POTENTIAL IMPACT OF THE CENTRAL AMERICA FREE TRADE AGREEMENT ON THE AGRICULTURAL SECTOR AND RURAL POVERTY IN NICARAGUA

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ACRONYMS

CBN	Central Bank of Nicaragua
CENAGRO	National Agrarian Census
ECLAC	Economic Commission for Latin America and the Caribbean
EPC	Effective Protection Coefficient
FAO	Food and Agriculture Organization
FTA	Free Trade Agreement
GDP	Gross Domestic Product
IADB	Inter-American Development Bank
INEC	National Institute of Statistics and Census
LSMS	Living Standard Measurement Survey
NAFTA	North American Free Trade Agreement (US, Canada and Mexico)
NPC	Nominal Protection Coefficient
OCED	Organization for Cooperation and Economic Development
PROVIA	Strengthening Private Sector in Formulation of Agricultural Policies Program implemented by IICA with USAID funds
USDA	United States Department of Agriculture
WB	World Bank
WDI	World Development Indicators of the World Bank
WTO	World Trade Organization

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A. AGRICULTURE: ITS IMPORTANCE AND AN EVALUATION OF RECENT PERFORMANCE

It is not possible to understand the special sensitivity of our country to the progression of the agricultural sector, and especially to the implications of a Free Trade Agreement (FTA) with a country with the size and relative level of development of the United States, without recognizing both the decisive importance of this sector for our country, as well as its basic characteristics. The agricultural sector is *extremely important* for the fate of our country, and therefore it is obvious that decisions made about it should be evaluated with the utmost care possible.

NICARAGUA: MAIN INDICATORS

	1990	1995	1998	1999	2000	2001[a]
Agriculture CPI [b] / Overall CPI [c]	4812.9	100.0	79.5	75.1	72.4	70.8
External Sector						
Prices for main agricultural exports (1995=100)	…	100.0	98.2	83.9	78.5	64.1
Relationship of exchange prices for goods and services (1995 indices=100)	84.6	100.0	99.4	87.1	81.9	74.7
Real Exchange Rate (1991 index =100) [d]	…	97.6	106.5	109.2	108.7	110.3
Nominal Exchange Rate [e]	690.0	7.5	10.6	11.8	12.7	13.4
			Percentages			
Sectoral Indicators						
Expanded Agri-Food GDP / Total GDP	37.9	42.8	42.9	41.9	43.1	42.8
Agricultural Expense / Total Central Government Expenses	1.8	1.8	…	…	3.4	3.0
Agricultural Exports / Total Exports	80.3	74.1	65.1	65.3	67.1	61.3
Agricultural Imports / Total Imports	17.5	20.6	18.0	18.3	18.0	20.6
Active Short Term Real Interest Rates [f]	…	8.1	1.3	-2.7	3.6	8.3
Social Indicators						
Rural Population / Total Population	47.5	46.1	45.2	45.0	44.7	44.4
Rural EAP / Total EAP	45.2	44.0	43.1	42.8	42.5	42.2
Rural Women EAP / Total Rural EAP	22.3	22.7	23.6	23.9	24.2	24.5
Rural Households in Situation of Poverty	79.5	75.5	72.7	72.5	…	…
Rural Households in Situation of Extreme Poverty	59.5	56.0	52.6	52.0	…	…
Net National Illiteracy [g]	24.6	24.8	26.9	25.0	…	…
Illiteracy Among Women	37.2	35.2	…	…	33.3	…
Open Unemployment Rate	7.6	16.9	13.2	10.7	9.8	10.7
Rural Open Unemployment Rate	7.8	13.8	13.9	13.1	13.4	14.0
Farmworker salary (dollars per day)	…	1.4	1.1	1.2	1.3	1.2

Source: Based on official figures from ECLAC, UNDP, CORECA, Secretary of Finances and the National Bank of Nicaragua.

[a] Preliminary figures.
[b] Index of agricultural production prices from the FAO
[c] Calculation based on dividing the values of current prices by the respective values of 1980 constant prices
[d] Of the official exchange rate.
[e] Cordobas per dollar, average official exchange rate.
[f] The simple average was calculated between the minimum and maximum figures from the government and private banks.
[g] Relationship between the registered school-age population and total school-age population.

The agricultural sector has played and continues to play a key role in the economic and social development of Nicaragua. Agriculture continues to be the single most important component of the economy. This statement is valid from every point of view, particularly because of agriculture's contribution to national income, its participation in exports, as well as the fact that it is a basic source of jobs and income for the population. The agricultural sector generates 28% of GDP[1], 61% of total exports of goods (excluding maquilas), and 42% of total employment (compared to an average of only 26% for all of Central America combined).

Agriculture continues to be a central activity for Nicaragua because of its economic importance, as it is still the predominant sector, *as well as because of the enormous number of human beings who are connected to it*. In 2000, it was estimated that 44% of the entire population lived in rural areas, compared to 49.7% in 1980. However, in absolute terms, the fate of 2.225 million human beings is linked to rural areas.

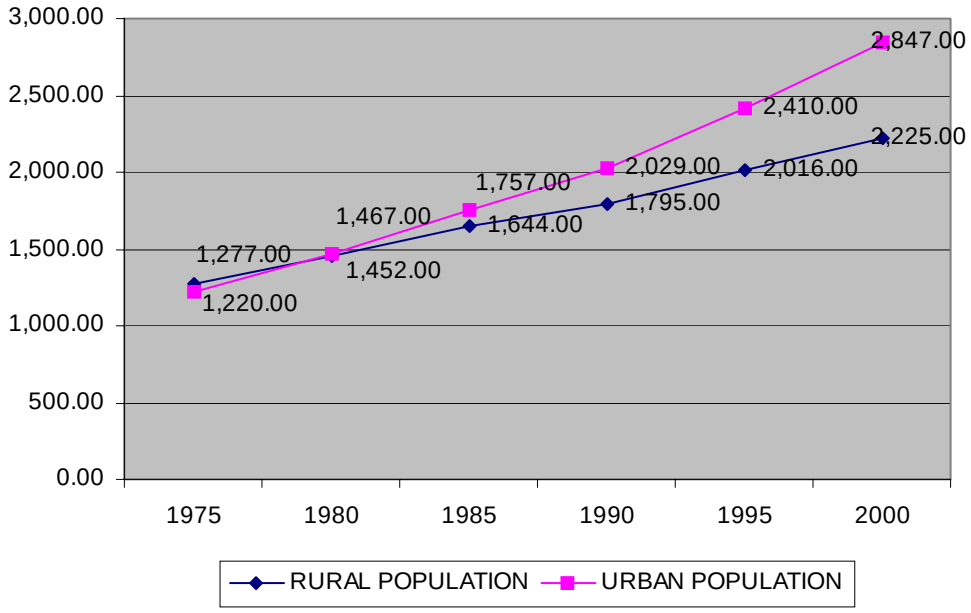
TOTAL, URBAN, RURAL POPULATION OF NICARAGUA

	1975	1980	1985	1990	1995	2000	2005
RURAL POPULATION (THOUSANDS)	1,277.00	1,452.00	1,644.00	1,795.00	2,016.00	2,225.00	2,420.00
URBAN POPULATION (THOUSANDS)	1,220.00	1,467.00	1,757.00	2,029.00	2,410.00	2,847.00	3,354.00
TOTAL (THOUSANDS)	2,497.00	2,919.00	3,401.00	3,824.00	4,426.00	5,072.00	5,774.00
	1975	**1980**	**1985**	**1990**	**1995**	**2000**	**2005**
RURAL POPULATION	51.14%	49.74%	48.34%	46.94%	45.55%	43.87%	41.91%
URBAN POPULATION	48.86%	50.26%	51.66%	53.06%	54.45%	56.13%	58.09%
TOTAL	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

SOURCE: FAO

[1] If measured as a broad sector, in other words, keeping in mind its chains of production with other sectors (agroindustrial food, etc), its contribution climbs to 43% of the GDP.

URBAN AND RURAL POPULATION
(IN THOUSANDS OF INHABITANTS)



Agriculture has a central role to play in the future of poverty reduction. *Most of the poor work in agriculture.* Agriculture represented 60% of jobs of the poor, and 75% of the jobs of the extremely poor in 1998. In contrast, only 21% of the non poor work in the agricultural sector, with a higher concentration in more urban activities, such as manufacturing, commerce and government (World Bank, Nicaragua: Poverty Report).

Table 4: Distribution of Employment by Sector, 1998 (Percentage of Total)

Sector	Extremely Poor	Total Poor	Non-Poor	Total
Agriculture	74.6	58.8	20.5	37.3
Mining	0.2	0.4	0.7	0.5
Manufacturing	4.2	6.6	11.3	9.2
Electricity, Gas and Water	0.2	0.2	1.0	0.7
Construction	2.8	3.9	5.0	4.6
Trade	7.7	14.0	31.4	23.8
Transportation	0.9	2.0	4.9	3.6
Financial Services	0.2	0.9	3.6	2.4
Community Services	9.2	13.2	21.6	17.9
Total	100.0	100.0	100.0	100.0

Source: LSMS 1998.

In addition, agriculture plays a key role in ensuring *food security*, as a decisive source on the supply side of food (even for food producers themselves), as well as in the assurance of sources of income so that large sectors of the rural population have access to food. Likewise, agriculture has an irreplaceable part to play in assuring the preservation, regeneration and most sustainable use of the natural resources (soil,

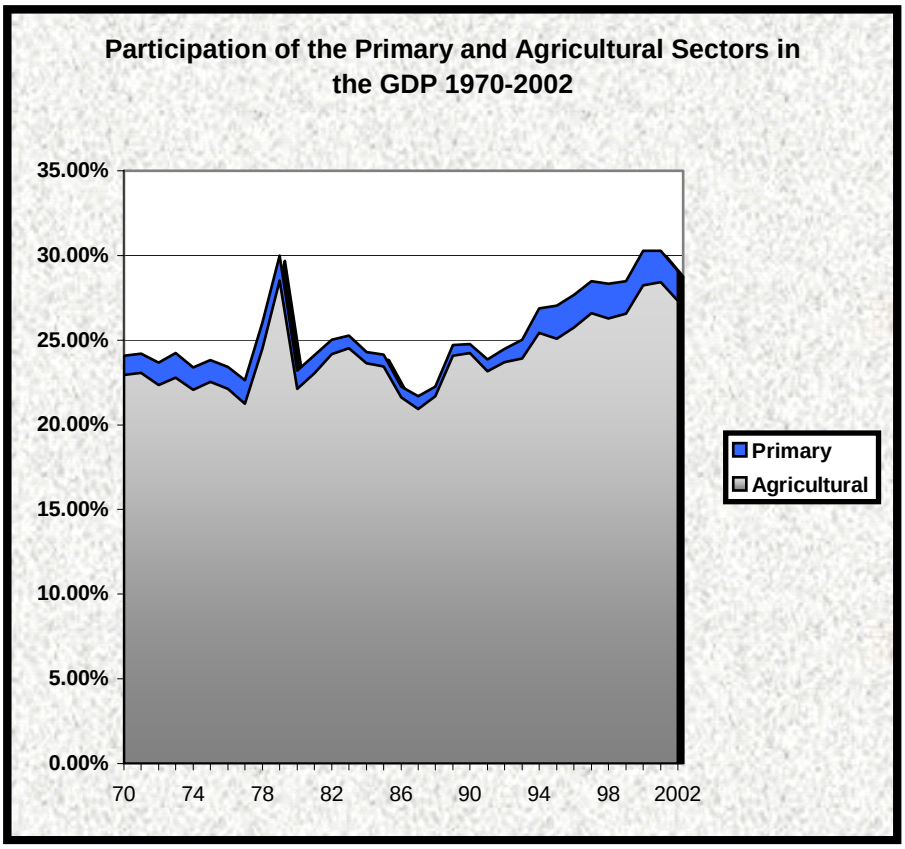
forests, water, biodiversity) of the country. Used correctly, these resources have the potential to become key elements in the future development of the country.

Thus, any strategic definition of the future of the country necessarily implies taking a very serious and thoughtful position on the options for agriculture in the medium and long term, and above all, in favor of the large population mass and regions which are linked to it and survive in large measure from it. In particular, any option for the development and insertion of the economy should incorporate the need to not exclude or "leave behind" the rural sectors and regions that are most affected by poverty[2].

In that sense, one of the primary concerns of the international trade and economic negotiations should be to break the perverse connection between the growing polarization of levels of development, productivity and per capita income, and the asymmetries in the power relations and trade and investment relations within the different segments of the world economy, particularly between the developed countries and the less developed countries, and the growing marginalization of the latter in which agriculture and the rural population have such an important impact.

[2] / "A crucial element of the approach advocated here is therefore the adoption of policies to prevent marginalization within countries. The surest way to ensure that economic growth is more inclusive is through the wide distribution of assets, the expansion of productive employment, creating linkages that incorporate marginal sectors into the space of productivity growth, and linking import substitution with export promotion. Particular policies are best identified through a structural approach to poverty analysis which directs attention to the generation and sustainability of livelihoods, their location within the structure of the economy and the way in which they are affected by the relations of the national economy with the rest of the world, as well as to the vulnerability of individuals and groups to impoverishment. Gender relations are included in a structural approach as an intervening variable in all economic activities, influencing the ways in which factor and product markets work, the productivity of inputs and the economic behavior of agents, and the joint determination of the growth and distribution of income. Policies which may be important to prevent marginalization within countries include: agrarian reform and rural development policies (land tenure, agricultural productivity growth, rural industries and rural labour markets); micro-credit; support for small and medium-sized enterprises; promotion of backward linkages from export activity; broad-based human resource development through investment in education and health; establishment of profit-related pay systems; and decentralization" (UNCTAD, 2002).

❖ Evolution of the Participation of Agriculture in the Structure of the Economy

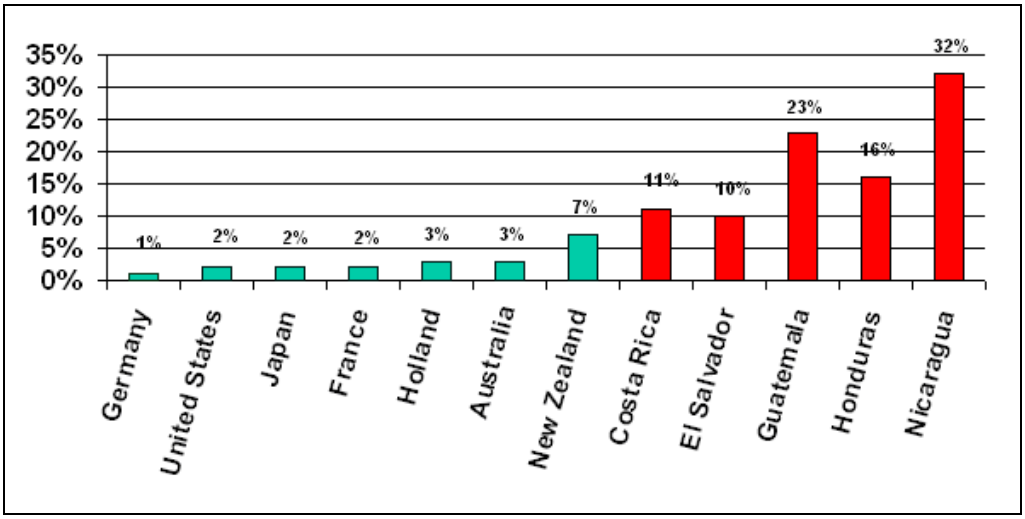


In terms of the comparative evolution of the sector in the last three decades, the evidence seems to indicate that, in the 1990s, we witnessed a "re-primerization" of the economy.

This tendency, in the last decade in Nicaragua, toward a large increase in the participation of the primary sector in the GDP, and within it, principally the agricultural sector, contrasts with the general reduction which agriculture has experienced as a proportion of GDP in the rest of the world and in Latin America. For some time now, the participation of agricultural production in total product has exhibited a tendency to decrease, depending on the development of the respective economies of each country.

This was confirmed during the 1990s. In countries such as Argentina, Brazil, Chile, Mexico, Panama and Venezuela this participation did not rise beyond 10%, while in Bolivia, Colombia, Costa Rica, El Salvador, Ecuador and Uruguay it was between 10% and 20%. In Guatemala, Haiti, Honduras and the Dominican Republic the participation surpassed 20%, and only in Nicaragua and Paraguay did the agricultural GDP represent more than 33% of total GDP.

% Agriculture GDP
Selected Countries, 1999



The relative development of the agricultural sector has gone through different phases in the last 30 years.

In the 70s, the primary sector experienced a decline in its relative participation in the creation of GDP. The primary sector had fallen to represent 22.6% in 1977, from 24.1% in 1970 and 26% in 1960-65. In this case, nevertheless, this did not reflect a mediocre performance on the part of the sector, which was growing at a respectable average annual rate of 4.6% between 1970 and 1977, but rather a normal process of diversification and modernization of the economy, through which industry, services and infrastructure moved on to play an growing role in relation to primary activities.

It is important to highlight that the promotional boost from a number of governmental institutions played a primary and important role in agricultural development, principally agroexport development. The National Bank of Nicaragua (later BANADES), through financial and technical assistance programs, enabled the development of coffee production and promoted new exports: cotton, sugar and meat. Grain farming was also expanded. The state also supported the modernization process providing the necessary infrastructure.

At that time, import substitution industrialization, begun in the 1960s with the creation of the Central American Common Market, translated into spectacular growth in the manufacturing industry between 1960 and 1970. The dynamic nature of this area was even greater than that of agriculture, growing at an annual average rate of 11.1%, explaining the 31% growth in GDP during the period. Between 1970 and 1977 the industry continued growing with notable vigor, at an average rate of 6.3%. As a result, the industry went from representing 14.2% of GDP in 1960 to 21% in 1970 and 22% in 1977.

In this process, the governmental National Development Institute (INFONAC for its acronym in Spanish) played an outstanding role, directly participating in joint investments with national and foreign investors. In these and other projects, the

institute also contributed technology, financing and administrative assistance, enabling the creation of important industrial enterprises and the formation of business and technical leaders.

At the same time, the growth of agricultural and manufacturing production led to the development of construction and services. The urbanization process and the construction of physical and productive infrastructure associated with the diversification and productive modernization process, allowed for a growth in construction of an annual average of 11.7% in the same period (1960-1970). Transportation and communications (7.1% annual average), commerce (7.1%) and banking (13.2%), as well as public services (11.2%) also expanded driven primarily by the vigor of the export economy.

As a result of the industrialization and urbanization process, the labor force employed in non-agricultural tasks increased from 38% of the economically active population (EAP) in 1960 to 48% in 1970, and 58% in 1980, and this percentage in the urban population grew from 41.7% in 1960 to 47% in 1970.

A large part of this process was linked to the development of agroindustrial processing activities, financial and commercialization services, and to the development of highway, transportation and communication infrastructure related to agroexporting activities. However, it was also linked to the urbanization process induced by industrialization, which was expressed in the rapid expansion of urbanization plans aimed at medium and high income sectors.

In the first half of the 80s, the relative "re-primarization" was due to the fact that agriculture was moderately reactivated to an average annual rate of 2.8% between 1980 and 1985 (especially food production, owing to the series of price and credit incentives which it received, although there also was some recovery of agroexports), while overall GDP stagnated and began to fall (average annual growth rate of 0.6% between 1980 and 1985). Thus the primary sector GDP in 1985 again represented 24.13% of GDP. In the second half of the 1980s, the GDP of the primary sector maintained its level of participation as agriculture fell less than overall GDP (dropping at an average rate of 0.4%, compared to an average annual decline in the GDP of 3.3%).

The situation is different in the 1990-2000 decade. In 2000, the GDP for the primary sector reached 29% of overall GDP, up from 24.8% in 1990. This reflected, first of all, the high rate of agricultural growth, which reached an annual average rate of 5.7% - while the GDP grew at an average annual rate of 3.4% - the second highest agricultural growth of Latin America in the past decade after Peru (ECLAC-IICA). Such a high growth rate is partly the result of a process of recovery from very low levels, including the recovery of agroexport production due to an improvement in international prices for agroexports, primarily coffee[3] beginning in 1994-95 (improvement which is inverted in 1999), and also as a result of a new process of expansion of the agricultural frontier.

This "re-primarization" process, basically centered on a great expansion of agricultural activity, particularly after 1994, continues to be surprising. The only precedent which

[3] Coffee alone represents a third of the added value of agriculture, and 35% of total agricultural exports, thus the rise in the price of coffee led to an agricultural boom and contributed significantly to the expansion of the economy in general, through different channels.

seems to exist in the region for a considerable increase in the participation of this sector in GDP, rather than a significant decrease, is the case of Mexico prior to the devaluation in 1995. Within the country, the process of reduction of the relative weight of the sector was interrupted and reversed, having undergone ups and downs but increasing starting in the 1960s, with its weight rising to unprecedented levels.

An analysis of the causes of this phenomenon merits a much deeper analysis of the determining factors for the process of structural change in the entire economy over the last decade (or the lack of the same, depending on one's view) which is beyond the scope of this work.

For the purposes of this work, probably the most important thing to point out is that, far from representing a process of development, modernization or strengthening of this sector, this significant growth of the agricultural GDP and its participation in GDP represented, because of its characteristics, a glaring increase in the vulnerability of the economy and Nicaraguan society. This vulnerability includes the 42% of total employment which the agricultural sector generates.

Nicaragua, and an extremely significant portion of its population, shows an even higher sensitivity to decisions related to agriculture, including those at the beginning of the last decade.

❖ **Relevant Characteristics of the Performance of Agriculture in the 1990s: High growth without diversification or structural change and with an obvious drop in productivity. Collapse of this path.**

SECTOR CONTRIBUTION TO GDP GROWTH 1990-2000

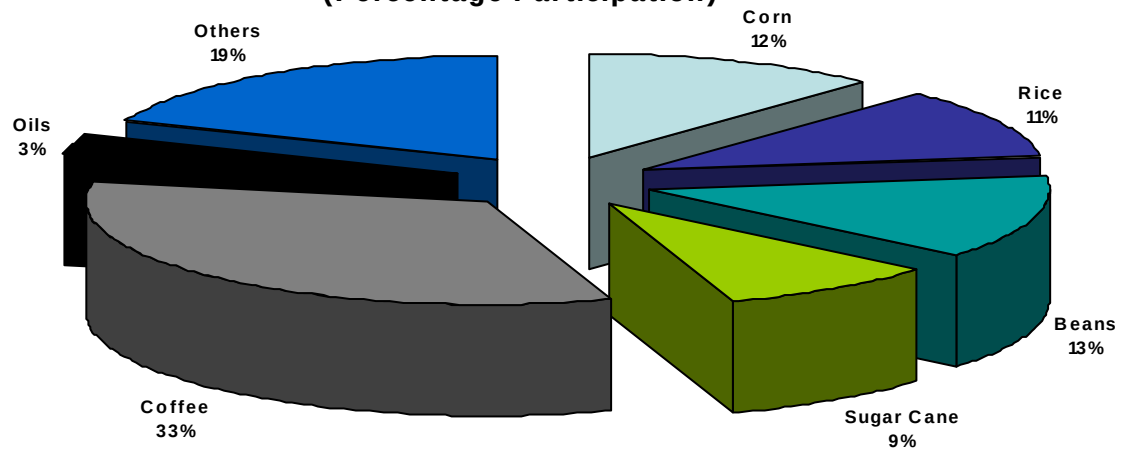
	GROWTH	WEIGHTED	RELATIVE CONTRIBUTION
GDP	**38.05**	**38.05**	**100.0**
PRIMARY	**64.18**	**15.90**	**42.0**
AGRICULTURE	67.16	10.69	28.0
LIVESTOCK	36.50	3.03	8.0
FISHING	771.57	2.11	6.0
OTHERS	26.04	0.07	0.0
SECONDARY	**49.19**	**12.71**	**33.0**
MANUACTURING INDUSTRY	20.18	4.50	12.0
CONSTRUCTION	226.15	6.92	18.0
MINING	219.23	1.29	3.0
TERCIARY	**19.11**	**9.44**	**25.0**
COMMERCE	39.81	6.84	18.0
GOVERNMENT	-28. 96	-3.70	-10.0
TRANSPORTATION & COMMUNICTION	34.12	1.66	4.0
BANKING & INSURANCE	23.72	0.78	2.0
ENERGY & WATER	36.78	1.09	3.0
PROPERTY & HOUSING	27.69	1.15	3.0
OTHERS	38.94	1.62	4.0

For the reasons noted, the contribution of the agricultural sector to the GDP rose from 24.2% in 1990 to 28.4% at the end of the decade. The growth of the agricultural GDP alone explains the 36% of total growth of GDP observed in that decade.

However, despite this growth, production has not been notably diversified or restructured. In other words, the relevant structural change expected in the light of the new microeconomic environment created by the process of reforms started in 1990, does not seem to have occurred in the agricultural sector. Theoretically, this should have involved a profound restructuring of the sector, with the view to inserting it more efficiently into the world market.

In 2000, agroexport products continued to be dominated by coffee and sugar cane, which alone accounted for 47.7% of aggregate agricultural value, although cotton disappeared. At the same time, there was a modest increase in non-traditional products (which remained constant, representing 15% of Agricultural GDP from 1955 to 2000), while production for internal consumption continued to depend primarily on corn, beans and rice, representing 30.3% of aggregate agricultural value.

Gross Value of Agricultural Production at 1980 Prices (Percentage Participation)



Source: Central Bank of Nicaragua

Agroexport production continued to account for 67.7% of aggregate agricultural value in 2000, versus only 32.3% for production for domestic consumption. Agroexport GDP grew by 59.1% in the period from 1995-2000, while Internal Consumption Agricultural GDP grew at a rate of 48.9% in the same period.

Thus agroexport GDP rose from 66.2% of GDP in 1995 to 67.7% in 2000 (from 67.4% in 1990), while the GDP of internal consumption products declined from 33.3% of total agricultural GDP in 1995 to 32.3% in 2000 (from 32.6% in 1990).

EVOLUTION OF THE STRUCTURE OF AGGREGATE AGRICULTURAL VALUE

ITEM	1990	1995	2000
Aggregate Agroexport Value	67.4%	66.2%	67.7%
Aggregate Internal Consumption Value	32.6%	33.8%	32.3%
AGRICULTURAL GDP	**100.0%**	**100.0%**	**100.0%**
Non-Traditional Crops	14.1%	15.2%	14.6%

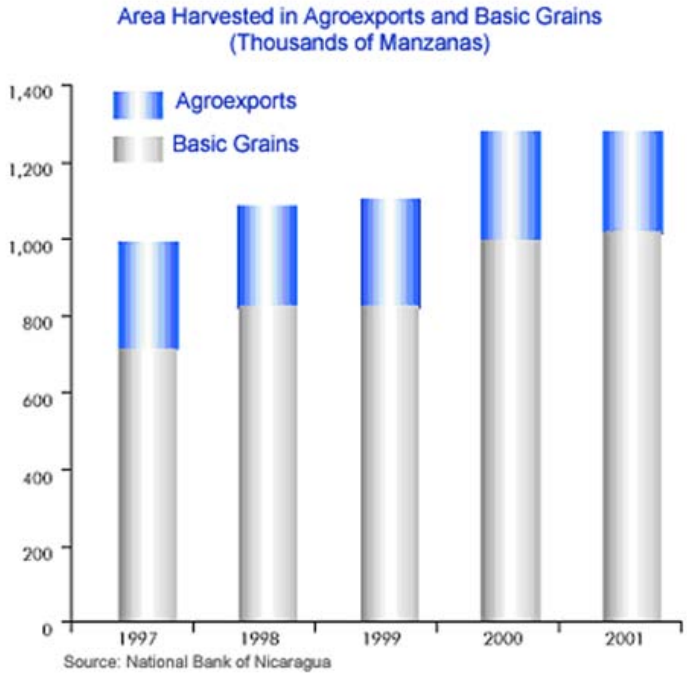
(Millions of 1980 cordobas)

	1990	1995	1998	1999	2000	2001[a]	Growth Rates 2000	Growth Rates 2001	Structure 1990	Structure 2001
Total for Agriculture	4 496	5 278	6 338	6 815	7 594	7 828	11.4	3.1	100.0	100.0
Agriculture	2 887	3 206	4 101	4 476	4 950	5 064	10.6	2.3	64.2	64.7
Basic Grains	830	1 074	1 365	1 518	1 599	1 900	5.3	18.8	18.5	24.3
Processed Rice	206	324	495	479	443	541	-7.5	22.1	4.6	6.9
Beans	213	280	365	520	549	643	5.5	17.2	4.7	8.2
Corn	327	388	422	444	510	623	14.8	22.2	7.3	8.0
Sorghum	85	82	83	75	98	93	30.0	-4.9	1.9	1.2
Export Crops	1 356	1 622	2 098	2 283	2 626	2 356	15.0	-10.3	30.2	30.1
Sesame Seed	74	106	18	23	29	33	27.9	10.9	1.6	0.4
Bananas	31	18	25	21	14	16	-35.7	16.3	0.7	0.2
Green Coffee	794	900	1 294	1 455	1 831	1 619	25.9	-11.9	17.7	20.7
Sugar Cane	395	415	532	519.9	530	494	2.0	-6.9	8.8	6.3
Peanuts	28	58	75	167	157	139	-5.8	-11.6	0.6	1.8
Soybeans	-	58	76	55	22	9	-59.9	-58.6	0.0	0.1
Havana Tobacco	35	67	79	43	42	46	-1.6	9.0	0.8	0.6
Non-Traditional Crops	358	483	631	675	725	809	7.5	11.5	8.0	10.3
Livestock	1 508	1 692	1 780	1 874	2 121	2 284	13.2	7.7	33.5	29.2
Cattle[c]	1 218	1 237	1 260	1 327	1 476	1 563	11.2	5.9	27.1	20.0
Pork	61	55	61	62	63	65	2.5	2.8	1.4	0.8
Poultry[d]	229	400	459	485	582	656	20.1	12.8	5.1	8.4
Forestry	51	55	60	62	64	66	3.6	3.6	1.1	0.8
Fishing	50	326	397	403	459	414	13.9	-9.7	1.1	5.3

Source: National Bank of Nicaragua

[a] Preliminary figures.
[b] Includes the agricultural, livestock, forestry and fishing sectors.
[c] Beef and dairy cattle
[d] Poultry meat and eggs

At the same time, it is important to highlight the fact that the greatest expansion in terms of area (and very possibly of use) involved the production of basic grains for domestic consumption. The area harvested in basic grains has reached historic records, which reveals an enormous expansion of the agricultural frontier.



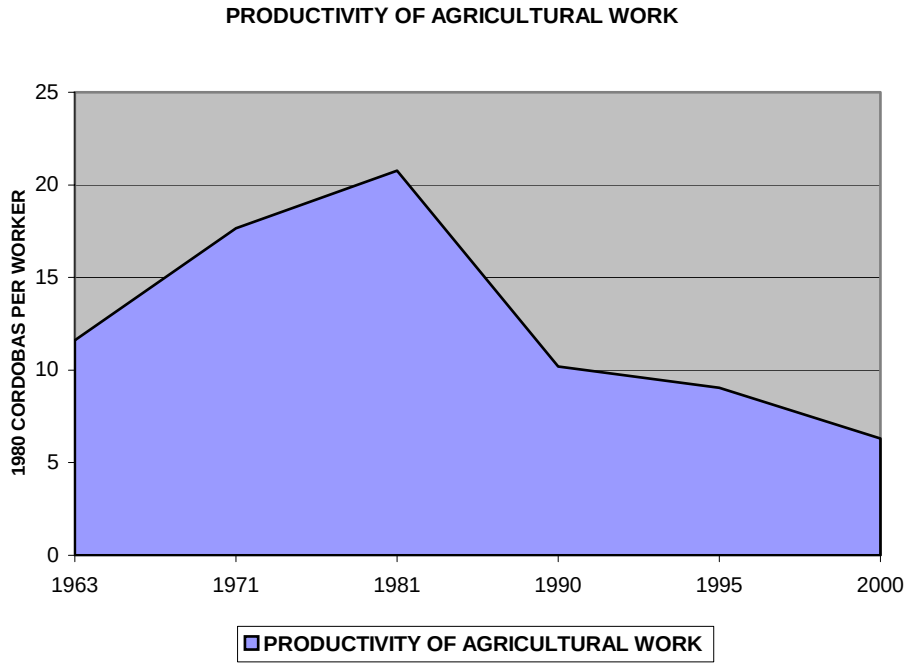
Finally, some aspects of the *quality* of this agricultural growth should be explained. A very important characteristic of the growth of agricultural production in this period is that it has been sustained principally by the growth of the employed labor force, while labor productivity, measured by the aggregate value per working person, *notably dropped in absolute terms* (decreasing by 37.6% between 1990-2000) *and also in relative terms* (falling from 62.5% of average productivity in 1990 to 57% in 2000).

The low relative productivity of agriculture, as we will see later on, is directly associated with the high underemployment level and extreme poverty which prevails in the countryside. As a result of the accentuated structural heterogeneity that prevails in the sector, most of the employment is created by activities of very low productivity, which generate very low income. Most of these jobs are equivalent to underemployment.

The greatest concern about this phenomenon is that it clearly reveals a pronounced accentuation of structural heterogeneity and the massive backwardness and extreme structural and social fragility of the sector. Agricultural growth has not been sustained by continuous increases in labor productivity – which on the contrary has declined, decreasing in marginal productivity. Rather, it has been sustained by the expansion of the labor force, employed in very precarious activities, and the continuous expansion into new land areas, over-utilizing and degrading the soil and destroying the forests. This means that Nicaraguan agriculture, and the enormous population mass which depends on it, have turned the clock back throughout the past decade to very backward stages as the source of production, income and employment, in circumstances where the world is making significant progress in the transition toward an agriculture which is less and less “primary”.

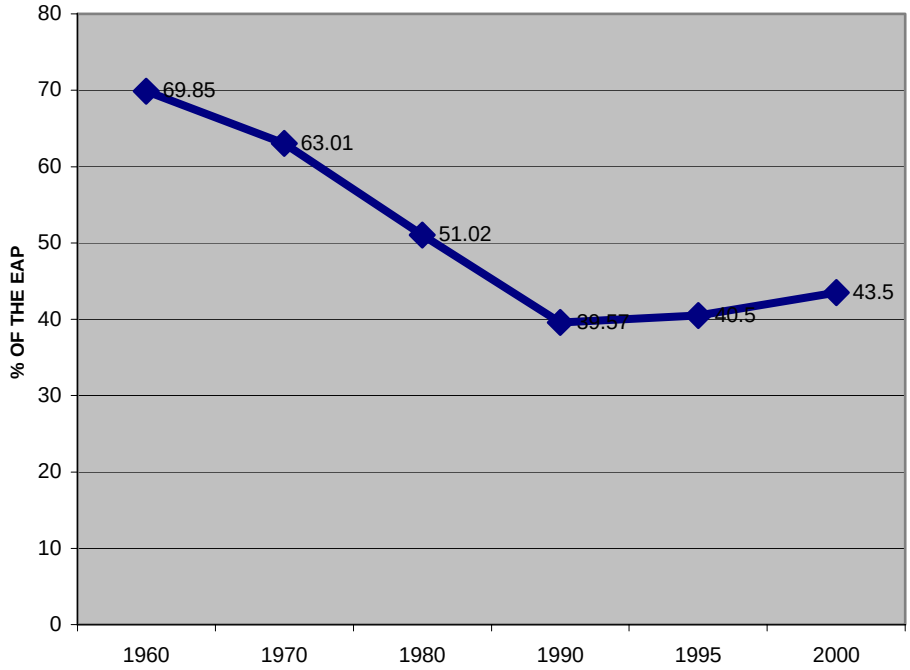
Nicaragua: Evolution of Agricultural Employment and Productivity 1990-2000

ITEM	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
TOTAL EMPLOYED (thousands)	1,122.4	1,117	1,123.7	1,121.7	1,176.6	1,228.2	1,291.8	1,369.9	1,441.8	1,544.2	1,637.3
EMPLOYED IN PRIMARY ACTIVITY	441.5	425	436.7	437.6	472	497.2	529.8	574.5	609.2	655.3	711.8
AGRICULTURE & LIVESTOCK	434.8	416	427.9	428.8	462.3	485.3	517.6	561.3	595.7	641.3	696.9
AGRICULTURAL EMPLOYMENT/TOTAL (%)	**38.7%**	**37.2%**	**38.1%**	**38.2%**	**39.3%**	**39.5%**	**40.1%**	**41.0%**	**41.3%**	**41.5%**	**42.6%**
AVERAGE PRODUCTIVITY (C$ 1980)	16.16	16.24	16.15	16.17	15.42	14.77	14.04	13.24	12.58	11.75	11.08
PRIMARY PRODUCTIVITY	10.18	10.58	10.29	10.27	9.52	9.04	8.48	7.82	7.38	6.86	6.32
AGRICULTURAL	10.11	10.56	10.27	10.25	9.51	9.06	8.49	7.83	7.38	6.85	6.31
AGRIC. PRODUCTIVITY/TOTAL (%)	**62.5%**	**65.0%**	**63.6%**	**63.4%**	**61.7%**	**61.3%**	**60.5%**	**59.1%**	**58.6%**	**58.3%**	**56.9%**



The growing agricultural labor force has found employment principally in very low productivity activities, which generate very low income, and which frequently place these workers and their families under the line of extreme poverty. The concern is that this "pattern of growth" seems to point to a very serious obstacle and few alternatives: lack of survival options, other than these activities, for the labor force and for rural families and a very serious obstacle to the development possibilities of the sector and its associated production chains.

