoretical underpinnings for this type of analysis are described in McCulloch (2002), Chen and Ravallion (2003) and Deaton (1997). The approach assumes that each household has a utility function that fulfills certain requirements such as the separability between consumption and production and between leisure and other consumption. Given a set of (small) price changes the gain or loss to the household can be calculated by the money metric change in the household utility and is simply equal to the price change multiplied by total sales of the product minus the price change multiplied by the total consumption of the product.

Households can be divided into net producers and net consumers of a given product. If with the implementation of CAFTA there is a reduction in the import tariff of that product and of its domestic price, then all households who are net producers of that product would experience a loss, while all households who are net consumers of that product would experience a gain. [12] There may also be households who neither produce nor buy the product or that produce only for self-consumption; in these cases, under this framework, there would be no change in welfare. The household gains and losses can be estimated in per capita terms and relative to total per capita consumption.

[11] In their literature review in addition to partial equilibrium and CGE approaches, Hertel and Reimer (2004) identify two other type of approaches: those that involve general equilibrium simulation coupled with incidence analysis based on household survey data and studies that attempts to estimate the long run potential for poverty reduction through the effect of trade liberalization on economic growth.

[12] Note that this framework ignores transport cost or intermediaries margins.

As McCullock (2002) points out, this partial equilibrium approach can be considered a "worst case" estimate. The analysis assumes no quantity response so the household does not adjust its consumption or production in response to price changes. If the price of a product decreases, a net consumer would experience an increase in welfare since he could now purchase the product at a lower cost. However, the approach ignores the additional welfare gain, which would come from purchasing more of the same or other goods. The producer of a product would see an immediate loss from a price decrease since by assumption he would not adjust his production. In reality a producer is likely to substitute toward producing other goods, work more hours, or take another job. Again the partial equilibrium methodology does not consider the impact of price changes on quantities, nor does it consider the impact of price changes on wages or employment.

The estimation procedure requires calculating the price changes brought about by the CAFTA. Table 3.1 shows the tariff rates for the sensitive products, the existing quotas and the tariffs applied within and outside quota, and the volume of imports from the US, Central America, other countries and the total in 2003. The expected price changes following the elimination of tariffs under the CAFTA are assumed to be equal to the effective tariffs which are calculated as weighted average (by volume) of the tariffs applied, considering that the imports from Central America enter El Salvador duty free.

Several observations to Table 3.1 are in order. Wheat (in grain) that gradually is becoming an important component in the diet of the urban Salvadorans (French bread in Table 2.1), already enters the country duty free and therefore no change in price is expected with the CAFTA.[13] White corn is a major staple in El Salvador and only small quantities are imported when there is a production shortfall. The tariff on white corn will not be eliminated under CAFTA; indeed, as mentioned, this is the only product that will not be liberalized. Thus, no price change is considered for this item. Yellow corn and sorghum are used for animal feed and the elimination of their tariff will eventually impact for example the price of poultry, an indirect effect that has not been considered here. Thus, the products whose prices are expected to change as a direct result of CAFTA implementation are: beans, rice, poultry, pork, beef, milk and cheese. These products, together with white corn and wheat represent 67 percent of the food component of the consumer price index (Table 2.1).

There are two problems in respect to the price changes. As noted, the partial equilibrium approach is only strictly speaking valid for small price changes. As is clear from Table 3.1 the expected price changes in some cases are substantial (19.3 percent for poultry and 11.2 percent for milk) which may bring the assumption of small price changes into question. In this case, as Pörtner (2003), we may appeal to the "worst case scenario" since the effects are unlikely to be underestimated by having larger price changes.

[13] Note that the 10 percent tariff on wheat flour imports from the US will be eliminated with CAFTA.

Table 3.1: Effective Tariff Rates, 2003

Products	SAC 1/	Quota MTs	Tariff		Imports Volume (2003)		Effective Tariff Rate
			Within Quota	Outside Quota	Origin	MTs	
Wheat 2/	1001100	N/a	0	0	Total	254,587	0
					USA	229,698	
					Other	24,889	
					CA	0	
White Corn	10059030	36288	15		Total	10419	6.5
				20	USA	4499	
				20	Other	0	
				0	CA	5920	
Beans	713	n/a	n/a		Total	1161	3.3
				20	USA	147	
				20	Other	44	
				0	CA	970	
Rice,	10061090	83915	0		Total	86810	0.8
rough				40	USA	85676	
				40	Other	0	
				0	CA	1134	
Rice,	10062000	n/a	n/a		Total	3651	
milled	10063010			40	USA	0	
	10063090			40	Other	0	
	10064000			0	CA	3651	
Poultry	020713- 020714-	n/a	n/a		Total	1934	19.3
				164.4	USA	33	
				20	Other	1593	
				0	CA	308	
Pork	0203-	955	0		Total	1399	6.9
				40	USA	967	
				40	Other	229	
				0	CA	203	
Bovine meat	0201-	n/a	n/a		Total	15030	0.3
				30	USA	99	
				30	Other	29	
				0	CA	14902	
Milk, Liquid	040110000-	n/a	n/a		Total	5514	11.2
	040120000-			40	USA	18	
	040130000-			40	Other	6	
				0	CA	5490	
Milk, powder	04021000/2111	n/a	n/a		Total	11405	
	04022112/2121			20	USA	47	
	04022122/2900			20	Other	9350	
				0	CA	2008	
Cheese	04062010-	750	15		Total	9669	8.6
	04061000/2090			40	USA	897	
	04063000/9010			40	Other	1650	
	04069020/9090			0	CA	7122	

