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The focus of this study is to analyze how Nicaraguan workers in the manufacturing and agricultural sectors were affected by structural adjustment programs. I analyze three objective well-being indicators: health, education and material well being. Previous research on Nicaragua has investigated how structural adjustment has affected the agricultural and manufacturing sectors separately. This study aims to seek out how the two sectors are affected differently or similarly by structural adjustment.

The data analyzed for this research are from a survey conducted by Measure Demographic and Health Survey (DHS). Measure DHS conducts nationally representative, population-based surveys in developing countries. My dependant variables include: literacy, highest education achieved, ownership of radio, ownership of telephone, number of rooms for sleeping, material used to construct the floor, and immunization for Diphtheria, Polio and Measles. Three departments were analyzed to represent the agricultural and manufacturing sectors. Managua represents the manufacturing sector, Chinandega represents the

agricultural sector and the RAAS, because of its autonomous nature is used as a control variable. This study utilizes two representative household surveys 1997(11528 households) and 2001 (11328 households). Data analysis revealed that the manufacturing sector made more improvements than the agricultural sector in education and material-well being, and the agricultural sector made more improvements than the manufacturing sector in health. Overall, Nicaraguan workers in the agricultural sector were worse off as a result of structural adjustment than workers in the manufacturing sector.

STRUCTURAL ADJUSTMENT IN NICARAGUA: THE IMPACT ON  
WORKERS IN THE AGRICLTURAL AND MANUFACTURING  
SECTORS

by

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**CHAPTER I**  
**INTRODUCTION**

This study systematically investigated the impact of structural adjustment programs (SAP) on the manufacturing and agricultural sectors in Nicaragua. I analyzed how citizens in the aforementioned sectors have been affected socially and economically, and how SAPs have affected family, health, and well-being. By examining existing sociological, anthropological and political theories of structural adjustment programs I am able to make a contribution to structural adjustment theorizing.

The July 1944 ratification of The Bretton Woods system, which created the first international monetary management institution, came at the end of the destruction and clamor of the second World War. The Bretton Woods system, which includes The International Bank for Reconstruction and Development (commonly known as the World Bank), the International Monetary Fund (IMF), and the General Agreement on Tariffs and Trade (GATT), which is now known as the World Trade Organization (WTO), was initially conceived to rebuild and endorse postwar-reconstruction for

the war-torn regions of Europe through governing monetary relations among independent nation-states. In 1946 the IMF and the World Bank became operational. The primary function of the IMF and the World Bank was to oversee financial and technical assistance, exchange rates, and the balance of payments (Korten 2001.)

In the 1950s and 1960s the Bretton Woods Institutions issued loans mostly to the industrial economies in the developed world. Lending from the IMF and the World Bank was relatively balanced and stable until the oil crisis of the 1970s caused the foreign debt in developing countries to increase dramatically (Mohan et al, 2000). The IMF then shifted its focus from developed to developing countries. The IMF also shifted to a more interventionist position in which loans were granted only when certain conditions were met by recipient countries (Peet 2003). To set terms of financial settlements between bankrupt countries and international lenders, the IMF and the World Bank imposed packages of policy prescriptions on indebted countries under the rubric of structural adjustment (Korten, 2001). Structural adjustment programs generally consist of major economic policy reforms intended to channel more of the nations' resources and productive activity toward debt

repayment. Some of the features central to structural adjustment are: privatization of public assets and services, government austerity measures, trade liberalization, currency devaluation, deregulation of private enterprises, opening national economies to the global economy, reduction in tariffs and barriers, and attracting foreign investors (Enriquez 2000, Jonakin 1997, Jonakin et al 1999, Echanove 2003, Cupples 2004, Waitzkin et al 2007, Walker 1997).

Studies throughout Latin America have looked examined the impacts of structural adjustment on levels of violence, deforestation, privatization, social progress, and farming. (Sanchez 2006, Pacheco 2004, Waitzkin et al 2007, Agarwal et al 2006, Mohan et al 2000, Enriquez 2000, Mosley 1987) and the conditionality and theory of structural adjustment. (Khor 2001, Mohan et al 2000, Harvey 2005). In the Dominican Republic, where the national economy rapidly shifted to an economy based on manufacturing and service (Pomeroy et al 2002). Members of households employed in the agricultural sector had lower well-being scores than those employed in other sectors. Households whose members were employed in the agricultural sector also saw a decline in their well-being scores between 1991 and 1996. Pomeroy et

al. (2002) suggest that the decline in well-being is a direct result of IMF and World Bank policies. Cutbacks in education and health and the emergence of a cash economy have left many Dominicans in poverty because of a lack of capital resources that leave them disadvantaged. My aim is to gauge the extent to which Pomeroy's findings can be applied to other Central American Countries.

Structural adjustment programs were initiated was Nicaragua; but unlike most other Latin American countries, between 1979 to 1990 Nicaragua followed alternative government developmental strategies (Enriquez 2000, Walker 1997). The nation was governed by the Sandinistas, a leftist Nicaraguan political party. The Sandinistas received aid from Cuba in the form of educational, health care, and vocational assistance (Prevost 1990). The Sandinistas also nationalized property owned by the Somozas (the family dictatorship that ruled Nicaragua from 1937-1979), instituted land reforms, controlled living costs (food, clothes, and medicine), instituted environmental measures, and nationalized natural resources (Walker 1997, Mulligan 1996).

In 1990, the Sandinistas lost power. With the inauguration of the new Violeta Chamorro government,

structural adjustment programs were again fully embraced. Research suggests that these programs have been devastating for the majority of Nicaraguans (Walker 1997, Jonakin 1997, Babb 2001, Enrizez 2000). Small-scale and subsistence farmers were forced to parcel their land, while government austerity measures led to cutbacks in government spending for health and education. Subsidies for food, clothes, medicine, and credit were slashed. The poor who relied on these services were impacted greatly as they could not afford private alternatives. Consequently poverty and inequality increased (Enriquez 2000, Walker 1997, Jonakin et al 1999).

Nicaragua, a country gravely entrenched in structural adjustment programs, and heavily indebted to the World Bank and the IMF, is an ideal country to further explore whether and how workers in the manufacturing and agricultural sectors are impacted differently by structural adjustment programs. Many of the societal, political and institutional changes that the Sandinistas brought to Nicaragua lived on, thus making its experience with structural adjustment unique among Latin American countries.

There is a substantial amount of literature on the effects of structural adjustment on both the agricultural sector and the manufacturing sector; however, very little research comparing the impact on the two sectors. It is important to compare how different sectors are affected by structural adjustment to understand which sector has fared the worst and how. To fight poverty, provide food security, and promote social well-being, certain communities need to be invested in and given adequate access to resources. An investigation that explores how the agricultural and manufacturing sectors are impacted by structural adjustment is beneficial to understanding the dynamics of this economic phenomenon.

I expected to find similar results to those reported in Pomeroy's (2002) study in the Dominican Republic. I expected to find that households employed in the agricultural sector will have lower well-being scores than those in the manufacturing sector. I also expected to find that households in both the agricultural and manufacturing sector experienced decreases in well-being in the years between 1997 and 2001. I expected similar results because the structural adjustments imposed in the Dominican Republic were comparable to those imposed in Nicaragua.

Also Nicaragua and the Dominican Republic have similar economies in that agriculture constitutes most of their total exports and domestic consumption.

In addition to reviewing the literature on structural adjustment, I further explored the topic by conducting a statistical analysis on data from the Demographic and Health Survey (DHS). The DHS program has a long tradition of providing data and analysis through over 200 surveys on nutrition, health, HIV and population of women and children in over 75 developing countries. The two surveys that I analyzed were conducted in Nicaragua, the first in 1997/1998, and the second in 2001. The Measure DHS (2001) conducted in Nicaragua surveyed 11,328 households.

The aim of this study is to contribute to the literature on structural adjustment. It is important to have a comprehensive understanding of economic phenomena that engender poverty, malnutrition and death to millions of children across the globe. A better understanding of structural adjustment lending will enable us to either search for ameliorative endeavors or suggest policy implications for alternative developmental strategies.

## **CHAPTER II**

### **LITERATURE REVIEW**

The study of structural adjustment programs (SAPs) has produced a flood of analyses, including research on theoretical, historical, social and economic impacts, environmental concerns and political implications. By examining the current empirical and theoretical works on structural adjustment, a better understanding can be achieved. The existing literature provides useful insights and has helped to direct my investigation so that I am able to provide a meaningful and beneficial study. In this section I explore some of the existing literature on structural adjustment programs. For the purpose of this investigation it is important to begin by defining structural adjustment programs.

#### **What are Structural Adjustment Programs?**

Structural adjustment programs are packages of policy prescriptions imposed on developing countries by the World Bank and International Monetary Fund (IMF). The World Bank and the IMF are international organizations that oversee f

financial and technical assistance, as well as exchange rates and the balance of payments. Structural adjustment programs set the conditions to which a developing country must adhere in order to receive loans from the IMF and World Bank. Structural adjustment programs generally consist of major economic policy reforms intended to channel more of the nation's resources and productive activity toward national debt repayment.

From the Great Depression to the late 1960s import substitution industrialization (ISI) was the prevalent trade and economic policy in Latin America. ISI promotes "inner directed" development involving the replacement of imported goods with goods produced domestically. Government manipulation of the exchange rate, import tariffs, subsidized credit for substitutive investments and direct or indirect subsidies to hold down costs of inputs for substitutive production were all policy instruments used to achieve inner directed development (Enriquez 2000, Jonakin 1997, Jonakin et al 1999, Echanove 2003, Cupples 2004, Waitzkin et al 2007, Walker 1997, Mohan et al 2000, Lehmann 2000).

This strategy relied heavily on state intervention to control trade and investment. ISI policies deepened the

dependence of developing countries on developed world economies as the former relied heavily on imported finished products like machinery. Over-valued exchange rates exacerbated the problem as income inequalities between urban and rural areas widened drastically. Debt in Latin America had been a constant characteristic as local markets were not large enough to sustain any firms. Consequently the funding of capital goods was through loans and trade deficits. An already weak and indebted Latin America was devastated by the oil crisis in the 1970s, which caused foreign debt and interest rates to skyrocket (Korten, 2001, Harvey, 2005, Mohan et al 2000).