AGRICULTURAL EAP PERCENTAGE



CENTRAL AMERICAN ISTHMUS: PERCENTAGE OF THE POPULATION EMPLOYED IN THE AGRICULTURAL SECTOR

	1990	1995	1998	1999	2000	
Costa Rica	25.9	21.6	20.1	19.7	17.3	15.6
El Salvador	40.0	40.6	38.8	40.9	40.3	39.8
Guatemala	...	...	...	...	...	...
Honduras	47.0	42.6	40.0	39.2	38.3	37.6
Nicaragua	39.3	40.5	42.3	42.4	43.5	42.9
Panamá	27.1	20.8	17.8	17.4	17.1	15.9

SOURCE: ECLAC, BASED ON OFFICIAL FIGURES

This "pattern of growth" is, in the end, unsustainable. The important rates of agricultural growth observed in the second half of the last decade are very difficult to sustain.

- The agricultural growth has been fundamentally *extensive.* It has been based principally on the incorporation of more land and labor force, with very little and/or decreasing use of capital per hectare or worker, except perhaps in some crops, while agricultural productivity remains very low, and stagnates or declines.

The growth of agricultural production based the growth in employment, with stagnation or decreasing productivity, cannot be sustained. The capacity of the sector to continue to generate employment is limited. In addition, this growth is based on a new and greater expansion of the agricultural frontier by the peasantry; there are limits to more extensive growth at the expense of the agricultural frontier.

- It is difficult to maintain the export dynamism: the export structure is not very diversified (the last great agro-export productive diversification took place from the 1950 to the 1970s) and the prospects in the international markets for basic products do not allow much hope for price increases such as those observed in the preceding period.

"With a closer examination of performance in agriculture it is found that it may be difficult to sustain it, for two reasons. First, the performance of the sector was driven by the unusually high export prices, especially for coffee. Secondly, the expansion of the agricultural production between 1993 and 1998 reflected principally the increases in the inputs of land and labor, and only small increases in yields. The inputs of land and labor increased as a result of the pacification in the countryside and the resettlement of the ex-combatants and refugees. This involved increases in the rates of labor participation in rural homes…Likewise, the increase in the use of land reflected the expansion of the agricultural frontier and progress in the resolution of property disputes in the rural areas. These factors suggest that the agricultural recovery in the 1990s was based on, above all, a one time change in the underlying factors, and it is not probable that this will continue. While the reserve of rural laborers without work is exhausted, the growth of the labor force in the agricultural sector has to decrease, and further expansion of the agricultural frontier would not be sustainable in terms of the environment. Nor can we hope that the prices for exports will continue to rise in the same rate as previously." (World Bank, Nicaragua: Poverty Report 2000).

It will become progressively clearer that the relevance of these phenomena for our analysis is that, even when based only on the analysis of some synthetic indicators of the macro-sector evolution of agriculture, they clarify the extremely precarious, extremely fragile, we could almost say dramatic, situation of this sector. This situation constitutes a fundamental and decisive obstacle for the development of the country as a whole, and for the economic and social insertion of millions of human beings (and of extensive geographic regions) in the process of development, who find themselves fundamentally excluded, lacking survival options which are not inextricably connected to extreme poverty.

The strong restrictions presented by the current state of natural resources and human capital, plus the new technological stage which developed countries have entered, places in doubt the maintenance of the current forms of use of the natural resources and the labor force. It is valid to state that the current model of production, distribution and consumption has entered into crisis, insofar as it does not insure the optimal use of resources on the economic, social or environmental planes. This not only represents a very serious economic and social problem, enormous in scope, but also, at the same time, it determines the prospects for this sector and for the millions of human beings connected to it for dealing with a more comprehensive process of trade opening.

❖ Food Production Grows, But with a High Level of Malnutrition

Finally, it is worth pointing out the fact that, in spite of the fact that agricultural production has grown more than the population in the last decade, the percentage of the population who suffer malnutrition is high: 31% of total population.

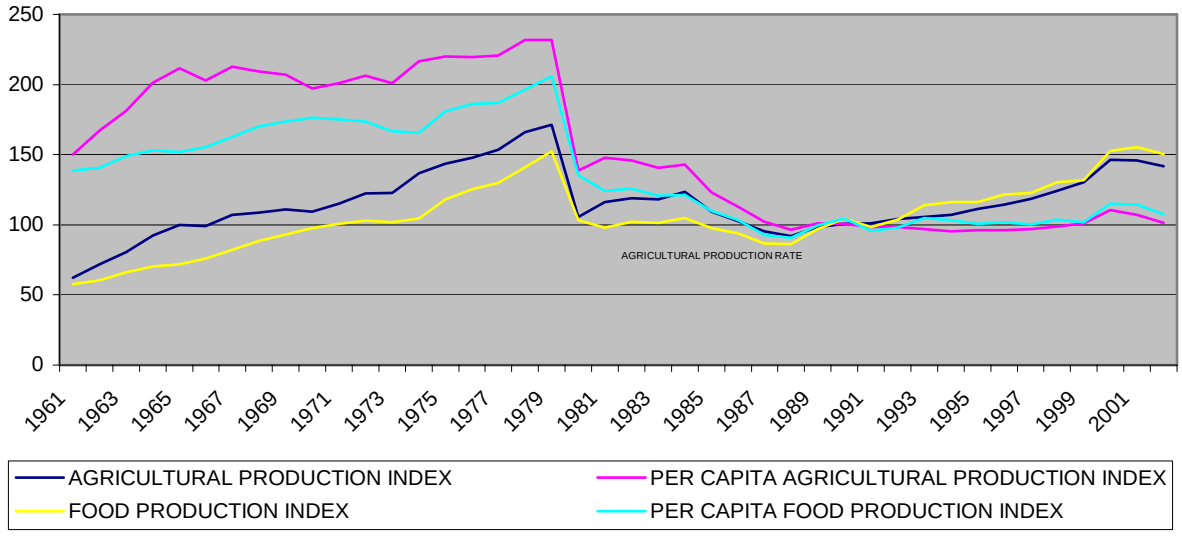
MALNOURISHED POPULATION

	Number of Persons		*Proportion of Population*	
	1979-81	1996-98	1979-81	1996-98
Countries with an Increase			%	%
Haiti	2 618	4 800	48,0	62,0
Nicaragua	759	1 500	26,0	31,0
Dominican Republic	1 424	2 200	25,0	28,0
Guatemala	1 228	2 500	18,0	24,0
Cuba	388	2 100	4,0	19,0
Guyana	99	200	13,0	18,0
Venezuela	604	3 700	4,0	16,0
Trinidad and Tobago	65	200	6,0	13,0

SOURCE: FAO

This is due, first of all, to the fact that, although the agricultural production and food production indices have recovered, the per capita production indices underwent an obvious decrease in comparison to previous decades.

PRODUCTION AND PER CAPITA PRODUCTION INDICES

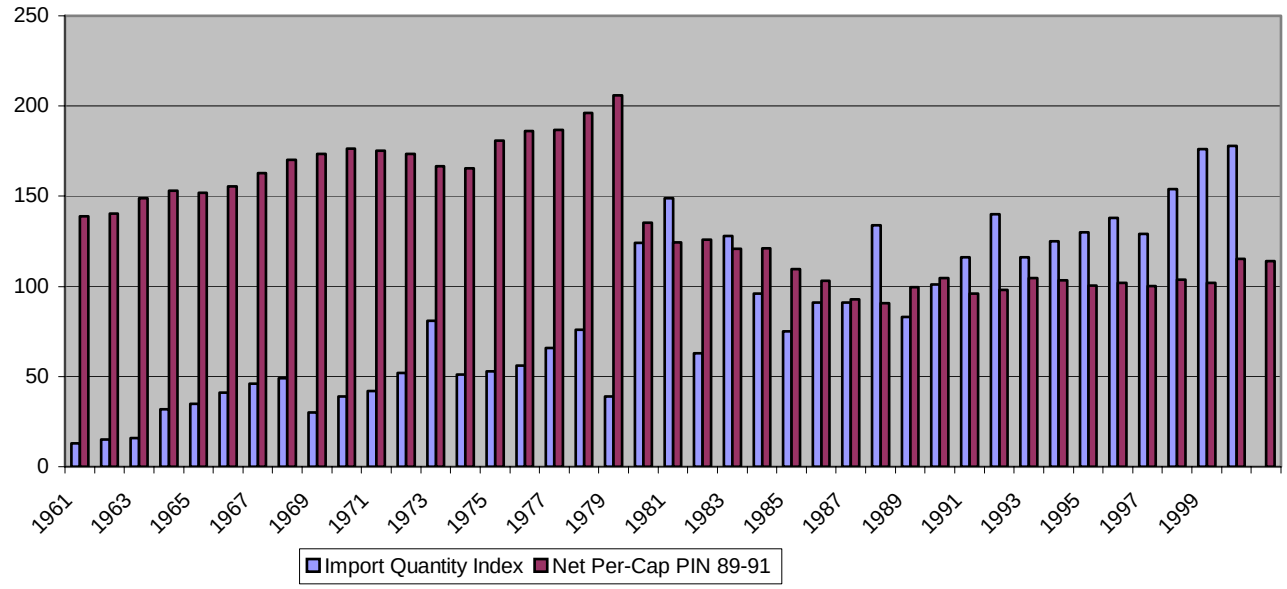


SOURCE: FAO

However, the high levels of malnutrition not only reflect problems on the production side of per capita foodstuffs. They also reflect, and in a fundamental way, problems of access. Likewise, they are the result of the decline in per capita income and the high levels of poverty and extreme poverty which prevail, associated with the greatly unequal income distribution rates. Perhaps this tendency toward decline of per capita production,

in addition to the results of the policy of external opening, is the explanation for the modest but progressive increase in the per capita import of foodstuffs.

Nicaragua: Per Capita Food Production Index and Quantity of Imported Foodstuffs Index



Source: FAO

B. ECONOMIC POLICY AND ITS IMPACT ON AGRICULTURE IN THE PAST DECADE

An analysis of the impact and implications of the system of economic policy on agriculture becomes obligatory. This is a very important dimension for understanding the implications of an eventual free trade agreement with the United States. As Schiff and Valdés (1988) argue, regarding the incentives for agriculture from a broad economic perspective, the "indirect" effects of overall economic policy are not any less important than the direct effects of the agricultural polices themselves.

The actions of economic policy affect the incentives, the assignment of resources between sectors, branches and activities and the volume of support which this sector receives, in terms of the provision of infrastructure and basic services, subsidies, and others, through different channels: affecting the relative price of imported goods in relation to domestic goods, the real exchange rate, the relative price of agriculture in relation to the rest of the sectors, the direction and size of the transfer of resources through intersectoral transactions, and the achievement or not of public investment of the magnitude required for the development of the sector.

Thus, although a trade agreement of this nature intensifies the unilateral trade opening process which the country began in 1990, at the same time it will affect the economy, in one way or another, depending on the conditions which this policy regime imposes.

❖ Impact of Trade and Exchange Rate Policy: Trade Opening, Overvalued Exchange Rate and Net Negative Protection of the Economy

Despite the fact that temporarily favorable prices for some export products – above all coffee – and the vigorous expansion of the agricultural frontier after the end of the war which had stopped its progress in the 1980s, favored recovery and the rapid growth of production volumes and agricultural areas, and further, in spite of the crucial importance of this sector for our economy, the prevailing economic policy regime has been translated into, along with structural factors, a bias against the agricultural sector. As a consequence, in addition to its structural deficiencies, this sector would see its obvious advantages and vulnerability increase in the face of an eventual process involving even more accentuated and intense commercial opening.

One of the central pillars of this policy regime is to establish the growing and relatively rapid and intense exposition of the economy to international competition. The so-called trade reform has been, in effect, one of the earliest and most intensely implemented economic reforms of the past decade.

In the context of the predominant economic policy approach, in effect, it is thought that the enterprises, sectors and productive activities should adapt as best they can – perhaps with a small amount of "state facilitation" – to the changes in the policy regime, especially regarding the opening to international competition. Within this framework, it is fundamental that price stabilization is achieved and that there is a capacity to keep internal inflation in line with international inflation through the establishment of a permanent framework of restrictive monetary and fiscal policies, together with the implementation of reforms in a series of fields – foreign trade, financial markets, labor market, etc. – aimed at getting the markets (above all, international markets) to play a predominant role in the assignment of resources (land, labor, capital, credit) among the different sectors of the economy.

These policies are considered, in fact, necessary as well as sufficient conditions for the restructuring of the domestic productive structure according to its pattern of comparative advantages.[4] Perhaps this restructuring would imply that the national

[4] Nevertheless, experience shows that the most successful countries in terms of international insertion, growth, and poverty reduction not only have adopted strategies which challenge these prescriptions on important points, but that the macroeconomic policies alone and even the so-called economic reforms are *far from being sufficient* for achieving these purposes.

"In the wake of the experiences of developing countries applying these policies – both successful and not – it seems clear that a development strategy based exclusively on macroeconomic stability and trade and financial liberalization does not by itself lead to development. In particular, it does not appear to have been conducive to long-term sustainable economic growth, nor to changes in the structures of production needed at the national level. This is not to say that the processes of trade integration and trade liberalization have caused the persistence of development problems, but that there is something important missing in the policy package that was sold in the eighties as a panacea for development" (ICTSD, 2003).

"Close study of the most successful developing countries shows that: i) The countries that grew the fastest were not simply characterized by an increase in their export/GDP ratios, but also

economy would incur some costs of adjustment, with the dismantling of some non-competitive or inefficient sectors and businesses or productive units, costs which may be quite high in some cases; but these "costs of adjustment" are considered transitory on the one hand, and inevitable, on the other. In the long term international specialization would be achieved and an assignment of resources would raise the general efficiency of the economic system and would enable the achievement of high and sustained growth rates, which would lead to a reduction in the levels of poverty[5].

From our point of view, it is of the utmost important to note, considering the velocity and intensity of the foreign trade opening, that the national economic policy so far has not been structured coherently around a holistic strategy of restructuring, diversification and development of the productive apparatus.[6] This is because it is not, strictly speaking, individual companies and producers

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investment and savings grew as a proportion of GDP in tandem; ii) These macroeconomic changes occurred as part of a process of late industrialization, in which manufacturing activities and manufacturing exports became increasingly important, and there was a progressive shift in production from less to more skill-, technology- and capital-intensive activities both within and between sectors; iii) At the micro level domestic enterprises imitated and adapted internationally available technologies in order to reduce costs, improve quality and introduce goods and services not existing in the country, and the diffusion of best practice from more advanced to less advanced enterprises within a country took place, including from foreign to domestic firms; iii) Poverty reduction occurred as part of this process, particularly through agricultural growth, the expansion of employment opportunities and extension of productivity improvements to marginal sectors" (UNCTAD, 2002).

[5] "It has become increasingly common to argue that the positive effects of trade liberalization on poverty depend on the implementation of "complementary measures" or will make themselves felt in the long run, despite increasing poverty and unemployment in the short run.. But here it may be noted that the evidence that will be presented there suggests that the incidence of poverty in the years after the implementation of the reform packages was, in most cases, similar to what it was in the years before. As for long-run effects, there is a large literature of cross-country empirical studies on openness and growth. In the past it was common to assert that these purportedly demonstrated that economies with open trade regimes grow faster and experience greater poverty reduction. But this view is being increasingly challenged. Even the more enthusiasts of trade liberalization are now more cautious" (UNCTAD, ibid)

[6] "Elements of a productive development policy include financial policy, technology policy, human resource development, physical infrastructure development, and industrial organization and competition policy. These elements are coordinated with trade policy. They can form part of, but should not be simply equated with, a selective industrial policy. They are directed at improving productivity and competitiveness in agriculture and natural-resource based activities as well as in manufacturing" (UNCTD, op cit). "Experience suggests that, alongside appropriate macroeconomic policies, it is important to adopt meso-economic and microeconomic measures that are specifically designed to improve the supply capabilities of the economy. Such measures can enhance macro–micro linkages in a way which supports national development and poverty reduction goals. UNCTAD has identified such measures as an important element of East Asian development strategies. They are also central to the neostructuralist approach which has been elaborated by ECLAC to achieve development with equity whilst integrating into the global economy. The absence of such measures, and of mutually supportive links between macroeconomic, mesoeconomic and microeconomic policies, is a key weakness of the PRSPs at the present time" (ibidem)

that are competing in the international market, rather structures and productive, institutional and technological systems.

On the contrary, the fate of the various productive sectors remains subordinated to the very policy of commercial opening. The agricultural policy becomes a lesser appendix to the economic and trade policy (De Janvry, 2001). Further, it leaves the agricultural sector – such an important sector for our economies - without the support and investment which are indispensable for assuring its efficient restructuring over the medium and long term, and without the systematic increase in the total productivity of the factors in agriculture as well as in the rest of the sectors, indispensable to, at the appropriate time, significantly raise its capacity for competing in international markets.

In contrast, the developed countries of the OECD *very closely tie* their trade policy and their public investment support policy to their agricultural policy (INCAE, 2002), and even prioritize their agricultural sector for national security reasons. This is paradoxical, if we consider that agriculture *is much more important* in relative terms for our countries and their prospects for development and poverty reduction, than what, at this point, it represents for the developed countries.

COMPETITIVENESS, TARIFFS AND EXCHANGE RATES

In order to better understand how the greater exposure of the economy and the different productive sectors to international competition is conventionally evaluated, and to understand their potential impact, it should be remembered that schematically, and perhaps somewhat redundantly, that trade opening, according to this approach, deals with putting domestic products and imported products in competition with one another in the national market on more and more "equal terms". Competition, within this framework, is fundamentally based on prices: if the price of the imported merchandise for a certain good is less than the price of the national merchandise, the national goods will be displaced from the market by the imported goods. The national producers either do what they must to reduce their costs and the sale price of their products, raising their productive efficiency to be able to compete with the imported products, or they will disappear from the market.

Therefore, the capacity of domestic production to compete with imports, given a pattern of international prices, must be determined. In order to evaluate the capacity for domestic production to survive in this battlefield, the ratio or relationship between the price of the domestic goods (or simply the national prices) and the price of the imported goods (their international prices) for each one of these goods must be measured. Thus:

COMPETITIVENESS RATIO OF DOMESTIC PRODUCT X = (DOMESTIC PRICE OF X / INTERNATIONAL PRICE OF X)

If the domestic price is greater than the international price of a good, for example corn, the previous ratio will be greater than 1, signifying that the national producer cannot compete at this price with imported goods. If the result is, for example, 1.3, it means that the domestic products are more expensive than the international products by 30%. If they were to compete "on equal terms" with imported goods, they would be displaced by the less expensive imports.

In this case, to help the domestic producers to support themselves, there are two basic ways of making the imported good more expensive than the national good in its own country's market. A tariff can be applied to the importation of this good, raising its price in the domestic market at the same percentage as the tariff rate (supposing that the tariff is ad-valorem, which is the most common). The exchange rate can also be devaluated in real terms, which would increase the domestic price of the imported good, expressed in local currency, in relation to the national good, at the same percentage as the real devaluation.

The devaluation of the currency increases the value received by the exporters in national currency as well as the value paid by importers. In addition, if it is greater than the impact on prices which the devaluation itself causes, it will increase the real price received by exporters as well as the real cost of imports. For this reason, the real devaluation promotes exports and discourages imports; it means that generalized supplementary protection is offered to all the exporters and producers who compete with imports.

Just the opposite occurs with an overvalued currency: an overvalued exchange rate discourages exports and promotes imports because it operates as a subsidy to imports and a tax on exports. It is, therefore, important to consider whether the exchange rate is overvalued or not, as an overvalued exchange rate reduces or can even annul the international competitiveness of domestic production, and if the tariff protection is less than the overvaluation, it can lead to a net negative protection for domestic production. Under these conditions, greater tariff reduction doesn't make sense.

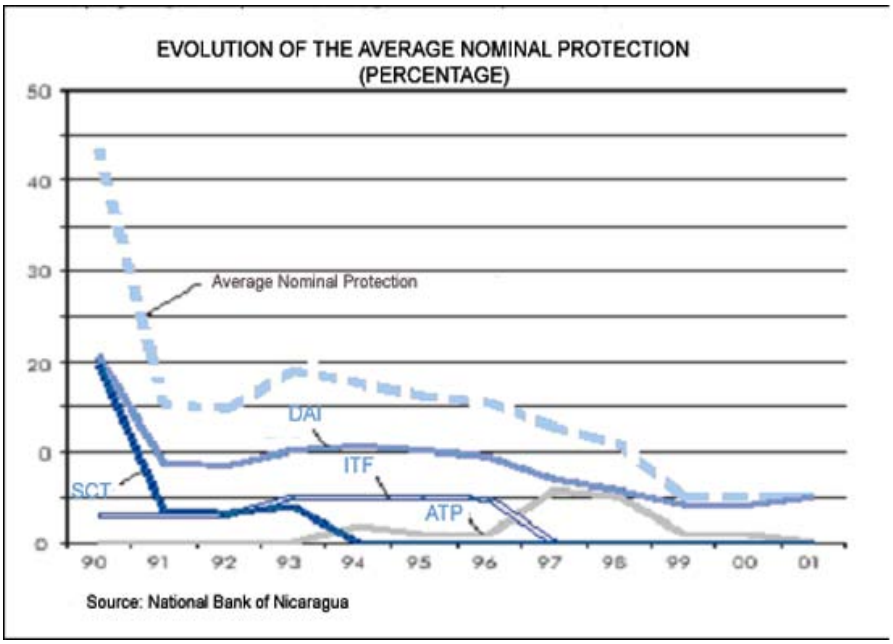
Thus, the exchange rate policy constitutes - along with the tariff policy and other instruments of intervention, such as import quotas, support or subsidies to production or exports, and trade negotiations – a key component of the trade policy of a country, which, in turn, is normally a very important component of a country's long term development strategy.

Consequently, the *policy of trade opening* means relatively quickly reducing tariffs on imports and other interventions such as quotas or subsidies, to expose the domestic producer to ever greater competition from outside the country. The predominant economic policy approach deems that this will force domestic producers to increase their efficiency and, in the case of a country without comparative advantages in certain areas, it must abandon those areas to be able to reassign the resources employed to sectors which do have comparative advantages. This approach seeks a productive restructuring in which the national economy will reassign the resources from the less efficient sectors toward the more efficient ones, thus (it is hoped) increasing general well-being.

Thus, in order to increase the exposure of the Nicaraguan economy to the forces of international competition and to promote its restructuring according to the demands of this new context, since 1991, all non tariff barriers to imports and exports have been eliminated as much as possible, and an intensive tariff simplification and reduction has been put into operation.

From a maximum rate of 200% and an average nominal tariff protection of 43% in 1989, the average nominal protection dropped to 15.2% in 1990, and to just 5% in 2000 (becoming the second lowest average tariff in the Americas, after Canada). It is worth noting that Nicaragua, between January 1990 and January 1991, reduced the average nominal protection level by 65% (in fact, this occurred as one single reduction, in 1990 itself), while Chile only achieved a similar reduction after 3 years, and Mexico after 4 years.

Chile		**Mexico**		**Nicaragua**	
Year	**Average Tariff**	**Date**	**Average Tariff**	**Date**	**Average Tariff**
1973	94.0	Dec.85	28.5	Jan.90	43.2
1974	75.6	Jun.86	24.0	Jan.91	15.2
1975	49.3	Dec.86	24.5	Jan.92	15.0
1976	35.6	Jun.87	22.7	Apr.92	14.8
1977	24.3	Dec.87	11.3	Jan.93	19.0
1978	14.8	Jun.88	11.0	Jan.94	14.5
1979	12.1	Dec.88	11.0	Jan.95	14.0
1980	10.1				
1981	10.1	Source: Van Kate		Source: MEDE	
1982	10.1	(1992)		(1994)	
1983	17.9				
1984	24.4				
1985	25.8				
Source: Meller (1996)					



SCT = Selective Consumption Tax
DAI = Import Duty Tariff
ITF = Fiscal Stamp Tax
ATP = Additional Port Tariff

As a result of the intense tariff reduction, the prices of imported goods were significantly reduced, relative to the price of national products. Consequently, the composition of demand was redirected *structurally and permanently* toward imports, against domestic production, drastically compressing the internal market. Thus a "boom" was produced in imports, which went from US$572.3 million in 1990 to US$1.397 billion in 1998. Imports rose from 42.7% of GDP in 1990 to 82.3% of GDP in 1999.

The Nicaraguan economy became the economy with the highest trade openness index of the Central America region, particularly on the import side.[7]

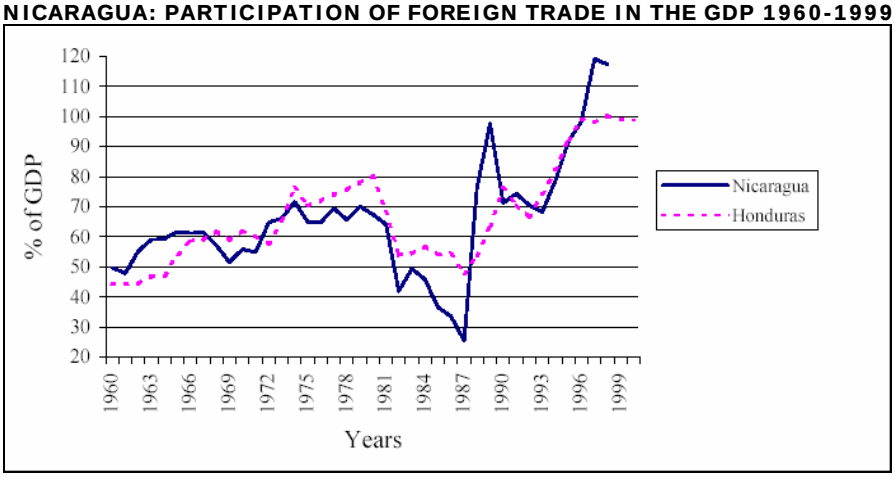
[7] Despite the improvement in exports during the period from 1994 to 1997, it is important to keep in perspective that the dollar value of the goods exported in 1997 barely reaches the levels attained at the end of the 1970s, before the economy began its prolonged decline. In contrast, the dollar value of imported goods has reached almost double what it was at the end of the 1970s.

CENTRAL AMERICA: PARTICIPATION OF FOREIGN TRADE IN THE GDP
(Percentage Based on 1995 Prices)

	1990		1999	
	Exports	Imports	Exports	Imports
Regional Total	24.5	28.0	36.4	42.5
Costa Rica	30.4	34.6	53.8	48.5
El Salvador	16.8	23.9	31.2	40.5
Guatemala	17.5	18.8	24.1	31.4
Honduras	33.5	44.4	39.0	49.2
Nicaragua	27.0	42.7	37.2	82.3

Source: ECLAC, based on official figures.
Note: The imports and exports include goods and services.

NICARAGUA: PARTICIPATION OF FOREIGN TRADE IN THE GDP 1960-1999



Source: IADB

The import "boom" was catapulted even more by the almost-simultaneous opening of the capital account, and by the implementation at the same time of an accelerated and ambitious liberalization of the financial market. The implementation of these reforms in a practically simultaneous manner was done in contradiction to everything which has been learned from previous liberalizing experiences about the adequate sequencing over time of the implementation of the reforms.

These experiences indicate that trade opening should not be done under conditions of exchange rate overvaluation, as it leads to an explosive growth in imports and an unsustainable increase of external trade imbalances. This will not happen if the real rate of exchange is maintained at a high level, providing an incentive to exports and maintaining imports under control.

Likewise, it was not advisable to begin the liberalization of the capital account while the productive structure was just beginning to adapt to the trade opening. This could result in strong flows of capital attracted by the high interest rate from the financial deregulation, and an exchange rate overvaluation which would distort the allocation of resources between the traded goods sectors and the non-traded goods sectors. This

could block the adaptation of the productive sectors of traded goods – producers of exportable goods as well as goods which compete with imports – to the new conditions of greater commercial openness, frustrating the desired restructuring of the economy (McKinnon, 1982, Harberger, 1985, Edwards, 1984, Edwards, 1996, French-Davis, 1999).

As was expected, the simultaneous implementation of all these reforms translated into the following effects:

- First, in the case of the trade opening, a true "avalanche" in the supply of imported goods with relative prices that were suddenly made noticeably cheaper due to the intense and accelerated tariff reduction and the elimination of controls on exports, along with the effects of the overvaluation of the exchange rate;

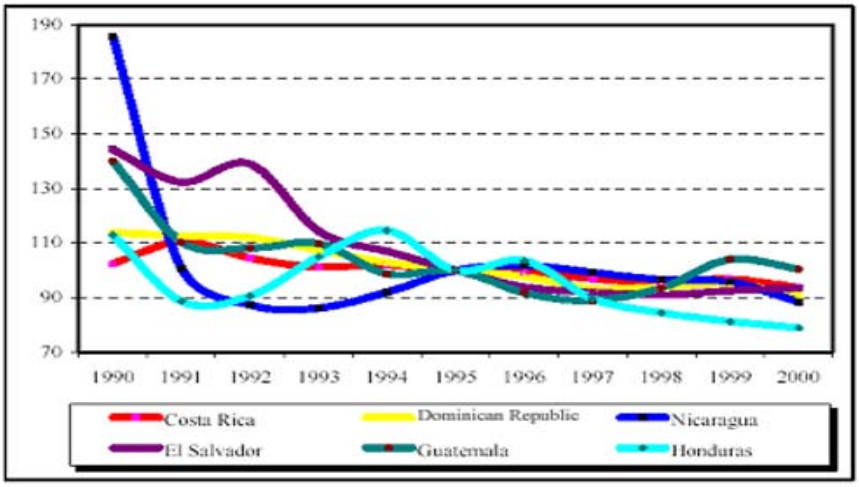
- Secondly, in the case of the opening of the capital account, important private capital receipts took place (in important measure under the modality of the acquisition by foreign investors of certificates of bank deposits in foreign currency), which contributed in effect to consolidating the overvaluation (real appreciation) of the exchange rate;

- And thirdly, on the side of the financial liberalization, a massive expansion of credit was produced – in large part financed by these capital receipts which were considerably leveraged by the private commercial banks. This was primarily credit for financing consumption, particularly consumption of imports, as well as investment in the non-traded sector (commerce, services, hotels, residential construction), imprinting a markedly anti-productive bias on the economy and blocking the desired productive restructuring.

If we add to this the increased flow of resources coming from international aid and the growing income from family remittances, also channeled in large measure toward consumption, it is not difficult to understand how this further consolidated the initial overvaluation of the exchange rate.[8]

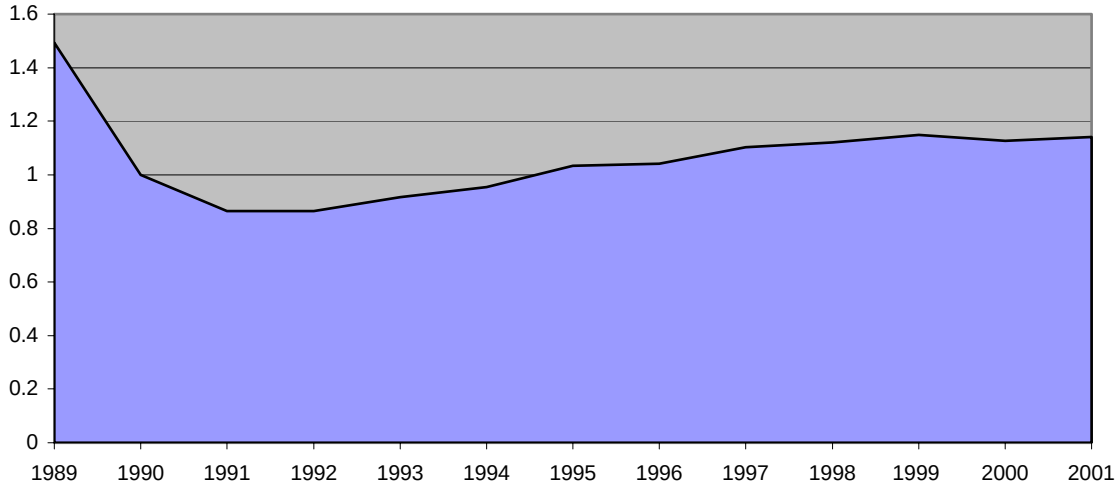
[8] "It is not helpful that this flow has had the tendency to raise the real exchange rate, restraining faster growth of exports and the development of more competitive import substitution industries" (World Bank, Poverty Report, cit.).

Central America: Real Exchange Rates, 1990 – 2000
(1995 = 100)



Source: IADB calculations, based on International Monetary Fund, *International Financial Statistics*, various issues, Washington, D.C.

Index of Real Exchange Rate



SOURCE: BASED ON INTERAMERICAN DEVELOPMENT BANK (IADB)

In fact, the exchange rate overvaluation or the appreciation of the real exchange rate *is the mechanism through which the economy adjusted itself in order to be able to absorb the internal spending (private consumption, in addition to public consumption and total investment) in excess of income*, made possible by the capital receipt, the flows of external aid and family remittances. This is the typical problem of "Dutch Disease" analyzed in the literature on the adjustment of a small and open economy. Part of this excess of spending will be directed towards traded goods, without affecting their price – because it is determined by international prices – but it will increase the amounts demanded, principally of imported goods, widening the trade gap; and part will be

directed to the non-traded goods, raising their relative equilibrium price (that is to say overvaluing the real exchange rate).

In this way the trade opening in Nicaragua has not only been accelerated and intense, but it has been associated with a significant overvaluation of the exchange rate. The indicators show that the reduction in tariffs and the drop in the real exchange rate joined together to considerably alter relative prices in favor of imported goods. Imported goods thus underwent a relative drop in price, enormous compared to the price of domestic goods in the local market, as a result of the *combination of two effects*: the drastic tariff reduction plus the effects of the reduction in the real exchange rate.

As a result of both effects, the relative price of imports, in other words, the average prices of imports compared to the average prices of domestically produced goods, fell by 91% between 1989 and 2000. For national consumers, imported goods became radically less expensive than domestic goods.

The average nominal tariff protection of agriculture was reduced from 31% in 1990 to 15% in 1991, and to 6.9% in 2000. If the effects of the overvaluation are added to the tariff reduction, we find that the price of imported agricultural goods dropped 84% in comparison to the price of domestically produced goods between 1990-2000.