1/ Central America Tariff Classification

2/ In 2003, wheat flour was imported from Guatemala (19,558 MT), Nicaragua (4,763), Honduras (44 MT), and Costa Rica (20 MT) at zero tariff. The 10 percent tariff on US imports will be eliminated during a five-year period under CAFTA.

The second problem relates to the timing of tariff reduction. The methodology assumes that tariffs are eliminated at once and that the price impact is immediate. Therefore, consumers would realize an immediate gain and the producers would experience an immediate loss. However, under CAFTA tariff reduction involves long grace and phasing-out periods, and therefore the impact on prices would also be over protracted periods. The present framework does not distinguish between immediate and gradual change in prices. Again, for producers who are expected to lose under this framework, considering that the price changes are immediate, it is certainly a "worse case scenario". Despite its limitations, the framework still helps us identifying those households that could lose the most with CAFTA.

Data

El Salvador's household survey (EHPM) conducted every year by the Directorate of Statistics and Census (DIGESTYC) of the Ministry of Economy, focuses on employment and income rather than on expenditure. The 2003 survey covered about 17,000 households nationwide; it has statistical representation at urban, rural, and Department level.[14] The EHPM has eight permanent modules or sections related to employment and income, education, housing, health, remittances, etc. It may also include special modules; for instance in 2003 it included questions related to child employment. Of the permanent sections, the survey has two of special interest for our purposes here: section 5 on household agricultural activities and section 8 on household expenditures. According to DIGESTYC, the information in these two latter modules is collected mostly as back up to the employment and income information. DIGESTYC authorities kindly made available these data to us with the proviso that these files had not been used before.

Table 3.2: Households Consumption and Sale of Sensitive Goods

(colones/ year)

	Urban				Rural			
	Mean	Standard Deviation	Max	Min	Mean	Standard Deviation	Max	Min
Household size	4	2	17	1	5	2	19	1
Total food Consumption	13124	12022	519948	0	11626	10650	521807	0
Food Consumption per capita	4401	5249	129987	0	3660	4809	95862	0
	Consumption of Households				Consumption of Households			
Beans	342	377	9360	0	421	422	5096	0
Rice	218	523	39000	0	247	271	7020	0
Bovine meat	312	676	8320	0	261	615	6240	0
Pork	23	169	3328	0	23	176	6240	0
Poultry	477	738	9100	0	480	752	8320	0
Milk	441	866	10920	0	426	855	16900	0
Cheese	334	521	7280	0	361	578	11648	0
	Sale by Households				Sale by Households			
Beans	73	1682	151200	0	80	685	34300	0
Rice	42	2230	200000	0	5	362	31960	0
Bovine meat	168	2968	200000	0	194	3771	250000	0
Pork	23	585	48000	0	14	176	7000	0
Poultry	19	315	22500	0	15	144	5000	0
Milk	1	29	2160	0	1	25	1430	0
Cheese	0	9	560	0	2	138	11700	0

Source: Own estimates based on the 2003 household survey.

Section 5 includes information on agricultural and livestock activities (including the production of milk and cheese) of 3,600 households; section 8 data on total consumption expenditures and expenditures by product of about 16,800 households

[14] El Salvador has 14 Departments and 262 municipalities. Urban areas include the head of the municipalities (*cabecera municipal* or *casco urbano*) with limits established by the municipal authorities. In 2003, urban areas further included 18 counties (*cantones*) that have the following services: potable water, electricity, telephone, education center and urban transport.

(8,894 urban and 7,885 rural). The analysis that follows is based on these samples. It should be stressed that these data have not been used by DIGESTYC before and could include some inaccuracies. Although we have checked for the internal consistency of the data and tested for the sensitivity of the results, our detailed estimates should be considered tentative and the results interpreted with caution[15].

