

Nicaragua

Paving the way to faster growth and inclusion

Systematic Country Diagnostic



June 18, 2017

Report: 116484-NI

Acknowledgments

We would like to thank the members of the Nicaragua Country Team from all Global Practices and the International Finance Corporation, partners and stakeholders in Nicaragua, who contributed to the preparation of this Systematic Country Diagnostic. We are grateful for their inputs, knowledge, and advice received in the preparation of this report.

The team was led by Fernando Im (Senior Economist) and Leonardo Lucchetti (Economist), and included Germán Reyes (Research Analyst, Poverty), under the guidance of J. Humberto López (Country Director). Friederike (Fritzi) Koehler-Geib (Program Leader) worked closely with the team in preparing the final report. The following people also provided overall guidance: Frank Sader (Head, IFC), Luis Constantino (Country Manager), Oscar Calvo-Gonzalez (Practice Manager), Pablo Saavedra (Practice Manager), Maryanne Sharp (Country Operations Adviser), Christian Peter (Program Leader), Tania Dmytraczenko (Program Leader), Carlos Vegh (Chief Economist for LAC), Augusto de la Torre (former Chief Economist for LAC), Daniel Lederman (Lead Economist), Raúl Barrios (Senior Country Operations Officer), and Jovana Stojanovic (Operations Officer). Manuela Francisco (Practice Manager, former Program Leader) worked closely with the team on the preparation of document at the concept stage.

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The team would like to thank peer reviewers Anna Fruttero (Senior Economist, GPVGE) and David Rosenblatt (Adviser, DECOS).

Abbreviations and Acronyms

ALBA	Bolivarian Alliance for the Peoples of Our America (<i>Alianza Bolivariana para los Pueblos de Nuestra América</i>)
BCN	Central Bank of Nicaragua (<i>Banco Central de Nicaragua</i>)
CCT	Conditional Cash Transfer
CEDLAS	Center for Distributive, Labor and Social Studies, Universidad Nacional de la Plata
CENAGRO	National Agropecuarian Census (<i>Censo Nacional Agropecuario</i>)
CIAT	Inter-American Center of Tax Administration (<i>Centro Inter-Americano de Administración tributaria</i>)
CSA	Community Supported Agriculture
ECLAC	Economic Commission for Latin American and the Caribbean
EMNV	Living Standards Measurement Studies Survey (<i>Encuesta Nacional de Hogares sobre Medición de Nivel de Vida</i>)
ENACAL	Nicaraguan Water and Sewage Company (<i>Empresa Nicaraguense de Acueductos y Alcantarillados</i>)
ESCO	Energy Services Company
FDI	Foreign Direct Investment
FISE	Social investment Fund for Emergencies (Fondo de Inversión Social para Emergencias)
FOMAV	Road Maintenance Fund (<i>Fondo de Mantenimiento Vial</i>)
FSLN	<i>Frente Sandinista de Liberación Nacional</i>
FUNIDES	<i>Fundación Nicaragüense para el Desarrollo Económico y Social</i>
GDP	Gross Domestic Product
GHG	GreenHouse Gas
GIC	Growth Incidence Curve
HIPC	Heavily Indebted Poor Countries
IDA	International Development Association
IMF	International Monetary Fund
INATEC	National Technology Institute (<i>Instituto Nacional Tecnológico</i>)
INETER	Nicaraguan Institute of Territorial Studies (<i>Instituto Nicaraguense De Estudios Territoriales</i>)
INIDE	National Statistical Institute (<i>Instituto Nacional de Información de Desarrollo</i>)
INSS	National Security Institute
LAC	Latin America and the Caribbean
LSMS	Living Standards Measurement Study
MDRI	Multilateral Debt Relief Initiative
MINSA	Ministry of Health (<i>Ministerio de Salud de Nicaragua</i>)
MoF	Ministry of Finance and Public Credit (<i>Ministerio de Hacienda de Nicaragua</i>)
MPI	Multidimensional Poverty Index
MSME	Micro, Small and Medium Enterprises
NWRP	National Water Resource Plan
OECD	Organization for economic Co-operation and Development
PDVSA	Petróleos de Venezuela, S.A
PFM	Public Finance Management
PMR	Product Market Regulation
PMSAF	Public Finance Management System Modernization Project (<i>Proyecto de Modernización del Sistema de Administración Financiera del Sector Publico</i>)
PPP	Public Private Partnerships
REDD+	National Strategy for the Reduction of Deforestation and Forest Degradation (<i>Estrategia Nacional para la Reducción de la Deforestación y Degradación Forestal</i>)

SCD	Systematic Country Diagnostic
SEDLAC	Socio-Economic Database for Latin America and the Caribbean
SIBOIF	Financial Sector Superintendence Nicaragua (<i>Superintendencia de Bancos y de Otras Instituciones Financieras</i>)
SME	Small and Medium-Size Enterprise
SPS	Sanitary and Phytosanitary Standards
TFA	Trade Facilitation Agreement
TFP	Total Factor Productivity
UNESCO	United Nations Educational, Scientific and Cultural Organization
US	United States
USD	United States Dollar
WEF	World Economic Forum
WDI	World Development Indicators

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1. OVERVIEW

1.1. Where do we stand now and how did we get here?

1. **Nicaragua remains one of the poorest countries in Latin America and the Caribbean (LAC).** About 30 percent of the population lived below the official poverty line in 2014, and eight percent were considered extremely poor. GDP per capita stood at about USD 2,087 in 2015, the second lowest in LAC after Haiti. Access to basic services, such as electricity and water and sanitation, is low and largely unequal. Other key social indicators, including access to education, completion rates, and teenage pregnancy, also lag behind the regional average.

2. **It is hard to understand Nicaragua today without having a close look at its past 70 years of development dynamics.** The Somozas ruled Nicaragua for over four decades until 1979, with growth benefiting mostly the country's elite. Between 1950 and 1977, Nicaragua's income per capita doubled to USD 3,349¹ but the benefits of such growth failed to be shared among the vast majority of the population as wealth and land ownership were concentrated in a few hands. Social indicators also lagged behind the region: in 1970, average life expectancy at birth was about 54 years, under-five mortality was the second highest in Central America, primary completion was just 25 percent, and 48 percent of primary school-age children were not enrolled in school.

3. **Armed conflict, natural disasters, and economic mismanagement characterized the 1970s and 1980s, impacting per capita GDP.** In 1972, an earthquake struck the capital city (Managua), destroying physical assets of about 35 percent of GDP and leaving a death toll of over 6,000 people. The mismanagement of international aid relief by the Somoza family and the National Guard in the aftermath of the earthquake led to widespread discontent and fueled the *Frente Sandinista de Liberación Nacional* (FSLN), which eventually toppled the regime in 1979. The armed conflict in the 1970s was extremely costly, with estimates of human casualties as high as 35,000. Serious damage was also inflicted on the country's infrastructure and productive capacity. Throughout the 1980s, inadequate economic policies rendered market institutions weak, and social and military spending in response to the contra-revolutionary insurgency (Contra War) resulted in major fiscal and external imbalances, and hyperinflation. GDP per capita declined steadily during the 1980s. At the end of the decade, Nicaragua was one of the most highly indebted countries in the world while social conditions also reflected the extent of the economy's deterioration: infant mortality (72/1,000), maternal mortality (159/100,000), and moderate and severe malnutrition (affecting around 13 percent of children under five).²

1.2. Factors behind the rebound

4. **Since the country's democratic transition in the early 1990s, Nicaragua has undergone a solid economic recovery from a very low base, due to three main factors.** These include i) improved macroeconomic management and debt relief; ii) reforms aiming at transforming Nicaragua back into a market economy; and iii) demographic change. As a result, real GDP growth averaged about 4 percent between 1994 and 2015.

¹ In 1990 international Geary-Khamis dollars (Maddison dataset).

² Republic of Nicaragua: Review of Social Sector Issues, The World Bank (1993), Report No. 10671-NI.

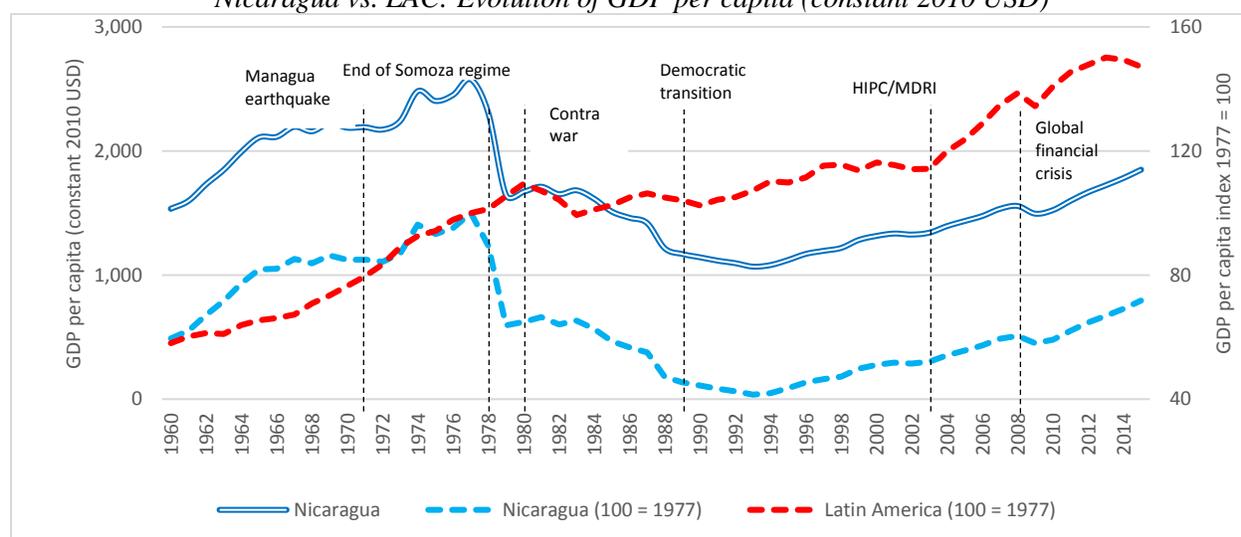
5. **First, the implementation of a macroeconomic stabilization program, which together with debt relief, lay the foundation for steady economic recovery.** A stabilization plan in 1991–1992 supported by the International Monetary Fund (IMF) helped lower fiscal and current account deficits to more manageable levels and brought inflation down to single digits.³ Moreover, debt relief from the Heavily Indebted Poor Countries (HIPC) Initiative and the Multilateral Debt Relief Initiative (MDRI) in the mid-2000s played a critical role in freeing up fiscal space for social and infrastructure spending and supporting macroeconomic stability. Moreover, the country has remained strongly committed to macroeconomic stability and prudent fiscal policies.

6. **Second, structural reforms have supported economic recovery through increased market competition.** These reforms aimed at transforming Nicaragua back into a competitive market economy and included trade liberalization and abolition of state trading monopolies, approval of a new Bank Superintendence Law, restructuring of the state-owned banking sector, modernization of police and armed forces, and divestiture of state enterprises.

7. **Third, demographic changes have also contributed through an increase in labor supply.** Declining fertility rates have resulted in a reduction of the young dependency ratio and an expansion of the share of the population of productive age (15–64). Nicaragua’s working-age population increased almost threefold over the past 40 years (or by about 2.5 million persons). Today, 50 percent of the population is under 25 years old. The labor supply effect contributed to about half of the average increase in GDP per capita over 1990–2015 (or slightly less than one percentage point increase over an annual increase of 1.9 percent in GDP per capita).

1.3. Making up for lost time: growth, inclusion & poverty in a model based on factor accumulation

Figure 1.1: Nicaragua’s timeline of GDP per capita
Nicaragua vs. LAC: Evolution of GDP per capita (constant 2010 USD)

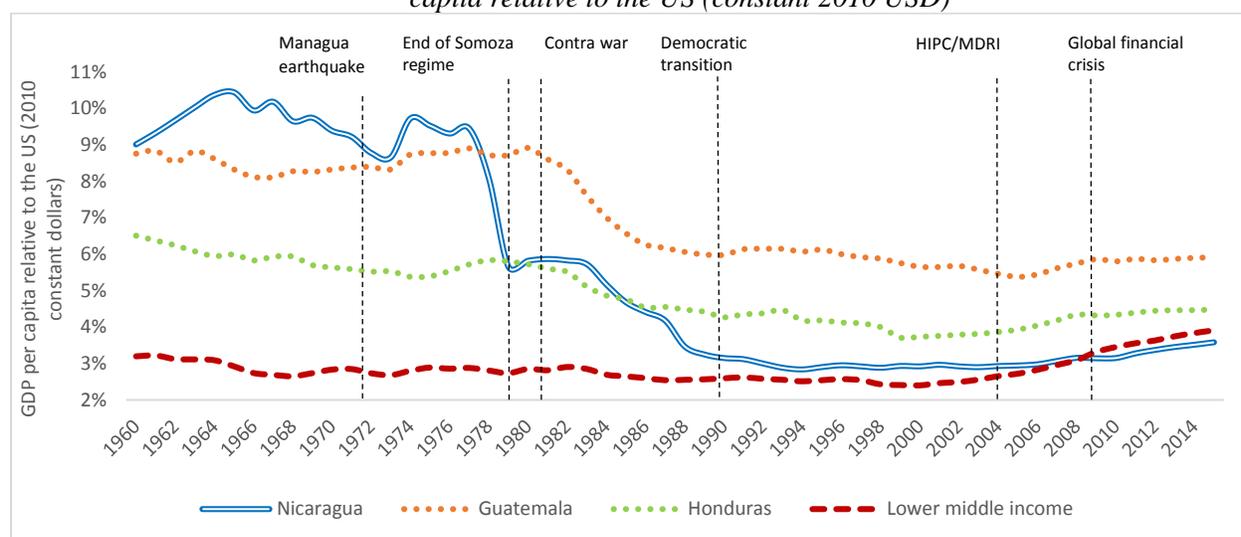


Source: Authors’ calculations based on World Development Indicators (WDI) (2017).

³ Nicaragua Country Economic Memorandum (1994), The World Bank.

8. **Despite the recent uptick, Nicaragua has not been able to keep pace with comparators on per capita income growth and convergence.** Its per capita GDP has not been able to recover to 1977 levels. In terms of convergence, Nicaragua had a similar per capita income level to Mauritius and Malaysia 40 years ago. GDP per capita also shows an important divergence relative to the United States (US). In 1960, GDP per capita in Nicaragua was roughly USD 1,535 (in 2010 constant dollars) or one-eleventh of that of the US. As of 2015, it was only 3.6 percent of the US GDP per capita.

Figure 1.2: Nicaragua’s timeline of income convergence
Nicaragua, Guatemala, Honduras and lower middle income countries: evolution of GDP per capita relative to the US (constant 2010 USD)



Source: Authors’ calculations based on WDI (2017).

9. **The growth rebound has mostly relied on factor accumulation, primarily on a growing labor supply, and to a lesser extent on capital accumulation.** Labor has been the strongest contributor to growth over the last 15 years.⁴ This is in line with the decline in fertility rates and the expansion of the working-age population in the country, together with increasing female labor participation rates. Capital accumulation has played a growing role over time. However, infrastructure and access to basic service indicators and their international comparisons point to a large infrastructure gap. Nicaragua’s land productivity is also the lowest among regional peers, with average value generated only USD 717/ha (constant USD). To put this into perspective, this is between 40–60 percent of average figures for Honduras, El Salvador, and Guatemala, and only 16 percent of Costa Rica’s. Overall, the recent trend in productivity is promising: after either negligible or negative contributions over 2000–2009, total factor productivity (TFP) contributed positively over the last five years and labor productivity has rebounded since 2009.

10. **Solid growth contributed to a significant decline in poverty since 2005, yet levels remain elevated and Nicaraguans are highly vulnerable to falling back into poverty.** A one percent increase in GDP per capita was associated with a 1.7 percent reduction in overall income poverty between 2005 and 2014. The share of individuals with consumption per capita below the

⁴ This is consistent with findings in Sosa et al. (2013) that labor (adjusted by education) contributed the most since 1980; however, the importance of both capital accumulation and TFP has increased in recent years.

official extreme poverty line more than halved during this period, whereas the share of the population living under the overall poverty line fell by more than a third. Poverty is primarily concentrated in rural areas, where an estimated 1.2 million persons were poor in 2014. Even as many individuals escaped poverty over the last ten years, around one in six non-poor Nicaraguans were at risk of falling back into poverty, demonstrating the fragility of these recent gains.

11. Labor income, remittances, and household composition changes were the main drivers of poverty reduction. Labor income represented three quarters of total incomes at the bottom 40 percent of the income distribution in 2014. Higher labor incomes contributed to more than two thirds of the decline in both extreme and overall poverty between 2009 and 2014. That contribution resulted from higher earnings in agriculture due to rising commodity prices for food products, rather than more employment in the sector or the transition of workers to higher paying sectors. This suggests that cyclical factors rather than structural policies were among the main drivers behind the recent progress towards the twin goals, underlining the fragility of these gains to changes in the external environment. Remittances have become more pro-poor and contributed to some extent to poverty reduction.⁵ Demographic changes, which resulted in smaller household sizes and falling dependency ratios, also reduced poverty. Public transfers, due to their small size and inadequate targeting, had limited impact on poverty reduction.

12. While high by international standards, inequality in Nicaragua is relatively low compared to other LAC countries. Inequality fell in Nicaragua and the Gini coefficient decreased from 0.49 to 0.44 between 2005 and 2009. This trend was somewhat reversed in the following five years, as inequality rose to 0.47 in 2014, as a result of higher income growth at the higher end of the income distribution. This seemingly low inequality relative to regional standards helps explain why poverty is lower than expected for countries with similar levels of economic development. Per capita household income of the bottom 40 percent grew at an annualized rate of 2.5 percent between 2005 and 2009, and accelerated to 5.2 percent between 2009 and 2014.

13. Evidence suggests a low education premium due to the low quality of formal education and labor market mismatches. Several studies suggest that the low quality of education could potentially explain that lower demand for more educated individuals.⁶ Low returns to education could also be the result of a mismatch between those skills offered by the formal education system and those demanded by employers: Nicaraguans do not have the skills to fill labor market demands.⁷ Declining education premia in Nicaragua appear to be one of the main drivers of the inequality reduction before 2009: the returns of tertiary education compared to secondary education decreased by 6.2 percent on an annual basis between 2005 and 2009.⁸

14. Delivery of basic services, access to quality education, and fiscal policy tools, including social assistance programs, have had a limited impact on reducing income inequality. Access to basic services and education remains unequal and of poor quality, which has contributed to some

⁵ In 2014, they represented 19 percent of household income of recipient families in the lowest decile, up from 10 percent in 2005.

⁶ See World Bank (2016) and Gindling and Trejos (2013) on the low quality of education. Gindling and Trejos (2013) also suggest that the commodity boom could partially explain an increase in exports of unskilled labor-intensive products, translating into declining returns to education through higher real earnings among less educated workers.

⁷ World Bank (2012, 2016), FUNIDES (2016).

⁸ Gindling and Trejos (2013) and Cord et al. (2017).

extent to high levels of income inequality by international standards. Access to basic services in Nicaragua is among the lowest and most unequally distributed in LAC, especially water, electricity, and sanitation. The country is also lagging behind in terms of quality of these services among the most vulnerable groups: water provision in rural areas lacks continuity and suffers from pollution. Poor access to these services results in greater health risks, especially among children under five. There are marked disparities in access to education between income groups and areas of residence and enrollment is particularly low in rural areas and for those at the lower end of the income distribution. Low retention rates, together with quality of education issues, also raise serious concerns. Fiscal policy in general, and social assistance programs in particular, have played a modest role in addressing income inequality.

1.4. What's the way forward?

15. **Given its per capita income level, a growth model based on improved factor accumulation can continue to serve Nicaragua to some extent over the medium-term.** GDP growth improved vastly over the past two decades and helped the country reduce poverty significantly. In order to accelerate and sustain growth over the short and medium-term, Nicaragua can still rely on improved factor accumulation (that is, labor and capital). But this requires education to harness the full potential of the ongoing demographic transition as well as basic infrastructure (road networks, electricity, water, and access to basic services) to foster private sector activity and trade, and promote inclusion while attracting fresh private capital.

16. **Improving the overall education and skills of the population will be key to take full advantage of the demographic transition.** Educational outcomes point to important deficiencies. Fewer young adults in Nicaragua have completed secondary education compared to other lower-middle-income countries. The lack of infrastructure, teachers, and population dispersion in rural areas has favored an increase in multi-grade schools. Despite being a cost-effective solution, this results in higher dropouts and widens the educational gap between rural and urban areas. In addition, high prevalence of teenage pregnancy has important consequences for development and growth, as it is highly associated with female school dropout, poorer labor outcomes and poverty.⁹ Empowering young population cohorts with more equal access, better quality of education, and better suited skills can go a long way to build up human capital and raise productivity. Poor educational attainment, low quality education, and inadequate skills that do not respond to labor market needs preclude new entrants from securing better paying, higher productive jobs.

17. **Given Nicaragua's characteristics and large infrastructure gap, investments, particularly in roads, energy, and water storage and distribution, are likely to generate high economic returns.** Improving infrastructure would help reduce existing regional disparities and boost competitiveness, in particular for labor intensive and low value-added products such as agriculture. The existing road infrastructure network is among the least developed in LAC, hampering the tradable sectors of the economy, particularly exporters. Expanding and improving the condition of main and access roads can lead to lower postharvest losses, lower cost of transportation and better access to local and regional markets, especially for producers located in rural areas. Investing in water storage and distribution infrastructure would also be critical, given the uneven seasonal and geographical distribution of water and the importance of the agricultural sector. Nicaragua has one of the highest electricity prices in LAC due to the country's heavy

⁹ Both in terms of years of schooling and standardized test scores.

dependence on imported oil for power generation and technical losses in the system. This has important macroeconomic implications for the external accounts if oil prices rise in the future.

