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Debt sustainability framework for low income countries: Case study of Nicaragua

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The debt sustainability framework (DSF) developed by the International Monetary Fund and the World Bank (BM) in 2005, applied to Nicaragua lacks elements that impede measure the presence of an excessive accumulation of debt and does not reflect the need for funding needed to meet the Millennium Development Goals (MDGs). This research includes information on the DSF and analyses the economy to identify structural problems that should be considered to cover more risks in the country. In turn we propose to implement an alternative analysis of debt sustainability to increase the effectiveness of this tool and support for the MDGs.

External Debt, Development, Sustainability, Financing, Low-Income Countries.

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Introduction

The study investigates the Debt Sustainability Framework (DSF) and exposes that the framework needs to incorporate additional indicators due to the high vulnerability of external shocks that can pose real dangers to the Nicaraguan debt sustainability.

Some empirical and theoretical literature respect of the DSF and the vulnerability that the frameworks has respect with exogenous shocks, discussion is present in authors like (Mwaba, 2005), (Hussain & Gunter, 2005) and (Ferrarini, 2008). The debate of the determination of the effects of overindebtedness in economic growth has been described in (Krugman, 1988), (Pattillo, Poirson, & A. Ricci, External Debt and Growth, 2002), (Bannister & Barrot, 2011) and (Reinhart, Reinhart, & Rogoff, 2012) has to be present in the determination of the debt threshold used in the current DSF.

Section 2 reviews the Nicaraguan economic context, describing a brief behavior of some key economic and social indicators. The following part, Section 3, analyzes the importance of 4 economic variables – foreign aid, foreign direct investment (FDI), exports and remittances – in the economic performance of Nicaragua. Its magnitude is considerable and poses threat to external shocks; they can play an important role in contributing to the debt problem.

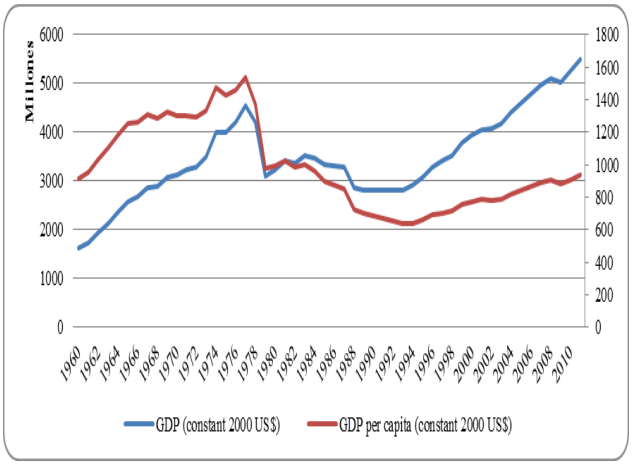
From there we proceed, section 4, to a discussion of the different approaches assessing the debt sustainability. Beyond the solvency question addressed by the debt sustainability diagnosis, there is a question of the implications of the overindebtedness and economic growth.

To illustrate the importance of this framework we analyze the relationship and its implications that should be taken account in the elaboration of an alternative debt sustainability framework.

In the light of the theoretical expositions, section 5, we present our proposal of an alternative debt sustainability framework for Nicaragua. Finally in section 6 we present our conclusions, considering the implications of the findings and the attendant policy design issues.

Nicaraguan Context

The Republic of Nicaragua is the second nation with the lowest GDP per capita income in the American Continent. The economy has grown steadily from 1990 to 2011 (except 2009 due to the international crisis); the average annual growth rate of the GDP has been 3.24% and 1.49% the GDP per-capita.



Graph 1

Socially, poverty is high, in 2009 42.5% of the population was poor and 14.2% of the inhabitants were living below the extreme poverty.

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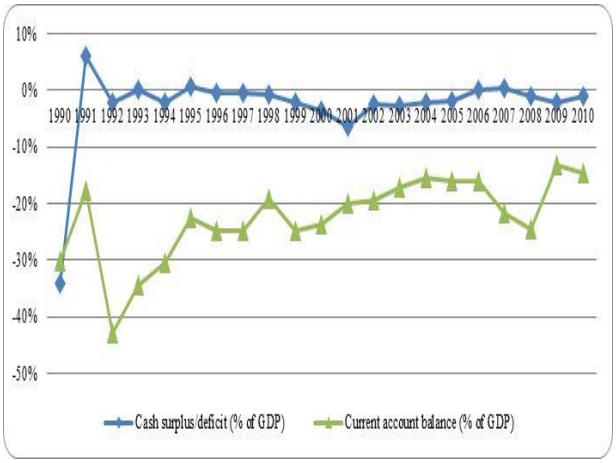
Notwithstanding this growth, the impact on poverty has been very low, considering that from 1993 to 2009 both poverty and extreme poverty declined slightly 7.8% and 5.2% respectively.

The evolution in terms of GDP and GDP per capita of Nicaragua has been low relative to developing economies. Comparing Nicaragua to neighboring countries like Costa Rica in terms of GDP per capita in constant 2000 terms, GDP per capita was $ 914 in Nicaragua in 1960, representing 51% of GDP per capita of Costa Rica. By analyzing the data of 2011 the GDP per capita was $ 936 in Nicaragua, representing 17% of GDP per capita of Costa Rica during the same period.

Nicaragua has a history of having difficulty honoring its external debt maturities because of lack of foreign exchange. The country has close economic dependence on the external sector, which largely explains the deficit in the current account for more than three decades, a situation that is related to the following variables was marked mainly by the evolution of four exogenous variables: foreign financing, exports, remittances and foreign direct investment (FDI).

