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Poverty Reduction Through Dispossession: The Milk Boom and the Return of the Elite in Santo Tomás, Nicaragua

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Summary. — Ideally, poverty indicators improve because poor people's livelihoods are improved. They can, however, also improve because poor people are expelled from the territory. This article explores the case of the cattle region of Chontales, Nicaragua, which during 1998–2005 experienced economic growth and declining poverty rates, spurred by investments and organizational development. The article argues that in the absence of pro-poor coalitions, these investments facilitated the return and strengthening of the local elite and that the observed decline in poverty rates emerges as the result of dispossession and subsequent exodus of the poor rather than of inclusive economic growth.

Key words — Agrarian structure, development cooperation, public investments, economic growth, Central America, Nicaragua

1. INTRODUCTION

Expectations have been high since the mid-1990s that the livestock and dairy value chain would contribute to Nicaragua's economic development. These expectations grew even further with negotiations for the Central America Free Trade Agreement (CAFTA) and with the formulation of the National Development Plan (Government of Nicaragua, 2004). During the 1990s and into the first decade of the twenty-first century, Nicaragua's economic policy encouraged investment in the dairy cluster, in order to transform it into an 'engine of economic growth and poverty reduction' (Government of Nicaragua, 2001, 2004). The key policy goals have been to increase the national cattle herd, milk production, and cheese exports; raise domestic milk consumption; increase the production and export of meat; promote environmental sustainability; and improve the road network, provide electricity, and improve the water supply in the livestock region (Government of Nicaragua, 2004). These goals have been pursued through both public investments (to a large extent financed through international development cooperation to improve and expand basic infrastructure and to strengthen the cooperative sector and local government institutions) and private investments (often from abroad) that have sought to develop the dairy infrastructure (milk collection, cooling, and processing).

At first sight, many of these expectations appear to have been met. During 1998–2005, [1] 53 of Nicaragua's 141 rural districts experienced significant growth in average per capita consumption. Fourteen of these districts are located in the livestock region (Rodríguez *et al.*, 2012). Since the late 1990s, the livestock herds which had been decimated due to the land reform and the civil war affecting Nicaragua during the 1980s, have been re-established and the production of milk for the domestic market has grown considerably, as has that of other types of dairy products, notably the type of cheese known as *quesillo* both for export to El Salvador, Honduras and lately also United States of America as well as for the domestic market. A bit more than a quarter of this Nicaraguan milk production originates from the three districts – Santo Tomás San Pedro de Lóvago and Villa Sandino – that comprise the Santo Tomás area (Gómez & Ravnborg, 2012). Among these three, the Santo Tomás district stands out because it also reduced the percentage of the population below the poverty line (as measured by annual consumption), from 60% in 1998 to 55% in 2005. At face value, then, the milk boom of the Santo Tomás area appears to be a successful example of the type of pro-poor livestock sector development advocated by Otte *et al.* (2012).

Based on empirical research conducted in the Santo Tomás area during 2008–10, this paper examines the relationship between this set of concurrent events of sustained public and private investments, economic growth and poverty reduction. It does so by following the territorial actors (see Berdegué, Bebbington, & Escobal, 2015; Escobal, Favareto, Aguirre, & Ponce, 2015) who individually or collectively through different network constellations seek to promote, alter, or capture specific investments or institutional changes in order to achieve specific individual or societal outcomes (Araujo, Ferreira, Lanjouw, & Özler, 2008; Mahoney & Thelen, 2011; Robinson, 2010). These territorial actors include traditional large-scale land owners as well as small-scale farmers and dairy cooperatives (many of which were established with support from international development cooperation in the wake of the 1990 peace agreement), merchants, public employees, and politicians. The paper argues that despite the rupture made to the highly unequal distribution of economic (land)

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and political power through the Sandinista land reform and the associated expropriations carried out during the 1980s, the traditional elite managed not only to re-establish itself as livestock farmers. Upon their return to the Santo Tomás area during the early 1990s and through their own mutual networks as well as alliances forged with international development cooperation and national policy makers, members of the traditional elite managed to establish themselves as part of the dairy sector and thus to strengthen their economic and political position. Meanwhile, in the absence of a strong pro-poor coalition, small-scale farmers gradually gave up or sold their land to establish themselves as (livestock) farmers further inland or to form part of the urban poor or the migratory labor force that provides its labor mainly to Costa Rica.

The paper is organized into six parts. The next section describes the three sets of empirical data upon which the paper is based, and is then followed by a section which introduces the Santo Tomás area and its trajectory over time, with a particular focus on its changing agrarian structure. The fourth section provides an account of the economic and institutional changes that have occurred in the wake of the public and private investments that have been made, primarily in support of the dairy sector. On this basis, the fifth section analyzes these changes from a political economy perspective in order to examine the extent to which the observed poverty reduction in Santo Tomás can be attributed to the dairy investments and the subsequent milk boom, while the sixth and last section concludes and provides some final reflections.

2. DATA AND METHODS

The empirical basis of this paper consists of three sets of data. The first two data sets are based on semi-structured narrative interviews held with a total 84 key informants and six focus groups in rural communities and urban neighborhoods. The aim of these interviews was threefold. First, the interviews served to trace the economic, political, and social interactions among territorial actors such as cattle ranchers, merchants, public employees, and politicians. Second, the interviews served to identify perceptions of the economic, social and environmental changes in the area, and of the factors perceived to have contributed to those changes. Third, the interviews aimed to identify institutional changes that had occurred and the key actors who had tried to promote or impede those changes. The interviews were transcribed, coded, and analyzed using the program NVivo for qualitative text analysis. This set of transcribed and coded interviews constitutes the first data set.

Drawing on the same set of interviews, the identified social actors (individuals, groups of individuals and organizations) as well as the types of relations (family, friendship, political and economic) among them were tabulated and analyzed using the social network analysis program Ucinet and the software package for statistical analysis SPSS. This actor-network database constitutes the second data set.

The third data set is based on a questionnaire-based survey on household poverty and the household's engagement in the dairy economy as individual farmers and through their engagement with dairy cooperatives. The survey was conducted in 2009 and administered to two independent samples of households – one urban and one rural – of 250 households each, selected as random samples through a two-step sampling procedure. Data were tabulated and analyzed using SPSS. Inspired by the reservations expressed by Sen (1981, 1985) toward understanding and measuring poverty and well-being solely on the basis of income or expenditure data, the poverty profile was developed on the basis of people's own perceptions of poverty, identified through well-being rankings. The descriptions of different poverty levels resulting from the rankings were 'translated' into indicators [2] and these indicators formed the basis for constructing a household poverty index and an associated set of three poverty categories. Thus, based on data obtained through the questionnaire survey, households were classified as belonging to the category of 'poorest', 'less poor' or 'non-poor' households. For further details on the methodology and how it was applied in this study, see Ravnborg *et al.* (1999) and Gómez and Ravnborg (2011), respectively .

3. THE SANTO TOMÁS AREA – ITS AGRARIAN STRUCTURE AND THE BECOMING OF A LIVESTOCK PRODUCTION CLUSTER

The Santo Tomás area is located in the Chontales department which borders the eastern shores of the Cocibolca Lake, also known as Lake Nicaragua, and comprises the districts of Santo Tomás, San Pedro de Lóvago, and Villa Sandino. Santo Tomás and San Pedro de Lóvago were founded in 1861 and 1864 respectively, when the government of General Tomás Martínez decided to relocate the Loviguisca indigenous community to those areas. It is estimated that at the time of the relocation the Loviguisca community comprised approximately 250 people (Espinoza, 2009). [3] Villa Sandino developed around the Pueblo Viejo settlement that grew from a construction camp for the workers building the road connecting Chontales to El Rama and Muelle de los Bueyes. In 1892, the settlement only had three houses.

