Agrarian Reform: Theory & Practice. The Nicaraguan Experience

Silvia L. Saravia-Matus[1] and Jimmy Saravia-Matus[2]
[1] Instituto RDI, Román Rivas 3A chalet 13, 39600 Alto de Maliaño, Cantabria, España.
Tel: + 34 942 25 37 47. Email: ssaravia@institutordi.es
[2] University of Surrey, School of Management, Room 35MS02 Guildford, Surrey. GU2 7XH, UK.
Tel: +44 (0)1483 689668, Mob: +44 (0)7704861364, Fax: +44(0)1483 686346, Email: j.saravia@surrey.ac.uk

Received: August, 2009 / Accepted: November, 2009

The Nicaraguan experience becomes a valuable case study since it allows us to analyze in detail the impact of an extensive modification to the property right system and to other relevant agricultural markets within a relatively short time period. Moreover, with this evidence it is possible to assess how policy making and enactment alter the institutional and socio-economic scenario and the behavior of agents (regarding their investment and production plans). Our findings indicate that incentives structures and carefully coordinated State intervention are of great importance in achieving sustained development. The Sandinista rural agenda involved detailed structural and marketing programs aimed at eliminating the previous *latifundio* structure, yet by the end of the 1980´s national agriculture was stagnated. It will be argued in the present paper that the consequences of an uncoordinated Agrarian Reform deepened the imperfections of not only the land market but also the credit and labor markets in Nicaragua. A major conclusion is that without an adequate and legitimate policy environment that reduces uncertainty and maintains financial incentives, even abundant access to resources will not overcome economic paralysis.

Keywords: Agrarian Reform / Policies / Sandinista Revolution / Nicaragua

Resumen

La experiencia nicaragüense se considera un valioso caso de estudio puesto que permite analizar en detalle el impacto de una exhaustiva modificación al sistema de propiedad privada y mercados relacionados a la agricultura que tuvo lugar en un relativamente corto periodo de tiempo. De esta manera, es posible evaluar cómo las políticas gubernamentales cambiaron el escenario institucional y económico, así como el comportamiento de los diferentes agentes (en lo referente a sus planes de producción e inversión). Nuestros hallazgos indican que la estructura de incentivos y una intervención estatal coordinada son aspectos cruciales para alcanzar un desarrollo sostenido. La agenda rural del Sandinismo incluía detallados programas estructurales encaminados a la eliminación del modelo latifundista antecesor, pero hacia finales de la década de los 80, la agricultura nacional se encontraba estancada. En el presente estudio se alega que las consecuencias de una reforma agraria descoordinada incrementaron las imperfecciones, no solamente del mercado de tierras, sino también del mercado laboral y crediticio en Nicaragua. Una importante conclusión radica en que sin un ambiente institucional adecuado y legítimo que reduzca la incertidumbre y mantenga los incentivos financieros intactos, el acceso abundante a recursos no conlleva necesariamente a una mayor actividad económica.

Palabras clave: reforma agraria / políticas / Revolución Sandinista / Nicaragua

1. Introduction

Throughout Nicaraguan history, access to land, agricultural services, credit and resources in general has been monopolized by the political elites. The story of the peasantry has been one of social exclusion and exploitation.

During the Sandinista period (1979-1990) an extensive Agrarian Reform was undertaken. Policies involved land redistribution, fixed prices, subsidized credit and inputs. Their main objective was to eliminate the agro-export model which predominated during Somocista regime.

To explore the economic impact of such reform, a summary of the Nicaraguan agricultural structure prior to 1979 is presented in Section 2. Theories on agricultural development economics are reviewed in Section 3 so that in Section 4 the effectiveness of the Sandinista agrarian program may be thoroughly examined. Section 5 presents concluding remarks.

2. Agrarian Structure in Pre-Revolutionary Nicaragua

Between the 1880's and 1950´s Nicaragua experienced a prolonged economic boom in cotton production. Cotton was then replaced by coffee which became the leading export along with sugar, livestock and gold until 1979 (Saravia, 2003). During this time period, an agro-export structure was consolidated consisting of large private estates. By 1978, 37% of the rural Economic Active Population was categorized as landless (Reinhardt 1987, p. 943). Only the minority was guaranteed a permanent wage. The oversupply of seasonal labor induced massive migration to the urban centers. Despite access to cheap labor, Godoy and Hockenstein (1992, p. 1687) state that by the 1950's Nicaragua had "the most mechanized agriculture of Central America".

Table 1. Percent Distribution of Land by Size and Tenancy, 1978

Farms	%
356 + Hectares	41.3
3.6 – 355 Hectares	43.5
0.1– 3.5 Hectares	15.2

Source: Deere, Marchetti and Reindhardt (1985, p. 79)

41.3% of the land area in Nicaragua[1] was organized into the *latifundio* structure[2] (Table 1). *Latifundios* are very large landholdings and for the Nicaraguan case, several authors (Jonakin, 1996, p. 1188; Kaimowitz & Stanfield, 1995, p. 52; Spoor, 1990, p. 524; Zalkin, 1990, p. 48) concur in categorizing them as farms of 356 or more hectares. The *minifundios*, on the other hand, are the smallest farms (0.1 – 3.5 hectares), too small to provide employment for a single family. Although a small percentage of land, they represent a large percentage of the total number of landholdings.

The agricultural sector was not only characterized by an unequal distribution of land, but by unequal access to credit as well. Most of the properties owned by *el somocismo* were large-scale export-oriented units which constituted the main beneficiaries of credit, receiving along with the other export producers, over 90% of agricultural bank loans during the first half of the 1960's. It was the access to credit that made agro-export landowners turn to capital intensive (instead of labor intensive) production schemes. On the other hand, small and medium producers of staple crops for the internal market received less than 10% of agricultural credit in 1970, even if at the time, together they held around half of the cultivated area (Enriquez & Spalding, 1987, p. 109).

Planning the national economy around a few agro-exportable goods promoted not only an unequal land distribution but it also implied that the whole country, particularly the rural wage dependent class, was vulnerable to international price instability; while agricultural elites alone benefited from the periods of bonanza. Ultimately, the agro-export model served to perpetuate poverty and increase social resentment. After all, cross country evidence has proved that the majority of commodity boom cases tended to reinforce pre-existing social, political and economic divisions rather than reducing or eliminating them (Binswanger & Deininger 1997, p. 1989). This is particularly the case in highly polarized societies where the interrelations of economic and political power only allow a reduced social sector to benefit from positive external shocks. In Nicaragua this has occurred twice during the cotton and coffee boom of the late 1880's and the 1950's respectively. Interestingly, both governments were eventually overthrown by revolutionary movements in 1893 and 1979 certainly fuelled in part by the increasing levels of inequality and social tension that accompany this type of economic growth.

3. Theories on Agricultural Development

3.1. Conceptions of the Role of Agriculture in Economic Activity

In 1954 Lewis proposed his dual sector development model. It was based on the assumption that many developing countries had dual economies with both a traditional agricultural sector and a modern industrial sector. The dual economy model has become a predominant analytical paradigm which has strongly influenced policy making since the post World War II decades. In this respect, agriculture has been considered the less efficient, less productive economic sector. Griffin explains that in the conception of the dualistic models "the traditional, feudal, agricultural sector is stagnant; production is for subsistence; little output passes through a market; the leisure preferences of producers are high and they do not follow maximizing behavior. Unemployment is assumed to be widespread…

and, indeed, the marginal product of labor is zero if not negative" (Griffin, 1969, p. 20); its counterpart, the industrial sector in the urban environment, possesses all the desirable opposite characteristics that include technological advancement, higher levels of investment and savings, etc. Griffin points out that this theoretical background has strengthened and deepened the bias in favor of the urban segment in most development strategies.

