

The Role of the Revolutionary State in the Nicaraguan Food System

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Summary. — The Nicaraguan state carried out a structural transformation of the food system within the context of a mixed economy. It simultaneously combined direct ownership with many forms of market regulation and supported a mass movement of peasant cooperatives. The Nicaraguan food system combined economic decision-making by the state, large and small individual producers, cooperatives and communities. Many difficulties were encountered and mistakes made and although many problems remain, significant production and consumption gains were achieved. After only 4 years of revolution, the Sandinista development model faced the challenge of coping with the costs of external economic and military aggression while maintaining its pragmatic approach.

1. INTRODUCTION

Since the 1979 revolution in Nicaragua, the role of the state has increased in scope and economic importance. The transformation of the food system was central to the new government's agenda for change. How and to what extent did the revolution carry out a structural transformation, in terms of ownership, of relations of production, of the distribution of political power, and of the structure and organization of the state? To what extent was a mixed economy preserved, as claimed? In this process, what was the impact on production and consumption of food?

To address these questions and to analyse the role of the state in Nicaraguan food policy, a systemic approach will be taken which assumes that the food sector is a system encompassing the broad range of productive activities and inputs needed to produce, procure, transform and transport food to the ultimate point of consumption.¹ The systems approach also implies that there is more to the study of agrarian reform than analysing changes in land tenure. Agrarian reforms are often analysed solely in terms of the creation and dynamics of a reform sector, but de Janvry's survey of the Latin American reform experience shows that this is only one, 'and generally a secondary aspect of land reform,

while the impact of the reform on the non-reform sector is another important, often principal aspect of any reform'.² The reform and non-reform sectors play different, but often complementary, political and economic roles. Nicaraguan agrarian policy tried to harness the surplus of the reform and non-reform sectors to a state-directed national development project, without making state *ownership* dominant.³

Nicaragua's food policy can only be fully understood by examining state intervention at all points in the food system. The driving force in

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the food system, and in the agrarian reform broadly defined, was neither the private holdings nor the reform sector *per se*, but coherent state participation throughout the system as a whole.

This paper describes and analyses the structural transformation of the role of the state in the Nicaraguan food system from 1979 to 1983. The second section contrasts the Somocista and Sandinista economic models, and reviews the evolution of macroeconomic policy and agrarian reform. The third section examines the particular state interventions throughout the food system, which reveal the structural transformation and its impact on the mixed economy and food production and consumption.

2. THE TRANSITION TO A REVOLUTIONARY DEVELOPMENT MODEL

(a) *The Somoza years, 1934–79*

The Somoza family dictatorship presided over the transformation of a stagnant, coffee-based economy into a more dynamic, diversified agricultural exporter, more fully integrated into the world market. This transformation was accompanied by incipient import-substitution and agro-industrialization. Government policy strongly encouraged the increased export orientation, from the cotton boom of the 1950s to the expansion of livestock, sugar and tobacco in the 1960s. State economic intervention included infrastructure construction, increased credit for exporters, favourable exchange rates, tariffs and support prices, as well as storage, processing and marketing facilities.⁴ These measures encouraged export production to displace basic grains from the fertile Pacific coast to the agricultural frontier.⁵ When economic forces were insufficient to accomplish this shift, the government used armed force to evict traditional owners, renters and sharecroppers.⁶

The Somocista model left the peasantry with the following options: switch to seasonal wage labour, migrate to uncertain employment in the cities or to less productive lands in the interior, or alternatively run the risks entailed by resistance. Between 1964 and 1973, 240 land invasions were reported.⁷ Somoza's response to the rising social tension was to increase the use of armed force and to resettle peasants displaced from the Pacific coast to the agricultural frontier in the name of agrarian reform. By the 1970s, a US-sponsored rural development programme was under way, but it accomplished too little too late. By 1978, 37.1% of the economically active population in agriculture was totally landless

(only 19.8% had stable wage labour), and another 36.4% were smallholders of up to 7 ha, dependent on seasonal migration for wage labour.⁸

Economic growth failed to meet the nutritional needs of the majority. The poorest 50% of the population consumed in 1971 a daily average of only 1767 calories, 68% of the UN's standard requirement.⁹

During the 1960s, Nicaragua's gross domestic product in agriculture grew at an annual average of 7.8%.¹⁰ By the mid-1970s the trade coefficient (the average ratio of exports and imports of goods and services to GDP) reached 40%.¹¹ The development model, led by newly capital-intensive agro-exports, had resulted in rapid economic growth and increased integration into world markets, but it had also created the conditions for a broad-based class alliance against the regime.

(b) *The Sandinista development model*

Peasant and rural worker resistance to bearing the burden of the Somocista development model was one of the forces underlying the revolutionary process. As a result, a principal goal of the new regime would be to transform the relationship between the rural labour force and the dominant agroindustrial/export system from one of exploitation to one of collaboration in a national development project.

The Somoza regime was overthrown in July 1979 by a broad-based civilian uprising led by the Sandinista National Liberation Front (FSLN).¹² The banking system, now bankrupt, was also nationalized, as was the marketing of agro-exports. The Somoza properties were widely considered to have been 'stolen', so there was a national consensus that their nationalization was legitimate. The state was thus in the unusual position of suddenly taking control of many key economic sectors and 40% of GDP, without necessarily threatening private property as the dominant means of ownership. These nationalized properties formed what was called the Area of People's Property (APP).

Three broad guidelines underlie official development policies in Nicaragua. These include adherence to a mixed economy, international non-alignment and political pluralism. The primary goal of economic policy during the first 4 years was to encourage both state and individual producers to respond to what the government called the 'logic of the majority' rather than to the logic of profit-maximization alone. The theory was that the production and distribution of wage goods could become the leading sector of

a growing Nicaraguan economy in the medium term.¹³ A combination of increased production and consumption of wage goods, primarily foodstuffs, and a massive extension of access to essential human services, such as health care and education, were to satisfy basic human needs.¹⁴ The idea was to 'percolate up' rather than 'trickle down'.¹⁵ Food production and processing was to be greatly increased, not only to achieve national food security, but for eventual export as well. Processing and exporting basic grains would both satisfy domestic needs and earn foreign exchange to import capital goods.

The second major goal of the new regime was to increase national economic autonomy, considered by the Sandinistas as a prerequisite for maintaining international political non-alignment. In 1979 the principal markets for Nicaragua's exports were: US (31.8%), European Economic Community (26.3%), Central America (15.9%), and Japan (5.4%).¹⁶ The inherited structure of the economy ruled out the possibility of abandoning the export orientation in favour of autarky. Instead, the new regime's strategy was to diversify Nicaragua's dependence on trade by attempting to divide it equally between four major regions: North America, Western Europe and Japan, the Socialist Bloc, and the Third World.

The third major goal was the preservation of national unity. The Somocista domination of political and economic decision-making had led much of the private sector to support the revolution, which caused some (but not all) revolutionaries and capitalists to reject strict adherence to ideological dogma.

Since food and agriculture are the central axis of Nicaragua's economy, the development of revolutionary food policy is in many ways key to the unfolding of the 'logic of the majority'. In 1980 an estimated 43% of the population lived and worked in the countryside.¹⁷ Agro-exports accounted for 70% of foreign exchange earnings, and 75% of industry depended on crop or livestock production for either raw materials or markets.¹⁸ An analysis of the Nicaraguan food policy experience is therefore central to an understanding of how policy-makers grappled with the unusual challenge of meeting their commitment to the basic human needs of the majority, while at the same time maintaining an economy largely in private hands.

(c) *Development strategy, 1979–81: Economic reactivation and Phase One of the agrarian reform*

(i) *Macro policy*

The top priority economic goal after the war

was clearly to revive the economy. The relationship between the reactivation of the economy and its eventual structural transformation, however, was not clear. Policy-makers had to balance the demand of national unity against the more specific claims of an increasingly consolidated mass movement.

The two principal mechanisms used to reinforce national unity were foreign exchange and credit policies. The \$1.6 billion debt inherited from Somoza was successfully renegotiated.¹⁹ The government made no major economic moves against private property during this period, although pressure from peasants prevented the reversal of some wartime and immediate post-war land takeovers of non-Somocista land.²⁰ Government investment incentives, such as subsidized credit and guaranteed prices, were insufficient to offset the uncertainty and lack of investor confidence resulting from the limiting of the private sector's political influence. Consequently, most entrepreneurs chose to withhold their capital and operate with government credits. Increasingly, fear of the FSLN's definition of the 'logic of the majority' led some elements of the private sector to challenge the regime openly, and by 1981 decapitalization had become a serious economic problem.²¹ However, by 1981 a World Bank study identified sufficient guarantees to conclude that the government had constructed 'a framework wherein the private sector can satisfactorily operate'.²²

The principal mechanisms used to respond to the demands of the mass movement were to do with employment and social policies. The revival of the economy caused a rapid increase in rural and urban employment as well as a massive increase in access to the social wage via subsidized basic consumer goods and essential social services, especially in education and health care.²³ The creation of employment took priority over increases in real cash wages for those already employed, and open unemployment was reduced from an estimated 33% at the end of 1979 to 15.9% in 1981.²⁴

The government also encouraged the growth of citizen organizations so that membership and activity in trade unions, block associations, women's and youth groups grew rapidly. Since many in the higher ranks in the state apparatus were revolutionaries lacking management and technical skills and the middle ranks were dominated by survivors from the past regime, these grassroots organizations played a central role in the implementation of public policy. They both contributed direct organizational assistance and pressured government agencies to respond to their needs.

To increase rural income and employment and urban consumption and to decrease dependence on foreign supplies required greater food production. Export crops were still essential for earning foreign exchange to pay for oil imports, debt service and the raw materials needed for Nicaragua's highly import-dependent industries. While foreign exchange was perhaps the key constraint on Nicaraguan economic recovery, the limited supplies of hard currency could be allocated according to the government's priorities because it controlled finance and export marketing. Because of a combination of factors, including loans, aid, military security (until the change of US presidents), 1980 and 1981 export prices and the large amounts of arable land, Nicaragua was not immediately forced to choose one sector at the expense of the other. Rather the policy that evolved attempted to increase production of foodcrops and exports.

(ii) *Agrarian reform: Phase One*

The first phase of the agrarian reform process began in the final months of the war in the FSLN-controlled areas, and lasted until the definition of the comprehensive Agrarian Reform Law in July and August of 1981. It consisted of four main components.

1. *The formation of the APP.* With 23% of the arable land and 19% of the value of agricultural production, the APP included many highly productive agroindustrial enterprises. The formation of the APP meant the maintenance of the Somoza properties as production units, but under state control. Ninety-one per cent of them were large estates over 355 ha.²⁵ Subdivision into private plots or total worker control of the large, capital-intensive units was considered too costly, both economically in terms of the likely drop in foreign exchange earnings, and politically in terms of national unity. Moreover, the pre-revolutionary weakness of the union movement left the labour force with little managerial experience. The ATC leadership convinced the mass movement to limit its demands for the sake of national reconstruction.²⁶ Moreover, policy-makers did not want to structure the reform sector so that those previously employed on the expropriated units would be the only beneficiaries.²⁷

2. *Increased access to rental land at rates cut by 85%.* All idle land and land rented within the previous 2 years was available to tenants and landless workers. Sharecropping and labour service requirements were prohibited.²⁸ The rental policy was a form of structural change in terms of

economic relations of producers and productive assets. It helped revitalize basic grain production, bolstered rural employment and encouraged collective production relations without eliminating private ownership. Nonetheless, the rent control did, in effect, 'expropriate' what were deemed to be excess profits from the traditional rental arrangements, and as such it was criticized by landlords. This action created investment disincentives and further eroded the private investment climate.