At this time the first settler families had arrived to the area. Among these families were the Bravo, López, Orozco, Vargas, and Sovalbarro families in Santo Tomás; the Gonzalez and Miranda families in San Pedro de Lóvago; and the Duarte family in Villa Sandino. [4] These families established their *haciendas* (estates) on the *ejidos* (areas declared 'common land'). By going to the mayor's office to claim a piece of land that 'belonged to no one,' and by paying one peso per year for between 100 and 150 *manzanas* [5] (between 70 and 105 hectares), they obtained use rights to the land. Those who were able, continued to pay the rent year after year, until eventually they could claim possession of the land and obtain ownership rights. According to Espinoza (2009), some families acquired as much as 800 *manzanas* of land in this manner. Meanwhile, indigenous communities also received common lands when they were relocated. However, as they could not pay the rent, they became indebted to those who could pay. Little by little they lost their land rights and finally ended up as casual farm laborers.

The population in the Santo Tomás area did not exceed 10,000 people until around 1940. However, particularly from 1950 onward with the opening of the road connecting Managua to Chontales and further on to El Rama, the population started growing more rapidly, in the first place through the arrival of peasant families from the northern and western parts of the country who were being displaced by the expansion of the banana and cotton companies (Espinoza, 2009). The majority of the families who arrived in the 1950s and 1960s settled on land belonging to the large estates, where the owners allowed them to plant crops as tenant farmers. It is estimated that in the Santo Tomás area in 1963, approximately half of all rural households had no land (Instituto Nacional de Estadísticas y Censos [INEC], 1963). At the same time, the 1.4% largest agricultural properties accounted for 35% of the total agricultural area in the Department of Chontales, while the 38% smallest properties accounted for barely 2.7% of the

total agricultural area (INEC, 1963). One-third of the agricultural properties in Chontales were located in the three municipalities that comprise the study area. Calculating on the basis of the 1963 Census, the average size of an agricultural property is estimated to have been 90 *manzanas* for the Department of Chontales; 77 *manzanas* in Santo Tomás, 80 *manzanas* in San Pedro de Lóvago, and 109 *manzanas* in Villa Sandino or Villa Somoza as the district was called at that time (INEC, 1963).

This process of gradual consolidation of the dual agrarian structure which had characterized the Santo Tomás area since its early colonization coincided with the construction of the highway connecting the area to Managua and was further deepened when in 1972 the Somoza government defined livestock production to be the 'third pillar' of the Nicaraguan export economy:

> Chontaleños, men of age, will know that Nicaragua was primarily an exporter of coffee, only; then came a revolutionary man who introduced the crop of cotton, which he made another source of exports. This man was General Anastasio Somoza García; now the third line of exports is livestock production, which is very close to your hearts.
> [Revista Chontales, 1972:36]

This led to a number of publicly funded programs to further strengthen livestock production in the area, including investments in roads and highways, genetic improvements to the herd, construction of industrial slaughter houses and milk storage and processing plants (Biondi-Morra, 1990; Pratt & Pérez, 1997; Williams, 1986).

Prior to the construction of the road to Managua, livestock production was mainly directed toward the local market. As Ronald Martínez, son of one of the founding families describes:

> Cheese was made by hand [...] My father used to come [to Santo Tomás from the farm] on a mule every two or three days to leave the cheese. He sold Chontales cheese. That was for local consumption; it never got to Managua. Before it [the road] was constructed, the exit from here was via the lake. There was a road, but not to Managua; it went to Puerto Díaz. That was prior to the 1940s; in those days they also brought the gold out from the La Libertad mines by mule, and would take it to the port in Acoyapa; it would all go to the lake.
> [Personal communication, Ronald Martínez, Santo Tomás, January 13, 2010; own translation]

With the construction of the highway to Managua, milk production started to pick up in the Santo Tomás area. The first Nicaraguan dairy plant, La Salud, was built in Managua in 1949; the second, La Perfecta, was built 10 years later also in Managua (Biondi-Morra, 1990). Total milk production more than doubled during 1960–78, reaching 480 million liters, while – although still modest – the share that was pasteurized at the dairy plants grew from 12 million liters in 1960 to 56 million liters in 1978 (Biondi-Morra, 1990). In 1970, Lácteos Narváez was the first cheese manufacturer to establish itself in the Santo Tomás area. The company sold its products in Managua and had moved from the Department of León in search for a greater milk supply, so as to reduce its production costs. [6] However, it was primarily the increasing demand for meat in the US market, driven by the growth of the fast food market, which in the 1960s gave rise to the first 'livestock boom' in Nicaragua (Williams, 1986). The area dedicated for livestock production doubled during 1960–79 and the number of slaughtered animals grew from 133,500 in 1960 to 465,500 in 1979 (Biondi-Morra, 1990). As most livestock was – and still is – kept for the dual purpose of meat and milk production, this also meant that milk production increased.

At the same time, following the 1972 earthquake in Managua which led many families to flee the capital in search for land and livelihoods elsewhere, a new wave of immigrants arrived to the Santo Tomás area. The population of the area almost doubled from 1971 up to the mid-1990s. It was particularly the population of Santo Tomás town and of Villa Sandino (rural and urban) that grew during that period, whereas the rural population of the districts of Santo Tomás and San Pedro de Lóvago remained stable (Figure 1). In addition to the people who came from other parts of the country, these trends reflect the first wave of rural–urban migration that took place in the area during the 1980s. Since then, there has been a sustained growth in the urban population, especially in Santo Tomás town, which has received the majority of the rural population from the district, as well as from the neighboring districts, especially San Pedro de Lóvago. Initially, people arrived to Santo Tomás town fleeing the civil war of the 1980s; but many stayed on after the peace agreement in 1990. In 2005, half of the population in the Santo Tomás area was urban, with 26% of the population being urban in Villa Sandino, 40% in San Pedro de Lóvago, and 71% in Santo Tomás (Figure 1).

Ever since the early days of colonization of Nicaragua, there has been a close relationship between control over land, on the one hand, and political and legal power on the other hand, and the Santo Tomás area is no exception. Prior to the 1979 revolution, all functions of judge, mayor, civil registrar, tax collector, *etc.* were performed locally by a mayor appointed directly by General Somoza. The central government made the decisions, received the taxes collected and decided on investments in the area.

It was common for some families belonging to the local, landed elite to host General Somoza in their homes and organize parties to celebrate his visits, and this strengthened their bonds of friendship and reinforced their political and economic power (Former Director of Planning, Santo Tomás area, personal communication, November 24, 2008). Thus, it tended to be members of these families who were appointed as mayors of the districts and they were also the first to know about and benefit from programs launched by Somoza, such as the programs mentioned above to strengthen livestock production (Pratt & Pérez, 1997).