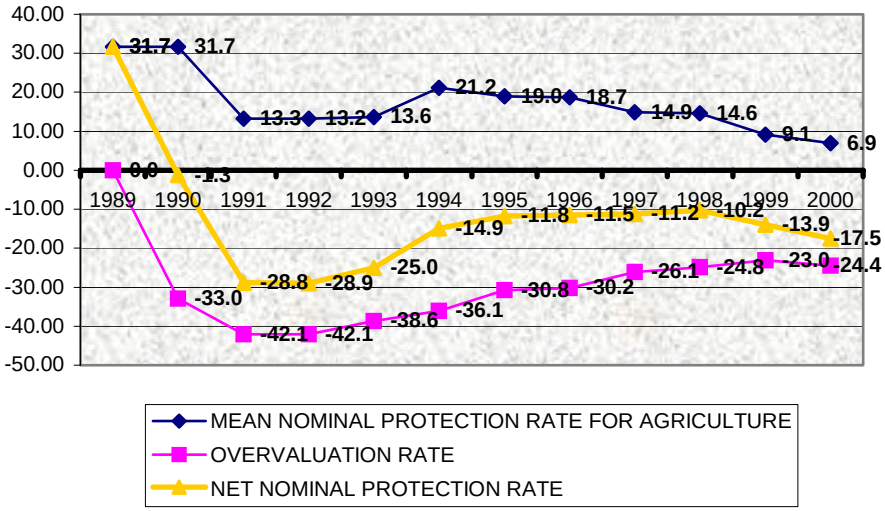
	NOMINAL AGRICULTURAL TARIFF PROTECTION INDEX	AVERAGE NOMINAL TARIFF PROTECTION INDEX	REAL EFFECTIVE EXCHANGE RATE INDEX	REAL COST OF IMPORTING AGRICULTURAL GOOD INDEX	NATIONAL AVERAGE REAL COST OF IMPORTING INDEX
1989	1.00	1.00	1.00	1.00	1.00
1990	1.00	1.00	0.67	0.67	0.67
1991	0.42	0.35	0.58	0.24	0.20
1992	0.42	0.34	0.58	0.24	0.20
1993	0.43	0.44	0.61	0.26	0.27
1994	0.67	0.34	0.64	0.43	0.22
1995	0.60	0.33	0.69	0.42	0.23
1996	0.59	0.30	0.70	0.41	0.21
1997	0.47	0.29	0.74	0.35	0.21
1998	0.46	0.27	0.75	0.35	0.20
1999	0.29	0.16	0.77	0.22	0.12
2000	0.22	0.12	0.76	0.16	0.09

Under conditions where the country is entering a new round of trade negotiations which will imply a greater reduction of the current levels of tariff protection*, it should be kept in mind that, with an average nominal tariff protection rate as low as 5%, the overvaluation implies a *net negative nominal protection* (a net level of protection *less than* 0%) of domestic production – understanding as "net nominal protection" the nominal rate of tariff protection minus the rate of exchange rate overvaluation: if the latter is greater than the nominal tariff, we have a *net negative nominal protection.

This in turn is equal to *an implicit massive subsidy* (or enormous subsidy) granted by *the country itself* to imported products which compete with domestic production, with

the rate of this subsidy equivalent to the net negative nominal protection rate.[9] *Under these conditions, greater generalized negative protection of the economy doesn't make any sense or follow any economic logic.*

NET NOMINAL PROTECTION RATE FOR AGRICULTURE
(ADJUSTED FOR OVERVALUATION)



Under these circumstances, it will be difficult for any domestic products to be able to compete against imported goods *which are being implicitly subsidized by the country itself* (the case is even worse if the imported products are receiving subsidies in their countries of origin). Tariff protection is introduced to compensate at least temporarily for the productivity disadvantages which domestic products face compared to international products.

Under the current conditions, nevertheless, not only is the nominal tariff protection often not enough to completely compensate for this productivity gap but, once adjusted for the overvaluation of the exchange rate, on the contrary, the domestic products may be left in an even greater disadvantageous position in the face of imported products.

[9] By definition, the real internal price of a good is equal to the real international price by the net protection that it receives, represented by the real effective exchange rate (indexed to 1.00 for the base period) plus the tariff. If the real exchange rate is the equilibrium rate equal to 1.00 and the tariff is 20, the net protection is 1.20 and its percentage is equal to the nominal (20% and will be the difference between the price of the imported good and the domestic good. If the real exchange rate rises, say to 1.20, the net protection is 1.4 and its percentage will be 40%. The imported good will be 40% more expensive than the domestic good. If the real exchange rate is overvalued by 30% and its value is 0.70, the net protection will be 0.90 and its percentage will be -10%.

❖ Does basic grain agriculture receive "excessive levels of protection"?

By distortion economists are referring to the deviations between the effective price mix of an economy and the ideal long term equilibrium price mix for that economy. There are two different reasons why these two price mixes can differ from one another: i) market failures, that is to say the inability of markets to function correctly due to such factors as monopolistic elements, asymmetrical information, transaction costs, externalities and to a certain extent, uncertainty and risks; and ii) policy interventions.

The estimates for determining the presence of distortions and their magnitude begin by comparing the prices observed in the domestic market with the prices which would be hypothetically in effect in a perfectly competitive and undistorted market, known as "efficiency prices."

Protection indicators **are used to measure the effects of policy interventions. To measure these interventions a point of reference needs to be established against which to compare internal prices. International prices are generally used as reference points for traded goods, adjusted when necessary. The magnitudes estimated as distortions due to policy interventions indicate the extent to which internal prices have moved away from international prices.**

This means that the prevailing prices in international markets are used as "proxies" for efficiency prices (due to the "small country" hypothesis), and the presence of *implicit subsidies* is estimated based upon that. The magnitude of these is estimated by the proportion in which internal prices are higher than international prices, or of an *implicit tax or tariff*, when these prices are less than those prevailing in the world market.

Two of the most used indicators for determining the presence of distortions are the *Nominal Protection Coefficient (NPC)*, and the *Effective Protection Coefficient (EPC).*

The ***Nominal Protection Coefficient*** or NPC is the simplest coefficient used to evaluate the level of protection resulting from market distortions. This coefficient is measured as the ratio or quotient of the international prices or the prices of trade partners, placed at the border, to the prices to the producer, or of a common point, which could be the central wholesaler for the countries, indirectly determining the competitiveness of the national product, depending on whether the internal prices are lower than external prices. The NPC can be applied to both exported goods and imported goods.

For example, if the price in agricultural exploitation received by producers for a certain export product which competes with imports is 200 U.S dollars per ton, while the border price is 150 dollars per ton, the NPC will be equal to 200/150, which is 1.33. This means that, because of market distortions, there is an implicit subsidy to the producers equal to 33.3% of the price of the product.

The ***Effective Protection Coefficient*** or EPC measures the degree of protection as the relation between the added value in the presence of market distortions, which is the net income received by the farmers, and the added value in the absence of market

distortions, that is to say when the inputs and the products are valued at their international prices.

Returning to our previous example, to assess the level of protection in the production of rice we must consider the negative effect of artificially elevated prices of fertilizer or high yield seeds, in comparison with their economic parity importation prices, due, for example, to the imposition of a tariff on importing these inputs or oligopoly prices imposed by the distributors. The behavior of the rice producers (for example, their decision to increase or reduce production or to work on other crops or invest in other branches of economic activity) does not depend on the price received for rice but their net agricultural income, in other words, the added value, which depends on what they receive for the rice they produce and what they pay for the inputs which they use. Therefore, it depends on the distortions present in the rice market and the markets of the inputs used in the production of rice, such as fertilizers and varieties of high yield seed.

The World Bank (Nicaragua: Poverty Report 2001) offers the estimates of nominal protection coefficients as well as effective protection coefficients by crop for 1998.

Product	Nominal	Effective
Importable Products:		
Rice	1.29	1.36
Beans	1.13	1.20
Sorghum	1.37	1.53
Corn	1.38	1.50
Soybeans	1.10	1.17
Milk	1.15	1.18

Immediately a number of comments emerge. First, the Nominal Protection Coefficient (NPC) or simply implicit protection is higher than the nominal tariff rate for corn and sorghum. This means that, far from having redundancy in the tariffs which are applied to these products, they have been reduced more than necessary to adequately protect these crops. Secondly, it would be important to correct this coefficient **because of the overvaluation of the real exchange rate**, in order to have a net nominal protection or implicit protections.

Finally, perhaps it is not advisable to consider, in this case, international prices as "efficiency prices", as this methodology assumes, as these are not equilibrium prices or "efficiency prices" but highly distorted prices, a consequence of various factors: the market of these goods is controlled by very few multinational corporations (oligopoly markets), so that this prices are not formed in a market of perfect competition. For example, 15 multinational companies control 53% of the world commerce in food, and only one company, Fonterra Cooperative Group Ltd. controls a third of the international trade in milk products.

Main Transnational Companies Involved in Agriculture

Company	Main Headquarters	Main Activity	Annual Sales (Billions of Dollars)
Nestle	Switzerland	Food (Dairy)	50.5
Cargill	United States	Grains and Meat	49.4
Unilever	United Kingdom, Netherlands	Food (Meat)	44.8
ConAgra	United States	Meat	27.2
Kraft Foods	United States	Foods	26.5
ADM	United States	Grains and Oils	20.0
IBP	United States	Meats	17.0
Danone	France	Dairy	13.5
COFCO	China	Grains and Oils	12.2
Snow Brand Milk	Japan	Dairy	12.2
Tyson Foods	United States	Chicken	10.7
Kellogg	United States	Cereals	6.9
Parmalat	Italy	Dairy	7.0
Fonterra	New Zealand	Dairy	5.0
Dole	United States	Fruits and Vegetables	4.9

Source: OECD and Hoover's Online, 2001.

Above all, these prices are affected by trade barriers and enormous production subsidies which the OECD countries grant their agricultural products, and which involves a tendency to overproduction and the maintenance of depressed and falling price levels for these products in international markets, below what their levels would be under conditions of equilibrium. The agricultural and trade policies of these countries affect us through the distortions which they have on international trade, and particularly, through their effects on international prices. These measures include restrictions on access to markets, subsidies to production and export, non-tariff barriers, etc.

The aggregate effects of all these forces are volatile international prices with a downward tendency. International prices in real terms for important agricultural products in Central America are currently at half their effective level in 1960, with a strong downward tendency since 1998. The tendency over the long term is clearly falling.

The USDA (2002) has estimated that the elimination of all distorting subsidies would make the international price for agro-food products increase by 12% on average, with some prices, such as those of rice, corn and soybeans rising higher than this average. Other estimates indicate that the United States exports corn at prices with a dumping percentage of up to 33%.

If the international prices were corrected in order to take into account these factors, the differential between internal prices and international prices would be reduced significantly, and would be explained, basically, by productivity differentials resulting from structural asymmetries between the agriculture of the developed countries and that of under developed countries. The differences in the rates of research and development and technological extension, investment in human resources and infrastructure, and the GDP between the different groups of countries are abysmal. Also left as explanatory residue

would be the endogenous distortions of our own markets – greater transaction costs, market segmentation, inefficient commercialization systems, etc.

If international prices are not corrected within the calculation of the NPC, in order to "clean" them from the effects of these massive distortions, then the comparison of domestic prices with international prices will only reflect, in large measure, the fact that, by accepting protectionism and the enormous agricultural subsidies practiced by the most developed countries of the planet *as a given*, the clear and gigantic asymmetry is simply validated among the various participants in the international market." [10]

Some participants in this trade system, the wealthiest and most powerful on the planet, can maintain the enormous trade distortions which its trade and agricultural policies mean for the rest of the countries, specifically for the weakest centers of this system, under the criteria of introducing "efficiency" in their economies – in other words, adjusting domestic economies and the fate of productive sectors and extensive segments of the population to the dictates of hypothetical "efficiency prices" of the world market. It is "recommended" that they expose their markets even more to the enormous excess exports from the most powerful countries, whose prices incorporate high dumping percentages in order to more easily displace the "inefficient" domestic producers from the national market.

In fact, these recommendations would have little to do with considerations of economic efficiency. Under circumstances like these, the "Second Best" theorem says that, if markets are being deregulated, exclusively eliminating only some distortions, but not all of them, and principally the most blatant and pervasive, then anything can happen, and one cannot predict absolutely what exactly will occur, much less predict whether things will end up better or worse than they already were, in terms of Pareto efficiency.[11] **Nevertheless, there is still only a limited number of cases in which intellectual honesty has led authors from the dominant economic current to admit that, in terms of their own intellectual approach, neoclassical economics, they cannot tell us much about the final results of liberalizing markets when they suffer from multiple imperfections; and that, if this is the case, the liberalization could cause**

[10] In the case of international trade negotiations the hypothesis of the "small country" loses validity, because it is precisely in these that reduction or elimination of the distortions which affect trade are negotiated. Unless the "small country" hypothesis is used to mean also power asymmetries, in which case it is accepted that these negotiations are asymmetric in terms of the negotiating power of the participants, and they are "distorted" by this imbalance. But even the small country hypothesis in terms of price–acceptable in terms of traded products, does not justify the recommendation to unilaterally drop protection for agriculture in developing countries in the face of the agro-exportable surplus from the developed countries.

[11] Mosley (1990) explicitly adds that: "There is *absolutely nothing* in economic theory which would tell us what distortions should be eliminated and in what order, nor that the elimination of distortions necessarily is a help. This terrain is governed by the Second Best Option Theory, which alerts us that, in an economy characterized by many imperfections in the market, it cannot be assumed that the elimination of one of these imperfections necessarily "will improve things." Any structural adjustment program, that is, a program which attempts to remove a series of these imperfections, is therefore not an application of economic principles, but rather an improvisation, a game based on the hypothesis that if the previous microeconomic policies had had unsatisfactory results, then an alteration of these policies maybe can help."

greater distortions than those that already exist (Mosley and Harrigan, 1991).

The implication of this is that the elimination or reduction of some "distortions" cannot be recommended by arguing efficiency reasons. In this case the tariffs which protect – minimally in our case, especially in the presence of the overvalued exchange rate – the agricultural goods of developing countries, while in the developed countries, and in international markets, there are prevailing distortions of such a magnitude that they completely alter the formation of the prices of these products in those markets, compared to what would occur under equilibrium conditions. It is, therefore, not a matter of adjusting domestic production to a supposed pattern of efficiency, provided by international prices, but a case of asymmetric and unfair competition on an overwhelming scale, practiced by the developed countries.

Some facts will help us to understand this better. In a more recent study ("Promoting Competitiveness and Stimulating Broad-based Growth in Agriculture", October 2002), the World Bank reproduced a series which shows the evolution of the nominal and effective protection on agriculture for products of domestic consumption or those which compete with imports (basic grains), as well as for products for export. According to this time series, the Nominal Protection Coefficient for basic grains starts with the 1996/1997 cycle, when it reached 11%, then rose to 56% in 1997/1998 and closed at 38% in 2001/2002.

Table 7: Estimates of Agriculture Protection in Nicaragua (at official exchange rate)

Crop Cycle	*Nominal Protection Rate* %	*Effective Protection Rate* %
Importables		
96/97	11	13
97/98	56	75
98/99	51	68
99/00	31	65
00/01	47	66
00/02	38	57
Exportables		
96/97	-3	-1
97/98	-4	-2
98/99	-1	-4
99/00	1	1
00/01	-1	-1
00/02	1	-1

Source: PROVIA (2002)

This study is useful in showing us the evolution of these indicators over time. In this regard, it is worth mentioning that another study was done some six years ago by CONAGRO-IADB-UNDP (1995) for the 1995/1996 cycle on the nominal protection coefficient for basic grains, and on the net nominal protection coefficient, estimated as the nominal protection corrected for the overvaluation. That study found that, in the case of corn, the nominal protection was null or 0% (the value of the nominal protection coefficient was 1), and in the case of beans, the nominal protection was negative (the coefficient had a value of 0.76, which means that this product suffered from an implicit nominal vulnerability of 24%).[12]

[12] Net nominal protection – meaning that it was adjusted for the overvaluation – is negative for corn (the net protection coefficient would have a value of 0.83, for a net vulnerability of 17%), and

The annual average tariff for the period from 1992-1995 for corn was 19%, it was 20% for beans and 20.7% for rice. A price band mechanism operated for corn and rice, which, according to this study, "was not enough to correct the huge negative protection caused by the levels of overvaluation of the exchange rate." [13] As a result of this study, in the Law of Tax and Trade Justice of 1997, a higher tariff was set for basic grains, which was raised to 25% in the case of corn, setting a calendar for tariff reduction up to 2001. After this tariff reduction process, the tariffs in 2001 have been left at the following levels:

CENTRAL AMERICA: TARIFF MEASURES IN EFFECT FOR TRADE IN AGRICULTURAL PRODUCTS

Item Central American Tariff System		Extra-regional Tariff (Percentages)				
		Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua
1006	**Rice**					
	- hulled	35	40	14.6/29.2	45	62
	- semi-bleached / bleached	35	40	14.6/29.2	45	62
	- broken	35	40	0/29.2	45	62
1005	**Corn**					
	- yellow	0	0	5/35	15	0/30
	- white	15	15/20	20	15	15
	- popcorn	10	5	20	15	10
	- other	15	15	15	15	15
0713	**Beans**					
	- Vigna mung and others	10	15	15	15	10
	- adzuki ("little red")	30	15	15	15	10
1007 00 90	**Sorghum**	15	15	20	15	30
1701	**Sugar (raw)**					
	- cane sugar	47	40	20	40	55
	- beet sugar	47	40	20	15	55

What is important, nevertheless, is that this CONAGRO-IADB-UNDP study helps us to have a more complete view of the evolution of the Nominal Protection Coefficient over time, and it will also be very useful in leading us to a better understanding of the determining factors of this evolution.

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is even more negative for beans (the coefficient reached a value of barely 0.62, for net vulnerability of 38%). On the other hand, a typically business crop like rice, shows a nominal protection level of 9%, although the net nominal protection is null.

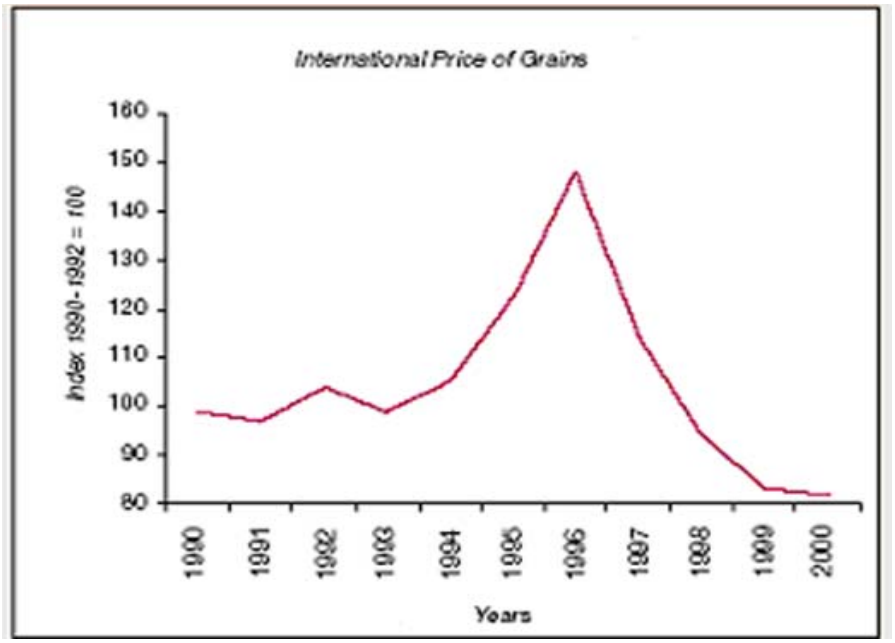
[13] This study concluded that: "in synthesis, the overvaluation of the currency and an inadequate protection for agricultural products for internal consumption introduces a decidedly unfair competition by the country itself since, in addition to the subsidy granted by the developed countries to the price of the imported products, there is an added implicit subsidy on imports, leading to a reduction in the internal price received by national producers. Further, in terms of intersectoral transfers and biases, while the protection on agriculture is inappropriate from every perspective, the protection for large, oligopoly industry is still high (40%) resulting in an anti-agricultural bias, subsidy for imports and transfers of resources from agriculture to industry and urban consumers".

If we compare the results arrived at by the CONAGRO-IADB-UNDP study for the 1995/1996 cycle with the results shown in the series reproduced by the World Bank for 1996/1997-2001/2002, we find that the average Nominal Protection Coefficient for basic grains rose considerably, from approximately 0% or less in 1995/1996 to 56% in the 1997/1998 cycle. What is the reason for such a striking rise in this indicator?

This striking rise in the Nominal Protection Coefficient is obviously not the result of a rise of this same magnitude in the tariff protection rate, nor is it an unexpected and significant increase in "internal distortions." As we will see in what follows, the *explanation is much simpler, and appears more linked to the distortions which prevail in the international market.*

In effect, remember that the designated "Nominal Protection Coefficient" is no more than the result of the simple division or quotient between the domestic prices and the international prices of a good. If international prices drastically increase during a given period, the Nominal Protection Coefficient will decrease, simply because in raising the value of the divisor (in this case, the international prices), the value of the quotient automatically decreases. This is exactly what occurred in 1995/1996.[14] The international prices for grains drastically increased all at once, and for this simple reason the NPC for basic grains dropped during that cycle to an average of only 0% (which then was equal to a net negative nominal protection, as the corresponding study showed).

Now, if the international prices, after rising to a high level, begin a new cycle and drop significantly, the value of the NPC, after having gone down, once again increases strikingly. Precisely in 1997-1998, a period of strong decline in international prices of cereal grains began, after reaching a high point in 1995/1996. This is the fundamental reason for the rise which is observed in the value of the NPC starting in 1996/1997 and especially in 1997/1998.



[14] The serious drop in world grain inventories, principally in the United States, throughout 1995 and the first semester of 1996 caused the greatest scarcity in the last three decades and an unprecedented rise in their international prices, rising above 100% of levels of previous years.

Thus, it is clear that the level and fluctuations of the NPC are much more basically linked to the distortions in the determination of the international prices, than to distortions originating in the tariff or domestic trade policy of small countries like ours.

Finally, a comment on calculations of Effective Protection Coefficients. We have done a mathematical exercise to simulate the results of the study reproduced by the World Bank, using as an example the results for corn. Examples of Nominal Protection Coefficients are simulated for the total price of the product, as well as for its cost in inputs and its added value. In this hypothetical example, where the Effective Protection Coefficient (which is equal to the NPC of the added value) is 1.50, the Nominal Protection Coefficient of the inputs must be only 1.26, which means that the internal distortions should be greater in the product market than in the input market.

PRICE OF:	DOMESTIC PRICE	INTERNATIONAL PRICE	PROTECTION COEFFICIENT
GPV	138.00	100.00	1.38
INPUTS	63.00	50.00	1.26
ADDED VALUE	75.00	50.00	1.50

This is the logic of the calculation of effective protection. It only indicates that the protection and distortions would be greater for final products than for inputs. Various authors have maintained that the use of this coefficient is misleading as it does not provide much information on the consequences of tariff changes on general equilibrium (Dixit, 1986), which is why it is valued, even in orthodox thought, mainly as an indicator of how much "inefficiency" or distortion in the allocation of resources should be "tolerated" in a determined market (partial equilibrium approach), but it cannot address the effects on the efficiency of the allocation within a general equilibrium framework, from the point of view of the economy as a whole (or about the results in terms of efficiency of eliminating the distortions in this market if there are distortions in other markets).

Nevertheless, going far beyond what this indicator alone can demonstrate, some people state, using this indicator exclusively, that continuing to "maintain" the production of basic grains means continuing to support a great inefficiency in the allocation of resources, and is equal to an enormous "subsidy" for "inefficient" grain producers.

In addition to this, according to the study cited by the Bank, since the EPC is larger for agricultural products for internal consumption than for exports, this would be distorting the allocation of resources in the economy, from the demand side, as it is more attractive to direct resources toward basic grains than toward exports, while on the supply side, the limited resources would be directed toward basic grains, to the detriment of export crops. This "distortion" would be one of the principal "anti-export biases" which the Bank found, and which it proposes reducing by decreasing the tariff protection for products for internal consumption.

According to this, the dynamism and development of exports are limited. This limitation is not seen as being due to the fact that the country maintains a limited and not very diversified export productive basis, in large part due to the past decade's doctrinaire attachment to the dogma that it was enough to liberalize markets and open the economy to foreign competition in order for "correct prices" to be established and for the productive structure to be redirected, on its own, toward exports; and that, therefore, in order to bring about an effective foreign economic insertion there was no need to apply clear and resolute policies for promoting and diversifying export production. Rather, exports would be limited, fundamentally it seems, because the average EPC for agricultural crops for internal consumption, which must also compete with highly subsidized imported agricultural products, appears higher in these calculations than that of the export crops.

Accordingly, the expansion of exports depends to the extent which peasant production of grains is even further unprotected.

Nevertheless, this assumes that the production of basic grains and the production of agro-exports compete with one another (compete for resources), more than they complement one another.

In fact, historically, there was a high level of complementarity between them, and the periods of booms for agroexports have been accompanied by booms in grains. The production of grains has provided food and labor for exportable crops. They have also not competed for soil, foreign exchange, or labor. Further, if the opportunity cost of the resources involved is equivalent to 0, or very low, as in the case of marginal lands or underemployed labor, and the difference in the NPC is not due to policy interference but to "market failures", then the concern for efficiency doesn't make sense: these resources, if the market failures are not corrected, do not have a better alternative use, but the overall production level and income increases, even if they end up being used in low productivity activities.

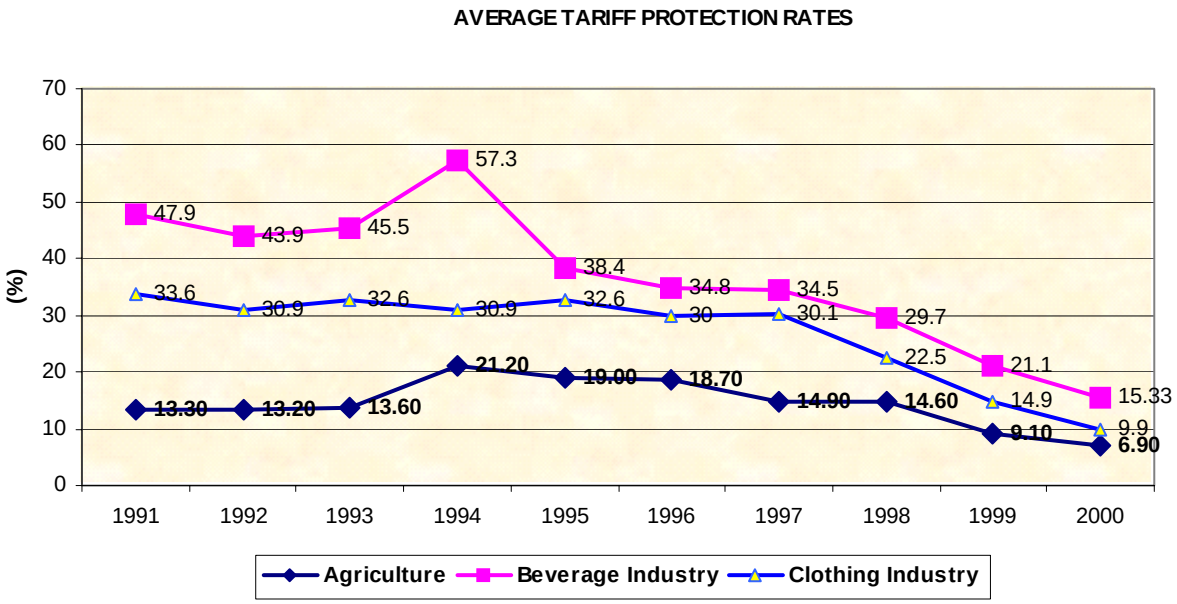
Secondly, this distortion, in the case of the domestic price, is due to market failures or structural problems, and not to trade policy interventions, so that they cannot be solved through tariff actions – unless the reason is to make the domestic producers disappear through them, along with the distortions of the internal market for the goods which they produce. But in the case of the international prices, the distortions are due to policy interventions, the subsidies and dumping which the developed countries practice, which can be corrected with modifications in trade policy.

To illustrate this, we will use our own example to simulate what would happen if the distortions coming from subsidies and the dumping practiced by the developed countries were eliminated. Let's suppose that, as a consequence, the price of corn in international markets rose by 20%. Let's see what would happen (ceteris paribus):

PRICE OF:	DOMESTIC PRICE	INTERNATIONAL PRICE	PROTECTION COEFFICIENT
GPV	138.00	120.00	1.15
INPUTS	63.00	50.00	1.26
ADDED VALUE	75.00	70.00	1.07

The NPC for corn is reduced from 1.38 to 1.15 and the EPC from 1.50 to only 1.07. The problem does not appear to be where the World Bank said it would be. The solution does not appear to be to further reduce the already-low nominal tariff protection for corn (10%) and leave the domestic producers for internal consumption to the free will of the wealthiest and most subsidized agricultures in the world.

Finally, it is surprising that in these studies the emphasis on the concern of the original studies on Protection Coefficients is lost. These were pioneered by the World Bank, and the Agricultural Program study of CONAGRO-IADB-UNDP expresses, relative to the greater protection for industry compared to agriculture in the time of the so-called "import substitution" introduced a striking anti-agriculture bias. This greater relative protection was maintained throughout the decade for the principal branches of what the CONAGRO-IADB-UNDP study calls "large oligopoly industry".



Just as "Social Watch" stated, the pressure from the Bank for greater unilateral opening of developing countries – in this case, in matters of highly sensitive agro-food products – tends to weaken the negotiating ability of these countries in trade negotiations with developed countries.[15] In addition, evidence seems to exist that this bias in the

[15] Although this is perhaps not the official position of the Bank at its highest level, it does appear to be so from the missions which come in to advise our country. The duality of positions is revealed at times publicly. The topic of trade and the need for a negotiation between developed countries and developing countries "is the new hymn which we are singing now," said the president of the World Bank, James Wolfensohn on September 27, 2002, during the round table which served as a public introduction to the secret sessions held by the board of governors of the International Monetary Fund (IMF) and the World Bank during a weekend in Washington.

In a widely disseminated press release, Nicolas Stern, principal economist of the World Bank, said that "improving market access for developing countries is one of the most important steps which rich countries can take in the fight against world poverty. It is hypocritical to encourage

pressure from the Bank and other multilateral financial organizations, which tends to turn out to be *objectively* favorable to the trade interests of the most powerful centers of the world economy, extends also to the WTO. Dani Rodrik (2001) has pointed this out as follows: *"WTO rules on anti-dumping, subsidies and countervailing measures, agriculture, textiles, trade related investment measures (TRIMs) and trade related intellectual property rights (TRIPs) are utterly devoid of any economic rationale beyond the mercantilist interests of a narrow set of powerful groups in the advanced industrial countries… Bilateral and regional trade agreements are often far worse, as they impose even tighter pre-requisites on developing countries in return for crumbs of enhanced 'market access ' in the larger partners".*

❖ Is this the real problem with agricultural exports?

Perhaps the problem of agricultural exports, on the one hand, is not so much on the side of the "excessive tariffs" on the agricultural products for internal consumption. The issue may be more on the side of eliminating the *anti-agricultural biases* of the economic policy and of the economy as it is put together, and of aiming at a policy of productive restructuring which would tend to increase the general efficiency and productivity of the sector. The design of integral and resolute policies for promoting exports is indispensable, including direct subsidies, improvements in access to infrastructure and services, financing at competitive rates[16], and the improvement of human

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poor countries to open their markets, while protectionist measures are imposed which serve certain powerful interests of the rich countries."

Nevertheless, during a discussion with civil society organizations, Uri Dadush, director of the newly created Department of International Commerce of the World Bank, reiterated persistently that "liberalization is good for you, regardless of what others might do." Based on this argument, Uri Dadush defended the logic that the World Bank demands the liberalization of trade and services in developing countries as part of its conditions, independently of whether or not the industrialized countries carry out "preaching" of the Bank to apply a "unilateral liberalization" and improve market access for developing countries.

Roberto Bissio, coordinator of Social Watch and the only voice from civil society at the inaugural round table, argued that the pressure from the World Bank and the IMF for unilateral liberalization "is undermining the negotiating position of developing countries when they go to the trade negotiations, and they are the ones who really set the rules. " Wolfensohn replied immediately: "I think that the response is that this happened more in the past than it does now. I think that the question about uniform and unilateral actions may have been valid at one time, but I don't know who it is who said that. If you give me their name, I will make sure that that person no longer works here."

[16] One of the greatest obstacles to export development is the scarcity of financing. While the export promotion policy tries to encourage the export of agricultural and industrial good, the loans which banks make are directed, more and more to the non-traded sector (construction and commerce). The described situation continues to be of concern for the promotion and diversification of exports, because it indicates that credit is not being channeled to export businesses or potential exporters. Thus, for example, small and medium enterprises, which are the productive basis for our countries, frequently do not have the real guarantees which the banks require for their financing, which is why they do not have access to loans and cannot develop their production for export. Likewise, there are no financing schemes aimed specifically at covering the needs of the exporting sector. For example, there is no pre-shipping and post-shipping financing,

capital, to keep the export specialization in the medium and long term from continuing to be based on squandering the income from natural resources and on the availability of a cheap, mostly unskilled and malnourished labor force.

In effect, the Nominal Protection Coefficient on exportable products is derived from adding up the internal price of the exportable good, the sum total of support and subsidies (implicit and explicit) which these good specifically receive, and dividing it by the international price. If the series of supports, preferential treatment and direct subsidies to these crops rises, their NPC goes up.

Structural adjustment, as we have seen, seeks to redirect the structure of production and spending toward goods traded internationally. Its departure point is the hypothesis that, due to a protectionist economic policy which has led to overvalued exchange rates, production and spending had been directed toward non-traded goods, resulting in severe distortions and disequilibria, which include a pronounced anti-export and anti-agricultural bias. The external opening and the liberalization of markets should be able to correct these distortions. Relative prices should be redirected so that production in traded goods and agricultural production would be favored and promoted.

Based on this, the most fundamentalist supporters of structural adjustment tend to think that liberalization and external opening will be enough for the market to "fix the right prices" and guide the assignment of these toward sectors of traded goods. But experience shows that success in exporting depends, on the contrary, on active and very aggressive policies.

The last great productive diversification of Nicaragua occurred with the incorporation (and the modernization) of cotton, meat (through the "hamburger connection"), and sugar (through the assignment of the Cuban quota) to the club of export products in the decades of the 1950s and 1960s. Since then cotton collapsed, coffee experienced cycles of boom and bust, each time more worrisome. But in the 1950s and 1960s, when this export diversification and modernization took place, there was a *deliberate effort* of promotion and diversification, associated with very active public policies in this direction. In this last decade, 1990-2002, on the contrary, it was assumed that the reforms of external opening, deregulation and liberalization, that is, the policy of establishing "correct prices" through these measures and "leaving work" to the action of the market forces alone, according to what the "Washington Consensus" predicted, would be the necessary and sufficient conditions for the productive structure to more or less quickly and automatically redirect itself toward exports.

This approach needs to be abandoned. The coordinating and consensus building role of the public sector is first and foremost indispensable for the definition of a successful development strategy. In the context of economies that are seeking to grow rapidly, one of the unavoidable roles for the state is the coordination of decisions which must be made simultaneously, without which it is very difficult for an economy to develop new profitable activities – in other words, comparative advantages – in a reasonable period of time. These are the famous "external money economies", an expression coined by Scitovsky nearly a half century ago, but a concept forgotten in the recent discussions about this topic. And development, in the context of open

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loan guarantee systems or modern financial instruments, such as a domestic letter of credit, to get financing to small and medium export enterprises or to potential ones.

economies like the Central American economies, consists precisely in achieving a dynamic insertion into the international economy.

These decisions are related to the identification of the strategy and its instrumentation into policies and investments in different sectors. They include the traditional policies of education, health care, and infrastructure, and other more heterodox ones like access to credit and the regulation of certain markets which, left to their own will, do not function well.

On the other hand, while the market fundamentalists suggest that all that has to be done is allow the market to establish the "correct prices" by itself and avoid any distorting intervention of the "select the winners" type [17], in practice, getting the right policies and properly realigning production can require at times the establishment of "successful distortions". This is the typical recent history of the kind of development which has been successful. There is sufficient evidence that the industrial and export success of Korea and other countries of Southeast Asia did not in the least come from a "neutral" attitude on the part of the State, but rather from coherent interventionist strategies (Fishlow).