In Latin America, the widespread theories of Structuralism and Dependency embraced such dualistic views of the economy as well. Policies associated with the Economic Commission for Latin America (ECLA) emphasized, since the 1950's, programs of industrialization through import substitution under the premise of agriculture's low productivity and comparative disadvantage in the global markets. The results led to serious deficits on the balance of payments, over-valued exchange rates and a strongly rooted myth that there is no profit maximizing behavior in the traditional sector.

Authors like Griffin (1969), and Todaro and Smith (2003) argue that peasants' behavior is actually the rational reaction to their institutional environment. In Latin America, as in many other underdeveloped regions of the world, peasant agriculture is one of subsistence and it is marked by high risks and uncertain rewards. Therefore, the inclination to under invest or to shirk can be explained as a reasonable response to ineffective government policies which have failed in altering the unfavorable land tenure conditions, the limited access to competitive credit and insurance markets, the level of technical and social assistance for the rural class, etc. Unfortunately, it is under this disadvantageous institutional framework that peasants operate, and are swiftly catalogued as inefficient and/or irrational economic agents.

Despite the failure of Import Substitution programs in Latin America, their theoretical legacies continued to influence policy formulation. More "modern" agricultural development programs fostered the expansion of large capitalized estates that take up land from the rural population and diminish the demand of peasant labor as they become more mechanized. Thus, there is a movement of labor from the rural to the urban (industrial) sector. The argument behind such an approach relies on the debated idea that small farms are unable to benefit from economies of scale and therefore constitute inferior forms of production. This type of analysis is congruent to the *latifundio-minifundio* structure of Latin American Agriculture and the high social costs that go with it.

In fact, one feature of *latifundismo* is that transactions costs involved in supervising hired labor are much higher than when using the more motivated family labor on peasant farms. Empirical studies have provided evidence of the potential benefits of small farms in promoting rural development and social efficiency (Berry & Cline, 1979; Ghatak, 1987). According to Otsuka, Chuma and Hayami (1992, p. 1974), "the scope of scale economies is rather limited in agricultural production" for developing countries. They suggest that monitoring hired labor in production systems that involve mixed crop rotation and raising livestock can be substantial; making the family farm the optimal structure (except for some export plantation that require detailed coordination for processing and marketing).

The key determinant that makes smaller farms more efficient than larger ones is their higher degree of land utilization (provided that the landholdings are not so small that they are trapped under the constraints of *minifundismo*). Todaro and Smith (2003) point out one of such costs: "a major explanation for the relative economic inefficiency of farming the fertile land on the *latifundios* in comparison with *minifundios* is simply that the wealthy landowners often value these holdings not for their potential contributions to the national agricultural output but rather for the considerable power and prestige that they bring". Under this premise, it is not surprising that a study by Collin (1982, p. 89) reported that during the late 1970's in Nicaragua, approximately 30% of the most fertile land of the private large estates was idle, inadequately used or less intensively farmed than smaller plots.

Ghatak (1987, p. 355) presents a list of reasons why there is an inverse relationship between farm size and output per acre based on empirical studies in the 1960's for Indian agriculture:

1. Poor farmers in distress sell land of inferior quality to the landowners of larger plots while he keeps the more fertile smaller plot.
2. Small farmers tend to use inputs such as labor more intensively and efficiently because they operate to achieve a level of survival. Unlike larger landholders, peasants in small plots maximize total income not profit. Family labor is employed until its marginal productivity equals zero in the peasant small farm, while "capitalistic" farming employs labor until the level where marginal productivity equals the wage.
3. Many large farmers use tenants or share croppers for production. Such arrangements are usually not instituted in a legal framework and unchain tenure disincentives that are not present in owner-operated plots; these include the risk of eviction for the tiller or the fact that well-off farmers tend to spend more in conspicuous consumption than in efficient investment since they will not be full beneficiaries of any type of innovation that is implemented.

Although sharecropping in Latin America is not as common as it is in Asia[3] , the previous arguments hold generally for Latin American countries.

Another interesting supporting fact of small farming is that ceteris paribus, the rate of adoption of new technology, in least developed countries has been scale-neutral (Ghatak, 1987, p. 357), making the small farm more socially efficient given its labor intensive nature.

As suggested by many authors, the major agrarian problem in Latin America is the unequal distribution of land. But at the same time, Binswanger and Deininger (1997, p. 1969) stress that the characteristics of the farm economy (more specifically the imperfections of the financial and insurance markets) reinforce the stagnant agricultural structure; indicating that the redistribution of property titles alone would not be sufficient to guarantee rural development. In addition, sustained growth of agricultural productivity depends on the implementation of policies that induce research on new technologies and investment in human and physical capital. Nevertheless, the majority of underdeveloped countries tend to neglect primary education, under invest in agricultural research and direct a disproportionate amount of the public resources to urban areas instead. Many authors agree that without rural education and political participation the agricultural power structures will not undergo the metamorphosis required to promote equality and economic growth. This statement becomes self-evident and almost redundant given the fact that over two-thirds of the world's poorest people are located in rural areas and engaged primarily in subsistence agriculture (Todaro & Smith, 2003, p. 418).

3.2. Literature on Agrarian Contracts

The dualistic models' assumption of non-maximizing behavior of agents in the agricultural sector can be further discussed when the literature on agrarian contracts is examined. Peasants in developing economies do make efficient choices from the range of options available to them. Such options vary from casual employment to short or long-term tenancy or owner cultivation. The efficiency in the agricultural productive process is determined substantially by the conditions stipulated in the contract between landlord and tiller. Given the characteristics of the farm economy and the *latifundio-minifundio* structure in Latin America, the position of the tiller is usually one of great disadvantage.

An efficient contract is enforceable and provides strong work incentives. Three types of contracts are widely analyzed:

1. Fixed-wage labor contract
2. Pure share contract
3. Fixed-rent tenancy contract

Work incentives for tillers are weaker in type 1 contracts and stronger in type 3. Peasants will be more inclined to shirk under sharecropping than under a fixed-rent contract because of the burden implied in giving up part of the output to the landlord. Tenants in a fixed rental system would also be much more willing than sharecroppers to undertake innovation. Allocation of land rights to owner-operators is expected to increase the efficiency of agricultural production, since it encourages future investment decisions and reduces transaction costs between agents. But, if a land reform is not in the political agenda, Berry and Cline (1979, p. 3) suggest that regulations on land tenancy should encourage large landowners to rent out their land in small operational units instead of evicting tenants and moving to fixed wage labor arrangements.

The degree of contract enforceability depends on whether there is a regulating legal framework for the different tenancy arrangements or if strong informal penalties exist within the rural communities. If reputation is a social asset, enforceability of contracts is further ensured. In the case of interlinked contracts, the superior bargaining position of the landlord also becomes an enforcing factor. According to Baumeister (1984, p. 189), prior to 1979, given the high degree of land concentration, the fixed wage labor contract (characterized by its weak work incentives) was particularly common in Nicaragua's rural sector. After 1979, the introduction of collective land tenure schemes would nevertheless prove highly inefficient in terms of creating material incentives and fostering contract enforceability.