3. *Rapid extension of the cooperative movement among smallholders and the landless.* A wide variety of cooperative forms arose, ranging from voluntary collectivization of ownership and labour in areas with a long history of FSLN activity to collective work teams on rented land to individual ownership and production combined with cooperative access to credit and services. In the first year credit incentives were the main force behind the formation of more than 2500 cooperatives which were mostly credit and service cooperatives. This rapid expansion exceeded the government's capacity to provide assistance to the new organizations.²⁹

4. *Political.* The ATC was formed in 1978, after years of organizing by the FSLN and religious activists. By 1980 the ATC had 120,000 members, over one third of the rural working class.³⁰ The ATC was the organizing force behind the implementation of the reforms outlined above. The movement of smallholders first grew as part of the ATC, but in late 1980 they began to form their own organization which led to the founding of the National Union of Farmers and Ranchers (UNAG) in April of 1981. The organization of these groups and their participation in the national decision-making process constituted another structural change.

By the end of the second year of the agrarian reform, 60,000 landless workers or over half of all landless households were reported to be direct beneficiaries of the agrarian reform.³¹ Altogether about 60% of the peasants were estimated to be members of cooperatives although the agrarian reform process itself was still largely undefined. A key issue would be the definition of the role of the state within the mixed economy and how it might change.

(d) *Development strategy, 1981–83: Economic austerity and Phase Two of the agrarian reform*

(i) *Macro policy*

The principal development goal during the 1981–83 period was to hold the mixed economy

together while responding to popular demands in the face of a deepening regional economic crisis and increasing external aggression. The 'Year of Literacy' 1980, was to have been followed by the 'Year of Health'. Instead, 1981 was the 'Year of Austerity and Efficiency'.

Policy toward private agriculture combined increased price incentives, in the form of new multiple exchange rates in February 1982, with continued subsidized credit and greater certainty about the 'rules of the game' for private enterprise in Nicaragua.³² The Agrarian Reform Law did not impose any maximum limit on landholdings and made it clear that private property that was actively producing would not be redistributed. The private sector response was mixed, with some entrepreneurs expanding capacity and others decapitalizing.

The 1981–83 period saw the first major attempt to define the new roles of the foodgrain and export sectors. The US cutoff of wheat shipments in March 1981 provoked the decision to make self-sufficiency in basic grains a top national priority. Support prices for grains were substantially increased, and in access to subsidized supplies low-income, primarily urban, consumers were given priority. The self-sufficiency strategy, known as the National Food Program (PAN) combined the goals of rural income redistribution to peasants, consumer food security and national food security with plans for the future export of grains to nearby markets. Self-sufficiency was almost reached in 1981, but the floods and drought of 1982 caused a setback and the state had to further intervene in the distribution process in order to promote equitable access to the available supplies.

(ii) *Agrarian reform, Phase Two*

The second phase of the agrarian reform had three principal components, affecting the APP, the private sector, and the cooperative movement.

(1) *The creation of state-owned enterprises.* The Ministry of Agriculture and Agrarian Reform (MIDINRA) regionalized its administrative structure and created relatively autonomous Agrarian Reform Enterprises. MIDINRA, since it managed the state's key productive enterprises, in many ways set the pace of national economic development. The regionalization/decentralization process spread across the rest of the state apparatus.³³

(2) *The definition of the 'rules of the game' in agriculture.* Under the Agrarian Reform Law, no productive resources can be expropriated

although any abandoned land can be redistributed as can idle or underutilized land on very large estates. 'Idle' is defined as uncultivated for at least 2 years, while land is 'underused' when less than 75% of cropland is sown. Ranchlands are considered underused if there is less than one head of cattle for each 3.5 acres on the Pacific coast, or 5 acres in the highlands.³⁴ One of the main goals of the law is to shift fertile cropland from inefficient cattle-raising to grain production.

If only part of a landholding is idle or underused, then only that part will be taken. While owners of idle or underused land will be compensated with long-term bonds, those who abandon or decapitalize their land will not be. Absentee owners of medium-sized as well as large estates also risk expropriation as this practice was considered particularly exploitative. Size of estate is considered the total amount of land owned by the entire family. Reform law decisions are subject to appeal, and community leaders sit on local tribunals to determine the validity of competing claims. The reform law, in conjunction with continued flows of subsidized credit, was consistent with the commitment to the overall policies of national unity and a mixed economy. However, it did constitute a structural change by eliminating the previous option of private owners to hold property without putting it to productive use.

(3) *The implementation of the Agrarian Reform Law.* For the first 2 years the law was implemented slowly. After 1 year, in 1982, owners of more than 200 manzanas still had 28.6% of the arable land (1 manzana = 0.7 ha). Medium-sized commercial producers (50–200 manzanas) had 30%, peasants with between 10 and 50 manzanas had 12.9%, and those with less than 10 manzanas had 3%. Production cooperatives had been entitled to 1.8%, and the APP to 24%.³⁵

In June and July of 1983 as US naval flotillas manoeuvred alongside both of Nicaragua's coasts, more land was distributed than in the previous 4 years. The combination of economic austerity and counter-revolutionary terrorism had limited the state's ability to extend the social wage further into the countryside. In this context, it was easier to redistribute wealth than income. By the end of 1983, 7% of the arable land was titled to production cooperatives, mostly in the fertile Pacific region. Private owners of more than 200 manzanas still held 22% (down from 55% under Somoza). Medium-sized producers were largely unaffected, while those with between 10 and 50 manzanas held 14%.

Those with less than 10 manzanas increased their share to 4% (largely in the border regions). In effect, the landless were given an equity stake in the defence against counter-revolutionary incursions. The APP share decreased slightly to 23%.³⁶ In implementation of the law, first priority was given to those cooperatives that had succeeded economically, veterans, families of war victims, smallholders with sub-subsistence plots and those willing to organize themselves into cooperatives. Landless farmworkers and state farms took second and third priority respectively. Because state farms operate under the same productivity strictures as private farms, underused state land was also transferred.³⁷

Government projections are that the agrarian reform's transfer of idle and underused land will ultimately give 40% of the land to cooperatives composed of smallholders and former landless, 25% to the state, and 5% to individual smallholders thus leaving 30% in the hands of medium and large individual producers. This law represents a shift from earlier projections, which had stressed the formation of state farms on expropriated lands. The content of the law shows the impact that smallholders, farmworkers and large farmers had on policy formation. The agrarian reform has resulted in structural changes in asset ownership and use. The right of private land ownership has been recognized but under the new condition of productive utilization. In the land redistribution process, the government has generally adhered to the law, although there have been some exceptions.³⁸

3. THE REVOLUTIONARY STATE IN THE FOOD SYSTEM

This section will examine the state's role in each of the following stages of the food system: inputs, production, commercialization, processing, distribution and consumption.

(a) *Production inputs*

Agricultural production inputs include credit, fertilizer, seed, irrigation, pesticides, technical assistance and other services (labour is a key input but it lies outside the scope of this inquiry).³⁹ Before the revolution the private sector controlled the provision of all these inputs with the partial exceptions of credit and technical assistance. Large export producers used most of the advanced technology, and export crops received over 90% of agricultural credit in 1976.⁴⁰ Most domestic foodcrops, as well as substantial

shares of coffee and livestock, were produced without bank credit and under traditional technological conditions.⁴¹ Irrigated rice, a major exception, was the one foodgrain produced primarily by large farmers with advanced technology.⁴²

Access to credit is the key determinant of access to other inputs. As a result, credit policy was the key instrument for shaping patterns of production by crop, region and social class. The government banks under Somoza held approximately half the assets of the financial system.⁴³ Rural credit for small and medium-sized producers reached its pre-1979 maximum in 1978, when they received 13% of agricultural credit, affecting an estimated 16% of rural producers.⁴⁴

The nationalization of the private financial system led to the creation of a state holding company, CORFIN, which oversaw the consolidation of a streamlined financial system designed to allocate credit in accordance with the goals of the Sandinista development model. Agricultural finance was dominated by the National Development Bank (BND). In 1980 there was a massive extension of credit to small producers at subsidized rates. An estimated 76% of credit recipients during this period were cooperative members, and the amount allocated to small and medium producers was more than seven times the 1978 sum.⁴⁵ Taking inflation into account, all real agricultural interest rates were negative, but more cooperative forms of production received particularly favourable rates.⁴⁶

This change in strategy caused tension within the inherited structure. Credit delivery systems, as with the case of the other inputs, were unable to replace completely the traditional sources of informal credit. The initial credit expansion far exceeded the government's capacity to make available other production inputs, and it was extended beyond the reach of the state procurement network. The results of the euphoria of credit over-expansion were diversion of funds, unmarketed surpluses and unpaid loans. The standard of living of credit recipients is widely considered to have improved, but by 1981 the state's need for greater austerity prevented a continuation of the unfocused use of credit as a redistributive instrument. Between 1980 and 1981, the overall area financed was reduced 27.4%. Even after these cuts, however, in 1981/82 small and medium producers farmed 43.5% of the area financed, 36% was large growers, and 20.5% went to the state sector, proportional to the APP's share of agricultural value.⁴⁷

Even after the 1981 contraction, the type of crops financed remained fundamentally changed

in comparison with the pre-revolutionary period. In 1977/78, for example, only 341,000 manzanas were financed, 67% of them with export crops. In 1980/81 the area rose to 770,000 manzanas, the export share fell to 41.2%, and 58.8% of the area was financed to produce for the domestic market. In 1981/82, while the total area fell to 559,000, it was still 63.9% greater than in 1977/78, and 46.5% of the increased area was still dedicated to production for domestic consumption.⁴⁸

The 1980 'spilling of credit in the countryside'⁴⁹ led to repayment problems that were not quickly resolved and the 1982 floods and drought compounded the difficulty. By 1982 and 1983, the organized peasantry, through UNAG, demanded that their debts be cancelled, and the government agreed to waive repayment for over 38,000 basic grain producers, mostly cooperative members.⁵⁰ While poor peasants experienced a major improvement in their standard of living, at least initially, the primary absolute beneficiaries of credit policy were probably the medium-sized peasants. While this category is not strictly defined, one major study of the first year concluded that:

the mere flow of credit to the poor peasants will not mean a redistribution of income nor a greater supply of marketed basic grains in the medium or long run. It is necessary to take a series of measures with the goal of improving the commercialization channels and to restructure the technological package for small basic grain producers, so that the relocation of resources will have positive results for the rural poor.⁵¹

The programme became more effective after PAN, in part because credit was delivered more in the form of inputs than in cash.⁵² The continued emphasis on credit for cooperatives and basic grains, in spite of the national financial crisis, was one of PAN's principal instruments for bolstering national food security by supporting the peasant economy.