The Sandinista revolution in 1979 aimed to break this mutually reinforcing relationship between political and economic power through the redistribution of land (e.g., Baumeister, 1995). In the Santo Tomás area, at least 22 livestock estates were confiscated, and their owners left the area, most of them heading for the United States. [7] Only one of the founding families who had their property confiscated, the Bravo family, stayed. Many people in the area, however, did not agree with the confiscations, in particular not from the Bravo family. As an official who used to work at National Institute for Agrarian Reform (INRA) explained:

> [The Bravo family] is much loved [...] Regardless of his friendship with Somoza, this man also related with the poor; he was friends with everybody. In December they gave toys to the poor children; they administered the church Guild in Santo Tomás [...]. They were not bad people; on the contrary, they were much loved. [...] Everyone felt bad about the confiscation... but they did end up getting their property back... It was confiscated by people who were not from here, out of envy... The director did it from above, without the consensus of those from below... He [the director] had to leave Nicaragua because many people did not agree with his confiscations.
> [Former official, National Institute for Agrarian Reform (INRA), personal communication, January 29, 2009, own translation]

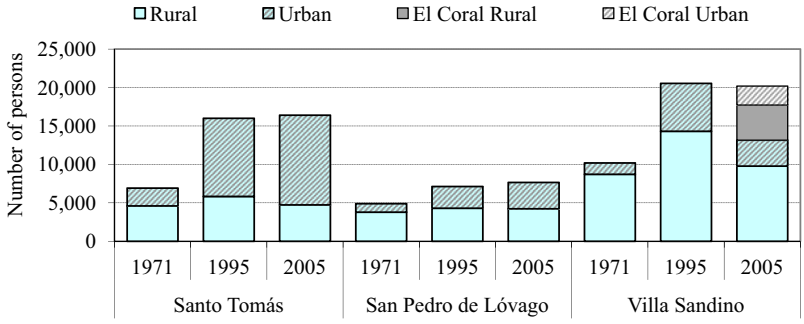

Figure 1. *Evolution of the urban and rural population in the Santo Tomás area (Santo Tomás, San Pedro de Lóvago and Villa Sandino districts, the latter including El Coral which until 1997 formed part of Villa Sandino district). Sources: Government of Nicaragua (1971), INEC (1975, 1995), INIDE (2008).*

4. PRIVATE AND PUBLIC DAIRY INVESTMENTS

The civil war that battered Nicaragua during the 1980s – also known as the Contra war – put a temporary halt to the development of the livestock sector in the Santo Tomás area as well as in the country as a whole. Efforts were made by the Sandinista government to boost production, e.g., through the provision of agricultural inputs for the 'true peasant farmers'[8] through the UNAG (National Union of Agricultural and Livestock Farmers) and its network of peasant stores and through state interventions, e.g., in the meat and dairy sector. Nevertheless, agricultural production dropped drastically. Livestock farming went through a process of de-capitalization, cattle fled to neighboring countries and indiscriminate slaughtering grew. The national herd decreased from 2.7 million head of cattle in 1978 to 1.4 million in 1985, the volume of pasteurized milk fell from 56 million liters in 1978 to less than six million liters in 1985 (Biondi-Morra, 1990). In 1985, only 25% of the installed milk processing capacity was being utilized (Biondi-Morra, 1990). In Chontales department it is estimated that the cattle herd decreased from around 400,000 head of cattle in 1977 to some 280,000 head of cattle during the 1980s (CHONTALDES, undated).

That all changed during the 1990s. First of all, with the end of the civil war, former members of the Sandinista and the national resistance armies, who received land as part of the peace agreement, were reintegrated into productive life and the abandoned farms started producing again. In Chontales department, livestock herds increased from the estimated 280,000 head of cattle during the 1980s to around 325,000 head of cattle in 2001. A third of this herd is estimated to belong to farms in the Santo Tomás area (INEC, 2001). Second, neighboring El Salvador was also coming out of civil war in 1992. Remittances from Salvadorans living in the US drove increasing demand for dairy products, primarily different types of soft cheese, known in Nicaragua as *morolique* and *quesillo*. El Salvador has only limited land for domestic agricultural production and therefore much of this demand served to stimulate production in Nicaragua. In 2004, more than 75% of Nicaragua's total dairy production was exported to El Salvador (Inter-American Institute for Cooperation on Agriculture, 2004). Third, both public investments, to a large extent funded through international development cooperation, and private investments, to a large extent from El Salvador, started flowing into the Santo Tomás area.

In the Santo Tomás area, FINNIDA (Finnish International Development Agency) has been an important development partner. Through the Livestock Development Project, PRODEGA, FINNIDA invested just over 20 million USD during 1990–2003, from 1990 to 1998 only in Boaco, and from 1999 to 2003 in both Boaco and Chontales (Ministry for Foreign Affairs of Finland [MFAF], 2009). Support has been allocated to improve milk production and milk quality through improved farm-level management, milk processing and marketing and to improve farm productivity with the overall objective of reducing poverty. By far, most of this support has been directed toward cooperatives (MFAF, 2009).

In the wake of the collapse of the economy during the 1980s, the institutional figure of the cooperative carried negative connotations to many Nicaraguans (e.g., Enriquez, 1997; Eskola, 2003) as it was perceived as the embodiment of the productive, economic, and organizational crisis which the country had gone through. Thus, a large number of the agricultural cooperatives that had been created on the basis of confiscated farms and estates were dissolved during the 1990s (e.g., Baumeister, 2001; Brockett, 1998; Broegaard, 2005; de Janvry, Sadoulet, & Wolford, 1998). Only one among the 22 expropriated farms about which we have managed to compile information from the Santo Tomás area, has remained at the hands of the initial cooperative members and their descendants (Former official, National Institute for Agrarian Reform (INRA), personal communication, January 29, 2009).

This negative image of cooperatives was, however, in contrast to the image held by many of the international development agencies, including FINNIDA, which arrived in the early 1990s to support Nicaragua's emerging but fragile democracy. Many of these development agencies had sympathized with the revolution, thwarted by the civil war during the 1980s, and many, especially from the Nordic development agencies, arrived with the idea that the cooperative – an organizational form often portrayed as having played a key role in promoting structural agrarian changes in the Nordic countries during the 19th century in favor of small- and medium-scale farmers (e.g., Fink, 2008; Mordhorst, 2005) – was a representative organization through which FINNIDA would be able to reach their target group: small and medium-scale producers. Moreover, the cooperatives were seen as an organizational figure which would allow development agencies to support the agricultural sector without having to directly support private companies and individual producers. As such, it was international development agencies (Eskola, 2003; Pietrobelli, 2007) that proposed strengthening and facilitating the creation of cooperatives in the cattle region, not as agricultural *production* cooperatives such as those created during the 1980s, but rather in the form of cooperatives directed at the collection, storage, processing, and marketing of milk.

Once again the Bravo family was among the pioneers. Rather than leaving Nicaragua during the 1980s, members of the Bravo family had by 1980 established the dairy cooperative Ríos de Leche (*Rivers of Milk*) as a milk collection and

processing venture located in Los Mollejones between the towns of Santo Tomás and Villa Sandino in an effort to adapt to the new political and economic situation. However, because its founders did not belong to the Sandinista party, the cooperative was not recognized as such by UNAG and its statutes did not receive formal approval until 1992 (Former and actual presidents of the Ríos de Leche cooperative, personal communication, January 13, 2010 and December 15, 2009). Soon after, in 1994, the cooperative La Esperanza was established in El Guabo located in the far north-eastern corner of Santo Tomás, and in 2001 and 2002, two more cooperatives (Manantial and San Pedro de Lóvago) were established, this time in San Pedro de Lóvago. All of these cooperatives have received organizational support from PRODEGA.

Efforts were also made in support of developing the technical and administrative capacity of the district governments and in support of their new role as the space for participatory and democratic governance. Prior to 1990 the district administrations had existed only as local representations of the central government rather than as a democratically elected political space. As described by Ravnborg and Gómez (2015) this changed with the approval of the District Law in 1988 and the first local elections held in 1990. With support from FINNIDA, efforts were made to establish thematic round tables intended to promote citizen participation in district planning and serve as forums for thematic debate among different social actors, facilitated by district officials. Altogether, ten round tables were established, covering production, transport, sports, environment, health, education, culture, women, children, and public services (water and sanitation), i.e., themes which apart from production and transport were more likely to be of importance to the poorer segments of the population than to the better-off segments and thus making them less prone to elite capture (Araujo *et al.*, 2008). Nevertheless, these efforts to promote more participatory forms of governance and through that the formation of more inclusive and potentially transformative and pro-poor social coalitions, to a large extent failed. When Finnish support ended in 2003, the district government decided to stop supporting the thematic round tables, and only one – the production round table – continued to operate (Former Director of Planning, Santo Tomás area, personal communication, November 24, 2008).