The financing behavior is associated with deficits in the balance of payments and changes in the level of gross foreign assets; your employer rests on official development assistance, remittances, exports and foreign direct investment. Allowing the country to live and consume beyond what occurs in a dependent relationship. Graph.



Graph 2

Debt History

Throughout the study of public debt, we find that this is the result of government spending financed with foreign capital (debt). Transactions in goods and services flows between a country and the rest of the world that are reflected in the balance of payments are the basis for contrasting aspects of the economy that are directly related to spending levels.

Nicaragua has used foreign borrowing to finance local projects to achieve its development goals. This reality and its current weaknesses present in the economic and social environment are capable of undermining the generation of resources to meet debt commitments.

These deficiencies are found in its vulnerability to exogenous shocks that may impair the ability to pay and to prevent the fulfillment of contractual obligations of the loan.

The current account deficit increased dramatically by external shocks during the decade of the 70s, both economic and noneconomic factors: increases in oil prices, the earthquake in 1972 and the popular uprising against the Somoza dictatorship.

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This combined with a slowdown in economic growth and exports and protectionist measures in industrialized countries achieved the level of debt relative to the size of the economy, the ratio of debt to GDP increased from 24.2% to 96.8%.

In the decade of the 80s, the debt problem worsened by the large economic imbalances motivated primarily by the armed conflict, the trade embargo and other exogenous shocks. This led to increased accumulation of external debt and the country will not be able to pay the accumulated debt when he thought he had more creditworthy.

This triggered the loss of access to the financial market, exacerbating the negative initial turbulence, causing a collapse in demand for pushing government sector debt increased interest rates and widening fiscal deficit. The expansionary monetary and fiscal policies, an overvalued exchange rate and the deterioration in the terms of trade and the financing of the current account deficit with foreign loans generated increased the debt burder, the ratio DET / GDP reached 940%. See Appendix 1: debt burden measured by various indicators.

Macroeconomic distortions were so great that adjustment policies were implemented in 1988 and 1989, to reduce hyperinflation. With the change of government in 1991, goes to the international community in order to obtain resources.

Developed countries brought a requirement to establish programs with the IMF and World Bank to access capital multilateral agencies, its implementation was supported concessional external resources and grant funding.

In the 90s, economic policy is subject to the execution of financial programs with the International Monetary Fund (IMF) and World Bank (WB) and implemented Structural Adjustment Programs (SAPs) to control external deficits and imbalances macroeconomic. From this time economic policy experienced a confrontation of policy objectives, the payment of debt service and rebuilding the country.

The lack of state resources to make a series of social cuts and budgetary pressures resulting from military demobilization, reconstruction means that in 1993 the poverty be at 50.3% and 19.4% in extreme poverty. The fight against poverty starts with the SAPs (1994-1997) with the aim of consolidating the gains achieved in areas of economic stability. The implementation of further reforms intended to eliminate macroeconomic distortions and achieve external viability (IMF, 1994).

Stabilization policies to correct macroeconomic imbalances generated growth, and that the end of the trade embargo and war formed the positive situation this time. Effect measures arising in generating economic growth, GDP grew at 3% per year and a reduction of poverty by 2.3%. However there was a failure, the country increase the number of poor people from 2.1 million to 2.3 million (WB, 2001).

The implementation of adjustment programs were successful in achieving macroeconomic stability but poverty and inequality indicators deteriorated. In practice meant the destruction of the domestic market and the improvement in the external sector was at the expense of a deterioration of income distribution and low growth rate. Adjustment policies do not achieve the debt solution. See Graph

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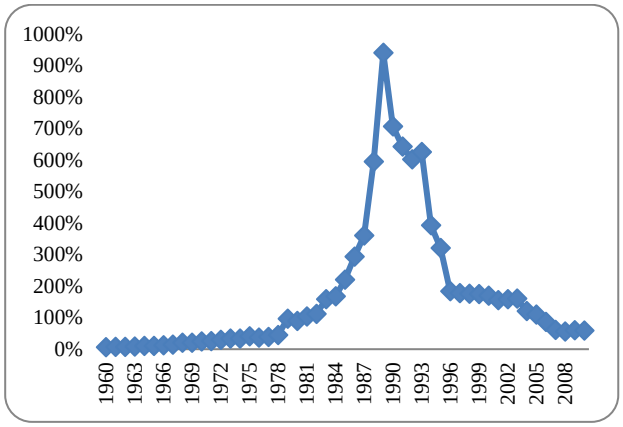
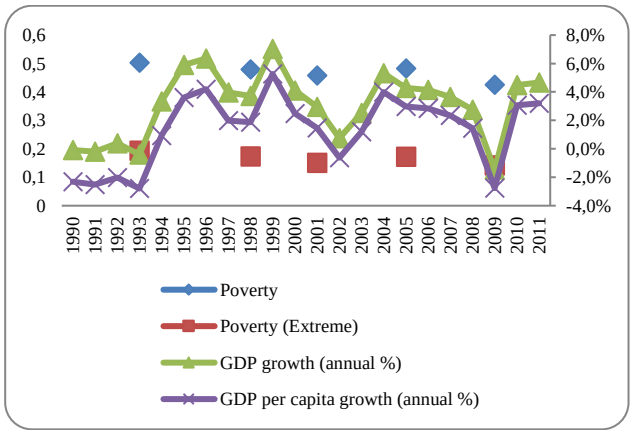


Graph 3

The levels of external debt continued to be high and the international financial institutions acknowledge that the debt burden had to be lowered to a sustainable quantity. To judge whether a country's level of debt is sustainable, the World Bank (WB) takes a present value of debt to export ratio of 150 per cent. This is the main criterion for relief under the Heavily Indebted Poor Countries Initiative (HIPC).