18. **Addressing disparities in access to basic services among the rural population can break the cycle of intergenerational transmission of poverty.** While access to basic services has improved over time, it remains far from universal: roughly six out of ten households did not have access to running water, four out of ten households lacked access to sanitation services, and two out of ten households did not have access to electricity in 2014. The problem becomes more acute among those in the lowest quintiles of the income distribution and among those living in rural areas. Poor access to water and sanitation has resulted in increased environmental health risks, especially for children under five, while lack of access to energy leads to higher health risks as households tend to rely on solid fuels for cooking, resulting in acute respiratory infections and chronic obstructive pulmonary diseases.

19. **However, a model based on factor accumulation alone will not be enough to lift a significant share of the population out of poverty and absorb new entrants into the labor market.** Over the long run, Nicaragua will require higher growth rates to raise its per capita income faster and make significant dents into poverty. Should Nicaragua be able to grow at 3.6 percent in per capita terms (its average growth since 2010), it would still take 79 years in order to reach the average GDP per capita of LAC. There are important interactions between factor accumulation and productivity growth. For example, improvements in the provision of public infrastructure or access to, and quality of, education can generate positive spillovers and be productivity enhancing. While in practice the distinction between factor accumulation and improvements in productivity are not that clear cut, for presentational purposes, this report separates these processes.

20. **To boost competitiveness and productivity, Nicaragua will have to: i) improve its investment climate and firm level productivity; and ii) strengthen its institutions and improve public sector efficiency.** In terms of market competition, Nicaragua ranks at the bottom of market dominance of the Global Competitiveness Index 2016–17 (135 out of 138). Barriers to entrepreneurship are higher compared to other countries in LAC.¹⁰ Regulations that limit the entry of competitors where competition is viable may reinforce market dominance in key service sectors. High concentration of Nicaragua’s financial system may also exacerbate the lack of competition and efficiency. In particular, expansion of credit for micro, small and medium enterprises (MSMEs) can help employment creation with the sector employing around 1.5 million people. Barriers to external trade also increase the cost of bringing Nicaraguan goods to international markets, and border crossing times are among the highest in LAC. Nicaragua’s land-agriculture productivity is the lowest among regional peers suggesting significant inefficiencies in the allocation of resources and high returns to improvements in this area.

21. **Promoting better institutions and strengthening the capacity of the public sector would improve public service delivery and promote efficiency.** Nicaragua ranks in the bottom third of the Worldwide Governance Indicators. Bureaucratic quality indicators suggest a need to strengthen knowledge, capabilities, and systems for the civil service, including informing the public of the collection and use of public resources in delivering government services. This process requires reducing the concentration of decision making and empowering civil servants. Failing to

¹⁰ OECD Product Market Regulation data tool.

disentangle technical decisions from political forces may lead to inaction or failed implementation, as continuously ensuring political loyalty can affect the speed and ability to take and implement decisions throughout the administrative chain. One identified need is to foster broad-based debate and evidence-based policy making. Using impact evaluations for selected programs and strengthening monitoring and evaluation systems could lead to better development outcomes. Although systematic administrative data is collected in every line ministry and agency, these are rarely effectively used to adapt and adjust policies and programs, due in part to weak capacity and over-centralization of key decision-making.¹¹

22. **Improvements in agriculture productivity will require both continued effort in improving land administration, including securing property rights, and agriculture intensification.** In terms of registering property, Nicaragua ranks poorly (146th) in the Doing Business report. The quality of land administration is low (index of 6.5 on a scale of 0–30). An estimated 35 to 40 percent of all land in Nicaragua faces some type of dispute or conflict. Several studies have found a positive relationship between the receipt of a registered title, land value and investment. To address these issues, the government of Nicaragua, with support of the donor community, has already made important strides in strengthening the land administration framework. Investments in research as well as extension services are also needed to increase agricultural intensification. Moreover, thinking of the agricultural value chain as a whole, logistics has an important impact on productivity of the sector.

1.5. Risks: sustaining the gains achieved in poverty reduction and shared prosperity

23. **There are three main risks for Nicaragua’s development going forward.** These are: i) Nicaragua’s large external vulnerabilities; ii) the financial position of social security, the National Security Institute (INSS); and iii) the vulnerability of the country to climate shocks and natural disasters, and its management of natural resources.

24. **Reducing the country’s external vulnerabilities arising from the financing of large current account deficits remains one of the key priorities.** Nicaragua has been running large current account deficits, driven in part by a sizable oil import bill. These deficits have been financed by foreign direct investment (FDI) flows and the oil collaboration agreement signed with Venezuela under the Bolivarian Alliance for the Peoples of Our America (ALBA) since 2007. But since 2015, financing from the oil cooperation has been on the decline due to the progressive deterioration of Venezuela’s economy and finances. Lower oil prices in recent years have temporarily reduced pressures on the external side. In order to mitigate external shocks stemming from oil price increases, Nicaragua has to continue to move toward a more diversified energy matrix. This would also help improve fiscal and external sustainability by containing government subsidies and lowering volatility of tariffs arising from the volatility of oil prices. In addition, improvements in the competitiveness in the tradable sector would help narrow the trade balance.

25. **Improving the financial position of INSS as well as the coverage of the system is crucial from both a fiscal and social standpoint.** The INSS provides benefits for old age, disability, illness, death, maternity, and occupational risk. Nicaragua has both noncontributory and contributory pension regimes. The contributory general regime works as a pay-as-you-go system, financed by contributions of employers and employees. Since 2013, the INSS has been running

¹¹ IMF, 2015 Article IV Consultation.

increasingly larger deficits (about 0.4 percent of GDP in 2016) and the replacement rate of the contributory system is high. Limited coverage of the labor force due to high levels of informality in labor markets and ongoing changes in demographic trends pose important challenges. Only 29.2 percent of the total employed population was covered by social security in 2016. Moreover, the ratio of employees contributing to the system for pensioners has been on the decline: 4.4 employees were supporting a pensioner in 2016, down from 5.7 in 2008. Demographic changes are expected to further strain INSS' finances, which if left unaddressed, could potentially result in a drain of fiscal resources. These changes would result in a decline in education expenditures and an increase in health care spending, in addition to the largest projected increase related to pension expenditures, with increases in social security contributions only partially offsetting these.

26. Reducing vulnerability to climate shocks and natural disasters and improving management of natural resources are critical for development in Nicaragua. The country's high concentration of poverty in rural areas (especially along the Dry Corridor), rapid and unplanned urbanization, and the importance of the agricultural sector highlight the critical need for adaptation and mitigation strategies to reduce the vulnerability of the country to climate change and natural disasters. Nicaragua is highly exposed to natural hazards, including hurricanes and tropical storms, droughts, seismic and volcanic activity. Extreme weather events and seismic activity have caused serious long-term damage to human and physical capital. This high vulnerability is exacerbated by mismanagement of natural resources. Water resources are abundant in Nicaragua, yet spatial and seasonal disparities, limited availability of storage infrastructure, and pollution have resulted in a fragile water balance in many regions of the country. Deforestation and unsustainable farming production systems and land-use practices have increased the risk of drought over the last decades, contributing to land degradation and erosion, impairing soil retention capacity and exacerbating the damage caused by extreme precipitation events and storms.

1.6. Priority areas

27. In taking stock of progress and reflecting on constraints and opportunities that Nicaragua faces on its path of shared prosperity and poverty reduction, this Systematic Country Diagnostic (SCD) identifies a number of priority areas. The analysis of the development challenges in any country, including Nicaragua, will likely find that there is space for improvement on most areas fundamental for development. And yet, a long list of recommendations is likely to be of limited use. Policy makers face budgetary and political economy constraints that limit their ability to take action. Thus, an effort to prioritize among competing policy interventions can add significant value to any diagnostic of country development challenges. Exploiting a diverse set of analytic tools, a benchmarking exercise and country knowledge, the SCD also contributes to Nicaragua's policy debate by identifying a selective list of priorities and opportunities.

28. As a result, this SCD has identified five priority areas and one cross-cutting theme. These are: (i) improvements in education, skills, and job outcomes for the youth; (ii) provision of infrastructure (transport, energy, and water) and public service delivery; (iii) enhancements in private sector productivity and investment climate; (iv) reduction of vulnerabilities from climate change, natural disasters and better management of natural resources (water, forestry, and land); and (v) decrease in external vulnerabilities. The cross-cutting theme is strengthening institutions and the capacity of the public sector. While areas (i)–(iii) refer to changes that can have positive

impacts on growth and the twin goals, areas (iv) and (v) are critical for the sustainability of the growth path, which are needed to avoid any negative externalities and consequences associated with the selected path. Finally, the cross-cutting theme is crucial to enable progress in all five identified priority areas.

29. **Going beyond the broad priority areas, the SCD provides a set of policy actions that have been identified within those areas as opportunities to generate advances.** The SCD identifies the most critical actions or policies within these priority areas that represent opportunities for Nicaragua to continue making progress on shared prosperity and extreme poverty reduction. To hone in on those opportunities with the greatest potential impact, a series of filters or criteria were applied during consultations with World Bank Group staff and stakeholders in Nicaragua. This list of policy actions and/or opportunities can serve as a starting point for deeper analysis and discussion going forward and are presented in Annex 1.

1.7. Knowledge gaps

30. **In the process of reviewing, analyzing, and synthesizing existing data and research on Nicaragua, a series of knowledge and data gaps were discovered that, if addressed, would help better inform the decision-making process.** The SCD has made use of existing research, new analysis, and consultations within and outside the World Bank Group and stakeholders in Nicaragua. As such, the report identified several knowledge and data gaps in the existing literature. Addressing these gaps would provide additional information to design crucial policy interventions in many key priority areas identified in this document. Gaps identified in this SCD include:

- **What is the poverty rate at a higher level of geographical disaggregation?** Household surveys are not usually representative at a high level of geographical disaggregation. In Nicaragua, the Living Standards Measurement Studies survey (*Encuesta Nacional de Hogares sobre Medición de Nivel de Vida*, EMNV) is representative only at the level of four regions (Central, Caribbean, Pacific, and Managua). A higher level of geographical disaggregation would allow measuring poverty in specific areas (e.g., municipalities that are located in the Dry Corridor). The latest census data (and poverty map) was collected in 2005. Therefore, new census data is urgently needed in order to estimate poverty at a higher level of geographical disaggregation. Other data issues include frequency of data collection, availability to the general public and comparability across time. For instance, the EMNV is currently collected by the Statistical Office every four to five years. Annex 2 lists data gaps identified in the SCD.
- **What are productivity developments at the firm level?** This report shows a shift in structural change from agriculture to services that seems to have had a limited contribution to productivity gains. However, this analysis relied mainly on household surveys and national accounts series. In order to better understand firms and labor market dynamics, more specialized surveys are needed. The latest firm level data is from the 2010 Enterprise Surveys. Labor force surveys are conducted in the country, yet these were not readily available to conduct this analysis.
- **What is the causal impact of remittances on well-being?** Migration has grown considerably over the past 25 years and remittances have contributed to some extent to improving the welfare of the less well-off. Simulations show that overall poverty would have been 15 percent higher when excluding remittances from abroad. Therefore, it is crucial to measure the causal impact of migration and remittances on poverty, income inequality, and human capital.

- **What is the causal impact of social assistance programs on poverty?** To the best of our knowledge, no rigorous analysis has analyzed the causal impact of social assistance programs on poverty in Nicaragua. Simulations show that these programs had a modest impact on poverty, since they generally have low benefits and are insufficiently targeted. Understanding the mechanisms through which social assistance programs decrease both poverty and inequality is crucial for improving the design of these programs.
- **What are the main constraints to women entering the labor force?** Nicaragua ranks among the countries with the lowest female labor force participation. Given the importance of women participation in the labor force for poverty reduction and economic growth, it is crucial to fully understand the main drivers of low female labor force participation in the country.
- **What are the potential implications of the recent tax reforms (*Ley de Concertación Tributaria* and subsequent changes) in terms of tax expenditures?** A study by Pecho et al (2012) estimated that tax expenditures in Nicaragua amounted to 7.6 percent of GDP in 2010, 88 percent of which corresponded to Value-Added Tax exonerations and exemptions. According to this study, Nicaragua had the second highest level of tax expenditures in LAC (second only to Guatemala). Nicaragua has undertaken a series of tax reforms, however, changes to the tax code in 2014 backtracked some of the reductions in tax exemptions and exonerations envisaged in the 2012 tax reform.

1.8. Structure of the report

31. **The report is structured as follows.** Chapter 2 provides an analysis of poverty, inequality, and shared prosperity dynamics and identifies the drivers behind them. Chapter 3 examines growth dynamics and provides a better understanding of the growth structure and the structural transformation of the economy. It also looks at potential sources of growth in the future and the constraints that would need to be lifted to unleash higher and sustained broad-based growth. Chapter 4 analyzes factors behind inclusion, inequality, and shared prosperity. Chapter 5 addresses sustainability. The last chapter describes the prioritization process.

2. POVERTY AND SHARED PROSPERITY

After many years of stagnant poverty, Nicaragua's poverty reduction has accelerated in the last decade, mainly due to a growth of earnings in the agricultural sector. However, poverty remains among the highest in LAC and many Nicaraguans still fell into poverty during the 2005–2014 period. The country's exposure to climatic hazards and climate change poses additional challenges for preventing individuals from falling into poverty since the largest economic group is made up of Nicaraguans who are not poor but who are at risk of falling into poverty if hit by shocks—i.e., the vulnerable.

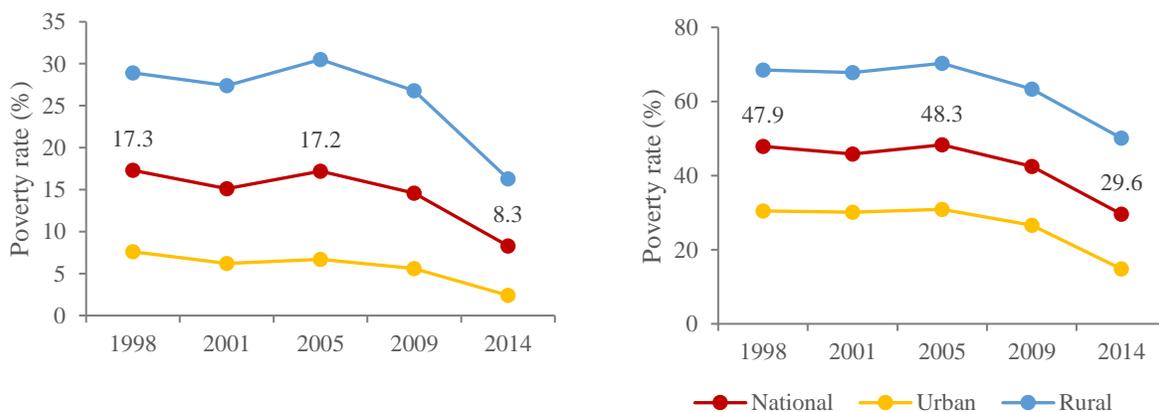
2.1. Poverty has declined in recent years

1. **In contrast to stagnant poverty until 2005, poverty reduction has accelerated in the last ten years.** Nicaragua's official extreme poverty rate remained stagnant at about 17 percent between 1998 and 2005 (Figure 2.1, panel a). Since then, poverty was reduced to 8 percent in 2014. Similarly, official overall poverty remained stagnant at about 48 percent between 1998 and 2005, but was reduced to about 30 percent in 2014 (Figure 2.1, panel b).¹² Although reductions in poverty were observed both in urban and rural areas, more progress has been made in rural areas (see Box 2.1 for definitions).

Figure 2.1: Nicaragua has steadily reduced poverty in the last decade

(a) Official extreme poverty, 1998–2014

(b) Official overall poverty, 1998–2014



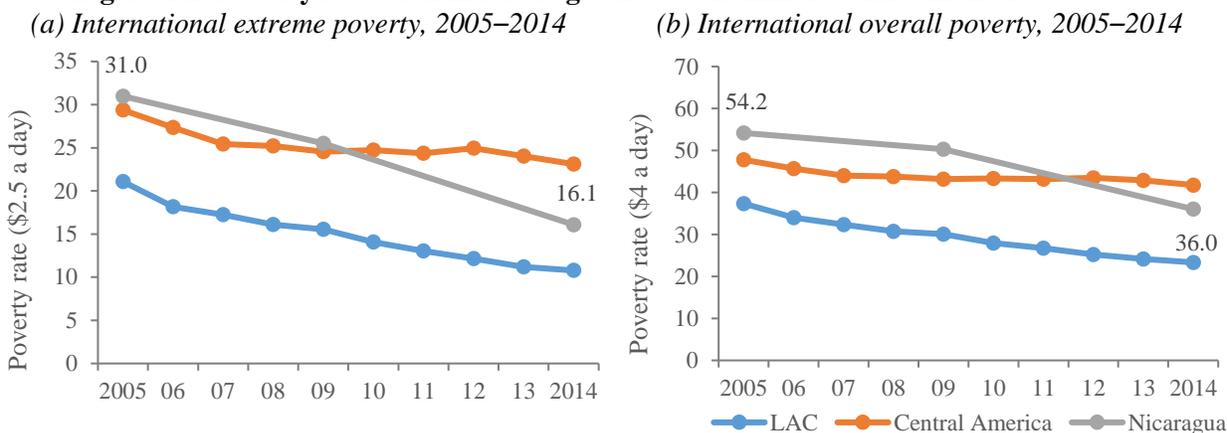
Source: World Bank estimates based on the 1998, 2001, 2005, 2009, and 2014 EMNV. See Box 2.1 for definitions.

2. **Income-based poverty also decreased during the last decade and followed a similar trend to LAC as a whole.** The internationally comparable income poverty rate—defined in LAC as the proportion of individuals with an income lower than USD 4 per day in 2005 PPP—decreased by 18 percentage points (or 33 percent) between 2005 and 2014 (Figure 2.2, panel b). There was an increase in incomes that contributed to upward economic mobility: almost half of the initial poor in 2005 moved out of poverty by 2014. The reduction in poverty is comparable to the one observed in LAC as a whole, where income-based poverty steadily fell by 14 percentage points (or 38 percent) between both years. A similar trend is observed in terms of extreme income poverty—defined as having an income of less than USD 2.5/day—which decreased by 15

¹² In 2014, the extreme and overall poverty lines were USD 1.87 and USD 3.02 per person per day at 2005 PPP.

percentage points in Nicaragua (or 48 percent) between 2005 and 2014 (Figure 2.2, panel a), comparable to the fall of 10 percentage points in LAC (or 49 percent). Both extreme and overall poverty reduction were more pronounced in Nicaragua than in Central America as a whole.

Figure 2.2: Poverty reduction in Nicaragua has been similar to LAC in the last decade



Source: SEDLAC data (CEDLAS and the World Bank). See Box 2.1 for definitions.

Box 2.1: Poverty measurement in Nicaragua

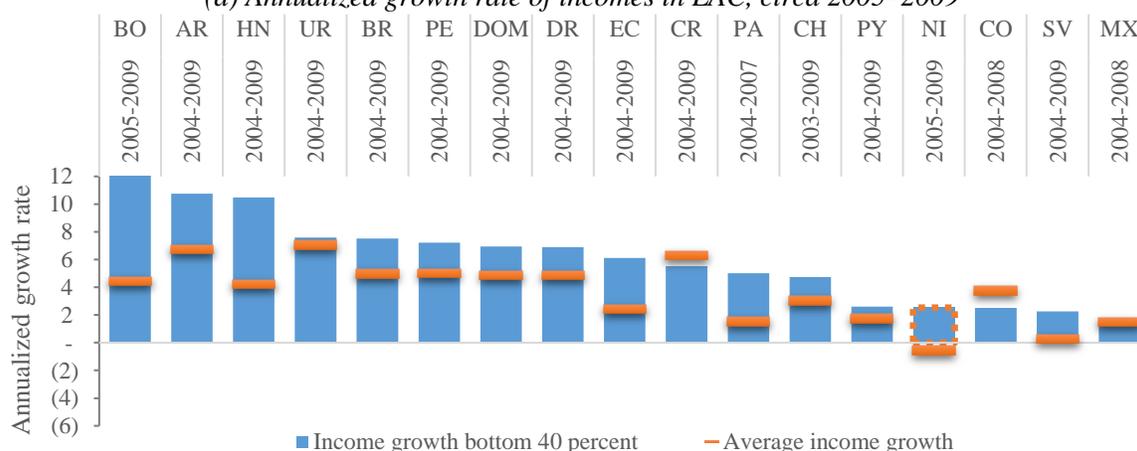
Official extreme and overall poverty estimates in Nicaragua are produced by the National Statistical Institute (*Instituto Nacional de Información de Desarrollo, INIDE*) based on EMNV data for 1998, 2001, 2005, 2009, and 2014. Nicaragua estimates poverty based on the Cost of Basic Needs method by fixing an absolute extreme poverty line of USD 1.87 and an overall poverty line of USD 3.02 per person per year in 2014 (both in 2005 PPPs). This poverty line is considered to represent a level of per capita consumption required to access a basket of goods and services needed to achieve adequate living conditions. The most recent official poverty numbers in Nicaragua are from 2014, when the extreme and overall official poverty rates at the national level were 8.3 percent and 29.6 percent, respectively. The SCD relies on INIDE's official consumption aggregate to measure official country-specific poverty rates. However, the welfare measure used for comparison purposes is income per capita, which are derived from a regional data harmonization effort known as SEDLAC, a joint effort of the World Bank Poverty and Equity Global Practice and CEDLAS at the National University of La Plata in Argentina. This project aims to increase cross-country comparability of selected findings from official household surveys. For this reason, official income and consumption poverty statistics reported by governments and national statistical offices may differ from those reported here for cross-country comparison purposes.