There is no empirical evidence that developing countries that have been successful in exporting have achieved this as a result of a low and equal tariff and supporting it principally by the exchange rate policy, the establishment of "correct prices" and neutral policies in the face of market incentives. This has not been the case of Southeast Asia, Korea and Taiwan, which have used discriminatory tariff policies, have concentrated their resources and efforts on some activities they have considered strategic, they have combined the promotion of exports with import substitution, on the basis of a resolute state support, activism and leadership.

These successful experiences of export growth have nothing to do with an extreme liberalization nor with market automatic mechanisms, but rather with an efficient and qualified state programming, with selective policies for the allocation of resources and investments, as well as of credit and imports, promotion of exports, selective policies for the substitution of imports and promotion of educational, technological and productive levels.

The most serious aspect of all this is that the static comparative advantage and "neutrality in the face of the market" framework *does not permit deliberated national action for concerted strategic planning – that is, the construction of a concerted vision of the future and a development strategy which makes all national actors co-responsible* – starting from an objective observation of the international tendencies which would allow for doing selective promotion and investment from now on in those systematic activities (education,

[17] "The orthodox approach demands the rejection of a development strategy which would be actively promoted by the public sector and the identification of strategic sectors. On the contrary, it maintains that the comparative advantages of the market, which it assumes are clearly identified in practice, should be the only determining factors for the assignment of resources. Two important problems arise from this proposal. On the one hand, markets have distortions. Secondly, the comparative advantages in many cases are difficult to identify, because they have a component that is acquired which is much more important that the natural component" (Ricardo Ffrench Davis, "Neoestructuralismo e inserción externa" in "repensar el futuro, 1996).

technological research and development, productive chains and services, etc.) and areas which, after an appropriate learning phase, can be developed dynamically in the international market, invigorating the economy as a whole.

In fact this "price system", based on static efficiency and "comparative advantages" derived from the relative availability of factors, which leads to specializing in activities which are not very dynamic and have low added value, ends up being incapable of allowing the country to be seen in its entirety and with all the social sectors, on the basis of a prognosis and strategic planning activity, and the prospects and future opportunities for creating a more efficient and competitive economic system in the medium term, combined with greater levels of equity. [18]

What is essential in any case is the design of active restructuring policies of the productive apparatus with a medium and long term perspective.

In that sense, the particular impact of structural adjustment on economies with the structural and institutional characteristics typical of our countries should be kept in mind. In a developed and industrialized country, with a relatively homogenous productive system, and in which the composition of the internal product does not significantly differ from the composition registered for exportable and importable goods, orthodox policies can permit the reorganizing of the pre-existing productive capacity with certain fluidity toward exports and toward products which are competitive with imports.

In economies like ours, the problem is more complex due to the greater degree of existing productive heterogeneity. This involves greater rigidity of supply, less speed in response, and differentiated capacity for reaction from the different sectors in the face of different global policies. These rigidities result in greater losses of product while seeking to reallocate resources between sectors only through recourse to global domestic absorption reduction policies and the modification of relative macroeconomic prices to alter the overall relationship between the price of traded goods and the price of non-traded goods.

Therefore, under these conditions, there is less need to quickly redirect the use of productive capacities toward the production of goods traded internationally, and often more need to restructure the productive apparatus as a whole so that it can end up being more competitive and create new or more modern or better capacities for doing this kind of production. This requires longer time periods, determining that the principal

[18] "Whereas, in the cases where there has been feedback between competitiveness and equity, the following phenomenon have occurred, to greater or lesser degree: i) a process of transformation of agriculture (agrarian reform), which has created relatively homogenous agrarian structures and considerable increases in agricultural productivity, and which has preceded the creation of a competitive industrial system; ii) a relatively equitable distribution of access to property, along with the creation of small and medium enterprises closely connected to the whole productive system and which have reached comparatively high levels of productivity; iii) a greater skill level of the labor force and universal education on a wider and more integrated social base; iv) more rapid growth of jobs, derived from the dynamism of the international market and a systematic tendency to increase productivity and salaries; v) the propagation of the industrial logic to the entire society, which facilitates the absorption of technical progress into the principal activities and vi) the important redistributive role played by public finances (ECLAC, 1994.).

effect of the short term, orthodox adjustment policies is causing a contraction of demand for local production which results in a recessive over-adjustment, rather than a reorientation of the existing productive capacity toward the production of traded goods.

❖ Anti-agricultural "Bias": Deterioration in the Aggregate Relative Price of Agriculture

According to Schiff and Valdés (1988), two key relationships are central in the evaluation of the "indirect effects" of the economic policy on agriculture: the real exchange rate and the relative price of agricultural goods compared to non-agricultural goods (measured as the quotient between the implicit deflator of agriculture, or aggregate price of agricultural product, and the implicit deflator of GDP).

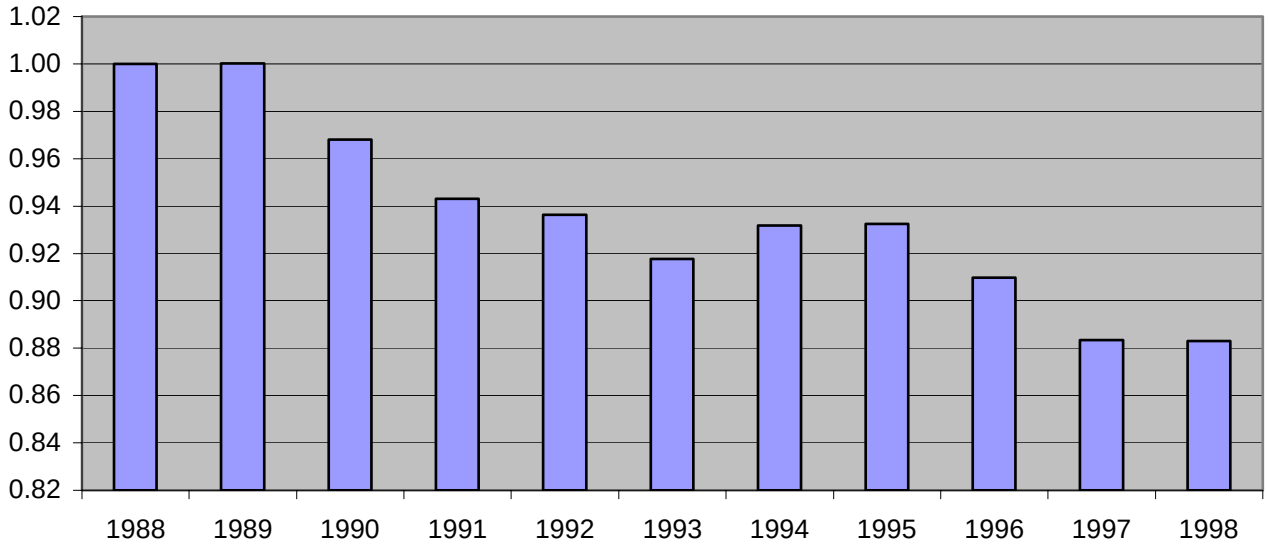
The conventional economic reading tells us that the "inward" model of development corresponds to the dominant paradigm in the period during which import substitution was promoted, industry was excessively protected, the exchange rate was overvalued, and by subsidizing the price of agricultural food products to the benefit of the urban consumer – artificially keeping these prices low due to controls and government interventions – the terms of trade between the city and the countryside deteriorated, distorting the incentive structure to the detriment of the relative profitability and accumulation in agriculture, which reproduces backwardness and poverty in the rural sector. This produced the characteristic rural urban migration. At the same time, excessive industrial protection overvalued the exchange rates and created a severe anti-export bias in the economy.

The structural adjustment sought to redirect the structure of production and spending toward goods traded internationally. It started from the hypothesis that due to a protectionist economic policy, which had led to overvalued exchange rates, production and spending had been directed to non-traded goods, leading to severe distortions and imbalances, including a pronounced anti-export and anti-agricultural bias. The external opening and liberalization of the markets should have been able to correct these distortions. Relative prices should be redirected in such a way that they would favor and promote production in traded goods and agricultural production. Has the incentive structure evolved in a way that favors the agricultural sector over the last decade of structural adjustment?

A synthetic indicator of the effect of the economic policy on relative prices is the evolution of the aggregate relative price of this sector, estimated as the quotient between its implicit deflator and the implicit deflator of the GDP. Although it is an imperfect indicator, since there are many incentives and disincentives which do not depend on the prices, its tendencies over time do illustrate the transfer of intersectoral resources within the economy.

This indicator shows that during the last decade the prices of agriculture grew less than the prices of the other sectors. The empirical evidence shows that the terms of intersectoral exchange (and the incentives) evolved in an unfavorable way for the agricultural sector during this decade (principally in favor of the non-traded sectors and the tertiary sector), carrying with it in addition an implicit, substantial transfer of resources out of agriculture (decapitalization).

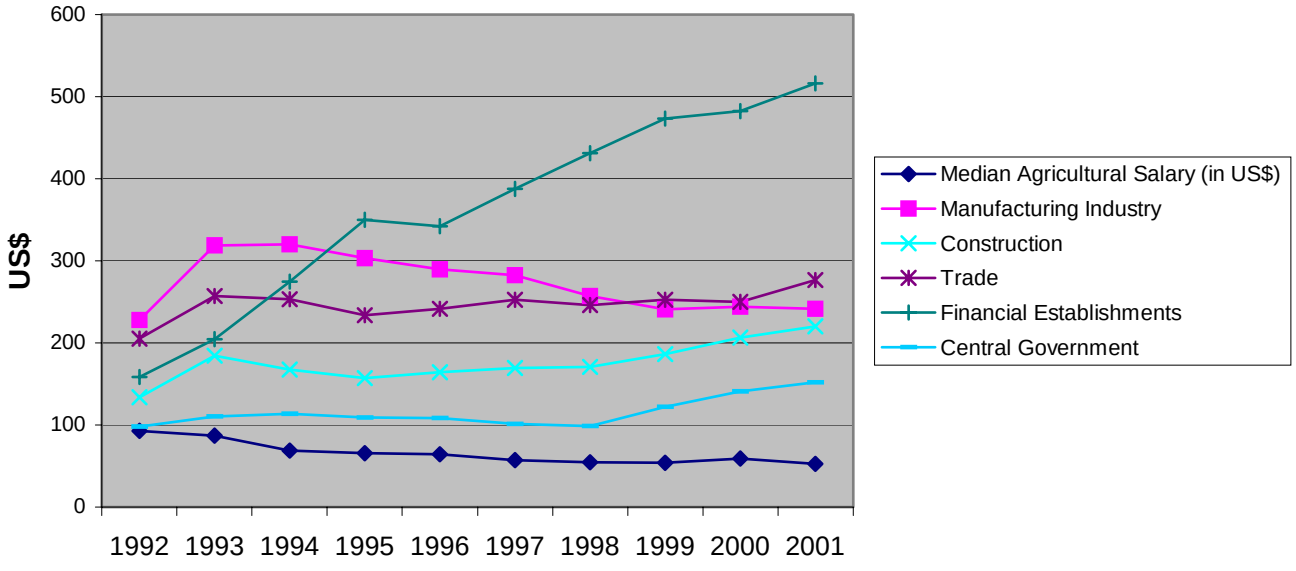
RELATIVE PRICE OF AGRICULTURE (1988 = 1.00)



SOURCE: BASED ON WORLD BANK, (2002)

A similar phenomenon has occurred with the salaries paid in the agricultural sector compared to the salaries paid in the non agricultural sector.

Salaries by Sector (in US$)



❖ Weakening of basic support function of the Public Sector, and absence of fundamental investments for the growth in productivity and agricultural competitiveness.

In addition to the fact that the agricultural sector is already heavily taxed by the implicit tax resulting from the overvaluation of the exchange rate and by the unfavorable evolution of the terms of exchange between the agricultural sector and the rest of the sectors throughout the decade, agriculture found itself additionally affected by structural factors, such as the massive pro-urban and anti-rural bias of the infrastructure and basic services, given the deficient supply of infrastructure and basic services, the greater degree of structural heterogeneity and geographical dispersion, as well the market failures which affect the agricultural sector to a greater degree: absence of crop insurance, efficient and non-segmented financial and technological markets, higher transaction costs, etc.

As part of the ideological bias imposed by the neoliberal policies, another significant characteristic of the policy toward the sector has been the weakening, if not the virtual dismantling, of the agrarian institutions directed at offering services (credit, commercialization, technical assistance, organization) which usually are not available for the lower income farmers through the "normal" market channels, as well as the absence of the Public Sector in the adequate provision of other public or semi-public services (high social yield investments in infrastructure, human capital, knowledge and technology) indispensable for growth in productivity, poverty reduction and a more holistic and sustainable agricultural development.

"Agriculture still plays a key role in rural Nicaragua. For the rural poor it serves as the economic activity of last resort, and it is a fundamental survival strategy. For many households among the rural non-poor it is the principal economic activity. However, many medium and large-sized landholders have fallen into poverty or are at constant risk of doing so. Further, the availability of agrarian institutions and basic infrastructure necessary for efficient commercial production in agriculture is still lacking. Farmers lack access to the classic agrarian institutions (credit, technical assistance, producer organizations) necessary for successful agriculture. Most farmers are mired in poverty or at constant risk of falling into poverty, and the most consistent economic activity associated with poverty is agriculture" (Davis & Stampini, 2002)

As Davis & Stampini (2002) conclude: "In terms of access to agrarian institutions, however, the situation is desperate, as can be seen in the table. Already extremely low levels of access to credit and technical assistance further fell over the panel period. Of households involved in agricultural production in both years, the share using technical assistance fell from 16 to 13 percent. The share receiving credit went from nine to 10 percent, and the share participating in producer organizations from nine to 11 percent. Most surprisingly, however, and rather shocking, the share of agricultural households that used these services in both years is even lower: five percent for technical assistance, two percent for credit, and three percent for organizations".

Access to Agrarian Institutions, Overall and by Participation in Producer Organizations

		Households Participating in a Producer Organization			
	Total in Both Years	*Only in 1998*	*Only in 2001*	*Never*	*In Both Years*
Number of obs:	1184	67	787	1014	23
TA exists in community, 1998	.24	.73	.28	.16	.74
TA exists in community	.26	.22	.69	.18	.74
Used TA, 1998	.16	.64	.25	.08	.74
Used TA, 2001	.13	.09	.54	.07	.64
provided by govt, 1998	.07	.31	.07	.04	.39
provided by govt, 2001	.05	.01	.18	.03	.26
provided by NGO/project, 1998	.06	.22	.16	.02	.30
provided by NGO/project, 2001	.05	.07	.28	.02	.29
Credit for agriculture, 1998	.09	.20	.05	.08	.35
Credit for agriculture, 2001	.10	.05	.28	.06	.25
Credit for non agriculture, 1998	.01	.07	.01	.01	.07
Credit for non agriculture, 2001	.02	.00	.10	.03	.11
from bank, 1998	.02	.03	.05	.02	.15
from bank, 2001	.02	.02	.03	.01	.10
from organization, 1998	.06	.22	.05	.04	.24
from organization, 2001	.08	.02	.23	.05	.14
from friend, 1998	.03	.12	.00	.03	.03
from friend, 2001	.01	.00	.00	.01	.00
Organization or project, 1998	.09	1.00	.00	.00	1.00
Organization or project, 2001	.11	.00	1.00	.00	1.00

During the last decade the country had extraordinary amounts of external aid available, which provided it with an opportunity for investments that are indispensable as a basis for its future development – investments in infrastructure, human capital, knowledge and technology. Yet, upon examining the deficiencies of the role of the public sector regarding the promotion of agricultural sector development, it is quite striking that, after having disbursed more than US$10 billion in concessional loans and donations, it is precisely in these areas where the principal weakness of the country is manifested, thwarting the country in its aspiration for a holistic agricultural development which would permit a sustained increase in agricultural productivity and in the standard of living of the population.

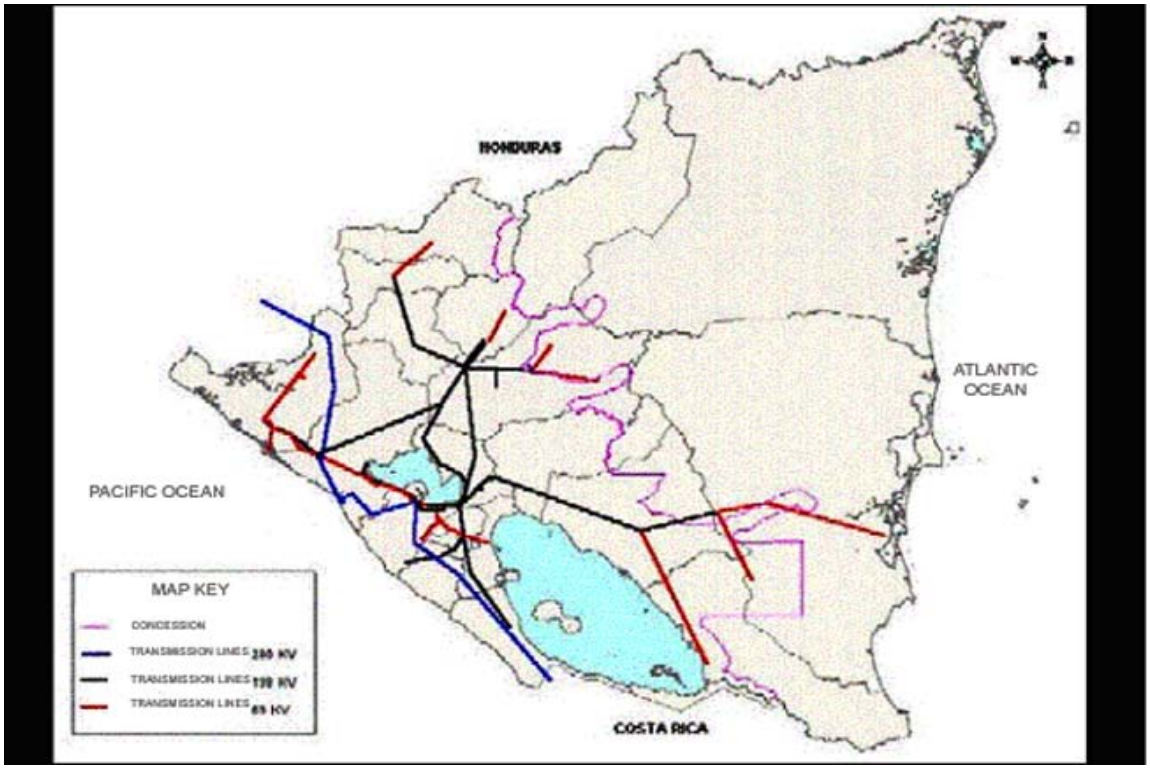
The social rate of return of these investments has been shown to be very high, in so far as they are built on the more important long term determining factors for sustained growth in the total productivity of the factors of production in agriculture (FAO, 2001, "Agricultural Investment and Productivity in Developing Countries").

Here we find a basic explanation for the poor performance of the agricultural productivity in Nicaragua (and most of the countries in the region except Costa Rica). Low or inadequate investment in these areas predicates very poor prospects for the sustained increase in the general productivity of the sector and its competitiveness on a basis that does not involve profiting from the income from natural resources and wretched standards of living for producers, their families and workers of the sector. Such accentuated lack of basic services and infrastructure in the rural zones imposes severe limitations on the possibilities of improving the productivity and competitiveness of the agricultural sector and of reducing poverty in the rural areas.

Agriculture is implicitly taxed, not only by the low general level of service provision and infrastructure in the country, compared to its trade partners, but by the accentuated pro-urban bias of those services. The distribution of the physical infrastructure throughout the country's territory shows this highlighted pro-urban bias, adverse to the rural areas: more than 80% of the road and highway networks are situated in the Pacific Region of the country.

The network of highway infrastructure in Nicaragua totals 17,175 kilometers, of which only 1,759 kilometers (10.2% of the total) are main highways paved in asphalt, most of which are located in the Pacific Region; while 2,150 are secondary roads or tertiary roads paved with gravel and 14,275 kilometers (83.1% of total) are dirt roads, typical of the rural areas, 8,275 kilometers of which are roads usable in dry seasons and 5,000 are roads usable all year round. Due to lack of adequate maintenance, it is estimated that only 17% of the roads are in good shape.

In Nicaragua the electric energy grid reaches almost exclusively to the southwestern part of the country, which is the area under concession. This is the areas reflected in the following map.



Source: eReadiness Nicaragua 2002

The situation of investment in human capital is even more critical.

Despite the fact that classes in public primary and secondary schools are free, the percentage who attend school in all the departments of the country is under 75%. In terms of retention in the system, only 52% of students who start first grade finish fourth grade. In general, out of 100 students who start primary school, 29% graduate, out of this 29% or 29 students, 80% or 23.2 students start secondary, and 48% of those, or 11.13 students, graduate from secondary. Finally the number of high school graduates who enter university is 60%, or 6.67 students, and 37% of them, or 2.46 students, graduate.

In the rural areas of the Autonomous Regions of the Atlantic, the average education level is 2.1 years and it is 2.7 years in rural areas of the central region, while in Managua it is 6.6 years.

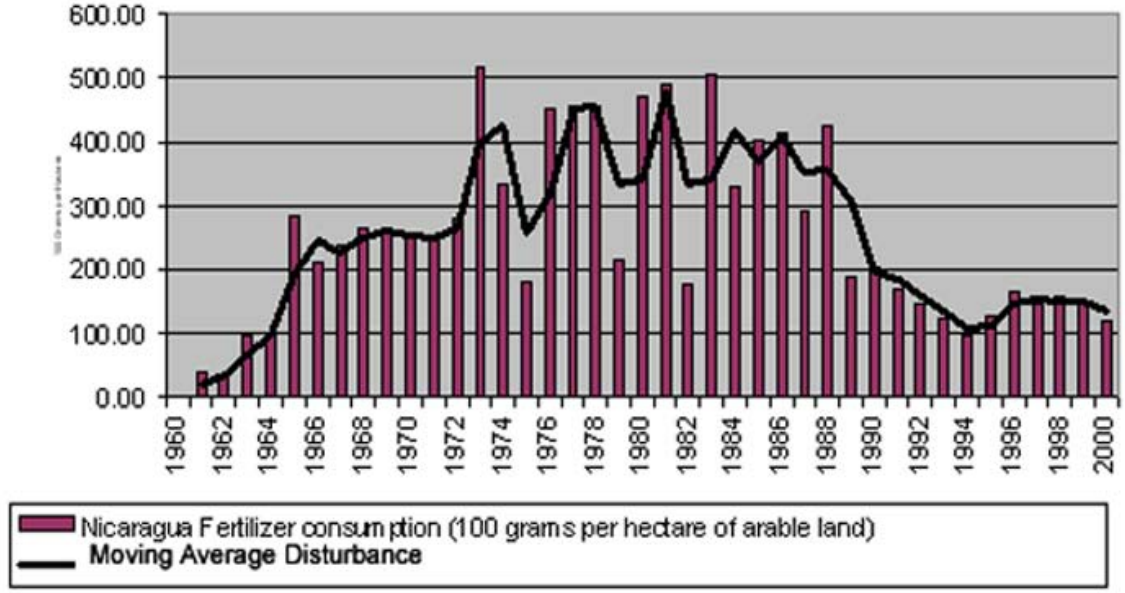
On average, a Nicaragua only has 4.5 years of schooling. The extremely poor have even less: 3 years of schooling in the urban areas, and 1.6 in the rural areas, *far below the 4 years needed to acquire basic knowledge of reading and arithmetic.*

There are in addition indicators for capitalization and the technical level of the sector, which suggest a severe process of decapitalization and disinvestment in agriculture. This started in the 1980s and continued through the 1990s: a decrease in the number of tractors per hectare of arable land, drastic reduction in the use of fertilizers, a drop in the percentage of irrigated lands.

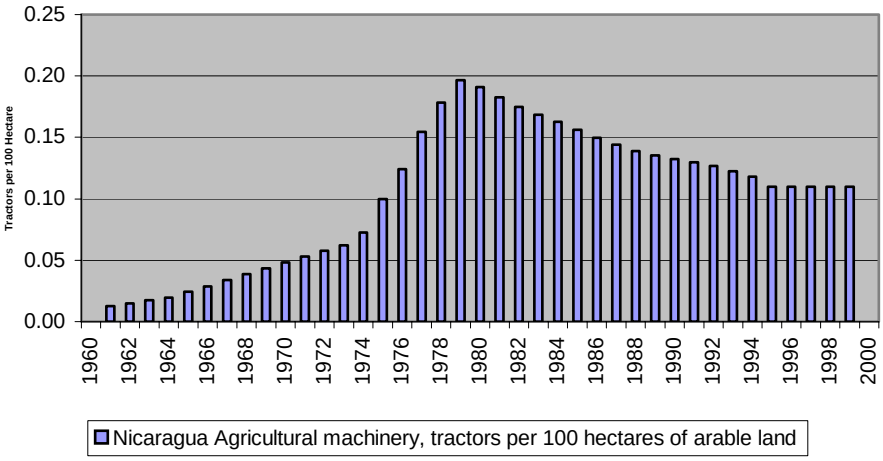
This has had a visible impact. Sixty quintal of corn per manzana is produced when using a tractor, 40 quintals per manzana using oxen, and 20 quintals per manzana using the

dibble stick method. The corn yields in most of the prevailing production systems in Nicaragua continue to be inferior to the 1950 world average. The drop in the consumption of chemical fertilizers – from 72,000 metric tons in 1988 to 49,000 metric tons in 1997 – reflects the decline in agricultural credit and not a massive adoption of organic fertilizers. The disinvestment and retraction in the technical level knowledge of the agricultural sector has implications for the prospects and current options of the sector.

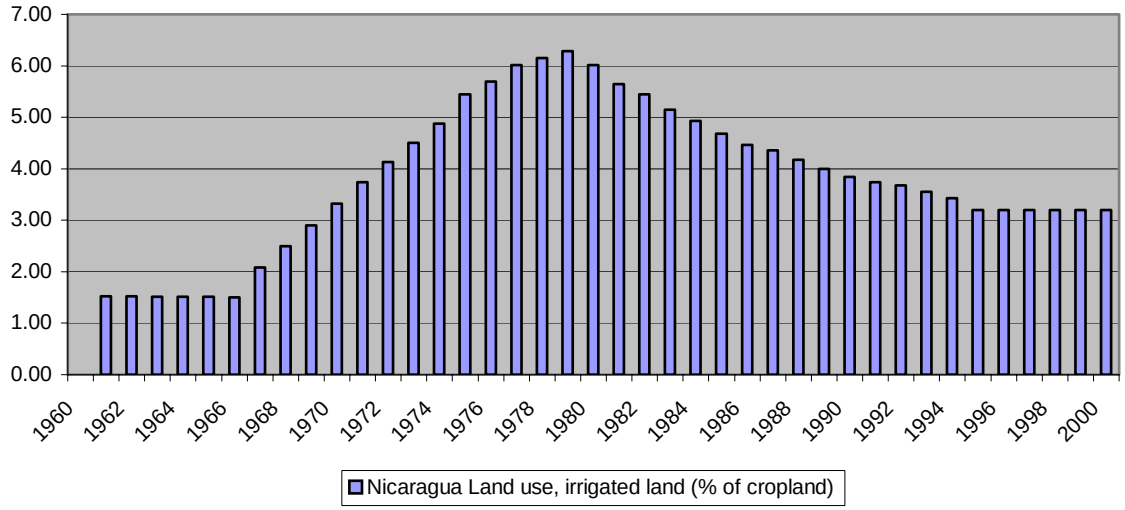
USE OF FERTILIZERS - NICARAGUA AND U.S.



USE OF TRACTORS - NICARAGUA



PERCENTAGE OF IRRIGATED LAND



The comparison between the prevailing levels in the rest of Central America may contribute to a better understanding of the relative situation of the country in this area.

INDICATORS OF THE TECHNOLOGICAL LEVEL OF AGRICULTURE IN THE REGION (1998)

	Honduras	El Salvador	Nicaragua	Guatemala	Costa Rica
Use of Fertilizers (100 grams per hectare of arable land)	920.35	1,503.57	157.10	1,538.97	8,800.00
Irrigated land (% of land planted)	4.05	4.69	3.20	6.82	20.79
Agricultural machinery, tractors per 100 hectares of arable land	0.34	0.61	0.11	0.32	3.11

SOURCE: WORLD DEVELOPMENT INDICATORS 2001

II. PRINCIPAL STRUCTURAL CHARACTERISTICS: ACCENTUATED STRUCTURAL HETEROGENEITY AND EXTENSIVE POVERTY.

The agricultural sector is characterized, likewise, by an accentuated *structural heterogeneity*, higher than what exists in other sectors.

This is reflected in the strong presence in this sector of a large amount of small units, co-existing with some relatively modern business activities directed primarily at exportation – although the business units wield important weight in the growing of rice. These small units are most of the farms and generate most of the employment – 76.4% of the farms have between less than one manzana and 50 manzanas of land, while 72% of employment is generated by units which use 5.5 workers or less, and operate without any practical access to resources, are involved in very low productivity activities, which likewise generate very low resources, and frequently keep the families who survive from these farms under the line of extreme poverty.

This is a determining factor for the existence of very low average levels of productivity and income, in comparison with the rest of the economy. The apparent agricultural productivity, measured by the product or aggregate agricultural value per employed worker, reaches only 57% of the average productivity of the economy, while the apparent productivity of the manufacturing industry rose 3.3 times average productivity.

Nicaragua: Distribution of Employment

	1993		1998			
	Workers	% Rate	Workers	% Rate	Net Variation	% Variation
By Company Size						
Total	**893,868**	**100.0**	**1,281,016**	**100.0**	**387,148**	**100.0**
5 workers or less	529,729	59.3	829,251	64.7	299,522	77.4
From 6 to 100 workers	138,377	15.5	252,095	19.7	113,718	29.4
More than 100 workers	225,763	25.3	199,671	15.6	-26,092	-6.7
Agriculture, Cattle, Fishing and Forestry	**276,413**	**100.0**	**435,781**	**100.0**	**159,368**	**100.0**
5 workers or less	215,879	78.1	313,375	71.9	97,496	61.2
From 6 to 100 workers	49,074	17.8	83,324	19.1	34,250	21.5
More than 100 workers	11,460	4.1	39,082	9.0	27,622	17.3
Mining	**1,140**	**100.0**	**7,441**	**100.0**	**6,302**	**100.0**
5 workers or less	878	77.0	4,111	55.2	3,232	51.3
From 6 to 100 workers	0	0.0	1,231	16.5	1,231	19.5
More than 100 workers	262	23.0	2,100	28.2	1,839	29.2
Manufacturing	**107,422**	**100.0**	**128,731**	**100.0**	**21,308**	**100.0**
5 workers or less	63,950	59.5	56,309	43.7	-7,640	-35.9
From 6 to 100 workers	21,750	20.2	29,151	22.6	7,401	34.7
More than 100 workers	21,723	20.2	43,270	33.6	21,547	101.1
Electricity, Gas and Water	**11,973**	**100.0**	**9,139**	**100.0**	**-2,835**	**100.0**
5 workers or less	304	2.5	1,406	15.4	1,102	-38.9
From 6 to 100 workers	929	7.8	3,121	34.2	2,192	-77.3
More than 100 workers	10,741	89.7	4,611	50.5	-6,129	216.2
Construction	**29,530**	**100.0**	**65,919**	**100.0**	**36,389**	**100.0**
5 workers or less	14,024	47.5	42,319	64.2	28,295	77.8
From 6 to 100 workers	8,407	28.5	16,310	24.7	7,903	21.7
More than 100 workers	7,099	24.0	7,289	11.1	190	0.5
Trade, Hotels and Restaurants	**192,205**	**100.0**	**292,825**	**100.0**	**100,620**	**100.0**
5 workers or less	154,414	80.3	244,367	83.5	89,954	89.4
From 6 to 100 workers	26,782	13.9	36,571	12.5	9,789	9.7
More than 100 workers	11,009	5.7	11,887	4.1	878	0.9
Transportation and Communications	**33,690**	**100.0**	**51,526**	**100.0**	**17,836**	**100.0**
5 workers or less	17,696	52.5	30,768	59.7	13,072	73.3
From 6 to 100 workers	6,710	19.9	10,426	20.2	3,716	20.8
More than 100 workers	9,284	27.6	10,333	20.1	1,049	5.9
Financial Services, Insurance and Real Estate	**13,738**	**100.0**	**7,805**	**100.0**	**-5,978**	**100.0**
5 workers or less	3,633	26.4	2,242	28.7	-1,391	23.3
From 6 to 100 workers	4,216	30.6	3,516	45.0	-699	11.7
More than 100 workers	5,934	43.1	2,047	26.2	-3,887	65.0
Social, Community and Personal Services	**224,905**	**100.0**	**281,283**	**100.0**	**56,378**	**100.0**
5 workers or less	58,155	25.9	134,354	47.8	76,199	135.2
From 6 to 100 workers	19,060	8.5	68,444	24.3	49,384	87.6
More than 100 workers	147,689	65.7	78,485	27.9	-69,205	-122.8

Source: National Living Standards Measurement Survey, 1993 and 1998, INEC.

The employment created in the agricultural sector, as we have already indicated, to a large degree is equivalent to extensive underemployment, which means labor force occupied in very reduced conditions of productivity, and which generates extremely low income.

The *structural heterogeneity* can be defined by looking at the productive structure or the employment structure. The productive structure is said to be heterogeneous when sectors, branches or activities co-exist within it where labor productivity is high or normal (which means it reaches the levels allowed by the available technology), with others in which the productivity is much lower. Anibal Pinto indicates as well that that the difference is much greater in the periphery (the underdeveloped countries) than in the centers (developed countries). A certain type of employment structure corresponds with this productive structure. One is the mirror image of the other. In a periphery economy there is labor working under normal or high productivity conditions, which is employment. But there is also labor force occupied in very reduced productivity conditions, which is underemployment.

In addition to the very notable disparity in the productivity levels, Pinto highlights another characteristic of the periphery condition linked to the heterogeneity. In any economy, even in the most modern ones, there is a certain degree of heterogeneity. What characterizes the periphery is the high percentage of underemployment among those employed, in all of the economy as well as in some sectors or branches which form part of the economy. The existence of an extensive informal economy and underemployment, reflects the heterogeneity of the productive structure, characteristic of the underdeveloped countries.

It is important to highlight that extreme poverty, in our countries, is found closely linked to underemployment, more so than to open unemployment. The extremely poor do not have the luxury of remaining openly unemployed, so that, without access to capital resources, they seek survival however possible and in very low productivity activities at incomes that keep them under the extreme poverty line.

In Nicaragua, the sector with greater incidence of underemployment is agriculture, which is not strange if we take into account that its average productivity is 43% less than the overall average in the economy, while the average productivity of industry is more than triple average productivity. The relatively low productivity of agriculture is directly related to the high underemployment which prevails in the sector. The fact that a large part of the labor force finds itself dedicated to very low productivity activities translates into the high incidence of underemployment.

It is not by chance that most of the extremely poor in Nicaragua derive their income from agriculture.

Another indicator of the high level of underemployment in agriculture is the high percentage of informal employment in rural employment. Although there is no exact correlation between the informal sector and underemployment, it is true that most of the employment of the informal sector corresponds to underemployment.

Participation of the Informal Sector in the EAP (%)

Sector	National	Urban	Rural
Formal	37.6	41	33.5
Informal	62.4	59	66.5

Source: Agurto, Sonia & Tinoco, Gilma (2003)

Sixty-six and one half percent of employment in the rural sector corresponds to the informal sector. At the same time, overall underemployment (visible and invisible) affects 83.3% of the EAP working in the informal rural sector (Agurto and Tinoco, Ibid.). This translates into an overall underemployment rate (visible and invisible) of 53.4% in the rural areas, compared to 38.25% in the urban areas.

In addition, underlying this accentuated heterogeneity, the agricultural sector is characterized by an *enormous polarization and inequity* in its agrarian structure.