The consumption and sale information and the descriptive statistics for the products of interest for urban and rural households are summarized in Table 3.2. As it can be observed, average consumption of beans, rice, and cheese is higher in rural areas than in urban areas; in contrast average consumption of beef is higher in urban areas than in rural areas. Pork consumption is very low both in urban and rural areas. Regarding sales, somewhat surprisingly there is no systematic difference between urban and rural areas; many urban households report the production and sale of agricultural products. Although this can be rationalized because in a small and heavy populated country like El Salvador, the distinction between rural and urban is often blurred and many people that reside in urban areas in El Salvador do own "*fincas*" and are involved in the production and sale of agricultural products, it is also plausible that the data is deficient in this respect.

Table 3.3: Households Consumption and Sale of Sensitive Goods as Percentage of Total Food Consumption, by Region

	Urban				Rural			
	Mean	Standard Deviation	Max	Min	Mean	Standard Deviation	Max	Min
	Consumption of Households				Consumption of Households			
Beans	3.12	4.07	54.71	0.00	4.17	4.73	85.00	0.00
Rice	1.81	2.62	86.08	0.00	2.32	2.88	100.00	0.00
Bovine meat	1.93	4.13	31.96	0.00	1.68	3.91	38.31	0.00
Pork	0.14	1.05	21.13	0.00	0.16	1.19	26.71	0.00
Poultry	3.29	5.08	42.33	0.00	3.53	5.43	41.52	0.00
Milk	2.92	5.60	63.24	0.00	3.16	6.18	100.00	0.00
Cheese	2.37	3.70	61.76	0.00	2.79	4.23	62.22	0.00
	Sale by Households				Sale by Households			
Beans	1.00	15.80	1141.39	0.00	1.60	29.05	2348.90	0.00
Rice	0.65	35.94	3137.16	0.00	0.04	2.89	238.08	0.00
Bovine meat	1.87	33.85	2060.44	0.00	2.79	50.29	3190.36	0.00
Pork	0.25	5.17	360.58	0.00	0.24	3.63	146.52	0.00
Poultry	0.27	4.60	340.03	0.00	0.26	3.00	108.17	0.00
Milk	0.02	0.27	12.05	0.00	0.03	0.51	24.24	0.00
Cheese	0.00	0.09	4.71	0.00	0.03	1.51	124.31	0.00

Source: Own estimates based on the 2003 household survey

Of the seven sensitive products considered, beans have the greatest relative representation in the food consumption budget of rural households followed by poultry and milk as shown in Table 3.3. In urban areas, the same three products are the most important but the order of products change to poultry, beans, and milk. Regarding sales,

[15] The original data files were in .DAT and were transformed into Excel files using PHP and DIGESTYC's data dictionary. We have made two runs on the data: One with the full sample (16,800 households) and another with a "cleaner" sample in which we eliminated 29 households from the sample (25 urban and 4 rural) for which the level of reported food consumption is much larger than reported income and therefore *net income change* was extremely high. The results presented are from the "cleaner" sample; the general finding from the two runs are not substantially different.

again for several products there is not much difference between rural and urban areas; for beans, bovine meat, and cheese higher relative sales are reported by rural households; for rice, urban households report higher relative sales with large sales concentrated in a few number of households.

Results

Tables 3.4-3.6 present the estimates of the impact of CAFTA on househdols income and the households that are expected to gain and lose. Table 3.4 shows the estimates of changes in household net income in *per capita* and *relative* terms owing to the expected change in prices. The *per capita* change (in colones) is the estimated change in net income divided by the number of household members; the *relative* change (in percent) is the *per capita* change divide by the household's food consumption per capita. Table 3.5 shows the distribution of households that are expected to gain, lose or experience no change in income as a result of CAFTA implementation. And Table 3.6 presents estimates of the *per capita* and *relative* changes for the households that gain and lose.

Table 3.4: Change in Households Net Income, Per capita and Relative, by Region

	Urban		Rural		Total	
	Per Capita (colones)	Relative (%)	Per Capita (colones)	Relative (%)	Per Capita (colones)	Relative (%)
Beans	3.05	0.07	3.54	0.08	3.28	0.08
Rice	0.52	0.01	0.61	0.02	0.56	0.01
Bovine meat	0.16	0.00	0.07	0.00	0.12	0.00
Pork	-0.07	-0.01	0.15	-0.01	0.03	-0.01
Poultry	29.81	0.58	28.16	0.63	29.04	0.61
Milk	16.86	0.33	14.91	0.35	15.94	0.34
Cheese	9.59	0.20	9.73	0.24	9.65	0.22
Total	59.91	1.18	57.17	1.31	55.34	1.25

Change in Household Net Income: the change in price of the product owing to CAFTA times the consumption of the product minus the change in price owing to CAFTA times the total sales of the product
Per capita: Change in household net income divided by the number of its members
Relative: Change in household per capita net income divided by the household's per capita food consumption
Source: Own estimates based on the 2003 household survey