Bhaduri's (1973) study of agricultural backwardness under semi-feudalism explains that the landlords' incomes may come in the form of land rental, share of agricultural output and/or usury. Interest rates are usually very high in rural areas. Some authors attribute this to the high probability of default of smaller farmers, but others are more inclined to believe there are informational asymmetries that act as entry barriers for the formal financial market serving to create virtual monopolies in the different rural communities. The case is that when landowners also become the moneylenders they design interlinked contracts which secure their maximum combined profit, trapping the tillers in perpetual debt. It is argued further that the introduction of technical progress in this "semi feudal" agriculture is prevented by landlords as long as the gains from usury are more than those from increased productivity. There are critiques to Bhaduri's model (particularly, regarding the ability of the landlord to extract additional income from the tiller despite the introduction of new technology, and the capacity of the tiller to escape debt); but the main message of the semi-feudal agricultural model is clear: small producers have weak bargaining power, they usually are excluded from the relevant markets and the lack of investment in basic infrastructure and human capital intensifies rural poverty and agricultural stagnation. In other words, peasants of a subsistence economy who are risk averse and who lack access to alternative sources of credit or broader land markets (because of geographical isolation or imperfect markets), have precarious opportunities to prosper. Bhaduri's study illustrates some of the main characteristics of the so called *Patrón-Cliente* relationship in Latin America.

3.3 On the Nature of Land and Agrarian Reforms and their Impact on Development

Arthur Young claimed that "the magic of property turns sand into gold", but evidence has proved that an egalitarian land reform program alone is not sufficient to guarantee agricultural development (Todaro & Smith, 2003, p453).

As argued by Ghatak (1987, p. 358), any redistribution of land in favor of small farms creates uncertainty and unless "the government is stable and the policy is enforced firmly, small farmers are unlikely to invest substantially as the stakes can be too high". There are therefore, implicit costs to the extent of the period of uncertainty because it delays the investment and implementation of new technologies in the reformed sectors of the economy. In other words, the agents of the reformed sector are struggling to avoid the risk of ex-post opportunism. Naturally, a successful reform must also make sure the targeted population has access to agricultural services and relevant markets. Negative incentives could also arise from a very egalitarian land reform, especially for the farmers whose properties are confiscated without proper compensation. And if the affected sector has political and economic power, the success of the entire reform could be jeopardized. In the view of Alan de Janvry (1981), land reform is not a device to help the poor but to benefit the non-reformed sector. His conclusion was drawn after examining the Latin-American experiences and it certainly portrays the socio-political tensions that arose in these processes.

Setting aside the obvious costs of socio-political tension and uncertainty, Berry and Cline (1979, p. 3) have analyzed other costs related to reorganizing land from larger to smaller units: these concern:

1. Creation of the administrative capacity to support small farms.

2. Learning period of managerial skills that the new operators actually require in order to achieve the productivity levels of existing small farms.

Deciding how long a period to carry out a land reform should certainly be a relevant issue. If properties are confiscated rapidly and indiscriminately, legitimacy might be harmed in the process. But on the other hand, if the administration is not efficient enough so that land and resources reach the targeted population, the desired economic effects of the reform will not be achieved. Not being able to find such a balance implies that political support is diminished and the levels of uncertainty increase ultimately hindering economic activity.

Berry and Cline favor land reforms and conclude that the expansion of the small farm constitutes an effective mechanism to increase employment and output in the agricultural sector, as long as the country has a surplus of labor at low opportunity cost. It is until the opportunity cost of labor becomes relatively high that the advantages of small farms tend to disappear. In the meantime, as Doner (1992, p. 70) argues, "people cannot simply be placed on hold until they are needed by the industry", stressing major importance on the potential social benefits of a land reform.

The objectives of an equalizing land reform are to avoid the inefficiency of large estates and the limitation of very small plots which are not economically viable, that is, landholdings so small which are unable to provide a living for a family (*Minifundismo*). But as expressed by El-Ghonemy (1990, pp. 89-90) agrarian reforms involve much more than just land distribution and reassignment of property titles. Agrarian policies cover a wide range of aspects that regulate on rental arrangements, financial access to tenants, managerial and technical assistance, subsidies and price controls of key inputs, etc. All of these institutional changes and dispositions are designed to recompose the distribution of power in the economic relations of agents in the rural areas: "the aim is to remove barriers to entry into the factor markets and to provide peasants with command over food thereby rapidly reducing poverty and inequalities" (El-Ghonemy, 1990, p. 88).

Some commonly highlighted factors that determine the success of reforms include:

1. Level of political commitment, organizational capacity and fiscal discipline.
2. Design and coordination of sustained and growth stimulating agrarian policies.
3. Length of the reform period and its perceived degree of uncertainty and legitimacy.
4. Planned extent of the reform to restructure the agricultural sector (limits on the size of farms, target of beneficiaries, types of ownership arrangements, etc.).
5. Degree and nature of national and international support.

In summary, the economic results of agrarian reforms have tended to be more favorable where implementation has been swift (avoiding periods of uncertainty), and when the government has provided the necessary infrastructure, extension services and improved inputs (replacing the dominant role of large landowners in rural communities and opening these to larger and more competitive factor markets).

Various experiences with land reform also appear to show a pattern of greater production success where post reform organization is based upon direct ownership in small family farms rather than upon State and cooperative farms (Berry & Cline, 1979, pp. 135-140). Doner (1992, pp. 50-56) argues as well that even with supportive efforts by government agencies, problems of internal organization and of member commitment and morale will arise in group farming. Such problems are manifested in poor management, lack of work discipline and absence of active participation in policy making by the members, all of which undermine the capacity of efficient production of the cooperatives. As will be explained, this was particularly the case with cooperatives formed during the Sandinista Revolution. According to Deere (1983, p. 1004), the State encouraged rural workers to organize into cooperatives, however organizationally, cooperatives were weak and many dissolved after receiving credit.

On the whole, the results of an agrarian reform are further conditioned by the pre-existing structure of the agricultural economy which has permeated the attitude of farmers towards risk and entrepreneurship. Moreover, the policy makers must be fully aware of the economic and cultural context in order to ensure that adequate incentives are promoted and sustained. For example, overvalued exchange rates, discriminatory rates of tariff favoring imports of tractors, and the provision of agricultural credit at a very low rate of interest, have resulted in the use of capital intensive techniques in labor surplus agriculture. Such policies which at first instance seem growth-enhancing actually hinder long-term rural development and social welfare too because the main beneficiaries have been the better off farmers.

4. The Sandinista Agrarian Reform

Unlike other agrarian reforms in Latin America, the Sandinista Administration had correctly realized that redistribution of land alone was not enough to alter the structure of rural economic relationships in Nicaragua (Zalkin, 1990, p. 62). In order to eradicate entirely the exploitative capitalist system that characterized Somoza's regime, the Revolution implemented agricultural strategies that evolved around three main types of policy:

1. Price Policies
2. Structural Policies
3. Marketing Policies

Price policies were concerned with the farm-gate prices which peasants received for their products. The main objective was to stabilize income for the rural producers at the national level. Structural policies are those designed to improve the structure of agricultural production (equipment of farm, infrastructure, water supplies, advisory services, social facilities, etc.) (Halett, 1968, p. 6). For this purpose the Sandinistas provided massive access to credit that mainly benefited State farms and cooperatives. At the same time, large subsidies to agricultural inputs such as machinery, herbicides and fertilizers were granted. Marketing policies were formulated to change the distributive channels that had characterized the agro-export model. The idea was to free the farmer from the *latifundistas'* superior bargaining position. Therefore, the revolutionary State decided to obtain control of all systems of retailing and wholesaling of agricultural output so that exploitative distributive margins could be eliminated once and for all.