Forty-three percent of the farms are between one and 10 manzanas in size and have only 4.3% of the total area. 76.4% of farms are between one and 50 manzanas in size and have 20.4% of the total farm area. Meanwhile, farms of between 50 and 500 manzanas in size, which make up 23.6% of total farms, have 79.6% of total area.

TOTAL FARMS AND AREA SURVEYED BY SIZE

	Number	%	Area	%	Average Area
TOTAL	**199,549.00**	**100.00%**	**8,935,020.00**	**100.00%**	**44.78**
Less than 1	9,430.00	4.73%	4,321.00	0.05%	0.46
1 to less than 5	49,835.00	24.97%	119,655.00	1.34%	2.40
5 to less than 10	27,190.00	13.63%	180,146.00	2.02%	6.63
10 to less than 50	66,008.00	33.08%	1,516,375.00	16.97%	22.97
50 to less than 100	24,656.00	12.36%	1,577,440.00	17.65%	63.98
100 to less than 200	13,686.00	6.86%	1,724,467.00	19.30%	126.00
200 to less than 500	6,796.00	3.41%	1,866,385.00	20.89%	274.63
500 and more	1,948.00	0.98%	1,946,231.00	21.78%	999.09

SOURCE: CENAGRO

While the Gini Coefficient, which measures inequality in the distribution of income, rose to 0.60, the Gini Coefficient for the distribution of land is 0.86 (a Gini Coefficient of 0 indicates perfect equality, while a Gini of 1.0 indicates perfect inequality, where one person owns everything).

The distribution throughout the country of population, income, education, infrastructure and services, land is characterized by a high level of inequality. They are likewise found to be unequally distributed between geographic regions, which are principally concentrated in the Macro-Region of the Pacific. The rural regions suffer from the worst indicators in terms of health, education, access to public services and infrastructure, housing and environmental deterioration.

Thus, in large part as a result of the prevalence of these high levels of structural heterogeneity in agriculture and the extensive associated underemployment, the extreme inequality in the distribution of assets and access to resources which also characterize it, along with the marginalization of the rural regions in the provision of infrastructure and basic services, the poverty and extreme poverty in Nicaragua is higher in the rural regions.

POVERTY AND EXTREME POVERTY IN NICARAGUA

AGGREGATE CONSUMPTION OR POVERTY LINE METHOD

	POVERTY LEVEL (%)					EXTREME POVERTY (%)				
Years	National	Urban	Rural	Central Rural	Atlantic Rural	National	Urban	Rural	Central Rural	Atlantic Rural
1993	50.3	31.9	**76.1**	84.7	83.6	19.4	7.3	**36.3**	47.6	30.3
1998	47.9	30.5	**68.5**	74	79.3	17.3	7.6	**28.9**	32.7	41.4
2001	45.8	30.1	**67.8**	75.1	76.7	15.1	6.2	**27.4**	38.4	26.9

UNSATISFIED BASIC NEEDS METHOD (UBN)

	POVERTY LEVEL (%)					EXTREME POVERTY (%)				
Years	National	Urban	Rural	Central Rural	Atlantic Rural	National	Urban	Rural	Central Rural	Atlantic Rural
1998	76.7	71.5	**82.9**	85	93.2	50.3	43.3	**58.6**	63.1	77.9
2001	74.8	70	**81.5**	86.6	90	44.4	38.1	**53.1**	61.1	65.3

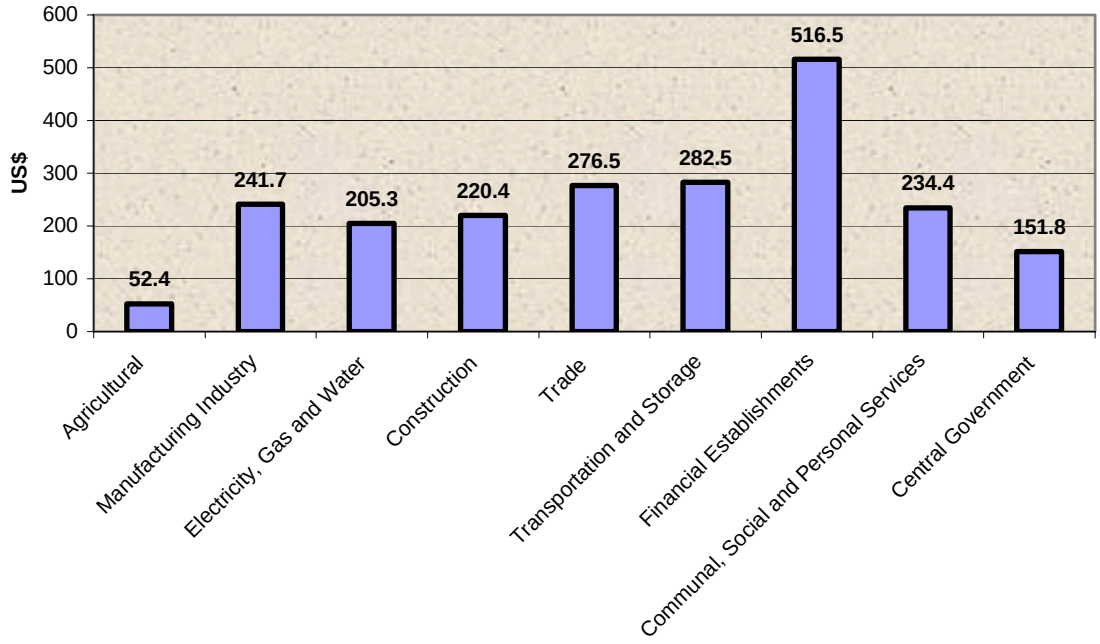
MECOVI (1993, 1988 and 2001)

Depending on the method used, poverty affects 81.5% of the rural population (unsatisfied basic needs) or 68% (aggregate consumption or poverty line). Extreme poverty affects 53.1% or 27.4% of the rural population, depending on how it is measured.

Extreme poverty appears to be a predominantly rural phenomenon: 76% of the extremely poor live in the rural areas. It is concentrated in the regions that are predominantly rural in character which have been historically marginalized. In the Central Interior of the country, poverty reaches 87% of the rural population and extreme poverty 61% of that amount, according to the UBN approach, while according to the "poverty line" approach 75% of the rural population is under that line and 38.4% under the line of extreme poverty.

The extremely poor in the rural sector obtain their income in large measure from agricultural activities. Such high levels of poverty and extreme rural poverty are derived fundamentally from the extreme marginalization of the peasant economy, which keeps large contingents of the population tied to precarious activities of very low productivity. At the same time, agricultural salaries are kept at an extremely low level – the average agricultural salary represents only 24% of the national average for salaries – as a result of the high levels of open unemployment, which reached an average of 13% in 1988-99 and went up to 16% in 2001, and above all the massive underemployment of the labor force in the rural sector.

AVERAGE SALARIES BY SECTOR 2001 (US$)



The extension of schooling in the decade of the 1980s increased education levels of the younger generations of all youth and for all groups of poverty. Nevertheless, the general level of instruction continues to be low. On average, a Nicaraguan only has 4.5 years of schooling. The extremely poor have even less: 3 years in urban areas and 1.6 in the rural areas. In spite of the nearly universal access to basic education, children from poor homes generally do not finish, due to the survival level conditions under which they live.

In spite of the fact that the official data shows that the health care system has a potential coverage of 70% of the population, the real data at the level of the home shows that the poor, particularly in the rural areas, have significantly less access.

In addition there are unique characteristics of the sector which accentuated its vulnerability and the difficulties in addressing its development. Agricultural income is characterized by greater volatility, irregularity and uncertainty. The greater geographic dispersion which characterizes the sector means the existence of greater transaction costs. As a consequence, the survival of the rural poor has become more fragile and vulnerable, and the viability of their own agriculture has become extremely difficult.

The coffee crisis, which individually constitutes not only the principal agricultural product because of the magnitude of its added value, but which has operated as an important articulating focus of the rural economy in Nicaragua, has had a devastating impact on the rural poor. “Coffee has been a major engine of growth for Nicaragua, contributing some 5.3 percent of GDP in the 1990s, and accounting for 32 percent of rural employment. About 30,000 households grow coffee and another 150,000-200,000 households receive some part of their income as full-time or part-time laborers in coffee production, processing and marketing. The combination of coffee production plus fishery

output has averaged 40 percent of total exports in the last three years, despite the drop in coffee prices in recent years. With international coffee prices at historic lows, the weaknesses of this sub-sector are contributing to a crisis; but coffee will continue to be critical to any broad-based agricultural growth strategy and thus deserves special attention" (World Bank, 2002).

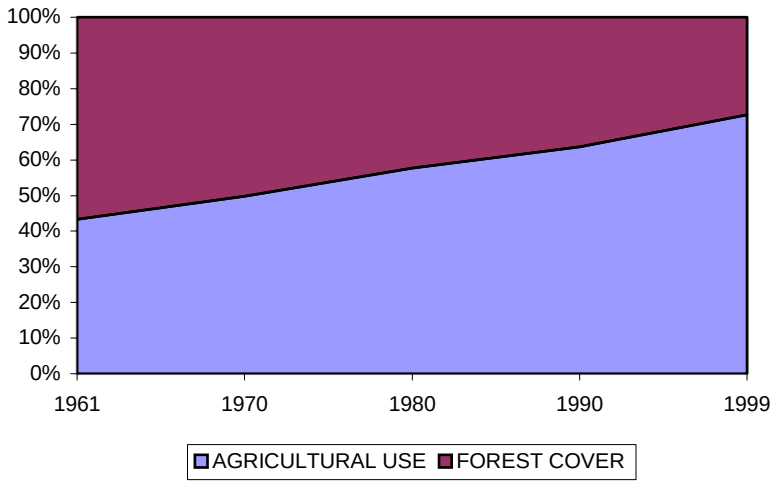
In many municipalities, rural families receive up to 75% of their income directly or indirectly from coffee growing activities. As a result, open rural unemployment has expanded (up to 14% in 2001) and famine exists among significant contingents of rural inhabitants.

A. RURAL POVERTY AND ENVIRONMENTAL DEGRADATION

The country illustrates a profound structural relationship between poverty and environmental degradation. In the same territories where there is a concentration of extreme poverty, predominantly rural in nature, it is common to find the most severe national situations of deterioration of water basins, loss of soil fertility, loss of biodiversity, soil erosion and deforestation, associated with growing and ever more serious problems of access to sources of water and their contamination.

This high coincidence between extreme rural poverty and environmental deterioration reflects in large measure the conditions under which peasant families are surviving. They number among the poorest of the extreme poor, pushed away to live and produce on the shores of the rivers or earn a living on the slopes of hills, at the cost of the forest cover, on soils not suitable for agriculture. The historic peasant displacement toward areas of the agricultural frontier and the thrust from extensive ranching produced the loss of the forest cover on the slopes of the water basins.

NICARAGUA: MAIN USES OF SOIL



SOURCE: FAO

Particularly since the 1950s, the agro-export expansion and the peasant displacement meant changes in the insertion of the different regions of the country (and of the different social subjects) in this economic model. This is important for understanding how the processes intertwined which have concentrated the extreme rural poverty, the

greater environmental degradation and vulnerability and greater regional disparities in the levels of development, in practically the same geographic spaces of the country.

MACRO-REGIONS OF THE COUNTRY

Pacific Region: three provinces: Pacific coastal plain, Pacific volcanic mountain range and Nicaraguan depression, this region is characterized by having the area with the deepest and most fertile soils of the country, which results in a greater demand for water for irrigation. It has 50% of the best soils, because of their volcanic quaternary, and concentrated 99% of the areas of greater agricultural development, generates 67% of the Gross Production Volume of agriculture (cotton, sugar, rice, sorghum and bananas) in the country, is more densely populated (19% of the territory and 60% of the national population), with a hot sub-tropical climate with an accentuated dry season (6 month rainy season, with 67% of the precipitation occurring practically in three months), with a coast which has a non-homogeneous sedimentary basis.

Central Mountainous Region: located in the center of the country it has the highest lands of the interior, formed by different central mountain ranges such as the Dipilto and Jalapa (the oldest region of the country), Dariense, Amerrisque and Isabelia; it has undulated lands, mountainous topography where the principal rivers of the country originate, very superficial and less fertile soils, a varied climate, more template than the Pacific, with a rainy season of seven to eight months, second in importance in terms of population density (39% of the land and 35% of the population which is mostly rural), generates 19% of the Gross Domestic Product and 33% of the agricultural GPV (ranching, basic grains, coffee and tobacco), and most of the forest production.

Atlantic Region: located on the costal plains of the Caribbean and mountainous foothills of the Atlantic, it has an extensive plain ranging from 500 meters above sea level to sea level, characterized by a wet tropical forest climate, original cover and mostly by dense forests which predominate on low, fragile and swampy land, is the least densely populated (42% of the territory and 5% of the population), and the area with the most rainfall, generates 2% of GDP and 1% of agricultural GPV (89% of national fishing) and most of the forest production is extracted from its forests, which contain the rich biodiversity of the country.

On the one hand, a concentration of economic activity and physical and social infrastructure is created in certain regions. This particularly affected the situation of the flat regions of the Northern Pacific area, where the cotton and sugar expansion took place. Before the Second World War this region was barely integrated into the international market, and made a very significant contribution to the national production of basic grains, with 27% of national production in the 1950s. The agro-export expansion in this region displaced basic grains toward the interior, and later toward the Atlantic. Consequently, this region changed from controlling 31% of gross agricultural product to 54% of gross agro-export product and demanding 42% of the labor force employed in agro-exports. This expansion increased the weight of the Pacific region in the primary-export center which dominated the model.

This expansion caused, first of all, a strong redistribution of the population toward the urban areas. The urban population rose from 35% in 1950 to almost 55% in 1995. This had important consequences for the urbanization of the cities of the Pacific, particularly Managua, where the center of the banking and financial system was located, as well as the principal infrastructure of services and housing, the bulk of the installed manufacturing industry, and the centers of economic and political power. From that time forward, Managua would grow on the basis of the migrations from the rural and urban sectors of the Pacific region itself, and today it has concentrated nearly a third of the population of the country. It is worth noting that Nicaragua is the country of the region with the highest proportion of urban population in Central America, being relatively the most agrarian (in terms of its economy), with less non-agricultural sector diversification.

Secondly, a expansion process occurred around the agricultural frontier in the mountainous region of the Interior and in the Atlantic, particularly in its eastern, more humid slope, as a result of the coffee expansion, previously centered in the Pacific, as well as the expansion of the extensive livestock production in response to the demand for meat from the U.S. market and the displacement toward these zones of the production of basic grains. Thus, the weight of the interior in the production of basic grains increased, due to the expansion of the agricultural frontier, carried out by the peasantry, as well as the production of coffee.

This coffee expansion in the interior is due primarily to the vigor of a stratum of medium and small scale producers in areas which, at that time, were part of the agricultural frontier, who were capable of trying their hand in the promotion of this crop. The small and medium farmers also played an important role in the expansion of ranching in the interior zones of the country. Likewise, nearly 80% of the total area of corn and beans is concentrated in the central macro-region, along with 70% of the coffee area and close to 60% of the livestock for slaughter.

The configuration of this model of agricultural growth was accompanied by processes of the concentration of the best lands, and reinforced by the segmented access to infrastructure, services and productive resources on the part of the most powerful social groups which were linked to this expansion, while segregating the least powerful sectors. Hence, despite their great importance in the production of cattle, basic grains and coffee, the peasant producers have been excluded from access to productive resources, services and infrastructure.

In synthesis, since the 1950s, the displacement of the peasant production toward the hillside areas of the Pacific, but particularly in the interior of the country, as well as

towards the agricultural frontier of the wet tropics in the East, the expansion of the extensive livestock raising, along with the rural demographic pressure and the peasant impoverishment, became the most important factors which propelled such a process of deforestation and advancement of the agricultural frontier.

Thus, the peasants were displaced toward the land on hillsides, located principally in the mountainous zones of the interior. As a result, more than 60% of the land for agriculture and ranching in Nicaragua is found in the mountainous zones. Also, more than 20% of the forests are found in mountainous zones. Almost 60% of the ranching is done on hillsides, as well as 63% of the annual crops and 90% of the permanent crops. A large proportion of the farms with annual crops on hillsides belong to small farmers and peasants without land or with very little land. The land they do own is ecologically very fragile and has soils which naturally are not very fertile.

Hillside agriculture is low yield, low income and unsustainable agriculture, which keeps the producers in conditions of poverty and precariousness. This is the fundamental reason that the same territory frequently holds the most severe national situations of poverty and extreme rural poverty, deterioration of the water basins, loss of fertility, soil erosion and loss, and deforestation.

The peasantry is forced to carry out agricultural activity in areas of land not suitable for that purpose, especially on steep hillsides with fragile and very shallow soils. This has caused deforestation, loss of soil fertility and the capacity of the soil to store water and space for the development of roots. The processes of soil erosion range from moderate to severe in most of the surface area in these places.

Taking into account that the loss of 1 cm of soil is equal to 100 ton/hectare (taking one ton per cubic meter as the average density) the current erosion has reached alarming levels. In effect out of the 7.7 million hectares not covered by forests, 48.3% show moderate to severe erosion, with losses in soil depth from 20 to 65 cm in the most severe cases. According to the estimates on current erosion and its prospects, deforested, low depth, and low natural fertility soils on steep hillsides quickly will suffer severe to extreme degrees of erosion (MARENA-ECOT-PAF, 1994).

The soil degradation is associated with cattle and crop system management on hillsides. In ranching, the excessive grazing, the use of ever more sloped and low depth lands, the establishment of pastures on eroded soils and the absence of soil conservation practices have favored the erosion. In the production of basic grains the plowing and planting along the slope especially cause erosion, which in intensively worked areas reduces the soil productivity because of the loss of nutrients and organic material, due to the decrease in its depth and loss of structure.

There are other forms of erosion such as the carcavas and landslides of great masses of soil, with the most significant form of soil loss being the soil runoff with rainwater. The extraction of nutrients without compensating for the loss through inputs like fertilizers, organic fertilizer and green fertilizers, is a relatively invisible form of soil degradation. The deterioration of soils is worsened by the highly intensive use of the land, as their principal available resource, which the peasants are forced to use in order to survive (excessive tilling which increases its erosion capacity, decrease of fallow land, planting in unsuitable areas).

For want of another resource, the use of fire to make use of larger areas has spread among the peasants. This has led to the destruction of forest mass and to the inability of nature to be able to recycle a large part of the nutrients.

In summary, poverty leads finally to migratory processes to areas of the agricultural frontier where the peasant settlers reproduce the same patterns of land use which they bring from their places of origin, since they are not able to take into account the particular climatic and edaphic particularities of these new ecosystems. This has caused the spreading of the slash and burn method, practiced by most of the marginal peasants. This pattern of land use tends to exhaust the land, particularly in those areas where the peasant population feels more and more constrained from migrating to virgin territories. This is reflected in the fact that food security is increasingly marginal and vulnerable because of the soil deterioration, the disappearance of the forest cover and the reduction in the biodiversity.

The application of slash and burn is a factor affecting the frequent forest fires which have caused the deterioration of the enormous and rich biodiversity which the country has, as well as the soil degradation, the decrease in the productivity and its capacity to retain water, which in the end can lead to the desertification of wide agricultural areas.

SLASH AND BURN SYSTEM

This production system is used by Central American farmers working in a subsistence economy. It consists in cutting down the forest, whether primary or secondary forest, during the months of February and March, cut it up and leave it to dry to later burn it during the second half of March and the first half of April. The purpose is to have the land ready for planting when the rains begin in the month of May. The system works in two stages. In the first (April and May) rice and corn is planted using a dibble stick, with yucca and peas are planted in between. In the second (August-September), corn is planted again and beans are planted in mid-November. This area cut out of the forest is used for two to three years, depending on the fertility level of the soil and the degree of invasion by weeds. The third or forth year, the site is abandoned to let it rest for a period that can vary from between 6 to 10 years. The peasant, in abandoning the piece of land, moves on to invade another part of the forest in order to carry out the same practice applied in the first area. After 6 to 10 years he returns to the initial site and repeats the practice. This timeframe depends on the availability of land in the agricultural frontier and the condition of the ownership of the land, the fertility of the soil and the level of regeneration of the secondary forest. To the extent that the agricultural frontier areas or the availability of national or private lands are being exhausted, these periods get smaller, the intensification of this system threatens to lead to the irreversible deterioration of the natural resources.

It is a true vicious circle: the increased impoverishment of the soils reduces their yields, undermines the social, economic and agro-systemic viability and sustainability of peasant agriculture, increasing the extreme poverty and accelerating the migration toward the agricultural frontier areas as well as to the cities (and increasingly to third countries).

III. CAFTA AND ITS POTENTIAL IMPACT ON AGRICULTURE AND RURAL POVERTY

A. STRUCTURAL DIFFERENCES AND ASYMMETRIES BETWEEN THE AGRICULTURE OF BOTH COUNTRIES:

A fundamental element when evaluating the impact of any trade liberalization process – whether it is a part of the application of multilateral rules or the result of the preparation of a proposal such as that of the FTA with the U.S. – is that of the sharp and growing structural asymmetries which exist between the industrialized countries which make up these agreements on the one hand and the underdeveloped economies on the other.

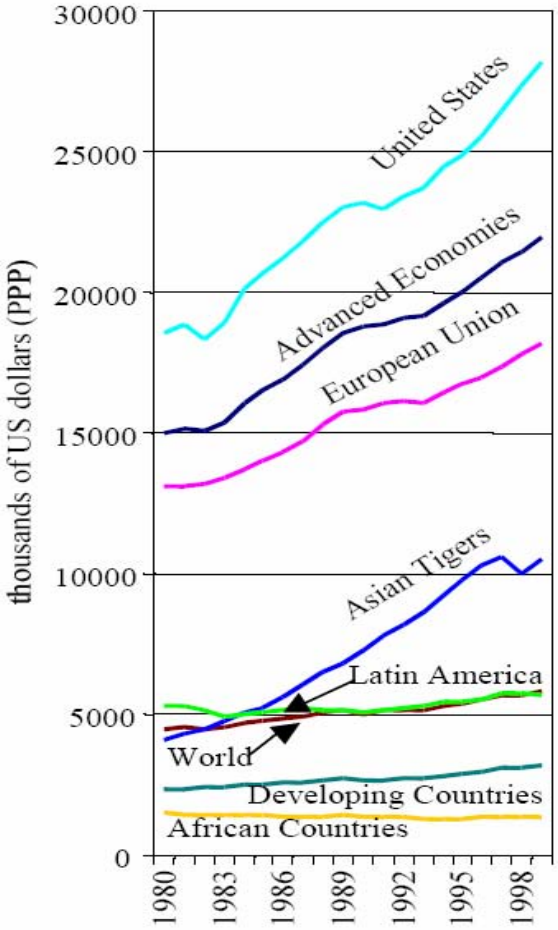
In general, the issue of the asymmetries between countries can be considered from the analysis of the three complementary, although not identical, dimensions: a) the differences in terms of relative levels of economic development; b) the differences in the economic and social structures of the country members of a regional block or between the members of the multilateral of bilateral trade system, and c) the differences in terms of the economic dimension of the different states.

History shows that the international "convergence" of income levels, a typical prediction of many orthodox models of economic growth, has been the exception more than the rule. The vigorous renewal of the tendency toward income divergence in recent decades also contrasts with the expectations that the economic liberalization would accelerate the convergence while offering greater opportunities to developing countries.

Given the increase and persistence of the great inequalities in the world economy, it is useful to think that this is a system where the opportunities are distributed in an uneven fashion between the center of the world economy and its periphery – or, perhaps more exactly, peripheries – a vision which Latin American structuralist thinkers developed half a decade ago. This is reflected also in other characteristics of the world economic order: the very high concentration of the generation of technology in a few countries and the equally high concentration of world finances and the headquarters of multinational companies in those same countries.

Out of this comes the fact that, even though the national economic, social and institutional factors are obviously important, the economic opportunities are determined basically by the position which countries occupy in the world hierarchy. Thus rising in the international scale is a very difficult task. The fundamental international asymmetries help to explain why the international economy is essentially an "uneven playing field". ***For this reason, unless such asymmetries are dealt with in a systematic manner, the world inequalities will be maintained or even made worse over time.***

Change in per capita income for selected countries (1980-1999)



Therefore, the first thing that should be highlighted in the face of any trade negotiation with the United States involving agriculture is the *gigantic and insurmountable asymmetry* which exists between Nicaraguan agriculture and U.S. agriculture, derived from the profound structural differences, levels of relative development and asymmetries of disproportionate size between the two.

AGRICULTURAL INDICATORS: NICARAGUA & US

Arable Land and Permanent Crops	2000
Nicaragua	2,746,000.00
United States	179,000,000.00
Per inhabitant	
Nicaragua	0.54
United States	0.63
Irrigated Area (1000 Ha)	
Nicaragua	88.00
United States	22,400.00
Total Consumption of Fertilizers (Metric Tons)	
Nicaragua	29,287.00
United States	18,506,758.00
Per 1000 Ha	
Nicaragua	10.67
United States	103.39
Use of Tractors	
Nicaragua	2,700.00
US	4,800,000.00
Per 1000 Workers	
Nicaragua	3.87
United States	1,585.73
EAP Employed in Agriculture (Thousands) 2000	
Nicaragua	696,900
United States	3,341,000.00
Agricultural GDP (US$) 2000	
Nicaragua	773,800,000.00
United States	134,289,000,000.00
Product per Worker	
Nicaragua	1,110.35
United States	40,194.25
Position in International Competitiveness Ranking 2001	
Nicaragua	73 (out of 75 countries)
United States	2 (out of 75 countries)

SOURCE: FAO, and the Bureau of Economic Analysis

Asymmetries in patterns of development

The difference in physical resources in quantity and quality is overwhelming. The United States is located on immense plains where modern technological packets can be applied completely and in an integral fashion, while two thirds of the agricultural land of Nicaragua is located on hillsides. Like the United States, Nicaragua has a relatively high ratio of arable land to inhabitants (0.54 Ha per inhabitant compared to 0.63 Ha in the

US). Nevertheless, this supply of arable land, first of all, is land of a different quality, as we have already seen, and secondly the way (extensive or intensive) in which both countries use this relatively high supply of this factor differs greatly.

At this point, the principal difference between the way in which the two countries use their base of resources is determined, not only and not in great measure by the original supply of it, but by its previous pattern of technological and productive development. The technological development path of a country (or a region) is theoretically determined in large measure by the relative prices of the factors of production, prices which in turn are determined in the market depending on the relative scarcity or abundance of these factors in the economy.

During the nineteenth century, the United States underwent an intense colonization process of the lands of the center and western part of the country. This involved immense extensions of fertile land which the settler could acquire at low prices; the government promoted the colonization by assigning plots of 160 acres in size (approximately 65 hectares), granted to the settlers under favorable terms. The purpose was to promote the development of an agriculture based on the family farm. The settler was free to trade the lands and to buy additional plots from neighbors. The limit to the size of the farm which the farmer could manage economically was determined by the availability of family labor and of the technical means which they could find to extend the coverage of that family labor. Since the opportunity of acquiring land was relatively within the reach of anyone who wanted it, it was not easy to find wage workers and, in addition, these regions were sparsely populated. Labor was scarce and costly.

Under these conditions there was an implicit demand for all labor saving technology, since it would allow them to extend the area sown within the farm. Thus, every development aimed at making the cultivation systems more efficient, such as plows and rakes with improved design and materials, got a great reception from the farmers; they also quickly integrated equipment for harvesting and threshing. Before the spread of the gasoline combustion engine, which occurred in the 20th century, the traction for these implements was obtained for a long time from mules and horses, and to some extent from steam engines. In the beginning of the 20th century it was still common to find, for example, relatively large harvesters pulled by groups of more than 30 mules.

Later, starting in the decade of 1920, the agricultural frontier began to close up while land began to increase in price and to become relatively costly. This new situation translated into an increasing concern to improve the efficiency in the use of the land through technologies which would increase per hectare yields (land savers). This was facilitated by the development of chemical inputs, based on the industrial synthesis of nitrogen, which allowed for the inexpensive and large scale production of fertilizers, so that the development of genetics translated into the introduction of plants capable of efficiently taking advantage of ever greater quantities of fertilizers.

While between 1820 and 1920 the average yields per hectare remained almost the same for the principal commercial crops (corn, soy beans, sorghum, cotton), now they began to increase in an accelerated fashion, while continuing the initial emphasis in the efficient use of labor, which continued to be scarce. Still today, despite great advances in biological, chemical and agronomical technologies which have increased the per hectare yields, one of the most impressive aspects of U.S agriculture is the high degree of mechanization of the production and the progressive increase in the efficient size of farms (even those categorized as family size), accompanied by the use of ever larger machines.

In the long run, nevertheless, although the productivity of labor continues being important, total productivity is also increasing in a more balanced fashion, with substantial contributions to this index from an acceleration in the increase of yield per hectare based particularly on the biotechnology revolution.

This process of "induced" technological innovation is associated through time with the appropriate response from the public institutions responsible for supplying agriculture with indispensable goods and public and semi-public services, including infrastructure, research, development and transfer of technology and the training of human capital. The result has been the structuring of a productive and technological system with high levels of capital supplies per hectare and worker, and with high rates of productive efficiency of the labor force and the land, that endogenously generates technological progress, and which is, therefore, capable of promoting a sustained and systematic increase of the total factor productivity.

In Nicaragua, agricultural development was historically based on a relative abundance in the availability of land, combined with a comparatively low population density. From very early on this encouraged the growth of production to be based on a markedly extensive pattern, given that this relative availability of factors did not demand land saving technological developments, aimed at intensifying the use of land, while the facility of access to land due to the extensive agricultural frontier made it possible to reproduce this extensive pattern.

An essential characteristic that differentiated the pattern of development followed by agriculture in Nicaragua from the U.S. pattern, is its starting point was not a system of market-oriented farms within a framework of capitalist relations, open to the incorporation of technology, particularly labor saving technology. The origins of agriculture in Nicaragua were based in large, extensive cattle haciendas, and on small subsistence units with little connection to the market. Only later were crops directed at the external market introduced and these would incorporate a more entrepreneurial logic, although the introduction of crops with more capital intensive patterns were not introduced until after 1950.

In particular, since the 1950s, there was a process of concentration of the best lands from the Pacific plains into the hands of agro-export farms (cotton, sugar, bananas) under more intensive capitalist patterns, with the displacement of broad contingents of the peasantry toward mountainous and marginal lands in the interior. Many of these displacements were linked with colonization policies promoted by the government. As a consequence of the relative availability of land represented by the agricultural frontier, and due, in particular to the open access to land, the participation of the small and medium farms has always been significant, especially all in the production of basic grains, but also in ranching and in export crops such as coffee.

An important component of these small units is that they have been an important supply of cheap labor for more entrepreneurial agricultural exploitation. In fact, they have acted as a reservoir of relatively abundant and cheap labor. So, also in contrast with the development pattern observed in U.S. agriculture, this comparatively abundant availability of labor at very low prices did not favor the adoption of labor saving technologies. Rather than sustaining its profitability and competitiveness on permanent increases in the factor productivity, Nicaraguan commercial agriculture was based on the low cost of the factors of production (particularly land and labor), derived from its relative abundance.

In the decades of the 1950s and 1960s and into the mid-1970s, the growth and diversification of agro-export production, involving the introduction and use of more capitalist intensive patterns, and of certain packets of financing and technical assistance for small and medium producers associated with the "green revolution" (introduction of fertilizers, insecticides, herbicides), led to the highest historical level achieved in the productivity of land (gross product per hectare) and of labor (gross product by workers). Even so, agricultural growth continued to be fundamentally extensive: once the plantations were installed there was no sustained process of intensification and technical progress. Later growth of production happened at the cost of the incorporation of new areas, leaving the technology fundamentally unchanged. The development of ranching also was extensive.

The rapid agricultural growth in these decades was accompanied by significant expansion of public investment in infrastructure, and the development of institutions for agricultural promotion, research and extension.

The attempt in the 1980s to intensify agriculture based on projects requiring a great deal of capital, foreign exchange and technology and on the intensive use of subsidized inputs, failed when the realities of the restrictions of external and internal resources became an obstacle, making this scheme unviable.

In the 1990s, as we have seen, the extensive pattern of growth was re-launched with new energy, but this time associated with a marked decrease in the productivity of agricultural labor putting it far below preceding levels. Accelerated growth of the agricultural labor force is then basically absorbed through a strong expansion of the agricultural frontier and a decrease in labor productivity. The agricultural growth was produced almost exclusively through the incorporation of additional labor and land, but with decreasing yields in the case of labor, and at least globally stagnated (at an extremely low level) in the case of land.

In terms of the role of the government and public policies, in fact, there is a virtual abandonment of agriculture, with the disappearance or extreme weakening of the traditional governmental agricultural institutions which had the capacity to assume indispensable investments (infrastructure, human capital, technology).

In agriculture, thousands of small peasant units continue to predominate, a large part of them subsistence agriculture using traditional technology and having little or no access to resources of any type. These units are dedicated to activities of extremely low productivity, so that the homes associated with them survive under conditions of extreme poverty, while the dynamism of the entrepreneurial style farms is limited, still basing their competitiveness in large measure on the low factor costs, especially the labor force, rather than on the incorporation of technological progress and increases in productivity. The context of policies and realities impose a marked anti-agricultural bias on the economy, and there is a lack of a series of factors and externalities indispensable for "systemic competitiveness" at the "meso-economic" level.

In the long term, these divergent paths in the patterns of agricultural development have become asymmetries of a structural nature between the agricultures of both countries.

One, technologically advanced, sustains its growth through the growing intensification and sustained increase in factor productivity, derived from its continuous incorporation

of technical progress, and the other, very backward, has sustained its growth for many decades through the progressive extension of areas and the simple incorporation of the labor force, maintaining low factor productivity, and is only capable of competing, and only in certain cases, based on the very low cost (according to international and even regional standards) of the comparatively more abundant factors of production, principally labor (in conditions where the so-called commercial agriculture is not able to create sufficient formal employment to overcome the enormous underemployment which prevails in the sector and to raise the cost of the labor force to more "normal" levels).