The picture that emerges from the estimates is that little change is expected. In the Table 3.4 it can be observed that the estimates indicate an overall net income gain equivalent to 1.3 percent of per capita food consumption, 1.2 percent in urban areas and 1.3 percent in rural areas. The expected net income gain in absolute terms is greater in urban areas (60 colones) compared to the rural areas (55 colones), but the difference is small. The largest expected income effect would come from poultry because its price is expected to decline the most (Table 3.1) and its consumption is widespread among the population. The net income change from pork is close to zero reflecting its lower expected price decline and lower consumption. [16]

[16] Note that as Pörtner (2004) indicates, it is possible for the per capita impact to be positive, while the relative impact is negative or visa versa. For each household the per capita and the relative impact is calculated and the average is then taken over each of the impacts. It could happen that a household experience a substantial gain in per capita income but being very rich there is relatively little change at the same time as a large number of households have a small loss in consumption, which if they are very poor, show up as a large relative loss. The outcome of this situation could be a positive per capita impact and a negative relative impact

Table 3.5 presents the distribution of households that are expected to gain, lose and be indifferent (None) with CAFTA. The households that gain are net consumers, the households that lose are net producers, and those households that neither consume nor produce the product are indifferent, the value of consumption is similar to the value of production, or only produce for self-consumption. The table indicates that overall 68 percent of the households are expected to gain, 4 percent are expected to lose, and 28 percent are expected to remain indifferent with the CAFTA. The percentage of households that lose in rural and urban areas is similar, 4 percent; the percentage of households that is expected to gain is slighter higher in rural areas (72 percent) compared to the urban areas (65 percent) the reverse being true for the households that would remain indifferent. On a product basis, 3 percent of rural and urban households are expected to lose because of the change in the price of beans; and 2 percent of rural and urban households because of change in the price of poultry and meat. Note that regarding pork most (97 percent) of households would remain indifferent, which again reflects the relatively low domestic production and consumption of this product.

Table 3.5: Distribution of Households that Gain and Lose, by Region

(Percentage of Households)

	Urban			Rural			Total		
	Gains	Losses	None	Gains	Losses	None	Gains	Losses	None
Beans	62	3	35	70	3	27	66	3	31
Rice	59	0	41	66	0	34	63	0	37
Bovine meat	23	2	76	20	2	79	21	2	77
Pork	2	1	97	2	1	97	2	1	97
Poultry	40	2	58	40	2	58	40	2	58
Milk	32	1	66	33	2	66	32	1	66
Cheese	43	0	57	45	0	54	44	0	56
Total	65	4	31	72	4	24	68	4	28

Source: Own estimates based on the 2003 household survey

Table 3.6 shows in more detail how net consumers and net producers of the different products are expected to fare. It can be observed that for 4 percent of households that are expected to lose, the losses are equivalent to 2.2 percent of their food consumption per capita (2.1 percent in urban areas and 2.3 percent in rural areas). The losses in urban areas originate mostly from rice and poultry; in rural areas, from poultry and beans. As for the gains, they are equivalent to only 2 percent of per capita food consumption in urban and rural areas and they originated mostly from poultry and milk.

Table 3.6: Change in Household Net Income, Per capita and Relative, for Households that Gain and Lose, by Region

(Colones and percentage)

	Urban				Rural				Total			
	Per Capita (c)		Relative (%)		Per Capita (c)		Relative (%)		Per Capita (c)		Relative (%)	
	Gains	Losses	Gains	Losses	Gains	Losses	Gains	Losses	Gains	Losses	Gains	Losses
Beans	6.0	-23.5	0.2	-1.1	5.9	-18.6	0.2	-1.4	6.0	-21.0	0.2	-1.2
Rice	1.0	-39.9	0.0	-2.7	0.9	-15.3	0.0	-0.9	1.0	-36.2	0.0	-2.4
Bovine meat	1.4	-10.1	0.0	-0.4	1.3	-10.3	0.0	-0.5	1.3	-10.2	0.0	-0.4
Pork	21.8	-52.7	0.4	-1.6	20.4	-28.3	0.5	-1.4	21.2	-40.9	0.4	-1.5
Poultry	76.4	-48.6	1.6	-2.2	72.7	-29.4	1.7	-1.8	74.7	-38.6	1.6	-2.0
Milk	52.0	-2.9	1.0	-0.1	45.9	-1.8	1.1	-0.2	49.1	-2.3	1.0	-0.2
Cheese	22.3	-4.4	0.5	-0.1	21.5	-9.9	0.5	-0.8	21.9	-7.9	0.5	-0.6
Total	95.0	-40.4	2.0	-2.1	80.6	-26.8	2.0	-2.3	87.8	-34.0	2.0	-2.2

Total: Average of gain or losses in per capita or relative terms for all households in the sample.
Source: Own estimates based on the 2003 household survey.