This chapter calculates regional aggregated indicators for LAC by pooling micro data from Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, and Uruguay. To analyze the same set of countries every year, interpolation was applied when country data were not readily available for a given year. With the exception of figures 2.13 and 2.19, all others do not include Haiti due to lack of recent data. The definition of economic groups, from Ferreira et al. (2012), is related to economic security: (i) the poor, who are those individuals with a per capita income below USD 4 per person per day; (ii) the vulnerable, who are at high risk of falling back into poverty and have incomes between USD 4-10 per person per day; (iii) the middle class, who are those individuals living with incomes between USD 10-50 per person per day; and (iv) the rich, who are those with incomes above USD 50 per person per day (all in 2005 USD PPP).

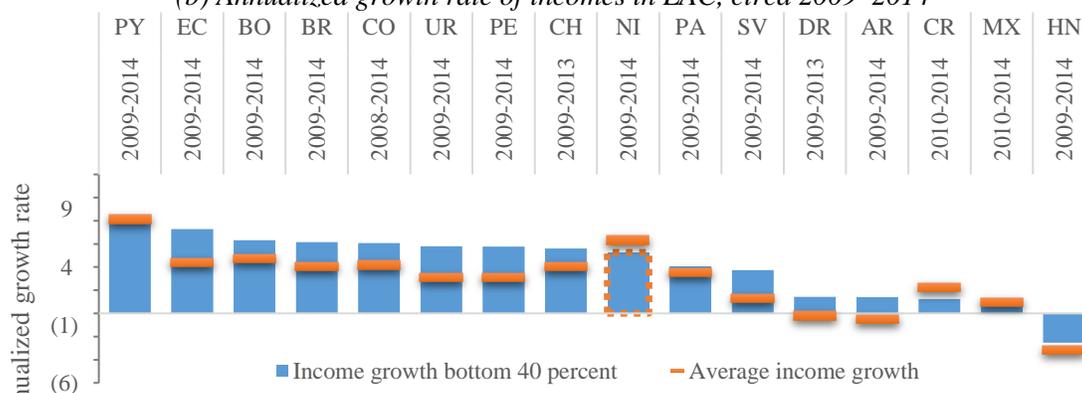
Source: INIDE and Ferreira et al. (2012).

3. **The growth of incomes among lower income households is behind the decline of poverty.** The reduction in poverty before 2009 was the result of growth of incomes among the bottom 40 percent of the distribution (Figure 2.3)—the World Bank indicator used to measure shared prosperity. The data show that per capita household income grew at an annualized rate of 2.5 percent for this group between 2005 and 2009, outpacing the zero average income growth. Furthermore, from 2009 and 2014, Nicaragua experienced a higher income expansion among the bottom 40 percent (5.2 percent). However, growth became less pro-poor as growth at the bottom 40 percent of the distribution was lower than the overall income growth between 2009 and 2014. Still, average incomes of the bottom 40 percent grew faster than their counterparts in the other five Central American countries. Despite significant income growth, most individuals in the lower 40 percent of the income distribution in general continued being poor in 2014 with an average income of USD 2.73 per person per day, around 23 percent lower than any one of their counterparts in LAC, and one-fourth of the income of Nicaraguans in the top 60 percent of the income distribution.

Figure 2.3: Incomes grew considerably among those at the lower end of the income distribution
 (a) Annualized growth rate of incomes in LAC, circa 2005–2009



(b) Annualized growth rate of incomes in LAC, circa 2009–2014

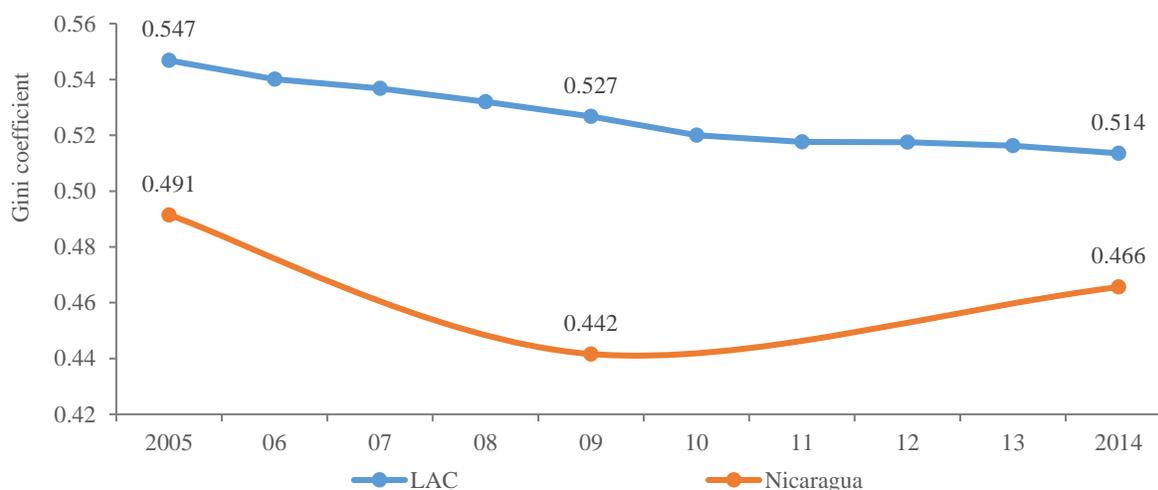


Source: SEDLAC data (CEDLAS and the World Bank). See Box 2.1 for definitions.

4. **Worryingly, income inequality increased slightly in the last five years, which stands out as a risk going forward.** The Gini coefficient, which is a standard indicator used to measure inequality, decreased from 0.49 to 0.44 between 2005 and 2009 (Figure 2.4). This reduction was more pronounced than the one observed in LAC as a whole, where inequality declined from 0.55

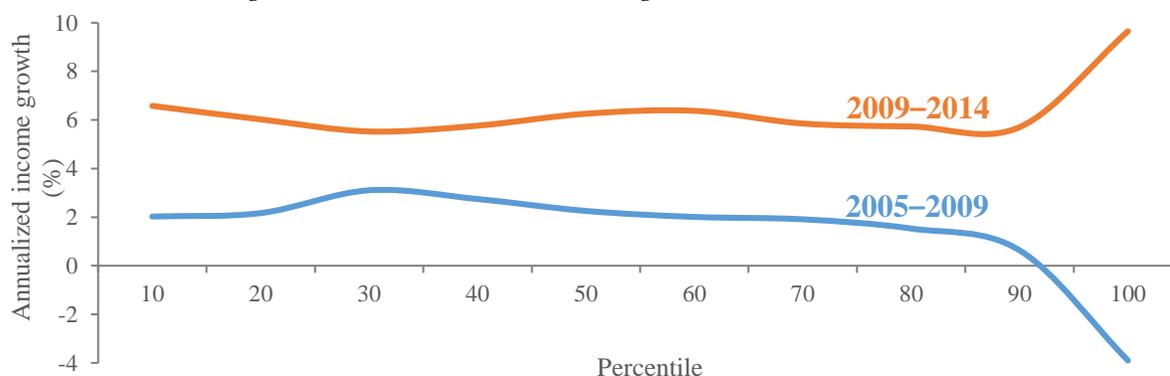
to 0.53 between both years. However, the Gini increased slightly in Nicaragua in 2014, while it continued falling—though at a slower pace—in the LAC region.

Figure 2.4: Income inequality has slightly increased in recent years
Gini coefficient in LAC and Nicaragua, 2005–2014



Source: SEDLAC data (CEDLAS and the World Bank). See Box 2.1 for definitions.

Figure 2.5: Growth of incomes increased for the better off after 2009
Income growth incidence curve in Nicaragua, 2005–2009 and 2009–2014



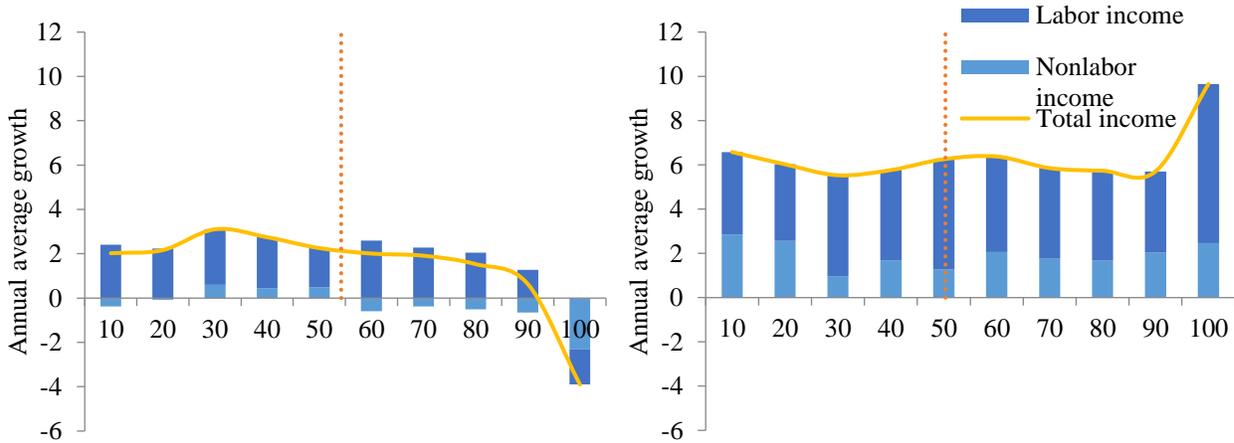
Source: SEDLAC data (CEDLAS and the World Bank). See Box 2.1 for definitions. The GIC shows the annualized growth rate of per capita household income for every decile of the income distribution (Ravallion and Chen 2003).

5. **Growing inequality stems from higher income growth among those who are better-off.** The growth incidence curve (GIC), which shows per capita income growth by deciles of the income distribution, confirms that growth was more pro-poor before 2009 (Figure 2.5). Income growth was positive at the lower end of the income distribution, while it was negative for those at the top. This pro-poor growth was a key factor behind the fall of inequality between 2005 and 2009. However, the growth pattern changed after 2009. Even when income growth continued being positive at the lower end of the income distribution, it switched from negative to positive among the better off, which contributed to the increment of income inequality between 2009 and 2014. Chapter 4 analyzes in more detail the role that certain external and internal factors and policy tools played on these observed income inequality levels and trends.

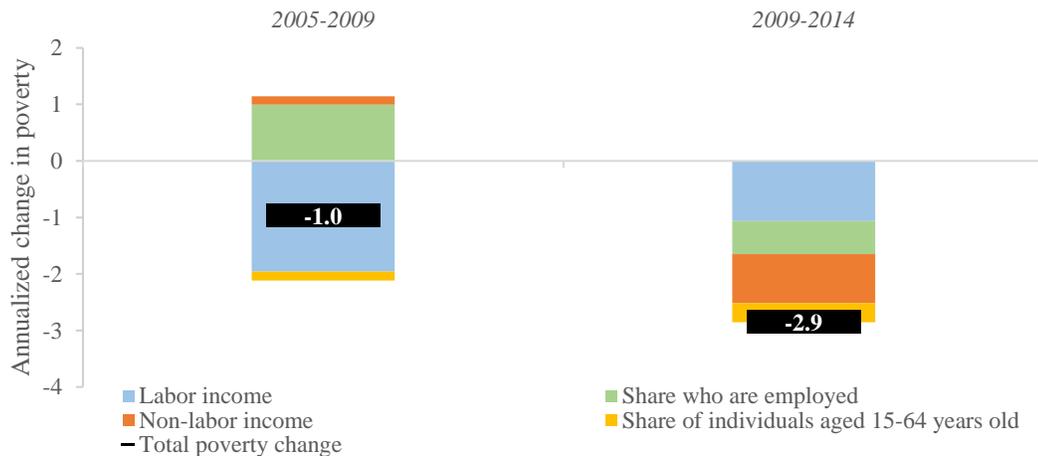
6. **What are the main forces behind the poverty reduction of the last ten years?** To analyze why poverty has decreased we rely on two decomposition exercises: (i) one that sheds light on the relative contribution of labor and nonlabor incomes to poverty and growth along the per capita income distribution; and (ii) another one that helps in understanding the relative contribution of household income growth and changes in the income distribution to explain changes in poverty.

Figure 2.6: Labor income has played an important role in poverty reduction

(a) Growth incidence curve by income source in Nicaragua, 2005–2009 and 2009–2014



(b) Overall poverty reduction by income source in Nicaragua, 2005–2009 and 2009–2014

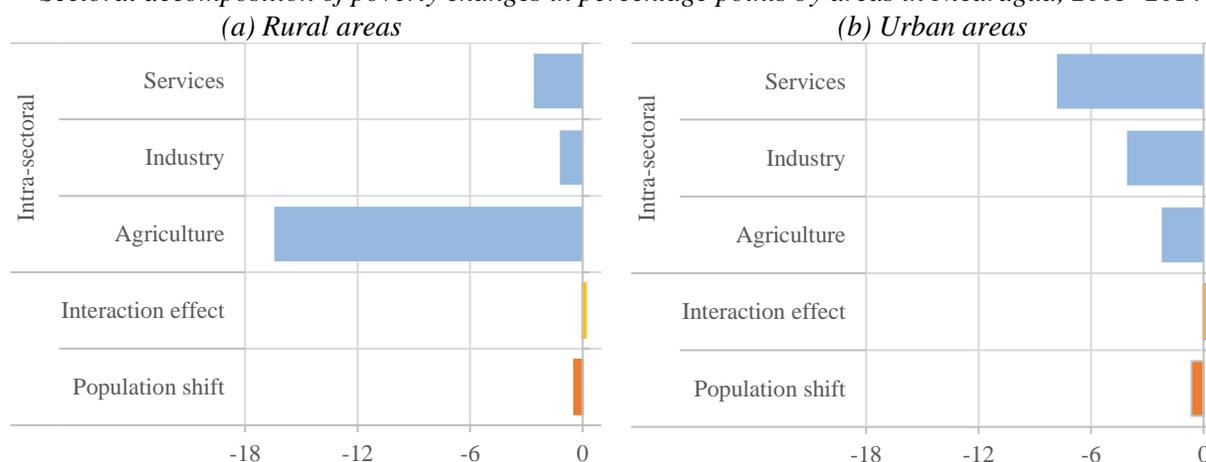


Source: SEDLAC data (CEDLAS and the World Bank). Note: The vertical dashed-lines in panel a show the poverty rate in the base year. The contribution of income sources to poverty reduction in panel b is based on a Shapley Decomposition of poverty changes (Barros et al. 2006; Azevedo, Inchauste, and Sanfelice 2013).

7. **Labor incomes have contributed the most to poverty reduction.** Considering that labor incomes represented 72 percent of total incomes at the bottom 40 percent of the income distribution in 2005, changes in labor incomes are likely to have an impact on poverty and inequality reduction. Figure 2.6 (panel a) decomposes the GIC into labor and nonlabor contribution to income growth.

Since 2005, labor income has been the main force behind income growth among those below the poverty line. Overall, higher labor incomes contributed to two-thirds of the poverty reduction between 2005 and 2014 (Figure 2.6, panel b).¹³

Figure 2.7: Agriculture accounts for about 80 percent of poverty reduction in rural areas
Sectoral decomposition of poverty changes in percentage points by areas in Nicaragua, 2005–2014



Source: Own elaboration based on SEDLAC data (CEDLAS and the World Bank). *Note:* The figure shows the Ravallion and Huppi (1991) sectoral decomposition of poverty changes. The intra-sectoral effect represents the contribution of poverty changes within sectors of the economy, controlling for each sector’s initial population shares. The population shift effect represents the amount of the original poverty change attributed to population movements from one sector to another. The interaction effect arises from the correlation between both changes. Agriculture includes agriculture, hunting and forestry, fishing, and mining and quarrying. Industry includes the manufacturing sector and construction. Services include electricity; gas and water supply; wholesale and retail trade; hotels and restaurants; transport; storage and communications; financial intermediation; real estate, renting and business activities; public administration and defense; education; health and social work; other community, social & personal services; activities of private households as employers; extraterritorial organizations; and bodies.

8. Nicaragua’s poverty reduction derives from higher earnings in the agricultural sector. A decomposition of the contribution of every sector in the economy to poverty reduction reveals that the increase in earnings in agriculture, together with the fact that most of the poor are employed in this sector,¹⁴ explains much of the decline in rural poverty in the country between 2005 and 2014. The incremental change in incomes in agriculture accounts for about 50 percent of total poverty reduction at the national level and almost 80 percent in rural areas of the country (Figure 2.7). That contribution responds mainly to increases in labor earnings rather than more employment (Figure 2.6, panel b). The population shift between sectors explains less than 3 percent of poverty reduction between both years in rural areas, consistent with the low mobility across sectors. The increase in world commodity prices for agricultural products has likely played an important role in the rise of earnings of the poorest segments of the agricultural sector and reduction of poverty in rural areas.¹⁵ However, a cautionary note regarding the sustainability of

¹³ Labor income also contributed to about 80 percent of inequality reduction between 2005 and 2009. This contribution was higher than for LAC, where labor income contributed to a reduction of 54 percent in inequality (Cord et al. 2016).

¹⁴ About 50 percent of the total poor obtained their incomes from the primary sector in 2005, compared to 22 percent of the nonpoor population, and that sectoral composition remained fairly constant over the years.

¹⁵ A similar situation already happened in the past. Despite declines in productivity in agriculture, wages and employment in the sector increased between 2001 and 2005. This increment in wages was the result of higher agricultural terms of trade faced by farmers in rural areas (World Bank 2008, 2013, 2016; FIDEG 2015).

price increments and the fragility of the gains in poverty reduction: while higher food prices have likely favored earnings in agriculture in rural areas and poverty reduction, this could pose a risk if prices decelerate in the years to come. In urban areas on the other hand, poverty reduction was more evenly distributed, although the increase in earnings in services played a more prominent role explaining about 55 percent of poverty reduction.

9. **Nonlabor incomes played an increasingly more important role among the poorest deciles of the income distribution.** Approximately one-third of the growth of incomes of the less well off in the last five years can be explained by nonlabor incomes. Overall, nonlabor incomes contributed to less than one-fourth of overall poverty reduction between 2005 and 2014 (Figure 2.6, panel b). As such, the rest of this section discusses the role that some sources of nonlabor income played in alleviating poverty: (i) migration and remittances; (ii) social protection programs; and (iii) the demographic composition of the population.

10. **Migration grew considerably over the past 25 years.** As of 2015, more than half a million individuals have migrated from Nicaragua. About 45 percent of those migrants moved to Costa Rica, while another 40 percent migrated to the US. Most migrants were males, aged 25–40 years old, and from the Pacific and Central regions. The main motivation for migration was to pursue employment opportunities: about 85 percent of those who lived abroad migrated due to work and/or economic reasons. Men tend to migrate in order to work in agriculture, forestry, and fishery, while women tend to work as maids and domestic help.¹⁶ In addition, returns to skills in Nicaragua are lower than in many other LAC countries. Therefore, more and better education might need to be translated into better paying jobs and higher returns to education abroad.¹⁷ As a result of this, migrants tend to be more educated than the rest of the population: in 2014, over 50 percent of those living abroad had completed secondary education. However, skills levels differ across countries of destination. The US, Spain, and Panama are the preferred destination among relatively skilled migrants, while Costa Rica, the rest of Central America, and Mexico for the less skilled. About half of those who migrated to Costa Rica have completed secondary education, compared to over 80 percent of those who migrated to Panama, the US, and Spain.

11. **Remittances contributed to some extent to improving the welfare of the less well off.** Remittance inflows have considerably increased since the mid-nineties from about USD 75 million (1.8 percent of GDP) in 1995 to about USD 1.1 billion (9.7 percent of the GDP) in 2014.¹⁸ The share of those who received remittances and were poor remained fairly constant since 2005 (Figure 2.8, panel b). Nevertheless, remittances have become more important among the poorest households in the last ten years: in 2014, they represented about 20 percent of household income of recipient families in the lowest decile, up from 10 percent in 2005 (Figure 2.8, panel a). Overall, remittances had an impact on poverty: in 2014, general and extreme poverty would have been about 10 percent and 15 percent higher without remittances, respectively.¹⁹

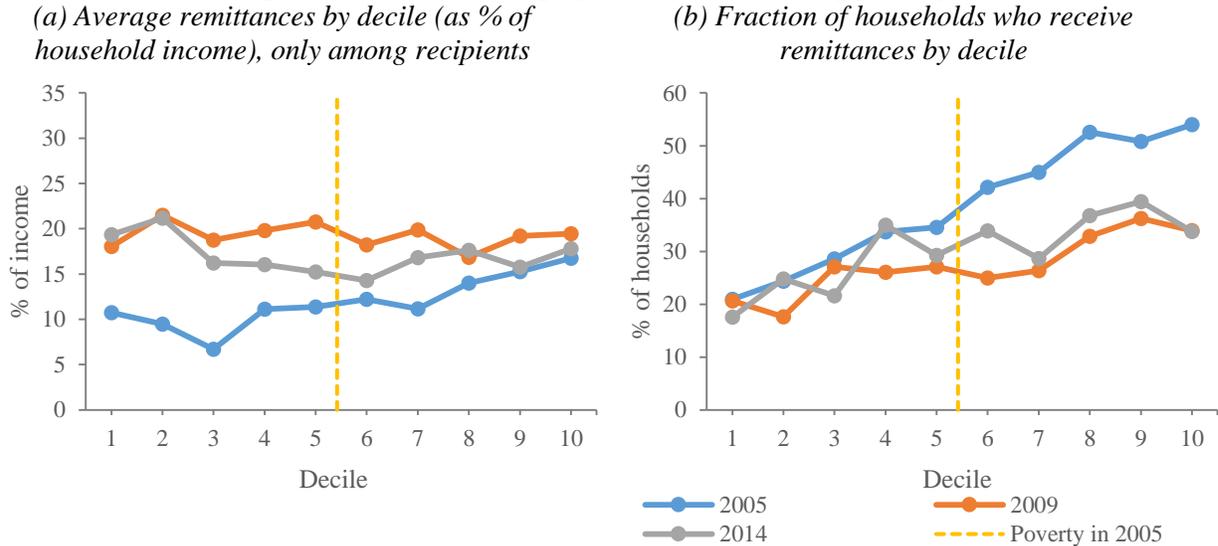
¹⁶ Tabitha Bonfert, Anna, Martha Jaén, Miriam Müller, and Germán Reyes (2016).