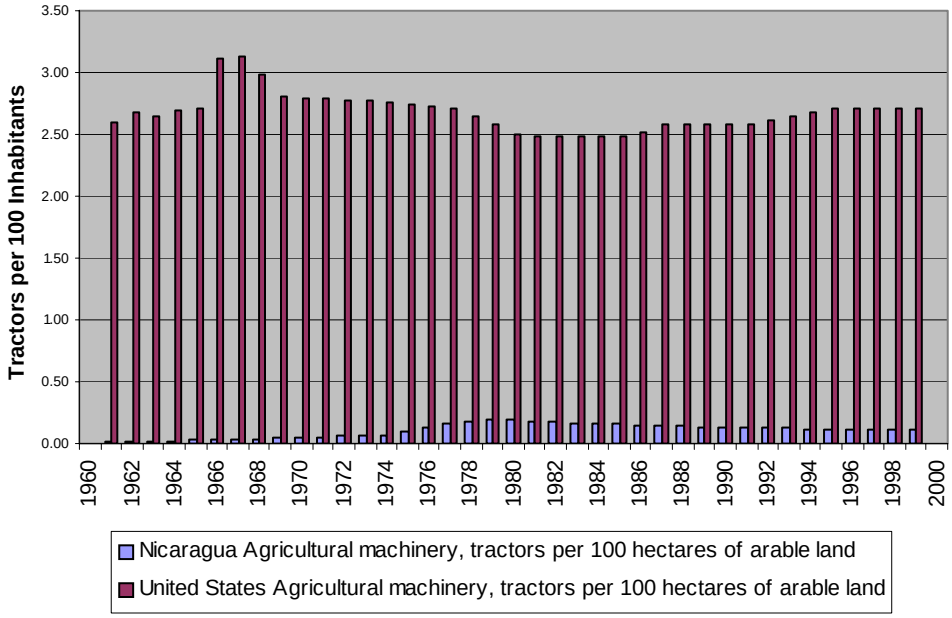
Indicators of the Asymmetries in Terms of Relative Development

Labor productivity in the agricultural sector, is the value of the production of the sector per worker (Economically Active Population Employed on a Farm) expressed in an internationally comparable unit of currency. This is a basic indicator of the *ex-ante* competitiveness which reflects the technical progress and the increases in well being in the sector. Other indicators of *ex-ante* competitiveness refer to the physical productivity of the land (production in tons per hectare of land harvested). Others, which have to do with investment and the technical level of production – and indirectly of productivity – which tend to be used for international comparisons, are the supply of agricultural machinery per hectare or worker, the percentage of land irrigated and the consumption of fertilizers per hectare.[19]

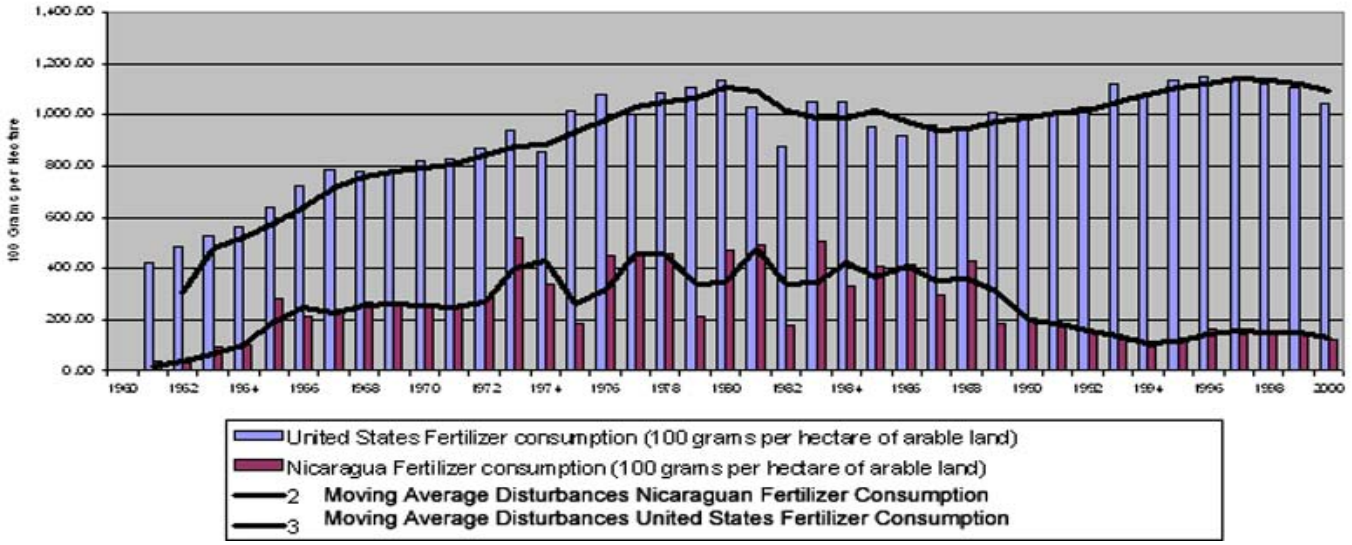
This model or pattern of agricultural development, based not only in the availability of abundant resources, but on a scarcity of labor, which use abundantly fossil fuels and a large supply of machinery per worker, with access to capital resources, presents an overwhelmingly superior productivity in the labor force (and tends to increase it on a permanent basis) as a result of the implantation of more and more advanced technologies. The United States has developed a well-known competitiveness on the basis of ongoing technological progress.

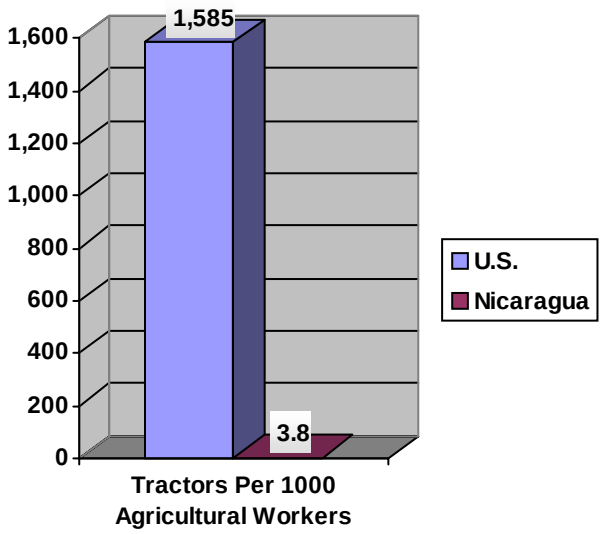
[19] "There are three indicators which reveal for us the situation of the evolution of productivity in agriculture: (i) aggregate agriculture value per farm worker, (ii) consumption of fertilizers per hectare and (iii) machinery use (tractors) per worker per arable hectare. All show a tendency toward stagnation or reduction of agricultural productivity" (Poverty Report, World Bank).

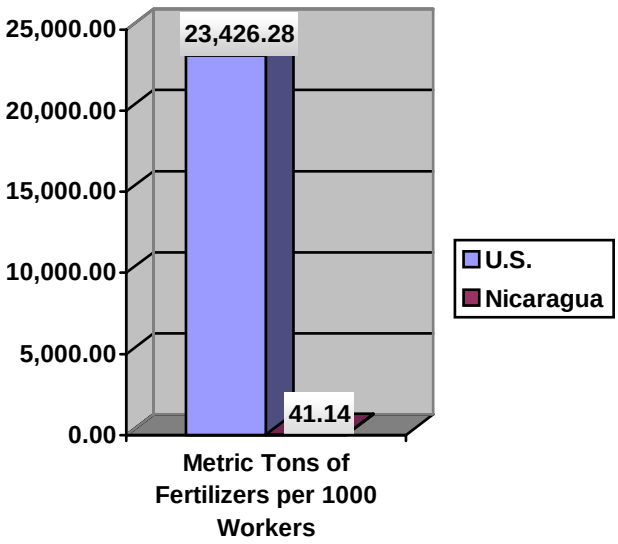
USE OF TRACTORS - NICARAGUA AND U.S.



USE OF FERTILIZERS - NICARAGUA AND U.S.




1,585
1,600
1,400
1,200
1,000
800
600
400
200
0
3.8
U.S.
Nicaragua
Tractors Per 1000
Agricultural Workers


25,000.00
20,000.00
15,000.00
10,000.00
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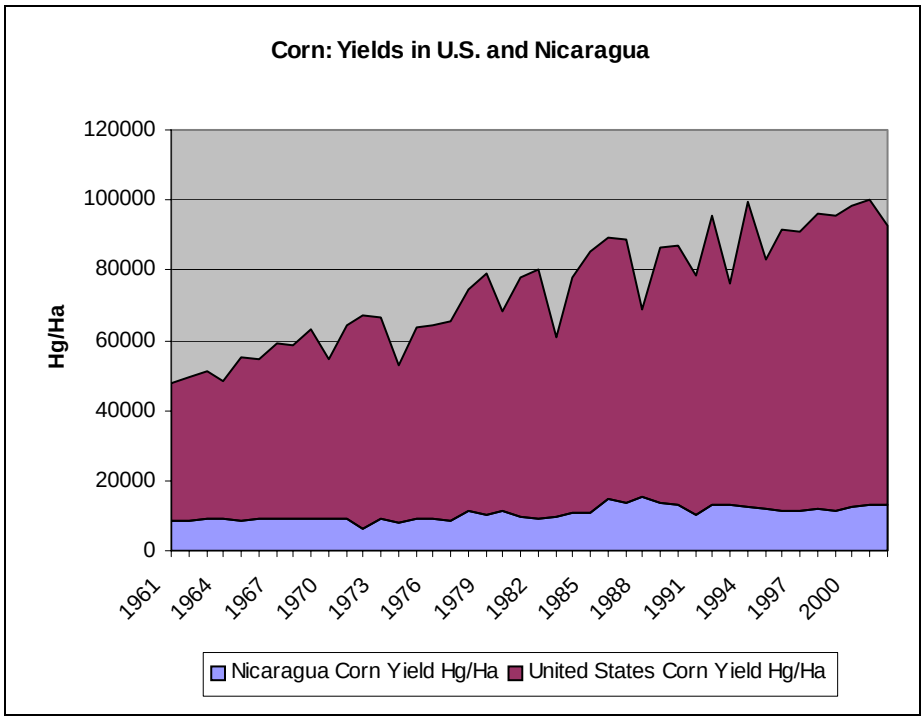
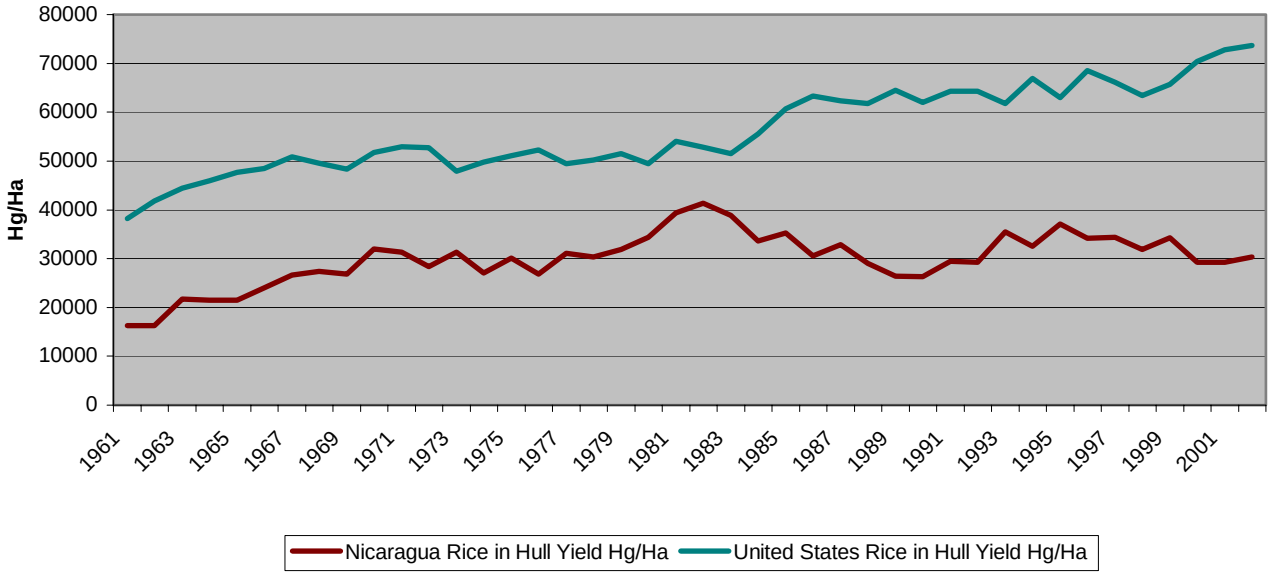
23,426.28
41.14
U.S.
Nicaragua
Metric Tons of
Fertilizers per 1000
Workers



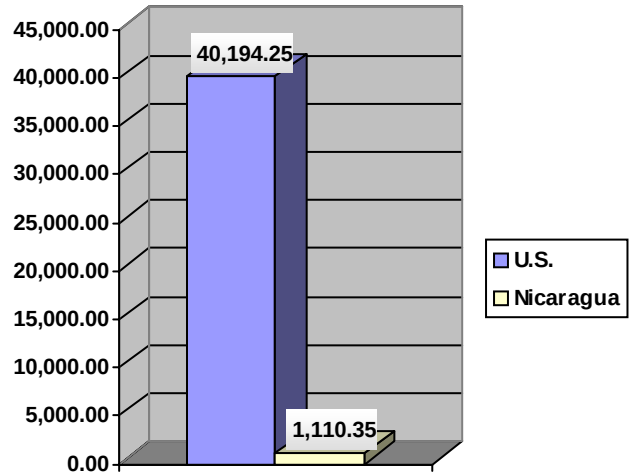
Rice Yields in Nicaragua and the US



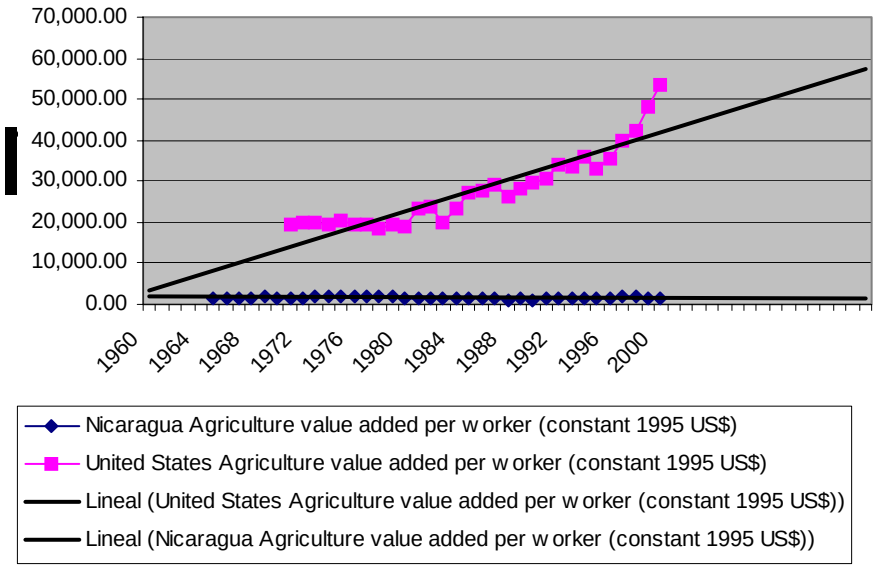
As a result, while the aggregate agricultural product or value per employed person in Nicaragua (apparent productivity) in 2000 rose to US$1,110.30 dollars, the aggregate product or value per employed person in the U.S. rose to US$ 40,194.2 dollars. The agricultural labor productivity in Nicaragua is equal to barely 2.76% of U.S. agricultural labor productivity. Thus, while in 2000 a U.S. worker could plant, with the supply of machinery and equipment which

they have available, an average of more than 300 hectares, a Nicaraguan worker could barely plant an average of four hectares.

APPARENT PRODUCTIVITY IN AGRICULTURE (2000): U.S. AND NICARAGUA



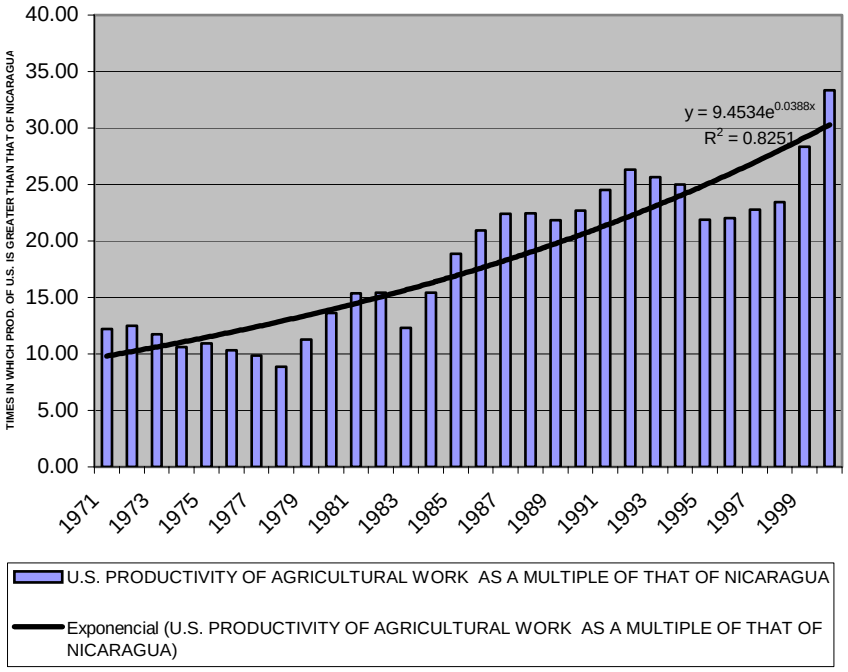
PRODUCT OR VALUE ADDED PER WORKER AND TENDENCY: NICARAGUA AND U.S.



SOURCE: BASED ON WORLD BANK WORLD DEVELOPMENT INDICATORS

The differential or gap between the productivity *levels* is not only abysmal, and structural in nature, but the *tendency* is for this gap to grow *exponentially* over time.[20]

GAP IN PRODUCTIVITY OF AGRICULTURAL WORK BETWEEN THE U.S. AND NICARAGUA

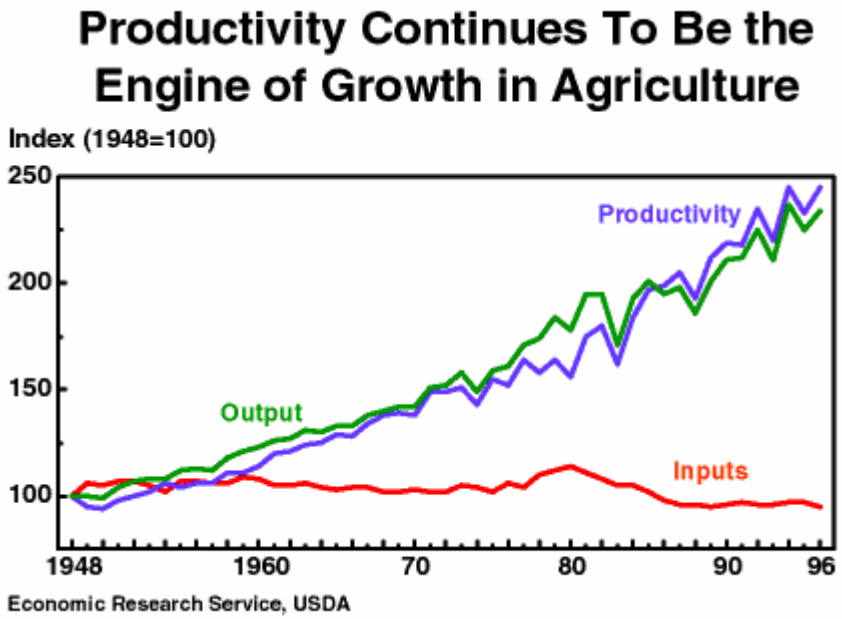


Until now, we have shown or made reference to isolated indicators of productivity of each "production factor" by itself (labor productivity, land productivity, etc). Nevertheless, the most important synthetic indicator of the combined efficiency in the use of all the factors of production is known as the Total Factor Productivity (TFP). TFP is defined as the quotient between a production index and a (total) index of the use of

[20] According to orthodox thought, the liberalization of trade and investment by developing countries would accelerate the transfer of technology toward those countries, which would reduce the technological and productivity gaps. Nevertheless, the diffusion of technical progress from countries of origin to the rest of the world has continued to be "slow and irregular" according to the classic statement of Prebisch half a century ago. This reflects the prohibitive costs of entry into dynamic technological activities and even the constraints which developing countries must face to enter into mature sectors, where their opportunities are restricted in large measure to attracting multinationals which are already established in these sectors. At the same time, technology transfer is subject to the payment of innovation income which is increasingly protected by the spread of strict norms of protection for intellectual property. The combined effect of these factors explains why, on a world plane, the productive structure has continued to show a high and constant concentration of technical progress in the industrialized countries.

factors of production. The increase of TFP over time represents the incorporation of "knowledge" into the production process, or "technological change" in the language of economists. The knowledge or technological change is truly progress, as it allows for greater levels of product to be obtained out of a given stock of resources.

In the U.S., the continuous increase of the TFP has been the principal engine of the growth of the agricultural product, while the use of total production factors (inputs) has been declining.



Ahearn and collaborators (1998) have estimated annual increases of TFP for U.S. agriculture in the period 1960-1994. The results show annual increases in TFP of 1.91% (1960-1969), 1.22% (1070-1979), 3.36% (1980-1989) and 2.77% for the period of 1990-1994. These figures suggest that the increases in productivity have not been declining over time, rather just the opposite appears to have happened. It is important to highlight that the increase of TFP of the manufacturing industry in the period 1948-1994 was 1.31% per year, a figure less than that obtained by the agricultural sector in the same period of time (1.94%).

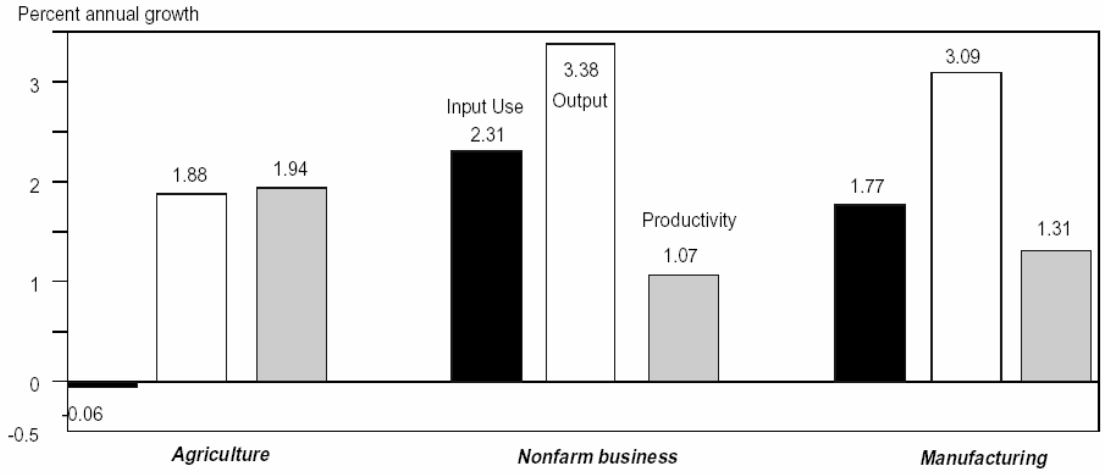
Average Annual Percentage Variation in the Use of Inputs, Production, and Productivity by Sectors, U.S. 1948 -1994

	Agriculture	Industry	Services
Use of Inputs	-0.06%	1.77%	2.31%
Production	1.88%	3.09%	3.38%
Productivity	1.94%	1.31%	1.07%

Source: USDA 2001.

Input use, output, and productivity for agriculture: nonfarm business sector and manufacturing, 1948-94

Productivity growth is a more important source of output growth in agriculture than it is for the rest of the economy.



Source: Economic Research Service, U.S. Department of Agriculture, and Bureau of Labor Statistics, U.S. Department of Labor.

Why is it so important to make the comparison between productivity *level* and productivity *tendencies*? In the short term, international competitiveness would be linked to the level of the real exchange rate which, together with other internal policies, would be capable of promoting the internal and external equilibrium of the economy. In the long term, nevertheless, the principal policy objective is the increase in the standard of living of the population, which is a function of the increases in the productivity of labor adjusted by the increase in the total factor productivity and the changes in the terms of trade.

In a more simplified form, therefore, the *tendency* of labor productivity could be used as a proxy for the behavior of competitiveness in the long term. The *level* of productivity is an indicator of the ranking which a certain country has in terms of international competitiveness.

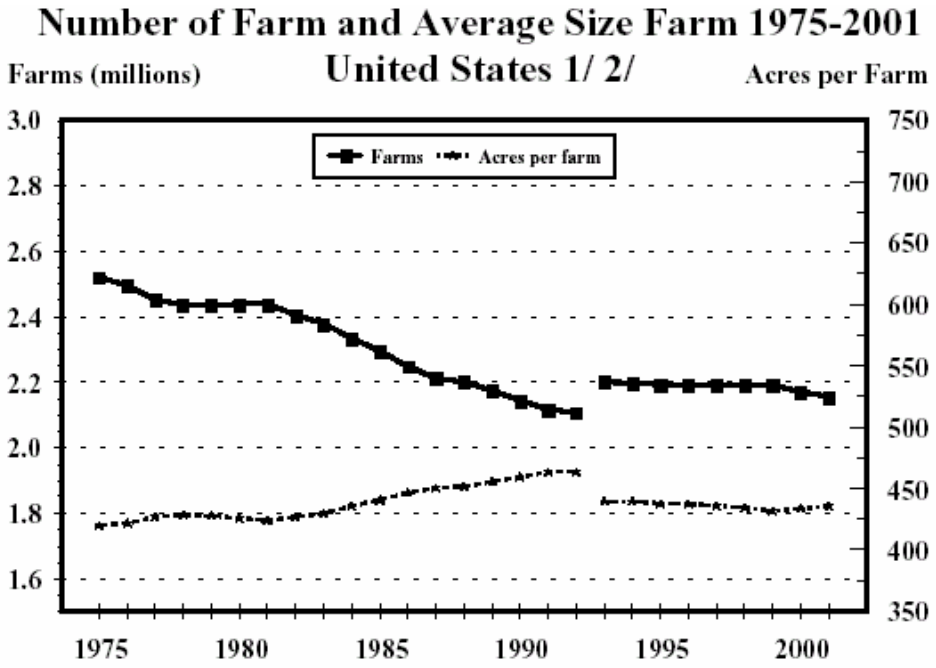
This comparison allows us to appreciate even more clearly the prospect of the competition "as equals" between Nicaraguan agriculture, with the lowest levels of farm labor productivity in the region – while the tendency of this productivity has been markedly downward – based in large measure on a subsistence agriculture that keeps farmers and their rural families in extreme poverty involving, nevertheless, nearly 43% of the total employment of the country, and U.S. agriculture, where only 2% of the labor force is employed and the tendencies of productivity as associated with the transition toward a more and more industrial agriculture are based on economies of scale and the increasingly intensive incorporation of the latest technology (including biotechnology and computer driven and GPS guided tractors).

This data on the differences in levels of productivity between U.S. agriculture and Nicaraguan agriculture, which lead to a truly *abysmal* asymmetry between the two and has tended to increase exponentially, moves us to ask ourselves about the economic and social sense of a policy of greater opening of Nicaraguan agriculture to competition with U.S. agriculture, even with a gradual tariff reduction. The same data leads us to be strongly inclined in

favor of the need for a non-symmetrical, *preferential and differentiated* treatment in any trade negotiation, which cannot be limited to seeking a certain *preferential symmetry* in market access – which is more than just, given the process of unilateral trade openness which has already happened in our countries, without waiting for reciprocity from the developed countries – but which would mean, in addition to greater market access, sufficient spaces for unleashing appropriate *development strategies.*

The emphasis on the very high productivity and pace of growth of productivity in the U.S. does not mean that it is sustainable or free from serious social and environmental problems. It only means that in terms of competition on strictly market terms, its agriculture has an advantage of overwhelmingly superior productivity and competitiveness.

This agriculture has been characterized by a decline in the number of farms in the United States during the post war period and a growing concentration of land in the form of large extensions.



1/ Farm definition changed beginning in 1993 to include equine, maple syrup, and short rotation woody crop farms.
2/ 1975-92 estimates are for Number of Farms on June 1.
1993-2002 estimates are for Number of Farms during the entire calendar year.

NASS, Environmental, Economics, and Demographics Branch, (202) 720-6146

This process of concentration has brought with it a differentiation and polarization process between types of farms. In the U.S, the small farms of rural residents represent 62% of the total, but barely generate 7.8% of the production value, their net income is US$2,310 year, they have an average size of 110 acres, include 70% of the high cost farms and absorb 13% of government payments. In contrast, the large commercial farms are only 8% of total farms, but generate 68% of the production value, their average net income is US$ 115,832, have an average of 767 acres, are 54% of the low cost farms (highly competitive) and absorb 47% of government payments.

	RURAL RESIDENTS	INTERMEDIATE FARMS	COMMERCIAL FARMS
NUMBER OF FARMS (% OF TOTAL)	62.01	29.99	8.01
PRODUCTION VALUE (% OF TOTAL)	7.76	23.89	68.35
AVERAGE ACRES POSSESSED	110	351	767
AVERAGE NET ANNUAL INCOME ($/FARM)	2,310	12,998	115,832
GOVERNMENT PAYMENTS (% OF TOTAL)	12.79	39.84	47.37

Nevertheless, productivity is not necessarily the same as income: to calculate net income per worker, the interest on borrowed capital, land rental and taxes have to be deducted, and possible subsidies need to be added. In fact, the net income of 62% of the farms is only US$2,310. Under certain net income, farms face serious difficulties.

> *"Now, if the net income per worker is less than this threshold of renovation and capitalization, the farm will not be able to renew the means of production and pay labor at market prices. In fact, a farm with these characteristics finds itself in crisis and will only be able to survive if it pays its workers less than what they should receive or only partially renews its means of production, which will cause a progressive reduction in its productivity. But the remuneration for the work should be above the survival level, the minimum salary, since if it is not, the peasant will not be able to continue satisfying the family's needs and will be forced to abandon the farm. In farms situated between the thresholds of renovation and survival the motorized machinery tends to be obsolete and be in poor condition. These farms lack future projects and do not have possible buyers, but if they cease their operations, their productive resources may be absorbed by one or more neighboring farms in the process of expanding.*
>
> *This divergent process has been one of the characteristics of all the stages of agricultural revolution: on the one hand, the unequal and accumulative development of farms with a sufficient level of capitalization and productivity in order to situate themselves above the threshold of renovation, and on the other hand, the impoverishment and disappearance of the units which find themselves below that threshold. The farms which have invested and progressed less in a certain phase have seen themselves left behind and have disappeared in the following phase, while the more capitalized and productive units continued progressing. Thus most of the farms existing in 1950 have disappeared and only a minority have been able to advance through all the stages in order to achieve today a high level of capitalization and productivity*" (FAO, 2000)

A unit of production situated above the renovation threshold can, in a given moment, find itself below that threshold in spite of having maintained technical productivity, be that because of the drop in economic productivity caused by the unfavorable evolution of the prices of the products or the inputs, or because of the increase in the renovation threshold, influenced in turn by the labor market salary levels, or both. In fact, these two circumstances have occurred frequently over the last half century. The real price of agricultural food products have undergone a pronounced decline since 1950 because, during this period, the increase of agricultural productivity in the developed countries was higher than that obtained in other sectors. In addition, until the 1980s, the salaries of unskilled workers in these countries constantly increased, because the increase in the overall productivity of the economy did not redound only to the benefit of the income

and accumulation of capital, but also in part to the increase of salaries and buying power.

While the prices for food have been depressed for a long time due to overproduction, the costs of manufactured inputs have increased. Farmers, most of whom work family farms which generate low net income, have been forced to go into debt to cover the costs of $40,000 tractors and $100,000 harvesters. Many times, the low profit margin has not been enough to cover the debt service, thus bringing waves of failures and expropriations. This has been the reason for the failure of millions of farms.

This prevailing pattern of development also reveals problems of environmental sustainability. The development of input intensive agriculture is causing an environmental impact which puts its sustainability in serious doubt. The data from the increase in the use of fertilizers and pesticides over the last fifty years are alarming. Between 1950 and 2000, the consumption of nitrogen multiplied by a factor of 23. The production of pesticides already exceeds 2.6 million metric tons a year, creating a world market of $38 billion dollars a year, of which 85% is consumed in agriculture. Although 75% of this market is consumed in developed countries, its consumption in developing countries is significant. On top of this, the use of fertilizers is not efficient. In areas where the use of agrochemicals is high, 30-80 % of the nitrogen which is applied is not used by the crops it is applied on, leading to a growing level of contamination of rivers, and through them, to the statuaries and costal areas. Since agriculture represents 70% of the total consumption of water in the world, its growing scarcity can become a clear limiting factor for agricultural production in the new century which we are starting. The degradation of the environment and food quality increases with the excessive use of fertilizers and agricultural chemical products, the excessive concentration of animal production and the recycling of possibly unhealthy organic wastes in feed compounds. The intense mechanization, rural migration and the abandonment of crop lands poses more and more urgent problems of employment and maintenance of the land.

B. A HIGHLY PROTECTED AND SUBSIDIZED AGRICULTURE:

Finally, it cannot be stressed enough that U.S agriculture is not only fabulously productive with tremendous levels of technology, but it is also *highly protected* through dense tariff and non-tariff measures, and it is *massively subsidized.*

After the various rounds of trade liberalization, the average consolidated tariff of the European Union and the United States for non-agricultural products is very low and would not be an important barrier for access to these products. Therefore, on the one hand, this low average does not allow one to appreciate the extreme values of some tariffs, nor the tariff progressiveness which reduces the efficacy of the export diversification efforts of the countries of the region. On the other hand, the average agricultural tariff is still relatively high with high typical deviation.

In addition, in contrast with the Latin American countries which applied *ad valorem* tariff rights to imports based on their FOB value at their point of exportation, the tariff structures of the United States and the European Union are very heterogeneous, due to the application of specific tariffs by unit of weight/volume or number of pieces, mixed and seasonal, in addition to the use of contingent tariffs and special regimes for various products. The use of specific tariffs translates into a higher protection than what the *ad*

valorem tariff rights offer, given that the degree of protection grows as the price of the product goes down.

In this way the average tariff of these countries or group of countries includes an "equivalence" of specific rights to an *ad valorem* right, while the average tariff of Latin American tariff structures are more equal and transparent. To this heterogeneous composition are added trade defense measures which, in some industries, have become effective instruments for eliminating the competition from imported products in the United States and to a lesser extent in the European Union.

In addition, the tariffs of the United States show a strong progressivity, which means they increase to the extent the level of production of the products increase. The progressivity can be glaring in the case of the branches of the production of foods, drinks and tobacco, as well as in those of textiles, clothing and leather. Likewise exporting to the United States can be difficult, in addition to the quotas and restrictions, there is a complex system of norms and regulations in the federal, state and local levels, which translate into burdensome procedures and a slow process for gathering the necessary information.

❖ Direct Support to Producers:

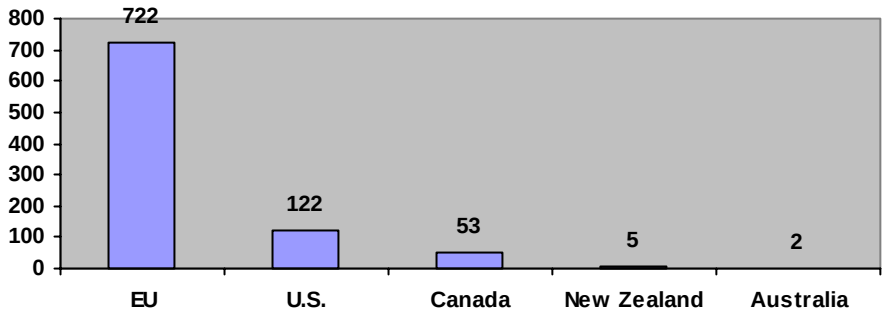
In terms of subsidies, direct subsidies granted to agricultural producers by the U.S government in 1999 rose to US$55.4 billion dollars, equal to 30% of the production value of the sector.

OECD: Producer Support Estimate by country

		1986-88	1999-2001	1999	2000	2001p
European Union	USD mn	93,719	99,343	115,330	89,617	93,083
	EUR mn	84 998	103 141	108,241	97,244	103,937
	Percentage PSE	42	36	39	34	35
	Producer NPC	1.87	1.38	1.47	1.33	1.33
	Producer NAC	1.76	1.56	1.63	1.51	1.54
Japan	USD mn	49,498	51,980	53,809	54,888	47,242
	EUR mn	44 869	54 270	50,502	59,559	52,750
	Percentage PSE	62	60	61	61	59
	Producer NPC	2.51	2.42	2.46	2.45	2.36
	Producer NAC	2.62	2.53	2.56	2.56	2.46
United States	**USD mn**	**41,839**	**51,256**	**55,433**	**49,333**	**49,001**
	EUR mn	**38 413**	**53 424**	**52,026**	**53,531**	**54,715**
	Percentage PSE	**25**	**23**	**25**	**22**	**21**
	Producer NPC	**1.19**	**1.16**	**1.19**	**1.14**	**1.15**
	Producer NAC	**1.34**	**1.30**	**1.34**	**1.28**	**1.27**
OECD	USD mn	238,936	248,302	272,563	241,599	230,744
	EUR mn	217 270	258 540	255,811	262,160	257,649
	Percentage PSE	38	33	35	32	31
	Producer NPC	1.58	1.35	1.41	1.34	1.31
	Producer NAC	1.62	1.49	1.54	1.47	1.45

Notes: p: provisional. NPC: Nominal Protection Coefficient.
NAC: Nominal Assistance Coefficient.
(1) For Czech Republic, Hungary, Poland and Slovak Republic: The figure in the first column refers to 1991-93. Austria, Finland, and Sweden are included in the OECD totals for all years and in the EU from 1995.
Source: **OECD, PSE/CSE database 2002.**

Farmer Supports
Average US$ per Hectare 1999 - 2001



Japan = US$10.682 / Ha
Korea = US$9.293 / Ha

SOURCE: OECD

Subsidies are strongly concentrated in goods which represent less than a third of U.S. production (grains, cotton, rice, sugar and milk), many of which are at the same time food or export products which are sensitive for our countries.