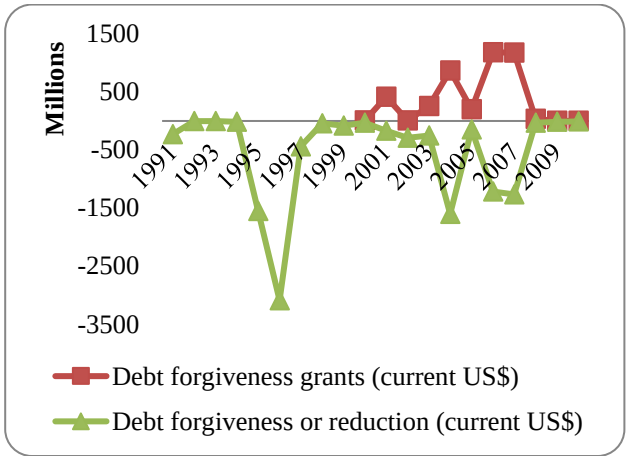
Given the inability to increase the ability to pay in 1999 was determined that Nicaragua needed debt relief under the HIPC debt to reach sustainability and continuous economic reform agenda within of IMF programs and increase spending on poverty reduction. Graph.



Graph 4

In 2005, the HIPC initiative and programs with the IMF and WB did not generate the expected positive impact on social indicators and creates another debt relief initiative Initiative Multilateral Debt Relief (MDRI), which aimed to reduce further debt levels and providing additional resources to achieve the Millennium Development Goals (MDGs) by 2015.

Nicaragua can be financed only in conditional terms (not less than 35% of concessionality). By the year 2010, under HIPC and MDRI has achieved total relief formalize 6.954 million dollars, equivalent to 87 percent of the planned total relief. As a result of debt relief and maintain a policy of debt on concessional terms, debt has decreased gradually. The debt forgiveness path excluding bilateral donors can be appreciated in the graph below.



Graph 5

The latest analysis of debt sustainability published by the IMF notes that Nicaragua has a moderate risk of debt problems and the presence of vulnerabilities to deteriorating terms of financing and risk degradation product of the quality assessment of policies and institutions, which sets a lower threshold of permitted indebtedness (IMF, 2011).

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The implicit assumption of this analysis is that the country will maintain a quota on the realization of the prospect of growth in the baseline scenario posed in the quality and sustainability of economic policies and institutions. However, high levels of domestic debt and private debt (contingent) can cause a significant risk in the medium term as it is not covered by this analysis.

Under the DSF the international financial institutions prepare a Debt Sustainability Analysis (DSA), the 2011 report for Nicaragua establishes that it "maintains a moderate risk of external public debt distress, with vulnerability arising from worsening financing terms and a historical scenario that indicates a significant risks should growth and the envisaged external adjustment not materialize." (IMF, IDA, 2011).

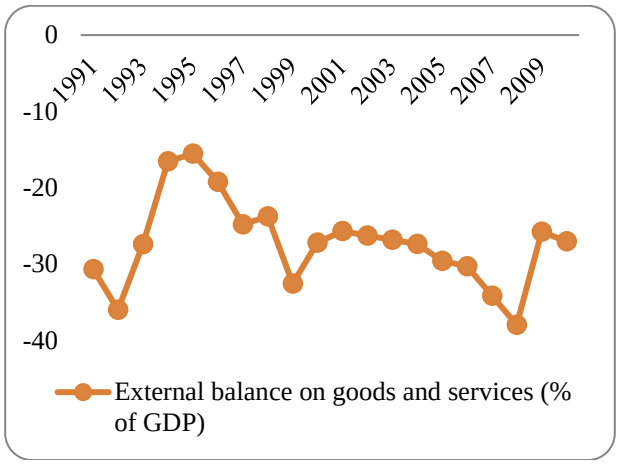
This is despite the lower debt threshold established since the reclassification as a medium performer in terms of policies and institutional quality.[7]

Nicaraguan Economic Vulnerabilities

When a government spends more than it earns we call the excess of government expenditure over government revenues the government's budget deficit. When a nation as a whole spends more on foreign goods and services than it earns by selling exports to foreigners we call the excess of expenditures over income the nation's trade deficit. Since the nation earns income by selling exports and since its spends accumulated assets by purchasing imports, the trade deficit is equal to imports minus exports.

In recent years the government has typically spent more than it earns – the difference has been made up by accumulating debt.

The methodology used to determine the vulnerability to external shocks of the Nicaraguan economy coming from the large trade deficits. We analyze balance of payments, to determine the weight of the variables -external financing, exports, remittances and foreign direct investment - to the economy and its role to finance the external imbalances reflected in the historical current account deficit.



Graph 6

In an open economy, domestic savings can be supplemented by many kinds of external assistance. In this investigation we shall consider the various types of foreign assistance, including bilateral assistance from developed countries, multilateral assistance form international financial institutions, foreign direct investment, and remittances, which in recent years has come to dominate the financial flows to the country.

Nicaragua has a foreign exchange gap, which manifests itself in a chronic balance of payments deficit on the current account, while domestic resource lies idle. These deficits require financing not only interests of countries themselves, but the sake of the growth momentum of the whole economy.

[7] Threshold for the present value of external public debt to GDP ratio from 50 to 40 percent.

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The debt problem is a foreign exchange problem. It represents the inability of debtors to earn enough foreign exchange through exports to service foreign debts, and the same time to sustain growth of output (which requires foreign exchange to pay for imports).