¹⁷ World Bank 2008.

¹⁸ More than half of remittances in 2016 originated in the US, while about 20 percent came from Costa Rica.

¹⁹ Fajnzylber and López (2008) also found that remittances relaxed budget constraints and affected household behavior, leading to better school enrollment for children 12–17 years old and health outcomes in Nicaragua.

Figure 2.8: Remittances played a role in reducing poverty



Source: SEDLAC data (CEDLAS and the World Bank).

Knowledge Gap: What is the causal impact of remittances on well-being?

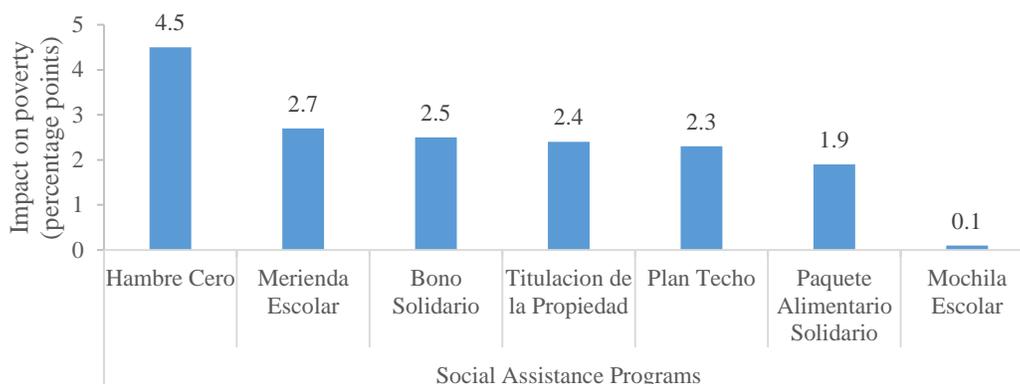
According to the analysis in this section, remittances might have improved individuals' well-being, given that overall poverty would have been 15 percent higher when excluding remittances from abroad. However, these results are based on simulations and it is crucial to measure the causal impact of migration and remittances on poverty, income inequality, and human capital.

12. **Nicaragua has expanded the coverage of its social assistance programs, though they are generally small and insufficiently targeted, limiting their impact on poverty.** Unlike most LAC countries, Nicaragua does not have a Conditional Cash Transfer (CCT). However, it currently has about 46 social assistance programs whose beneficiaries are mainly children, women, the elderly, and disabled.²⁰ As described in Chapter 4, most of these programs have low benefits and are insufficiently targeted. There is no evidence of the effect of these programs on welfare as there is no impact evaluation. However, simulations show that these programs had a modest impact on poverty (Figure 2.9). Among beneficiaries, *Programa Amor* is associated with a poverty reduction of 4.5 percentage points, while the rest of the programs by about 2 percentage points, with the exception of *Mochila Escolar* that does not have any impact. A study by FUNIDES (2017) finds that social programs altogether decreased overall income poverty by about 10 percent in 2014, driven mainly by educational social programs (i.e., *Vaso de leche*, *Merienda escolar*, *Mochila escolar*, *zapatos escolares*, *Uniformes escolares*, and *Materiales didacticos*).²¹

²⁰ World Bank (2016b).

²¹ Calculations are based using income as the welfare measure and the official overall poverty line.

Figure 2.9: Social assistance programs had a modest impact on consumption poverty
Simulation of the impact of programs on overall consumption poverty (using official measures) among beneficiaries, 2014



Source: World Bank (2016a).

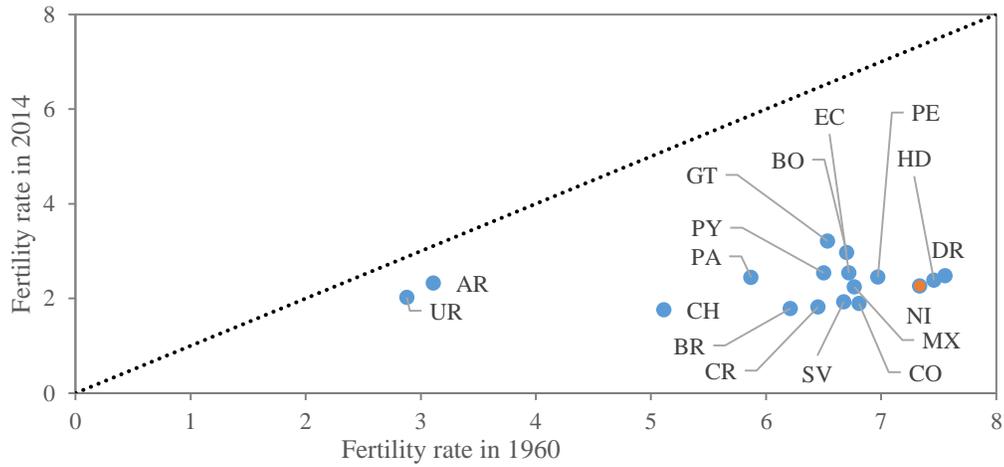
Knowledge Gap: What is the causal impact of social assistance programs on poverty?

Results presented in Figure 2.9 are simulations, as they are not based on an experimental design. To the best of our knowledge, no analysis has produced a rigorous impact evaluation in order to fully capture the causal impact of these programs on poverty in Nicaragua. Understanding the drivers through which programs reduce poverty and inequality is key for improving the design of these programs and increasing their desirability by proving their effectiveness in improving the life of the less fortunate (World Bank 2016).

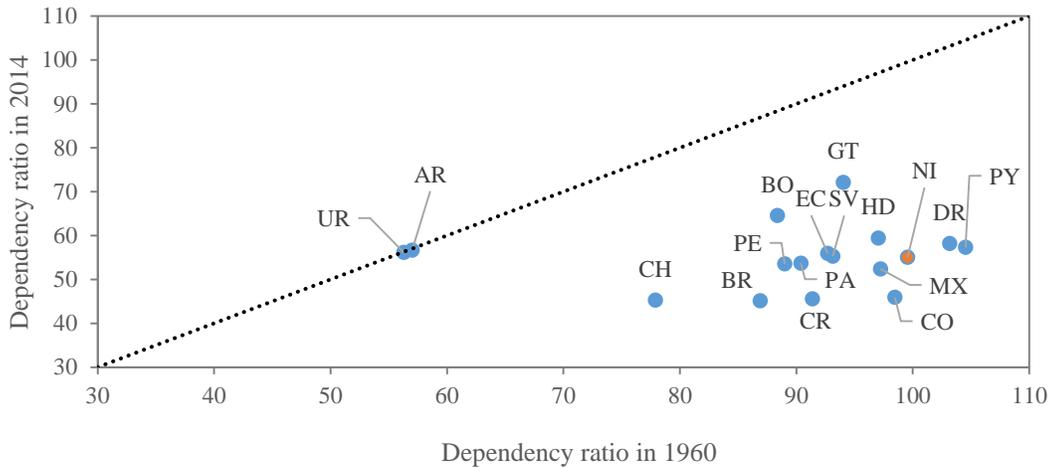
13. **The demographic composition of the population changed in Nicaragua, with a larger share of working age population (aged 15-64), contributing to the reduction in poverty.** With roughly half of its population being 25 years old or younger and almost a third being under 14 in 2013 (down from 65 percent and 21 percent in 2003, respectively) and a median age of 23 years (the fourth lowest in the region and among the 26 percent lowest in the world), Nicaragua’s population is strikingly young. Moreover, fertility rates in Nicaragua more than halved in the last 55 years (Figure 2.10, panel a). The demographic transition experienced by Nicaragua has already been reflected in a decreasing dependency ratio, defined as the ratio of dependents (individuals younger than 15 or older than 64) to the working-age population, a measure of pressure on the productive population (Figure 2.10, panel b). The dependency ratio almost halved in the last 25 years. Nicaragua moved from having among the highest dependency ratios in the region after Paraguay and Dominican Republic in 1960 to having a ratio of dependents to the working-age population equal to the regional average in 2014. Apart from its direct impact on economic growth as described in Chapter 3, a lower dependency ratio also implies that every working-age adult now has to take care of fewer young dependents, which is likely to end up having a direct impact on reducing poverty rates through an improvement in per capita household income. As such, the lower dependency ratio was associated with a 12 percent reduction of the overall poverty between 2005 and 2014 (Figure 2.6, panel b).

Figure 2.10: Lower dependency ratios favored poverty reduction

(a) Fertility rates in LAC, 1960 vs. 2014



(b) Age dependency ratio in LAC, 1960 vs. 2014



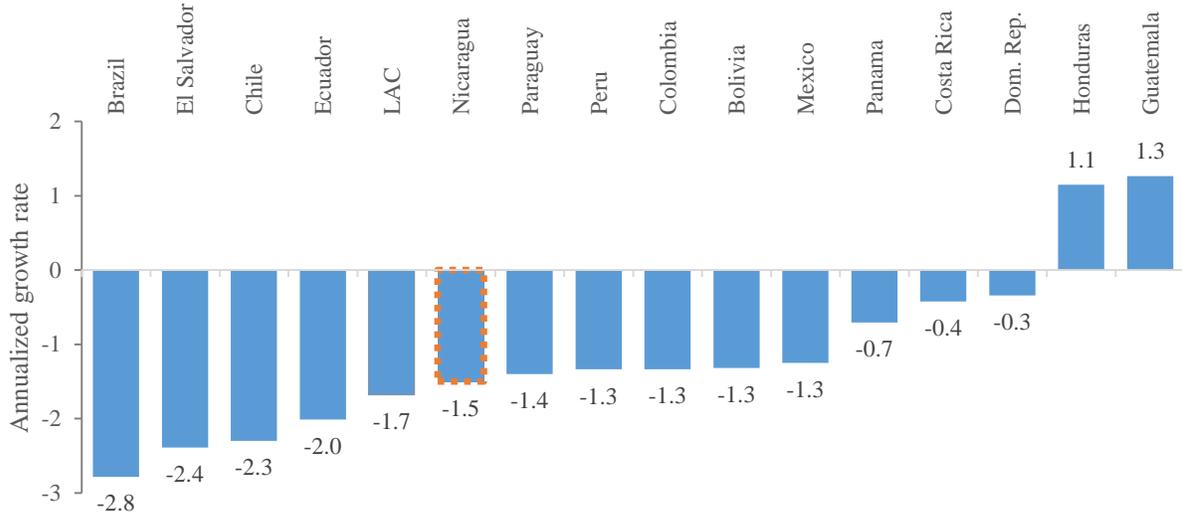
Source: World Bank estimates from various sources including census reports, the United Nations Population Division's World Population Prospects, and national statistical offices. *Note:* Total fertility rate in panel a represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with age-specific fertility rates of the specified year. Data are shown as the proportion of dependents per 100 working-age population.

14. **Economic growth was also key for poverty reduction in recent years.** Between 2005 and 2009, a one percent increase in GDP per capita was associated with a 1.7 percent reduction in overall income poverty. In other words, growth-poverty elasticity was -1.7 in Nicaragua.²² This is an improvement with respect to the past: growth-poverty elasticity was -0.4 between 1993 and 2005.²³ Income poverty remained equally responsive to economic growth in the 2009–2014 period (Figure 2.11). This elasticity was higher than in many other Central American and LAC countries—aggregate growth-poverty elasticities were -0.2 and -1.7 between both years, respectively.

²² Growth-poverty elasticity is defined as the ratio between the percent change in the poverty headcount and the percent change of the GDP per capita in two moments in time.

²³ World Bank (2008).

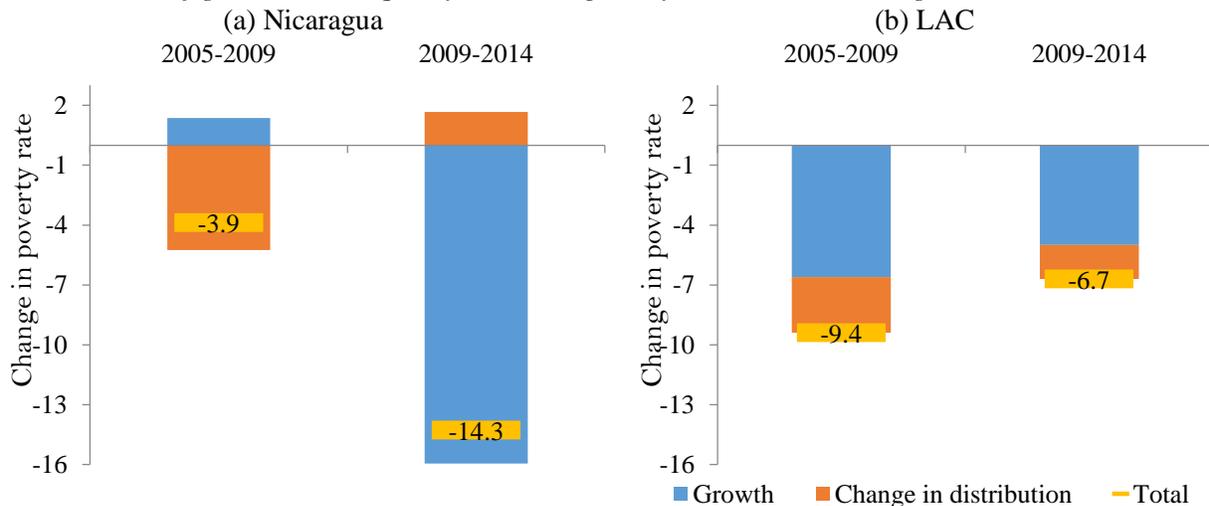
Figure 2.11: Poverty has responded to economic growth in the last decade
Overall poverty elasticity to growth in Nicaragua and LAC, circa 2009–2014



Source: SEDLAC data (CEDLAS and the World Bank) and WDI. See Box 2.1 for definitions. The figure shows income poverty-growth elasticities for all LAC countries for which data is available.

Figure 2.12: Recent poverty reduction was driven by income growth in Nicaragua

Contributions of growth and inequality to income poverty reduction in Nicaragua and LAC, 2005–2014



Source: SEDLAC data (CEDLAS and the World Bank). Note: The figure shows the Datt and Ravallion (1992) decomposition of poverty changes into a growth and a distribution component.

15. **Yet, changes in the income distribution have recently decreased the contribution of growth to poverty reduction.** A decomposition analysis helps to understand the relative contribution of household income growth and income inequality to changes in poverty. Between 2005 and 2009, overall income poverty decreased by 4 percentage points driven mainly by a reduction of income inequality (see Figure 2.12, panel a): poverty would have increased slightly if inequality had not decreased. The situation was reversed after 2009 when poverty reduction was mainly driven by economic growth. If income inequality had not increased, poverty would have decreased an additional 1.6 percentage points between 2009 and 2014. This contrasts with results

in LAC where both income growth and inequality reduction contributed to the decline of poverty over the last decade (Figure 2.12, panel b).

2.2. Poverty remains high

16. **Despite recent social gains, the proportion of people living in poverty remains high.** Although poverty has fallen in recent years, roughly one-third of the population (about 1.7 million Nicaraguans) still lived with a per capita consumption below the overall official poverty line in 2014 (Figure 2.1). Poverty is highly concentrated in rural areas: about half of rural Nicaraguans were considered moderate poor that year, compared with about 15 percent of the urban population. Of the 1.7 million poor, 1.2 million (about 70 percent) were living in rural areas.

Box 2.2: Indigenous people in Nicaragua

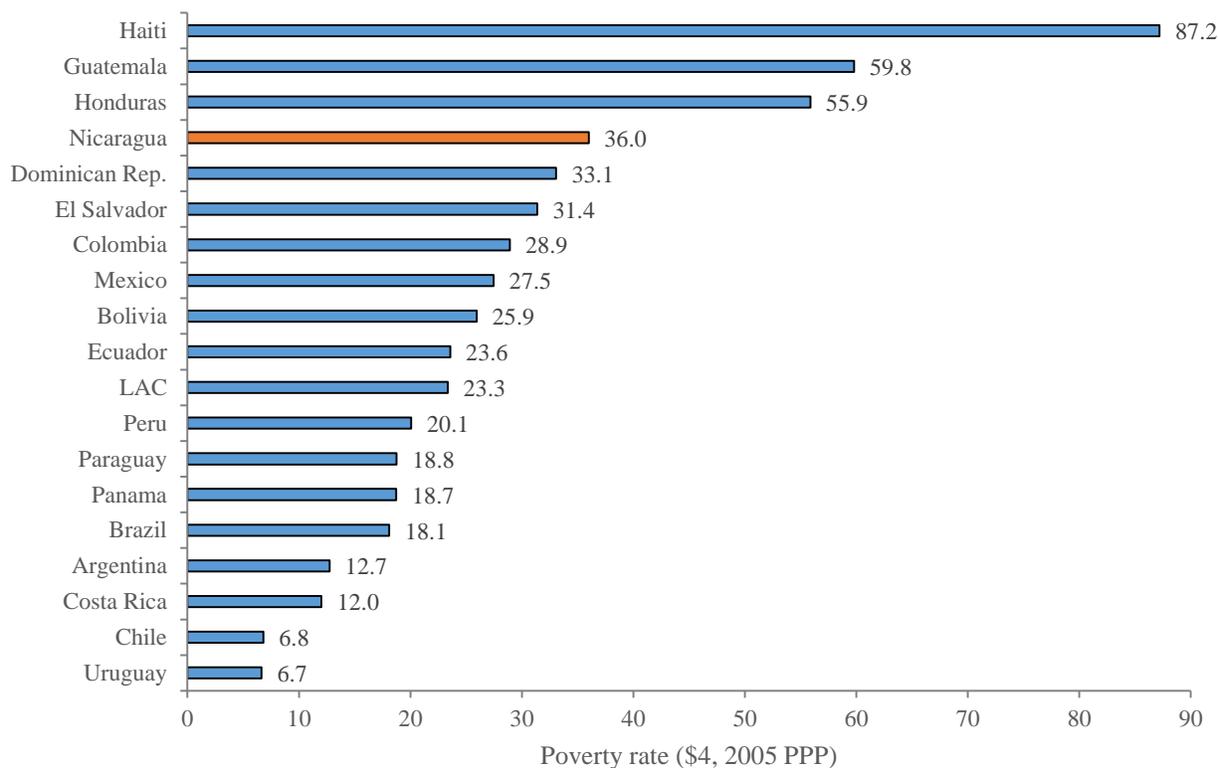
There is no recent census or household survey that reflects the indigenous population, with the latest from 2005. Nicaragua's indigenous population was relatively low that year, with 6 percent of total population (311,700 people) self-identifying as indigenous. As such, the proportion of indigenous people in Nicaragua was significantly lower than other LAC countries, including Bolivia (41 percent in 2012), Guatemala (41 percent in 2002), Peru (25 percent in 2007), Mexico (15 percent in 2010), Panama (12 percent in 2010), Honduras (8 percent in 2013), and Ecuador (7 percent in 2010). Indigenous households in Nicaragua tend to have lower access to basic opportunities and services compared to nonindigenous groups in the country and to indigenous households in other LAC countries. According to the census, 39 percent of indigenous households had access to piped water—the lowest access in LAC and significantly lower compared to 65 percent of the nonindigenous in Nicaragua. Indigenous access to sanitation (10 percent) was also the lowest in LAC and significantly lower than nonindigenous groups in the country (26 percent). As for electricity, only 50 percent of indigenous households had access in 2005, once again significantly lower than non-indigenous groups (70 percent).

Interestingly, human capital accumulation and employment tended to be similar between indigenous and nonindigenous groups. For instance, less than 64 percent of the indigenous had less than primary education against 57 percent of the non-indigenous and literacy was 70 percent among indigenous against 75 among non-indigenous. Similarly, about 57 percent of the indigenous were employed, compared to 59 of the nonindigenous. However, there were marked differences in terms of the type of employment: for instance, about 51 percent of the indigenous were employed in the primary sector compared to 34 percent of the nonindigenous.

Source: This box largely relies on most recent National Census tabulations from the 2015 World Bank report "Indigenous Latin America in the twenty-first century: the first decade" and on the LAC Equity LAB. *Note:* The indigenous population was estimated using self-identification. Creoles and mestizos are not included as indigenous.

17. **As such, Nicaragua remains among the poorest countries in LAC.** Nicaragua had the fourth highest proportion of individuals living with incomes lower than the regional USD 4 per day poverty line in 2014 (Figure 2.13), only to be surpassed by Guatemala (where poverty increased from 55 percent in 2006 to 60 percent in 2014), Honduras (where poverty was 56 percent in 2014), and Haiti (87 percent in 2012). On the other end, the poverty rate in Costa Rica—the country with the lowest poverty rate of Central America—was 12 percent in 2014, about one quarter of the poverty rate in Nicaragua.

Figure 2.13: Nicaragua has one of the highest poverty rates in the region
Internationally comparable poverty in Nicaragua and in LAC at USD 4 per person per day, 2014



Source: SEDLAC data (CEDLAS and the World Bank). See Box 2.1 for definitions.