Tables 3.7 through 3.9 present the previous results by Department and by consumption level (quintiles of per capita food consumption). The changes in net income *per capita* and *relative* by Department and food consumption quintile are shown in Table 3.7. There are no major differences in the changes in net income *per capita* between Departments, with the largest change registered in the Department of Chalatenango (69 colones) and the lowest in Cabanas (49 colones); in *relative* terms, the Department of La Union (1.5 percent of per capita food consumption) has the largest change and the Departments of San Salvador, Cuscatlan and La Libertad have the lowest change (1.1 percent of per capita food consumption).

Table 3.7 Change in Household Net Income, Per capita and Relative, by Region, by Department and by Level of Food Consumption Per Capita

(Colones and percentages)

	Urban		Rural		Total	
	Per Capita	Relative	Per Capita	Relative	Per Capita	Relative
Department						
Ahuachapan	60.5	1.1	47.5	1.3	51.8	1.2
Santa Ana	70.2	1.4	62.0	1.3	65.6	1.4
Sonsonate	59.7	1.2	50.0	1.2	54.8	1.2
Chalatenango	68.9	1.3	69.8	1.5	69.4	1.4
La Libertad	58.3	1.1	55.1	1.2	56.8	1.1
San Salvador	58.8	1.1	60.4	1.2	59.3	1.1
Cuscatlan	49.0	0.9	50.3	1.2	49.5	1.1
La Paz	53.8	1.3	63.0	1.4	58.8	1.4
Cabanas	56.8	1.3	42.9	1.3	49.0	1.3
San Vicente	58.1	1.4	46.5	1.2	52.9	1.3
Usulutan	66.6	1.4	64.2	1.4	65.4	1.4
San Miguel	54.3	1.0	59.7	1.4	57.0	1.2
Morazan	57.8	1.3	56.5	1.6	57.2	1.4
La Union	69.3	1.3	68.7	1.5	68.9	1.5
Per Capita Food Consumption						
1 Poorest	0.8	0.0	1.8	0.1	1.3	0.1
2	20.0	1.3	22.6	1.5	21.4	1.4
3	43.8	1.7	46.5	1.8	45.1	1.7
4	67.4	1.5	74.1	1.7	70.4	1.6
5 Richest	144.9	1.3	169.5	1.5	154.5	1.4
Total	59.8	1.2	57.1	1.3	58.5	1.2

Source: Own estimates based on the 2003 household survey.

When the impact is estimated by consumption quintiles, there are significant differences, however. For the poorest quintile, the *per capita* changes in urban areas and rural areas are very small (about 20 colones per capita), for a total *relative* change close to zero (Table 3.7). This means that as a group and for the set of products considered here, the first quintile would be indifferent with CAFTA. For the other quintiles, the *relative* change is positive, averaging 1.5 percent of per capita food consumption, which means that all these four groups would gain with CAFTA. The richest quintile would have a gain of 155 colones per capita, equivalent to 1.4 percent of per capita food consumption.

Table 3.8 present the distribution of households that gain and lose by Department and by quintile of per capita food consumption. As it can again be observed, overall 68 percent of the households are expected to gain, 4 percent to lose, and 28 percent to be indifferent. The households that gain, lose and are indifferent are roughly equally distributed by the Department. The analysis of the distribution of households that gain

and lose per quintile indicates that most of the losing households are in the poorest quintile, with 7.5 percent of the poorest households losing (3.5 percent in urban areas and 4 percent in rural areas) compared to 2.8 percent of the richest households (2 percent in urban areas and 0.8 percent in rural areas). Also, 22.1 percent of poorest households would gain (7.7 percent in urban areas and 14.4 percent in rural areas) compared to 79 percent of the richest households (46.2 percent in urban areas and 32.8 percent in rural areas). Note that a large percentage of poorest households, 70.4 percent (38.9 percent in urban areas and 31.6 percent in rural areas) would remain indifferent (no change in net income) because many of these households produce for self consumption or have declared no production or consumption of these products.

Table 3.8 Distribution of Households that Gain and Lose, by Region, by Department and by Level of Food Consumption Per Capita

(Percentage of households)