By 1983, however, technology transfer was still not carried out on a large scale. Productivity was still a major problem for maize and bean production. The low level of peasant technology and the relatively poor quality of most land devoted to maize and bean production led to traditionally low yields, even by Central American standards. Almost half of the peasant recipients of credit still exclusively used traditional technology, while another 40% only used parts of a semi-technified package.⁵³ According to the PAN strategy, food security would only be achieved in the medium term by shifting the production of basic grains to the now underused but more accessible and better quality irrigated lands.

SUMMARY — INPUTS

The government greatly increased its role as a direct provider of production inputs, although, with the exception of formal financing, it shared this role with the private sector. At first the government faced a number of problems with excessive credit, unreliable deliveries of agrochemicals and equipment services and insufficient technical extension. However, the government soon learned from those experiences and credit activities were subsequently retrenched, organizational structures and administrative procedures were streamlined and resources were directed to smaller and a more manageable number of producer groups.

(b) Production

Today three broad types of productive structure can be found in Nicaragua. The first includes the large, agroindustrial operations in both the state and private sectors which produce sugar, tobacco and irrigated rice. Secondly, the large and medium-sized private entrepreneurs which produce export crops such as cotton, coffee, and livestock which together make up three of Nicaragua's four main exports. Within this group, cotton is dominated by large producers, while medium-sized producers play a larger role in coffee and livestock.⁵⁴ Thirdly, there are the small and medium-sized producers of two of Nicaragua's principal foodgrains maize and beans.

(i) State sector production

The composition of the APP did not reflect the priorities of the Sandinista development model. Rather, it was composed of the sectors of the economy in which the Somocistas had found it most convenient to invest. The expropriated holdings were first thought to encompass almost half of the arable land, but by 1980 it was clear that the confiscated properties accounted for 23% of arable land, although this included some of the most productive and modern vertically-integrated agroindustries. The APP in 1980 contained over 40% of sugar and tobacco lands, 15% of livestock and coffee, 20% of cotton and 30% of irrigated rice. Agroindustrial units included sugar mills, tobacco, cotton and coffee processing, intensive livestock production and slaughtering, food and beverage processing, and animal feed production.

The internal organization of the APP in agriculture was defined and organized before the development of the agrarian reform and food

strategy as a whole. Short-term pressures to reactivate production immediately and to increase employment led to an initial centralization of decision-making in the central MIDINRA office.

Since all MIDINRA agency decisions had to be cleared through provincial and regional levels, the sheer volume of decisions clogged the channels. The centralized structure drew the best-trained people to the capital, thus leaving the operational and provincial levels relatively understaffed. Furthermore, in spite of its centralized structure, the lack of an adequate information system limited control over production.

In November 1980, INRA began a restructuring process aimed at decentralizing its operations. First INRA absorbed the old Ministry of Agriculture (MIDA), to form a single ministry (MIDINRA). Within MIDINRA, decision-making was divided up among five vice-ministries with each devoted to planning, agrarian reform, export crops, livestock or basic grains.

Secondly, the 16 provincial-level offices of INRA were consolidated into seven MIDINRA regions, and many of the skilled personnel of the central offices were reassigned to the regions. The aim was to move authority and responsibility closer to the points of production. Motivated in part by the need for greater technical efficiency and geographical balance, decentralization was also intended to provide greater security in response to external armed attacks from counter-revolutionaries.

Thirdly, state properties were consolidated into 56 production Agrarian Reform Enterprises as a result of new legislation which had created the state-owned enterprises as legal entities.⁵⁵ Ten agricultural service enterprises were also created. Clearly the central ministry retained a great deal of influence, but most operating decisions were made at the enterprise level. Central to the effectiveness of the decentralization/regionalization process was the design of an information system that would enable the central ministry to ensure adherence to the overall strategy, particularly in terms of the allocation of the surplus, while at the same time preserving the efficiencies accruing from enterprise-level decision-making.

A new MIDINRA information system, the Uniform Administrative Control System (SUCA) was designed in 1980. This management information system was an important step toward ensuring more efficient administration and control of the decentralized public enterprise sector. In most developing countries' state sectors, such information systems are weak. By 1983 SUCA was estimated to have affected 75% of enter-

prises, but a number of obstacles inhibited its further implementation. These included the lack of trained accounting personnel, the relative sophistication of the system, and uneven levels of commitment to the implementation process. Although Nicaragua made significant advances, especially given the scarcity of technical personnel, it was clear that until it was fully implemented the central ministry would remain limited in its ability to evaluate and supervise the operations of the decentralized structure.⁵⁶

The use of semi-autonomous state enterprises to structure the organization of the APP had a major impact on the two critical policy areas of labour relations and product diversification. The national financial crisis of 1981 led many Agrarian Reform Enterprises to take the politically difficult decision to lay off many seasonal workers who had been paid as full-time workers since 1979. This mechanism for redistributing the APP product became untenable when the macroeconomic situation required enterprises to become more financially viable units and when the decision was made to focus redistributive efforts on the social wage more than on permanent employment.

The decentralization of decision-making from the central ministry to the enterprise level also permitted greater institutionalization of worker participation in management. By 1983, the Consultative Councils, each with one or two trade union representatives, were functioning in most enterprises. Workers had more input at the level of the production units where Broadened Councils and Production Committees institutionalized mass meetings of workers with management to deal with the organization of production and the labour process. Similar Production Committees were created in some private enterprises. As of December 1982, 66% of Agrarian Reform Enterprises had instituted worker participation throughout the above levels.⁵⁷

The Agrarian Reform Enterprises were used to modify the productive structure in two important respects. First, in accordance with the food self-sufficiency strategy adopted in 1981, some highly productive APP lands were shifted from export production to foodgrains. MIDINRA in 1981 sowed significant amounts of irrigated land with maize for the first time in Nicaragua. By 1983/84 13,400 fertile hectares were irrigated and planted with maize, to rotate with cotton.⁵⁸ PAGRONICA, a joint state venture with the Mexican government, was set up to apply advanced technology to rice production on a scale that was intended to lead to exports to Mexico in the medium term. However, administrative

problems have impeded progress. Second, MIDINRA began significant investments in non-traditional crops. These included soybeans, sesame, African oil palm and coconut oil on the Atlantic coast (to make up the oilseed deficit caused by reduced cotton production), as well as tobacco, rubber, mango, cocoa and other tree crops for which Nicaragua is well suited.

(ii) *Private and cooperative production*

The heterogeneous structure of private and cooperative agriculture meant that there would be a wide range of responses to the incentives and constraints of the new mixed economy. In particular, wealthy urban plantation owners with formal education considered their diminished political influence to be a key component of the 'investment climate'. The small and medium-sized producers, on the other hand, whose interests had not been taken into account during the Somoza regime, organized into UNAG and found that their influence increased with the Sandinista government, leading to a different perception of the 'investment climate'.

Cotton producers, for example, were a highly organized group of wealthy, technically skilled entrepreneurs, many of whom came to identify with the political opposition in either its legal or armed wings. They resented government control over their access to foreign exchange, pricing policy, and the increased bargaining power of wage-earners. Nevertheless, the decline in cotton production was not due to political factors alone for the international price had dropped substantially since the mid-1970s and the 1982 floods had hit cotton lands and ginned stocks hard.⁵⁹ Moreover, when the international price increased again, the cotton area planted in 1983 was 30% higher than the average for the previous 3 years.⁶⁰

Despite their loss of political influence, the cotton producers retained considerable economic bargaining power and were given the most favourable exchange rate under the 1982 system. In contrast, sugar, irrigated rice, bean, poultry and pork producers collaborated closely with the government. Coffee producers had an intermediate experience, reflecting their diversity of size and orientation.⁶¹ In the first 9 months of 1981, for example, the private sector as a whole received 76% of the foreign exchange allocated for productive activity and 70% of the state credit.⁶² In many respects the APP acted as an ally of private export growers for the creation of state enterprises created a common interest in higher prices for their output and in generous estimates of production costs. The agricultural private sector and the government did not,

therefore, have a clear-cut competitive relationship.

Before the revolution, small and medium producers were dominated by large producers in proprietor associations. The UNAG was formed in 1981 by the peasant movement with FSLN support, as the particular interests of peasant producers were not fully represented by either the ATC or the large producer associations. By 1982 UNAG had enrolled 75,000 members or approx. 60% of small and medium producers into 1756 community-based groups in response to what is called 'an organizational vacuum present in a broad sector of the country's rural population'.⁶³ UNAG organized in support of the goal of national food self-sufficiency and complemented the shift in land use within the APP. This goal was furthered by the concurrent increase in 1982 and 1983 in the distribution of lands to UNAG cooperative members who mostly grew grain. The formation of UNAG isolated large producers as an economic and political group, while it increased the power of small and medium producers. This power was manifested by UNAG's successful demands for debt cancellation and higher crop prices.

The cooperative movement was characterized by important variations in the breadth and degree of cooperativization between 1979 and 1983. Cooperative membership increased from 1% in 1979 to about 60% in 1980, but MIDINRA'S emphasis on consolidating the APP and maintaining the national unity limited government emphasis on cooperatives in the next 2 years. The minority of cooperatives that were production collectives did not expand in number or even decreased while the greater heterogeneity of class membership within the credit and service cooperatives limited their interest in transforming themselves into production collectives.⁶⁴ Furthermore, the average size of the cooperatives was kept small, which helped to maintain internally democratic decision-making processes. By 1983 the cooperative movement still included over 50% of peasant producers or a total of more than 60,000 who were organized into over 3000 different associative groups. Of these, 554 coops were chosen by MIDINRA and UNAG and organized into 35 Cooperative Zones which were to receive special emphasis so that the consolidation of successful coops would set an example for the future of the movement.⁶⁵

Some within MIDINRA disagreed with the initial emphasis on the APP at the expense of greater attention to cooperatives. In 1982 and 1983, the organized peasantry won more favourable policies toward cooperatives. As an apparent continuation of this 'non-statist' trend,

MIDINRA was restructured again in November 1983, in order to attend better to the needs of cooperative and private producers.

(iii) *Production performance*

Table 1 presents the production results for pre-(1977-79) and post-(1979-84) revolution years. By 1981/82 basic grain production had reached pre-war levels, but the natural disasters of 1982 set back the growth trend but the 1983-84 harvest recovered strongly. Export production outputs responded more unevenly. Area harvested reached a postwar high in 1983/84, at 4% more than the 1970-77 average; cotton, bananas, sesame and tobacco exports increased, but bad weather hurt coffee and sugar. The balance between area sown for domestic consumption and export shifted from an average of 46% for exports between 1970-77 to 51% in 1977-78 and then down to 41% in 1983-84. After an initially uneven record, APP and small and medium producer vitality increased crop production by 15% in 1982-83, although livestock production grew only 1%.⁶⁶

Cattle herds were reduced by an estimated 25-35% due to pre- and post-war decapitalization as well as to war-time consumption. National beef production in 1983 was only 81% of 1977 levels.