18. **The country also ranks among the poorest countries based on nonmonetary poverty measures.** Poverty is a complex phenomenon as it is associated with many factors. To capture the complexity of poverty, two recent studies²⁴ use the Multidimensional Poverty Index (MPI) from Alkire and Foster (2011). The MPI includes a number of equally-weighted dimensions—e.g., health, education, living standards—captured by a number of attributes considered to be relevant—e.g., lack of access to proper sanitation and drinking water. Individuals deprived of a certain attributes are considered multidimensionally poor. According to Duryea and Robles (2016), Nicaragua was one of the poorest countries in LAC in 2014 when considering the MPI: more than 60 percent of Nicaraguans were multidimensionally poor, with four or more privations that year.²⁵

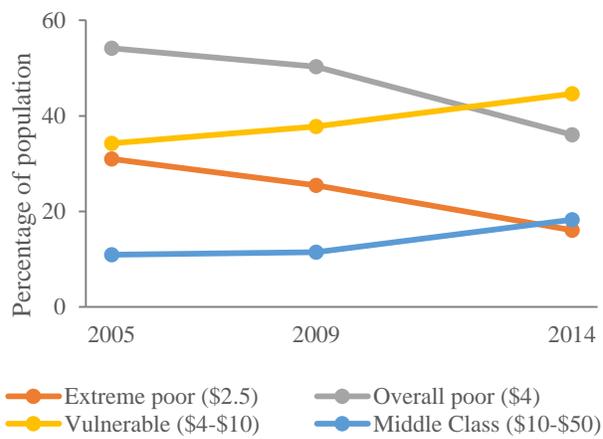
19. **Consistent with the high levels of poverty, Nicaragua’s middle class is one of the smallest in the region.** Higher incomes have contributed to the growth of the middle class—defined as the proportion of individuals with an income between USD 10-50 per day in 2005 PPP—during the last ten years. This group expanded from 11 percent in 2005 to 18 percent in 2014 (Figure 2.14, panel a). However, the share of this group in the total population was one of the lowest in 2014, being only larger than the middle class in Honduras and Guatemala (12 percent and 9 percent, respectively, see Figure 2.14, panel b).

²⁴ Vakis et al. (2016) and Duryea and Robles (2016).

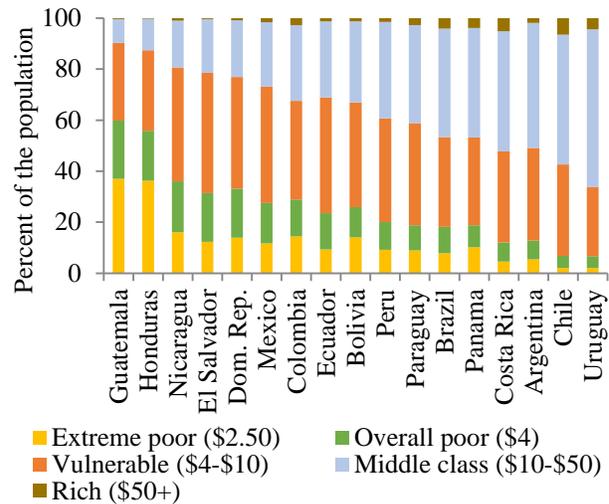
²⁵ The study does not consider Haiti.

Figure 2.14: The middle class in Nicaragua remains one of the smallest groups in LAC

(a) Evolution of economic classes in Nicaragua, 2005–2014



(b) Economic classes in LAC, 2014



Source: SEDLAC data (CEDLAS and the World Bank). See Box 2.1 for definitions.

20. **The largest economic group consists of individuals who are not poor but remain at risk of falling back into poverty if hit by shocks—i.e., “the vulnerable”.** The vulnerable group—those who have an income between USD 4 and USD 10 per day in 2005 PPP—grew from 34 percent in 2005 to 45 percent in 2014. The country has one of the largest vulnerable populations in LAC, ranking fourth in terms of vulnerability.

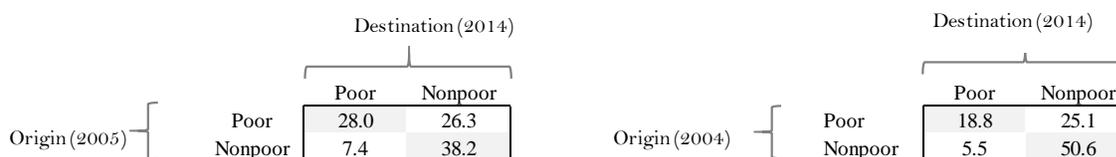
Box 2.3: Mobility into and out of poverty in LAC

In order to measure intra-generational income mobility between two periods, and in the absence of actual longitudinal data covering long periods of time, an innovative technique developed by Dang, Lanjouw, Louto, and McKenzie (2014) was used to construct synthetic panels using two rounds of cross-sectional micro data. Lower and upper bound estimates of income were obtained as lower and upper limits of true per capita income mobility. Cruces et al. (2015) performed a wide range of sensitivity analysis and stress tests in Nicaragua (and two other LAC countries) and confirmed the validity of the technique. Dang and Lanjouw (2014) improved this technique by obtaining point estimates based on a parametric approach. In this analysis, results from Vakis et al. (2016) who applied this parametric approach to all LAC countries between 2004 and 2012 were updated. To obtain income mobility estimates using two cross-sectional surveys, a per capita income model was estimated in the first round using a specification that includes only time-invariant covariates. Parameter estimates from the same model were estimated in the second round of the data and then plugged into the same time-invariant regressors in the first round to obtain an estimate of the (unobserved) second period’s income for the same households surveyed in the first round. See Vakis et al. (2016) for more detailed information on the methodology.

21. **Despite recent poverty reduction, downward income mobility is particularly worrying.** Figure 2.15 presents the transition matrix of poverty status in Nicaragua and LAC for the 2004–2014 period. The figure shows income mobility within generations by measuring

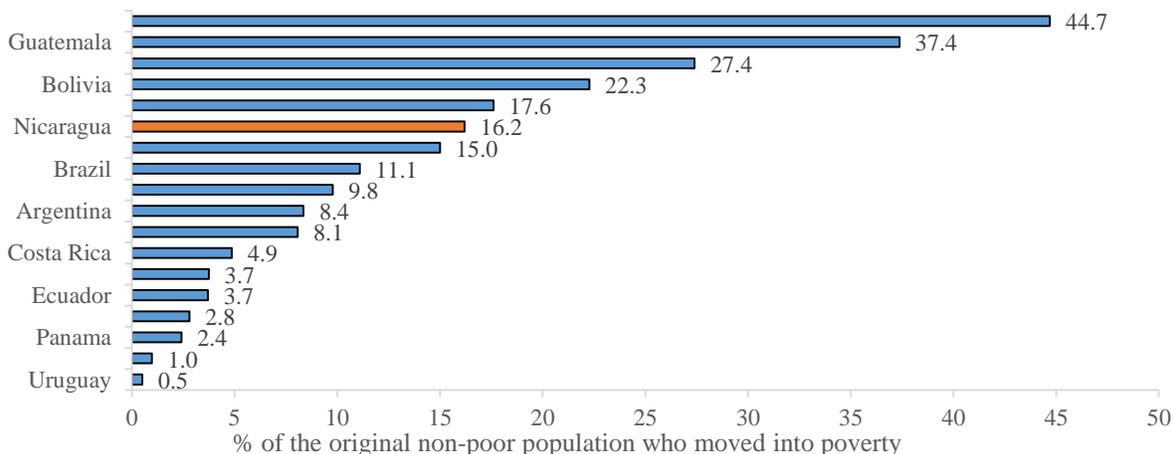
movements into and out of poverty in all LAC countries for which micro data is available.²⁶ As explained earlier, Nicaragua experienced notable upward economic mobility during the last decade: almost half of the initial poor in 2005 (48 percent) rose out of poverty by 2014 (Figure 2.15, panel a).²⁷ However, upward income mobility was lower in Nicaragua than in LAC as a whole: upward mobility out of poverty was almost 10 percentage points below LAC (57 percent) during the last ten years (Figure 2.15, panel b). Moreover, about one in six nonpoor Nicaraguans fell into poverty during the 2005–2014 period, in contrast with just one in ten nonpoor in LAC (Figure 2.16). This result suggests a high vulnerability of the Nicaraguan population to falling into poverty. Indeed, as already noted, the largest economic group in Nicaragua are the vulnerable.

Figure 2.15: Upward income mobility has been significant in Nicaragua in the last decade
 (a) Poverty transition in Nicaragua, 2005–2014 (b) Poverty transition in LAC, circa 2004–2014



Source: Own calculations based on SEDLAC data (CEDLAS and the World Bank). *Note:* This figure presents the decomposition of the population according to individual’s poverty status circa 2004 (2005 in Nicaragua) and 2014. The sum of all cells adds up to 100 percent of the population. Figures were estimated using synthetic panels. See Boxes 2.1 and 2.3 for definitions.

Figure 2.16: One in four nonpoor Nicaraguans fell into poverty during the last decade
 Downward mobility into poverty (% of nonpoor in 2004 who moved into poverty in 2014)



Source: Own calculations based on SEDLAC data (CEDLAS and the World Bank). *Note:* The figure shows the percentage of the original nonpoor in 2004 who entered poverty in 2014, calculated as the ratio between the percentage of nonpoor population in the first period who entered poverty in the second one and the percentage of the nonpoor population in the first period (second row in Figure 2.15). See Boxes 2.1 and 2.2 for definitions.

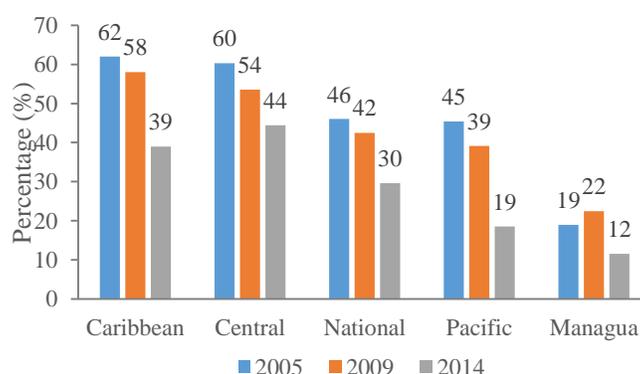
²⁶ Given lack of panel data following individuals over time, the analysis is based on the construction of “synthetic panels” applying an innovative technique that allows the use of cross-sectional data in all LAC countries to define the poverty status of a household in two moments in time. For a detailed explanation, see Box 2.2 and Dang et al. (2014).

²⁷ The percentage of the poor who left poverty is calculated as the ratio between the percentage of poor population in the first period (the sum of the first row of each matrix) and the percentage of the poor who left poverty.

22. **Exposure to climatic shocks further exacerbates household vulnerability and poses additional challenges for preventing individuals from falling into poverty.** As highlighted in Chapter 5, Nicaragua's geographical location makes it prone to high intensity climatic shocks. Climatic shocks affect upward income mobility and tend to perpetuate poverty, which poses an important challenge for Nicaragua given the size of its poor and vulnerable population. A recent study shows that a drought in 1997–1998 and scarce rains in July 2004 increased the likelihood by 10 percent that poor households remain at the bottom of the distribution in Nicaragua.²⁸ Exposure to climate shocks can also have an impact on child development and perpetuate poverty across generations through a reduction in human capital accumulation. For instance, children affected by Hurricane Mitch in Nicaragua in 1998 were about 9 percentage points more likely to be malnourished two years after the shock²⁹ and child labor was more prevalent as a result of the storm in rural areas of the country.

23. **While progress has been made in all regions in Nicaragua, substantial regional disparities persist within the country.** Regional disparities in official poverty rates were significant in 2014 (Figure 2.17). Poverty reduction between 2009 and 2014 was observed in all regions of the country. However, declines in poverty were higher in regions with lower initial poverty rates between 2009 and 2014. In terms of concentration, about half of the poor lived in the Central region and roughly a quarter lived in the Caribbean region in 2014, with the other 25 percent distributed between Managua and the Pacific region. This higher concentration of poverty in certain regions has important implications for poverty reduction going forward. As explained in Chapter 5, many departments of the Central region are located in the Dry Corridor and therefore highly exposed to hydro-meteorological events. Consequently, natural hazards and climate change could eventually intensify poverty conditions in this particular region.

Figure 2.17: There is a high poverty heterogeneity across regions
Consumption-based poverty rate using the official overall poverty line, 2005–2014



Source: 2005, 2009, and 2014 ENMV. *Note:* The figure shows official poverty rates and poverty concentration by region based on per capita household consumption. See Box 2.1 for definitions.

24. **The poor are more likely to be employed in the agricultural sector in rural areas and therefore, more exposed to climatic shocks and natural disasters.** Table 2.1 presents the socioeconomic characteristics of Nicaraguans, which differ considerably between poor and

²⁸ Premand and Vakis (2010).

²⁹ Baez and Santos (2007).

nonpoor households. The table shows that the poor were more likely to live in a male-headed household, have lower levels of human capital, and live in larger families with higher dependency ratios of younger children in 2014. In addition, there are marked differences in income-generating capacity: the poor were more likely to work in the agricultural sector in rural areas, while the nonpoor were working in retail and services, mostly in urban areas. As described in Chapter 5, increasing climate variability, droughts, and excessive rains are expected to have greater impact in the agricultural sector in rural areas by reducing productivity due to loss of crops, ultimately exacerbating poverty and vulnerability in Nicaragua.

Table 2.1: Poor and nonpoor have very different characteristics

Characteristics in 2014	Poor	Nonpoor	All
<i>Household</i>			
Median monthly per capita income (2005 USD PPP)	79.8	220.1	161.0
Number of household members	5.0	4.1	4.4
Proportion of members (Ages 0–14)	38.3	26.9	31.0
Proportion of members (Ages 15–24)	19.9	21.6	21.0
Proportion of members (Ages 25–65)	37.0	46.0	42.7
Proportion of members (Ages 66+)	4.8	5.6	5.3
Households without labor income (%)	7.4	5.7	6.2
<i>Characteristics of the main earner</i>			
Average age	39.5	41.0	40.5
Average years of education	4.8	8.2	7.1
Female (%)	22.5	32.5	27.8
Proportion living in rural areas (%)	59.7	31.0	40.1
<i>Employment Sector</i>			
Construction and utilities	6.2	10.7	9.5
Manufacturing	10.2	12.7	12.0
Primary sector	50.8	21.9	29.7
Retail	17.5	28.1	25.2
Services	15.3	26.6	23.5

Source: SEDLAC data (CEDLAS and the World Bank). *Note:* This table shows summary statistics according to the poverty status of the individuals. Characteristics of the main earner refers to the household head of poor and nonpoor households, respectively. The distribution of the employment sector was calculated on a subsample of employed individuals (either poor or nonpoor), while household characteristics were calculated on all the individuals of the household survey. See Box 2.1 for definitions.

Knowledge Gap: What is the poverty rate at a higher level of geographical disaggregation?

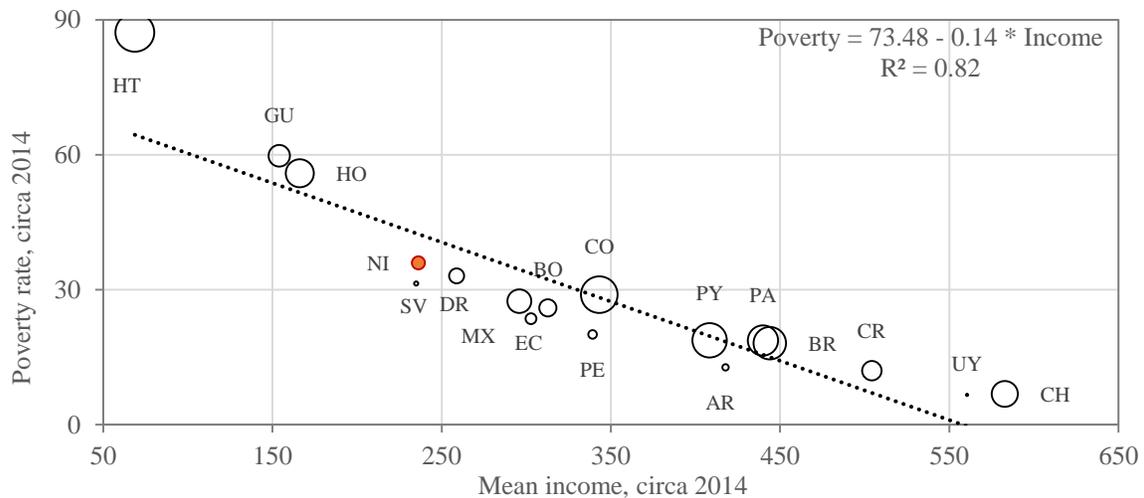
The 2014 EMNV is representative only at the level of the four regions: Central, Caribbean, Pacific, and Managua. Figure 2.17 shows that there exists a high poverty heterogeneity within Nicaragua. Therefore, it is crucial to estimate poverty measures at a higher level of geographical disaggregation to allow for measuring poverty in geographical domains—within representative regions—that are relevant for poverty diagnostic (e.g., municipalities in the Dry Corridor). Expanding evidence on interventions that decrease poverty and inequality requires a greater investment in filling data gaps and increasing its availability, improving data quality, and maintaining data comparability over time. The latest census data and poverty maps are from 2005. Therefore, new census data is urgently needed to estimate poverty at a higher level of geographical disaggregation. Annex 2 presents in more detail additional data gaps.

2.3. Poverty is lower than in countries with similar incomes

25. **Although it remains high, the poverty rate is lower than that of the poorest neighboring countries.** Despite being among the poorest countries in LAC according to income-based poverty measures, Nicaragua's poverty rate was significantly lower than the poorest countries in Central America, namely Guatemala and Honduras (Figure 2.1). About 36 percent of Nicaraguans were poor in 2014, a poverty rate more than 30 percent lower than in the other two countries.

26. **A more egalitarian income distribution might explain why poverty is lower than in other neighboring countries.** Income inequality has negative consequences for poverty levels. The poverty rate will increase each time a country moves from a given income distribution to a more unequal one while preserving the same mean income. In other words, higher income inequality will translate into a higher poverty rate for a given value of mean income.³⁰ Figure 2.18 provides some evidence for LAC countries of the relationship between poverty and income (both measured in 2005 PPP) at different levels of inequality in 2014. Two stylized facts emerge. First, the figure shows a strong negative correlation between poverty and mean income: poverty is higher at lower income levels.³¹ Second, inequality captured by the size of the circles³² has a negative impact on poverty at a given mean per capita income: smaller circles (lower inequality) tend to be concentrated below the regression line, while bigger circles (higher inequality) are on or above the line with few exceptions.

Figure 2.18: Higher income inequality translates into higher poverty at a given income
Income poverty (\$4 poverty line in 2005 PPP), mean income (in 2005 PPP) and Gini coefficient in LAC, circa 2014



Source: SEDLAC data (CEDLAS and the World Bank). Note: The size of the circles captures the inequality ranking.

27. **Nicaragua is one of the most egalitarian countries of LAC while its level of inequality is high compared to the rest of the world.** Income inequality in the country is relatively low if

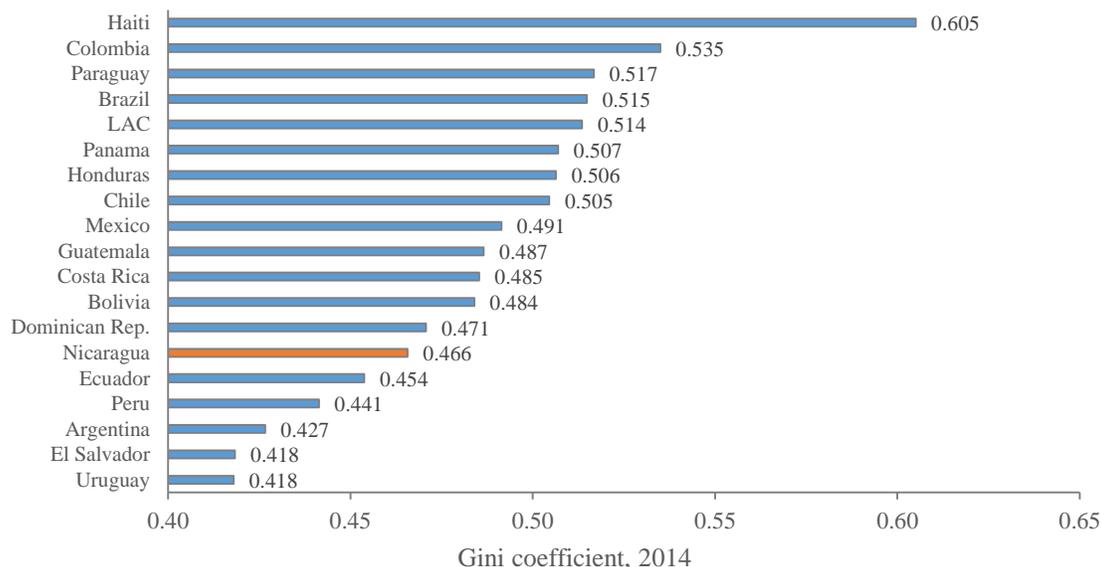
³⁰ De Ferranti et al. (2004).

³¹ Mean incomes explain 82 percent of the variability in poverty rates ($R^2 = 0.82$).

³² Circles are proportional to the inequality ranking based on the Gini coefficient.

compared with other LAC and Central American countries (Figures 2.18 and 2.19). Nicaragua's Gini coefficient is the second lowest of Central America, just after El Salvador and considerably lower than LAC's Gini. This relatively low inequality helps explain why the proportion of poor Nicaraguans is lower than what could be expected for countries with similar development (namely the regression line in Figure 2.18). The low level of inequality might also have played a key role in the reduction of poverty observed in Nicaragua in recent years, since countries with lower initial inequality are generally better able to translate economic growth into higher rates of poverty reduction.³³ Chapter 4 analyzes other potential factors that could have contributed to the relatively low levels of income inequality in Nicaragua. It is worth clarifying that, despite having one of the lowest Gini coefficient in LAC, at 0.47 the coefficient is hardly low by international standards, as the country stands out as one of the most unequal in the world. A recent study shows that Nicaragua is among the top 20 most economically unequal economies in the world out of 101 countries for which inequality data are available.³⁴

Figure 2.19: Income inequality is one of the lowest in LAC
Gini in LAC, circa 2014



Source: SEDLAC data (CEDLAS and the World Bank). See Box 2.1 for definitions.