The World Bank and the IMF, self-appointed overseers of the global financial system, began to set terms of financial settlements between nearly bankrupt countries and international lenders. Structural adjustment programs, the packages of policy prescriptions necessary for a developing country to receive loans, became the standard economic policy in Latin America (Mohan 2000, Korten 2001, Harvey 2005).

Economic reforms under the rubric of structural adjustment are deeply embedded in the tradition of neoliberal economics. To understand the perspective of

proponents of structural adjustment I must first briefly explain neoliberal theory. Neoliberal theory professes that the pinnacle of human well-being can be achieved through the liberation of trade, the market, and prices, and the mobility of capital from the influence of the state. Some of the aims of neoliberal policies are to eliminate state intervention in the economy and the regulation of individual nation states over the activity of capital (Harvey 2005). Proponents of neoliberal theory include Austrian political philosopher Freidrich von Hayek, Ludvig von Mises, and the economist Milton Friedman. Neoliberal doctrine professes ideals of personal freedom, individual property rights, the rule of law, and the institutions of freely-functioning markets and free trade (Haggard et al 1992, Nozick 1977, Harvey 2005). The aforementioned institutional arrangements are considered essential to individual freedom. Individuals have the freedom to work, accumulate money, choose, act, etc. The freedom of corporations and big business to operate within this framework of free markets and free trade, with virtually no regulations is considered fundamentally good. Neoliberal theorists also subscribe to the notion of "trickle down" or "a rising tide lifts all boats."

Consequently they believe that the elimination of poverty can be achieved through the free market and free trade (Harvey 2005). Some features of neoliberal economic policies include: liberalization of the economy, privatization, deregulation, downsizing of the government, withdrawal of the state from areas of social provision, reduction of tariffs and import controls on foreign trade.

Before exploring its impacts it would be advantageous to understand the main components of structural adjustment policies. The first component is to allow the free market to determine prices. This is achieved by adjusting a nation's exchange rate to provide profitability to export industries and high interest rates. Secondly to reduce state control of prices, so that prices can be set by scarcity values. This is achieved by eliminating import controls, reducing tariff levels, providing a uniform tariff structure, and reducing restrictions on foreign investment. The third component is privatization of public enterprises. Assets are transferred from state to private investors. The fourth component is the reduction of state budgets by cutting health, education and food subsidies. The fifth component is the reform of state institutions to reorient the role of the bureaucracy towards the

facilitation of the private sector. The sixth component of structural adjustment is to deregulate private enterprises. Minimum wage regulations, other regulations that impinge on the labor market, and environmental regulations that impinge on profits are reduced dramatically or removed altogether (Waitzken et al 2007, Agarwal et al 2006, Chozen, Cupples 2004, Enriquez 2000, Jonakin 1996, Hansen-Kuhn 1995, Lee 2001, Mohan et al 2000, Walker 1997).

### **Impacts of Structural Adjustment**

The following section will explore the general impact of structural adjustments throughout Latin America and the world. Subsequent sections will explore in turn the impact of structural adjustment on the agricultural sector in Nicaragua, and on Nicaragua's manufacturing sector.

The literature suggests that reductions in public services, unemployment and deepening poverty are the most unfavorable and adverse results of structural adjustment (Enriquez 2000, Jonakin 1997, Jonakin et al 1999, Echanove 2003, Cupples 2004, Waitzkin et al 2007, Walker 1997, Mohan et al 2000, Lehmann 2000). Research conducted on the impacts of structural adjustment draws on interviews,

reviews of archival literature, analysis of various databases, and assessments of organizations' annual reports.

The poor are disproportionately harmed by structural adjustment. Recipients of IMF and World Bank loans generally remain indebted and in fact encounter increased debt despite structural adjustment reforms (Korten 2001, Mohan et al 2000). The aggregate trade deficit of low-income countries increased from \$6.5 billion of \$34.7 billion between 1980 and 1992. The IMF and World Bank lent out more money to cover growing trade deficits and as a result international indebtedness increased from \$134 billion to \$473 billion between 1980 and 1992 (Korten 2001). Inflation in Latin America increased 26 times between 1981 and 1990.

One example of structural adjustment in practice is Argentina's 1976 five-year agreement with the IMF which included a typical structural adjustment program that entailed liberalization of external trade and markets, elimination of domestic subsidies, the devaluation of the exchange rate, privatization of public enterprises, and the raising of public sector prices and interest rates. In 1981 Argentina entered an arduous recession. External debt

increased from \$6 billion in 1976 to \$14.4 billion in 1981, real wages declined by 32.5%, and inflation increased over 600% (Ruccio, 1991).

Jean Paul Azam (1994) suggests there are two channels through which structural adjustment affects social groups: 1) the distribution of real income by the market, and 2) the provision of public goods by the state. Azam (1994) further concludes that inflation due to devaluation mainly affects the poor who do not own any land or real assets. Public workers, such as teachers (in Africa), have faced a 33% decrease in salaries (Mohan et al 2000). The poor are further disadvantaged by cuts in subsidies for essential commodities, healthcare and education. Education budgets in Tanzania were cut from 11.7% to 4.8% from 1980 to 1989 (Lugalla 1993). Many countries reduced labor costs, downsized the labor force, reduced real wages, and intensified work. The minimum wage in Latin America fell by 25% in the 1980s, and average earnings in the informal economy decreased by 42% (Mohan et al 2000). The cost of living increased dramatically as a result of structural adjustment.

Women generally bore more of the hardship than men. Florence Babb (1996), who carried out research over a three

year period, between 1991 and 1993, among women in informal and formal work in small industries, observed that women in Nicaragua take on the role of educators and health providers as the education and healthcare budgets are cut. Wage gaps between men and women increased as women faced the dual burdens of unpaid and paid labor. Therefore women could not compete with men in the labor market (Babb, 1996).

Martin Khor (2001) argues that IMF management would benefit if recipient countries had more participation in the drafting of structural adjustment programs. When drafting structural adjustment programs the World Bank and the IMF historically ignore local input. Individual governments are given little leeway to negotiate their own nation-specific priorities. Essentially the ownership of the reform process belongs to the World Bank and the IMF (Khor 2001). Recipient countries have limited participation in drafting policies. Policies are consistently imposed by the IMF and World Bank, often against the wishes of the governments or people. With no say in policy making many governments are trapped in debt (Khor 2001).

Khor (2001) suggests three systematic flaws in IMF conditionality. First, the absence of a debt resolution system, debtor countries are at the mercy of lender countries while the latter obtain optimal return for loans. In other words the IMF operates as an unfair debt collector. The second flaw is the lack of leeway a recipient country has in negotiating, removing, or reshaping structural adjustment packages. The third flaw is that structural adjustments programs do not work. While a few countries experienced economic growth, 89 developing countries in the mid 1990s saw a decrease in per capita income by comparison with the previous decade. The decline in most of these countries was more devastating than the 1930s Great Depression.

Khor (2001) argues that the IMF's policies are insensitive to social impacts, and that the burden falls heavily on the poor as social and public services are cut dramatically. The IMF, according to Khor (2001), makes policies for its own interests rather than those of developing countries.

## **Structural Adjustment in the Agricultural Sector**

The following section discusses the literature in structural adjustment programs and their impacts on the agricultural sector in Nicaragua. Inquiry on structural adjustment programs and their impacts on the agricultural sector have been dominated by three scholars from three different disciplines: Julie Cupples, a Geographer, Laura Enriquez, a Sociologist, and Jon Jonakin, an Economist. The three scholars have produced collaborative and individual research on structural adjustment and agriculture in Nicaragua. Cupples's (1992, 1999, 2004, 2005) research is on the gendered aspects of structural adjustment and neoliberalism in post-revolutionary Nicaragua. Enriquez's (1999, 2000) research is on how structural adjustment programs impact small farmers, their access to productive resources, and their survival strategies. Jonakin's (1996, 1997, and 1999) research is on how beneficiaries of the Sandinista Agrarian Reform are adjusting to losing producer credit and having to parcel their land. Jonakin and Enriquez (1999) collaborated on a project that explored its effectiveness of new private financial institutions in relieving credit constraints faced by small-scale farmers.

Cupples's (2004) study draws on primary qualitative research, mainly participant observation and interviews, which she conducted in El Hatillo, Nicaragua in 1999 and 2001. She interviewed women who had been made homeless by Hurricane Mitch. Cupples (2004) found that many women forged collective political identities as community organizers for their own development. They were aware of environmental degradation and declining food security, and, as the setbacks were substantial, they were active and assertive in their commitment to the development process.

Enriquez (2000) is concerned with ameliorative activities that soften the blows of structural adjustment. Enriquez (2000) interviewed representatives of the Ministry of Agriculture, the National Development Bank, and NGOs, as well as sixty small-scale farmers in two different Departments. Enriquez (2000) found that farmers whose principal product is a commodity that is doing well in the international market, or are involved in some type of organization or community that filled holes left by cutbacks in government resources directed at their production, seemed to have avoided the harsh effects of structural adjustment. They are in the minority. Most small-scale farmers in Nicaragua are forced to cut back

consumption, search for alternative employment options off the farm, or move to the overpopulated urban sector.

Enriquez's 1999 field study with Jon Jonakin, was concerned with how the newly constituted private financial sector has attempted to relieve credit constraints faced by small-scale farmers in Nicaragua. The National Development Bank (BANADES) during the 1980s financed agricultural activities for farmers of all socioeconomic statuses, but with the new Chamorro Government in 1990, the role of BANADES underwent a powerful reversal. As a result of the BANADES transformation, an abundance of traditional and non-traditional private financial institutions emerged. Non-traditional financial institutions over time were able to incorporate thousands of producers who were formerly supplied by BANADES. Over half of BANADES' previous clients (57%) were left with no financing, while most those who were successful in accessing loans received insufficient levels of credit (Enriquez and Jonakin 1999).