Through State intervention, the Revolution aimed to achieve two major objectives: (Close, 1988, p. 82)

1. Restructure the economy to make it less dependent on the export of raw materials.
2. Redistribute the products of the economy to favor the “popular” classes.

Unfortunately, to fulfill the first objective of promoting an industrial rather than agricultural economy, many members of the Higher State Council were convinced that small and medium peasants could not play a major role. Zalkin (1990, p. 60) comments that by 1981 Jaime Wheelock, Sandinista Ministry of Agriculture, presented a plan for State-led mechanization and industrialization of agriculture based on the extreme assumption that peasant grain producers were incapable of productivity increases. As a result, investment strategies evolved around State farms and certain private *latifundios* that remained unreformed and were to produce under highly capital-intensive technology. These estates were expected to emerge as modern agro-industrial complexes.

The second objective was to be achieved by promoting cooperative organization, which in theory could devote to either agro-industrial or basic staples production. For them, both credit and technical assistance was to be provided so that the benefits of economies of scale could be obtained.

Why were not these objectives fulfilled? The answer involves a double explanation. First of all, the land reform program instead of benefiting small producers turned to a socialist land tenure scheme that did not adapt to the peasantry’s expectations and only created institutional friction and uncertainty over 40% of Nicaragua’s total land area. Second, the myopic belief that the State was going to be able to fully organize more than a thousand State farms, tens of thousands of cooperatives, and then coordinate all economic transactions, eventually led to a total disarticulation of the Nicaraguan rural productive system.

4.1. The Land Reform Process

After Somoza abandoned the country on July 1979, around 2000 farms belonging to the dictator’s family and his associates were immediately confiscated under Decree 3 ordered by the Governing Junta of National Reconstruction (1979-1984). As mentioned earlier, these were large high tech agro-export farms comprising around 20% of the farm land in the country.[4] These properties were not distributed but rather organized into 1500 State farms that belonged to what was denominated Area Property of the People (APP: Área Propiedad del Pueblo) under the direct control of the Ministry of Agricultural Development and Agrarian Reform (MIDINRA). This was the first stage of the Agrarian Reform. “In the short run this made the revolutionary government less sensitive to demands from peasants and urban small producers” (Close, 1988, p. 83).

The Sandinista administration truly feared that “parcelization” of such estates for individualized farming would reduce the production of export crops and harm the inflow of foreign currency. As a consequence, large-scale production was unambiguously favored in terms of investment and technical assistance. While agricultural GDP represented 23% of total GDP during 1980-1986, agricultural investment received 41% of all investment funds. And from 1983 to1990, 71% of agricultural investment was concentrated in the State farms or APP, 25% in production cooperatives and only 4% in private farms (Zalkin, 1990, pp. 56-62).

According to Kaimowitz and Stanfield (1995, pp. 55-54) there were several factors that favored a State farm solution to the eyes of the revolutionaries:

1. The concern that if the confiscated lands were turned over to an unorganized peasantry, falling productivity would result at that critical moment in which the country was trying to rebuild its economy after the devastating effects of the war.
2. The fear that giving the confiscated farms over to cooperatives or small individual farmers could result in a movement away from export crops and toward food crops. Such shift would endanger foreign exchange generated from the export crops
3. The idea that cooperative landholders would no longer be willing to work as wage workers in the coffee, cotton and sugar harvests, thus creating labor shortages in the production of these crops.

At this early stage, the Sandinista Government were not convinced of the role of the small peasantry to secure rural development. In the meantime, the Revolution adopted a policy of employment generation on the State farms as a first step toward accommodating the landless rural work force. Some 50,000 workers, approximately 13% of all agricultural workers, were employed by the State agricultural enterprises in 1980. This segment of the rural population stopped being the *patrón's* workers to become State employees, a new class of rural proletariats. However, this strategy was not going to be very effective in the long run without violating the political commitment to a mixed economy, simply because the landless rural workers (the majority without access to permanent employment) and smallholders (who also formed part of the seasonal wage labor force for the agro-export production) accounted for over 75% of the rural economically active population EAP of 430,065 at the beginning of the 1980's (Deere, 1983, p. 1043). Nationalizing 100% of Nicaragua's arable land was not viable both economically and politically. Moreover, in the early days the State farms were faced with a number of difficult problems. Many workers expected less hard work, less repressive management procedures, and higher wages than what they had experienced during Somoza's regime. In the first years of the Revolution (1980-1984) labor productivity fell and the length of the working day dropped dramatically from 6 to 2.5 hours per day (Spoor, 1990, p. 538).

At this point in time, the Sandinistas not only supported State farms but also gave a private group of large and medium agro-export producers not related to *el somocismo* preferred access to credit and subsidized inputs. Particularly favored were those members of elitist Conservative clans with whom Sandinista guerrillas had had close ties during the insurrectionary period. In fact, expropriation and confiscation did not have a dramatic impact on these families' landholdings and financial interests (Everingham, 2001, p. 64). But as the Sandinista chiefs started to acquire properties in the rural and urban sector, the political support from the middle and upper class started to diminish.

Nationalization was not limited to land. Under Decree 38 the financial system was nationalized along with gold and silver mining, the forest industry and the fishery. The Sandinistas also controlled foreign currency movements and foreign trade of the traditional exports (coffee, cotton, sugar and meat) for they recognized this was an important source of funds. In other words, the State, and not the Private Enterprise, was to assume the governing role in the mixed economy so that progress could be made in terms of education, health and social security (the so called "social wages"). Non-cash benefits also included subsidies on basic goods (food, clothing and other personal necessities). As the State began this strategy of major control in the economy, even the better off private agrarian sector adopted a "wait and see" attitude despite the incentives offered at the early stages of the Revolution. At that point, the high degree of uncertainty was blocking future investment and production decisions.

By the end of the first two years of the Revolution, the State had focused on consolidating the rural sector and organizing the rural population as a work force (Deere, Marchetti, and Reinhardt., 1985) and it can be said that a substantial proportion of the *latifundios* were only transferred from private to public hands. The *Junta* had overlooked the needs of the landless and small producers who waited impatiently for a land reform that could benefit them directly. The Sandinistas responded by issuing a series of land rental regulations, which required landlords to rent unused and under-utilized land at officially regulated rates that were not only below market rates but more importantly in a short period of time were eroded by inflation. The land rental policy was complemented by a liberal agricultural credit policy in order to spur basic grain production and cooperative development (Deere, 1983, p. 1043). Nevertheless, many peasant families spontaneously took over idle land, creating further tension between the government and the bourgeoisie; the business uncertainty was further increased. At the beginning many squatters were evicted but finally political pressure from the peasantry gave way on August 1981 to the enactment of the Agrarian Reform Law. Decree 782 stated: "landowners with over 350 hectares in the Pacific (Western) regions or over 700 hectares in the central regions could have their lands expropriated for under utilization, sharecropping, or disinvestments or if the areas were declared Agrarian Reform zones" (Doner, 1992, p. 44). "Under utilization" or "disinvestments" implied tilling less than 75% of the arable proportion in a given property.