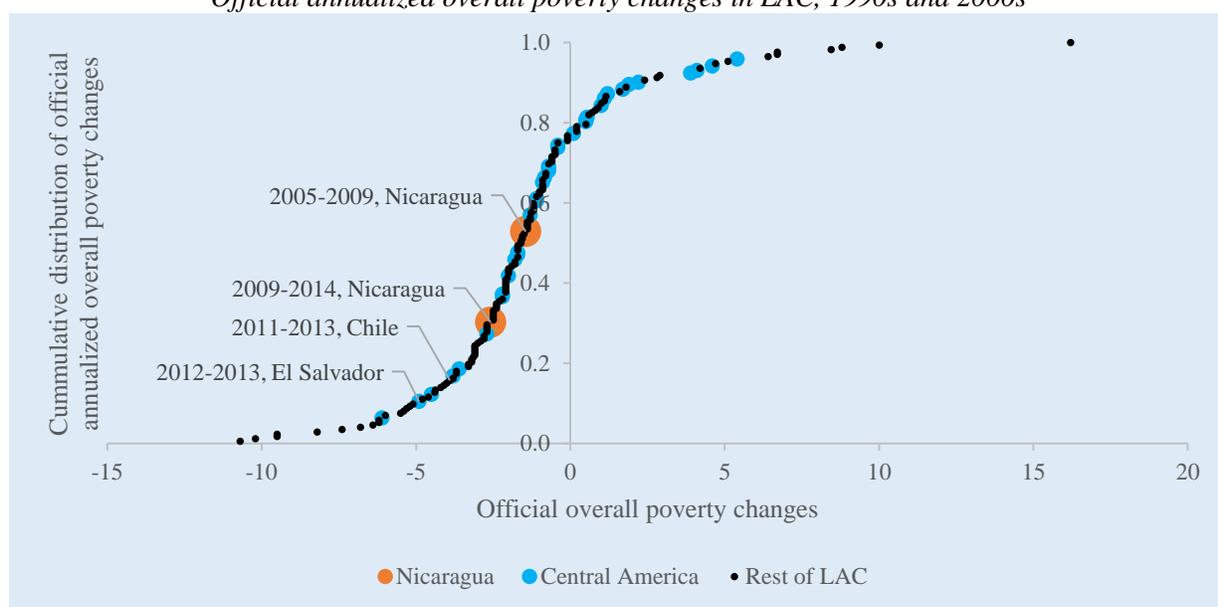
³³ Bourguignon (2003).

³⁴ According to World Bank (2016c), eight LAC countries are among the tenth most unequal in the world (Haiti, Brazil, Chile, Colombia, Costa Rica, Honduras, Mexico, and Panama) and Nicaragua ranks as having the seventeenth most unequal economy in the world.

Box 2.4: How does poverty reduction in Nicaragua compare with other LAC countries?

Since the sustained poverty reduction of the last ten years is prone to questions, we compare it with other official poverty changes in LAC since 1990. We find that the reduction of poverty in Nicaragua has been lower than many other episodes of poverty reduction in the LAC region. About a third of all the annualized official poverty reductions³⁵ in LAC countries in the 1990s and 2000s are higher than the overall official poverty reduction in Nicaragua between 2009 and 2014 (Figure B.2.4).³⁶ For instance, overall poverty decreased by more than six percentage points in El Salvador between 2012 and 2013 and by about four percentage points (annualized) in Chile between 2011 and 2013. This means that the recent drop in the poverty rate in Nicaragua is not an unusual event considering the distribution of poverty changes in the region in the last 25 years.

Figure B.2.4. Poverty reduction in Nicaragua falls into the trends
Official annualized overall poverty changes in LAC, 1990s and 2000s



Source: WDI. *Note:* The figure shows the official annualized overall poverty changes in LAC in the 1990s and 2000s. The vertical axis shows the cumulative distribution of poverty changes in LAC countries for which data is available in the 1990s and 2000s, while the horizontal axis shows annualized poverty changes.

³⁵ Considering only annualized official poverty estimates for which poverty data is available.

³⁶ This number is even more impressive if both declines and increases in poverty rates are taken into consideration: about 40 percent of poverty changes—reductions and increments—in LAC countries since 1990 are higher in absolute terms than the one experienced by Nicaragua between 2009 and 2014.

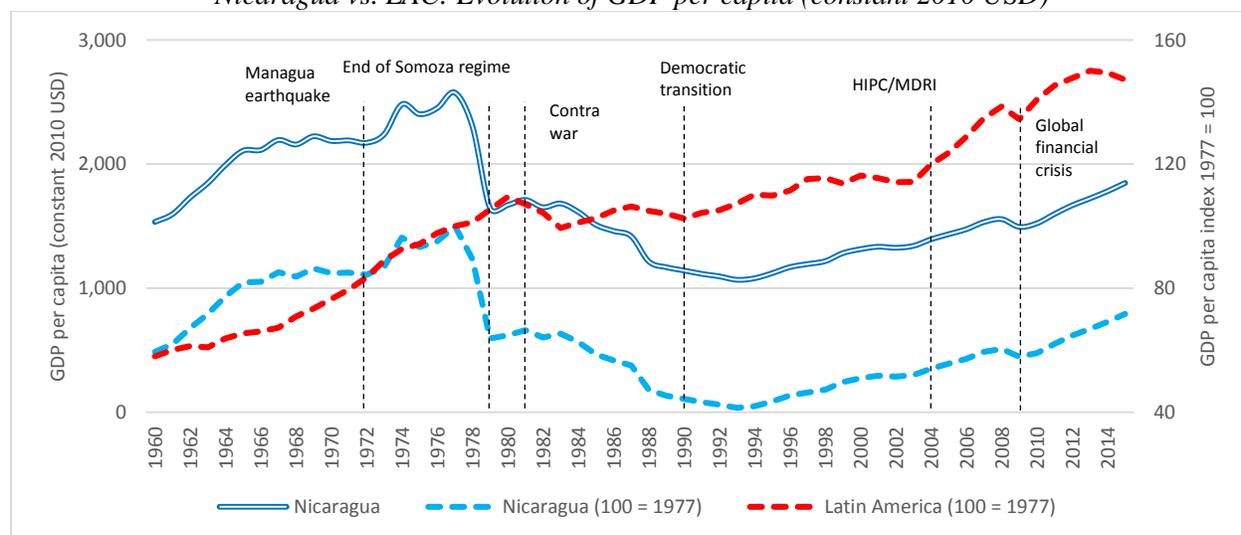
3. GROWTH

Nicaragua has experienced a remarkable economic turnaround since 1994, resulting mainly from three factors: i) improved macroeconomic management and debt relief; ii) reforms aiming at transforming Nicaragua back into a market economy; and iii) demographic change that reduced dependency ratios and increased the share of the working-age population. Over a longer period, however, Nicaragua has not been able to keep pace with comparators on a per capita income basis. So far, this economic turnaround has relied primarily on factor accumulation. To accelerate growth over the medium-term, Nicaragua needs to make improvements in human capital which will enable it to benefit fully from the ongoing demographic transition. Moreover, the country needs to continue improving physical capital accumulation crowding in private sector activity and reducing the large infrastructure gap (mainly through investment in the road network and the electricity sector). However, a model based on factor accumulation alone will not be enough to lift a significant share of the population out of poverty and absorb new entrants into the labor market. Moving to a higher growth trajectory will require taking additional steps to enhance the competitiveness of its economy. This will require improvements in institutions and reform to the public sector to make it more efficient. It will also involve enhancing the investment climate and business regulations and addressing challenges to lift the competitiveness of firms, including those in the agricultural sector.

3.1. Introduction

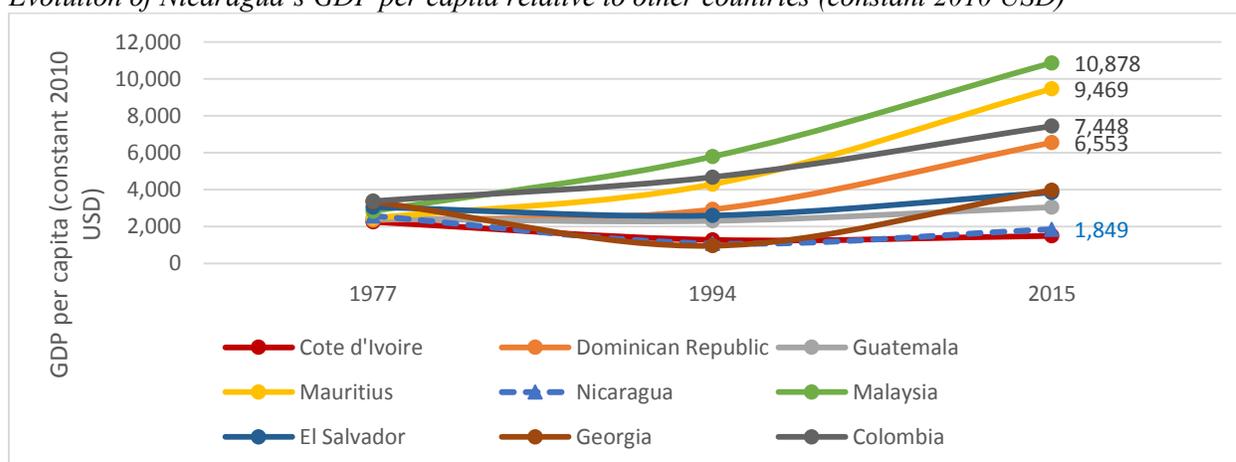
1. With a population of 6.1 million and a total area of 130,370 sq. km, Nicaragua is the least densely populated nation in Central America. Population is heavily concentrated in the Pacific and Central regions. About 30 percent of the population lived below the official poverty line in 2014 and 8 percent was considered extremely poor. GDP and GNI per capita (Atlas method) were USD 2,087 and USD 1,940 in 2015, only ahead of Haiti.

Figure 3.1: Nicaragua’s timeline of GDP per capita
Nicaragua vs. LAC: Evolution of GDP per capita (constant 2010 USD)



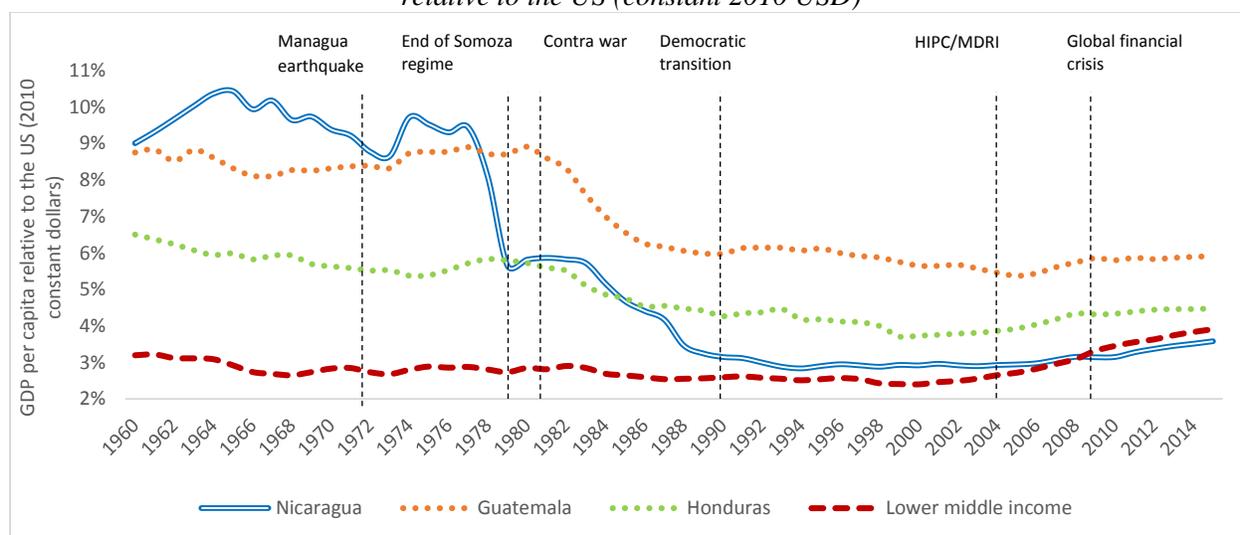
Source: Authors’ calculations based on WDI (2017).

Figure 3.2: Nicaragua has not kept pace with other countries with similar GDP per capita in 1977
Evolution of Nicaragua's GDP per capita relative to other countries (constant 2010 USD)



Source: Authors' calculations based on WDI (2017).

Figure 3.3: Nicaragua's timeline of income convergence
Nicaragua, Guatemala, Honduras and lower middle income countries: Evolution of GDP per capita relative to the US (constant 2010 USD)



Source: Authors' calculations based on WDI (2017).

2. **Since mid-1990s, real output more than doubled, yet in a longer-term perspective, Nicaragua has not been able to keep pace with comparators on a per capita income basis.** Annual real GDP growth averaged 4 percent, comparing favorably with LAC but trailing that of lower middle income countries. However, GDP per capita contracted on average by -0.1 percent over the last 50 years, contrasting with a 1.7 percent average annual increase in LAC. Putting it differently, Nicaragua's GDP per capita fell over the past 50 years, whereas it more than doubled for LAC (Figure 3.1). Figure 3.2 shows Nicaragua's performance vis-à-vis other countries that had similar GDP per capita levels in 1977. In that year, Nicaragua had similar income to Guatemala and the Dominican Republic in LAC, Mauritius in Africa, and Malaysia in Asia. As of 2015, the country had the second lowest income in LAC, just above Haiti. Between 1977 and 2015,

Malaysia's and Mauritius' GDP per capita increased almost four-fold, and Dominican Republic's almost three-fold. In contrast, Nicaragua's GDP per capita fell by 28 percent.

3. **Nicaragua's income per capita has also diverged relative to advanced countries.** In 1960, GDP per capita in Nicaragua was roughly \$1,535 (in 2010 constant dollars) or one-eleventh of that in the US (Figure 3.3). As of 2015, it was only 3.6 percent, showing a significant divergence in relative per capita income. Moreover, today's group of upper middle income countries had, on average, a relative GDP per capita of 8 percent of that of the US. In the early 1960s, Nicaragua had a higher standard of living than the average upper middle income country of 2015. By 2015, on average Nicaragua trailed both upper middle income (14.7 percent) and lower middle income countries (3.9 percent) in terms of relative income to the US. This places Nicaragua's growth path well below countries that had similar or lower income levels 50 years ago. The next section provides a historical perspective to understand the developments that led to the observed divergence of income per capita in the 1970s and 1980s.

3.2. A historical perspective to understand where the country stands today

4. **The Somozas ruled Nicaragua for over four decades until 1979 with growth that mostly benefited the country's elite.**³⁷ Between 1950 and 1977, Nicaragua's GDP per capita doubled to USD 3,349, outpacing the rest of LAC.³⁸ But the benefits of such growth failed to be shared among the vast majority of the population as wealth and land ownership were concentrated in a few hands, including the Somoza family.³⁹ According to a World Bank Report of 1973, "*the benefits of Nicaragua's substantial economic growth accrued to a small share of the population. The distribution of agricultural land is extremely concentrated [. . .]. A few small groups control most profitable industrial, financial and commercial ventures.*"⁴⁰ Land ownership concentration increased from the 1950s through the early 1970s (Booth, 1991, Brockett, 1988), due to, among other factors, government policies that favored agro-industries tied to the Somozas.⁴¹

5. **Social indicators of that period lagged behind LAC, impacting to some extent social outcomes of today.** In 1970, average life expectancy at birth was about 54 years, and under-five mortality was the second highest in Central America. Primary education completion was just 25 percent, whereas almost 48 percent of primary school-age children were not enrolled in school (Table 3.1). Over half of the population 25 years and older had no education attainment, and only 3.8 percent completed secondary education in 1970. With 2.7 years of schooling on average, Nicaragua trailed both developing countries (3.2) and the regional average (4.1).⁴²

³⁷ Following the assassination of Sandino in 1934, General Anastasio Somoza García took power in 1936 with the support of the National Guard. The revolutionary triumph of the FSLN forced Anastasio Somoza Debayle, his younger son, to flee the country in 1979.

³⁸ In 1990 international Geary-Khamis dollars (Maddison dataset).

³⁹ Nicaragua's GDP per capita grew on average by 3.2 percent over 1961–77 (WDI, 2016). Confiscations following the victory of the Sandinista revolution provide a rough idea of the Somozas wealth: between 1,500–2,000 farms covering an estimated 800,000–1,000,000 ha located in the Pacific region generally in the best crop and pastureland (World Bank, 1981).

⁴⁰ Long-term Economic Growth and Prospects of Nicaragua (1973), Report 197a-NI, World Bank.

⁴¹ Figures from the 1970 Agriculture Census indicate that large farms (larger than 350 ha) represented 1.4 percent of the total number farms in the country, but accounted for 41.2 percent of total agricultural land. Small and medium farms (less than 7 ha) represented 50.8 percent of total farms but less than 3.5 percent of total agricultural land.

⁴² Education Attainment Dataset, Barro and Lee (2013).

Table 3.1: Selected social indicators, 1970

	GNI per capita (constant 2010 USD)	Life expectancy at birth (years)	Mortality rate, under-5 (per 1,000 live births)	Children out of school (% of primary school age)	Primary completion rate, (% of relevant age group)
Costa Rica	3,647.7	66.5	76.4	12.3	76.5
El Salvador	2,543.3	55.0	155.1	35.1	..
Guatemala	1,897.7	52.1	174.1	50.8	24.0
Honduras	1,267.7	52.5	147.9
Nicaragua	2,013.1	53.6	171.4	47.6	25.3
Panama	3,150.7	65.6	67.7	25.6	64.4
LAC	4,475.2	60.1	121.4	17.7	79.1
Lower MICs	568.5	50.9	199.8	38.9	51.9

Source: WDI (2016).

6. **In 1972, an earthquake struck Managua, destroying most of the capital city and leaving 6,000–8,000 dead and 20,000 injured.**⁴³ In addition to the staggering human cost, replacement costs of physical assets destroyed by the earthquake amounted to around 35 percent of GDP in 1972. About 32,000 housing units (or 45 percent of the housing in Managua) were destroyed and all of the central zone of the city was rendered unusable.⁴⁴ Somoza assumed control of the relief and reconstruction effort, but a significant portion of the international relief aid was illegally appropriated, mismanaged and redirected to his family and members of the National Guard.⁴⁵ This, together with a number of other political pressures that were building, precipitated and accelerated the fall of the Somoza regime.⁴⁶

7. **The armed conflict in the 1970s that led to the fall of the Somoza regime was extremely costly.** Guerrilla actions by the FSLN took place throughout the 1960s and 1970s, with a final offensive against the Somoza regime in 1979. Some figures place human casualties of the conflict as high as 35,000 (Box 3.1). Serious damage was also inflicted on the country's productive capacity, with direct damage to physical structures, equipment and inventories estimated at about 12 percent of GDP. Capital flight prior to and during the peak of the conflict resulted in many insolvent banks. The war also caused significant damage to many urban centers, in particular Estelí, León, Masaya and Managua. The slaughter of cattle and smuggling of herds to neighboring countries also impacted agricultural output for several years.⁴⁷ By 1980, GDP had fallen by almost 30 percent over three years, whereas GDP per capita declined by 35 percent in real terms.

8. **The decade that followed was characterized by political strife and economic mismanagement, build-up of massive macroeconomic imbalances, and a steady contraction of real output.** A five-member Government of National Reconstruction took over in 1979. The

⁴³ Long-term Economic Growth and Prospects of Nicaragua (1973), Report 197a-NI, The World Bank.

⁴⁴ The Effects of the December 23 Earthquake upon the Economic Position and Prospects of Nicaragua (1973), Report 139-NI, The World Bank.

⁴⁵ Kinzer (2007), p. 33.

⁴⁶ The assassination in 1978 of conservative opposition leader Pedro Joaquín Chamorro, editor and publisher of the newspaper *La Prensa*, and the suspicion that Somoza and the National Guard were behind his assassination ended up fracturing the already fragile support of business groups to the Somoza regime.

⁴⁷ "Nicaragua: The Challenge of Reconstruction," The World Bank (1981), Report No. 3524-NI.

new Government embarked on emergency measures, including confiscation of land, commercial, and industrial holdings of the Somoza family and its associates, and followed an extensive process of public sector reorganization.⁴⁸ Inadequate economic policies rendered market institutions weak, trade controlled by state trading companies, a bankrupt domestic financial system, and compromised property rights. This was compounded by adverse terms-of-trade and climate shocks that resulted in large production losses. Civil unrest and armed conflict against the counterrevolutionary movement (Contra War) also dominated the 1980s. Military spending to respond to the contra-revolutionary insurgency and expansion of public spending in social areas gave rise to major fiscal and external imbalances and the rapid accumulation of public external debt (which reached 600 percent of GDP by 1990). Public sector deficits averaged 20 percent and current account deficits over 30 percent of GDP between 1985 and 1990, while hyperinflation reached around 10,205 percent in 1988.⁴⁹

Box 3.1: Conflict and Development

Nicaragua experienced two armed conflicts in the recent past. The conflict between the FSLN and the Somoza government led to 10,000–35,000 deaths. Clodfelter (2002) presents the most detailed battle information, with total deaths amounting to 10,000, of which at least 7,000 were civilians. Leitenberg (2006) places the casualty estimate much higher at 35,000, with 25,000 civilian deaths. The civil war that followed (Contra War) from 1981–1989 led to 10,000–43,000 fatalities. Clodfelter (2002) places the number of deaths at over 30,000, whereas Brogan (1998) points to 10,000 casualties. The Correlates of War database (Sarkees, 2000) suggests a much higher toll (greater than 43,000).