In addition to organizational support, public investments were also made in basic infrastructure, an asset which was of more direct economic importance to the development of the dairy sector. Several access roads were built during the early 1990s, establishing year-round road connectivity between the drier, south-western parts of the area where the major towns of the area are located and the wetter parts further toward the north-east, used for dry-season grazing. The electricity network was also expanded in this period. Almost literally speaking these public investments also paved the way for private investments. Immediately following the opening of these roads, milk storage and cooling facilities were established along these roads (e.g., the cooperative La Esperanza in El Guabo in 1994 and Lácteos Sierrawás in Sierrawás in 1996). Some even claim that in one case, a cooperative (La Esperanza) was deliberately established in El Guabo in order to convince the government that the new road would have to pass that location (Former mayor, Santo Tomás area, personal communication, January 13, 2010). Thus, adding to already existing private company Lácteos Narváez and the Ríos de Leche cooperative, five new dairy plants were established in the Santo Tomás area during the 1990s, of which three were established through El Salvadoran and one through Honduran investments (Table 1).

In 1999, Parmalat, a multi-national company of Italian origin, bought the La Perfecta dairy and started operating in Nicaragua, buying milk directly from producers as well as from cooperatives, and processing and selling milk and milk products throughout the country. The company also began offering assistance to cooperatives to improve their cooling and storage facilities on the condition that they would sell their milk to Parmalat (Eskola, 2003). Two of the cooperatives from the Santo Tomás area – the Manantial Cooperative and the San Pedro de Lóvago Cooperative, both from San Pedro de Lóvago – received storage tanks from Parmalat through this arrangement.

Today, there are 13 milk collection and cooling plants in the Santo Tomás area. Ten of these are semi-industrial plants that produce cheese, and of these, seven export cheese to El Salvador, and in one case, also to Honduras (Table 1). Five of the exporting companies are owned by El Salvadorans, one by a Honduran citizen and one – the Ríos de Leche cooperative – is owned by Nicaraguans. In addition, in 2010, the two cooperatives from San Pedro de Lóvago – the Manantial and the

Table 1. *Dairy companies in the Santo Tomás area (Santo Tomás, San Pedro de Lóvago and Villa Sandino districts)*

Name	Ownership type	Year of foundation	Owner/president	Daily milk collection (liters)	Monthly cheese export (pounds)
Lácteos La Montaña[a]	Individual	1994	Elmer Landaverde (owner)	75,000	430,000
Quesillos Umanzor[b]	Individual	1994	Deri Israel Umanzor (owner)	20,576	164,000
Cooperativa Ríos de Leche[b]	Cooperative	1980	Ulises Miranda Rivas (president)	19,688	193,600
Lácteos Las Tucas	Individual	*n.d.*	Isaías González (owner)	14,250	–
Lácteos Las Mesas[b]	Individual	1995	Julio Robleto (owner)	13,125	100,000
Lácteos Las Delicias[b]	Individual	2004	Álvaro Aguilar (owner)	12,000	48,200
Lácteos Sierrawas[c]	Individual	1996	José del Carmen Barahona Zambrana (owner)	11,250	132,000
Lácteos San José[b]	Individual	2009	José Alexander Lazo (owner)	6,563	70,500
Cooperativa Manantial	Cooperative	2001	Ramiro José González Miranda (president)	6,375	–
Cooperativa San Pedro de Lóvago	Cooperative	2002	Miguel Bravo Miranda (president)	5,813	–
Cooperativa La Esperanza El Guabo	Cooperative	1994	Juan Luna (president)	4,125	–
Lácteos Aguilares	Individual	2008	Eduardo Aguilar (owner)	3,563	–
Lácteos Narváez	Individual	1970	Manuel Martínez Fernández (owner)	525	–

Sources: Interviews with cooperatives and companies.
[a] Exports to El Salvador and the United States of America.
[b] Exports to El Salvador.
[c] Exports to El Salvador and Honduras.

San Pedro de Lóvago cooperative – were in the process of establishing processing plants by combining funding from the government, channeled through the Rural Development Institute (IDR), a government agency under the presidency with co-investment from their members. [9] Altogether, enabled through these investments, the international cheese export from the Santo Tomás area is estimated to have reached 1.1 million pounds per month in 2010.

Several observers consider that one of the major achievements of PRODEGA has been the consolidation of the dairy cooperatives (e.g., Artola & Parrilli, 2002; MFAF, 2009) which have become an important economic actor in the area. This picture is confirmed by our social network analysis. Of the 68 social actors identified through interviews in the area, 32 were recognized individuals belonging to a cooperative. Our mapping and analysis of the types of relations among these social actors shows that social actors identified as belonging to a cooperative on average engaged in a significantly higher number of economic relations with other social actors (16.0) than did non-cooperative actors (3.0). [10] As a further indication of their strength, the cooperatives of the area joined forces to establish the *Alianza Amerrisque* [11] in 2000–01 with support from FINNIDA through PRODEGA. The alliance was – and still is – intended to serve as a platform from which to dialog with government and government institutions, something that is not as feasible for an individual cooperative. As Douglas Alemán, member of parliament for the Sandinista party, former president of UNAG, native of San Pedro de Lóvago and member of the San Pedro de Lóvago cooperative, explained, it is necessary to work at three levels in agricultural production: at the farm level, among farms e.g. through the co-operatives for the marketing of milk and hiring of technical assistance, etc., and then beyond the farm level:

> This level, which is beyond the farm, for me is the territory. If one must go to speak with the government or speak with international development agencies, then this level of organization is necessary; this is where organizations such as UNAG, ASOCHON, [12] and Alianza Amerrisque have helped enormously. They have helped in the representation of the territory and in the search for resources to solve problems, for example the price of milk. One single cooperative cannot do it alone, they all have to talk [to the government] together; for example, an electrification project developed in the department [Chontales] to bring electricity and storage and cooling facilities to different places had to be done as a group; the highways, the processing of meat – this has all helped a lot.
>
> [Personal communication, November 30, 2009, own translation]

Apparently, the Alianza Amerrisque did gain sufficient political clout to achieve influence in national-level politics. Thus, they successfully proposed that Chontales-Boaco become the dairy cluster within the National Development Plan (Government of Nicaragua, 2004), and rather than putting their requests for further improvement of the road network and expansion of the electricity network through their district governments, they presented these requests directly to the national government. They even proposed that the Alianza Amerrisque should manage the funds directly (López, 2001) rather than through national or local government institutions.