Jonakin's (1996, 1997) research draws from primary and secondary data. Jonakin (1996) used survey data collected in 1988 and 1993 on 53 Sandinista Agricultural Cooperatives (CAS). Jonakin (1996) found that agricultural producer credit was reduced or made inaccessible for small-scale

farmers after the implementation of structural adjustment. Beneficiaries of the Sandinista Agrarian Reform (SAR) were forced off their land. Structural adjustment successfully reversed all the gains made by small farmers during the 1980s. Former SAR beneficiaries parceled their land for below the market price and had to enter a labor market marked by high rates of unemployment and low real wages. Small farmers who were able to retain their land found difficulty obtaining credit, technical assistance, or inputs. With a shift to export-oriented crops, complex irrigation systems, and the general weakening of the resource base, small-scale farmers' income capabilities were jeopardized.

Systematic market failure, coupled with structural adjustment and stabilization policies exposed class antagonisms as large scale farmers and agribusinesses benefited from adjusted exchange rates, crop choices and new technology at the expense of small-scale producers. The aforementioned policies exacerbated inequity in asset distribution between the economic elite and small-scale farmers (Jonakin 1996, 1997).

## **Structural Adjustment in the Manufacturing Sector**

The following section will consult the literature on structural adjustment programs and their impact on the manufacturing sector. Inquiry on structural adjustment programs and their impacts on the manufacturing sector have predominantly been researched by Michael Pisani (2002) and A. Geske Dijkstra (1996). Pisani's (2002) interest is in sectoral earnings and the income gap between the formal and informal sectors, while Dijkstra's (1996) interests is how trade liberalization, financial liberalization and overvalued exchange rates affect manufacturing production. Before I explore the impacts of structural adjustment on the manufacturing sector it is important to distinguish the difference between the formal and the informal sector.

The urban economy is composed of two sectors, the formal and the informal. According to the International Labour Organization (2000) the informal sector employs half of Nicaragua's urban workforce. The informal sector is classified as the worker unfettered by government rules and regulations (i.e. taxes, irregular pay, etc.). The informal sector according to Castells and Portes (1989) is defined as a process of income-generation that is unregulated by government institutions in a legal and

social environment in which similar activities are regulated. The difference between the informal and formal sector is not the finished product but the manner in which it is produced or exchanged. The formal sector is composed of government workers, doctors, lawyers, teachers, utilities, heavy manufacturing, bankers, protected workers and other workers employed in medium- to large-sized businesses. The informal sector is composed of small, unprotected, vulnerable business entities, such as street peddlers, domestic servants, market stall vendors, day laborers, and artisans.

Structural adjustment programs in Latin America resulted in increased poverty, unemployment and underemployment throughout the urban economy. Workers were left with no option but to move into the informal sector. Employment in the Nicaraguan formal sector for men declined from 61.5% in 1985 to 39.6% in 1993 (Funkhouser 1996). As the informal sector increased, real per capita income in Nicaragua fell from \$469 in 1990 to \$410 in 1998 (Walker 1997). The Human Development Index (which includes life expectancy, literacy, education, and income) declined in Nicaragua by 25% between 1990 and 1996.

Pisani's (2002), research draws on two data sets from Nicaragua. The two data sets were the 1993 and the 1998 Encuesta de Medicion de Nivel de Vida (EMNV). The EMNV are composed of questions about living standards and are conducted in more than a dozen developing countries. Workers classified as informal were not enrolled in social security, and conversely workers who were enrolled in social security were classified as formal.

Pisani (2002) researched the impact of structural adjustment on sectoral earnings for both formal and informal workers in Nicaragua. Pisani (2002) found that the deepening of structural adjustment resulted in a growing informal sector. The informal sector comprised 66 to 85 percent of the employed. The formal sector comprised 15 to 33 percent. Informal workers were characterized by low education, limited healthcare, and having little access to alternative household income. Formal workers were characterized by having high level of education, urban residence and home ownership. Pisani (2002) also found that the wage gap between the formal sector and informal sector from 1993 to 1998 increased dramatically. Wages for both informal and formal workers decreased, as the informal sector expanded over the past decade (Pisani 2002).

In 1996 A. Geske Dijkstra researched the impact of structural adjustment on manufacturing production and investment. Dijkstra (1996), like Pisani (2002) found that real wages fell, unemployment increased, and the wage gap increased due to structural adjustment. The 1991 agreement with the World Bank and IMF, which included severe financial programming, reduced or eliminated small producers' access to credit. Dijkstra (1996) and Pisani (2002) concluded that while structural adjustment policies have succeeded in decreasing inflation, they have not succeeded in increasing production or reducing the trade deficit. The liberalization of imports produced new monopolies and oligopolies in trade. Manufacturing exports did not increase from 1990 to 1993, and many products (food, chemicals, and metal products) saw a decline. Structural adjustment also did not lead to an increase in the net foreign exchange balance of manufacturing industry (Dijkstra, 1996).

Dijkstra (1996) concluded that the adaptability of the Nicaraguan manufacturing sector was limited. Manufacturing production decreased and foreign debt increased since the beginning of structural adjustment. Moreover

liberalization of the financial sector of foreign trade did not lead to competitive markets.

The literature on the impact of structural adjustment in Nicaragua provides a wealth of information on how Nicaraguans are affected by privatization, government austerity measures, deregulation, and trade liberalization. What the literature is lacking is a comprehensive investigation that looks at both the manufacturing and agricultural sector and explores differences in how workers in each sector are affected by structural adjustment in Nicaragua. In an attempt to fill the gaps in structural adjustment research in Nicaragua; my research studies the varying impact of structural adjustment on manufacturing and agricultural workers in Nicaragua. I explore health, well-being, socio-economic, and educational indicators of both agricultural and manufacturing workers in Nicaragua. By approaching the study of structural adjustment in this manner, this research provides new and meaningful contributions to the literature of structural adjustment programs.

## CHAPTER III

### METHODS

#### Introduction

I analyze differences in objective well-being between manufacturing and agricultural workers in Nicaragua between the years 1997 and 2001, using instruments developed by Measure DHS. The Primary research question addressed in this study is: are Nicaraguan workers in the manufacturing sector affected differently by structural adjustment programs than workers in the agricultural sector and if so, how? To answer this primary question, I ask two subsequent research questions:

1. What is the impact of structural adjustment on Nicaraguan workers?
2. Do the policies associated with SAPs affect workers in the manufacturing sector differently than they affect workers in the agricultural sector?

#### Well-Being Indicators

To clarify the concept of well-being it is important to discuss the multidimensional nature of the concept.

Well-being is the experience of good quality of life. A positive state of well-being can include many human experiences, social, spiritual, physical, mental, as well as material. "Well-being" can be identified as both subjective and objective. Individuals can define well-being themselves; most scholars include living standards, access to basic services, security, health, good relations with others, friendship, love, peace of mind, choice, creativity, fulfillment, and fun (Chambers 1997).

The two main types of indicators to examine well-being are: (1) subjective, and (2) objective. Subjective indicators are self perceived and are not be measured by concrete variables such as per capita income. Studies that have focused on subjective indicators encounter some difficulty due to the time and money needed for a representative sample and primary data collection (Pomeroy et al. 2004).

Objective indicators can be found in secondary sources such as the census, health records, payrolls, etc. Utilizing objective indicators, therefore, requires less time and money. Although objective indicators do not capture emotional and psychological states, they are

quantifiable, and are easily utilized to compare national and international well-being (Pomeroy et al. 2004).

In Nicaragua more than a fourth of the population lives on less than a dollar a day, and 37 of every 1,000 children under the age of five die each year due to malnutrition and treatable diseases (World Health Organization 2005). These harsh material conditions can be meaningfully investigated with objective indicators.

This study utilizes objective indicators because of the low cost of measurement, relevance to Nicaragua, and their quantitative nature. This study focuses on three accepted indicators of well-being: material well-being, health, and education. The material well-being indicators examined in this study include ownership of radio, ownership of telephone, number of rooms for sleeping, and material used to construct the roof of respondent's house. The Educational Indicators used in this study include highest level of education attained, and literacy rate. The health indicators used include immunization for Diphtheria, Polio and Measles.

### *Material Well-Being Indicators*

Previous studies by Andrade et al. (1999), Pomeroy et al. (2004), Mazumdar (1999), Fiadzo (2001), and Mullis (1992) have suggested that material well-being is a valid objective indicator of well-being.

Previous studies including Pomeroy et al. (2004) and Boelhower et al. (1998) have used ownership of material objects as indicators of material well-being. Some material possessions researched in these studies are: ownership of household appliances, consumer durable goods, and hobby articles (Pomeroy et al. 2004) and Boelhower et al. 1998). Evgeny Golovakha's 1999 study suggests that ownership of cars, telephones, refrigerators, washing machines, and radios constitute modern everyday life, and the ownership of such items indicates increased well-being.

Type of material utilized to construct the roof of a house has been used as an indicator of well-being in studies by Fiadzo et al. (1996), Arias et al. (1996), and Pomeroy (2004). The study by Arias et al. (1996) was conducted in Latin America and used items recommended by the United Nations to establish material well-being indicators. One indicator of material well-being used was material utilized to construct houses.

The indicators of material well-being used in this study are: ownership of radio, ownership of telephone, number of rooms for sleeping, and type of material used to construct the roof of the house.

### *Education Indicators*

Education is also a commonly identified objective indicator of well-being. This study concentrates on highest level of education and literacy as indicators of education. Boelhower et al. (1998), Ilan (1980), and Pomeroy et al. (2004) used educational attainment as a domain to measure well-being. Literacy has been used by Mazumdar (1999), Johnson (2000), Pomeroy (2004), and Landau et al. (1997) to measure well-being. Educational attainment is related to well-being because of its utility in augmenting human capital. Higher income parents can invest in better education, and education is highly correlated with potential earnings. In developing countries like Nicaragua, educational attainment is especially important in that education is one of the few outlets by means of which a child can advance (Pomeroy et al. 2004). In many low-income areas children have to leave school and resort to the work-force to supplement their

families' low incomes. Thus, literacy rate and educational attainment are essential variables related to potential well-being and are the educational indicators examined in this study.