The most important export products which experienced only partial recovery were cotton and beef. Cotton was Nicaragua's main export earner in the 1960s and 1970s, but the combination of the price drop and political hesitancy reduced the area cultivated. In addition, for ecological reasons and as part of the self-sufficiency strategy, government policy encouraged lands considered marginally suited for cotton to be planted with food crops. Nevertheless, the production decrease was less than the acreage decrease because yields were about one-third higher in 1983/84 than in 1977/78.⁶⁷

Output of other exports generally surpassed pre-war highs. Coffee, Nicaragua's principal export since 1979, suffered little damage during the war. Coffee production in 1982/83 was 25% higher than in 1977-78, a record high, and yields were 7% greater. However, adverse weather in 1983-84 caused a 32% drop in output.⁶⁸

Sugar, dominated by one private producer and the state, also produced record volumes in 1982/83, harvesting 24% more than in 1977/78. Its area increased 18.5%, and its yields rose 4.6%, thus providing a key example of state-private sector collaboration. The 1983/84 crop, however, dropped by 9%.⁶⁹

Most foods for domestic consumption had far surpassed previous trends by 1981/82. Maize

production did the least well, although the 1981/82 harvest was the third largest ever, constituting 5.2% over the 1973-78 average. After the floods it fell to 87% of the pre-war trend. However, the 1983/84 crop recovered to 27% above the average. Bean production increased every year and by 1984 was 41% over the 1973-78 average.⁷⁰ Rice production rose to record levels, 73% over the 1973-78 average, in 1981/82. Production of sorghum, an important input for livestock feed, reached the second highest level ever in 1981/82, 52% above the 1973-78 average, but fell substantially in 1982/83 thereby creating serious feed shortages, constraining poultry production, and necessitating imports of yellow corn. However, the 1983/84 crop recovered fully.⁷¹

In contrast to the experience of export beef, livestock production for domestic consumption increased dramatically. Pork production increased 85% over 1977 levels by 1983. Similarly, poultry also far surpassed pre-war levels with 1983 being 84% more than 1977. Egg production was a major priority, more than tripling the pre-war levels. Domestic beef production was still 19% below 1977 levels, and the production of milk also posed a serious problem. Raw milk production in 1982 was only 30% of 1977 levels, but imports increased 1982 pasteurized production to 30% more than 1977 levels.⁷²

SUMMARY — PRODUCTION

In short, Nicaragua successfully reactivated output of most food and fibre products in the first years of the revolution and made substantial progress toward food self-sufficiency while continuing to recover and expand its exports. The government's absorption of the Somoza properties had made it an important producer and thereby created a fundamental structural change in asset ownership. The state producing units encountered serious problems in efficiency due to overcentralization and lack of adequately trained personnel. Decentralization and regionalization of the ministry and the creation of state-owned enterprises increased operational autonomy, agility and efficiency of the producing units. Training of personnel by the Ministry's own training unit as well as by a private management school increased capacity. The mounting of a statistical and management control system is a step toward improved decision-making, but it was only partially operative as of late 1984. Productivity and efficiency of the enterprises compare favourably with many of the private producers, but there is much room for

Table 1. *Nicaragua's agricultural and livestock production*

	1977-78	1978-79	1979-80*	1980-81	1981-82	1982-83	1983-84
<i>Export crops</i>							
Cotton (cwt unginned)	9154	8152	1345	4879	4081	5070	5688
Coffee (cwt milled)	1251	1263	1228	1285	1328	1568	1070
Sugar (short tons)	2734	2980	2364	2672	3116	3061	2800
Sesame (cwt)	119	144	108	192	148	111	250
Bananas (boxes)	6087	6075	6523	6501	6309	4479	6895
Tobacco (cwt leaf)	26	29	26	29	25	22	30
<i>Internal consumption</i>							
Maize (cwt shelled)	3942	6112	3168	3995	4200	4004	5085
Rice (cwt milled)	1050	1194	1387	1400	2026	2146	2122
Sorghum (cwt)	930	1356	1330	1940	2097	1151	2105
Beans (cwt)	895	1868	635	625	905	1030	1390
<i>Livestock</i>							
Beef (lb)	107,763	133,359	119,389	88,935	69,052	85,475	87,630
Pork (lb)	7428	6118	8228	10,735	12,473	14,615	13,784
Poultry (lb)	12,840	12,262	6491	14,467	16,097	22,329	23,658
Milk (l)	21,160	20,626	12,017	9953	18,856	18,678	9626
Eggs (doz.)	4020	5617	3965	11,718	15,435	18,073	18,688

Source: CIERA based on INEC and MIDINRA. Statistics, 1984.

*Year of maximum armed conflict with consequent production disruption.

administrative and technical improvement.

The private producer segment has undergone structural changes in that the small and medium producers have become more organized and achieved greater power at the expense of the larger producers whose power position has generally been eroded, this has constituted a major source of tension. The private producers are quite heterogeneous and their relations with the government range from extreme opposition to strong support. Private investment has generally been greatly reduced due to lack of capital and investor confidence.

Regarding output for export, significant gains in yield and production have occurred in coffee and sugar. Cotton yields are up, but the area sown is greatly reduced causing shortages in exports and domestic vegetable oil supplies from the cotton seed. Depressed world prices, labour shortages and an exodus of large private producers caused the drop. Higher prices and government credit are attracting producers and acreage back to cotton. Beef and milk production are down reflecting herd losses during the war and defective government price policies. Large gains were made in rice, beans and sorghum. Self-sufficiency has been largely achieved in rice and beans, but sorghum has not always been able to keep up with the huge needs of the dramatic increases in poultry production, thus giving rise to feed corn imports. Low productivity and output of maize remains a serious problem. Imports of maize, milk, and cooking oil continue to be necessary. Changes in government pricing policies and large-scale plantings of maize by state enterprises may reduce these deficits, as suggested by the 25% increase in the 1983-84 crop.

(c) Commercialization of foodgrains

In the traditional systems of basic grain crop procurement, a series of intermediaries controlled credit, transportation and storage facilities and thereby captured an estimated 80% of the price paid by the consumer.⁷³ Somoza's state food trading agency, INCEI, rarely purchased noticeable shares of national production and it operated an ineffective infrastructure.

Since the 1950s, Nicaragua increasingly had to import basic grains. But since INCEI was not subsidizing consumption, only effective demand (the ability to pay) created national food deficits. There was no clear relation between poor harvests and increased state imports, but INCEI did occasionally import up to 20% of national maize consumption and up to 10% of national bean consumption.⁷⁴

Immediately after the overthrow of Somoza, INCEI was replaced by the National Foodstuffs Enterprise, ENABAS, whose goal was to assure stable supplies of basic foods at accessible prices. ENABAS controlled Nicaragua's international trade in basic grains. Imports increased sharply after July 1979 so that consumption could rise faster than production, but then declined as production increased. Of national maize consumption, for example, 27% was imported in 1980, 13% in 1981, and 21% in 1982 (because of the floods). The import share of bean consumption dropped from 33% in 1980 to 24% in 1981 and 4% in 1982. Rice imports fell from 67% of 1980 consumption to 28% in 1981 and to 0 in 1982.⁷⁵ Because consumer grain prices in neighbouring Costa Rica and Honduras were much higher than in Nicaragua, exports were also controlled.⁷⁶

ENABAS experienced difficulties with domestic grain procurement during its first two years, because of a combination of inherited and policy problems. First, access to the principal grain-producing areas is extremely difficult. Some roads are passable only during the dry season, and transportation is poor during the producing months. There is also a severe shortage of drying and storage facilities in the producing areas. The Somoza-era network was technically ineffective and geographically distributed according to political favouritism. Between 25 and 30% of the maize and bean crops were estimated lost each year because of storage and transportation problems, and the National Food Program's major efforts to deal with this included a campaign to construct locally several thousand peasant grain bins. By 1981, ENABAS had a network of 1158 rural reception centres.⁷⁷ By 1982, ENABAS storage capacity was 16% higher than in 1980, not counting the peasant storage bins, which added about half as much again. Nevertheless, post-harvest crop losses continued to be a major problem, with an estimated 30% of the losses located within ENABAS's network, due to inadequate drying and storage facilities.⁷⁸ The Storage Improvement Project (MASA), however, funded by France and Spain, was due to increase capacity 40% by 1985.⁷⁹

ENABAS's intervention in national grain procurement was largely ineffective at first. ENABAS intended to purchase 40% of the 1980 maize and bean crops, but reached only 12% of maize, and 24% of beans.⁸⁰ Whereas private traders paid cash and sold consumer goods, ENABAS offered cheques; other difficulties included staff and transportation shortages and insufficient producer prices.⁸¹ In 1980 ENABAS tried to centralize grain procurement without

first having a transportation and storage network adequate to the task, which led to friction with private traders and producers. Because of the use of political pressure to sell to ENABAS in the absence of sufficient economic incentives, the private procurement network was sharply disrupted and reduced non-state urban grain supplies.⁸² However substantial grain imports covered the marketed shortfall, thus limiting the attempts at speculation.

Complementing the decision to make food self-sufficiency a national priority and raise producer prices, ENABAS began to change its operational approach. With the help of PAN, ENABAS created a network of over 250 intermediate collection centres to be run by 'honest' private merchants selected by UNAG, who were to purchase grain and to distribute consumer goods in remote areas.⁸³ As Collins put it, 'the idea is to work *with* the market, not against it, and thus avoid the creation of a large, inexperienced government bureaucracy, however well-intentioned'.⁸⁴ Continuing this trend of recognizing the limits to state intervention, in mid-1983 ENABAS further modified its approach by making arrangements with small-scale local intermediaries instead of competing with them. Their resources of labour, transportation and contacts, combined with an increased purchase price, reportedly increased ENABAS's share of national maize procurement.

Producer price policy changed significantly over the first four years. During the 1979/80 crop year, the state still sold grain for more than it paid producers, although at much lower margins than before. Between July 1980 and early 1981, however, maize prices offered by ENABAS were raised 33%, rice 8%, and beans 82%.⁸⁵ As a central part of PAN, prices were raised again in 1981 by 25% for maize and 40% for rice. They were reduced 20% for beans. These price changes were followed by somewhat proportional production responses thus supporting the position in policy debates that price incentives were effective.⁸⁶ For the 1982/83 crop year, the price offered for maize, the least responsive of the three, was raised another 30%, and beans another 9.4%. This trend continued in the 1983/84 season as maize prices were raised another 38.5% indicating improved terms of trade for peasant grain producers, thus providing increases in real terms.⁸⁷

In 1980 ENABAS bought 15% of the national maize crop, 19% of the rice, 23% of the beans and 67% of the sorghum. By 1983 the figures were: maize, 23%, rice 81%; beans 60%; sorghum, 93%.⁸⁸ Substantial problems remained in the case of beans, since private buyers could take

advantage of variation in quality by paying more for better beans, leaving ENABAS with the leftovers. As a result, a parallel market developed for Nicaragua's staple, red beans, with even low-income consumers paying up to twice the state price for non-ENABAS beans.⁸⁹

Maize and bean production and commercialization were also constrained by other concurrent food policies. Firstly, since consumer prices were much lower than producer prices, both state and private farms stopped growing grain for their own workers and bought from ENABAS instead. Secondly, prices for alternate crops were often better. Thirdly, the end to sharecropping and lower rents ended one important source of forced grain marketing leading to increased peasant family consumption.