5. THE RETURN OF THE ELITE AND POVERTY REDUCTION THROUGH DISPOSSESSION

Having left the country and having had most of their land expropriated during the Sandinista revolution of the 1980s, members of the traditional elite returned virtually landless to the Santo Tomás area during the 1990s. Upon their return, some decided to leave the agricultural sector and establish businesses such as hotels, restaurants, hardware stores etc. while others sought to re-establish themselves in the livestock sector. Despite its many disadvantages, being virtually landless made them part of the group of small and medium-scale farmers that was being targeted by development cooperation, e.g., from FINNIDA. Thus, along with new actors who had gained political strength during the years of the Sandinista revolution, members of the traditional elite took active part in the formation and strengthening of the cooperatives in the Santo Tomás area, turning them into a platform from which to influence public policies and investments not only at the territorial level but also at the national level. Gradually, members of the traditional elite re-emerged, first as livestock farmers and subsequently also as cooperative members and, often, cooperative executives. As an indication nine of the 22 farms expropriated during the agrarian reform of the 1980s in part of the Santo Tomás area, were returned to their former owners during the 1990s and an additional eight have been fully or partly acquired by large-scale farmers (Former official, National Institute for Agrarian Reform (INRA), personal communication, January 29, 2009). In the process, they became part of the dairy industry, thereby benefiting from the new dairy export markets for which foreign private and public investment had helped pave the way. Our social network analysis shows that a few families now concentrate a significant part of the economic relations in the area. Among the 68 social actors included in the social actor network data base, 27 were identified as belonging to one of the so-called founding families. [13] On average each of these social actors engaged in 16.1 economic relations with the remaining social actors included in the data base, while the average for the 41 social actors included in the database and not belonging to one of the founding families was to engage in just 4.6 economic relations with the other social actors. [14] Moreover, there is a significant correlation between belonging to a cooperative and belonging to one of the so-called founding families. Of the social actors identified as belonging to one of the founding families, 63% belonged to or held a position in one of the cooperatives, while this was the case for only 37% of the remaining social actors. [15]

While the average property size in Nicaragua as a whole fell from 62 *manzanas* in 1963 and an estimated 78 *manzanas* in 1978 to 41 *manzanas* in 2001 as a result of the agrarian reforms of the 1980s and 1990s (Baumeister & Fernández, 2005), [16] it slightly increased in the Santo Tomás area from 92 *manzanas* in 1963 to 96 *manzanas* in 2001 (INEC, 2001). [17] Today, hardly any signs remain of the agrarian reforms in the Santo Tomás area. According to our questionnaire survey conducted in 2009, barely 3% of the land-owning households in the Santo Tomás area had received (part of) their land through the agrarian reforms. Many who had received land as part of the agrarian reforms sold it during the 'land buying frenzy' of the 1990s in fear of losing it or in order to take up a livelihood elsewhere:

> In Acoyapa, the members of the resistance received [land] through the Agrarian Reform... many sold it to the livestock farmers from San Pedro... perhaps 80 percent of it was sold at 500 or 1,000 córdobas per *manzana*. It then slowed down, and stopped somewhat in about 2001. During the Alemán era [the President from 1997–2001], selling... and buying land was at full speed. It was, how should I tell you, the moment the agrarian reform title was handed over, it was passed on to the buyer! [...] Buyers at that time had to request certification from the OTR [Ordenamiento Territorial Rural, formerly INRA] to see whether or not they could buy. But of course, there was always a way... you took four pounds of cheese and cream to Managua... to the titling directors... and you got it [your request]. For example, they deeded a property of a man from Acoyapa; he had bought 17 Agrarian

Table 2. *Land and cattle ownership, engagement in sale of milk and cooperative membership by poverty level and residence*

Percent households per poverty level	Rural				Urban				Rural and Urban, combined			
	Non-poor ($n = 54$)	Less poor ($n = 112$)	Poorest ($n = 84$)	All poverty levels ($N = 250$)	Non-poor ($n = 54$)	Less poor ($n = 112$)	Poorest ($n = 84$)	All poverty levels ($N = 250$)	Non-poor ($n = 54$)	Less poor ($n = 112$)	Poorest ($n = 84$)	All poverty levels ($N = 500$)
Own land (% of all households)	98	65	42	64	66	12	5	20	83	36	26	42
Average number of farms (for land-owning households)	1.7	1.2	1.1	1.4	1.7	1.1	1.0	1.5	1.7	1.2	1.1	1.4
Own land both in wet and dry zone (% of land-owning households)	17	–	3	6	39	12	–	28	25	2	3	11
Own land only in wet zone (% of land-owning households)	59	77	66	68	45	65	67	53	54	74	66	65
Own land only in dry zone (% of land-owning households)	25	23	31	26	21	23	32	20	21	23	32	24
Have bought (more) land during the last 20 years (% of all households)	43	28	20	28	36	4	2	9	40	14	12	19
Own cattle (% of all households)	96	66	39	64	66	10	5	19	82	35	24	41
Own more than 50 heads of cattle (% of cattle-owning households)	56	11	0	23	32	0	0	21	47	9	0	23
Sell milk (% of all households)	89	50	15	47	57	9	3	17	83	21	6	32
Are cooperative members (% of all households)	24	4	1	7	21	11	6	12	25	7	5	9

Source: Own household questionnaire survey, conducted 2009.

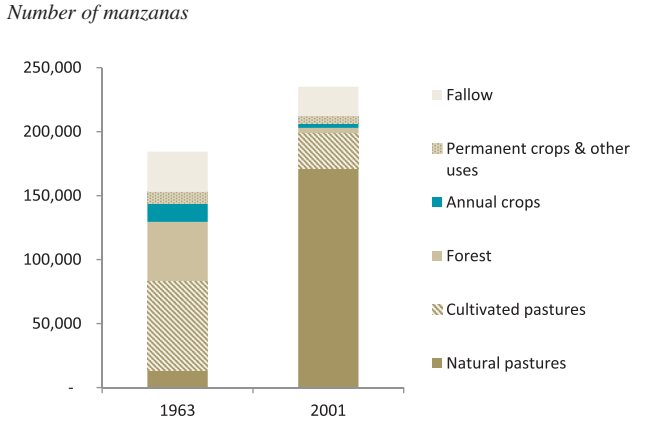

Figure 2. *Agricultural land use in the Santo Tomás area (including El Coral), 1963 and 2001. Sources: INEC (1963, 2001).*

> Reform titles. A guy from the OTR came and authorized the sale [ex-post purchase!] without having to go to Managua.
> [Former official, National Institute for Agrarian Reform (INRA), personal communication, January 29, 2009, own translation]

The investments in basic infrastructure (roads and electricity) have contributed to stimulate this process of land concentration. Livestock production in the Santo Tomás area is favored by access to dry season grazing offered in the wetter parts toward the north-eastern corner of area. Before the establishment of roads connecting these parts to the urban centers of the area and the rest of the country, the sale of milk was restricted to the rainy season when cattle are kept in the area close to the urban centers (and milk supply and prices vary considerably). Since the expansion of the road infrastructure, milk collection takes place also during the dry season when cattle are taken to graze in the more humid parts of the area [18] and seasonal milk price fluctuation have greatly diminished. Thus, rather than arranging dry season grazing through various rental and 'share-herding' arrangements with farmers living permanently in these wetter parts (as was practiced in the past), the expansion of the road infrastructure has made land acquisition in these more humid areas an attractive investment for livestock farmers living close to or in the urban centers in the drier part of the Santo Tomás area. As an example, prior to the 1990s, the area around the community Campana located in the wet agro-ecological zone was an agricultural frontier area, but when the road reached the area, it became the current 'mountain entry point' and land became more expensive. As a resident of Campana noted:

> Ten years ago, when they built the gravel road [to Campana], each farmer put in two cows and three thousand córdobas. With the construction of the gravel road, now many large-scale livestock farmers [ganaderos] have bought in Campana, and those who have less or who can no longer work the land have sold in order to retire or buy cheaper land in the interior, where the road has not yet reached.
> [Campana resident, personal communication, January 2009, own translation]

Of the households – urban as well as rural – who had bought (more) land since the early 1990s, 38% today own two or more farms and the majority indicated that the purchased land is used primarily for pastures. Twenty-five percent of the non-poor households with land have farms in both 'dry' and 'wet' agro-ecological zones, compared to two and 3%, respectively, of the poor and poorest land-owning households (Table 2). Furthermore, 28% of the land-owning households with an urban residence have farms in both agro-ecological zones, compared to only 6% of land-owning households with a rural residence (Table 2).