	Urban			Rural			Total		
	Gains	Losses	None	Gains	Losses	None	Gains	Losses	None
Department									
Ahuachapan	23.6	2.2	7.8	51.4	3.7	11.5	74.9	5.9	19.2
Santa Ana	31.6	1.9	11.2	41.5	3.7	10.2	73.0	5.6	21.3
Sonsonate	37.1	1.3	11.8	35.1	1.2	13.6	72.1	2.5	25.4
Chalatenango	32.0	2.1	13.4	37.4	2.4	12.6	69.4	4.5	26.1
La Libertad	31.7	1.5	21.6	29.9	1.2	14.2	61.6	2.7	35.8
San Salvador	41.3	2.4	27.0	19.1	1.0	9.2	60.4	3.4	36.2
Cuscatlan	33.5	3.4	22.6	29.7	1.2	9.7	63.2	4.6	32.3
La Paz	34.0	1.4	10.4	40.3	2.2	11.8	74.2	3.6	22.2
Cabanas	28.8	2.2	12.5	38.6	1.9	15.9	67.4	4.1	28.5
San Vicente	39.2	2.8	13.4	33.6	2.4	8.7	72.7	5.2	22.1
Usulutan	36.3	1.7	12.9	37.2	2.1	9.7	73.6	3.8	22.6
San Miguel	31.2	4.5	14.0	40.2	2.3	7.9	71.4	6.8	21.8
Morazan	33.7	2.5	13.1	39.5	2.5	8.7	73.3	4.9	21.9
La Union	29.3	2.3	8.1	46.8	2.2	11.3	76.1	4.6	19.4
Per Capita Food Consumption									
1 Poorest a/	7.7	3.5	38.9	14.4	4.0	31.6	22.1	7.5	70.4
2	33.3	1.6	11.7	43.3	2.5	7.6	76.6	4.1	19.3
3	41.1	1.6	9.2	41.0	1.2	6.0	82.1	2.8	15.1
4	43.1	2.1	10.3	38.3	1.0	5.2	81.4	3.1	15.5
5 Richest	46.2	2.0	12.9	32.8	0.8	5.3	79.0	2.8	18.2
Total	34.3	2.2	16.6	34.0	1.9	11.1	68.2	4.1	27.7

a/ Percentage calculated over the total number of households in that quintile.
Source: Own estimates based on the 2003 household survey

Table 3.9 presents the change in net income *per capita* and *relative* for households that gain and lose by Department and food consumption per capita level. These estimates reveal that losses in *relative* change vary from a maximum of 3.6 percent of per capita food consumption in Ahuachapan to a minimum of 1.2 percent in Morazan. For the poorest households (first quintile) that lose, the estimates indicate that their losses may be equivalent to 3.4 percent of their per capita food consumption (3.2 percent in urban areas and 3.6 percent in rural areas), compared to losses equivalent to 0.7 percent of per capita food consumption for the richest households that lose (0.7 percent in urban areas and 0.9 percent in rural areas).

Table 3.9: Change in Household Net Income, Per capita and Relative, for Households that Gain and Lose, by Region, by Department and by Level of Food Consumption Per Capita

(Colones y porcentaje)

	Urban				Rural				Total			
	Per Capita		Relative		Per Capita		Relative		Per Capita		Relative	
	Gains	Losses	Gains	Losses	Gains	Losses	Gains	Losses	Gains	Losses	Gains	Losses
Department												
Ahuachapan	94.7	-95.3	2.1	-5.8	64.3	-39.2	1.8	-2.3	73.9	-59.9	1.9	-3.6
Santa Ana	101.1	-30.9	2.1	-1.4	84.4	-19.5	2.0	-2.5	91.7	-23.4	2.0	-2.1
Sonsonate	83.6	-79.1	1.8	-3.7	72.1	-30.9	1.8	-2.8	78.0	-56.3	1.8	-3.2
Chalatenango	104.7	-36.7	2.1	-1.8	99.2	-22.1	2.2	-1.0	101.7	-28.9	2.1	-1.3
La Libertad	101.8	-24.3	1.9	-0.9	84.5	-26.7	1.9	-1.8	93.4	-25.3	1.9	-1.3
San Salvador	102.0	-24.5	2.0	-2.2	93.9	-25.7	2.0	-4.2	99.4	-24.8	2.0	-2.8
Cuscatlan	95.7	-84.2	1.9	-2.1	69.3	-14.9	1.7	-1.7	83.3	-66.2	1.8	-2.0
La Paz	73.8	-32.8	1.9	-1.6	86.6	-31.2	2.0	-2.0	80.7	-31.8	1.9	-1.9
Cabanas	86.9	-13.6	2.1	-1.4	63.6	-18.0	2.0	-2.1	73.6	-15.6	2.0	-1.7
San Vicente	83.7	-23.8	2.1	-1.7	65.2	-44.5	1.7	-1.8	75.1	-33.4	1.9	-1.7
Usulutan	94.9	-32.8	2.1	-1.4	86.1	-27.3	2.0	-2.2	90.4	-29.7	2.0	-1.8
San Miguel	95.8	-66.6	1.8	-2.1	76.4	-26.6	2.0	-2.4	84.9	-52.8	1.9	-2.2
Morazan	85.2	-10.8	1.9	-0.6	74.1	-25.2	2.2	-1.7	79.2	-18.0	2.0	-1.2
La Union	96.1	-28.0	2.0	-1.9	89.3	-17.0	2.1	-1.6	91.9	-22.6	2.0	-1.7
Per Capita Food Consumption												
1 Poorest	10.2	-11.2	1.3	-3.2	10.1	-13.2	1.4	-3.6	10.1	-12.3	1.4	-3.4
2	29.8	-39.2	2.0	-2.7	29.3	-23.3	2.0	-1.8	29.5	-29.4	2.0	-2.2
3	57.4	-56.5	2.2	-2.3	55.6	-33.6	2.2	-1.4	56.5	-46.7	2.2	-1.9
4	88.7	-40.1	2.0	-1.0	87.5	-46.0	2.0	-1.0	88.1	-42.1	2.0	-1.0
5 Richest	195.3	-79.6	1.8	-0.7	202.5	-70.3	1.8	-0.9	198.3	-76.9	1.8	-0.7
Total	95.0	-40.4	2.0	-2.1	80.6	-26.8	2.0	-2.3	87.8	-34.0	2.0	-2.2