Increasing producer prices and decreasing real consumer prices together created a growing gap subsidized by the central government. The 1982/83 subsidy for maize, beans and rice alone amounted to 3% of the national budget.⁹⁰ The subsidy for all basic grains, sugar and milk represented almost 6% of the 1982 national budget.⁹¹ In the policy debates over how to keep the gap between producer and consumer prices under control, there was a consensus that producer prices needed to be maintained, both as a production incentive and to support peasant income. The question was how to reduce the consumption subsidy, which was largely urban, without hurting low-income sectors.⁹²

It should be noted that speculation and hoarding were not entirely the product of market forces, since one of the expressed goals of external aggression was the disruption of the economy. When military aggression became more pronounced in 1983, foodgrain procurement was directly affected in some of the major production areas which are located near the northern border with Honduras. The border war displaced thousands of peasant grain producers and the restraints on freedom of movement also disrupted traditional marketing.

The increase in state crop purchasing dealt a major blow to traditional marketing mechanisms, but did not attempt to replace them. By 1983, when the economy began to shift to a war footing, ENABAS's share of the grain market had grown to 62%.⁹³ The mix of state and private marketing had not yet stabilized by 1983. As Section 3(e) suggests there were still significant disruptions in grain supply.

SUMMARY — COMMERCIALIZATION

The state assumed a much more active role in

purchasing and storing the farm output. Its initial efforts were largely ineffectual due to inherited infrastructure deficiencies and administrative weaknesses. The bureaucratic nature of the organization was not compatible with the demands of assembling grain produced by a multitude of small and geographically dispersed farmers. However, the government has subsequently decentralized its organization and has begun to use experienced private sector buying agents. Improvements in storage facilities are also promising, although storage losses continue to be a significant problem.

(d) *Food processing*

The consolidation and expansion of the agro-industrial sector was a key part of the food self-sufficiency and export strategy launched in 1981. One of the main problems in the food industry, which accounted for 45% of the value of manufacturing output, was its dependence on imported technology and inputs.⁹⁴ The foreign exchange constraint also limited both capacity utilization and intended capital investment in agroindustry.

Nicaragua processed most foods it produced to some degree, but it exports them as only partially processed goods with the higher value-added stage of transformation into retail consumer goods taking place in the developed countries. The nation hoped eventually to become able to export its products in retail units, but this contradicts the US government policy to allocate import quotas only for semi-processed raw materials thus reserving the higher stage processing for firms in the US.

State participation in food processing varied widely according to product. Among the exports, sugar was exported raw until 1982 when over 15% was sold refined. State mills processed 48% or that mostly used for national consumption which accounts for approximately 40% of the total harvest. Coffee processing was shared by state enterprises, joint ventures, and private firms, with MIDINRA handling from 40–60% of the harvest (about 10% of the coffee is consumed domestically). All of Nicaragua's cooking oil was produced from cottonseed, so the supply varied with the export harvest. The largest factory was nationalized. Almost all the export beef slaughterhouses had been Somocista-owned so they had been nationalized. Poultry and egg production was 75% private until 1983, when state investment increased APP share to 34%. Since state and private firms could compete for shares of a rapidly-growing pie, they achieved a high level of

cooperation. One manager of the major private poultry processor stated that it had 'very good relations with ENARA' (the state-owned poultry enterprise).⁹⁵ By 1982, all milk pasteurizing was in state hands. Among foodgrains, maize and beans were not highly industrialized, and most were processed in small private mills. Imported wheat was also processed largely in privately-owned enterprises. Rice milling was dominated by the private sector, with about 30% of capacity in the APP. Overall, in 1982, 28% of agro-industry was in the APP, 63.9% in large private firms, and 8.1% in small and medium-sized enterprises.⁹⁶

Restructuring of the food processing industry also began. Agroindustry and energy (geothermal) were the only significant areas of industrial capital investment during the first 4 years. The priorities for food industry expansion were sugar and vegetable processing. Construction of a \$250 million sugar complex began in 1981; after 5 years 90% of the crop is to be mechanized. Refined sugar production was to be increased 50%, exports by 100%. Cuba contributed \$50 million in financing and technical assistance.⁹⁷ The strategy in the dairy and oilseed industries was to increase utilization rather than capacity, and to stimulate the domestic production of raw materials. Small industrial enterprises were promoted in the areas of maize, vegetable, flour and milk processing by means of credit, state supply of raw materials, and organizational assistance. The internal market for these products was stimulated by consumer education campaigns, especially to encourage a shift from wheat to maize products after the cutoff of US supplies in 1981.

The food processing industry has generally succeeded in supplying a growing internal market for basic products. By 1981, cooking oil, pasteurized milk, flour, sugar, coffee, and fish processing for domestic consumption had all exceeded 1977 levels and all but cooking oil continued to grow in 1982.⁹⁸ This recovery was largely due to this sector's priority treatment in the allocation of foreign exchange for importing raw materials and other inputs. During the first nine months of 1981, for example, of the 75 national enterprises that received most of the foreign exchange, 17 were food processors. Ten of them were privately-owned, including the San Antonio sugar mill which was the second-largest recipient.⁹⁹

Despite production gains, imports of key raw materials for processing continued to be significant, although they dropped somewhat in 1982. Total food imports and donations which were 8.3% of total value of imports in 1978, rose to

15.6% in 1981, and fell to 10.8% in 1982. Share of basic foods within total food imports rose from 37% in 1978, to 76% in 1981 and 55.5% in 1982. By 1982 the principal raw materials still imported for processing of basic foods were maize (21%), cooking oil (47.3%), milk (46.2%), wheat (100%), and certain vegetables. Although the US was the principal source of wheat until the March 1981 cut-off, supplies were made up by a broad range of countries (German Democratic Republic, 41%; Canada, 19.4%; USSR, 15.7%; Argentina, 11.8%; Sweden, 7.8%; EEC, 2.4%; and France, 1.9%). The international response to the US cut-off was such that Nicaragua received 78% more wheat than it consumed in 1981, reducing the need for 1982 imports to only 42% of consumption.¹⁰⁰

SUMMARY — PROCESSING

The state increased its role in processing primarily through the acquisition of Somoza properties. Output has grown except where raw material shortages were severe (e.g., cooking oil). Inefficiencies due to foreign exchange scarcities and administrative weaknesses were common. New investment has also been channelled into this sector for export and domestic markets. The huge investments in new sugar mills may cause subsequent economic burdens rather than benefits given the depressed demand and oversupply in the international markets. Accelerated growth in other areas, for example in poultry, have created imbalances that need redressing. Constructive steps in this direction are being taken.

(e) Domestic food distribution

With an estimated one-fourth of the nation's population, Managua is at the centre of the Nicaraguan food distribution system. After the devastation of the 1972 earthquake, the capital's population, spurred by high rates of rural-urban migration, grew at a rapid rate throughout the 1970s.¹⁰¹

The key state actor in the domestic food distribution system is the Ministry of Internal Trade, MICOIN, which administers ENABAS. Because of its large food imports, ENABAS played a more important role in distribution than in domestic procurement. ENABAS sold 21.8% of national maize consumption in 1980, a figure which rose to 33.8% in 1982. The state sold 77.2% of rice in 1980 and 84.1% in 1982. ENABAS beans accounted for 31.4% of 1980

consumption and for 43.5% in 1982. In response to distribution problems, the government began distributing sugar and cooking oil which in 1981 accounted for 14 and 8% of consumption respectively and rose to 16.8 and 10.3% in 1982.¹⁰² The share of sales in Managua was somewhat larger than its share of population, but not overwhelmingly.¹⁰³

The traditional food distribution channels included the *Mercado Oriental* in Managua, small neighbourhood food shops, door-to-door vendors, a small number of medium-sized food retailers and large supermarkets. State wholesalers also sold to private retailers and in 1981 35% of ENABAS' Managua sales were to non-state vendors.¹⁰⁴

The Mercado Oriental began to dominate national food trade after the Managua earthquake levelled its competitors. It mixed wholesale and retail outlets and was at the centre of complex traditional transportation and social-commercial networks. The market was populated by over 10,000 vendors, mostly low-income women.¹⁰⁵ The state set up an alternative central wholesale market, separating wholesale from retail trade to facilitate price, marketing and health controls. This effort, as has been true with similar undertakings in other countries, had limited success, and the government approached the planned transition gradually. During periods of scarcity in state channels, most products were still available at the Mercado Oriental, although at speculative prices. Traditional social and commercial ties played a role, as did the market's relative competitiveness in terms of product quality. Higher-quality beans, for example, were a major attraction in spite of their cost. The disruption inherent in a shift to a partially state-dominated system created many economic incentives for the Mercado Oriental's continued influence. It was also, however, very hospitable to politically motivated speculation and hoarding.¹⁰⁶

The second important private distribution channel was the thousands of small neighbourhood shops, known as *pulperias*. Although their prices tended to be higher than those of state channels, they continued to play an important role. These shops were highly accessible, open from 06.00 to 22.00, saving transportation costs and providing access to refrigerated products for the poor. In addition, they were tightly socially integrated into the community, and were typically willing to sell on credit and in very small amounts, which were crucial factors in access for those without steady income. Some *pulperias* were supplied by private distributors, others by ENABAS. The latter were organized into Asso-

ciations of *Pulperos*, which included 605 members in 25 neighbourhoods in Managua in 1983, and accounted for 8.3% of ENABAS's basic grain sales in the capital in 1981.¹⁰⁷

The new state channels included the MICOIN retail outlets throughout the country and municipal management of private wholesale and retail markets in the cities. The new retail markets accounted for 4.8% of ENABAS's Managua sales in 1981, and those located farthest from the Mercado Oriental were the most successful.¹⁰⁸

The state distributes food at the retail level through various channels: People's Stores, People's Outlets, Mobile Stores, Workplace Commissaries, People's Supermarkets, Rural Outlets in grain reception centres, and Rural Supply Centers.

(1) By December 1983, the People's Stores numbered 105, with one-third in the countryside and only 16 in Managua.¹⁰⁹ These small markets were operated by MICOIN to regulate the prices of basic foodstuffs in their areas by providing access at official prices. They were located in low-income areas of over 10,000 inhabitants where there were no supermarkets. While they had some success at limiting speculation, their influence was constrained by their limited hours, partial social integration into their communities, and the limited range of products sold. In 1981 they accounted for 3.4% of ENABAS grain sales in Managua, but they served an estimated 35% of the non-Managua population.¹¹⁰ Attempts to deal with their limitations began in 1983, with a programme to open 30 more People's Stores managed on concession by more flexible operators, including municipal governments and private merchants approved by local mass organizations.¹¹¹

(2) People's Outlets were the most important state channel in terms of volume of basic grains, accounting for 39.1% of ENABAS' Managua grain sales in 1981.¹¹² They offered both the convenience of a *pulperia* and equitable access at guaranteed prices for basic commodities. This was the channel most often visited by low-income residents of the capital for rice and maize, and their second-most important source of beans, after the Mercado Oriental. The establishment of a People's Outlet was initiated by a request from community organizations, which designated a *pulpero* known to be honest. By December 1982 there were 1726 People's Outlets nationally,¹¹³ of which 171 were in the capital. By December 1983 the national number had risen to 3747.¹¹⁴ The network of People's Outlets represented a form of state regulation of the market adapted to the conditions of each particular community. Moreover, along with the *Association of*

Pulperos, it reinforced a political alliance between small entrepreneurs and other low-income groups in the same communities.