Thus, in addition to the fact that the average size of the individual agricultural property in the Santo Tomás area in 2001 remained at the 1963 level despite a general decline for Nicaragua as a whole, land concentration has taken place through a process of concentration of more agricultural properties on fewer hands. In 2001, less than half of the agricultural property owners in the Santo Tomás area lived at their property, and this proportion decreases with property size. One-fifth of the 514 owners of properties larger than 100 *manzanas* live at their property, compared to three-quarters of the 208 owners of properties smaller than 10 *manzanas* (INEC, 2001), reflecting the fact that the owner either has more properties or lives in town. According to 2009 cadastral information for the Santo Tomás district, the 138 owners of more than one agricultural property owned an average of 152 *manzanas* while the average farms size for the 480 owners of only one agricultural property was 55 *manzanas* (District officer, Santo Tomás district, Personal communication, January 30, 2009).

Alongside this process of concentration of land in fewer hands, there has also been land use conversion (Figure 2). During 1963–2001, the area under pasture more than doubled while the area under forest in 2001 shrank to one-tenth of what it was in 1963. Also the area under annual crops, primarily maize and beans, cultivated mainly by small-scale farmers to cover their own consumption, has decreased significantly. In 2001, the area under annual crops constituted a quarter of the corresponding 1963 acreage. While part of this change may have happened prior to 1979, it has gained pace since the early 1990s as opportunities for converting forest into pasture gradually were exhausted. According to our questionnaire survey conducted in 2009, one third of the households (32%) indicated that their household had been devoting more land to annual crops (maize and beans) 20 years ago than they do today. Our data suggest that this trend has continued as almost a quarter of the households (24%) indicated that they devoted more land to annual crops 10 years ago than they do today.

The land transactions that have occurred in the Santo Tomás area have mainly taken place among neighboring landowners, with the largest producers buying land from their smaller neighbors. Virtually all of the households who today sell milk (93%), had cattle already 20 years ago, but only began selling milk during the 1990s and the 2000s. [19] The fact that so few new households have established themselves as livestock farmers to take part in the 'milk boom' probably reflects the fact that in addition to the costs of acquiring livestock, considerable investments are needed in order to meet the minimum quality requirements in the milking of cattle defined by the dairy industry. According to a study by the Regional Unit for Technical Assistance (RUTA) (2007), such farm investments amount to at least USD 1,000 per producer.

Thus, little by little, land in the Santo Tomás area has ended up not only in fewer hands, but also in the hands of the non-poor households who have been able to take advantage of the opportunities offered by dairy production (see also Ruben & Masset, 2003). Hall, Hirsch, and Li (2011) characterize such processes of everyday accumulation and dispossession as 'intimate exclusions' whereby some people accumulate land and capital at the expense of their neighbors, for instance through renting or buying their land at "fire sale" prices or through the distribution of development handouts (cheap credits, free inputs, *etc.*) to individuals that already have a comparative advantage, thereby increasing their capacity to accumulate land and capital for themselves and exclude others (Hall *et al.*, 2011, pp. 145–146).

Today, a quarter (24%) of the land-owning households in the Santo Tomás area live in urban areas and two-thirds (66%) of the non-poor households, who live in the urban area, own land (Table 2).

According to our survey, one-fifth of the households of the Santo Tomás area have acquired (more) land since the 1990. Of those who sold the land, only 28% kept living in the community as they had more land. The remaining former land owners have left. Many (17%) moved further in-land, thus contributing to advancing the agricultural frontier (Kaimowitz, 1996; Mordt, 2001) while dreaming of one day establishing themselves as livestock farmers. A look at the destination of the agrarian reform beneficiaries from the 21 of the 22 expropriated farms which were handed back to the former owners or sold during the 1990s confirms this picture. Of the 280 former agrarian reform beneficiaries, 170 were told to have headed toward the agricultural frontier (Former official, National Institute for Agrarian Reform (INRA), personal communication, January 29, 2009). As a resident of the community Tierra Blanca, not far from Santo Tomás town explained:

> Some have moved away because they think that they can buy their little homes somewhere else. Here there are no owners; almost everyone looks after what is not their own [...] The people who have left the region have gone to somewhere called San Bartolo, close to San Carlos, and it seems that they have found cheap plots; a lot of people have gone there.
>
> [Personal communication, Tierra Blanca resident, January 2009; own translation]

Others (9%) of those who have sold land in the Santo Tomás area have settled in Santo Tomás town, in Managua or have joined the large group of migrant workers who take up temporary employment in neighboring Costa Rica (4%). For the remaining 41% the destination of the former land owners is unknown. Currently, according to our survey results, in one-third of all households (urban as well as rural), one or both household heads have a sibling in Costa Rica, and 16% of all households receive remittances. It is primarily the 'less poor' households and those who reside in the urban areas who have family members in Costa Rica.[20] In the absence of income from migration, the 'poorest households' tend to depend on casual employment as agricultural day laborers, tortilla or *quesillo* vendors, or as domestic workers. A quarter of the urban households depend on income gained as agricultural day laborers taking advantage of the fact that many of the land owners offering employment also live in the urban areas. The small-scale *quesillo* processors and vendors that emerged and prospered during the 1970s, making *quesillo* from the Santo Tomás area famous throughout Nicaragua, are today facing increasing competition from the semi-industrial dairy plants. Thus, being a *quesillera* – *quesillo* processors and vendors are generally female – no longer represents an option for climbing out of poverty; quite the contrary:

> ...I have children of the *quesilleras* [*quesillo* processors and vendors] at school and they often leave class to go and work. Not only do they sell cheese, but they also get on buses and sell soft drinks and chewing gum. It is an act of survival.
>
> [Local historian Wilfredo Espinoza, personal communication, January 14, 2010, own translation]

Although the dairy investments have implied an increase in both direct and indirect employment, this only partially offsets the loss in agricultural employment. It is estimated that direct employment at the dairy companies has tripled in recent decades, going from a little more than one hundred employees when operations began gaining pace in the late 1990s, to more than 350 direct employees and around 130 indirect employees in 2010.[21] The majority of the indirect employees are people who operate as intermediaries, the so-called *ruteros*, along the milk collection routes, collecting milk and selling to the dairy companies. In the same period, permanent agricultural employment in the area declined by 871 jobs (INEC, 1995; Instituto Nacional de Información de Desarrollo [INIDE], 2005), resulting in a net fall in agricultural-dairy related employment of approximately 400 jobs.

Finally, the overall population data confirm this gradual process of dispossession from the land and the absence of alternative sources of livelihood in the area. While the Nicaraguan population grew by 18% during 1995–2005,[22] the population in the Santo Tomás area did not grow at all, but remained steady at around 37,000 persons.[23]

6. CONCLUSIONS

During the past two decades, the Santo Tomás area has experienced notable economic growth, largely as a result of growing milk and cheese production made possible through a combination of public and private investments. In the same period, the proportion of the population of the area living in poverty has declined from 60% to 55%. A closer analysis, however, suggests that this reduction in the incidence of poverty has been caused by a process of dispossession and subsequent expulsion of the poor rather than through a process of inclusive economic growth. Without this level of out migration, such a reduction in the proportion of the population living in poverty would have been unlikely.

In the absence of a pro-poor social coalition, the opportunities that were offered in the wake of the Sandinista land reform, the 1990 peace agreements and the substantial investments made in the area for fostering a more inclusive economic growth, rapidly evaporated. Instead, the traditional elite succeeded in recovering the land that had been confiscated during the Sandinista revolution. Furthermore, joined by the new post-revolution political elite, they evolved from being successful livestock farmers, producing milk and meat, and also became engaged in milk collection, cooling, and even processing.