Particularly upsetting for landlords was the disposition towards absentee owners (Decree 760) which allowed the Sandinista administration to confiscate properties of any size (without any kind of compensation) that had been idle or abandoned for at least six months. It is important to point out that in the precedent years the country had suffered war and political instability and many medium and small landlords unrelated to *el somocismo* felt threatened and robbed with the enactment of the Agrarian Reform Law in 1981. State actions under Decrees 760 and 782 affected more than 1,500 properties and an additional 10% of arable land between 1981 and 1988 (Everingham, 2001, p. 64).

It is important to point out that individual plots were not widely assigned because strategic preference was given to a more cooperative, socialist organizational scheme of production. However, Zalkin (1990, pp. 56-59) explains that State efforts to produce corn, rice, sugar and beef using advanced technologies on its own farms in the fertile Pacific region ran into numerous problems. Yields were lower than expected, resulting in high-cost output; management and operational problems also arose. State farm workers were among the lowest paid and they had secure employment because dismissals implied a high political cost for the government. As a result, there was little penalty for shirking. In addition, there was no incentive wage or profit-sharing structure that might have stimulated greater worker effort or concern for successful operation of each enterprise; no participation of workers in decision making was evidenced either. It was the poor profitability shown by the State farms in the first few years that eventually weakened their position as a superior model of production within the MIDINRA and more attention was given to cooperatives.

It must be mentioned that the war played a role in accelerating the government's timetable for the redistribution of land to the cooperatives. Land redistribution became the main tool to strengthen political support and stop the unsatisfied peasantry from collaborating with counterrevolutionary forces as the war intensity escalated. For instance, between October 1981 and December 1983, an average of 937 families per month received some sort of agrarian title over their land holding. But political discontent was evident in the results of the 1984 elections. As a consequence, around 30,000 titles were given to squatters on that same year even when the State had not reached any legitimate compensatory arrangements with the previous owners. In 1984, the average of families per month receiving agrarian titles increased to 3,324 (Kaimowitz & Stanfield, 1995, p. 73). Such hasty "legalizations" undermined the legitimacy of the land reform process but there was additional and real pressure from the resettlement of peasants living in the conflict zones[5]. By March 1985 there were 170,000 displaced people for whom the government had to provide land and basic housing conditions in the western zone of Nicaragua (Melrose, 1985, p. 37).

As those affected by the confiscations started unsuccessful litigations during the 1980's to obtain restitutions or financial compensations, the beneficiaries of Agrarian Reform titles did not experience enough tenurial security and so work incentives were low and investment (if undertaken at all) was usually sub-optimal. By 1990 (when the opposition came to power) the volume of property restitution claims exceeded the total size of the country's land area (Merlet & Pommier, 2000 cited by Deininger & Chamorro, 2004, p. 103). It was not until March 1990 that the National Assembly (still dominated by Sandinista deputies) rushed to pass the Law of Protection of Agricultural Property, which guaranteed land rights acquired by individual producers, cooperatives, and indigenous communities that had received titles between 1980 and 1989, and also granted the full disposition of ownership through Agrarian Reform. Thus, for some, their titles were not guaranteed for a decade.

Originally the Sandinista policy makers had hoped that small peasants would merge their individual plots and turn them into production cooperatives. In fact, this happened only in isolated instances. In the vast majority of the cases, it was the incentive of access to land which provided the incentive to form a production cooperative. At the same time, easy access to credit and subsidized inputs were an important incentive.

There were two types of cooperatives: CCS (Credit and Service Cooperatives) and CAS (Sandinista Agricultural Cooperatives). In CCS's members retained individual title to their land, but in CAS's members held a collective land title. The CCS's were formed by existing smallholders who had wide access to credit but did not obtain additional land. Under CAS's, members were assigned land and were supposed to pool their resources, set their own work norms, divide profits and take investment decisions. Kaimowitz and Stanfield (1995, p. 61) point out that practically all capital formation on the CAS's came from bank loans and access to land continued to be the most important incentive in their formation. In 1982, 2,800 cooperatives had been established (46% CCS and 54% CAS) comprising 68,434 members. By 1983, almost 15% of Nicaragua's arable land was organized into cooperatives. The Sandinista regime leaned heavily on co-operators to conform their economic decisions to a State-directed development agenda. The vast majority of CAS lands -over 97%- originated in lands confiscated from large estates. As a result, CAS's members' production and investment decisions were not executed unless they were congruent to the State's economic program. In most cases, the State imposed and directed the entire production process of the CAS's.

Even though production of corn, beans and rice shot up in the first year of the reform, it is not clear in the literature whether it was a real effect of improved collective technical efficiency or just the effect of an expansive credit policy (Carter, 1989). According to Deere, Marchetti and Reinhardt. (1985), very few cooperatives engaged in long term investment, and many were dissolved soon after receiving credit.

Jonakin (1994) explains that the usurpation of operational control by the State had devastating consequences for work incentives and performance of the cooperatives. The author claims that State interventions induced co-operators to adopt land use patterns which favored collective areas to the near exclusion of household plots. There was also strong pressure to sow and market crops that accorded with the government's rather than peasants' preferences. Moreover, peasants were forced to implement capital intensive technology which annulated the opportunity to involve family members in the collective tilling.

Work incentives were also hampered by the imposition of unrealistically high rates of investment from retained earnings. For example, Article 123 of the Cooperatives General Rules required that earnings net of operating costs be divided among four funds: Contingency Fund (10%), Social and Education Fund (15%), an Investment Fund (25%) and a Distributed Profits Fund (50%). More importantly, the State did not define clear collective property rights and was slow to grant titles that could make cooperative membership worth the effort. Additionally, cooperatives were the main targets of counterrevolutionary attacks because their objective was to undermine the population's involvement in the Sandinista political and economic program.

It was hoped that the CAS would capture production and administrative scale economies, promote the modernization of agriculture and assure formerly landless workers or *minifundistas* access to productive resources (Jonakin, 1995, p. 242). But considering that up to 10% of the cultivable land on the CAS was reported to be idle in 1985 both unemployed family members of the co-operators and the still landless rural population rightfully came to see the CAS as another inefficient *latifundio*. It was obvious that the ill-defined membership and the lack of material incentives fostered by State intervention in the running of cooperatives contributed greatly to their disappointing performance.

Dispositions changed in 1985 as the Sandinista government reversed its earlier stands and began to give titles to individuals without insisting they enter a cooperative. Even though the land distributed was free of charge to the beneficiaries, it came with a list of restrictions. The assignment took place through the issuance of an Agrarian Reform Title by the Ministry of Agriculture. The titled land could not be rented out or sold and although it could be inherited, subdivision among heirs was not permitted. Consequently, the land market activity was hindered and agrarian titles were seen as inferior forms of land titles.

Even though the titled land could be used as credit guarantee, it could not be taken and sold by the bank in the case of non-payment (Kaimowitz & Stanfield, 1995, p. 57) simply because the entire banking system had been nationalized anyway. As a result, Agrarian Reform beneficiaries, both cooperatives and individuals, usually ended using credit for family consumption instead of investment given the highly uncertain and unstable political scenario. It was a clear situation of moral hazard.

In summary, the revolutionary administration failed to secure formal tenurial arrangements for individual small producers and even cooperative members who represented critical components of the revolutionary alliance (Enríquez, 1991 y Martínez, 1993, cited by Everingham, 2001, p 65). By 1988 only 55,000 of the 120,000 households located in cooperative zones had received private titles. In September 1989, cooperative leaders and small peasants advocated the creation of a land registry for the entire reformed sector, but the government did not seriously pursue the proposal (Everingham, 2001, pp. 65 - 70).