(3) ENABAS Mobile Stores were trucks serving neighbourhoods that lacked vendors able to make the capital investment necessary to create a People's Outlet. Since ENABAS had only three such trucks in 1983, their main role was to add to community bargaining power *vis-à-vis* private speculators.

(4) ENABAS also distributed basic commodities through Workplace Commissaries. There were 520 in 1983, almost all in Managua, providing rice, beans, maize, cooking oil, salt and soap. Organized by the trade union, they constituted an important part of the social wage which most permanent workers received in lieu of real wage increases. Since only an estimated 43% of the economically active population of Managua were permanent wage labourers, however,¹¹⁵ this channel had a limited capacity to reach the majority of the urban poor. As a result, ENABAS' main focus was on the community-based distribution channels, with the support of the neighbourhood Sandinista Defense Committees (CDSs), which played a central role in the implementation of distribution policy. On the one hand their pressure forced ENABAS to improve supplies within the state channels; on the other, they recruited more than 11,000 People's Inspectors to enforce the price controls on essential commodities.¹¹⁶

(5) Managua has a network of seven supermarkets, which in the past served only those who could afford a diet of imported and processed foods. Three became completely state-owned and four were 75% state-owned but privately-managed. They distributed 9.3% of ENABAS's basic grain sales in Managua in 1981, and each was visited by between 50,000 and 100,000 people each month.¹¹⁷

(6) There were two kinds of state food distribution channels in the countryside. The Rural Outlets in ENABAS's Intermediate Reception Centers numbered 45 by December 1982, while there were 260 Rural Supply Centers, many located near major production units.¹¹⁸ Transportation problems and the relatively low population density made rural food distribution by the state very difficult. The problem was part of the broader one of delivering state services to remote areas and was complicated by the attacks from counter-revolutionaries. Given the limits of the state, in 1983 many UNAG and ATC chapters became ENABAS grain distribution channels for cooperatives and farmworkers.

Finally, the government also carried out direct nutrition intervention programmes to provide

food to young children and to pregnant and nursing mothers in low-income families. Administered by the Ministries of Health and Education in conjunction with the neighbourhood CDSs, these programmes reached an estimated 60,000 people.¹¹⁹

Government food distribution policy changed significantly over the first 4 years. In 1980 wholesale and retail price ceilings covering 23 basic commodities were imposed for the first time while prices of 50 other items were monitored to detect speculation and hoarding. Evasion of official price controls was very common in the private sector, including such tactics as selling goods at the official price, but only if accompanied by the purchase of an expensive uncontrolled item. Typically the only penalty imposed was a fine, until the speculation that followed the May 1982 floods provoked such popular outrage that the government began to jail major speculators. However, the latest policy is just to buy the foods from the accused speculator at the official price, thereby forcing the speculator to absorb a loss.

In September 1981, a National Economic Emergency was declared, and it was made a crime to hoard, speculate, or disseminate false information to provoke hoarding. The government also took the major step of controlling all domestic sugar trade. Sugar shortages began in 1981, when the government underestimated the expansion of the internal market (due to income redistribution) and too much was exported. Soft drink sales alone had tripled between 1978 and 1980, and active rumours compounded the problem. In early 1982, ENABAS introduced a rationing system of 'Guarantee Cards', which stabilized the price by giving each family access to five pounds per month. A massive educational campaign was mounted to lower the political cost of rationing, and a black market was tolerated for those who had to have more. The CDSs, in conjunction with MICOIN, organized the system and issued the cards.¹²⁰

The experience of popular participation in sugar distribution laid the foundation, politically and organizationally, for the creation in 1983 of the People's Supply Committees (CAPs), made up of local representatives of the CDSs, ENABAS, and MICOIN. The ration cards were also used for rice in January 1983, one year after sugar, and for cooking oil and laundry soap in April 1983. The CAPs diagnosed the problems in distribution at the community level, and worked out ways to assure equal access to sufficient supplies. As is common in cases where rationing systems are locally controlled there were instances of favouritism and other abuses such as

requiring political support for access to cards. Sandinista leaders publicly criticized these tendencies and reminded their supporters that membership in community organizations was strictly voluntary.¹²¹

There were widespread but intermittent scarcities of foodstuffs in Managua since 1982. The government recognized five types of 'de-supply'. Firstly there were seasonal shortages, caused by agricultural or livestock cycles, as in the cases of cheese, cottonseed, or certain vegetables. Secondly there were conjunctural problems delaying supplies by a matter of days or weeks, which had a wide range of causes, including bureaucratic errors. Third were permanent shortages, as in the case of beef. Fourth were 'sectoral' shortages, when low-income groups could not buy products because the price was too high, which happened in the case of beef, cheese, and certain vegetables. Fifth were regional supply problems, as in the case of the Atlantic coast, where transportation was very difficult. Supply problems arose at all points in the food system¹²² and a MICOIN study found that during 1982, 10 of 17 basic products experienced temporary shortages which indicated 'serious weaknesses in the commercialization systems, including the secure channels'.¹²³ The underlying factor putting strain on the system, however, was the increased effective *demand* for food.

The state also began to play a greater role at the wholesale level, and in 1983 ENABAS took over the wholesale distribution of cooking oil, soap and flour, leaving production and retailing primarily in private hands.¹²⁴ Because of the Guarantee Card system, long lines at retail outlets were generally not a serious problem outside the capital which itself had to accept a reduced priority within the national distribution system. Finally, scarcities were exacerbated by the 1983 increase in external aggression, which created a need to set aside supplies for the army and to build strategic reserves of basic commodities in case of a military blockade.

In response to distribution problems, the Popular Mobilization for Self-Supply was launched in 1983 in an attempt to improve diets and to convert food consumers into producers. Urban lots were ploughed, the ministries and armed forces planted gardens and family plots were encouraged. The mobilization stressed popular initiatives rather than relying on the state to solve all problems.

SUMMARY — DISTRIBUTION

The state also greatly increased its role in

wholesale and retail distribution. The multiple outlets used were aimed at ensuring access, avoiding hoarding, and stabilizing prices. Not surprisingly the government apparatus encountered difficulties operating as a retailer. The shift toward the use of private concessionaires and reliance on the mass organizations as the control mechanism is a positive step. The shortages, ration card system and the existence of queues are symptoms of underlying weaknesses in the food system. However, this analysis suggests that rather than revealing a chronic condition, the shortages are transitory and sporadic reflecting specific, correctable problems on the supply side. On the demand side, these problems are evidence of growing effective demand as well as the emergence of mechanisms for ensuring greater equity in the access to available supplies.

(f) *Food consumption*

Most Nicaraguans still earn low and/or unstable incomes, and most low-income Nicaraguans still lack an adequate diet. The Sandinista Revolution inherited a serious hunger problem; according to the US Agency for International Development, 42% of children under four were severely malnourished in 1975.¹²⁵ The question, then, several years later is to what *degree* the diet and levels of food consumption have improved. As Commander Wheelock put it in 1983, 'the food problem is acute, and whatever path the Revolution takes, from the point of view of its own development, it has to resolve in the first place the problem of the basic consumption needs of the population; that is the priority which we have given to the Revolution'.¹²⁶

Are people eating more? A full answer to the question requires a breakdown by product and social class. Larger, more comprehensive consumption surveys are needed to draw any definitive conclusions. The Nicaraguan low-income diet is traditionally high in carbohydrates and sugar, and low in protein and vitamins. Government policy was to encourage consumption of food with both protein and vitamins, including beans, eggs, poultry, fish and pork, fruit and vegetables. Decisions on economic support, however, were made in the context of inherited consumer preferences. Most Nicaraguans, for example, wanted to consume sugar in amounts that were large by international standards, and this preference was not changed by educational campaigns overnight. Domestic sugar consumption was costly in terms of foreign exchange lost; moreover in 1982 domestic sugar subsidies were four times the amount of milk subsidies.¹²⁷ The

decision was made to encourage export of beef partly at the expense of satisfying increased demand resulting from income redistribution. Although consumption of most animal and vegetable protein sources had increased over pre-1979 levels, beef consumption was still popularly perceived as a key indicator of nutritional well-being.

Per capita consumption increased gradually, since Nicaragua's population was growing at 3.3% annually or more between 1980 and 1983. Per capita consumption of maize and beans in 1982 was about the same as in 1977, the best economic year under Somoza.¹²⁸ Per capita rice consumption was variously estimated at between 60 and 90% over 1977 levels. Per capita beef consumption was down 10%, milk down 4%, while eggs were up 21%, cooking oil 30%, and poultry 80%. 'Non-basic consumption', on the other hand, fell in 1981 and 1982 to 46% and 35% of 1977 levels.¹²⁹

Changes in consumption varied by social class. The greatest relative improvement was probably experienced by those households with some access to land, that is about 63% of the rural population and about one-third of the population as a whole. Landholders generally either consumed more of what they produced or earned more from what they sold. By 1982, the economic crisis had made the lives of the urban poor and the rural wage workers more difficult. The agricultural minimum wage lost 19.6% of its buying power in 1982, and those employed in the secondary and tertiary sector lost 14.4%. The 1982 increase of 35% in spending on the social wage, primarily on food, could only partially compensate. The economic crisis in 1983 was a regional one, but among Central American countries Nicaragua maintained the lowest rate of inflation for the basic market basket of goods: 11.1% as compared with 24.1% in El Salvador and 102.7% in Costa Rica.¹³⁰ Creating further pressure was the need to give priority access to supplies for the armed forces engaged in defending the borders against external aggression.

SUMMARY — CONSUMPTION

Hunger still exists in Nicaragua, but the revolution has reduced it. Access to food appears to have increased for most lower income groups. Price controls and subsidies on basic staples have given the Nicaraguan consumer greater economic protection than consumers in the other Central American countries. The government's pricing policies and distribution system have structurally altered access to foods.

Controlling unemployment and inflation continued to be crucial determinants of access to food, although the introduction of community-level control over distribution of basic goods began to play an important role in the cities in 1983. Future success along these three dimensions — generating jobs, controlling prices, and assuring equal access — will depend in large measure on the efficient organization of the majority on behalf of its own food security, through institutionalized popular participation in making and carrying out food policy. The state's inability to eliminate hunger in its first 4 years was one key manifestation of the limits to state economic power and the constraints conditioning the operation of the new mixed economy. These limits, in the view of a key Sandinista theoretician, could only be compensated for by 'the right to participate . . . the right to know and decide, as well as to participate in all the decision-making organizations of the state or of the economy'.¹³¹

4. CONCLUSIONS

The role of the state in the food system highlights the Nicaraguan attempt to shape the development process without resorting to direct ownership of the majority of productive resources. Even in the revolutionary state's fourth year, as external aggression increasingly forced economic policy to adopt a war footing, the means of production remained predominantly in private hands.