This 'jump' along the livestock-dairy value chain was made possible by the opening of the market in El Salvador, which offered growing demand for dairy products, as well as direct private investments in production facilities. However, without intending to, international development cooperation that was earmarked for small and medium producers has also contributed to the economic and organizational re-configuration of the traditional elite through its support for public investments in basic infrastructure, productive facilities, and cooperative strengthening. In the process, small-scale farmers and rural dwellers have been gradually dispossessed of their land; instead they form part of the urban poor and the migratory labor force that provides its labor, mainly to Costa Rica. Seen from their perspective, the dairy investments became the rain that never trickled down. In many ways, the case of the Santo Tomás milk boom appears to be the repetition which Williams (1986) warned against of the 1960s–1970s cattle boom and its ensuing land concentration. Moreover, it serves to caution both the research and the policy community that what may appear as straight-forward and sometimes convenient causal relationships between economic growth and poverty reduction, may at closer scrutiny involve more complexly related processes of elite capture, dispossession, and migration.

NOTES

1. This assessment is based on the application of the small area estimation procedure (Elbers, Lanjouw, & Lanjouw, 2003) using population census data from 1995 and 2005, coupled with Living Standard Measurement Study survey data from respectively 1998 and 2005 (Modrego & Berdegué, 2015; Rodríguez, Gómez, Ravnborg, & Bayres, 2012).

2. A set of five indicators was identified. The indicators reflect (i) the household's capacity to provide education for its children; (ii) its agricultural productive capacity (ownership of land and livestock were identified as important descriptors of well-being both for rural and for urban households); (iii) access to non-agricultural sources of income; (iv) dependence on day-laboring as a source of income; and (v) housing quality. A scoring system was designed according to which a score (33, 67 or 100) was assigned to each household for each of the five indicators depending on the characteristics of the household with respect to each of the indicators. The scores obtained on each of the five indicators were combined into a poverty index – calculated as the arithmetic mean of the scores obtained on each of the indicators.

3. http://www.inifom.gob.ni/municipios/documentos/CHONTALES [Accessed on March 3, 2011].

4. Personal communication, Wilfredo Espinoza, historian, held on January 14, 2010, and Dr. Ronaldo Martínez, native of Santo Tomás, held on January 13, 2010.

5. 1 *manzana* = 0.7 hectare.

6. Manager of Lácteos Narváez, personal communication, February 2010.

7. The list of 22 cases was elaborated through personal communication with former official, National Institute for Agrarian Reform (INRA). The list should not be considered a complete list. For instance only cases from the Santo Tomás and Villa Sandino districts are listed. Fourteen of the 22 former owners allegedly fled to the United States upon having their farm confiscated.

8. http://unag.org.ni/filer/3158historiadelaunagfinal31.01.2008.pdf.

9. The minimum investment required to establish a semi-industrial processing plant is estimated to be USD 500,000 (Masiguito plant engineer, Boaco, Personal communication, 2005).

10. $^{**}p < .01$, one-way analysis of variance.

11. Diverging information exists as to whether the Alianza Amerrisque was formed in 2000 or in 2001 (http://wnp.uwsp.edu/programs/natural/ftf/2001/reports/pmalon_1.doc). Moreover, it is unclear whether eight or nine co-operatives took part in its establishment.

12. Asociación de Chontaleños Residentes en Managua – Association of Chontaleños [people from Chontales] residing in Managua.

13. Here including the families Bravo, González, Vargas, Miranda, López, Cabrera, Tórrez and Aguilares.

14. $^{*}p < .05$, one-way analysis of variance.

15. $^{*}p < .05$, Pearson chi-square test.

16. While the 1971 Agricultural Census data allegedly were destroyed during the 1972 earth quake and thus never published, Baumeister and Fernández (2005, p. 15) base their 1978 estimate on preliminary data from the 1971 census as well as estimates made by the Center for Agrarian Reform Research and Studies (CIERA).

17. The total agricultural area, including area under forest, increased by 28% (from 184,351 to 235,054 *manzanas*) during 1963–2001, including the municipality of El Coral, while the number of agricultural properties only grew by 22% (from 2,004 to 2,445 properties). One person may own more than one property.

18. Overall, in 2009, 17% of the urban households and 62% of the rural households sold milk and almost all indicated to sell milk both in the rainy and in the dry season. This corresponds to more than three-quarters (77%) of the livestock farmers.

19. Of those households who sell milk today and had cattle 20 years ago, only 39% sold milk 20 years ago, i.e., around 1990. Of those households who sell milk today and had cattle 10 years ago, i.e., around 2000, the corresponding proportion was 62%.

20. Approximately one-third of the less poor and poorest urban households have a sibling living in Costa Rica, while this is the case for half of the less poor rural households and one third of the poorest rural households. For the non-poor households, this is the case for a bit less than a fifth of the urban and rural households. However, none of the poorest rural households indicated that they receive remittances, whereas this was the case for 18% of the less poor urban households and approximately a tenth for the remaining categories.

21. Combined, 12 of the 13 dairy plants informed to employ 351 permanent staff members and to have 129 indirect employees (Personal communication with dairy plant managers, January 2010; an interview with the last of the 13 dairy plants could not be arranged).

22. Excluding the capital city of Managua, the Nicaraguan population grew by 22% during 1995–2001.

23. In 1995 the population of the Santo Tomás area was 37,263 persons, while in 2005, it was 37,206 persons.

REFERENCES

Araujo, M. C., Ferreira, F. H., Lanjouw, P., & Özler, B. (2008). Local inequality and project choice: Theory and evidence from Ecuador. *Journal of Public Economics, 92*(5–6), 1022–1046.

Artola, N., & Parrilli, M. P. (2002). *Cadenas productivas: Lecciones de la experiencia internacional y Regional. El Despegue del Cluster de Productos Lácteos de Boaco y Chontales*. Managua/Nitlapan: Instituto de Investigación y Desarrollo/Universidad Centroamericana.

Baumeister, E., & Fernández, E. (2005). *Análisis de la tenencia de tierra en Nicaragua a partir del Censo Agropecuario 2001*. Managua: Ministerio de Agricultura Ganadería y Forestal (MAGFOR), Instituto Nicaragüense de Estadísticas y Censos (INEC), and the Food and Agriculture Organization of the United Nations (FAO).

Baumeister, E. (2001). Peasant initiatives in land reform in Central America. In K. B. Ghimire (Ed.), *Land reform and peasant livelihoods.*