Table 2. Distribution of Land Ownership in Nicaragua 1978-1988 (%)

Sector	**1978**	**1981**	**1982**	**1983**	**1984**	**1985**	**1986**	**1987**	**1988**
Private:	100	76.6	74	64.8	63.5	61.7	60.9	60.4	60.3
Over 500 Mzn	36.2	14.8	12.5	14	12.7	10.9	9.9	9.5	9.4
200-500 Mzn	16.2	14.8	14.7	12.6	12.6	12.6	12.4	12	12
50-200 Mzn	30.1	29.6	29.5	29.6	29.6	29.6	29.9	30	30
10-50 Mzn	15.4	15.3	15.3	6.9	6.9	6.9	7.2	7.2	7.2
Less than 10 Mzn	21	2.1	2.1	1.6	1.6	1.6	1.6	1.6	1.6
Reformed:	0	23.4	26	35.2	36.5	38.3	39.1	39.6	39.7
Cooperative	0	5.7	5.8	14.7	17.8	19.1	21.1	23.3	23.4
CCS	0	4.3	4.3	10	10	10	10	10	10
CAS	0	1.4	1.5	4.7	7.8	9.1	11.1	13.3	13.4
State farms	0	17.7	20.1	20.5	18.8	19.2	13.4	13.3	12.4
Abandoned	0	0	0	0	0	0	4.6	3	3.9
Total	100	100	100	100	100	100	100	100	100

Source: Spoor (1990, p. 524)

The Sandinistas had clearly committed to extending socialist tenurial schemes in the Nicaraguan rural sector. Table 2 illustrates the evolution and extent of the Sandinista land reform. Despite the disappointing performance of State farms, their inefficient productive demands were prioritized until 1986 when the Government finally turned to cooperatives in order to steer the development of the agricultural sector and refrain the political pressure from those who they promised to benefit at the beginning of the Revolution. But the formation of cooperatives in the second half of the decade was no socio-economic panacea. Besides not granting secure property titles and sabotaging work incentives through abusive State control within cooperatives, the uncoordinated effects of public policies in the different agrarian markets contributed to a definite disarticulation of the agricultural productive system.

4.2. State Intervention in the Agrarian Markets

States intervene in agrarian markets to achieve a set of economic and political objectives which usually include food security, income distribution, rural welfare, poverty alleviation, promotion of political stability and economic growth.

Before 1979 the "normal" working of the market had led to resource monopolization by the ruling elite. In the expanding agro-export model, *latifundistas* pushed basic grains peasants to the agricultural frontier where they found severe limitations of land (in terms of quality) credit, access to markets and supply of consumer goods.

Spoor (1990, p. 528) describes how the agricultural markets were dominated by a well articulated network of transporters, peddlers, merchants and agents of landlords, who came to the farm gates to buy the harvest. Many times the future harvest was sold in advance because of the lack of income in the non-harvest season. The situation was not very different from that one portrayed in Bhaduri's (1973) agricultural backwardness under semi- feudalism model.

Agricultural workers were subjected to a more direct system of exploitation. They did not have the possibility to buy consumer goods in the market place because landlords usually paid them with vouchers and certificates which only had value in the shop or commissariat of the *patrón*. In the literature, the commissariat is described as a versatile institution. Commodity goods were not only sold at ridiculously high prices, but expensive credit was extended to small producers, setting a substantial burden on their output.

It seemed that the exploitative nature of interlinked contracts provided the agrarian markets with a substantial degree of coordination. The Revolution had a highly politicized concept of the market and particularly of the private trader. They reasoned that capitalist relationships like speculative marketing, land and credit practices prevented the majority of the rural population from benefiting in the productive process. Therefore, the State made an enormous effort to create new structures that would protect urban consumers and would avoid squeezing rural producers.

The Sandinista government thus used instruments such as overvalued exchange rates, administrative prices, subsidized agricultural credit and inputs, State procurement and food distribution through a network of urban and rural shops to steer agrarian markets. However, policies turned terms of trade against the peasantry and the real value of agricultural wages dropped drastically. The real wages of agricultural workers went down by 30-40% in the first years of the Revolution. The situation was so dramatic that a substantial move towards non-agricultural and particularly commercial activities did not increase agricultural wages (Spoor, 1990, p. 541). As will be seen, the erosion of financial incentives led to complete agricultural stagnation by the end of the 1980's.

In one sentence, with the Sandinista Agrarian Reform, a severe disruption of previously existing commercial systems occurred (FitzGeral, 1985, p. 219, cited by Jonakin, 1995, p. 525). In the following subsections, the contribution of fixed prices, control of marketing services and subsidized credit to such disruption will be analyzed.

4.2.1. Price Controls for Agricultural and Consumption Goods

A primary objective of the State was to protect urban consumers from price increases in goods of basic consumption (non-cash benefits). Food was widely subsidized and to make such program viable, the government set prices that were generally not high enough to encourage the expansion of the marketed agricultural output.

Prices were also biased in their calculation because data from small peasants were not available. Therefore, the production costs of large and medium peasants, who employed different technologies from the small peasantry, were used by the government agencies to fix prices that could provide an expected profit margin of 5-20%. However, information on the generation of net revenues, supply elasticity, short term risks, relative prices, etc. was usually not taken into consideration (Spoor, 1993, p. 604). In fact, official producer's prices for corn and sorghum during the first four or five agricultural seasons after 1979 were so low that peasants using traditional technology and having low yields were not able to recover their production costs. For some years, the dominant and erroneous vision in MIDINRA was that small peasants did not produce for the market anyway. Such misconception contributed to the decline of agricultural production and the needs of the small peasantry were disregarded to favor the urban sector.

Table 3. Evolution of Relative Prices in the Countryside: 1978-1984
(Current prices, Córdobas)

Producer prices:

Product	Unit*	1978	1984	Growth Rate
Corn	Quintal	45	325	7
Beans	Quintal	110	800	7
Coffee	Quintal	972	2500	3
Milk	Gallon	5.8	27.5	5

Consumer prices:

Product	1978	1984	Growth Rate
Machete	22	400	18
Rubber Boots	18	500	28
Trousers	22	1800	81
Shirt	10	1400	140

* Quintal = 45.6 kg / Gallon = 231 cubic inches

Source: Spoor (1990, p. 531)

As a result, incentives for peasants were incorrectly calculated and by 1984 real prices had been allowed to fall, and consumer goods were in short supply in rural areas. Eventually, this turned terms of trade against the peasantry. Table 3 roughly reflects how much their purchasing power was damaged.

Table 4. Macroeconomic Indexes 1980-1989

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Inflation (%)	24.3	23.2	22.2	32.9	50.2	334.3	747.4	1,347.3	3,3603.0	1,689.1
Official ER	10.0	10.0	10.0	10.0	10.0	28.0	70.0	70.0	920.0	38,150.0
Black Mkt ER	18.7	39.0	80.0	170.0	450.0	1,000.0	3,200.0	3,5000.0	5,500.0	50,000.0

Source: Spoor (1993, p. 638)

Prices were indexed to the official exchange rate, however, the gap between the official and parallel market was significant. Confronted with such new price conditions, richer peasants decreased their production of basic grains while medium and smaller peasants rationally tried to sell their products at high prices while taking advantage of the subsidies to buy food cheap. By the time the revolutionary government realized that its price incentives were insufficient to foster agricultural growth, it was unfortunately too late. Despite having all subsidies removed, and increasing the set output prices, by the mid 1980's, the effect was eroded by the galloping inflation due to the escalating war context. As shown in table 4, by 1988 inflation was above 33,000%.