Countries are allowed to run deficits, sometimes for subnational periods of time, financed by capital inflows from abroad from a variety of sources such as – foreign aid, foreign direct investment (FDI), exports and remittances. A positive growth of capital inflows will allow a country to grow faster than would be the case if it was constrained to maintain balance of payments equilibrium on the current account. This flow of capital allows Nicaragua to import more than they export and to invest more than they save.

This paper discusses the role of the Nicaraguan economic vulnerabilities in contributing to the debt sustainability framework. We investigate the role these factors – foreign aid, foreign direct investment (FDI), exports and remittances – played a role in contributing to the solution of the debt problem.

Vulnerability Factors

Exports

From an overall perspective of the production structure Nicaraguan agriculture accounted in 2011 for 21% of total gross value added in GDP and use 30% of employment. The industry constituted 30% of gross value added and occupied 20% of employment. The sector heavier jurisdiction over services, 49% of total gross value added and employment to 50% of the workforce.

Nicaragua is primarily an exporter of raw materials, production structure has been characterized as export-oriented, this is a sector in turn strongly disassociated from the rest of the economy. In 2010 it exported a total of 1,851 million of goods of which food was 88% and 7% manufacturing.

While in commercial service concept was exported $ 430 million, of which 72% were service travel. Exports of goods and services in 2010 amounted to 41% of GDP.

The export sector is concentrated in a few products of total exports, the top ten products account for 81%, implies susceptibility to international price changes and external sector demand.

In addition, 55.3% of total exports are concentrated in the United States (30.6%), Venezuela (13.4%) and El Salvador (11.1%).

Graph 7

In 2010, we may note that the 5 main exports: coffee, meat, gold, peanuts and shrimp accounted for 53% of total exports that year.

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This implies that it is highly dependent on international price changes and external sector demand.

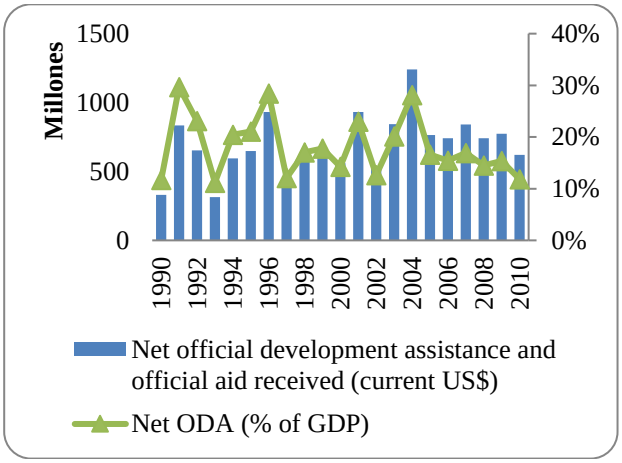
Foreign Aid

The foreign aid has played an important role in financing the trade deficit and the balance of payments.

With the flow of resources such as official development aid (ODA), debt forgiveness and concessional loans.

There has been a lot of volatility of the ODA and foreign aid, but through the period 1990 to 2010 Nicaragua has received an average of 897 million dollars a year and if we analyze its weight respect the GDP has been around 18%.

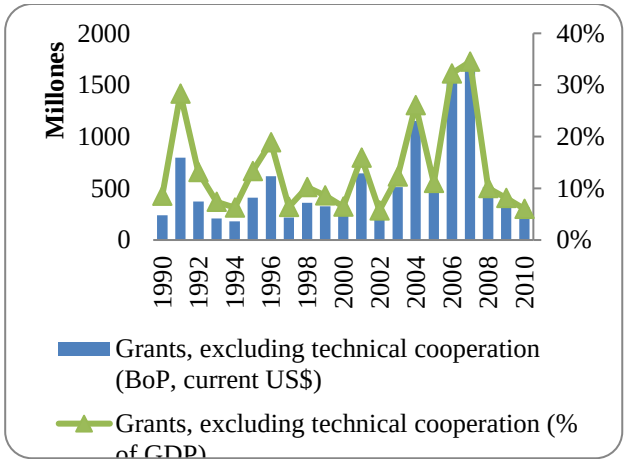
This flow of resources exclude the oil financing scheme that Nicaragua has with Venezuela that account as much as 7% of GDP that amounts of half of oil bill from Venezuela that accounts as a long term concessional loan.



Graph 8

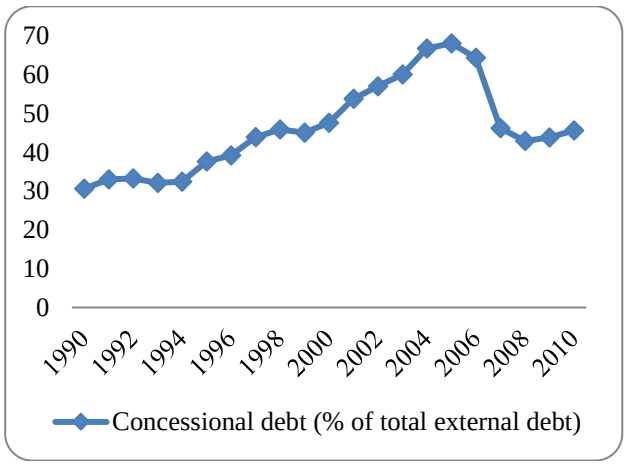
To illustrate the external dependence of external resources we show the quantity of grants received by Nicaragua.

These resources are used to promote economic development and finance social programs.



Graph 9

Since the entrance of Nicaragua in the HIPC initiative the external loans are under concessional terms (grant element) with at least 35%. Continued external financing on concessional terms allows for the reduction of market-based debt, the concesionality of the loans during 2000 to 2010 have an average of 57% of concessionality. A large quantity of external debt burden is concessional debt, 45% of the debt was concessional debt.