### *Health Indicators*

Health is another frequently used indicator of well-being. Previous studies by Andrade et al. (1999) Michalos (1997), Pomeroy et al. (2004), Boelhower and Stoop (1998), included health as a component of well-being. Health indicators used in this study include immunization of children for Diphtheria, Polio, and Measles.

The main causes of death in developed countries are cancer and diseases of the respiratory, cardiovascular, and nervous systems. The main cause of illness and death in developing countries is communicable disease.

(Parliamentary Office of Science and Technology 2005). More than 16 million children die annually due to poor nutrition, malaria, pneumonia, measles, whooping cough, tetanus and diarrhea. One-half to two-thirds of these deaths are preventable (Chandler 1985). Chandler (1995) identified immunization as an important indicator of health. Immunization is a proxy for access to healthcare.

It also controls and prevents communicable diseases like diphtheria, polio, and measles and therefore is considered a fundamental health indicator. The health indicators used in this study include: Immunization for Diphtheria, Polio and Measles.

### **Departments**

Like many Latin American countries Nicaragua is divided into administrative subdivisions within the country, called departments. They include Argentina, Bolivia, Columbia, El Salvador, Guatemala, Haiti, Honduras, Peru, Paraguay, Uruguay and Nicaragua.

The unit of analysis in this study is the department. Departments were selected as the unit of analysis because they are convenient representatives of the agricultural and manufacturing sector. Nicaragua has many types of different manufacturing and agricultural regions and the impact of structural adjustment is diffused throughout these regions. Some guidelines included in structural adjustment programs are specifically for the manufacturing sectors and some are for the agricultural sector. Departments that represent the manufacturing and agricultural sectors were selected as the units of analysis.

To explore the varying impact of Structural Adjustment on agricultural and manufacturing workers this study investigates three different departments: Managua, Chinandega, and The South Atlantic Autonomous Region (RAAS).

Managua is the economic, commercial, and industrial center of Nicaragua. It is located in the Pacific lowlands region and on the southern shore of Lake Managua. In addition to hosting Nicaragua's largest Municipality (also called Managua), the Department of Managua is also the country's major generator of industrial products, including processed food, beverages, textiles, clothing, chemical products, metal products, and petroleum.

The Department of Chinandega is situated in the northwest central highlands of Nicaragua. Chinandega consists of field crops intermixed with pastures, forests and brush. Cotton, bananas, and beef are among Chinandega's main products. Chinandega is investigated in this study because of its location in one of the most cultivated regions of Nicaragua and its agricultural make-up.

The Autonomous Region of the Southern Atlantic (RAAS) is located on the Southeast Caribbean coast of Nicaragua.

RAAS has a distinct history, economic base, and ethnic makeup, and it is geographically isolated from the rest of Nicaragua. The Autonomy Statute passed by the National Assembly in 1987 gave RAAS a high degree of self-rule. Due to RAAS' self-governance, it should be much less affected by the center of state power and by structural adjustment programs. I included RAAS as a control because of its self-governing nature.

#### **Data Collection**

The data analyzed for this research are from a survey conducted by Measure DHS. In 1989 Measure DHS (Demographic and Health Survey) was created as a part of the United States Agency for International Development (USAID) to help developing countries supervise and appraise nutrition, population, and health programs. DHS has subsequently broadened its mission to include collecting data on HIV/AIDS, reproductive health, and vaccination programs. Measure DHS conducts nationally representative, population-based surveys in developing countries. As of 2003, DHS had provided technical assistance to over 70 countries conducting over 180 surveys.

DHS surveys have a tradition of providing a wide range of data pertaining to population, health, and nutrition. DHS survey samples are large, ranging from of 5,000 to 30,000 households. The questionnaires contain information on many topics, including: demographic information (age, income, gender, place of residence), immunization, diarrhea, fever, cough, fertility, work status, education, and breastfeeding. DHS surveys include several questionnaires. Among them are a household questionnaire, a women's questionnaire, and a men's questionnaire. The Household questionnaire is used to collect data on the households' dwelling unit, as well as to identify members of the household who are eligible for individual interviews. Eligible respondents are then interviewed using an individual Men's or Women's questionnaire. In the household questionnaire women aged 15-49 and men aged 15-54 are eligible to participate.

Measure DHS has conducted surveys in Nicaragua in 1997 and 2001. This study utilizes two representative household surveys: 1997 (11,528 households) and 2001 (11,328 households).

## **Hypotheses**

1. The literature on structural adjustment suggests that policies required by the IMF and World Bank do not improve the well-being of workers in the developing world. I found similar results in Nicaragua.
2. The literature on structural adjustment suggests that workers in the agricultural sector are more negatively affected than workers in the manufacturing sector. My results in Nicaragua were consistent with the literature.

## **Methods of Data Analysis**

The methods of data analysis employed in this study are quantitative. Frequency tables, cross-tabulations, and Chi-square are used to analyze the data. Frequency tables tell how frequently respondents gave each response. Frequency distributions summarize data rather than simply listing separate observations. Frequency tables are used to describe the characteristics of the sample. In this study for example, frequency tables can show how many respondents owned a radio in 1997 versus how many respondents owned a radio in 2001.

Crosstabulations are employed to examine the relationship between variables. Crosstabulations are used for categorical variables, the type included in the current study.

Chi-square analysis is used to assess relationships between variables. Because the variables in this study are categorical, Chi-square analysis is appropriate.

The sign test is used to test the null hypothesis that well-being between 1997 and 2001 improved. A sign test is used when there is one ranked variable and two nominal variables. The nominal variable has two values, in this case "before" and "after", and the other variable establishes the identity of the pairs of observation.

## CHAPTER IV

### RESULTS

I analyzed cross-tabulations for nine independent variables -- highest education level, literacy, ownership of radio, ownership of telephone, material used to construct floor of home, diphtheria immunization, polio immunization, measles immunization, and number of rooms in home for sleeping - with the dependent variable, the department in which the respondent resides. Chi-Square was used (when both variables were categorical) to compare the observed frequencies of responses obtained from the Measure DHS survey with expected frequencies to determine if they differed significantly. One variable, number of rooms for sleeping, was recoded into a dichotomous variable (less than 2 rooms for sleeping, and at least 2 rooms for sleeping).

#### **Nicaraguans' Well-Being in 1997 and 2001**

Hypothesis I - Structural adjustment policies do not improve the overall well-being (health, education, material well-being) of workers in Nicaragua.

When comparing the nine variables from 1997 to 2001 I found that the well-being of workers in Nicaragua did not improve significantly.

Table 1 depicts highest level of education and literacy. In 1997 39.4 percent of respondents had at least a secondary level of education or higher. In 2001 40.3 percent had at least a secondary level of education or higher, an increase of 0.9 percentage points. The literacy rate in 1997 was 84.2 percent and 82.9 percent in 2001, a decrease of 1.3 percentage points.

Although there was a slight increase in highest level of education between 1997 and 2001, there was a decrease in literacy rate over the same years. Level of education increased by less than one percentage point (0.9%), while the literacy rate decreased by 1.3 percentage point. Overall, education did not change substantially.

Table 1: Education Indicators by Year (Whole Country)

		1997	2001
Education	Primary or less	60.6%	59.7%
	Secondary or higher	39.4%	40.3%
	Total	100%	100%
	N (Individuals)	13,634	13,060
Literacy	Cannot read	15.8%	17.1%
	Can read	84.2%	82.9%
	Total	100%	100%
	N (Individuals)	13,607	13,010
	Total	100%	100%

Table 2 presents the four material well-being indicators: ownership of radio, ownership of telephone, material used to construct floor, and number of rooms for sleeping. In 1997 80.3 percent of respondents owned a radio, while 82.6 percent owned a radio in 2001, an increase of 2.6 percentage points.

In 1997 9.8 percent of respondents owned a telephone, while 10.2 percent owned a radio in 2001, an increase of 0.4 percentage points.

In 1997 44.8 percent of respondents' homes had at least two rooms for sleeping, while 48.2 percent had at least two rooms for sleeping in 2001, an increase of 3.4 percentage points.

In 1997 33.4 percent of respondents' home floors were constructed with earthen brick material or better. In 2001 29.0 percent of respondents' home floors were constructed with earthen brick material or better, a decrease of 4.4 percentage points.

In sum, the number of households owning a radio and telephone increased slightly as did the average number of rooms for sleeping. On the other hand the quality of floor material declined. Overall, material well-being improved slightly.

Table 2: Material Well-being Indicators by Year (Whole Country)

		1997	2001
Ownership of radio	No	19.7%	16.4%
	Yes	80.3%	82.6
	Not de jure resident	-	1.0%
	Total	100%	100%
	N (Individuals)	13,606	13,060
Ownership of telephone	No	90.2%	88.7%
	Yes	9.8%	10.2%
	Not de jure resident	-	1.0
	Total	100%	100%
	N (Individuals)	13,586	13,040
Rooms for sleeping	One or less	55.2%	51.8%
	At least two	44.8%	48.2%
	Total	100%	100%
	N (Households)	11,426	11,325
Main floor material	Tile or worse	66.6%	71%
	Earthen brick or better	33.4%	29%
	Total	100%	100%
	N (Individuals)	13,616	13,027

Table 3 displays the three health indicators: immunization against diphtheria, polio, and measles. In 1997 90.3 percent of respondents had received diphtheria immunizations, while 90 percent of respondents were immunized in 2001, a decrease of 0.3 percentage points. In 1997 91.1 percent of respondents had received polio immunizations, while 92.1 percent were immunized in 2001, an increase of 1.0 percentage point. In 1997 72.3 percent of respondents had received measles immunization, while 66.0 percent received immunization in 2001, a decrease of 6.3 percentage points.