As the 2011 World Development Report (WDR) notes, the costs of violence are enormous for countries and their citizens, both in terms of human suffering and social and economic consequences, with the most vulnerable groups in society being frequently the most affected. On average, the 2011 WDR suggests that a country experiencing major violence over a period (1981–2005) had a poverty rate 21 percentage points higher than a country that saw no violence. The disruptive effect of violence on development and the widening gap between countries affected by violence and those not affected are deeply troubling. Poverty reduction in countries affected by major violence is on average nearly a percentage point slower per year relative to countries not affected by these episodes (Keefer, 2012). After a few years of major violence, the contrast can be quite stark: countries affected by violence throughout the 1980s lagged in poverty reduction by 8 percentage points, and those that had experienced major violence throughout the 1980s and 1990s lagged by 16 percentage points.

Economic costs are also immense. A major episode of violence can wipe out an entire generation of economic progress. The average cost of civil war is equivalent to more than 30 years of GDP growth for a medium size developing country. Moreover, trade levels take on average 20 years to recover after major episodes of violence.

Source: World Bank 2011.

⁴⁸ A World Bank report of 1981 indicates that “*Commercial banks and insurance companies were nationalized, and new ministries were established to control some of the country’s domestic and foreign trade. Moreover, the Government rapidly expanded the scope and coverage of social programs, particularly in the areas of education and health. The new regime endorsed a mixed economy, in which the Government will be involved in a variety of directly productive activities, and will closely regulate the economic process. The role of the State in ownership of productive assets has been radically changed. In sum, 37 percent of the country’s GDP in 1980 was produced in state-controlled institutions.*” (Nicaragua: The Challenge of Reconstruction, The World Bank (1981), Report No. 3524-NI, page i.).

⁴⁹ Hyperinflation peaked in January 1989, when it reached 43,000 percent (Ocampo, 1991).

9. **When the newly elected democratic government took office in 1990, Nicaragua was coming out of a decade-long economic stagnation.** The Contra War left over 30,000 people dead, a damaged stock of physical infrastructure, growing unmet needs of the population and a large gap in the provision of basic services. By 1993, about half of Nicaraguans were living in poverty and one-fifth in extreme poverty. Economic output was around 59 percent lower than prior to the Sandinista revolution. In 1991–1992, the government of Barrios de Chamorro began implementing a comprehensive macroeconomic stabilization program. With an IMF supported program, inflation was brought down to single digits by the second half of 1991 and fiscal deficits were reduced by two-thirds to 10 percent of GDP. The Government succeeded in clearing arrears with the World Bank and the Inter-American Development Bank and reached an agreement with Paris Club creditors in 1991.⁵⁰ The impact of the protracted civil war, large accumulated macroeconomic imbalances, and unmet infrastructure and service delivery needs are still felt today.

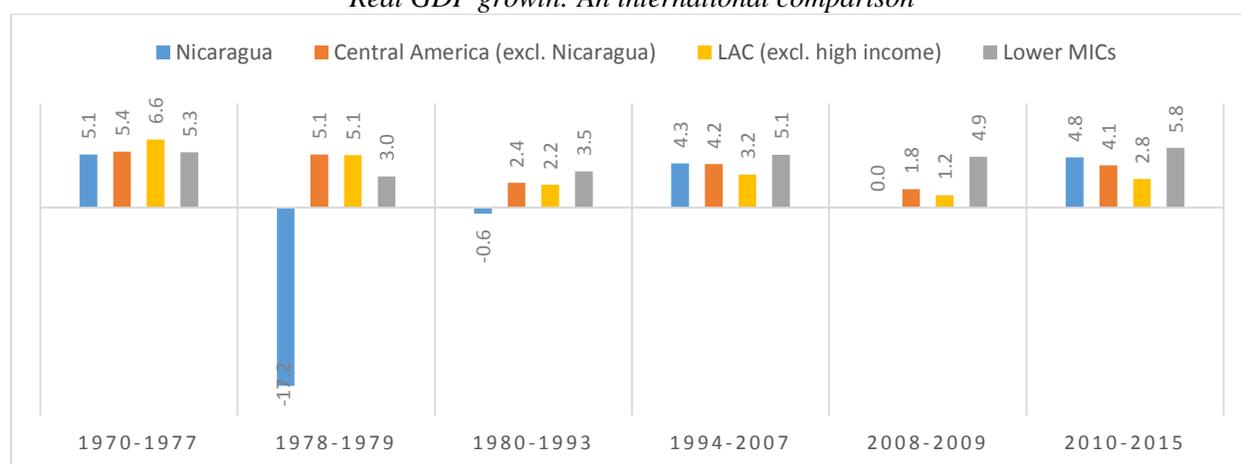
3.3. Recent growth dynamics and analysis

Factors behind the rebound

10. **Since the country’s democratic transition in the early 1990s, Nicaragua has experienced a remarkable economic turnaround.** Real GDP growth averaged 4 percent whereas GDP per capita grew by 2.5 percent per year. Between 1994 and 2015, GDP per capita grew by 71 percent in Nicaragua while it only expanded by 34 percent in LAC. However, progress has been below that experienced (on average) by lower middle income countries, which doubled their GDP per capita over the same period (Figure 3.4). Nicaragua’s growth has been particularly strong since 2009. Growth differences based on the best single break point in trend (1990–2015) point toward growth acceleration post-2009 (Table 3.2). Despite steady growth, with the only contraction occurring at the onset of the global financial crisis in 2009, GDP per capita remained some 28 percent lower in 2015 relative to 1977 levels.

Figure 3.4: Nicaragua’s growth has been particularly strong since 2009, but still trails the average of countries in the same income group

Real GDP growth: An international comparison



Source: WDI (2017).

⁵⁰ Nicaragua: Country Economic Memorandum 1994, World Bank (1994), Report No. 12066-NI.

Table 3.2: Best single break point in trend for countries in Central America (1990–2015)

	Break-point year	<i>t</i> -statistic	Growth before breakpoint	Growth after breakpoint	Growth differential w/ US before breakpoint	Growth differential w/ US after breakpoint
<i>In constant 2010 US dollars</i>						
Costa Rica	2006	-7.97	2.69%	2.99%	0.70%	2.43%
El Salvador	1994	-2.68	4.79%	2.04%	4.08%	0.52%
Guatemala	2003	-4.64	1.44%	1.32%	-0.45%	0.34%
Honduras	2004	-3.43	1.04%	2.30%	-0.86%	1.40%
Nicaragua	2009	-6.25	1.76%	2.52%	0.03%	1.91%
Panama	2003	-4.23	2.40%	5.73%	0.50%	4.75%

Source: Authors' calculations based on WDI (2016).

Note: *t*-statistic corresponds to the Zivot-Andrews unit root test allowing for a single break in intercept and trend.

11. **This economic turnaround resulted mainly from three factors.** These include i) improved macroeconomic management and debt relief; ii) reforms aiming at transforming Nicaragua back into a market economy; and iii) demographic change. Part of the rebound could also be attributed to the post-conflict recovery from a relatively low base. This was fostered by good macroeconomic management and debt relief that created fiscal space for spending on investment and social services. Moreover, the gradual normalization of production and economic activity, rebuilding of physical capital, and ongoing demographic changes played an important role. These issues are discussed in more detail below.

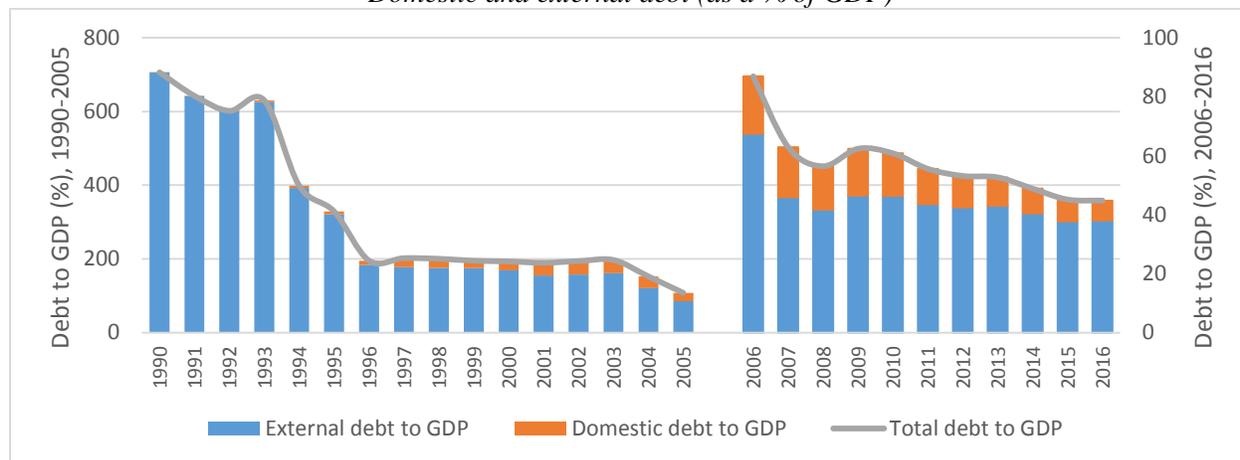
12. **Nicaragua's economic management improved considerably over the past two decades.** The country maintained a strong commitment to macroeconomic stability and prudent fiscal policies. The exchange rate policy has placed an emphasis on price stability and predictability in a highly *de facto* dollarized economy. The preannounced rate of devaluation of 5 percent of the crawling peg regime has been unchanged since 2004. On the fiscal side, the combined public sector deficit averaged 0.5 percent of GDP per year since 2006. Several tax reforms have brought additional resources to the Government, helping finance the increase in expenditures. Public investment has gradually increased over time as a percentage of GDP, from 4.1 percent in 2006 to 6.9 percent in 2015, starting to fill some of the gaps in public infrastructure. On the structural side, the state's participation in the economy has declined since the 1990s.

13. **Debt relief played a critical role in freeing up fiscal space for social and infrastructure spending and supporting macroeconomic stability.** Nicaragua reached completion point in January 2004, and became eligible for debt relief under the MDRI in January 2006.⁵¹ Total debt forgiveness in present value terms as of the Decision Point amounted to USD 3.3 billion under the HIPC initiative, and assistance under HIPC and MDRI in nominal terms was USD 4.5 billion and USD 1.9 billion, respectively. Overall public external debt went from 160.8 percent of GDP in 2003 to 46 percent of GDP by 2007. Since then, public external debt declined to 38.1 percent of

⁵¹ See *Enhanced HIPC Initiative Completion Point Document* and <http://www.imf.org/en/news/articles/2015/09/14/01/49/pr05299>.

GDP by 2016 (Figure 3.5). The lower debt burden allowed Nicaragua to allocate less resources to debt service payments and increase spending in other priority areas.⁵²

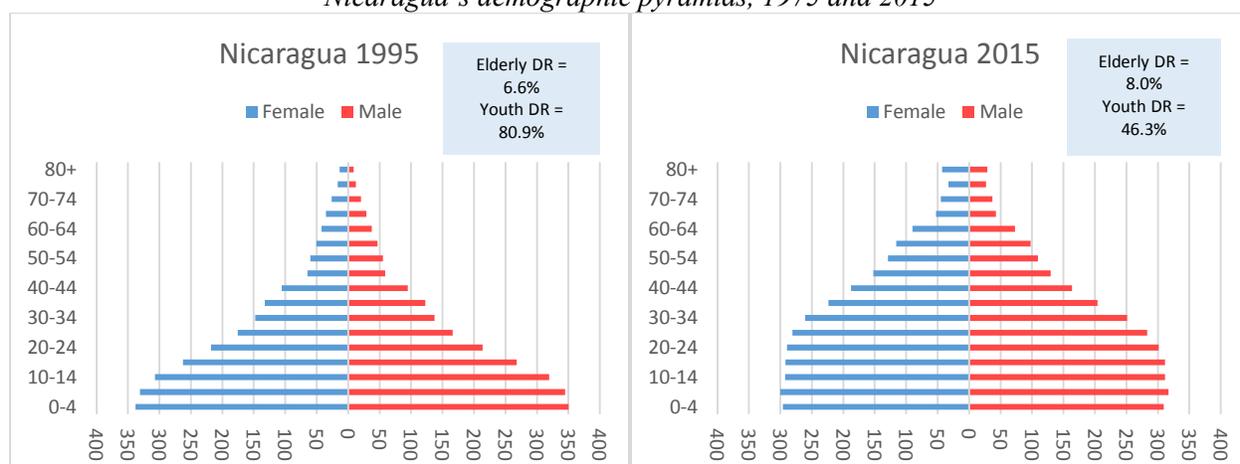
Figure 3.5: Debt relief played a critical role in enabling fiscal space
Domestic and external debt (as a % of GDP)



Source: Central Bank of Nicaragua (2017).

14. **Demographic changes have also contributed to supporting this rebound in economic growth.** Declining fertility rates resulted in a reduction of the young dependency ratio and an expansion of the share of the population of productive age (15–64) (Figure 3.6). The resulting increase in labor supply contributed positively to faster growth and is expected to continue supporting growth. Nicaragua’s working-age population increased almost threefold over the past 40 years (or by about 2.5 million persons). Today, 50 percent of the population is under 25 years old.

Figure 3.6: Declining fertility rates resulted in a fall in the dependency ratio and an expansion of the share of the population of productive age (15–64)
Nicaragua’s demographic pyramids, 1975 and 2015

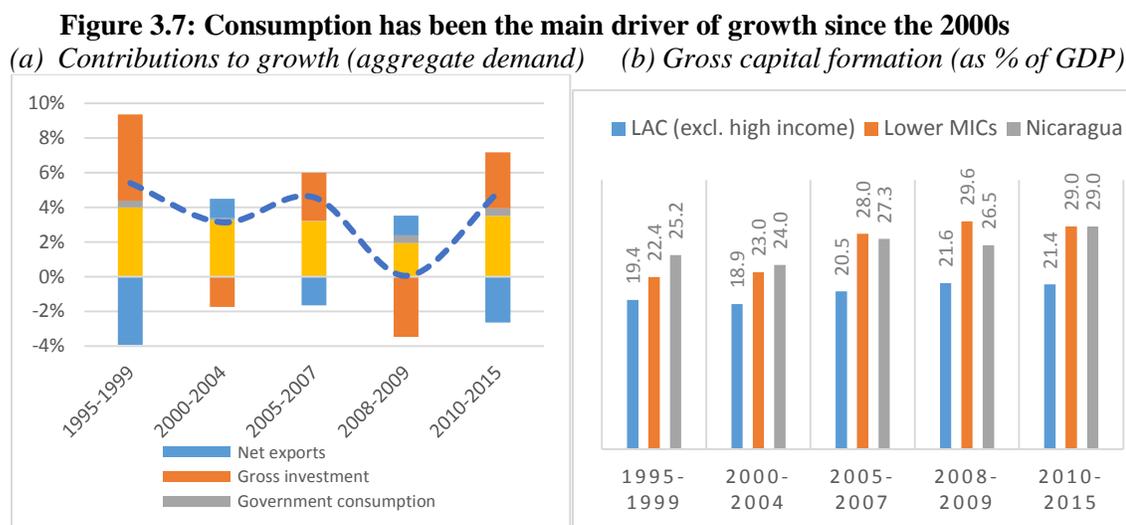


Source: Authors’ calculations based on United Nations Population Statistics (2015).

⁵² IMF (2016a): HIPC Initiative and MDRI—Statistical Update.

Drivers of growth

15. **Consumption has been the main driver of growth in Nicaragua since the 2000s.** Household consumption has been supported by large remittance flows, which averaged roughly 9.7 percent of GDP since 2000. As of 2015, consumption share of output accounted for 95 percent of GDP.⁵³ Investment, on the other hand, has been the most volatile component of aggregate demand (Figure 3.7, panel a). In the period that followed the Global Financial Crisis (2010–15), Nicaragua’s investment to GDP ratio averaged 29 percent of GDP, which is comparable to other lower middle income countries and one of the highest in LAC (see Figure 3.7, panel b).⁵⁴ Net exports’ contribution to headline growth between 2010 and 2015 has been negative, as import growth—fueled by a large oil import bill and strong consumption and investment spending—outpaced export growth. The resulting large trade and current account deficits (22.5 percent and 9.7 percent of GDP over 2010–2015) highlight important vulnerabilities arising from the external side and the need for measures to improve the country’s export competitiveness and reduce its dependency from fossil fuel imports.



Source: Macroeconomic Statistics Yearbook 2015, Central Bank of Nicaragua and WDI (2017).

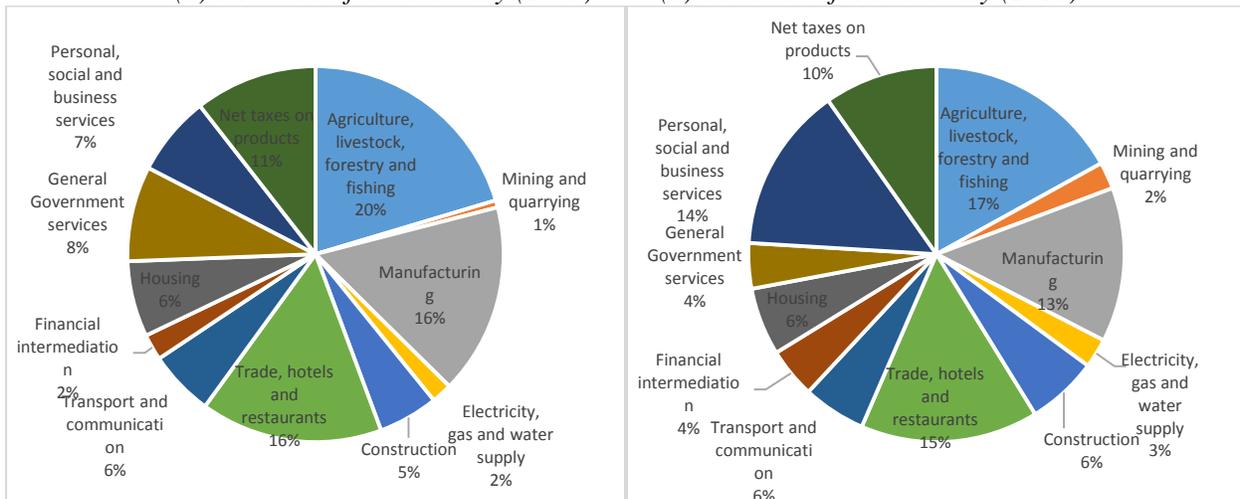
16. **Agriculture has been a key sector for the Nicaraguan economy.** Agriculture, livestock, forestry and fishing accounted for 17 percent of GDP, followed by trade, hotels and restaurants (15.3 percent); personal, social and business services (14.3 percent); and manufacturing (13.3 percent) (Figure 3.8, panel a, 3.8, panel b). In spite of its declining relative weight over the past two decades, agriculture continues to be a key sector for the Nicaraguan economy (Figure 3.9): the sector still accounted for 15.8 percent of goods exports over 2010–2015, and employment in agriculture comprised about 30 percent of total employment (about 764,000 persons) in 2014.⁵⁵ This underscores the important role the sector can play uplifting both growth and exports, and improving the livelihood of the majority of rural population.

⁵³ This figure includes both government (9 percent) and private consumption (86 percent). Source: Macroeconomic Statistics Yearbook 2015, Central Bank of Nicaragua.

⁵⁴ In Central America, Nicaragua only trails Panama (43.6 percent).

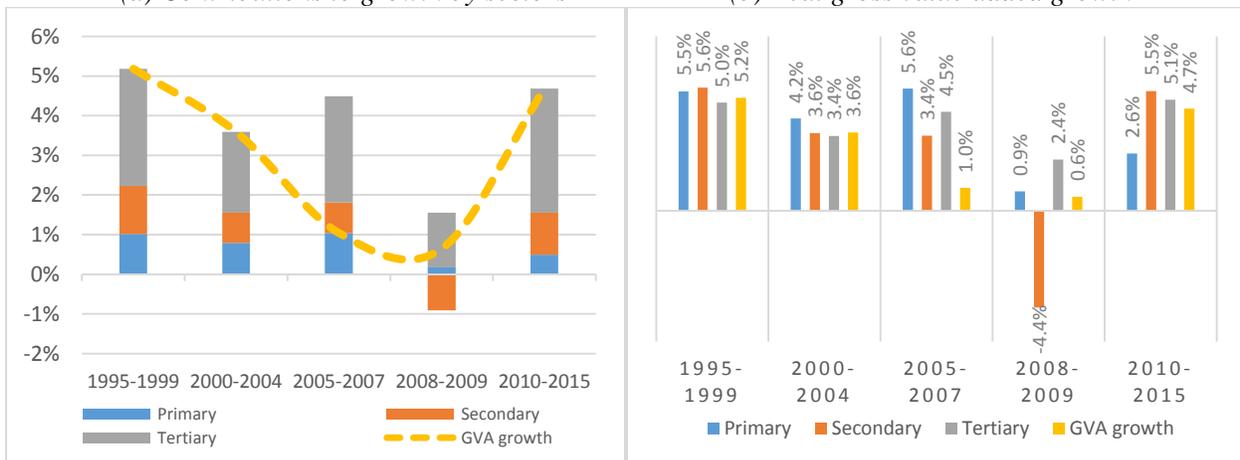
⁵⁵ The export figure does not include agriculture related export products, such as beef (9.3 percent), sugar cane (3.8 percent) and cheese (2.1 percent). Employment in the agricultural sector is based on authors’ calculations with the help of data from EMNV 2014.

Figure 3.8: Agriculture continues to be a key sector for the Nicaraguan economy
 (a) Structure of the economy (1995) (b) Structure of the economy (2015)



Source: Macroeconomic Statistics Yearbook 2015, Central Bank of Nicaragua.

Figure 3.9: Secondary and tertiary sectors have shown strong performances
 (a) Contributions to growth by sectors (b) Real gross value added growth



Source: Macroeconomic Statistics Yearbook 2015, Central Bank of Nicaragua.