Source: Own estimates based on the 2003 household survey

Table 3.10: Distribution of the Poorest Households that Lose, by Product and Department (percent) a/

Department	Beans	Rice	Beef	Pork	Poultry	Milk	Cheese
Ahuachapan	50.0	0.0	13.3	13.3	36.7	10.0	3.3
Cabañas	45.0	5.0	15.0	25.0	50.0	15.0	5.0
Chalatenango	70.0	0.0	20.0	10.0	20.0	10.0	0.0
Cuscatlan	44.4	0.0	22.2	11.1	44.4	22.2	22.2
La Libertad	50.0	0.0	11.1	11.1	27.8	11.1	11.1
La Paz	54.5	0.0	0.0	18.2	18.2	0.0	9.1
La Unión	56.3	0.0	6.3	0.0	25.0	18.8	6.3
Morazán	36.4	0.0	0.0	9.1	36.4	18.2	9.1
San Miguel	34.6	0.0	19.2	7.7	50.0	23.1	3.8
San Salvador	23.4	2.1	17.0	21.3	38.3	29.8	6.4
San Vicente	60.0	0.0	0.0	20.0	20.0	10.0	0.0
Santa Ana	47.2	0.0	19.4	11.1	38.9	33.3	0.0
Sonsonate	33.3	0.0	13.3	6.7	46.7	26.7	0.0
Usulután	33.3	0.0	16.7	16.7	58.3	25.0	8.3
Total	42.4	0.7	14.0	13.7	38.0	20.7	5.2

Note: Sum across products may be greater than 100 because a household may lose in more than one product.

a/ Households in the first per capita food consumption quintile whose net income change is negative.

Source: Own estimates based on the 2003 household survey

A more detailed analysis of the poorest households that lose in Table 3.10 indicates that 42 percent of these households suffer losses in beans; and 38 percent in poultry; and 21 percent in milk. In contrast only 0.7 percent of the poorest households suffer losses in rice, 5 percent in cheese and 14 percent in pork. The distribution of households that lose

by Department in beans varies from 70 percent in Chalatenango to 23 percent in San Salvador; in poultry from 58 percent in Usulutan to 18 percent in La Paz; and in milk from 30 percent in Santa Ana to none in La Paz.

In sum, the change in net income owing to CAFTA is estimated to be small at only 1.3 percent of per capita food consumption. Only 4 percent of the households are expected to lose; 68 percent are expected to gain and 28 percent to remain indifferent. For the households that lose, the loss would be equivalent to 2.2 percent of their per capita food consumption; for the households that gain, the gain would be equivalent to 2 percent of their per capita food consumption. The poorest households as a group are expected to be indifferent with CAFTA. Of the poorest households, 7.5 percent are expected to lose (compared to 2.8 percent for the richest quintile) and the loss could be equivalent to about 3.4 percent of their per capita food consumption. These losses originate mostly in beans and poultry; the distribution of households that lose by Department in beans varies from 70 percent in Chalatenango to 23 percent in San Salvador; in poultry from 58 percent in Usulutan to 18 percent in La Paz.

IV. Policy Implications

The previous analysis estimated the impact of CAFTA on household income in El Salvador using a simple partial equilibrium methodology and data from the 2003 household survey. It simulated a worse case scenario by assuming that tariffs would be immediately eliminated and producers would receive an immediate negative impact on sales. The estimates indicate that even in this extreme case, only 4 percent of the households are expected to lose and they would lose the equivalent to 2 percent of their per capita food consumption. The small expected negative impact of CAFTA results from two facts: a large share of El Salvador trade is with the CACM which is duty free; and during the 1990s El Salvador reduced substantially its external tariffs to third parties, including on imports from the US.