Immunization for both diphtheria and measles decreased, while immunization of polio increased slightly. Of the three types of immunization, the average number of Nicaraguan workers with measles made the greatest change, a decrease of 6.3 percentage points. Overall, immunization decreased from 1997 to 2001.

**Table 3: Health Indicators by Year (Whole Country)**

		1997	2001
Received DPT	No	9.3%	9.6%
	Yes	90.3%	90.0%
	Don't know	0.4%	0.4%
	Total	100%	100%
	N (Individuals)	5,641	4,961
Received Polio	No	8.6%	7.7%
	Yes	91.1%	92.1%
	Don't know	0.3%	0.2%
	Total	100%	100%
	N (Individuals)	5,647	4,961
Received Measles	No	27.1%	32.6%
	Yes	72.3%	66.0%
	Don't know	0.6%	1.4%
	Total	100%	100%
	N (Individuals)	5,573	4,958

To summarize between 1997 and 2001, material well-being improved slightly while health and education did not improve. The increases in material well-being in Nicaragua were small, as ownership of radio, ownership of telephone and rooms for sleeping increased by less than 4 percentage points.

Due to decreases in health and education and only a slight increase in material well-being, I surmise that structural adjustment did not improve the well-being of workers in Nicaragua overall.

### **Varying Impact of Structural Adjustment: Manufacturing and Agricultural Sectors**

Hypothesis II - Structural adjustment policies affected the well-being of workers in the agricultural sector more negatively than workers in the manufacturing sector.

When examining the nine variables from 1997 to 2001 the well-being of workers in the manufacturing sector made greater improvements than that of workers in the agricultural sector. Education improved the most for workers in Managua and the least in Chinandega. Material well-being for workers in the RAAS and Managua improved more than for workers in Chinandega. Health for workers in Chinandega made the most improvements. RAAS experienced the least improvement in health.

Table 4 examines the two educational indicators, highest level of education and literacy, between the years 1997 and 2001, controlling for department. In 1997 61.5

percent of Nicaraguans in Managua had a secondary education or higher, compared to 67.0 percent in 2001. Managua experienced the greatest increase in number of respondents who had a secondary education or higher at 5.5 percentage points. Chinandega had the second largest increase at 4.4 percentage points, and residents in RAAS made a 0.7 percentage point increase in number of residents who had a secondary education or higher. Chi-squared analysis was used and the relationship between education attainment and department was found to be significant at the 0.005 level.

Between the years 1997 and 2001 the literacy rate in the Department of RAAS increased by 33.7 percent, while in Managua it increased by 0.4 percentage points and in Chinandega it decreased by 0.7 percentage points. Chi-squared analysis was used and the relationship between literacy rate and department was found to be significant at the .005 level.

When compared to the other departments Managua experienced the greatest increase in highest level of education and the second greatest increase in literacy rate. RAAS had the greatest increase in literacy rate and the smallest increase in highest level of education. Chinandega made the second greatest increase in highest

level of education and the greatest decrease in literacy. Overall Managua had the greatest increase in education followed by RAAS, and Chinandega had the least.

Table 4: Education Indicators by Department

	Department		1997	2001
Highest Education Level	Chinandega	Primary or less	62.4	58.0
		Secondary or higher	37.6	42
		Total	100	100
	Managua	Primary or less	38.5	33.0
		Secondary or higher	61.5	67.0
		Total	100	100
	RAAS	Primary or less	69.4	68.7
		Secondary or higher	30.6	31.3
		Total	100	100
		N (Individual)	3,538	3,072
		p-value	.000*	.000*
Literacy	Chinandega	Cannot read	13.8	14.5
		Can Read	86.2	85.5
		Total	100	100
	Managua	Cannot read	5.4	5.0
		Can Read	94.6	95.0
		Total	100	100
	RAAS	Cannot read	60.4	26.7
		Can Read	39.6	73.3
		Total	100	100
		N (Individuals)	3,531	3,058
		p-value	.000*	.000*

\* = Statistically Significant

Table 5 presents ownership of radio and telephone. In 1997 81.3 percent of residents in RAAS owned a radio, compared to 87.5 percent in 2001. RAAS had the greatest

increase in ownership of radio, of 6.2 percentage points. Chinandega had the second largest increase at 3.4 percentage points, and residents in Managua had a 1.6 percentage point decrease in number of residents who own a radio. Chi-squared analysis was used and the relationship between ownership of radio and department was found to be significant at the .005 level.

Between the years 1997 and 2001 ownership of telephone increased in all three departments. Residents in Managua made the greatest increase at 5.4 percentage points, RAAS had the second highest increase at 0.7 percentage points, and Chinandega made the smallest increase at 0.3 percentage points. Chi-squared analysis was used and the relationship between telephone ownership and department was found to be significant at the .005 level.

Table 5: Ownership of Radio and Telephone by Department

			1997	2001
Ownership of Radio	Chinandega	No	22.9	19.4
		Yes	77.1	80.5
		Not de jure resident	0	0.1
		Total	100	100
	Managua	No	10	10.4
		Yes	90	88.4
		Not de jure resident	0	1.2
		Total	100	100

	RAAS	No	18.7	11.2
		Yes	81.3	87.5
		Not de jure resident	0	1.3
		Total	100	100
		N (Individuals)	3,533	3,072
		p-value	.000*	.000*
Ownership of Telephone	Chinandega	No	93.2	92.8
		Yes	6.8	7.1
		Not de jure resident	0	0.1
		Total	100	100
	Managua	No	77.7	70.9
		Yes	22.5	27.9
		Not de jure resident	0	1.2
		Total	100	100
	RAAS	No	88.8	86.8
		Yes	11.2	11.9
		Not de jure resident	0	1.3
		Total	100	100
		N (Individuals)	3,526	3,068
		p-value	.000*	.000*

\* = Statistically Significant

Table 6 examines number of rooms for sleeping. In 1997, 35.5 percent of residents in Chinandega had at least two rooms for sleeping in their home, compared to 36.9 percent in 2001. In 1997, 58.5 percent of residents in Managua had at least two rooms for sleeping, compared to 59.9 percent in 2001. Between the years 1997 and 2001 the number of rooms per house in the RAAS increased from 44.2 percent to 50 percent. RAAS had the greatest increase in

number of rooms for sleeping at 5.8 percentage points, Chinandega and Managua made a 1.4 percentage point increase. Chi-squared analysis was used and the relationship between number of rooms for sleeping and department was found to be significant at the .005 level.

Table 6: Rooms for Sleeping by Department

Department		1997	2001
Chinandega	One or less	64.5	63.1
	At least two	35.5	36.9
	Total	100	100
Managua	One or less	41.5	40.1
	At least two	58.5	59.9
	Total	100	100
RAAS	One or less	55.8	50
	At least two	44.2	50
	Total	100	100
	N (Households)	2,684	2,307
	p-value	.000*	.000*

\* = Statistically Significant

Table 7 displays the main material used to construct the floor of respondents' houses. The percent of residents who had earthen brick floors or better increased in Managua by 1.8 percentage points; it decreased in Chinandega and RAAS by 2.3 percentage points and 4.1 percentage points respectively. In 1997 54.7 percent of residents in Managua had an earthen brick floor or better, compared to 56.5 percent in 2001. During the same time period the percent

of residents in Chinandega who had earthen brick floors or better decreased from 31 percent in 1997 to 28.7 percent in 2001, and the percent of residents in RAAS decreased from 18.3 to 14.2 percent. Chi-squared analysis was used and the relationship between the material used to construct the floor and department was found to be significant at the .005 level.

Table 7: Main Floor Material by Department

		1997	2001
Chinandega	Tile or worse	69	71.3
	Earthen brick or better	31	28.7
	Not de jure resident	0.0	0.1
	Total	100	100
Managua	Tile or worse	45.3	43.5
	Earthen brick or better	54.7	56.5
	Not de jure resident	0.0	1.2
	Total	100	100
RAAS	Tile or worse	81.7	85.8
	Earthen brick or better	18.3	14.2
	Not de jure resident	0.0	1.3
	Total	100	100
	N (Individuals)	3,535	3,061
	p-value	.000*	.000*

\* = Statistically Significant

When compared to the other departments Managua had the greatest decrease in ownership of radio, the greatest increase in ownership of telephone, the smallest increase in rooms for sleeping, and the greatest improvements in material used to construct floor.

Chinandega had the second greatest increase in ownership of radio, the smallest increase in ownership of telephone, the smallest increase in number of rooms for sleeping, and the second greatest decline in material used to construct floor.

RAAS had the greatest increase in ownership of radio, the second greatest increase in ownership of telephone, the greatest increase of rooms for sleeping, and the greatest decline in material used to construct roof.

Overall RAAS and Managua made the most material well-being improvements and Chinandega the least.

Table 8 examines the three health indicators, immunization for DPT, Polio and measles, by department. Chinandega had the greatest increase in percent of residents immunized for DPT, an increase of 2.5 percentage points. The percent of residents in Managua who were immunized for DPT increased by 0.1 percentage points. RAAS experienced a 3.4 percentage point decrease in residents immunized for DPT from 1997 to 2001. Chi-squared analysis was used and the relationship between Diphtheria immunization and department was not found to be significant at the .005 level in 1997; but it was significant in 2001.

Chinandega made the greatest increase in percent of residents immunized for Polio, 2.9 percentage points. Managua and RAAS both had decreases, 1.1 and 3.4 percentage points respectively. Chi-squared analysis was used and the relationship between Polio immunization and department was found to be significant at the .005 level.

Chinandega also had the greatest increase in percent of residents immunized for Measles, 0.4 percentage points. By contrast, immunization levels in both Managua and RAAS decreased. The percent of residents in Managua immunized for Measles decreased by 6.4 percentage points, and in RAAS immunization decreased by 5.2 percentage points. Chi-squared analysis was used and the relationship between Measles immunization and department was found to be significant at the .005 level

According to the above health indicators, Chinandega's health improved between the years of 1997 and 2001, while the health of people in Managua and RASS decreased (RAAS decreased more than Managua).