Graph 10

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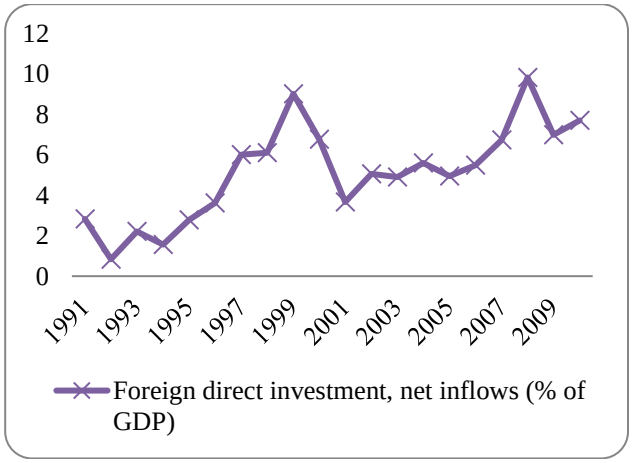
Foreign Direct Investment

In Nicaragua, much of the foreign direct investment has been allocated to the production system in the form of textile factories. We find that it represents 30% of total exports and 118 companies that generate 69,000 direct jobs (BCN, 2010, pág. 32). The weight of FDI has significant Nicaraguan economy, it has a positive impact on trade flows, investment and employment growth have been progressively impacted the country's economic opening.



Graph 11

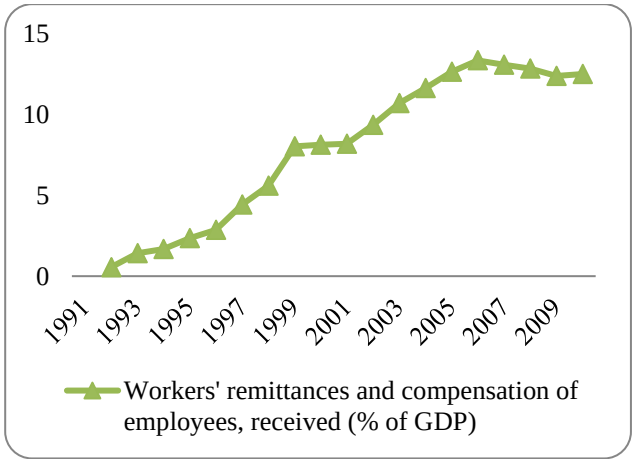
Remittances

They account for 12.5% of GDP around 20% of households reported receiving remittances according to the National Census of 2005, which.

The current foreign exchange generated by placing much of the savings of migrants in their country of origin, generated financial revenues that serve to mitigate the problems of balance of payments of the host country and develop its economy.

In general terms, quantitative and qualitative changes occur with respect to the relationship between remittances and current account. In principle, we could say that some fluctuations remained relevant.

The remittances play a role as a balancing mechanism of the balance of payments, the steady increase since the nineties and continuity, have made it a substantial source of funding for the importance Nicaragua in amount to GDP.



Graph 12

Vulnerabilities to External Shocks

Nicaragua has 2 problems with the terms of trade, the first its volatility and the negative effects as seen in the graph below:

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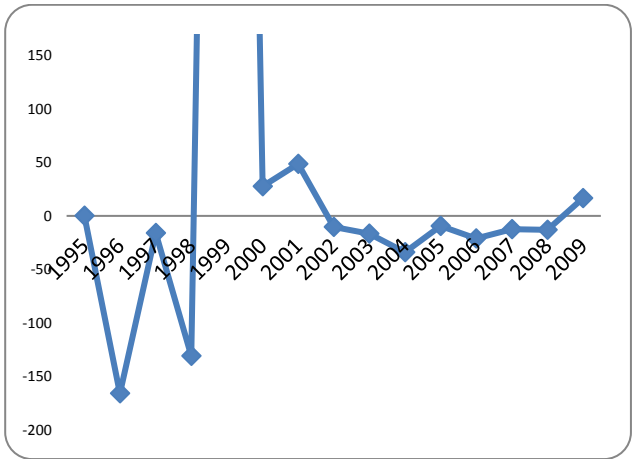

Graph 13

- Family remittances directly influence the exchange rate appreciation. The study of BCN Remittances and Real Exchange Rates in Central Bank of Nicaragua explore the effect of remittances on the real exchange rate in the period 1994.I-2007.IV. (Bello, 2010)

- The open condemn of anomalies by the International Community of electoral proceses of the Municipally elections of 2008 and presidential elections in 2011 have lowered the bilateral grants. Nicaragua currently receives grants from Venezuela and the Multilateral Institutions narrowing the number of donors.

- FDI has been channeled to energy projects with the principal investor as the Venezuelan government, exposing risk due to the political nature of the investments and the state of president Chaves health.

- The simulation of (CEPAL, 2010, págs. 37-38) estimating a 50% reduction in different variables such as remittances, FDI, terms of trade shocks and foreign aid from the rest of the world affect greatly social variables and macroeconomic variables that can put at risk the financial solvency of Nicaragua.

Debt sustainability framework

Working out what level of debt is sustainable requires an assessment of how outstanding stocks of debt are likely to evolve over time, together with forecasts about the future interest rates, exchange rates and foreign exchange earnings. The IMF and WB has recently developed a standardized framework for assessing debt sustainability which takes account of a country's future growth rate, interest rate and exchange rate, and applies sensitivity analysis based on each country's history.