For the poorest households, it is estimated that 7.5 percent could lose, and the losses could be equivalent to an average 3.4 percent of their per capita food consumption. Most of the losses for the poorest households appear to be concentrated in beans and poultry. These losses occur because of the relative large assumed *immediate* decline in the price of poultry (Table 3.1); in the case of beans though the drop in price is smaller, the number of net producers is larger. Since the CAFTA agreement calls for long liberalization periods (beans in 15 years starting immediately; poultry in 18 years starting year 11), no immediate losses are expected from CAFTA and no special compensatory or mitigating measures are in principle justified on its account. As Castaneda (2004) argued recently: “compensation policies are not always justified because the trade liberalization reform may be very gradual involving a considerable number of years (e.g., 10-20 years) in which farmers can make all necessary restructuring adjustments to their productive activities with little or no short-term welfare shock.”

Even if no special CAFTA-related direct compensation program may be justified, the Government should nonetheless act on three fronts over the medium term. First, the Government should put in place the policies that will facilitate the adjustment particularly of small farmers to the new competitive environment. Producer of beans

that will face immediate (though small and very gradual) reductions in tariff may require special attention.

Second, the poorest households in El Salvador are already quite vulnerable and any reduction in their income even if small may have catastrophic consequences. As discussed in two World Bank studies (2002 and 2004), the Government needs to develop and implement an effective social protection strategy for the most vulnerable groups. As part of this effort, the Government should put in place early warning mechanisms to ensure that the *poorest producers* are not hurt by the gradual liberalization of sensitive products such as beans and poultry.

Third, a concerted effort between Government, private sector, and other sectors of society will be needed to ensure that the expected benefits from CAFTA are realized. The gains from CAFTA estimated above are small, only equivalent to 2 percent of the per capita food consumption. This estimate is static and based only on seven sensitive products; in reality, most of the CAFTA benefits should come from the establishment of new activities, the synergies created, and the dynamics of competition. CAFTA should contribute to increase trade and foreign investment, which in turn should be lead to technological transfers and creation of better jobs. As Jaramillo (2003) puts it, the CAFTA benefits "will depend on how the Central America countries react to the opportunities that offer this initiative". Based on World Bank studies on the Mexico's NAFTA experience, he notes that to take full advantage of CAFTA, CACM countries must act on the following five key areas: education, innovation policies, access to infrastructure, institution building, and compensatory measures for low income household that may be affected by the transition. Similarly, FUSADES (2004) argues that for better taking advantage of the opportunities open by CAFTA, there is a need to: invest in diversifying the agricultural sector and creating or strengthening production chains; promoting small and medium enterprise development including their association; improve sanitary and phytosanitary systems; improve port infrastructure; strengthen competition, labor and environment policy frameworks; and improve the security situation.

V. Conclusions

This exercise used a simple partial equilibrium methodology to estimate the first order impact of the CAFTA, considering that net consumers and net producer of key products whose prices are expected to be affected by CAFTA will gain and lose, respectively. The estimates constitute a worse case scenario. Our main purpose was to conduct a PSIA of CAFTA impacts, identifying households that lose, particularly the poorest ones, as well as the type of measures that the Government should consider to mitigate any potential costs and to maximize its benefits.

The general results appear robust. To test the sensitivity of our results to the exclusion of outlier observations, we made two runs: one that included all the 16,800 households in the original sample and a second run analyzed here that excluded 29 households whose reported food consumption is much larger than the reported income. Although the general results do not vary much between runs and therefore appear robust, it should be noted that the estimates are based on data from the 2003 household survey that are for the first time used and could include some inaccuracies. Therefore, our estimates should be considered tentative and the detailed results interpreted with caution.

The results of the analysis indicate that the impact of CAFTA on household's income would be small (1.3 percent of per capita food consumption). Only 4 percent of the households are expected to lose; 68 percent are expected to gain and 28 percent to remain indifferent. For the households that lose, their loss would be equivalent to 2.2 percent of their per capita food consumption; for the households that gain, their gain would be equivalent to 2 percent of their per capita food consumption. The poorest households as a group are expected to be indifferent with CAFTA. Of the poorest households, 7.5 percent could lose and their losses could be equivalent to 3.4 percent of their per capita food consumption. Their losses originated mostly in beans and poultry.

Since the CAFTA agreement calls for long liberalization periods, no immediate losses are expected from CAFTA and no special compensatory or mitigation measures may be justified on its account, in the short term. Nonetheless, the Government should act on three fronts over the medium term. First, the Government should put in place the policies that will facilitate the adjustment particularly of small producers to the new competitive environment. These policies should help them to restructure and to become more competitive. Second, the Government needs to develop and implement an effective social protection strategy for the most vulnerable groups, including an early warning mechanism to ensure that the *poorest producers* are not hurt by the gradual liberalization of sensitive products such as beans and poultry. Third, a concerted effort between Government, private sector, and other sectors of society will be needed to ensure that the expected benefits from CAFTA are realized. These will require action on the following key areas: education, innovation policies, access to infrastructure, institution building.

Finally we would recommend that the present exercise be updated in the future with the information being collected for the 2005 household survey.

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