Proponents of structural adjustment contend that structural adjustment improves well-being. I conducted a sign test to test the null hypothesis that well-being between 1997 and 2001 improved. Twelve of the 27 tests

went in the expected direction while the remaining 15 did not. Because only half of the tests went in the expected direction the sign test indicates that the difference is not statistically significant.

Table 8: Immunization by Department

	Department		1997	2000
Received DPT	Chinandega	No	8.5	6.0
		Yes	91.5	94
		Total	100	100
	Managua	No	10.0	9.9
		Yes	90.0	90.1
		Total	100	100
	RAAS	No	12.1	15.6
		Yes	87.9	84.4
		Total	100	100
		N (Individuals)	1,335	1,085
		p-value	.086	.000*
Received Polio	Chinandega	No	7.6	4.7
		Yes	92.4	95.3
		Total	100	100
	Managua	No	7.4	8.5
		Yes	92.6	91.5
		Total	100	100
	RAAS	No	11.3	14.7
		Yes	88.7	85.3
		Total	100	100
		N (Individuals)	1,338	1,085
		p-value	.023*	.000*
Received Measles	Chinandega	No	27.0	26.6
		Yes	73.0	73.4
		Total	100	100
	Managua	No	26.0	32.4
		Yes	74.0	67.6
		Total	100	100
	RAAS	No	36.7	41.9
		Yes	63.3	58.1
		Total	100	100
		N (Individuals)	1,323	1,083

		p-value	.002*	.000*
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\* = Statistically Significant

Overall, Managua made the greatest improvements in regards to education, and the second greatest improvement in both material well-being and health. Chinandega had the least improvements in regards to education, experiencing the lowest decreases in material well-being, and the greatest improvements in health. RAAS made the second greatest improvements in regards to education, the greatest improvement in material well-being, and the lowest decreases in health.

### **Conclusion**

In general, the first hypothesis tested in this study (Structural adjustment policies will not improve the well-being of workers in Nicaragua) was supported by the data and provides support for the literature on structural adjustment in Latin America and suggests that the findings of earlier researchers can be applied to Nicaragua. The second hypothesis (Structural adjustment policies will affect the well-being of workers in the agricultural sector

more negatively than workers in the manufacturing sector) was supported by the data and is consistent with the Pomeroy et al (2002) study and suggests that these findings can also be applied to Nicaragua.

## CHAPTER V

### DISCUSSION

This investigation explored the varying impacts of structural adjustment programs on workers in the manufacturing and agricultural sectors in Nicaragua. It attempted to document the relationship between three well-being indicators (health, education, and material well-being) and the sector in which the worker was employed (agricultural or manufacturing). Between the years 1997 and 2001 the well-being of Nicaraguan workers did not increase significantly and workers in the agricultural sector had lower well-being scores than workers in the manufacturing sector over the same years.

The International Monetary Fund describes itself as an organization that strives to foster economic growth, combat unemployment, and meet the needs of developing countries ([www.imf.org](http://www.imf.org)). The IMF's 1999 Nicaraguan Policy Framework Paper, reviewed structural adjustment policies that had been implemented since the 1998 three-year Enhanced Structural Adjustment Facility (ESAF) and policies that were to be implemented in the remaining year and a half of

the agreement. This paper identified poverty and unemployment reduction as the main objective of the structural adjustment program. Despite the IMF's poverty reduction rhetoric, structural adjustment has had adverse effects on workers in Nicaragua. The effects that structural adjustment has had on workers in Nicaragua can be measured by the country's United Nations Development Program's Human Development Index (HDI). The HDI is a composite index drawn from indicators of social (literacy, life expectancy) and economic (GDP per capita) development. In 1990 at the end of Sandinista rule, Nicaragua was ranked 60<sup>th</sup> by its HDI among nations in the world, despite the Contra War and an external effort of economic strangulation. In 1997, after seven years of structural adjustment, Nicaragua dropped to 127<sup>th</sup> (Walker 2003). Nicaragua's HDI dropped from 0.743 to 0.568, only Iraq (suffering from UN trade sanctions and a recent military defeat) experienced a similar decline (Close 1999).

Structural adjustment policies were intensified in 1998, and my findings suggest that well-being did not improve from 1997 to 2001 for Nicaraguan workers. This chapter discusses my findings about the effects of structural adjustment on Nicaraguan workers. First, I

discuss how workers in general were affected by structural adjustment between the years 1997 and 2001 based on the results found in this study. Secondly, I discuss how workers in the manufacturing sector were affected differently than those in the agricultural sector by structural adjustment during the same years.

### **The Impact of Structural Adjustment on Nicaraguan Workers**

The findings in this study are consistent with the literature on structural adjustment in Latin America, in that, SAPs do not improve well-being (Caufield 1996, Cupples 2005, Dijkstra 1996, Echanove 2005, Heredia 1995, Lee 2001, Mohan et al 2000, Pacheco 2004, Pisani 2003, Pomeroy et al 2004, Walker 2003).

#### *Health*

Health care did not improve for workers in Nicaragua between the years 1997 and 2001. The number of Nicaraguans who were immunized for diphtheria and measles between 1997 and 2001 declined while the number immunized for polio increased.

Nicaraguan health care in the 1980s was centralized and largely available to everyone in rural and urban areas

alike. The emphasis in health care was more preventative than curative. In 1981 the United Nations Children's Fund (UNICEF) chose Nicaragua as a model for its primary or preventative approach to health care. The government carried out massive inoculation campaigns. In 1982 not a single case of polio occurred (Walker 2003).

With the implementation of structural adjustment in 1990 health care began a privatization process. In 1998, the time period of concern for this study, the private sector was allowed to increase its participation in the supply of health services. Consistent with the findings of Howard Waitzkin et al. (2000), my findings were that the privatization of health care in Nicaragua did not improve access to health services for the majority of workers.

The Enhanced Structural Adjustment Facility, uncharacteristically, did propose an increase in social spending in the health sector. Nonetheless, health care in Nicaragua remained under-funded and geared toward curative not preventative medicine. More hospitals are under construction but access to health care, and preventative medicine remains out of reach for many Nicaraguans. In a world in which over eight million children die each year from treatable and preventable diseases, the importance and

urgency of immunization should not be underestimated (Science Daily, 2003).

### *Material Well-Being*

Material well-being, according to the variables used in this study improved slightly for Nicaraguans between the years 1997 and 2001. Many policies that affect material well-being were introduced with the 1998 structural adjustment program in Nicaragua. Public industries were privatized (banks, energy, ports, roads, state oil), wage freezes were introduced, 1,800 public jobs were eliminated, credit policies were tightened, and the market was given the task of operating monetary control and deregulation of financial industries, tax laws, and foreign investment among others.

I found slight increases in the number of rooms for sleeping, ownership of telephone, and ownership of radio, while the number of homes having earthen brick or better material used to construct floor of home decreased between the years 1997 to 2001. Thus, some indicators of material well-being were affected more than others. The number of households owning a telephone, for example, did improve, but only by 0.4 percent. The 1998 ESAF included the

privatization of the state-owned telecommunications company ENITEL. This privatization could have potentially affected the ownership of telephones; however, the privatization was postponed until January of 2000, largely because potential investors withdrew bids. This may explain why telephone ownership changed little.

The most drastic change was in the quality of the material used to construct the floor of Nicaraguan homes. There are two related explanations as to why the quality of material declined. Both explanations are centered on the destruction caused by Hurricane Mitch.

One possible explanation is that the cumulative dismantling of the Sandinistas' centralized social services by structural adjustment left the government unprepared to deal appropriately with the disaster. Hurricane Mitch hit the coast of Nicaragua in 1998. It killed more than 2,400 people, left nearly one fifth of the population homeless, and resulted in more than \$1.5 billion in economic damages (Walker 2003). After so much destruction, many homes had to be rebuilt. Structural adjustment throughout the 1990s had reduced and dismantled the Sandinistas' strong social service infrastructure. Nicaragua's decrepit social service infrastructure in 1998 was wholly overwhelmed by

Hurricane Mitch. The Nicaraguan government's relief effort, which included rebuilding of homes, was ineffective, inefficient, and ultimately had to be funded by international and domestic nongovernmental organizations. In 1988, a decade before Mitch, Nicaragua was saddled with a comparable disaster, Hurricane Joan. Sandinista Nicaragua's strong social service infrastructure, including projects dedicated to building roads and schools, was established well before the hurricane hit Central America. Hurricane Joan turned out to be much less of a disaster because of the effectiveness and efficiency of the Sandinista government's response (Walker 1997). Had structural adjustment not diminished Nicaragua's social services, Nicaraguan homes could have been rebuilt with comparable if not better floor material, as they had been after Hurricane Joan.

The second explanation is related to Nicaraguans' buying power. If the government could not provide adequate funds to rebuild homes, Nicaraguans were largely burdened with completing the task alone or at least supplementing insufficient government relief. As mentioned above, the 1998 ESAF included wage freezes, the firing of 1,800 public employees, and the tightening of credit policies. One of

the most important aspects in buying or building a home is the ability to receive credit. The tight credit policy required by the 1998 ESAF made it more difficult for workers to receive loans to build or buy homes. Therefore workers had to build homes that, in many cases, were constructed with material of poorer quality than their previous homes. The wage freeze policy in the 1998 ESAF was yet another hindrance to workers' buying power when faced with disasters such as Hurricane Mitch. Public workers who had lost their jobs because of the 1,800 public positions closed during 1997 or the 1,500 positions cut each year during 1998-1999 had even less resources to build or buy homes made with adequate materials.

#### *Education*

Overall, my educational indicators in Nicaragua did not change substantially. In 2001 more Nicaraguans had a secondary level of education or higher but fewer Nicaraguans could read. If more people are receiving higher levels of education but fewer people are able to read then it is fair to say that the education system is not successful. This suggests that wealthy Nicaraguans who can afford education are attaining higher levels of

education while the poor are finding it harder to access the education system.