The present paper analyses the World Bank (WB)- International Monetary Fund (IMF) debt sustainability framework (DSF) for low income countries (LICs) which objective is of the framework is to "support low-income countries in their efforts to achieve the Millennium Development Goals (MDGs) without creating future debt problems, and to keep countries that have received debt relief under the HIPC Initiative on a sustainable track" (PNUD, 2007).

This section is based on a review of official writings of the DSF, which have set the standard both in formulation and implementation of theoretical concepts. Then we address the critical views on the current tool in a subsection called Alternative Framework.

The synthesis of DSF was derived from the following documents consulted: (IMF, 2012); (IMF, 2011); (IMF, IDA, 2010); (IMF, 2009c); (IMF, WB, 2009b); (IMF, 2009a); (IMF, IDA, 2008); (IMF, WB, 2007); (IMF, WB, 2006a); (IMF, WB, 2006b); (IMF, IDA, 2005); (IMF, IDA, 2004a); (IMF, IDA, 2004b); (IMF, 2003); (IMF, 2002).

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Background

The advice of external sustainability is a work item of the IMF and World Bank advising countries in the implementation of economic policies, based in the context of monitoring programs that assess the ability of countries to pay when they issue debt.

If the need arises and financial adjustments, these in turn jeopardize the inherent stability and economic partner.

The IMF and World Bank developed the DSA which was operational since 2002.

To improve detection of potential crisis with a new driving external debt process seeks transparency through effective information. The objectives of this tool are (FMI, 2003): i) Identify the level of debt, maturity, payment structure, if the interest is fixed or floating, if indexed and who are holders ii) Identify vulnerabilities debt structure or identify future risks early enough to make policy changes before incurring payment problems, and iii) In case of problems, or imminent emergence, examine various alternatives stabilization policies.

The DSA is sectored in total external debt. For both cases is used to measure the same in terms of net present value, because they contain concessional loans in the portfolio.

Each component consists of: i) a baseline scenario, based on a series of assumptions that link macroeconomic policies that the government intends to implement, the main ones are: public debt, tax assumptions, macroeconomic, and closing new funding gap, among others parameters clearly itemized

ii) A series of sensitivity analyzes applied to the base scenario, providing a probabilistic assessment debt dynamics under various conditions over variables, macroeconomic and financial cost.

IMF and WB framework

The IMF and WB defines sustainability as "an entity's liability position is sustainable if it satisfies the present value budget constraint without a major correction in the balance of income and expenditure given the costs of financing it faces in the market (IMF, 2002, pág. 5). This definition implies 3 things as exposed in (Wyplosz, 2007), that the definition includes i) liquidity constraints, the second, ii) an estimation of financing cost and iii) a vague definition of what is a "mayor correction" , because is a matter of judgment.

The international community implemented a number of initiatives for debt relief that permitted lowering the level of indebtedness of some LICs, recovering the susceptibility to new loans to finance their development needs.. The implementation of multilateral initiatives made possible - in a context of economic growth, a higher contribution of fiscal resources to the fight against poverty and social spending (FMI, BM, 2009).

Despite the success of lowering the debt burden they achieved, it does not guarantee that the phenomenon is not re-emerge with new loans on very favorable financial conditions.

The reason why the IMF and WB develops this tool for LICs is to prevent future debt crises by monitoring the debt burden of these countries and to help agent's policymakers to develop strategies for sustainable debt in the medium and long term (FMI, 2006).

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Methodology of debt sustainability framework for Low Income Countries

The design of a guide for countries and donors in mobilizing funding for this DSF was created as part of the Millennium Development Goals (MDGs). The IMF and World Bank in awareness of the needs of development and at the same time to avoid excessive accumulation of debt in the future (FMI, 2011).

Key elements considered for drawing the new methodology were: i) Provide guidance regarding decisions of new debt in LICs, so that the financing needs of agree with your ability to pay current and future, taking into account the particularities of each country, ii) Provide guidelines for the granting of loans and grants by the creditors / donors, so that you can ensure that resources are allocated to LICs in terms consistent with both its process, as compared to their development goals, as well as the sustainability of long-term debt, iii) Assist detect potential crises early so that preventive action can be taken (CEMLA, 2009, pág. 5)

The DSF is a standardized analytical framework that allows comparison between countries, but is flexible to address characteristics of each circumstance that crosses a country. Based in these pillars: i) An analysis seen forward foreign debt and the dynamics of the sector and debt service under a baseline scenario, alternative scenarios.

And sensitivity analysis standardized ii) A scenario-based sustainability benchmark thresholds debt sustainability depends on the quality of the country's institutional policies and iii) Recommendations on borrowing strategy to limit the risk of crisis paid.

The objective of the DSF for LICs is supported in their efforts to achieve their development goals without creating debt problems in the future.

The countries that have received debt relief under the initiatives: i) HIPC ii) MDRI need to stay on a sustainable path. Under this framework, an analysis of debt sustainability DSA is prepared jointly by the World Bank and IMF officials who collaborate in the design of the base situation macroeconomic alternative scenarios, risk assessment and preparation of written debt.

In this approach associated benchmark indicators of debt sustainability to the quality of policies and institutions of countries.

The argument is based on empirical studies relating to countries with strong policies and institutions have a greater chance of withstanding a higher debt load and is therefore less likely to experience debt problems, unlike countries with weak policies and institutions.

Thresholds have been set aside for countries referential policies and institutions with strong, medium and weak. The quality of policy implementation and institutional strength is measured Teves index IDA resource allocation (IRAI).

- Prior assessment of Country Policy and Institutional Assessment[8] (CPIA), whose scale is 1 to 6: (see Figure 1 Resource Allocation Index IDA).