4.2.2. Control of Distribution and Marketing Channels

Distribution of consumer goods and farm inputs was organized through the new State agency ENABAS (Empresa Nacional de Alimentos Básicos). But, the State distribution channels in the countryside were not able to effectively replace the pre-revolutionary marketing systems that had been eliminated. The marketing system was inefficient leading to shortages and queues. The disappearance of old supply systems (for example, the shops or commissariats ran by the landlord for his workers and peasants) forced the rural population to look for "outside" markets (Spoor, 1990, pp. 528-532). At the same time, Zalkin (1998, pp. 56-59) explains how administrative limitations were a constant hamper in the commercialization of agricultural output. For instance, ENABAS payments by cheque to peasants were difficult to cash, grain storage facilities were not located in areas of greatest production and the insufficient State transport to collect grain made the entire process of handling the agricultural production troublesome and slow. In one sentence, high transaction costs along with the costs imposed by war were leading to complete stagnation in the agricultural sector.

The pan-territorial pricing policy which was introduced in early 1981 and the increased limitations for private traders to operate legally brought about a situation in which, for some time, ENABAS effectively became market leader in many grain producing areas (Jonakin, 1995, p. 522). However, the lack of price discrimination for the quality of output and the simple fact that the State could not attend the marketing needs of more than 100,000 peasant families scattered across Nicaragua's mountainous interior, caused the segmentation of markets and within a few years the appearance of parallel markets.

The urban bias of price policy together with the development of parallel markets contributed to a worsening of the terms of trade for the peasantry. In fact, the peasantry became more and more strangled by the "market conditions" of parallel circuits, in which they were not officially allowed to sell their produce, but were in practice forced to buy their consumption necessities.

Zalkin (1998, p. 82) argues that State marketing services and guaranteed producer grain prices were more of a restriction than a benefit. Agro-export producers were also affected by both price and marketing controls. A characteristic case is that of coffee producers. Colburn (1984, p. 505) explains that under the Sandinista administration the coffee industry became subject to extensive State control: 65 centers were established to receive the harvests which the government paid for at officially imposed prices. Moreover, since the State controlled foreign exchange, producers were paid the international prices in córdobas at the overvalued official exchange rate. Output and quality levels started to decline in the absence of financial incentives and this increased uncertainty. However, Colburn (1984, p. 510) also describes that the fixed-investment nature of coffee production and the threat of confiscation ensured that producers did not abandon the activity completely, since un-used land was subject to confiscation without any State compensation.

4.2.3. Subsidized Credit and Inputs

An economic goal of the Sandinista credit policy was to alter the distorted pattern of agricultural growth and income distribution promoted under the agro-export model. For example, in 1978 only 20,000 peasant families covering 88,000 manzanas received credit, whereas during the period 1981 -1984 the average number of peasant families receiving rural credit rose dramatically to 81,600 on 282,000 manzanas (Enríquez & Spalding, 1987, p. 113).

Receipt of credit was expected to enhance the net revenues and so, massive access to credit was granted. In fact, it has been argued that the Sandinista credit program virtually eliminated all forms of credit rationing except borrower self-selection (Carter, 1989, p. 15). The data set used by Carter (1989) reported only 71 cases of credit denial by the bank out of some 2,100 loan applications. Moreover, in response to natural disasters, such as hurricanes and droughts in 1982, 1983 and 1988, peasant credit obligations were forgiven. Because of high rate of default and the implicit subsidy through fixed (non-indexed) interest rates during times of inflation, credit effectively became an important source of income during the non-harvest season. Eventually, these State credit procedures along with the social and war expenditure led to unsustainable external debt.[6]

In the case of agro-export producers, despite the generous access to credit, there were no incentives to invest because of the uncertainty generated by the war, the threat of squatters and the generalized perception of arbitrary land confiscations. Colburn (1984, p. 513) claims that even a government report acknowledged that coffee growers were unwilling to commit their own capital to investment in coffee production.

The effect of factor subsidies was to introduce profound distortions in relative factor prices, resulting in factor misallocation and social inefficiencies, as well as growing trade deficits (Jonakin, 1996, p. 68). For example, by 1987 Spoor (1993, p. 630) reported that tractors were cheaper than a pair of oxen. Eventually the capital intensive technology worsened agricultural unemployment.

The Nicaraguan case proves that abundant access to credit and other subsidized inputs (fertilizers, machinery, etc.) does not necessarily lead to growth. More importantly, it reconfirms the major impact that financial incentives, marketing institutions and economic and political stability have on development.

5. Conclusions

The Sandinista Agrarian Reform altered profoundly the Nicaraguan institutional framework. By the 1990's property rights to over 40% of the country's land had been altered and not clearly redefined. Moreover, the sudden formulation of the Law of Protection of Agricultural Property (March 1990) created further tensions because the law exposed serious flaws in the titling method. The Inter-American Development Bank has estimated that around US$2 billion would be necessary to compensate 75% of the original owners. Everingham (2001, pp. 65-78) argues that such amount would jeopardize the national economic health by placing an unsustainable fiscal burden.

Ultimately, the Sandinista Revolution did not achieve any of the two principal economic goals stated by Close (1988). Firstly, instead of restructuring the economy to make it less dependent on the export of raw materials, Nicaragua's GDP and volume of exports declined precipitously under the combined conditions of internal war and poor State performance (see table 5). Secondly, the Agrarian Reform did not achieve its objective of providing long-term benefits to the "popular" classes. The Gini coefficient, reflecting the degree of land ownership inequality, in a study by Deininger and Zegarra (2003, p. 1390), was estimated to be 0.86 by the late 1990's, although this reversal in ownership distribution has not been studied in depth.

Table 5. GDP and Exports Evolution

	1979	1980	1982	1984	1986	1988	1989	1990
GDP*	1,612.70	2,079.90	2,725.90	2,777.90	2,204.20	1,449.30	1,020.60	1,516.70
Exports FOB*	566.5	445.1	408.2	413	247.8	232.6	310.8	330.5
Export / GDP	35.1%	21.4%	15.0%	14.9%	11.2%	16.0%	30.5%	21.8%

* Millions US$
Source: Banco Central de Nicaragua

The above-mentioned suggests that the land reform, which affected a substantial fraction of the cultivable territory, along with its interventionist agrarian policies, not only failed to alter the pre-1979 exploitative market structures but it incited institutional friction, increased public indebtedness, damaged work incentives and disarticulated the agrarian production system. Key determinants to this outcome were: the lack of organizational capacity, the loss of financial incentives, the urban bias of the agrarian policies, the failure to allocate clear property rights, the increased level of business uncertainty and the perceived level of arbitrariness in the land reform process.

Naturally, the war also contributes to explaining the poor performance of the Sandinista administration. Even though the conflict was geographically confined and it never reached the fertile lands of Nicaragua's pacific coast, it destabilized the Revolution's economic program in several ways. The Counterrevolutionary attacks served to perpetuate business uncertainty; to undermine political support and to create a shortage of rural labor supply because of the government's need to expand the national army.

Nevertheless, Zalkin (1990, p. 64) summarizes the problem of the Sandinista Revolution as not being able to promote the right incentives in the economy. He argues that even without the effects of the war, the excessive bureaucratic control would have still substantially contributed to the decline of agricultural production.