According to the last Annual Report of the OECD the Producer Support Estimate (PSE) for the 1999-2001 period in the United States was US$20,000 per farmer. If this measure is applied to the land under cultivation, the PSE represents US$117 per hectare. Below appears the data relative to the PSE per crop, for the period between 1999-2001 as well as for 2001 for the agricultural products defined as sensitive by the United States:

PRODUCT	1999 – 2001 PSE %	2001 PSE %
Wheat	46	40
Corn	31	26
Rice	41	47
Other Grains	42	36
Oil-Producing Seeds	26	25
Sugar	56	48
Milk	51	51
Cotton	5	5
Beef	4	5
Pork	4	4
Lamb	16	15
Eggs	4	4
Other “Commodities”	21	19

Source:OECD

It is very important to emphasis that this *is not* a case of specialization based on the theory of comparative advantage, according to which countries would specialize in what they are *comparatively* (not absolutely) more efficient in doing, but rather a clear case of trade which would be based in the *absolute cost advantages* of U.S agriculture, due to an enormous differential in productivity and the massive production subsidies for some agro-food goods which coincide nearly exactly with the products most sensitive for our producers.

SENSITIVE AGRICULTURAL PRODUCTS FOR CENTRAL AMERICA AND THE USA

CENTRAL AMERICA	UNITED STATES
Basic Grains: Rice, Corn, Beans	Cereals: Wheat, Corn, Rice and Feed Grains
Meat Products: Poultry, Beef and Pork	Meat Products
Dairy Products	Dairy Products
Sugar	Sugar
Coffee	Whole Beans
Bananas	Certain Fruits and Vegetables
Peanuts	Peanuts
Vegetables such as Onions and Potatoes	Cotton
	Oil Seeds
	Honey
	Wool

Note: in the case of the USA, the products subject to support measures contained in the Farm Security and Rural Investment Act of 2002 were used as reference.

Farm Bill of May 2002

The Administration of President Bush has declared and classified agriculture as "*a basic component of national security"* and has supported the political interests and pressure groups arguing for substantial increases in support to agriculture, particularly in times where the low international prices have produced a significant drop in the income of the farmers. In fact, after two years of intense policy consultations, lobbying and pressure on the part of interest groups and more than two months of bicameral conferencing, the Farm Security and Rural Investment Act was approved (Farm Bill) for the period between 2002-2011. This is an intricate law of more than 400 articles contained in 226 pages of text which reactivates and validates a great deal of previous legislation and many existing programs.

Its most innovative part from the public policy point of view is the introduction of anti-cyclical payments for agriculture as a compensation mechanism for drops in international prices and as support for the income of the farmers. Nevertheless, from the point of view of international agricultural economy and the policies for the reduction of subsidies to the sector, many analysts see the approval of the Farm Bill of 2002 as a testimony to the triumph of farm lobbyists and their mentors in Congress, in the face of international commitments and the need for fiscal austerity in that country.

The Bill tries to balance a comprehensive, broad and multi-purpose agricultural policy, aspects of farm production, international trade, environmental conservation, nutrition, rural development and disaster aid. For this reason it reactivates previous legislation with the purpose of increasing and refinancing pre-existing programs in these fields. The Bill has a ten-year term covering the period between 2002-2011, although most of the budget assignments and spending authorizations are made in the period from 2002-2007. Its net fiscal cost for this latter period has been estimated to be more than US$110 billion dollars. The following table lists the bill's chapters (titles) and their budget allocations for the years 2002-2007.

(Billions of dollars)

ITEM / TITLE	ALLOCATION	PROPORTION
I. Basic Crops[a]	82.2	75.0
II. Conservation	17.2	15.6
III. Trade	1.2	1.1
IV. Nutrition	6.4	5.8
V. USDA Credits	**	-
VI. Rural Development	1.0	0.9
VII. Research	1.3	1.2
VIII. Forestry	0.1	n.s.
IX. Energy	0.4	0.4
X. Miscellaneous	***	-
Total	110.4	100.0

Source: Title I Basic Grains summary for the period of the preliminary FAPRI estimate of an annual aid average of 13.808 billion dollars. Titles II to X: Agricultural Security and Rural Investment Law 2002.

[a] Excludes supports for dairy and dairy products.
** Softening of loan conditions.
*** Includes provisions on voluntary origin labeling, protection for farmers in the case of bankruptcy and pork production contracts.

❖ "Non-Distorting" Support

In addition to subsidies or direct support to producers, the developed countries heavily invest in what are called "general services support", which are crucial for the performance of farm productivity, especially public investment in research and development, extension, education, infrastructure and other governmental programs.

With the future progress in the WTO agreements, the eventual reduction or elimination of measures that further distort international trade is to be expected, along with an increase in other measures of internal support or subsidies which provoke less distortion ("green box" measures). The Green Box includes exempting measures from reduction commitments. The requirements for agricultural support programs and policies to be applied within this category are:

- That they do not have effects that distort trade or production, or at least, that their effects are minimal.
- That they should be granted through governmental programs financed with public funds, and that they do not imply transfers to consumers.
- That they do not directly affect the price which the producers receive.

Examples of these measures are the programs fighting infestations and diseases; training; inspection services; commercialization and promotion services; investment in infrastructure; the constitution of public stocks for food security purposes; internal food aid; direct payments to producers, such as income aid unconnected with production; insurance and income security network programs; aid in cases of natural disasters; programs for farmer retirement and the removal of land and other resources from farm production; investment aids; environmental programs and regional assistance programs.

The OECD groups most of these measures in a category called General Services Support. This includes:

- Promotion
- Infrastructure
- Research and Development
- Health
- Training
- Other

The total figures of the OECD countries illustrate how this type of support has been increasing, rising from US$41.6 billion in 1986-1988, to US$55 billion in 1999-2001, equivalent to 16.7% of total support. In this category of General Services Support, the main areas are promotion and marketing (40%), infrastructure (31.2%) and research and development (10.2%). In the United States, these supports reached a total of US$22.5 Billion in 1999, representing 24% of total support granted by that country. Along with the direct producer reports they add up to a total of US$80 billion, equivalent to 42% of the value of production.

OECD: General Services Support Estimate by country

		1986-88	1999-2001	1999		2000	2001p
European Union	USD mn		11,084	9,519	10,346	9,193	9,017
	EUR mn		6 725	9 918	9,710	9,976	10,068
	Percentage of TSE		10	8	8	9	9
Japan	USD mn		8,775	12,732	13,088	13,274	11,832
	EUR mn		7 889	13 300	12,284	14,404	13,212
	Percentage of TSE		15	20	20	19	20
United States	**USD mn**		**15,233**	**22,831**	**22,539**	**21,832**	**24,121**
	EUR mn		**13 980**	**23 926**	**21,153**	**23,690**	**26,934**
	Percentage of TSE		**22**	**24**	**23**	**24**	**25**
OECD	USD mn		41,439	55,077	57,448	53,943	53,838
	EUR mn		37 671	57 522	53,918	58,534	60,116
	Percentage of TSE		14	17	16	17	17

Notes: p: provisional. EU-12 for 1986-94, EU-15 from 1995, EU includes ex-GDR from 1990.
Source: **OECD, PSE/CSE database 2002.**

In fact, the achievements obtained in the development of U.S. farm productivity have been very closely associated with a considerable investment and activities in these fields. These are the investments which explain to a large extent why the farm product has grown much more than the productive inputs or factors involved in production, whether they are labor, capital inputs or chemical inputs (USDA, 1998). This shows that this type of investment has a high rate of social return.

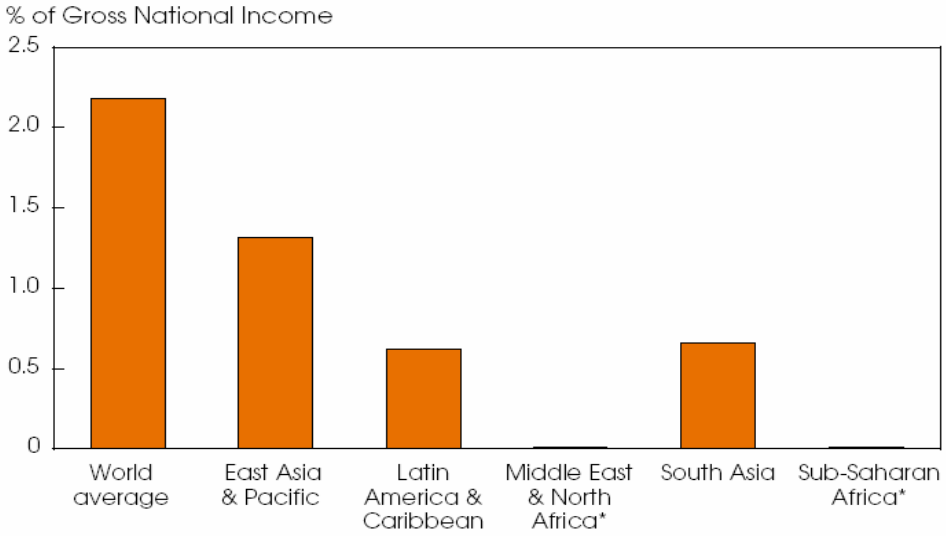
Table 2—Social rates of return to agricultural research, extension, and education

Investment	Social rate of return
	Percent
All public agricultural research	40-60
Basic public research	60-90
Private research	30-45
Public extension	20-40
Farmers' education	30-45

Source: Economic Research Service, USDA

Developed countries allocated significant percentages of their enormous GDP to investment in "general services" support measures, creators of considerable positive

externalities, which, as we have indicated, turn out to be key for the increase in total factor productivity in agricultural production in the medium and long term. However, our countries' investment in these "green box" supports is very small.



* Negligible
Source: World Bank.
Economic Research Service, USDA

❖ Overproduction, Exportable Surpluses and Price "Dumping"

In fact, the combination of an abundant availability of land and natural resources, an enormous productivity and strong protection combined with massive subsidies for internal agricultural production and for exporting agricultural products has translated into the creation of exportable surpluses of such a magnitude that they have made the U.S. the principal world exporter.

Main Worldwide Agro-exporters 2000

Country	% World Exports
United States	17.6 %
European Union	14.7 %
Canada	8.6 %
China	4.1 %
Australia	4.1 %
Brazil	3.8 %
Thailand	3.3 %
Argentina	3.0 %

Source: OECD, 2001.

No. 1122. Selected Farm Products—United States and World Production and Exports: 1995 to 1999

[In metric tons, except as indicated (59 represents 59,000,000). Metric ton=1.102 short tons or .984 long tons]

Commodity	Unit	Amount						United States as percent of world		
		United States			World					
		1995	1998	1999	1995	1998	1999	1995	1998	1999
PRODUCTION [1]										
Wheat	Million	59	69	63	539	589	586	11.0	11.8	10.7
Corn for grain	Million	188	248	240	515	606	605	36.5	40.9	39.6
Soybeans	Million	59	75	72	125	160	156	47.4	46.7	46.1
Rice, milled	Million	5.6	5.9	6.6	371	394	403	1.5	1.5	1.6
Cotton [2]	Million bales [3]	19.7	18.8	13.9	85.9	91.6	84.5	23.0	20.5	16.4
EXPORTS [4]										
Wheat [5]	Million	33.7	29.0	29.5	99.5	101.4	106.3	33.9	28.6	27.7
Corn	Million	52.7	51.9	47.0	64.9	68.5	69.9	81.1	75.8	67.2
Soybeans	Million	23.1	21.9	26.5	31.9	38.6	46.3	72.4	56.7	57.3
Rice, milled basis	Million	3.1	3.2	2.7	21.0	27.3	25.1	14.8	11.6	10.6
Cotton [2]	Million bales [3]	9.4	7.5	4.3	28.4	26.7	23.6	33.0	28.1	18.2

[1] Production years vary by commodity. In most cases, includes harvests from July 1 of the year shown through June 30 of the following year. [2] For production and trade years ending in year shown. [3] Bales of 480 lb. net weight. [4] Trade years may vary by commodity. Wheat, corn and soybean data are for trade year beginning in year shown. Rice data are for calendar year shown. [5] Includes wheat flour on a grain equivalent.

Source: U.S. Dept. of Agriculture, Foreign Agricultural Service, *Foreign Agricultural Commodity Circular Series*, periodic.

Latin America has become an increasingly significant market for U.S. farm exports: in 1990 it was the destination for 21% of these exports (by value) from 15% in 1980, making it the principal destination after Japan.

No. 1124. Agricultural Exports—Value by Selected Countries of Destination: 1980 to 1999

[41,234 represents $41,234,000,000. See headnote, Table 1119. Totals include transshipments through Canada, but transshipments are not distributed by country prior to 1982 and beginning 1996]

Country	Value (mil. dol.)								Percent		
	1980	1985	1990	1995	1996	1997	1998	1999	1980	1990	1999
Total agricultural exports [1]	41,234	29,041	39,517	56,348	60,445	57,245	51,829	48,299	100.0	100.0	100.0
Asia [1]	15,046	11,191	17,712	28,212	28,560	25,705	20,988	20,235	36.5	44.8	41.9
Japan	6,133	5,409	8,145	11,170	11,704	10,536	9,110	8,944	14.9	20.6	18.5
Korea, South	1,797	1,413	2,650	3,759	3,871	2,863	2,268	2,461	4.4	6.7	5.1
Taiwan [2]	1,095	1,231	1,663	2,601	2,965	2,616	1,801	1,956	2.7	4.2	4.0
China [2]	2,277	157	818	2,635	2,092	1,613	1,359	862	5.5	2.1	1.8
Hong Kong	437	389	703	1,503	1,490	1,712	1,492	1,209	1.1	1.8	2.5
Indonesia	414	170	274	817	852	772	454	547	1.0	0.7	1.1
Philippines	319	292	381	766	892	873	721	788	0.8	1.0	1.6
Western Europe [1,3]	12,917	7,002	7,385	9,061	9,702	9,728	8,267	7,146	31.3	18.7	14.8
European Union [4]	12,177	6,542	7,102	8,701	9,322	9,105	7,961	6,607	29.5	18.0	13.7
Belgium-Luxembourg	697	387	386	650	749	678	658	565	1.7	1.0	1.2
Netherlands	3,476	1,869	1,585	2,146	2,218	2,040	1,559	1,612	8.4	4.0	3.3
Germany	2,373	1,009	1,165	1,237	1,489	1,355	1,243	969	5.8	2.9	2.0
Spain [5]	1,488	837	937	1,270	1,124	1,157	1,046	711	3.6	2.4	1.5
United Kingdom	996	604	836	1,067	1,233	1,312	1,255	1,084	2.4	2.1	2.2
Italy	1,203	669	714	720	796	764	704	497	2.9	1.8	1.0
Latin America [1]	6,154	4,224	5,121	8,042	10,486	10,417	11,473	10,080	14.9	13.0	20.9
Mexico	2,469	1,439	2,560	3,540	5,447	5,184	6,163	5,637	6.0	6.5	11.7
Canada	1,908	1,622	4,224	5,812	6,146	6,795	7,016	7,073	4.6	10.7	14.6
Soviet Union (former)	1,138	1,923	2,262	1,347	1,747	1,483	1,153	922	2.8	5.7	1.9
Russia	(X)	(X)	(X)	1,046	1,328	1,204	835	524	(X)	(X)	1.1
Eastern Europe	1,644	414	537	293	439	284	272	171	4.0	1.4	0.4
Africa [1]	2,237	2,488	1,935	3,074	2,877	2,282	2,118	2,187	5.4	4.9	4.5
Egypt	774	891	692	1,448	1,319	964	914	1,061	1.9	1.8	2.2

X Not applicable. [1] Includes areas not shown separately. [2] See text, Section 30, International Statistics. [3] Includes Canary Islands and Madeira Islands. [4] Includes France, Denmark, Greece, Ireland, and Portugal. Beginning 1995, also includes Austria, Finland, and Sweden. As of Jan. 1, 1981, Greece became a member of the European Union. As of Jan. 1, 1986, Spain and Portugal became members of the European Union. For consistency, data for all years are shown on same basis. [5] As of Jan. 1, 1984, includes Canary Islands and Spanish Africa, not elsewhere classified.

Source: U.S. Dept. of Agriculture, Economic Research Service, *Foreign Agricultural Trade of the United States*, calendar year supplements. Also in *Agricultural Statistics*, annual.

These exportable surpluses emerged as the supply of farm products expanded more rapidly than domestic demand, due to the fact that the demand for the consumption of farm products expanded proportionally less than the growth of income, and farm production grew more rapidly than even population growth (the agricultural GDP grew at a rate of 4.3% in 1990-2000 while the population grew at a rate of 1.2%). In terms of the rest of the economy, farm exports show a significant multiplying effect on economic activity: each dollar of farm exports is reflected in an increase of US$1.39 in general economic activity.

This demonstrates the importance which the U.S. government places on an aggressive policy of external market opening to their agricultural products, through all types of trade agreements.

> *"Trade continues to be critically important to the long-term economic health and prosperity of our food and agricultural sector. We have far more capacity than needed to meet domestic food market requirements. To avoid excess capacity throughout the system— our farmland, transportation, processing, financing, and other ancillary services—we must maintain and expand our sales to customers outside this country. In fact, our system's capacity grows faster than the domestic market alone can absorb. Given the maturity of our own food market, aggregate domestic demand has grown more slowly than the farm sector's rate of productivity growth. However, steadily expanding foreign demand—brought on by income gains, trade liberalization, and changes in global market structures — has helped U.S. exports steadily increase over time from $7.3 billion in 1970 to $53.5 billion for the current fiscal year. Clearly, without the salutary effects of an expanding export market, farm prices and net cash incomes would be significantly lower today. Agricultural exports also play an important role in the larger U.S. economy. Every dollar of direct export sales generates another $1.39in supporting economic activity.*
>
> *Agricultural trade liberalization will expand access for U.S. food and agricultural products in overseas markets and reduce unfair competition in those markets from other countries. It would also promote economic growth globally, and particularly in developing countries where the demand for U.S. food and agricultural products has the greatest potential to grow" (USDA, "Food and Agricultural Policy").*

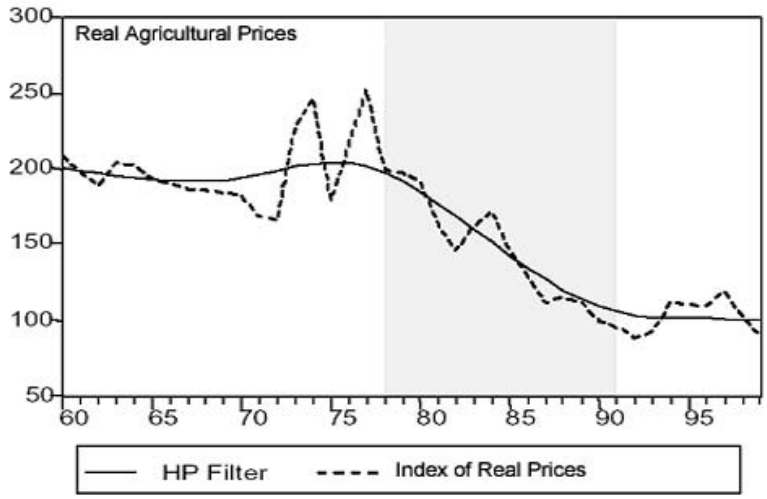
Taken together, the previous policies created the artificial increase of production and, therefore, enormous surpluses of farm products. In order to be able to export the surpluses without affecting rural income and, eventually, to gain international markets, exports must be subsidized. All of this massively distorts international markets and creates dropping international prices. Due to the volume of U.S. exports, its agrarian policy plays a predominant role in the world drop in the prices of agricultural products.

International Prices for Selected Products (1960 = 100%)

	Banana	Arabic Coffee	Sugar	Beef	Rice	Corn	Soybeans
1960	100%	100%	100%	100%	100%	100%	100%
1970	95%	102%	100%	146%	97%	111%	105%
1980	76%	108%	267%	108%	110%	83%	93%
1990	78%	44%	85%	72%	52%	52%	56%
2000	61%	43%	55%	54%	39%	42%	47%

Source: World Development Indicators, World Bank, 2001.

REAL AGRICULTURAL PRICES
1960-1999



Source: IFPRI
**HP Filter: Hodrick Prescott Filter to separate the cyclical component from the long term behavior of the series.

Support to U.S. farmers, subsidizing their costs and income, which allows the agricultural products of that country to be exported at a price which is far below their total cost of production, constitutes a case of dumping. Even without counting income subsidies to income, the percentage of dumping in the export prices of U.S. agricultural products is very high. It is estimated that price dumping rose to 33% of the total production cost in the case of corn in 2001 and 22% in the case of rice.

Table 3. Maize

Year	Farmer Production Costs (US$/bushel)	Government Support Costs (PSE)	Transportation & Handling Costs (US$/bushel)	Full Cost (US$/bushel)	Export Price (US$/bushel)	Percent of Export Dumping
1990	2.49	0.08	0.54	3.11	2.79	10%
1991	2.65	0.09	0.54	3.27	2.75	16%
1992	2.26	0.07	0.54	2.86	2.66	7%
1993	2.90	0.08	0.54	3.51	2.62	25%
1994	2.25	0.07	0.54	2.85	2.74	4%
1995	2.88	0.10	0.54	3.51	3.13	11%
1996	2.70	0.08	0.54	3.31	4.17	-26%
1997	2.77	0.07	0.54	3.37	2.98	12%
1998	2.64	0.06	0.54	3.24	2.58	20%
1999	2.68	0.06	0.54	3.27	2.29	30%
2000	2.72	0.06	0.54	3.31	2.24	32%
2001	2.81	0.06	0.54	3.41	2.28	33%

Table 5. Rice

Year	Farmer Production Costs (US$/bushel)	Government Support Costs (PSE)	Transportation & Handling Costs (US$/bushel)	Full Cost (US$/bushel)	Export Price (US$/bushel)	Percent of Export Dumping
1990	9.61	0.27	9.85	19.74	15.52	21%
1991	9.94	0.30	9.85	20.09	16.46	18%
1992	9.16	0.21	9.85	19.22	16.8	13%
1993	9.95	0.28	9.85	20.08	16.12	20%
1994	9.90	0.22	9.85	19.97	19.14	4%
1995	11.31	0.29	9.85	21.45	16.68	22%
1996	11.06	0.30	9.85	21.21	19.64	7%
1997	11.70	0.29	9.85	21.84	20.88	4%
1998	12.02	0.30	9.85	22.17	18.95	15%
1999	11.42	0.21	9.85	21.48	16.99	21%
2000	8.51	0.20	9.85	18.56	14.83	20%
2001	8.64	0.17	9.85	18.66	14.55	22%

Source: Institute for Agriculture and Trade Policy: "UNITED STATES DUMPING ON WORLD AGRICULTURAL MARKETS".

The new Farm Bill of 2002 will reinforce the pressures which have been kept the international prices of agro-food prices low. "What could be the likely effect of the farm bill on Central America? In principle, developing countries could be affected. Unable to compete with low-cost, subsidized U.S. imports, local farmers in less developed countries will be displaced, turning the production structure more dependent upon imports and increasing trade deficits. At the same time, the series of low-price years could be prolonged, continuing with the line of reduced export revenues and weakened profitability of export activities in these nations".

C. WHAT CAN BE EXPECTED FROM THE COMPETITIVE CLASH BETWEEN U.S. AND NICARAGUAN AGRICULTURE IN THE FREE TRADE AGREEMENT?

We have to conclude that Nicaraguan agriculture, in structural terms, and in terms of the factors underlying the sustained increase in productivity, does not have any advantages with the United States, rather the situation is just the opposite. However it may be, it is essential to take into consideration that we

are not facing a typical case of comparative advantages: the theory of comparative advantages teaches that, although a country may have *absolute cost advantages* in all the sectors, which means that although it may be much more efficient in absolute terms in all branches of their economy than the competing countries, the most desirable approach for both would be to specialize in the production of those branches in which they are *comparatively* more efficient.

Nevertheless, in the case which concerns us, this does not seem to be the situation. Rather it appears that the case of one country, the richest and most powerful of the planet, which has introduced into practically every productive sector the most advanced technologies, and in large part created by itself those technologies, which has absolute cost advantages in practically all sectors, and which even has the luxury of subsidizing, without any sense of proportion, an agricultural sector which barely represents 3% of its gigantic GDP and creates only 2% of total employment, in addition to supporting its productivity rates with large investments in infrastructure, research and development and the formation of human capital.

Understanding this, it is important to note that crops which the U.S. considers to be very important in agricultural terms, to which they allocate a large proportion of the subsidies and supports, and even high levels of tariff protection and, in some cases, crops which at the same time are important in terms of "national security", coincide to a large extent with crops which have a simple fundamental importance for our economy and for the farming population: corn, rice, meat, sugar.

The World Bank recently conducted a competitiveness analysis for the most important farming crops of the country. The following table is the basis for their conclusions.

Table 13: Selected Indicators to Estimate Crop Competitiveness (year 2001)

Crops	*Number of farms (thousands)*	*% of total farms*	*% farms > 10 mzs.*	*Weight in*		*Border Price* (US$qq)*	*Unit Cost* (US$qq)*	*Current Tariff (%)*
				GDP	*Agr. GDP*			
Importables								
Maize	141.4	70.9	32	3.4	14.1	5.13	5.59	10
Rice	17.3	8.7	25	2.8	7.4	10.74	8.34	62**
Irrigation	0.3	0.2	15	nd	nd	10.74	8.69	62**
Rain-fed	17.0	8.5	25	nd	nd	10.74	7.99	62**
Sorghum	2.5	1.3	34	0.4	1.3	5.22	5.60	30
Exportables								
Coffee	43.2	21.6	34	6.2	22.0	22.57	21.23	15
Sugar Cane	6.5	3.3	20	1.9	6.7	27.00	31.30	55
Peanuts	0.1	0.1		0.5	1.9	14.84	11.94	5
Beans	115	57.6	32	2.2	8.8	14.25	10.50	10
Sesame***	4	2.0	100	0.1	0.4	32.50	23.70	5
Meat	97	48.6	13	4.0	15.0	0.88	0.73	15

* At farm-gate price
** Tariff for Rice was currently raised to 85%. Calculations are however based on the previous value of 62%
*** A different methodology was used for sesame due to lack of accurate available data. This estimates are based on international prices rather than border prices
Source: PROVIA 2002

It is worthwhile to quote their principal conclusions:

> *"An analysis of the competitiveness of Nicaragua's main crops provides important guidance for trade policy: Nicaragua has already achieved good levels of trade liberalization, but this trend toward openness will need to continue. The country's agricultural growth will require a shifting of incentives to support production of non-traditional crops for export. The analysis of the cost structure for rice and beans indicates that in fact both of these crops are internationally competitive. By contrast, the analysis of the cost structure of maize, together with sorghum and sugar cane, indicates that these three crops are not competitive vis-à-vis international markets: they exhibit lower border prices than domestic prices. However, maize has certain peculiarities that set it apart. First, tariffs for maize are low (10 percent) if compared with sorghum and sugar cane (30 percent and 55 percent respectively). Second, for maize production Nicaragua is self-sufficient with marginal levels of exports. Maize is practically a non-tradable, with about 141,000 farms (or 71 percent of all farms) producing white maize for human consumption. Given the tariff level, the high Nominal Protection Rate (NPR) exhibited for maize is derived from high transaction costs along the trade chain. That is, market inefficiencies. Thus, trade policies that lower general tariff levels will tend not to have a significant negative impact on small producers. On the contrary, they could favor lower consumer prices for staple food".*

In terms of rice, Nicaragua has, according to this study, a surprising degree of competitiveness in this crop, when internal costs and international prices are compared "at the farm gate" for irrigated rice as well as upland rice (at tariffs of 62% in effect in 2001). In Costa Rica, with an average yield in rice much higher than that of Nicaragua, the small scale producers (producers of upland rice), with production costs between US$209 and US$246 per MT in 2001, are not competitive with U.S. imports, without the protection of the 35% tariff which is in effect in that country. In contrast, the average price to the producer in Nicaragua was US$239 in that year, and it seems obvious that this crop is also not competitive in Nicaragua without the tariff. At the point where competitiveness is measured, it is necessary to point out that the U.S. rice production not only shows yields which double Nicaraguan yields, but received subsidies per quintal which are nearly equivalent to the cost of producing one quintal in Nicaragua. In Costa Rica, on the other hand, it should be recalled that the cost of the production factors, specifically the labor force, is much higher than in Nicaragua (from which labor is migrating).

All this would seem to indicate that the possibilities of competing and staying in the market for the Nicaraguan rice producers, above all for the upland rice producers (although not only them) seems to depend too much on the presence of tariffs, on the extremely low cost of the labor force, and on the current promotion agreements for rice production (PAPA) established with the large importers, that certain "Non Tariff Barriers" be maintained on imports (import contingencies). Finally, of course, it also depend upon the fact that the downward *tendency* of international prices of this product do not prevail (the comparisons of costs and prices is done on a point in time), and that there not be an increase in the productivity differentials.

In terms of red beans, which appears here as an exportable product – because in effect it is exported to Central America – it is worth only mentioning the fact that in the April 2002 issue of "Biotechnology" magazine of the Seed Improvement Project (known by its Spanish acronym PROMESA) implemented by a private U.S. company (DAI) and financed by USAID, an article appeared entitled "U.S. Announces Red Bean for Export".

According to the article in this magazine "The recently-produced Chiquito Red bean, is the first small, red, dry bean developed for production in the United States with the intention of marketing it in Central America, said Philip Miklas, a geneticist from the Farm Research Service in Washington… According to Miklas, this variety will be used principally for export to Honduras, Nicaragua, El Salvador and other Central American countries, and probably for the U.S. ethnic market, with a value in the millions of dollars." While in Nicaragua the production of red beans does not reach a yield of 10 quintals per manzana, the US red bean produces a yield of 31.5 quintals per manzana, due to its genetic virtues which make it resistance to the Sclerotinia white mold and the common mosaic virus.

In terms of corn, the conclusions of the study also are surprising. The total cost of corn for the producer is higher than the border price (international price) of it "at the farm gate" (this includes costs of transportation, insurance and freight, and importation). Therefore, according to this study it is not "competitive". Its tariff is low (10%), which means it does not have very high tariff protection derived from public policies, whether tariff or non-tariff. The high Nominal Protection Coefficient which appears in the previously cited studies is not primarily due to high tariff or non-tariff protection, but to "internal market inefficiencies" (*market inefficiencies*: therefore there is no high "implicit subsidy" on this crop, *derived from public policies*).

As already stated, the problem is that the highest level of the domestic price compared to the international price reflect, in large measure, not simply productivity differentials and the monetary cost of the production factors, but the distortions of the international market itself. A greater tariff reduction, as a result of these recommendations, would not do anything but place the domestic producer of this good which is so important at the mercy of these downward price tendencies.

Nevertheless, according to the Bank's study, further reducing the tariffs, which are already quite low, would not have a significant impact on the producers.

This obscures the greater importance of the crop. Corn is the principal food crop of the country. Seventy-six percent of the rural farmers incorporate corn within their production systems (MECOVI, 2001). This is equivalent to approximately 150,000 producers, and affects nearly a million people, if we assume that an average of six family members depend on each producer. The percentage of farmers who grow corn reaches 79% in the Central Region. For many centuries, corn has been the basic food of Central America, where it originated.

The conclusion of the study, that the opening to cheaper grain imports (subsidized in fact) would not have a significant impact on most of the producers, is supported, it seems, by the consideration that a good part of the corn production was destined for consumption by the farmers themselves, due to the imperfections in the market for this grain, derived from the segmentation of the market and the greater transaction costs (as a consequence of the isolation of the producers, the insufficiency of the transportation, storage and commercialization infrastructure, of access to land and loans). Therefore, it is assumed that the reduction in price would not affect most producers.[21]

[21] Another variant of the explanation would be that, due to the high differentials which are seen between the price of corn to the producer and the price to the consumer, derived from the inefficiencies of the mechanisms in the commercialization chain, the greater tariff reduction

This argument is similar to the one put forward in Mexico to argue that in that country, for this same reason, NAFTA would not have really affected so severely the basic grain farmers:

> *"A more specific hypothesis since its focus is corn, the basic crop of the Mexican population's diet: a considerable portion of Mexico's supply of this grain comes from small household farms; lack of infrastructure (such as proper roads) and the absence of other institutions required for the functioning of markets (such as financial entities), mean that these producers face high transaction costs; these costs are one reason small farmers produce staples, particularly corn, for their families' own consumption. This indicates that corn prices are endogenous (i.e., determined at the village or regional level), and hence, that small farmers do not face competition with this crop. That is, they do not suffer directly from agricultural price and trade liberalization It could therefore be argued that high transaction costs for small Mexican farms is another reason that domestic production of corn has not suffered after seven years of NAFTA implementation" (Antonio Yunez-Naude, Mexico's Basic- Crops Subsector: Structure And Competition Under Free Trade", 2001).*

In fact, this argument had been already put forth in a study on the impact of the liberalization of trade on Nicaragua, Mexico and Honduras (ECLAC, 1999), as a *partial* explanation of the fact that the production of corn had not collapsed in the face of the drop in prices caused by the increase of imports. Nevertheless, according to a survey of rural homes done in 1996 by the Ministry of Agriculture with the support of the FAO, the World Bank and the USDA, quoted by this same study, 39% of the corn farmers in Nicaragua are net surplus-producing and sellers. This is an important percentage of producers, and their relative weight in total surface area planted is much greater (ECLAC, 1999). Therefore, the impact of entry prices of corn or flour from imported corn would have a severe and direct impact on important segments of the production of this grain: 39% of the producers is equal to nearly 58,000 producers!

For the rest, a study done in Mexico based on extensive field work (Alejandro Nadal, "The Environmental & Social Impacts of Economic Liberalization on Corn Production in Mexico", 2000) has revealed other limitations of this argument in terms of the families which theoretically produce only for consumption and would not see themselves affected by the impact of prices from a greater trade opening:

> *"Much of the literature justifying the inclusion of corn in NAFTA explicitly adopted the assumption that subsistence producers would not be affected by price reductions because they do not sell any of their produce. This assumption failed to recognize the importance of the wider economic context, within which*

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would affect principally the commercialization margins, and would not significantly affect prices to the producer. Certainly the internal market distortions are located fundamentally in the storage and commercialization phase which mediates between the producer and the final consumer markets, but the tariff reductions do not mean that the competition with international products at much lower prices will only affect the commercialization chain more than the producer. The way that the reductions in customs tariffs have their affect is modifying the relative price of the goods in favor of imports in the consumer markets. This displaces demand from domestic goods toward the imported goods. Who will assume the cost of gathering a geographically atomized and disperse production, which is hard to access because the roads are not in good shape, if the same good already exists in the market at a much lower price?

subsistence producers must obtain sufficient income to cover basic household needs. This income has to be derived from off-farm activities or through petty corn sales between harvests. Deriving income from petty corn sales is problematic as subsistence farmers are often forced to sell in a buyers' market, immediately after harvest when supply is greatest and prices are low. Conversely, when purchasing corn to restore family provisions, they often face a sellers' market as prices tend to be higher in the long periods between harvests. Thus, their net income from petty corn sales is often negative, but this practice is necessary to meet short-term needs for cash".