[8] The CPIA is an index of 16 indicators grouped into four categories: (1) economic management; (2) structural policies; (3) policies for social inclusion and equity; and (4) public sector management and institutions. Countries are rated on their current status in each of these performance criteria, with scores from 1 (lowest) to 6 (highest). The index is updated annually for all IDA-eligible countries, including blend countries.

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In (IMF, 2012) describes that the DSF consists of "a set of indicative policy-dependent thresholds against which projections of external public debt over the next 20 years are compared in order to assess the risk of debt distress. Vulnerability to external and policy shocks is explored in alternative scenarios and standardized bound tests. The indicative threshold for each debt burden indicator depends on each country's policy and institutional capacity, as measured by the World Bank's Country Policy and Institutional Assessment (CPIA) index". The specific thresholds are as follows:

A	PV of debt in percent of			Debt service in percent of	
	GDP	Exports	Revenue	Exports	Revenue
eak policy (CPIA ≤ 3.25)	30	100	200	15	25
edium policy (3.25 < CPIA < 3.75)	40	150	250	20	30
rong policy (CPIA ≥ 3.75)	50	200	300	25	35

ble 1

Based on the assessment, one of four possible risks of debt distress ratings is assigned:

- Low risk: All the debt burden indicators are well below the thresholds.

- Moderate risk: Debt burden indicators are below the thresholds in the baseline scenario.

But stress tests indicate that the thresholds could be breached if there are external shocks or abrupt changes in macroeconomic policies.

- High risk: One or more debt burden indicators breach the thresholds on a protracted basis under the baseline scenario.

- In debt distress: The country is already experiencing difficulties in servicing its debt, as evidenced, for example, by the existence of arrears.

Discussion on the threshold of sustainability

The approach based on the "debt overhang[9]", which is defined as the negative effect of a high debt burden has on economic growth. In this case, sustainability thresholds should be defined according to the level at which debt begins to have the negative (Krugman, 1988).

There is disagreement about the level of the threshold used by the IMF and World Bank because it omits negative effects on growth.

Debt financing can generate a positive impact on investment and growth if they produce enough returns to service the same. Otherwise, to high levels of debt, anticipating tax increases required to pay the debt would cut investors gains (Krugman, 1988), having a negative impact on investment and growth.

The volume of private investment may be restricted as a result of high interest rates and credit constraints, due to excessive government borrowing (crowding out). At high levels of debt (debt overhang), this harmful effect dominate, affecting physical capital accumulation, as well as all production factors that promote growth. Product of the growing difficulties of debt service generated expectations that part of the debt will be forgiven, therefore discourages investors to provide new financing and consequently reduces government borrowing, in a search for economic policies that strengthen ability to pay.

[9] It can also be defined as Debt overhang is defined as the situation where outstanding debt is so large that investment will be inefficiently low without sizable debt or debt service reduction (Claessens & Diwan, 1989).

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Various authors like (Pattillo, Poirson, & A. Ricci, 2002), (Clements, Bhattacharya, & Quoc Nguyen, 2003), (Kraay & Nehru, 2004) (Cordela & Levy Yeyati, 2006), (Imbs & Rancière, 2005) and (M. Reinhart & Rogoff, 2010) conclude the presence of negative effects of debt over economic growth but differ the debt ratio threshold were it initiates.

Analyzing the case of Nicaragua we find that empirical studies such as (Bannister & Barrot, 2011) conclude that above the 28% debt to growth ratio the presence of debt overhang effects. The DSF does not take into account the debt overthang into consideration in the determination of debt sustainability thresholds.

This idea contradicts the determination of the debt threshold present in the DSF. Debt is sustainable, according to the creators of the it, when a borrower is able to continue servicing its debt without incurring large corrections to your income and expenses. Sustainability relates to the solvency and the liquidity. Sustainability also captures the notion that there are political boundaries, which define the will of a country, as opposed to their economic capacity to pay, which will be important in the context of sovereign independence.

The debt sustainability analysis (DSA) is to determine the patterns of debt that can be maintained without incurring problems with the payment of debt service or having to resort to exceptional financing (debt restructuring or build it). The DSA provides a link between the debt dynamics and macroeconomic policy and therefore have a look into the future using probabilistic estimates.

Proper design of a debt strategy must take into account country-specific circumstances. The ability of a country to absorb new elements, some of which are structural weaknesses in the economy in question.

Some of the elements that influence the propensity to save are private sector, the degree of financial market development, growth rate of productivity, the government's ability to raise taxes, expand tax base and cutting subsidies and exemptions. It is not possible to identify a universal indicator that determines levels of debt is safe or dangerous, it can be assigned to a group of countries with similar economic characteristics. There is a general acceptance that what the levels are those levels but are only indicative or ranges.

The debt intolerance hypothesis, developed by (Reinhart, Rogoff, & Savastano, 2003) states that countries with a default and inflation history are more vulnerable that a country that does not have. This paper gives an idea that a universal debt ratio threshold can be wrong. For example, many economists are surprised to learn that the DSF for emerging countries states that debt ratios above 150% GDP pose high risk of default. This threshold is contradicted by the empirical evidence: for example, in 1982 the Mexican crisis occurred with one ratio of DET / GDP of 47% and Argentina crisis occurred in 2001 with a ratio DET / GDP above 50

External debt-to-GNP range in first year of default or restructuring	Percent of total defaults or restructurings
Below to 40%	13
41% to 60%	40
61% to 80%	13
81% to 100%	20
Above 100%	13

Table 2

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Alternative debt sustainability framework for Nicaragua

We identified economic vulnerabilities in section 2, the DSF variables used to establish the debt ratios give a limited perspective to analyze the case of Nicaragua. We propose the need to incorporate the potential nature of external shocks on Nicaragua in the sustainability analysis to assess its ability to generate the resources to pay their debts.