Still, as land restitution claims are slowly resolved and legitimate property titles are issued, it becomes clearer that without a coordinated functioning of relevant factor markets, opportunities for rural development are minimal. It is important to recognize that in developing economies, markets are usually incomplete and imperfect, perpetuating unequal access to resources that increase poverty levels. For such reason, defining an accurate degree of State intervention in the relevant agrarian markets is crucial and finding the balance between market and policy incentives in fragmented economies is a real challenge.

Notes

1 Nicaragua's total land area is 8,073,000 manzanas. (1 manzana = 0.7 hectares = 1.75 acres) (Zalkin, 1990, p. 48).
2 20% of the country's arable lands belonged to the Somoza family (1936-1979) and their associates (Close, 1988, p. 83).
3 It has been estimated that of all tenanted land, some 84.5% is sharecropped in Asia while only 16.1% is sharecropped in Latin America (Todaro & Smith, 2003, p. 433)
4 Equivalent to approximately 1.6 million manzanas.
5 The conflict zones included the eastern and central-northern regions of the country: Nueva Segovia, Madriz, Estelí, Jinotega, Matagalpa, Río San Juan and the Atlantic Autonomous Regions (Melrose, 1985, p. 37).
6 In 1978 the per capita external debt was US$ 350.6, but by 1989 it had reached US$2,569.5 (population 1978: 2 410 000; population 1989: 3 750 000) (Oxford Latin American Economic History Database, n.d.)

References

Banco Central de Nicaragua. (n.d.) *Estadísticas 1960-2000*. Available in http://www.bcn.gob.ni Consulted on: September 10, 2006

Baumeister, E. (July-September 1984). "Estructura y Reforma Agraria en el Proceso Sandinista". *Desarrollo Economico. 24*(94) pp. 187-202.

Berry, R. & Cline, W. (1979). *Agrarian Structure and Productivity in Developing Countries*. Baltimore: John Hopkins University Press.

Bhaduri, A. (1973). "A Study in Agricultural Backwardness Under Semi-Feudalism". *The Economic Journal 83*(329) pp. 120-137

Binswanger, H. & Deininger, K. (December 1997). "Explaining Agricultural and Agrarian Policies in Developing Countries". *Journal of Economic Literature. 35* pp. 1958-2005.

Carter, M. (1989). "The Impact of Credit on Peasant Productivity and Differentiation in Nicaragua". *Journal of Development Economics. 31* pp. 13-36.

Colburn, F. D. (July 1984) "Class, State, and Revolution in Rural Nicaragua: The Case of Los Cafetaleros". *Journal of Developing Areas. 18*(4) pp. 501-18.

Collin, J. (1982). *What Difference Could a Revolution Make? Food and Farming in the New Nicaragua.* San Francisco: Institute for Food and Development Policy.

Close, D. (1988). *Nicaragua: Politics, Economics and Society*. Marxist Regimes Series. London: Pinter Publishers.

Deere, C. D. (December 1983). "Cooperative Development and Women's Participation in the Nicaraguan Agrarian Reform" *American Journal of Agricultural Economics. 65*(5) pp. 1043-48.

Deere, C., Marchetti, P. & Reinhardt, N. (1985). "The Peasantry and Sandinista Agrarian Policy, 1979-1984." *Latin American Research Review 20*(3) pp. 75-109.

Deininger, K. & Chamorro, J. S. (March 2004) "Investment and Equity Effects of Land Regularization: The Case of Nicaragua". *Agricultural-Economics. 30*(2) pp. 101-16.

Deininger, K. & Zegarra, E. (August, 2003). "Determinants and Impacts of Rural Land Market Activity: Evidence from Nicaragua". *World-Development. 31*(8) pp. 1385-1404.

De Janvry, A. (1981). *The Agrarian Question and Reformism in Latin America*.Baltimore:

John Hopkins University Press.
Doner, P. (1992). *Latin American Land Reforms: In Theory and Practice. A Retrospective Analysis*. Madison: The University of Wisconsin Press.
El-Ghonemy, M. R. (1990). *The Political Economy of Rural Poverty. The Case for Land Reform*. London: Routledge.
Enriquez, L. & Spalding, R. (1987). “Banking systems and revolutionary change: The politics of agricultural credit in Nicaragua”. In R. Spalding (Ed) *The Political Economy of Revolutionary Nicaragua*. Boston: Allen & Unwin, Inc.
Everingham, M. (Fall 2001). “Agricultural Property Rights and Political Change in Nicaragua”. *Latin-American Politics and Society*. *43*(3) pp. 61-93.
Ghatak, S. (1987). “Agriculture and Economic Development”. In N. Gemmel (Ed) *Surveys in Development Economics*. Oxford: Basil Blackwell Ltd.
Godoy, R. & Hockenstein, J. (November 1992). “Agricultural Research Bias in Nicaragua: The Case of Beans”. *World Development*. *20*(11) pp. 1685-1696.
Griffin, K. (1969). *Underdevelopment in Spanish America. An Interpretation.* London: George Allen and Unwin Ltd.
Hallett, G. (1968). *The Economics of Agricultural Policy.* Oxford: Basil Blackwell Ltd.
Jonakin, J. (July 1996). “The Impact of Structural Adjustment and Property Rights Conflicts on Nicaraguan Agrarian Reform Beneficiaries” *World-Development*. *24*(7) pp. 1179-91.
Jonakin, J. (1995). “Worker Self-Management and Work Incentives on Nicaraguan Agricultural Production Cooperatives: An Investigation of Relative Performance”. *Canadian Journal of Development Studies 16*(2) pp. 241-59.
Jonakin, J. (1994). “The Transition from External Constraint to Enterprise Autonomy on Nicaraguan Agricultural Production Cooperatives”. *Canadian Journal of Latin American and Caribbean Studies*. *19*(37-38) pp. 61-87.
Kaimowitz, D. & Stanfield, D. (1995). “The Organization of Production Units in the Nicaraguan Agrarian Reform”. *Interamerican Economic Affairs*. (39) pp. 51 – 77.
Melrose, D. (1985). *Nicaragua: The Threat of a Good Example?* London: Oxfam Public Affairs Unit, United Kingdom.
Otsuka, K., Chuma, H. & Hayami, Y. (1992). Land and Labour Contracts in Agrarian Economics: Theories and Facts. *Journal of Economic Literature* 30(December), 1965-2018.
Oxford Latin American Economic History Database (n.d.). Available in http://oxlad.qeh.ox.ac.uk Consulted on September 10, 2006.
Reinhardt, N. (1987). “Agro-Exports and the Peasantry in the Agrarian Reforms of El Salvador and Nicaragua”. *World Development 15*(7) pp. 941-59.
Saravia, S. (2003). *Reflexión, Antología de Ensayos*. Managua: Impresiones y Troqueles S.A.
Spoor, M. (July-September 1993). “La Política de Precios Agrícolas en Nicaragua Durante el Régimen Sandinista (1979-1990)”. *E -Trimestre Económico*. *60*(3) pp. 601-41.
Spoor, M. (1990). “Rural Employment and Agrarian Markets in Transition: Nicaragua (1979-89)”. *The Journal of Peasant Studies*. *17*(4) pp. 520-545.
Todaro, M. & Smith, S. (2003). *Economic Development*. (8th ed.) New York: Addison-Wesley.
Zalkin, M. (Fall 1998). “Nicaragua, The Peasantry, Grain Policy and the State” *Latin American Perspectives*. *15*(4) pp. 71-91.
Zalkin, M. (1990). “The Sandinista Agrarian Reform: 1979-1990?” *International Journal of Political Economy*. *20*(3) pp. 46-68.