The Nicaraguan experience shows that a structural transformation can be carried out without total direct state ownership of the means of production. Rather, the role of the state indicates that a coherent combination of direct state control at strategic stages of the food system with indirect regulation throughout the rest can effectively implement revolutionary social and economic policies. The direct state role in the food system was largest at the stages of finance, productive inputs, and international trade. These controls permitted the state to shape land use patterns, production decisions and to increase consumption of basic foodstuffs before self-sufficiency was reached. These controls also constrained capital flight and directed foreign exchange allocation.

New strategies, however, require new organizational structures. The state's control of key productive assets, was a driving force in the recovery of export production. By creating parallel public marketing channels in commercialization and distribution, the state stimulated production and consumption of basic foods.

Without such measures as decentralization of decision-making, the use of relatively autonomous state enterprises and institutionalized popular participation, this combination of direct control and indirect regulation would have been much less effective. Given the decision to use the market rather than replace it, decentralization was essential to facilitate the innovation and flexibility required to shape and respond to the market. However, many inefficiencies and operating problems continued to exist within state enterprises throughout the food system.

Indirect market regulation took two principal forms in agriculture. Firstly, there was the attempt to create a package of incentives that would stimulate the large private producers to produce and invest. This had mixed results on balance, leading to some production success but little investment. The government and some groups within the private sector were often in conflict.

Secondly, and much more important in terms of structural transformation, was the encouragement of new cooperative forms of production, new patterns of property ownership and use, and corresponding shifts in political power. The Nicaraguan state did not directly carry out the process of cooperativization. Instead, through mass education and indirect forms of market regulation such as preferential access to credit and other inputs and services, the state created incentives for voluntary cooperativization rather than resorting to the more coercive collectivization policies of other revolutions. These incentives created a reciprocal political relationship. The government was less willing to provide these incentives to the small number of cooperatives organized by private sector groups with other political agendas.

The mixture of cooperative forms which arose reflected the heterogeneity of the inherited rural class structure as well as different kinds and degrees of political awareness. This political and organizational adaptation to the divisions within the existing class structure permitted the Sandinistas to win and keep the support of the majority of small and medium-sized producers, although there were disagreements over particular policy issues. Nonetheless, those landowners who opposed the government included some peasants as well as many large producers. This voluntaristic, constituency-based approach slowed the shift away from individualistic production relations towards the more collective forms preferred by some state planners. It also limited disruption caused by insecurity in land tenure and created a power base outside the state that would be both sufficiently powerful and autonomous to defend

the interests of the peasantry in the future. Those cooperative members who received land probably benefited the most in material terms. The cooperative movement as a whole benefited in the sense that the Nicaraguan peasantry was assured a powerful political voice, through UNAG, for the first time in Nicaraguan history.

The Nicaraguan experience shows that, in comparison with other revolutionary experiences, structural change can be carried out without major disruption of agricultural output and with only partial disruption of food distribution. Two major conclusions can be drawn from the Nicaraguan record of agricultural output. Firstly an analysis of each major product showed that the causes of those production problems which did persist after the 1979 war were quite heterogeneous. They included such factors beyond the control of policy-makers as international commodity prices (e.g., cotton) and medium-term effects of war-time damage (e.g., beef, milk). Production of most basic staples increased, but there was still much room for improvement in maize productivity. Production successes, such as beans, rice, coffee and sugar, each with a very different structure of producers, showed that a flexible approach to a mixed economy can effectively balance the sometimes competing interests of state, private, and peasant/cooperative sectors. As in the case of the organization of the cooperative movement, the state took a segmented approach to the highly differentiated class structure it inherited.

Secondly, the recovery of both domestic and export crops, albeit uneven, indicates that what may appear to be an inherent dichotomy between the interests of each sector, may instead be a series of trade-offs which can be managed. In the Nicaraguan case, the trade-off between allocation of resources between domestic foodcrops and exports was eased by two main factors. The first was that there was limited competition for Nicaragua's scarcest resource, foreign exchange. The traditional production process of most basic grains was largely untransformed, limiting the demand for imported inputs. Grain production is now being increasingly technified. While this will use foreign exchange, it will also substitute for current imports and it is planned to generate foreign exchange through exports. Secondly, because of Nicaragua's high degree of underutilization of productive land, increased cropping intensity and changing land use patterns could increase basic grain production without noticeably displacing exports. There was some displacement of land use, but it consisted largely of underutilized livestock pasture and lands marginally suited for cotton. Additionally, the export crops have

important positive linkages with the domestic market, e.g. cottonseed for cooking oil, leather for shoes, carcass by-products and sugar molasses for animal feed.

Just as the apparent food/export dichotomy was manageable, so too was the apparent contradiction between food distribution by the free market and according to need. Any transition to a new system of getting food from farm to market leads to disruption and the important question is who is affected and how. The Nicaraguans attempted to regulate the market without replacing it. The role of the state in food trade in Nicaragua was very different from the more dichotomous experiences of state administration of commercialization and distribution in Cuba and the relatively uncontrolled private market in Chile under the Popular Unity government. In using the market, the Nicaraguans dealt with the dilemma of stimulating food producers and assuring access to consumers by subsidizing both ends. This was carried out by combining price controls with parallel channels at each stage of the distribution system and eventually extending to monopolies of basic consumer goods at stages in the distribution system particularly vulnerable to disruption. Organized popular participation was crucial to the efficacy of price controls and equitable distribution of essential foodstuffs. The dual subsidy system led to a growing burden on the budget (6% in 1982), but it was deemed essential to both motivate producers and to ease access for consumers.

Revolutionary development strategy requires structural change. Such change occurred in terms of property ownership and use, worker and community participation, access to food, and the distribution of political power. The Sandinistas approached their goal of social justice with pragmatism, and the decision to maintain the mixed economy was perhaps the best example of their flexibility. The commitment to the mixed economy was based in part on the internal and external costs of the alternatives. The Sandinistas decided to avoid the social, political, and economic costs of a totally 'statist' socialist approach. Even Fidel Castro suggested that the Sandinistas would benefit by avoiding some of the problems of the Cuban experience. Nicaragua's first 4 years show that its framework of a mixed economy created a revolutionary experience fundamentally different from Cuba's.

Two principal factors distinguish the Sandinista conception of 'the transition' from other victorious armed revolutionary movements. First, private property was not seen by the FSLN as inherently evil. The Sandinistas saw their revolution as a test case: it would show whether

private capital could function economically without controlling political power.¹³² The 'transition' did not have a rigidly fixed destination. The underlying basic goal of national self-determination led to a wide range of political and economic policies designed to prevent the development of a significant domestic counter-revolutionary social base, primarily throughout the food system. This kind of pragmatism was both the cause and the effect of the second principal difference from most revolutions: that of the state's general refusal to use physical force to solve economic problems. Unlike most revolutionary experiences, as the external military threat increased, the dominant conception of the 'transition' became more participatory. Over the first four years, as it became increasingly clear what the state could and could not do well in the food system, it found new ways to use the mass organizations and the private sector business people to carry out key policies.

There are major challenges facing Nicaragua today. The current US Administration's economic and military aggression against Nicaragua presents an insidious obstacle,¹³³ forcing the Nicaraguan government to mobilize its scarce resources into a military defense effort. Thus, the first challenge is to avoid creating strategic and structural distortions in its allocation of resources which would undermine the past progress and momentum. In a fundamental sense, a strong food system is central to Nicaragua's security and defense.

A second challenge is effective macroeconomic policy. The management of exchange rates, interest levels, wages and producer and consumer prices is critical to ensuring attainment of the Sandinista development model's food and agricultural goals. Current efforts to correct past weaknesses in this area are important.¹³⁴

A third challenge is to strengthen the performance of the state-owned enterprises at the micro-level so that they can generate badly needed

economic surpluses. To fulfil this function their management must continue to be improved. The incipient administrative control system needs to be fully implemented to improve decision-making at the central and enterprise levels. Similarly, the cooperative movement will require significant technical, and organizational assistance if it is to realize its potential in the food system.

The final challenge is to preserve the pragmatic, problem-solving orientation in the search for innovative ways to ensure economic and political pluralism. This will involve both continued government recognition of the positive contribution that the various economic actors in the food system can make to the country's development and an effort to find new productive and mutually beneficial forms of collaboration. It is also incumbent on the non-state economic actors to search for strategies which contribute to the national development project. These challenges will require a willingness to learn from experience, a trait clearly shown to date by the FSLN. It is this pragmatism that has both produced such a distinctively Nicaraguan revolutionary process and state and holds so many lessons for others interested in structural transformation of societies and food systems.

In reflecting on the Nicaraguan experience, it can be concluded that, in spite of extremely adverse circumstances, including massive war damage, inherited economic dependence and widespread poverty, natural calamities and now new external attacks, the Sandinista revolution has made significant achievements in the areas of food policy and agricultural development. Although policy and implementation errors were made and significant problems remain, the achievements and progress are undeniable for Nicaragua has simultaneously stimulated both food and export production and increased the consumption and access to basic foods for the low-income population.

NOTES

1. See, for example, Austin (1981); Austin and Esteva (forthcoming); Barraclough (1982); Davis and Goldberg (1957).

2. Alain de Janvry (1981), p. 204.

3. As Commander Jaime Wheelock, Minister of Agricultural Development and Agrarian Reform, put it, 'more than control of the means of production, we are interested in controlling the economic surplus in order to distribute justly the nation's wealth', interview in *Ceres* (Sept./Oct. 1981), p. 47.

4. Belli (1968); Biderman (1982).

5. Belli (1968), p. 34; FIDA (1980), p. 13.

6. Belli (1968), p. 34; FIDA (1980), p. 13.

7. Deere and Marchetti (1981), p. 46.

8. The rich and middle peasantry, with between 7 and 35 ha. constituted 21.6% of the EAP. The small and medium-sized capitalist producers, with between 36 and 355 ha. were 4.5%, leaving a latifundista class at

the top 0.4% of the EAP. Based on MIDINRA data, in Deere, Marchetti and Reinhardt (1983) Table 1.

9. Collins (1982), p. 157; FIDA (1980), p. 54.

10. World Bank (1983), p. 150.

11. Fitzgerald (1982a), p. 204.

12. For histories of the movement against the dictatorship, see Black (1981); and Leogrande (1979).

13. For a developed macro view, see Fitzgerald (1982b).

14. Any attempt to reconcile growth and distribution involves a redefinition of the concept of economic growth. Wage goods and basic needs can be leading sectors if and only if human capital formation 'counts' as growth. See, for example, Streeten (1982), pp. 31-54.

15. See Sandinista advisor Gorostiaga's important overview of the revolutionary process (1983).

16. Girling (1983), pp. 33-44.

17. *Quarterly Economic Review: Nicaragua, Costa Rica, Panama*, Annual Review (1983).

18. MIDINRA (1982), p. 2.

19. See Weinert (1981).

20. See Draimin and Burbach (1980), p. 19.

21. Decapitalization was quite feasible until preventive laws were enacted in 1981. It was defined as allowing capital investment deliberately to deteriorate, or converting cheap government loans into foreign exchange in order to send the money abroad. Since 1981, if employees found that the owner was decapitalizing, the enterprise could be temporarily 'intervened' until the government could make a legal determination.