It is important to consider, in addition, the close network of interrelationships which exist between the different types of producers, including the surplus-producing farmers hiring a seasonal labor force of farmers with less access to land and greater dependency of their income on the sale of their labor. The reduction in real farm income for an important segment of farmers must have a multiplier effect on the whole. As Nadal argues:

"In spite of the fact that poorer producers use their corn output primarily for household consumption, they also live and operate in a monetary economy. They have to buy many other foodstuffs, medicines, tools, etc. and rely on other sources of income, such as waged labour, or other off-farm activities. Although 'farm gate' corn prices have fallen, consumer prices for corn products, such as hominized dough, or tortillas, have risen, thereby increasing pressure on poorer producers when they come to buy these essential items. Immediate cash needs may be satisfied through petty corn sales at the local market. Normally, however, poor producers have to sell at very low prices to local middlemen, but encounter very high prices when buying to replace the amount sold. The ability of corn producers to purchase corn to replace quantities sold depends on employment opportunities in the local or regional labour market and the evolution of rural and urban wages. Employment creation is sluggish in Mexico and real wages have continued to fall over the past eight years, with decreasing corn prices representing a downward pressure on real rural wages".

According to the results of this study, conclusions which would be applicable to a great extent to our case within the proper limitations, given the similarity of structures and logic of peasant producers (ECLAC, 1999), NAFTA has greatly strained and further deteriorated the conditions for the existence of all grain producers:

"Profitability has deteriorated significantly for all producers, notably those in the intermediate and subsistence categories. This is the result of the fall in prices which has diminished already low or negative profitability rates, together with the rising costs of inputs. A third general conclusion is that public investment in support of corn producers has failed. This is apparent in the level of prices, PROCAMPO payments, credit availability, and the quantity and quality of infrastructure.

For competitive producers, the most important obstacle to continued production is linked to the reduction in profitability levels as costs of tractor rentals and chemical inputs have risen. Unsustainable production practices have led to increasing soil erosion and loss of fertility. The decline in fertility is masked artificially through increased use of fertilizers, but this can only be a temporary answer. Lack of official support in the form of technical assistance to promote wise use of fertilizers further aggravates these trends. Water usage is another

serious problem, with ongoing aquifer depletion in some regions and alack of public support for improved irrigation and water management.

The formerly modest profits of intermediate producers have been wiped out by the fall in corn prices and rising production costs. These producers do not have the capacity to develop alternative production systems or shift to more profitable crops. Eventually, they are faced with the need to find new employment opportunities. Concerns about employment opportunities in the local labour market are intense and migration may be the only alternative for many household members.

In regions where intermediate producers operate, new land has been opened to agriculture, with a consequent increase in deforestation. This is consistent with the data at the national level showing expansion of cultivated land devoted to corn production. Another source of deforestation identified during fieldwork is fuelwood consumption. The economic stress under which these producers are operating puts additional pressure on forested areas as households sell fuelwood in local markets.

One important finding is that subsistence producers are affected by price changes. Although in principle these producers do not engage in the production of marketable surpluses, they rely on additional income to meet many of their economic needs (e.g. food, medicines and tools) and have been severely hit by the rise in tortilla prices. Subsistence corn growers are also seriously affected by the decline in rural employment opportunities. Migration, an attractive option for intermediate and subsistence producers, provides only a short-term alternative, and has substantial social and environmental implications.

The genetic variability of corn remains the most important asset of the survival strategy adopted by subsistence producers. However, there is evidence that migration and declining resource management capabilities are leading to a form of genetic erosion and, in some cases, to the irreversible loss of genetic resources. The weakening of social institutions associated with migration negatively affects the capacity to monitor and oversee collective resource management. It also reduces the community's capacity to engage in maintenance and development of soil conservation structures".

Thus, if we consider only the competitive possibilities of the grains which constitute an important part of the food diet of most of the Nicaraguan population, based on the comparison of costs and prices in a specific moment in time, the short term impact of a greater trade opening, as the experience of Mexico shows, would possibly result in a combination of productive stagnation with a notable increase in rural poverty and the severe loss of jobs, with an increase in migratory tendencies. This would be accompanied by a drastic expansion in polarization and inequalities. The evidence suggests that, in effect, a greater liberalization of the trade of grains would have a very severe impact on most of the producers and their families, who suffer from an almost absolute lack of resources and possibilities for inserting themselves competitively in this framework, unless it is temporarily and places further pressure on their means of making a living, while only a very small segment of those farmers would be capable of developing activities capable of inserting themselves "dynamically" in the scenario opened by a FTA with the United States.

"On the other hand, the FTA also has worsened the polarization of the Mexican economy which had begun at the end of the 1980s. While the previously mentioned relatively small export segment of the Mexican economy has grown in an important way, the rest of the economy, and especially the smaller sized companies, have encountered limitations for integrating in this model of growth. Therefore, the FTA also has not expanded the possibilities and options for these companies to integrate into this export model. Some of the causes are not related to the FTA, such as the constant macroeconomic instabilities and uncertainties, the weakness of the financial sector and the lack of policies which would allow for companies and sectors to adjust, among many others. Nevertheless, and just as seen in the case of agriculture and corn production, the trade opening has caused an important negative impact on a segment of the population estimated to be around 18 million people. In the same agricultural sector, a series of export activities are presented as a promising future, while most of the productive units and jobs are left in doubt…In the case of corn production what stands out is that, since the Agreement has become effective, imports have been abundant and much over the stipulated quotas. As a result, the real price of corn in Mexico has dropped substantially, while only a small segment of the corn farmers have been able to replace corn production with another grain or agricultural activity. The polarization of the economy in general is also reflected in specific sectors like farming, in which a number of export crops, particularly fruits and vegetables, have benefited from the FTA, while most of the sector still have not adjusted to the new conditions and even have few possibilities of doing so" (ECLAC, 2000).

Nevertheless, the FTA implies a *structural and permanent* modification in the form of external insertion of the Nicaraguan economy. Therefore, the analysis cannot be limited to the most immediate, foreseeable impact. It is interesting therefore to take a look at, even superficially, at the possible *structural impact* of the FTA.

The World Bank study quoted earlier considers the segmentation and high transaction costs which most of the producers face as *givens,* resulting from the greater distances, the high geographic dispersion, deficient infrastructure and channels of storage and commercialization, etc. And this is valid for the short term. This is the basis for the statement that, due to these market deficiencies, producers find themselves largely unconnected to the market, and fundamentally produce for family consumption, the reason why the reduction of prices resulting from the increase of imports would have a limited impact on them.

But in the longer term, if we assume that, as a result of the "natural" process of development, or of the sustained will to reduce rural poverty and marginalization, the segmentation of the rural markets and the high transaction costs which most rural producers face will tend to go down, then the basis for this conclusion changes. Under these circumstances, assuming that the differentials in productivity are maintained, the impact of the prices of imports would indeed more fully affect the producers, hitting domestic grain production harder and more directly.

Even confining ourselves to this thought framework, while in the relatively short term the production of these "non-competitive" crops is maintained – despite the stress put on them particularly from a lack of resources and alternatives for most of the producers - over a longer term, the reduction in the segmentation of the rural markets means that

the impact of the trade liberalization in the end will significantly reduce that production, freeing up important contingents of the labor force.

For Mexico, the projections in this respect are not encouraging. The same author of the previously cited study (Yunez-Naude, 2001), which tried to explain, through the hypothesis that most of the corn producers grow it basically for family consumption, why the relatively short term devastating impact expected of the FTA on corn production was not estimated by almost any of the previous studies, establishes that the case is different when we enter into the terrain of projections for the medium and long term:

> *"Restructuring the Mexican economy as shown in the simulated reforms implies a huge rural out-migration to both urban Mexico and to the United States. According to the results of Robinson and associates, 800 thousand rural workers would emigrate–544 thousand to the United States, either directly from Mexico's rural sector into U.S. agriculture, or indirectly from urban Mexico to the urban United States. The rural sector of Mexico would lose about 30 percent of its labor force. This simulation shows that the future of Mexico's basic crops subsector could be bleak, especially if the new government decided to eliminate the agricultural programs that support producers of basic crops, if its promise to build rural infrastructure were fulfilled, if Mexican farmers did not adopt technical change, and if investment in agriculture remained low" (.Antonio Yunez-Naude, Mexico's Basic- Crops Subsector: Structure And Competition Under Free Trade", 2001).*

Certainly the peasant economy has an enormous resilience as a central characteristic. Paradoxically it is an economy very vulnerable to risks and eventualities, but it has also demonstrated a high capacity to adjust to the "shocks" which it tends to suffer on an almost permanent basis. The mechanisms and strategies for adjustment and survival are diverse (ECLAC, 2000), and only rarely imply a drastic contraction in the areas sown or in production.

From this point of view, the "shock' of the FTA might start a series of adjustment mechanisms, which, without necessarily implying a short term catastrophic collapse, nevertheless, particularly in the light of the prevailing tendencies, should culminate in an accentuated deterioration in the conditions for the reproduction of this agriculture. This is especially true as this time it does not mean a transitory event, but a permanent change along a path which in the long term will mean a high and growing expulsion of the labor force, while the job and income alternatives remain limited.

The majority segment of corn producers, who produce basically for family consumption, in the long term will be those who will perhaps experience the costs of the liberalization through a more prolonged, but not any less painful, process of decomposition. At the same time, given that normally they are the ones who have a greater need for the income derived from the sale of their labor force, they will be the ones who will suffer more because of the predictable weakening of the job possibilities and the ongoing weakening of the rural real salary, and therefore, they will finally see themselves submitted to strong migratory pressures.[22]

[22] This was the case for Mexico: "They are likely to remain in the corn sector purely to meet their own subsistence needs and in order to avoid the high transaction costs of purchases at market

In the last analysis, what is at stake for the long term is not just the possibility of preserving a large part of the national agro-food production, and of assuring food sovereignty, or of losing the possibility of developing a multifunctional and sustainable agriculture and rural economy, which on its own has a fundamental importance; but the fate of the labor force itself and, more deeply yet, the fate of the human beings linked to this production.

We have seen that the official vision of the purpose of trade liberalization is to reassign productive resources from less productive activities to activities or sectors in which the country has a comparative advantage. Within the assumptions behind trade openness in the FTA for the agricultural sector, it is thought that the productive resources controlled by the national farmers could be reassigned to other uses and sectors relatively easily. Perhaps there would be troubles during the transition, but the final result should correspond to a more efficient allocation of resources. Of course, the most important productive resource which would be the object of a more efficient reassignment is the labor force. Nevertheless, there is probably not much hope that this reassignment will be produced in a relatively easy manner. In fact, the more probably scenario is massive unemployment of productive resources, especially of the labor force.

In order to better understand this statement, let's examine the options theoretically open to the producers who will see themselves exposed to a greater liberalization process.

It may be thought that, first of all, many producers would opt for the modernization of cultivation in order to become more competitive and stay in the market as an alternative. The modernization of production techniques and technologies can appear as an option.[23] In strictly economic terms, given the necessary resources to introduce them, they would simply be completely beyond the reach of the great majority of farmers. This has been the case in Mexico, and surely it will be in large measure the same in the case of Nicaragua. In fact, this also assumes developed capital and technology markets, non-segmented, with perfect access to information, including relatively broad access to these markets for the producers to an appropriate degree. This simply is not the case.

Crop substitution for the purpose of taking advantage of the changes in the structure of relative prices for the subset of agricultural products is a second option open to corn producers. This includes the change from the production of grains to vegetables and fruit for export. Some suggest that these more labor intensive crops represent the segment of agricultural production where Nicaragua has a comparative advantage. The capital and technology requirements for the diversification of high value vegetable and

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prices. They are amongst the most vulnerable economic agents in the Mexican economy, as confirmed in a recent survey of social indicators. They live below the poverty line and in conditions of technological stagnation or even regression. Technological regression manifests itself in the reduction of assets such as animals and is intensified by migration due to the loss of expertise in resource management" (Nadal, 2000).

[23] In general, modernization means adopting and spreading capital intensive production technologies and techniques which include irrigation systems (or highly trustworthy and good rainy conditions), the use of improved varieties of open and hybrid pollenization, the intensive use of agrochemicals (fertilizers and insecticides) and the intensive use of mechanized traction (with the consequent environmental impacts).

fruit crops make it not very accessible for any producer, especially for peasant farmers producing grains. The costs of production in vegetable growing are between five and seven times greater than in corn production.

The third option is that, the producers of non-competitive crops (as the country doesn't have the possibility of modernizing, much less to the extent required to overcome its enormous competitive disadvantage) are able to develop a dynamic agroexport sector, capable of absorbing the large contingent of labor freed up by the non-competitive crops. Even if we suppose that it is possible to develop a dynamic export sector to the U.S., this does not mean in any way that this translates into an equivalent dynamism in the creation of jobs. In Mexico "one of the most revealing characteristics of the principal export businesses, both foreign and nationals, is their modest participation in employment. On average, they provided 3.41% of the national employment from 1993 to 1998. The activities and companies which produce 93.35% of exports – around 3,400 businesses including maquilas – provide an average of only 5.65% of national employment. For the same period the working population in Mexico increased by 8.5 million people, while the principal export enterprises, including the maquilas, only created 822,000 jobs" (ECLAC, 2000).

In Mexico, in spite of the vigor showed on the part of exports of fruit and vegetables taking advantage of the import quotas obtained through the FTA, the absorption of the labor force on the part of these activities has been very limited.

> *"Employment creation is sluggish in Mexico and real wages have continued to fall over the past eight years, with decreasing corn prices representing a downward pressure on real rural wages"(…) It is also now clear that, in contrast to many pre-NAFTA predictions, labor-intensive horticultural crops cannot provide the 'economic space' for reallocating labor and land from the corn sector. For most horticultural crops, technological improvements have achieved significant growth in output without any need for additional labor or land" (Nadal, 2000).*

The reason for the limited absorption of the labor force on the part of these export activities is that, in order to penetrate and stay in the U.S. market and facing strong and growing competition, including from other countries and regions, they have had to adopt the same intensive patterns of the U.S. agriculture, and to grow through increasing productivity.

> *"Available data confirm that mechanized production has been increasing for crops identified as more labour intensive (e.g. horticultural products). The assumption of neutral technical progress is unrealistic and should not have been a reference for policy making in this sector... There are other reasons why the horticultural sector may tend to absorb less labour in the future. The use of better fertilizers, pesticides, and varieties giving greater yields, suggest that there may be important productivity gains without significant employment expansion"… Even though horticulture and fruit production are more labour-intensive than corn and other basic grains, more efficient use of inputs has led to greater productivity and higher yields. It is therefore not realistic to rely on horticulture and fruit growing to generate enough new employment for absorbing the labour force that theoretically would be displaced from corn production as a result of trade liberalization. A similar pattern can be identified in the production of flowers for the export market. Recent research shows that wage differentials and tariff reductions will not be the main factors explaining expansion of shares in the U.S market. The main result is that without significant improvements in*

productivity as a result of technological change, Mexico's exports will not make significant inroads in the U.S market. The expansion of cultivated area alone will, therefore, not be the critical variable in the development of export-oriented crops… In the case of tomato production in north-west Mexico, recent research shows that greater reliance on chemical inputs (fertilizers and pesticides) and genetically modified seeds has been accompanied by a fall in the cost of labour as a proportion of overall costs. Harvesting time has been cut by more than 60% … Finally, Mexico's comparative advantage cannot be explained simply by labour intensity in the harvesting of horticulture and fruits, as posited by many analysts during the NAFTA debate. Although the cost differential between Mexican and U.S producers is significant, with Mexican harvesting wages up to three times lower than those in the US, this advantage is attenuated if cost differentials in processing, packaging and transportation are factored in" (Nadal, op.cit).

It is important to highlight that the access of Mexico to the U.S. market for these products has been fundamentally through a season-based tariff-quota. Exporting can be conducted with seasonal preferences when, for climatic reasons, there is not production in the U.S., but high tariffs are in place during the production seasons in that country. Nevertheless, producers in California, Texas, and Florida are introducing various forms of technical progress which will enable them to expand their capacity to supply the U.S. market even in winter, which will make competition that much harder and will force the Mexican producers to raise their productivity even further.

Therefore, in the longer term the prospects are look to be even weaker that the enormous structural surplus of the labor force, characteristic of countries like ours, who find jobs under the form of visible or invisible underemployment, in very low productivity jobs which operate as pockets of survival for extensive segments of the population under conditions which are highly vulnerable and precarious, can be absorbed by the dynamic export activities. These activities, in order to be competitive, must grow fundamentally through increases in productivity, and therefore their prospects for job creation, even if we assume very dynamic growth, are insufficient. This does not even address the absorption of the extensive segments of the labor force that will be "liberated" from less productive sectors, but to give employment to the voluminous contingents of the population of age to work who year after year are joining the labor force. The consequent increase in the pockets of poverty, the precariousness of existence, and migratory pressures, with decreasing real salaries in the rural sector, appear as a highly probably scenario.

Finally, it is worth reintroducing the results of our analysis of the productivity asymmetries. The tendencies analyzed previously point toward a growing gap in the asymmetries of productivity and competitiveness between Nicaraguan agriculture – in which investments in the development of agriculture are very low, technological development is nonexistent, the supply of infrastructure is squalid and continually deteriorating, and the situation of human capital is simply lamentable. Meanwhile, U.S. agriculture is developing and producing at the frontier of new agricultural technologies. This means that, in the long term, only limited, isolated segments of Nicaraguan agriculture with a necessarily limited capacity for absorbing the labor force will have some possibility of competing dynamically, and only to the extent that they have resources available to face the growing costs and the increasingly imported technology which this implies.

❖ Some Lessons from the Experience of Mexico with NAFTA in the Agricultural Sector

It is worth remembering a little about the experience of the North American Free Trade Agreement (NAFTA), the agreement which brought together the United States, Canada and Mexico, and which has been in force since 1994. For Mexican agriculture, the most fragile of this regional economic block, the impacts were very adverse.

Corn is the principal food of the population and the first peasant crop. 2.5 million farmers raise it, 92% of these with plots smaller than 5 hectares. It encompasses 8.9 million hectares, equivalent to 57% of the total farmland, and contributes more than 18 million tons, or 61%, of the production of grains.

The Mexican negotiators of NAFTA did not underestimate the potential impact (which were assumed to be transitory) of submitting Mexican farmers to the competition of imported, cheaper merchandise. The Assistant Secretary of Agriculture estimated that the effect of the treaty could push an average of a million farmers and their families off their farms each year. Even so, the most sensitive products were not excluded for Mexico, as they were for Canada (milk and poultry products); high import quotas were accepted without tariff charges for a great variety of products; the possibilities of review, suspension, moratorium or other instruments of protection for the national productive plant were not considered.

The opening was imposed under the promise to domestic producers that during a fifteen year period, significant support would be maintained on the part of the economic authorities. And, in particular during these fifteen years, tariffs would be charged as foreseen in the tariff-quota regime for corn for the imports which would exceed the tariff-free quota. Through this mechanism, there were assurances that the domestic prices would reach the international level only after the fifteen-year time period. Mexico acquired an international commitment in terms of imports and tariffs, but a commitment with the national producers was also taken on.

Nevertheless, although the treaty originally permitted a fifteen-year period of tariff reduction, with a high tariff of 215%, which would be gradually reduced year by year, while the quotas for duty free imports would grow by 3% a year, during five of the seven years of the Treaty – 1995, 1996, 1998, 1999 and 2000 – the Mexican government has allowed imports to surpass these quotas without charging the corresponding tariffs.

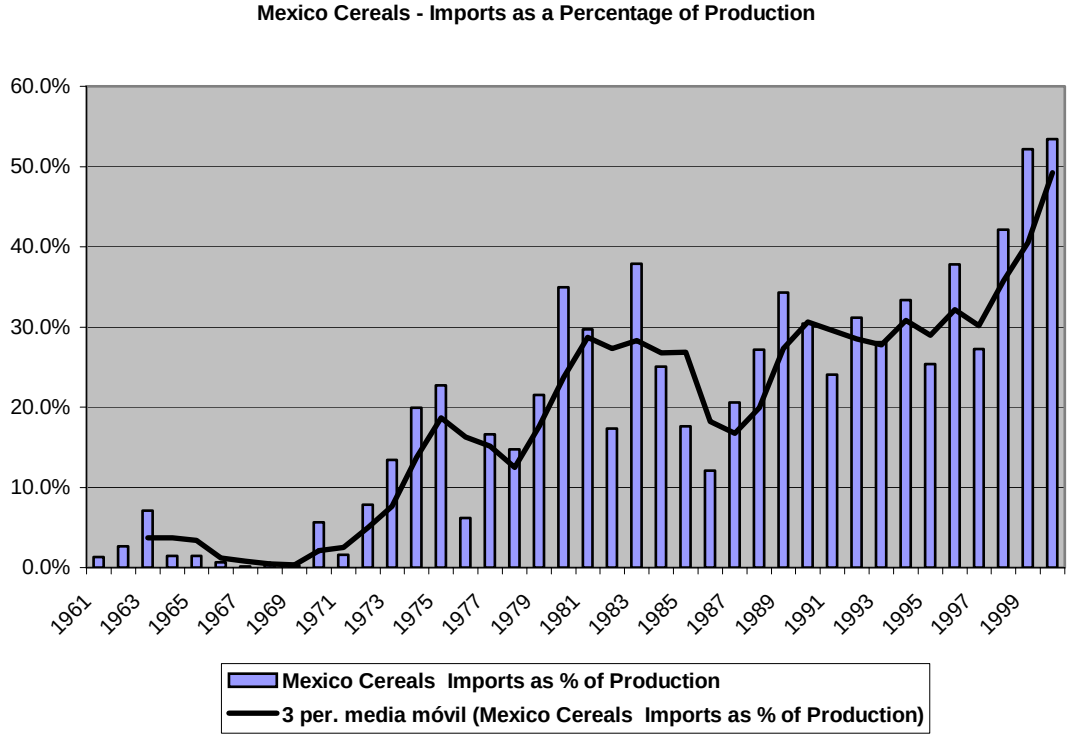
The imports defined for corn totaled 5.8 million tons in 1996, when the quota was 2.65 million and they did not pay the 189% tariff; imports of 1998 reached 5.2 million tons when the quota was 2.8 million, and the 172% tariff not paid then either. Imports for 1999 were 5.4 million tons, higher than the quota of 2.985 million which entered Mexico without paying the 163.4% tariff, and the imports for 2000 were 5.3 million tons when the quota was 3 million and the tariff was 145%.

The predictable result was a major expansion of corn imports. The corn import index from the U.S. rose from 100.0 in 1993 to 904.5 in 1998. The volume of imported corn increased from an average of 1,368 tons in 2001-2002 to more

than 5,000 tons after 1995, at prices lower than domestic prices. In 1990, the annual average for imports to Mexico of the 10 basic crops (corn, beans, wheat, sorghum, rice, oats, etc.) was 8.7 million tons. By the year 2000, it increased to 18.5 million tons.

Between 1993 and 1998, the U.S. shipments of corn to Mexico multiplied until reaching 28% of the corn consumed in the country. Mexico currently imports 95% of the soybeans consumed in the country and its dependency on rice reaches 58.8% and in wheat it is 49%. In addition, it imports 40% of the meat consumed.

Likewise, while the quantity of cereals produced increased by 4.45% in 1994-2000, the amount of imports increased by 67.2%. The quantity of corn produced fell by 3.7% in the same period, while imports increased by 93.2%.



This led to a strong reduction in the prices received by the domestic producers. The real reference prices of corn fell by 45.3% between 1994 and 1999. Even so, it must be noted the accelerated unilateral opening process on the part of Mexico and the liberalization of the grain market had begun even earlier, therefore impacting the deterioration in the real prices paid producers. Between 1982 and 2001, the corn growers (adding to the sale price the equivalent per-ton subsidy from *Procampo*, instituted in 1993 as an instrument to compensate for the deterioration of prices due to the trade liberalization in NAFTA) lost 56.2% of the buying power of their grain (in respect to the *national consumer price index*); the wheat growers lost 46.3%, bean producers 37% and soybean producers 62.4%. However, in terms of profitability, the loss was even greater: deflated with the *farm activity raw materials price index*

(fertilizers, fuel, etc), the prices of grains fell 62.1% in the case of corn, 53.8% in the case of wheat, 45.6% in beans and 67.5% in soybeans.

Further, Mexico has never charged tariffs on imports outside of quotas in the cases of corn and beans, so that in the case of corn, the tax loss during the period of NAFTA is nearly 2.8 billion dollars and in the case of beans 77 million dollars, just from imports from the United States.

This means that the Mexican farmers not only have to compete with highly subsidized U.S. farm products, but they have to do it while the Mexican state doesn't even collect from the importers payment of the tariff due, which is why these products enter without any tariff cost.

The supposed advantages for consumers of having access to cheaper food from the imports are unrealized. From 1994 to 2002, the prices of the basic consumer basket of goods increased 257%, while prices to agricultural producers only rose 185%, which means that the massive imports have had more pressure on the prices of primary agricultural products than on consumer prices.

Mexican consumers lost buying power for purchasing food and have to spend more to buy the same as in 1994 or change to other cheaper food to meet the needs of their families.

It is estimated that, as a result of the increase in corn imports, 32 million days of wages were lost. According to data from the Secretary of Labor and Social Security (National Employment Survey, 2002), the loss of jobs has reached 1.78 million, and out of them nearly 600,000 producers of basic grains. Forty percent of all pork farmers have abandoned that activity; the same has happened with 24% of the potato producers, but also with rice growers, corn growers, etc. It is estimated that an average of some 600 farmers a day leave farming.

Domestic production has stagnated, and in per capita terms it has decreased.

All this has further impoverished the population in the Mexican countryside. Of the 8.5 million Mexicans who work in it, most are in extreme poverty. According to Sedesol, two out of three people who live in the countryside are indigent.

Poverty in the Mexican countryside:

	1992	2002
% of the rural population that is food poor	35.6%	52.4%
% of the rural population that is poor in abilities	41.8%	50.0%

Source: Sedesol, November of 2002

What interests were behind this? This authorization of imports over a negotiated quota appears to respond to interests unconnected to agricultural production. The heart of the matter is found in the credit guaranty programs GSM-102 and SGP 12 which the US government is pushing through the Commodity Credit Corporation (CCC). In both**:** programs the CCC backed loans made by private U.S. banks to foreign buyers of agricultural products. It guarantees importers financing at very low interest rates: between 6 and 8% a year, compared to Mexican interest rates of more than 36%. The

terms of payment of GSM-102 for grains are up to two years and the terms for SGP are 180 days. The importing of grains becomes a financial bargain.

The decisions on importing and eliminating tariffs are made in Mexico by a Committee which, until 1998, only included the government and the principal importers, industrializers and traders of grains, without the representation of the producers. The principal importers of corn into Mexico were among others Anderson Clayton, Bachoco, Continental, Cargill, Elgo, Pilgrims Pride, Purina, Archer Daniels Midland, Dreyfus and business groups of national importance.

At the end of 1998, the government abolished the State enterprise known as CONASUPO which in recent years had bought 3.7 million tons (20% of the production) and asked the large multinational enterprises - Cargill, Continental, Dreyfus, Archer Daniels Midland (ADM), Maseca, Minsa and Arancia- to take over the grain market in Mexico (Ana de Ita, Centro de Estudios para el Cambio en el Campo Mexicano, SECAM, "NAFTA por maíz: la lección de México")

The main corporations which operate in Mexico are involved in a complex integration process. The cartel formed by Cargill, Continental and Monsanto unites giants in respective phases of the food production system. Since 1998, Cargill has gained importance as a buyer of corn in Mexico, with installations in the principal producer states. Last year, it acquired a good part of Continental. Monsanto currently is promoting its technological package which includes non-GMO hybrid corn seed through its subsidiary Cargill.

Maseca brand of Gruma is the largest tortilla producing and corn flour business in the world. Maseca, a Mexican multinational enterprise with plants in the United States, Central and South America, expanded its installed capacity in Mexico by nearly triple during the decade of the 1990s. It controls 70% of the market of corn flour. With the support of the Mexican government Maseca supplied the traditional mills with subsidized corn flour for the production of tortillas. The millers have to buy from Maseca. Its owners are among the richest people in the world, according to Forbes. Now with the withdrawal of CONASUPO it is the most significant buyer of corn from the producers. It develops agricultural plans by contract with the peasant organizations. It provides financing and the technological package needed for corn production in exchange for the commitment to sell it the harvest.

In 1996 Maseca sold 22% of its shares to ADM, through which it now participates in the wheat flour market. ADM bought part of Dreyfus and through subsidiary enterprises, is connected to Novartis, the second largest producer of GMO grain seed and also dominant in the production of agrochemicals. Imports from Maseca to Europe were reduced considerably in 1999 due to the use of GMO corn.

Minsa is the second largest producer of corn flour in Mexico, and controls 25% of the market. It expanded its installed capacity nearly four times during the decade of the nineties. Minsa started as a state mill which was privatized in 1993. Minsa, like Maseca, used to supply subsidized corn flour to the government millers and stores. Minsa is connected to Arancia, the largest Mexican producer of high fructose corn and other sweeteners. Corn Products International joined with Arancia in 1998.

Mexico is one of the five grain markets of greatest interest for the U.S. firms. The principal cartels, Cargill-Continental-Monsanto, ADM-Dreyfus-Novartis-

Maseca by their control of the supply and their installed capacity in different parts of the world have a determining influence in the fixing of international prices, based on real and speculative movements. They participate in the physical and futures markets. The cartel formed by Minsa-Arancia-Corn Products International has a growing importance in the production of corn fructose.

The prices of corn in the national market are defined by the cartel as they control the imports. The domestic prices are, at most, those of the international market placed in Mexico. At the same time, they are almost the only sale options for the producers.

The corn imports which these companies are introducing into Mexico include genetically modified corn, prohibited for planting, since Mexico is a country of origin and of tremendous diversity. Mexico and Central America are the regions of the greatest biological diversity of corn, there are 53 stocks and ten thousand accessions, with endemic presence of its teocintle13 and tripsacum wild relatives. The genetically modified corn places the diversity of the corn stocks and their wild relatives in danger due to the transfer of genes resulting from cross pollenization.

At the same time, the promise that during the 15 year transition period grain producers would be given considerable support so that they could improve their production standards was not fulfilled. In fact, the traditional support mechanisms were reduced and weakened.

The economically irrational nature of this form of liberalization of corn imports is made clear with greater relevance if we take into account that the cost of corn imports in the last five years reached a record of three and a half billion dollars. The prognosis is that this historic level will continue growing to the extent that the opening process foreseen in NAFTA advances forward.

Currently between 10% and 18% of the trade deficit of the country is explained by corn imports (depending on the international prices of corn). The cost of these imports still remains below the level of spending of the programs dedicated to the development of the agricultural sector during the reference period (approximately some five billion dollars). Nevertheless, the resources used to cover the purchasing of corn from outside the country will grow until reaching a stable level of approximately 9-10 million tons annually. At the international prices forecast for the coming years, the annual corn imports may reach a total annual cost of between 1.5 billion to 2.2 billion dollars. At the highest figure of this estimate, it is an amount equivalent to 20-25% of the oil exports of the country. This would be the largest contribution of one product to the trade deficit of the country.

The question is inevitable: would it not have been economically more reasonable to have refrained from carrying out an opening process so lacking in rationality and, instead of assigning this impressive amount of external resources to importing corn, supply the Mexican economy with a support program for farm producers and their families?

Apart from that, the opening the market in a country where the decisions in this regard have to pass through the sieve of the influence of the powerful lobbies of the affected industries and their influence in the Congress, makes it an impossible mission. Although

the United States immediately opened 84% of its trade in goods and Canada 79%, while Mexico only opened 41%. Nevertheless, those products where Mexico is more competitive were excluded, like tuna, shrimp, live plants and roses, table crystal, metal tubes, ceramics and refractory brick, as well as diesel motors. Fifty percent of the U.S. agricultural products exported to Mexico have had a zero tariff since the beginning of NAFTA, and the products which Mexico has more interest in exporting faced important obstacles.

In terms of the **Mexican exportable products** where this country is competitive, the problems were not with tariffs, but with the elimination of non-tariff barriers, and in this little progress was made in NAFTA. In the case of **vegetables and citrus**, a tariff-quota was negotiated by season. There can be exporting with preferences in the seasons when production cannot happen in the U.S., but high tariffs will be applied during the production seasons in that country. In the case of **coffee**, in addition to a market controlled by a few multinationals and the stock market, there was overproduction promoted by the World Bank which supported the production of this crop in Vietnam. In other important crops for export from Mexico, like **beer, tequila and mescal**, foreign capital is the majority shareholder or owner of the principal enterprises which produce them, so that the country operates as an export platform for external capital.

In the case of **sugar**, originally an agreement was reached on the preferential export of sugar to the U.S. for a quota in tons which would increase each year until it was completely liberated in year seven. Nevertheless, in the process in which President Clinton tried to get enough votes in Congress for its ratification, a complementary agreement had to be signed which stipulated that this duty free quota is subject to Mexico overall having a surplus in the production of sugar. But in the heading of sugar there are imports of high fructose entered into the accounts on the part of multinational soft drink manufacturers which operate in the country. When the accounts are fashioned in this way, Mexico ends up not having a sugar surplus, and its possibilities of exporting sugar in a preferential manner are limited.

According to some authors, the most serious thing is that, at the cost of some few advantages in products in which the country is competitive, and from a good negotiation on the products of food processed by multinationals which operate in Mexico, very poor negotiations were conducted on the most sensitive products for Mexican agriculture, which suffer from an insurmountable asymmetry in terms of productivity compared to the same products produced in the U.S. (in addition to the fact that they are massively subsidized in the U.S.), which affect extensive segments of the rural population.

According to this, the Mexican representatives sacrificed the bulk of the agricultural and forestry production in exchange for supposed advantages for vegetable and fruit products, which only absorbs 8.4% of areas planted. Basic grains and oil products, principal crops, since they absorb 71% of farming area, and are worked by more than 3.2 million peasants, became the net losers of the treaty.

The results of this agreement on the trade balance can be better appreciated if, in the pre- and post-treaty comparison of results, neither oil nor maquilas are included, which are outside the scope of the treaty.

Mexico's Trade Balance with the U.S. in 2001 (Millions of Dollars)

Trade	Exports	Imports	Balance
Total	**140,373**	**113,646**	**26,727**
Maquila	75,452	45,605	29,847
Petroleum and derivatives	9,563	3,978	5,585
Without Petroleum and Maquilas	**55,358**	**64,063**	**-8,705**

As can be seen, for 2001 the country shows a commercial surplus of 26.727 billion dollars. If maquilas and oil are excluded then it has a deficit of US$ 8.70 billion.

In terms of the trade balance for Mexico, the red light in all this are the food imports which reached US$11.077 billion in 2001, and US$11.4 billion in 2002. In 2001, the deficit for the agro-food sector was 2.846 billion, which is 29% of the total trade deficit of Mexico, is caused by importing food, a number which contrasts significantly with the importance which this sector has for the economy in generating only 4.2% of GDP. With the preliminary figures of the INEGI, it can be estimated that the deficit of the agro-food sector for 2002 will reach 3.232 billion dollars, nearly 40% of the total balance. The agro-food trade balance with the U.S., strictly in terms of grains and oil products, was US$2.656 billion dollars deficit for 2001 (USDA, 2002).

Trade in cereals and oil products with the U.S. (Millions of Dollars)

Trade	Exports	Imports	Balance
Grains and oil products	7	2,663	-2,656

Source: USDA

Trade in grains and oil products, which are the crops for which Mexican farmers have demanded a renegotiation of the treaty, represent less than 2% of overall trade with the U.S. Nevertheless, the resistance to do so is very strong.

In more general terms, the World Bank evaluates the results of NAFTA in this way:

> *"It can be said that this (rural) sector has been the object of the most drastic structural reforms (trade liberalization promoted by the GATT and NAFTA, the elimination of price controls, the structural reform over land ownership), but the results have been disappointing: stagnation in growth, lack of external competitiveness, increase of poverty in the rural medium…This proposes an important policy problem as, starting in 2008, NAFTA will place the sector in open competition with Canada and the United Status." (World Bank, Memorandum of the President of the International Reconstruction and Development Bank and the International Finance Corporation for the Executive Director, on a Country Assistance Strategy of the World Bank Group for the United Mexican States. Colombia – Mexico – Venezuela Country Management Unit. Report No. 23849-ME, April 23, 2002).*

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