The social dynamics of rural poverty and agrarian reforms in developing countries (pp. 65–85). London: ITDG Publishing.
Baumeister, E. (1995). Farmers' organizations and agrarian transformation in Nicaragua. In M. Sinclair, & J. Nash (Eds.), *The new politics of survival: Grassroots movements in Central America* (pp. 239–264). New York: Monthly Review Press.
Berdegué, J. A., Bebbington, A., & Escobal, J. (2015). Conceptualizing spatial diversity in Latin American rural development: Structures, institutions and coalitions. *World Development, 73*, 1–10.
Biondi-Morra, B. (1990). *Revolución y política alimentaria, un análisis crítico de Nicaragua*. México: Siglo XXI.
Brockett, C. D. (1998). *Land, power, and poverty. Agrarian transformation and political conflict in Central America* (2nd ed.). Boulder: Westview Press.
Broegaard, R. J. (2005). Land tenure insecurity in Nicaragua. *Development and Change, 36*(5), 845–864.
CHONTALDES. (n.d.). *Plan estratégico de desarrollo departamental de Chontales 2004–2020*. Retrieved from <http://www.bvsde.org.ni/Web_textos/MARENA/MARENA0082/PlanChontales.pdf>.
de Janvry, A., Sadoulet, E., & Wolford, W. (1998). From state-led to Grassroots-led land reform in Latin America. Paper prepared for the WIDER-FAO workshop on "Access to Land", Santiago, Chile, April 27–29, 1998. Retrieved from <http://www.unc.edu/~wwolford/Geography160/UNWIDERlandreform.pdf>.
Elbers, C., Lanjouw, J. O., & Lanjouw, P. (2003). Micro-level estimation of poverty and inequality. *Econométrica, 71*(1), 355–364.
Enriquez, L. J. (1997). *Agrarian reform and class consciousness in Nicaragua*. Gainesville: University Press of Florida.
Escobal, J., Favareto, A., Aguirre, F., & Ponce, C. (2015). Linkage to dynamic markets and rural territorial development in Latin America. *World Development, 73*, 44–55.
Eskola, E. (2003). *Rural development cooperation. Learning from Finland's international projects and programmes*. Helsinki: Ministry for Foreign Affairs of Finland.
Espinoza, W. (2009). *Loviguisca y los primitivos chontales* (Vol. 2). Santo Tomás, Nicaragua.
Fink, J. (2008). Mælk, monopol og myte. [Milk, monopoly and myth]. *Kontur, 17*, 4–13.
Gómez, L. I., & Ravnborg, H. M. (2011). Inversión lechera – una gota que no se expande. Dinámicas territoriales en la zona lechera de Santo Tomás, Chontales, Nicaragua. *Documento de Trabajo 73*, Programa Dinámicas Territoriales Rurales. Santiago de Chile: Rimisp – Latin American Center for Rural Development.
Government of Nicaragua. (1971). *Population census*. Managua: Government of Nicaragua.
Government of Nicaragua. (2001). *Estrategia reforzada de crecimiento económico y reducción de pobreza*. Managua: Government of Nicaragua.
Government of Nicaragua. (2004). *Plan nacional de desarrollo-operativo, 2005–2009*. Managua: Government of Nicaragua.
Gómez, L. I., & Ravnborg, H. M. (2012). La inversión lechera en Santo Tomás, Nicaragua: Una gota que no se expande. In J. A. Berdegué, & F. Modrego (Eds.), *De Yucatán a Chiloé. Dinámicas territoriales rurales en América Latina* (pp. 141–176). Buenos Aires: Editorial Teseo.
Inter-American Institute for Cooperation on Agriculture. (2004). *Studies on the development of agricultural exports from Nicaragua*. Managua: Inter-American Institute for Cooperation on Agriculture, [Draft for discussion].
Instituto Nacional de Estadísticas y Censos. (1963). *Censo nacional agropecuario*. Managua: Instituto Nacional de Estadísticas y Censos.
Instituto Nacional de Estadísticas y Censos. (1975). *Censo de población y vivienda*. Managua: Instituto Nacional de Estadísticas y Censos.
Instituto Nacional de Estadísticas y Censos. (1995). *VII Censo de población y III de vivienda*. Managua: Instituto Nacional de Estadísticas y Censos.
Instituto Nacional de Estadísticas y Censos. (2001). *Censo nacional agropecuario*. Managua: Instituto Nacional de Estadísticas y Censos.
Instituto Nacional de Información de Desarrollo. (2005). *VIII Censo de población y IV de vivienda*. Managua: Instituto Nacional de Información de Desarrollo.
Instituto Nacional de Información de Desarrollo. (2008). *Municipios en Cifras*. Managua: Instituto Nacional de Información de Desarrollo.
Hall, D., Hirsch, P., & Li, T. M. (2011). *Powers of exclusion land dilemmas in Southeast Asia*. Singapore: NUS Press.
Kaimowitz, D. (1996). *Livestock and deforestation Central America in the 1980s and 1990s: A policy perspective*. Jakarta: Center for International Forestry Research.
López, M. A. (2001). *Lecheros exigen apoyo al Gobierno*. La Prensa. Retrieved from <http://archivo.laprensa.com.ni/archivo/2001/septiembre/06/economia/>.
Mahoney, J., & Thelen, K. (2011). A theory of gradual institutional change. In J. Mahoney, & K. Thelen (Eds.), *Explaining institutional change: Ambiguity, agency, and power* (pp. 1–37). Cambridge: Cambridge University Press.
Ministry for Foreign Affairs of Finland. (2009). Agriculture and rural development. Preliminary study. *Evaluation report 2*. Helsinki: Ministry for Foreign Affairs of Finland.
Modrego, F., & Berdegué, J. A. (2015). A large-scale mapping of territorial development dynamics in Latin America. *World Development, 73*, 11–31.
Mordhorst, M. (2005). Andelsbevægelsen mellem national identitet og globalisering. [The cooperative movement between national identity and globalization]. *Den jyske Historiker, 109*, 48–69.
Mordt, M. (2001). *Livelihoods and sustainability at the agrarian frontier. The evolution of the frontier in Southeastern Nicaragua*. Göteborg. Kompendiet.
Otte, J., Costales, A., Dijkman, J., Pica-Ciamarra, U., Robinson, T., Ahuja, V., *et al.* (2012). *Livestock sector development for poverty reduction: an economic and policy perspective – Livestock's many virtues*. Rome: Food and Agricultural Organization.
Pietrobelli, C. (2007). *Global value chains and clusters in LDCs: What prospects for upgrading and technological capabilities?*. Geneva: United Nations.
Regional Unit for Technical Assistance. (2007). *Motores de crecimiento sostenible y reducción de la pobreza del conglomerado lácteo de la región central sur, Fase I: Dinámica Económica Regional*. San José: Infoterra Editorial S.A.
Pratt, L., & Pérez, J. M. (1997). *Análisis de sostenibilidad de la industria de la ganadería en Nicaragua*. Managua: Centro Latinoamericano para la Competitividad y el Desarrollo Sostenible, INCAE. Retrieved from <http://www.incae.edu/es/clacds/publicaciones/articulos/cen751.php>.
Ravnborg, H. M., & Gómez, L. I. (2015). The importance of inequality for natural resource governance: Evidence from two Nicaraguan territories. *World Development, 73*, 72–84.
Ravnborg, H. M. with the collaboration of Escolán, R. M., Guerrero, M. P., Méndez, M. A., Mendoza, F., de Paez, E. M., & Motta, F. (1999). Desarrollo de perfiles regionales de pobreza basada en percepciones locales. *CIAT Publication* 291. Cali: Centro Internacional de Agricultura Tropical.
Robinson, J. A. (2010). Elites and institutional persistence. *Working Paper No. 2101/85*. United Nations University.
Rodríguez, T., Gómez, L. I., Ravnborg, H. M., & Bayres, K. (2012). Cambios en consumo, pobreza y equidad en Nicaragua 1998–2005. In T. Rodríguez, & L. I. Gómez (Eds.), *Dinámicas territoriales, un acercamiento a la situación de pobreza y a la exclusión de género. Cuaderno de Investigación 45*. Managua: Nitlapan, UCA.
Ruben, R., & Masset, E. (2003). Land markets, risk and distress sales in Nicaragua: The impact of income shocks on rural differentiation. *Journal of Agrarian Change, 3*(4), 481–499.
Sen, A. (1981). *Poverty and famines: An essay on entitlement and deprivation*. Oxford: Clarendon Press.
Sen, A. (1985). *Commodities and capabilities*. Amsterdam: North Holland.
Williams, R. G. (1986). *Export agriculture and the crisis in Central America*. Chapel Hill and London: The University of North Carolina Press.