22. *Washington Letter on Latin America* (9 December 1981), p. 7. Within a year, higher authorities at the World Bank had overruled this technical assessment, and all aid flows were suspended for political reasons. Morrell and Biddle (1983), p. 10. For more on government-private sector relations, see Sholk (1984).

23. On the transformation of education, see Cardenal and Miller (1981). For documentation of changes in health care, see Halperin and Garfield (1982), pp. 388-392.

24. Fitzgerald (1982a), p. 214; *Envio*, No. 24 (July 1983), p. 4c.

25. Deere and Marchetti (1981).

26. *Ibid.*, p. 52.

27. See Marchetti's comparison with the imbalances of the Chilean experience (1981).

28. Deere (1982), p. 20.

29. *Ibid.*, p. 25.

30. *Ibid.* For the history of the ATC, see Deere and Marchetti (1981), and Collins (1982).

31. *El Nuevo Diario* (22 July 1981), cited in Deere (1982), p. 39.

32. See Riding (1982).

33. See, on the political regionalization, Klein and Pena (1982).

34. Collins (1982), p. 90.

35. 'Lunes Socio-Economico, No. 32', *Barricada* (19 December 1983).

36. *Ibid.*

37. The Agrarian Reform Law is also the first in Latin America 'to establish the legal preconditions for the incorporation of a significant number of rural women'. See Deere, Marchetti and Reinhardt (1983), p. 23. See also Deere (1984).

38. See Collins (1982), pp. 87-88. On the Sandinista policy debates about the nature of the agrarian transition, see Deere, Marchetti and Reinhardt (1983).

39. The details of the many significant changes in the labour market are beyond the scope of this paper. Most basic grain production is carried out primarily by family labour, so the changes in the labour market had the greatest impact in the export sector. One important change was the enforcement of the minimum wage for the first time, which varied largely according to the degree of local union organization. One of the problems that emerged initially was a decrease in worker productivity. Without the threat of violence and arbitrary firing, workers on both state and private farms took what was called their 'historic vacation'. The goal of the Sandinistas is to find positive incentives to replace the traditional negative ones. They are not ideologically opposed to linking financial and social incentives to increased productivity. See Collins (1982), pp. 69-78.

40. Nunez (1980), p. 15.

41. The rural development program developed during the 1970s, INVIERNO, offered loans and technical assistance to small and medium producers, ostensibly to grow basic grains. Its reach was limited, however, to a small number of producers in areas where the labour market for the coffee market needed stabilization, and areas where there was active organizing of political opposition. See Deere and Marchetti (1981), p. 47; Nunez (1980).

42. For more on the development of the rice industry, see Austin (1972).
43. See Strachan (1976); Wheelock (1975).
44. Mendez (1982), p. 1.
45. Of the credit allocated to cooperatives, about half went to members sowing 2.5 hectares or less of owned or rented land; Deere and Marchetti (1981), pp. 57, 62.
46. Production collectives paid interest rates of 7%, credit and service cooperatives paid 8%, and individual small producers paid 11%. Medium and large growers paid the pre-war interest rate of 14%, as did the state farms.
47. CIERA (1982), p. 24.
48. *Ibid.*, p. 25.
49. *Ibid.*, pp. 51, 58.
50. *Barricada* (27 July 1983).
51. FIDA (1980), p. 124.
52. Collins (1982), p. 113.
53. Deere, Marchetti, Reinhardt (1983), p. 32.
54. For the characteristics of coffee producers, see Sequeira (1981). For discussions of cotton growers, see Belli (1968) and Sequeira (1981).
55. See MIDINRA (1982b), pp. 153-184.
56. For a detailed discussion, see Kruger and Austin (1983).
57. Cordova (1983).
58. PAN, 'Plan Contingente de Granos Basicos' (1983), p. 9.
59. See CEPAL (1982) pp. 23-31.
60. *Central America Report* (14 October 1983).
61. On coffee producers, see Kaimowitz (1980); Sequeira (1981).
62. *Foreign Broadcast Information Service*, Vol. VI, No. 209, (29 Oct. 1981), cited in Sholk (1984).
63. UNAG (1982), p. 4.
64. See Marchetti (1982).
65. CNPMP (1982), p. 13.
66. 'Lunes Socio-Economico, No. 37', *Barricada* (23 January 1984).
67. MICOIN (1983), Vol. III, I-8. JGRN (1983), p. 45. Yields in the APP were 7.4% higher than the private sector in 1980/81, and 3.9% higher in 1981/82. *Latin American Commodity Report* (LACR) (21 May 1982).
68. CIERA (1984); JGRN (1983), pp. 45, 46. By 1981/82 APP yields had grown to 10% more than in the private sector. (21 May 1982). Although yields have traditionally been lower than in nearby countries, Nicaraguan coffee also relies less on imported inputs. Cotton production, for example, requires at least 40% of the foreign exchange it generates to be spent on imported inputs.
69. JGRN, 1983; pp. 45, 46. Private sector sugar productivity was greater than in the APP, by 11% in 1980/81, and by 5.9% in 1982/83 (*LACR*, 21 May 1982). Banana production had fully recovered in terms of volume, area, and yield, by 1981/82, but weather cut the 1982/83 harvest to 73.6% of 1977/78 levels. Export quality tobacco, however, was 18% over 1977/78 levels in 1982/83 (JGRN, 1983), p. 45.
70. Data from PAN office, MIDINRA (1983); CIERA (1984).
71. Data from PAN, MIDINRA (1983); CIERA (1984).
72. MICOIN (1983), Vol. III, I-5, J-4, K-3, L-7, M-3.
73. INCAE (1980), p. 4.
74. Data from PAN, MIDINRA (1983).
75. CIERA, PAN, CIDA (1983), p. 22.
76. For a comprehensive discussion of the Nicaraguan government's management of foreign trade, see Girling (1983). State trading companies purchased exports from the domestic producers and controlled their sale abroad. Political uncertainty forced Nicaragua to market its products creatively. After the abrupt withdrawal of Standard Fruit Co., for example, Nicaragua's banana trading company quickly found another private US broker and successfully competed in the California market. See Bonner (1982). After the US government's explicitly political decision to cut Nicaragua's access to the US sugar market by 90%, Nicaragua quickly found alternate markets in Algeria and Iran. See 'Managua Wins New Sugar Contract', *LACR* (10 June 1983), p. 2.
77. Deere (1981), p. 200.
78. CIERA, PAN, CIDA (1983), pp. 23, 35.
79. ENABAS (1984), p. 20.
80. *Ibid.*
81. Collins (1982), pp. 123, 124.

82. This kind of shortage was artificial in the sense that it was not caused by production shortfalls. In 1981 it was temporarily overcome with the use of transportation equipment from the state farms and the army to help bring the crop to market. This was possible because the grain harvest generally does not overlap with the export harvest.
83. CIERA, PAN, CIDA (1983), p. 26.
84. Collins (1982), p. 125.
85. INCAE (1980), p. 12.
86. Collins (1982), p. 116.
87. CIERA (1983a), p. 69; *Barricada* (23 March 1983).
88. CIERA, PAN, CIDA (1983), p. 23; ENABAS (1984).
89. Collins (1982), p. 126.
90. CIERA (1983a), p. 71.
91. CIERA, PAN, CIDA (1983), p. 26.
92. See CIERA (1983a), pp. 69–79, for a frank official discussion of the costs and benefits of various alternatives.
93. *Central America Report* (4 February 1983).
94. *Central America Report* (4 March 1983), p. 67.
95. Personal interview (March 1984).
96. 'Lunes Socio-Economico, No. 29', *Barricada* (28 November 1983).
97. *This Week* (8 March 1972), p. 79.
98. CIERA, PAN, CIDA (1983), p. 18.
99. *Ibid.*, p. 19. The problem of access to imported spare parts inspired the trade union movement in 1982 to develop a movement of 'innovators' to fabricate them in Nicaragua.
100. CIERA, PAN, CIDA (1983), pp. 22, 33.
101. This trend appeared to continue for the first two years of the revolution, partly because of the increased availability of the social wage, but the later extension of programs into rural areas began to reduce the incentive to migrate to the capital.
102. CIERA, PAN, CIDA (1983), p. 24.
103. CIERA (1983a), p. 27.
104. *Ibid.*, p. 28.
105. Collins (1982), p. 121.
106. CIERA (1983a), p. 30. Hoarding was a normal consumer reaction to real and rumoured shortages. It took place at all stages of marketing, particularly with non-perishable products. MICOIN estimated that one week of shortages of a product involved eight weeks to rebuild consumer confidence and thus rebuild sufficient stocks. It was not consumer hoarding which caused major supply problems, however. Hoarding by producers, intermediaries and distributors, public and private, led to more serious problems. See *Envio*, No. 27 (September 1983), p. 7c.
107. *Ibid.*, pp. 26, 28. The traditional system also included large numbers of door-to-door vendors, who sold primarily bread, tortillas, fruit, vegetables, and meat. This was a major source of employment for women and children.
108. *Ibid.*, pp. 28, 31, 32.
109. ENABAS (1984), p. 7; *El Nuevo Diario* (9 September 1983).
110. CIERA (1983c); p. 95.
111. Municipal governments were often elected by local mass organizations. See Downs and Kusnetzoff (1982).
112. *Ibid.*, p. 28.
113. CIERA, PAN, CIDA (1983), p. 24.
114. ENABAS (1984), p. 7.
115. de Franco (1979).
116. CIERA, PAN, CIDA (1983), p. 27.
117. CIERA (1983a).
118. CIERA, PAN, CIDA (1983), p. 24.
119. CIERA (1983a).
120. Collins (1982), p. 134.
121. See Commander Arce's letter to the CDSs, *Envio*, 'A Revolution That Is Self-Critical', No. 17 (November 1982).
122. CIERA (1983b), pp. 11, 12, 19.
123. MICOIN (1983), Vol. I, C-23.
124. *Central America Report* (4 February 1983). MICOIN said that it was forced to thus raise to four the number of state-controlled basic products because of an artificial scarcity created by hoarding and leading to price increases of up to 100%.
125. Collins (1982), p. 137.

126. Wheelock (1983).
127. CIERA, PAN, CIDA (1983) p. 41.
128. MICOIN (1983), Vol. II, F-10, G-6.
129. *Ibid.*, K-3, 'Lunes Socio-Economico, No. 27', *Barricada* (21 November 1983).
130. *Barricada* (28 March 1983), p. 1; *Envio*, No. 24 (July 1983), p. 5c.
131. Nuñez (1983), p. 11.
132. Wheelock (1983).
133. In March 1982, the major US newspapers revealed that the Reagan Administration decided in November 1981, to begin a covert war against Nicaragua. See Tyler and Woodward (1982). The scale of the war increased during 1982 and 1983. See, for example, 'America's Secret War, Target Nicaragua', *Newsweek*, (8 November 1982), p. 1. In 1983 the war cost 947 Nicaraguan lives and \$110 million in damage.
134. For an analysis of the interaction between food and macroeconomic policies, see Timmer, Falcon and Pearson (1983), pp. 215-297.

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