The DSF needs stronger designing scenarios that reflect a more credible economic policy and institutional framework of the country, its external environment and in this context, assessing the impact of additional debt to finance public spending. Second, it appeals to the strengthening of the preventive capabilities already contained within the framework of debt sustainability. And finally there is the need for a more thorough and prudent macroeconomic assumptions, particularly regarding economic growth and debt, and policies when the rate of borrowing exceeds a certain threshold (IMF, 2005).

From a sustainability perspective: remittances, FDI and foreign aid can affect the ability to pay (exports and GDP). All these variables increase the foreign exchange needed available in a country.

Despite needs to fund utility imports, exports also may be associated with large import requirements. Also alleviate resource constraints and the impact of changes in GDP growth generated domestically. Nicaragua experienced senior currency revenue flow.

The lack of adequate and comprehensive statistical series has prevented formal inclusion in sustainability analysis.

Only GDP, exports and goods and services tax revenues are used in the analysis of sustainability as proxies for the ability of payments.

All this leads to recommend the incorporation of family remittances, foreign direct investment and official development assistance in the analysis of key indicators of sustainability of public debt and public debt.

Proposal	External Debt / Family Remittances
	External Debt / FDI
	External Debt / Official Development Assistance

This would be a strategy to generate a tighter access to the Nicaraguan economy from reality in order to challenge the vulnerabilities.

Conclusions

Throughout this paper we have shown that there are deficiencies in the analytical framework of multilateral debt sustainability, DSF, in the case of Nicaragua by omitting key variables used to balance the current account balance.

This exposes a structural problem for in the debt management and debt sustainability in a long term perspective.

The DSF approaches debt sustainability to an investigation of the situation of financial solvency. There is a methodological problem in the analytical framework to analyze the risk multilateral debt of poor countries like Nicaragua: analysis based on annual data and focused on short-term responses to exogenous shocks are not well posed to investigate the impact the medium and long term in the context of the current economic crisis, and how it is affected by the structural characteristics of the economy.

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In conducting an analysis of the external situation of the economy by assessing the current account deficit of the balance of payments remains fragile. The main cause of the deficit has been overspending in relation to income. The external imbalance has been financed by external funding; official external financing and private capital flows, which becomes an unsustainable in the medium to long term, vulnerable to exogenous shocks.

Our alternative approach of current DSF, suggest the need to incorporate additional indicators and measures Nicaraguans sustainability due its economic vulnerabilities. We argue the need to lower the debt ratio threshold currently applied in the framework in order to avoid the negative effects of levels of debt, debt overhang.

Vulnerabilities of the Nicaraguan economy found were: i) external financing, ii) export, iii) remittances, and iii) FDI.

It is difficult to assess the sustainability of external debt to shocks to the possibility of a significant drop in official development assistance, remittances and foreign direct investment that could threaten the financial solvency.

The phenomena that produce any of these conditions can cause fiscal imbalances that limit the ability of debt and should be considered in the DSA.

Appendix

Year	Percentage				Millions of Dollars			
	External Debt/ Exports	GDP	External Debt Service/ Exports	GDP	External Public Debt	External Debt Service	Exports year	GDP
1970	94	24	13	3	188	27	216	777
1971	101	26	15	4	213	34	225	827
1972	101	29	11	4	255	35	320	881
1973	123	34	12	4	368	44	349	1094
1974	135	33	11	3	503	49	452	1521
1975	154	40	12	4	644	56	456	159
1976	133	37	14	5	681	88	623	1848
1977	145	39	13	4	874	98	733	224
1978	136	45	13	5	961	103	770	2142
1979	219	97	10	4	1562	62	634	1613
1980	293	89	26	6	1851	130	492	208
1981	452	104	34	8	2537	192	557	2448
1982	607	111	45	7	3033	203	451	2726
1983	795	159	31	6	399	154	498	2511
1984	989	167	34	6	465	158	462	2778
1985	1271	220	41	6	5522	142	344	2509
1986	1791	293	40	5	6464	110	277	2204
1987	2614	361	39	5	8045	117	302	2231
1988	3082	595	41	7	8622	107	261	1449
1989	3217	940	20	6	9597	66	333	1021
1990	3269	707	14	4	10715	54	390	1517
1991	2883	643	177	39	10313	618	350	1605
1992	3081	602	56	10	10792	172	310	1793
1993	3217	626	53	11	10987	194	364	1756
1994	3083	393	52	8	11695	242	464	2976
1995[3]	2136	321	53	10	10248	324	612	3191
1996	1063	184	36	7	6094	229	644	3320
1997	877	177	36	8	6001	287	797	3383
1998	830	176	28	6	6287	231	830	3573
1999	797	175	20	5	6549	169	839	3743
2000	762	169	19	5	666	185	954	3951
2001	698	159	16	4	6374	153	947	4016
2002	680	159	17	4	6362	158	907	4007
2003	694	160	10	2	6596	98	997	4135
2004[4]	521	122	6	2	5391	76	1200	4418
2005	379	139	6,6	2	5347,5	92,6	1411,1	4872
2006	274,4	112	6,2	2	4526,7	102	1649,7	5230
2007	179,8	82,2	8	3	3384,6	151,1	1881,9	5662
2008	155,7	74,8	4,5	2	3511,5	101,3	2254,9	6372
2009	167,5	80,1	4,8	2	3660,9	104,6	2185,6	6214
2010	143,1	78,5	3,6	1	3876,4	96,8	2708,6	6552

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