According to the literature, the greatest contribution to Nicaraguans during Sandinista rule was the National Literacy Campaign of 1980 (Enriquez 1991, Walker 1997, 2001). From March to August of 1980 all schools were closed and volunteers dispersed throughout the country to bring literacy to Nicaraguans over the age of ten who could not read. The literacy rate for persons over the age of ten was less than 40 percent before the campaign. By the end of the Crusade, just five months later, it had reached 87 percent. By 1982 Nicaragua claimed a literacy rate of 90 percent. The literacy crusade won the 1980 award of the United Nations Educational, Scientific, and Cultural Organization (UNESCO) for the best program of its kind.

Nicaragua, driven by IMF prescribed structural adjustment, abandoned literacy-based education throughout the 1990s. Consequently literacy in Nicaragua has decreased. The 1998 ESAF proposed an increase in social spending for education. Increases in education are uncharacteristic of structural adjustment. Historically structural adjustment programs are known for requiring large cuts in public spending on health and education

(Mohan 2000, Heredia 1995, Peet 2003,). These atypical increases may help to explain why Nicaraguans experienced slight increases in educational attainment.

Nonetheless the increases were insufficient to reverse the IMF prescribed cuts in education made in the 1990s. The increase in educational attainment between the years 1997 to 2001 was less than half of a percent. In 2002, Nicaragua spent only 3.1 percent of its GDP on education, ranking 143<sup>rd</sup> in the world in that category (CIA World Fact Book). Secondary schools in Nicaragua were still not free in 2001. Each student was required to pay ten córdobas per month (US\$1.22). It was also customary for primary schools to collect "voluntary" fees each month from each student (Positivelyglobal.org). Overall, structural adjustment policies toward education were unsuccessful, as the literacy rate dropped and educational attainment stayed approximately the same.

### **The Impact of Structural Adjustment on Workers in the Agricultural and Manufacturing Sectors in Nicaragua**

The Pomeroy et al. (2002) study found that workers in the agricultural sector had lower well-being scores than their manufacturing counterparts as a result of structural

adjustment in the Dominican Republic. The current study is consistent with these findings and suggests that then can be applied to Nicaragua as well.

### *Material Well-Being*

In regards to material well-being, I found that Nicaraguan workers in the manufacturing sector fared better than workers in the agricultural sector between the years 1997 and 2001. Three notable reforms that may have contributed to the agricultural sector's lack of improvements are: the closing and privatization of the National Development Bank (BANADES) reduced state participation in the banking sector, and the tightened credit policy of the BAN.

The Somoza-era structure of land tenure was significantly altered by the Sandinista Agrarian Reform (SAR) of the 1980s, as thousands of rural wage workers and peasants acquired rights to former *latifundios* (large and idle landed estates). Redistributed land was mostly organized as either state farms in the Area of People's Property (APP) or as collectively run Sandinista Agricultural Cooperatives (CAS). Thousands of landless or near landless Nicaraguans were given access to land or work

(Jonakin 1997). The Sandinistas also granted lavish producer loans, of which the SAR beneficiaries on the Sandinista Agricultural Cooperatives were the primary recipients. Loan requests for peasants and small farmers were rarely rejected, and interest rates were relatively low compared to other producers.

Structural adjustment policies in the 1990s, including restrictive producer credit and the redefining of property rights, resulted in many SAR beneficiaries (peasants, small-scale farmers, landless rural wage workers) losing their land (Jonakin 1996, 1997). Structural adjustment eliminated many consumer and producer subsidies and tightened farm credit, resulting in even more peasants and small-farmers losing land. The privatization of the state farms and the Sandinista Agricultural Cooperatives not only resulted in the loss of land for thousands of workers, but it began a process involving extensive layoffs and the need to arbitrate new work forms and representational structures (Jonakin 1997). Structural adjustment also required tens of thousands of state agricultural workers to be removed from the public payroll. By 1992 the full-time salaried agricultural work force was reported to have decreased by 72 percent (Jonakin 1997). To make matters worse, the IMF

also required the closing and privatization of over 70 percent of BANADES branches (Walker 1997). BANADES was one of the only banks that provided credit to small and medium sized farmers. Peasant and small farmers' dependence on BANADES for credit was critical, and with the dismantling of BANADES many small producers could not compete with the larger estates.

With the 1998 ESAF, the IMF required more of the same kinds of policies: the closing and privatization of BANADES, reduced state participation in the banking sector, a tightened credit policy, and the settling of property "rights". My data suggest that the aforementioned reforms affected the agricultural sector more negatively than the manufacturing sector. Small farmers requested loans for seeds, farming instruments (plows, trackers, etc.), technical assistance, and fertilizers. Credit for small farmers is essential to their livelihood. The notion that tightened credit and the dismantling of BANADES hindered small farmers' (most agricultural workers in Nicaragua) production capabilities is supported by Jonakin (1996, 1997) who conducted studies on the impact of such policies.

The 1998 ESAF required that BANADES cease all banking functions, a move that complicated farmers' physical access

to credit. National Basic Food Company (ENABAS), the state enterprise that purchased and provisioned subsidized grains, was also largely privatized. Small producers (who did not lose their land) were confronted with both increased prices of grain and less access to credit.

The settling of property "rights" also resulted in the loss of land for many small farmers. Because of the speed at which their land reform was implemented, the Sandinistas failed to assign definitive property rights to the Sandinista Agrarian Reform beneficiaries. With the change of government in 1990, many of the *Somocistas* returned to Nicaragua and reclaimed their former property. The property rights of SAR beneficiaries was challenged with the IMF imposed property rights laws. As a result many SAR beneficiaries lost their land (Jonakin 1997).

With the loss of land, limited access to credit, and the cessation of BANADES, material well-being for workers in the agricultural sector stagnated. The realization of the above reforms resulted in lower well-being scores in the agricultural sector than those in the manufacturing sector. Some reforms, such as wage freezes and the elimination of public positions, adversely impacted both workers in the agricultural and manufacturing sector, but

the 1998 ESAF did not include any reforms that have historically depreciated well-being among manufacturing workers specifically.

### *Health*

Health was the only well-being indicator in which the agricultural sector fared better than the manufacturing sector. The Agricultural sector made experienced improvements (although slight) in all three health indicators (immunization of DPT, Polio, Measles), while the manufacturing sector had increases only in immunization of DPT (by 0.1 percent). The control group, RAAS, experienced decreases in all three indicators.

No policy related to health in the 1998 ESAF differentiated between the agricultural or manufacturing sectors. In the 1990s, the gradual eradication of the universal health care system (which was implemented by the Sandinistas) resulted in ever-increasing health care expenses for workers (Walker 1997). As stated above, the buying power of workers in the agricultural sector declined, limiting their ability to pay for necessary health care. Many Nicaraguan families were left with little choice but migration to the overpopulated urban centers.

The literature on structural adjustment suggests that the plight of workers in the agricultural sector leads to increased migration to urban areas (Walker 1997, Jonakin 1996, Mohan et al 2002). The majority of the migrating population are workers who have lost land, are unable to make the transition to export oriented crops, cannot compete with cheap imports, or have lost access to health care or immunization (Walker 1997, Jonakin 1996, Mohan et al 2002). When members of the agricultural population who do not have access to health care services (such as immunization) migrate to the cities, the remaining proportion of agricultural workers with access, increases.

### *Education*

Overall, education in the manufacturing sector improved, while in the agricultural sector it did not.

The 1998 ESAF was not a typical structural adjustment program. The IMF proposed to increase social spending rather than cut funding to health and education.

Structural adjustment programs often necessitate cuts in social services.<sup>1</sup> The increases in funding for health and

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<sup>1</sup>The 1998 ESAF was not, however, a complete ideological shift. The 1998 ESAF was guided by neoliberal principles and included typical

education were largely insufficient to counter eight long years of structural adjustment. Increases in education also proved insufficient to counter material well-being decreases in the agricultural sector.

The fact that the agricultural sector did not fare as well as the manufacturing sector in regards to education is largely a product of limited buying power. The 1998 ESAF, did not include any educational reforms that differentiated between the agricultural or manufacturing sector specifically. As stated above, families in Nicaragua are required to pay for secondary schooling and are asked to pay "voluntary" fees for primary school. Therefore the children who attend both primary and, to a greater extent, secondary school are the children whose families can afford the fees. The fees may be small (ten córdobas a month), but they are additional expenses nevertheless. As noted above, I did not find any substantial improvements in education. This is quite likely because of the abandonment of literacy-based education, insufficient funding, and stagnant material well-being scores resulting in many families being unable to send their children to school.

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structural adjustment reforms, including privatization, wage freezes, deregulation, and the closing of thousands of public sector positions.

Also as noted above, workers in the agricultural sector did not see improvements in material well-being due to the privatization of BANADES, the tightening of credit, and loss of land. Because agricultural workers did not fare as well as manufacturing workers in regards to material well-being, they would have had fewer resources to pay for school. Consequently agricultural workers did not fare as well as manufacturing workers in regards to education either.

#### **RAAS**

The well-being for the control region, RAAS, changed little from 1997 to 2001. Due to the autonomous region's self-governing nature, it was apparently much less affected by structural adjustment. The well-being of RAAS workers improved more than that of workers in the agricultural sector but not as much as that of workers in the manufacturing sector. The RAAS was largely unaffected by the reforms that negatively impacted the agricultural sector (tightened credit, privatization, dismantling of BANADES, etc.) resulting in better well-being scores. However the RAAS also did not receive the increases in social spending that the agricultural and manufacturing

sector received. Thus, it is not surprising that the RAAS reported lower well-being scores than the manufacturing sector. In short, the RAAS was not subject to the 1998 ESAF's worst policies but also did not benefit from some of the policies that mitigated the potentially adverse effects of those policies. Because the RAAS had higher well-being scores than sectors that were subject to the most devastating reforms of structural adjustment (agricultural), but did not receive the benefits of increased social spending, it did not do as well as the manufacturing sector.

## CHAPTER VI

### CONCLUSION

This study generally supports the notion that structural adjustment programs do not improve the well-being of workers. My findings suggest that agricultural workers are more disadvantaged by SAP policies than workers in the manufacturing sector. One of the possible implications of these findings is that SAPs do not succeed in meeting their stated goal of eliminating poverty and should be either completely reformed or eliminated altogether.

I hypothesized that structural adjustment policies would not improve the well-being of workers in Nicaragua. I expected that structural adjustment policies, such as privatization, wage freezes, and the elimination of thousands of public positions, would hinder the improvement of well-being in Nicaragua. My data support this hypothesis, as the overall well-being of workers in Nicaragua did not improve between years 1997 and 2001.

I also hypothesized that structural adjustment policies would affect the well-being of workers in the

agricultural sector more negatively than workers in the manufacturing sector. I expected that structural adjustment policies such as the privatization of BANADES, tightened credit policies, and reduced state participation in the banking sector would affect workers in the agricultural sector more negatively than workers in the manufacturing sector. Both workers in the manufacturing and agricultural sectors depend on credit and were affected by tightened credit policies, but the privatization of the state-owned National Development Bank (BANADES) had a much greater impact on agricultural workers. In the 1980s the primary function of BANADES was to provide loans to small and medium size farmers. The privatization and closing of BANADES branches around the country left many small and medium farmers without adequate access to credit. Workers in the agricultural sector depend on credit for seeds, farming instruments (plows, tractors, harrows, hullers, etc.), fertilizers, irrigation, and technical assistance. Credit for small and subsistence farmers (most agricultural workers in Nicaragua) is essential for their livelihood. The data support my second hypothesis, as workers in the agricultural sector fared worse than those in the manufacturing sector.

### **Implications for Further Research**

Two phenomena which occurred in Nicaragua between the years 1997 and 2001 could have affected the well-being scores of workers. They were Hurricane Mitch (1998) and migration from the rural countryside to the urban centers. While this research may not be able to gauge the extent to which these two phenomena affected well-being among workers, my findings are at least a starting point for understanding structural adjustment in Nicaragua. The existing literature on Hurricane Mitch and migration does not explore how these phenomena might have affected the well-being of workers in the manufacturing or agricultural sectors. In order to have a comprehensive understanding of how structural adjustment affects agricultural and manufacturing sectors, an understanding of how the two aforementioned phenomena affected each sector is essential.

### **Study Limitations**

As mentioned above, migration and Hurricane Mitch could have altered the well-being of workers in the agricultural and/or the manufacturing sector. For the

purposes of the current study, the extent to which Mitch and migration affected well-being was not explored.

This study was concerned with the years 1997 to 2001. There are two problems with such a short time frame. First, it does not take into account trends that could have begun years before 1997. Larger trends are often hard to determine when focusing on such a small window of time. Secondly, such a small time frame may not allow structural adjustment policies to manifest themselves. The 1998 ESAF included some policies that were not implemented until 2000. No matter how significant certain policies may be for workers, often times it is difficult to gauge their effects in a few years.

## **Conclusion**

The first post-revolutionary decade of development in Nicaragua has not profited the majority of workers, especially the poor. Nicaraguans have suffered greatly for the trivial benefits they have received. While workers struggle, contractors, exporters, multinational corporations, and consultants (mostly from wealthy nations) benefit greatly from structural adjustment programs (Korten 2001). Lower wages, deregulation, lower tariffs, and

privatization make for prosperous business climates. The story in Nicaragua is similar to that of other nations that have succumbed to Structural Adjustment. In Africa an estimated 500,000 children die each year from IMF-imposed economic restructuring (McMurty 1998). An Oxfam International study estimated that in the Philippines alone structural adjustment cuts in preventative medicine would result in 29,000 deaths from malaria, as well as an increase of 90,000 cases of untreated tuberculosis (Hahnel 1999). Social needs are routinely subordinated to the concerns of foreign markets. The concerns and interests of international investors and multinational corporations in the wealthy northern nations are placed above the interests of the world's poor majority. Structural adjustment programs have failed to decrease poverty, while leaving recipient countries in a mountain of debt.

My findings (and those of others) lead me to conclude that structural Adjustment Programs should include a few basic criteria or be eliminated altogether. First, SAPs should be flexible to meet the specific needs of particular countries rather than follow a universal set of policies for every country. Second, the poor should be included in the process of planning their own development. Third, the

policies should be relevant and practical to the country and should not impose affliction and suffering on the people. Lastly, structural adjustment should support equitable, sustainable, and participatory development. If structural adjustment cannot, at a minimum, meet this criterion, it should be abolished and an alternative framework for development should take its place.

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[Www.IMF.org](http://www.imf.org).

[Www.positivelyglobal.org](http://www.positivelyglobal.org)

## Appendix A

### Acronyms

BANADES - National Development Bank

CAS - Sandinista Agricultural Cooperatives

DHS - Demographic and Health Survey

EMNV - Encuesta de Medición de Nivel de Vida

ENABAS - Nacional Basic Food Company

ESAF - Enhanced Structural Adjustment Facility

GATT - General Agreement on Tariffs and Trade

HDI - Human Development Index

IMF - International Monetary Fund

ISI - Import Substitution Industrialization

RAAS - South Atlantic Autonomous Region

SAP - Structural Adjustment Programs

SAR - Sandinista Agrarian Reform

UNESCO - United Nations Educational, Scientific, and  
Cultural Organization

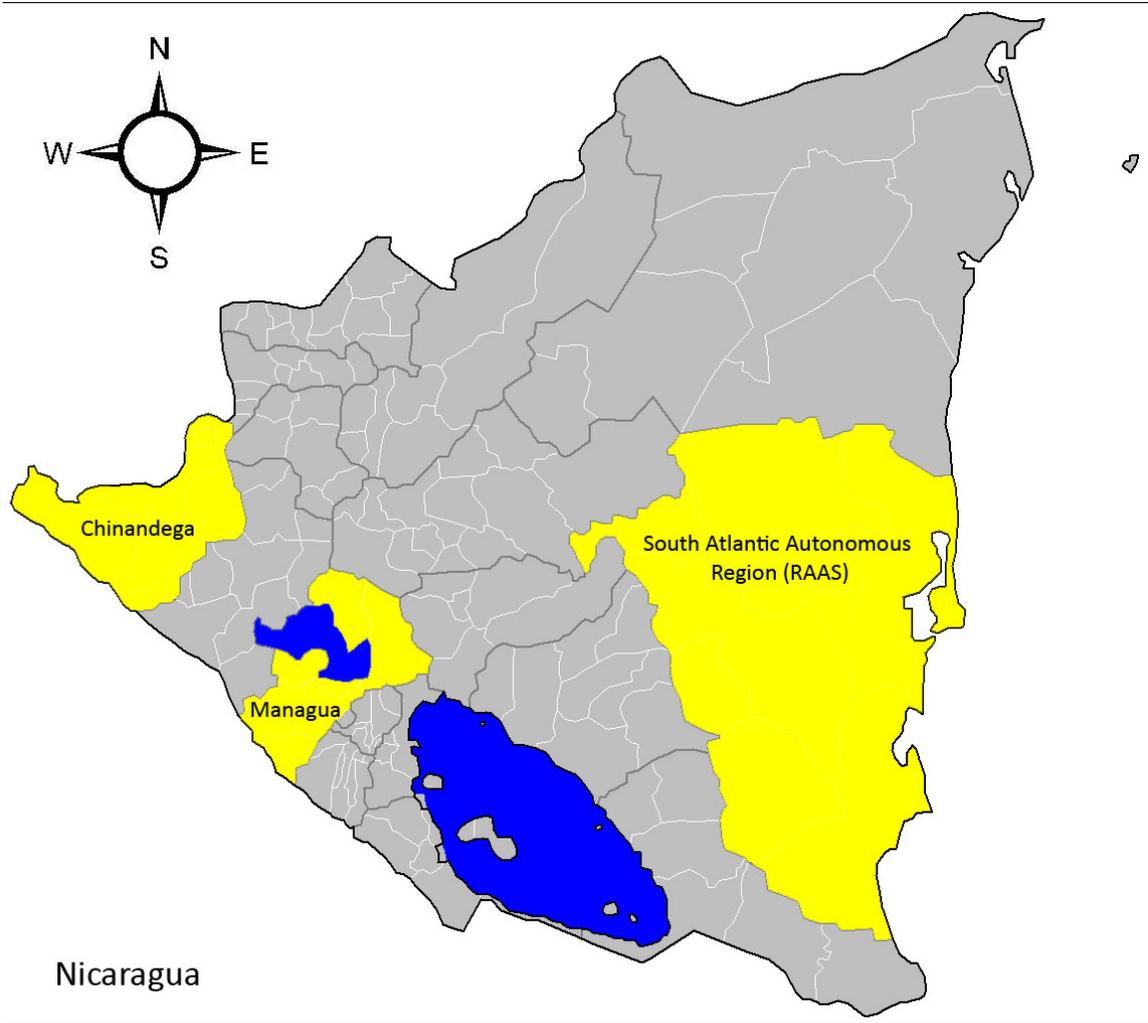
UNICEF - United Nations Children's Fund

USAID - United States Agency for International Development

WTO - World Trade Organization

Appendix B

Map of Nicaragua



## Appendix C

### Demographics for Managua, Chinandega and the RAAS\*

Department	Total Population	Population Density	Surface Area	Total Households	Average number of people per household	Male	Female
Managua	1,262,978	90.5	3,465.1 km <sup>2</sup>	272,636	5.2	48.0%	52.0%
Chinandega	378,970	78.6	4,822.42 km <sup>2</sup>	79,431	5.1	49.4%	50.6%
RAAS	306,510	11.2	27,260.02 km	56,197	5.5	50.3%	49.7%

\*Statistics from Instituto Nacional de Información de Desarrollo – INIDE de Nicaragua