FDI

17. **Nicaragua has some comparative advantages in attracting FDI, including a stable macroeconomic situation, low labor costs, low crime and violence, and an abundance of land.** Since the 1990s, sound policies provided a prudent macroeconomic and fiscal environment. Nicaragua’s labor costs are among the lowest in the region. As of 2017, Nicaragua’s minimum wage in Special Economic Zones was the lowest in the Central America region.⁵⁶ In addition, relative to its Northern Triangle neighbors, the country has low levels of crime and violence (Box 3.2). Experience in neighboring countries suggests that gang-related violence could undermine investment decisions, influence cross-country FDI flows and have profound impacts on the

⁵⁶ Honduras, El Salvador and Guatemala had minimum wages of 51 percent, 71 percent and 113 percent higher than Nicaragua. <http://pronicaragua.gob.ni/en/why-invest-in-nicaragua/31-competitive-operational-costs/>

competitiveness of firms. Finally, Nicaragua, in relation to its population, has a relatively high supply of land for development, particularly in the Atlantic region.⁵⁷

Box 3.2: Explaining Nicaragua’s low levels of violence relative to Northern Triangle neighbors

A distinctive characteristic of Nicaragua relative to its Northern Triangle neighbors is that the country has maintained an environment low in crime and violence. With 11.5 homicides per 100,000, Nicaragua exhibits much lower homicide rates than El Salvador (64.2), Guatemala (31.2), or Honduras (74.6) (UNODC Statistics, 2016). Experience in neighboring countries suggests that gang-related violence could impact the competitiveness of firms by elevating the costs of doing business through direct losses, extortion, increased insurance costs, and diversion of resources to private security spending, potentially deterring investment decisions. It also has profound social and economic impacts through the continuous outflow of people facing the fear and threat of violent crime, representing a constant drain of labor and human capital. A recent study for El Salvador (2016) places the costs of crime and violence at 16 percent of GDP in 2014. Several factors may explain Nicaragua’s lower homicide rates compared to neighboring countries:

- *Migratory patterns and settlement:* During the Sandinista revolution and civil war that engulfed Nicaragua in the 1980s, many Nicaraguan migrants settled in Costa Rica and Florida. US census data show that only 12 percent settled in Los Angeles, where they account for just 4 percent of Central Americans, while they represent 47 percent in Miami. Unlike the more ‘open’ gangs of Los Angeles, Miami’s local gang scene is dominated by highly exclusive African-American and Cuban-American gangs, which do not allow Nicaraguans (Rocha, 2006) (WDR, 2011). This may partly explain the lack of activity of cells of gangs, contrary to what has been seen in neighboring countries.
- *Criminal deportations:* Nicaragua exhibits very low deportation rates of convicted felons relative to its Northern Triangle neighbors. In 1996, the US Congress passed the Illegal Immigration Reform and Immigrant Responsibility Act, whereby non-US citizens sentenced to one year or more in prison were to be repatriated to their countries of origin. Out of 287,125 Central American criminals deported from the US from 1999 to 2014, only 2.8 percent were Nicaraguan (Figure 3.11). This contrasts sharply with El Salvador (28 percent), Guatemala (33 percent) and Honduras (36 percent).
- *Legacy of socialist structures that evolved from the Sandinista revolution:* These include neighborhood watch organizations and FSLN structures, such as the Committees of Citizen Power which evolved from the Committees of Sandinista Defense. These structures, with more community involvement, may have blocked the establishment of gang-related activities. This form of social capital might also have acted as a containment for the youth, reducing risk factors into gang activity.
- *Role of the national police:* Community-based policing focused on prevention, and close collaboration with civil society have been the cornerstones of police crime and violence prevention. This is reflected in the perception of the police force in Nicaragua vis-à-vis the region. *Latinobarómetro* (2015) shows that satisfaction with the police is higher in Nicaragua (54 percent) than in El Salvador (36 percent), Guatemala (31 percent) and Honduras (43.4 percent).

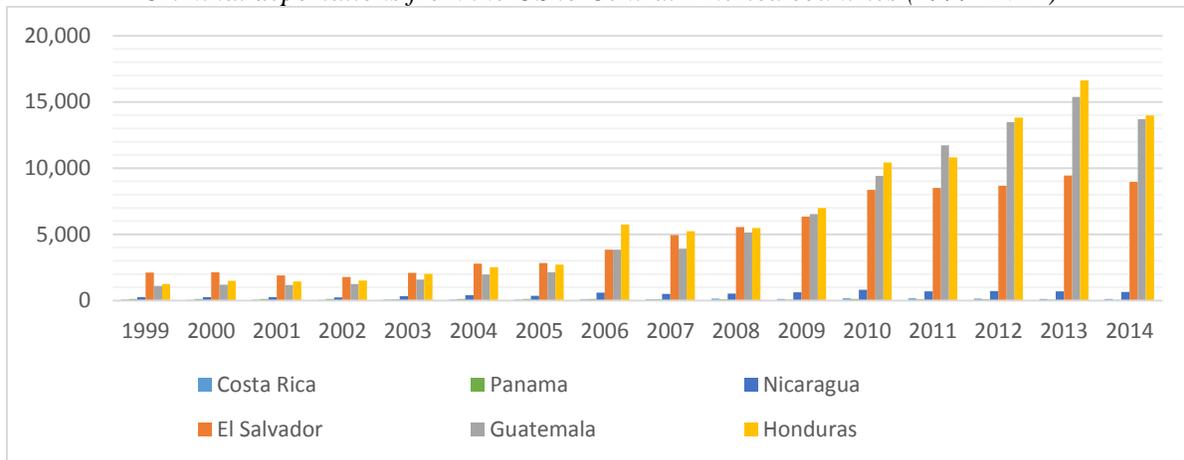
18. Nicaragua has benefited from solid FDI inflows, but the potential is even higher if it can be harnessed. In 2015, FDI flows amounted to USD 835 million, or 6.6 percent of GDP (second only to Panama, which received 9.7 percent of GDP).⁵⁸ Services attracted the majority of FDI flows (65.3 percent), followed by manufacturing (18.9 percent). Among specific subsectors, the renewable energy and financial sectors were among the main destinations of FDI (Figure 3.10, panel a, Figure 3.10, panel b). In October 2014, assets from Citibank in Nicaragua were bought by

⁵⁷ Nicaragua’s arable land per person (hectares per person) was 0.25 in 2014, higher than Costa Rica (0.05), Guatemala (0.06), Honduras (0.13), El Salvador (0.12), and Panama (0.15). It was also higher than other lower middle income countries (0.14) but lower than the average for LAC (0.29). (Source: WDI, 2016).

⁵⁸ ECLAC (2016).

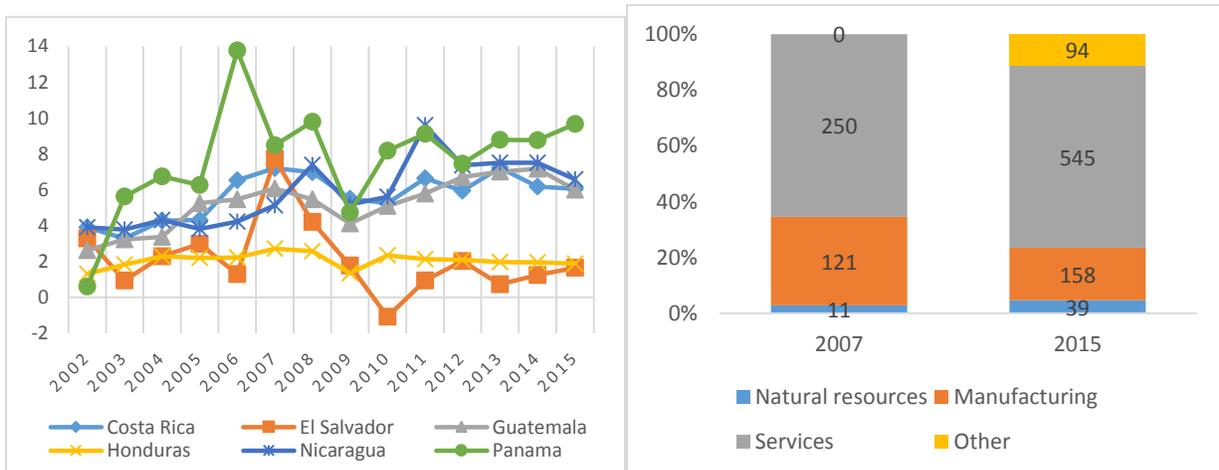
the Honduran financial group FICOHSA. The expiration of the Tariff Preference Level in 2015 likely negatively impacted FDI in the manufacturing sector, but was partly offset by continuing investment in wire harnesses for automobiles (Yazaki), telecoms (Movistar and América Móvil) and meat processing (Sukarne). A number of issues affecting FDI are discussed in different sections of this chapter, such as shortcomings in infrastructure, transport logistics and trade facilitation, the quality of labor supply to undertake technical and operational tasks, and investment climate and business regulations, among other factors.

Figure 3.11: Nicaragua exhibits low deportation rates of convicted felons relative to its neighbors
Criminal deportations from the US to Central America countries (1999–2014)



Source: Yearbook of Immigration Statistics (2008, 2014), US Department of Homeland Security.

Figure 3.10: Nicaragua has benefited from solid FDI inflows
 (a) FDI in Nicaragua relative to the region (b) FDI by subsectors



Source: ECLAC (2016).

*Key industries driving private sector growth*⁵⁹

19. **Coffee is one of the most important crops in Nicaragua.** The sector generated 300,000 direct and indirect jobs. Coffee accounted for 9.2 percent of total goods exports over 2010–2015. In the last five years, Nicaragua has been among the first 13 of 56 coffee producing countries. According to the 2011 Agricultural Census,⁶⁰ there were 44,519 coffee producers, accounting for over 180,220 mz. The majority of farms are small (less than 20 mz), representing some 97 percent of total producers and 58.9 percent of total cultivated area. Most of Nicaragua’s coffee production is Arabica and is concentrated in the North Central Region’s municipalities of Jinotega, Matagalpa and Las Segovias. Nicaragua has been less affected by *El Niño*, since the microclimate in the mountainous regions provide most coffee plantations with steady rainfall. Coffee rust has also had a lesser impact in Nicaragua than in neighboring countries.⁶¹

20. **The sugar industry remains one of the main subsectors in commercial agricultural production in Nicaragua.** The industry accounts for more than 135,000 jobs in the country (of which 35,000 are direct jobs).⁶² Sugar exports represent around 5 percent of Nicaragua’s total exports, and together with domestic consumption make up 3.1 percent of GDP.⁶³ The majority of domestic sugar production is covered by four main producers/sugar mills, which have had a strong historical presence in the country.⁶⁴ There are more than 800 independent sugarcane producers, feeding into the national supply chain. Currently, Nicaraguan mills operate at a cost of around 16 cents per pound which compares favorably to global standards. In recent years, the Nicaraguan sugar industry had experienced significant growth as a result of expansion of cultivated areas (which have increased by 30 percent since 2011). One of the main drivers of the increase has been the diversification of three of the four producers into bagasse for energy production. In 2015–2016, half of the energy produced was used to power the sugar mills, with the rest fed into the national grid. Around 7–10 percent of all electricity produced in the country is sourced from biomass.

21. **Production of beef and dairy products has traditionally been an important component of the national economy.** It is estimated that Nicaragua has approximately 120,000 cattle farmers, 70 percent of which are small (up to 35 heads of cattle) and medium producers (36–100 heads).⁶⁵ Most of them are small and geographically scattered. Use of the land is extensive as feed is based mainly on native pastures. The vast majority of the cattle operations is based on a dual purpose herd for the production of milk and beef. The livestock sector accounted for 9.4 percent of GDP in 2010–2015. In terms of exports, livestock and beef exports amounted to 9.9 percent of total goods exports, whereas dairy products exports averaged about 3 percent over 2010–15, jointly making up the country’s main export sector.

22. **Light manufacturing has become one of the most important industries in Nicaragua over the past two decades, becoming a major source of employment and exports.** The industry

⁵⁹ Based on IFC sector notes.

⁶⁰ CENAGRO IV (2011).

⁶¹ The level of coffee rust is estimated to be lower than 5 percent for cycle 2016/17 (US Department of Agriculture Nicaragua Coffee Annual Report, 2016).

⁶² National Committee of Sugar producers of Nicaragua, <http://www.cnpa.com.ni/importancia-economica/>

⁶³ Based on Atlas of Economic complexity data. (<http://atlas.media.mit.edu/en/profile/country/nic/#Exports>)

⁶⁴ San Antonio (42.3%), Pantaleon (38.3 percent), Casur (10.2 percent), and Montelimar (10.2 percent).

⁶⁵ CENAGRO IV (2011).

employs more than 157,500 workers. With USD 2.1 billion in exports, light manufacturing accounts for 12.3 percent of GDP and around 40 percent of all exports. The industry has attracted USD 62.2 million in FDI in 2016 (or over half of all FDI). The majority of the industry is focused on apparel and footwear (USD 1.5 billion in exports) as well as wire harnesses for the automotive industry (USD 580 million in exports). The industry has mostly grown over the past decade, taking advantage of the economic free zones, as well as the Dominican Central America Free Trade Agreement. The country is particularly appealing to manufacturers for its extremely low labor cost, large labor force, proximity and duty free access to the US and Mexican markets.

23. **The tourism sector represents a significant source of employment and foreign exchange.** Nicaragua's tourism industry generated USD 529 million in revenues in 2015 (or 21.8 percent of total exports) and supported 97,000 jobs directly.⁶⁶ The industry structure is highly competitive with many large international chains, such as InterContinental Hilton, Wyndham and Barceló operating business and leisure hotels, besides a sizable number of smaller domestic operators. In 2015, 55 new investment projects were authorized under the Law of Investments for the Tourism Industry in Nicaragua (*Ley 306*) for a total of USD 103 million.⁶⁷

Factor accumulation has been the main driver of growth

24. **Growth accounting decompositions show that factor accumulation has been the major driver of growth.** The economic rebound has relied primarily on a growing labor supply related to ongoing demographic changes and to a lesser extent, on capital accumulation. Labor (adjusted by education) has been the strongest contributor to growth over the last 15 years.⁶⁸ This is in line with the decline in fertility rates and growth of the working-age population, together with increasing female labor participation rates. Capital accumulation has played an increasing role over time. However, infrastructure and access to basic service indicators and their international comparisons point to a large infrastructure gap. The recent trend in TFP is promising: after either negligible or negative contributions over 2000–2009, TFP made positive contributions to growth over the last five years (Figure 3.12, panels a–d).

25. **Labor productivity rebounded between 2009 and 2014.** Following a period of positive growth (1.3 percent) in 2001–2005, labor productivity declined to 0.6 percent in 2005–2009 to later pick up pace in 2009–2014 (1.1 percent). Table 3.3 shows that labor productivity growth measured as GDP per worker was very low over 2001–2014. Employment growth outpaced working-age population growth, resulting in an increase in the employment rate. This suggests that GDP per capita growth can be explained by both positive changes in the employment rate and labor productivity growth, especially for the period between 2009 and 2014. However, labor productivity growth still lags behind peers: it trails Panama and Costa Rica in Central America and is behind the average for LAC and lower middle income countries.⁶⁹ This suggests that there is scope for further improvement.

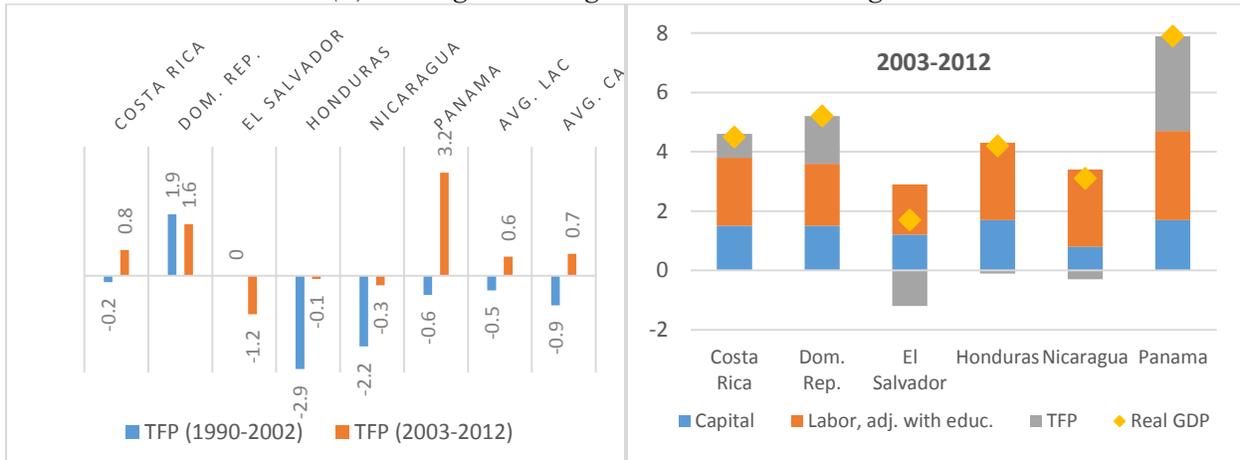
⁶⁶ World Travel and Tourism Council. (2016). *Economic Impact 2016—Nicaragua*.

⁶⁷ Instituto Nicaragüense de Turismo (2015). *Boletín de Estadísticas de Turismo No. 26*.

⁶⁸ This is consistent with findings in World Bank (2013a) that labor (adjusted by education) contributed the most since 1980; however, the importance of both capital accumulation and TFP has increased in recent years.

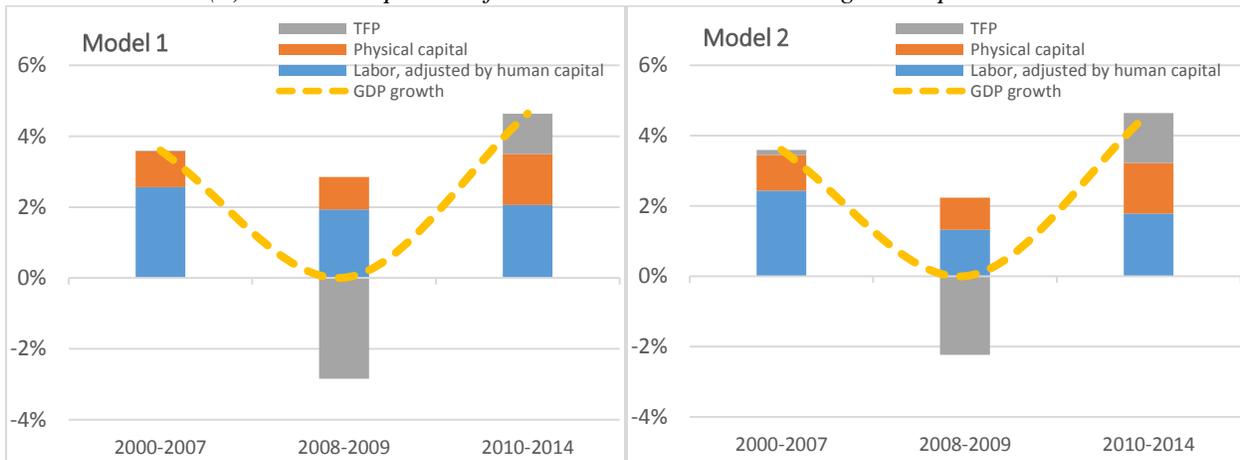
⁶⁹ Computed as the average growth of GDP per person employed in 2011 constant PPP dollars over 2009–2014: Nicaragua (0.4 percent), Panama (5.2 percent), Costa Rica (1.8 percent), LAC (0.6 percent) and lower middle income countries (3.6 percent).

Figure 3.12: Factor accumulation has been the major driver of growth
 (a) Nicaragua's TFP growth relative to the region



Source: World Bank (2013a).

(b) TFP decomposition for CA c-d. Growth accounting decompositions



Source: Authors' calculations based on PWT9.0 and Barro & Lee (2013).

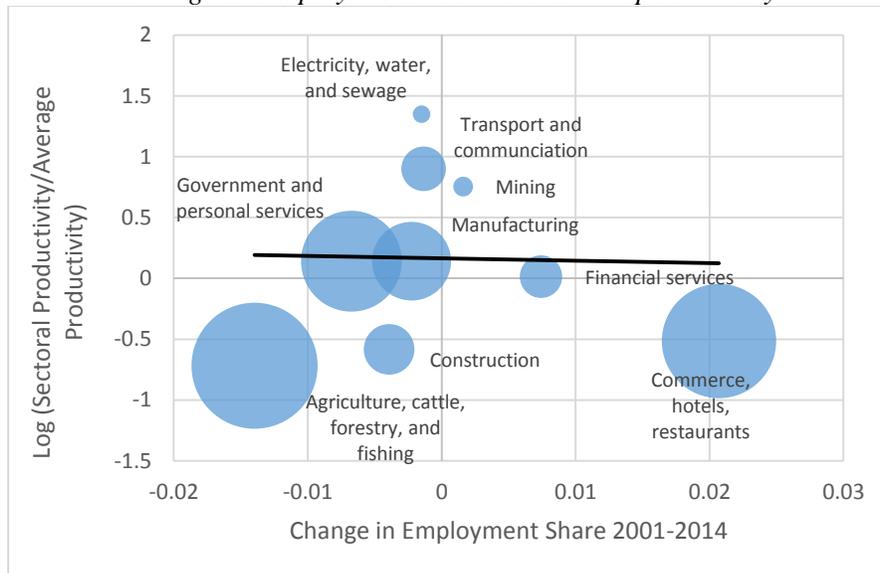
26. **A sectoral disaggregation of labor productivity suggests that structural change and sectoral allocation of resources had limited impact on productivity gains.** Between 2001 and 2014, total employment share of agriculture declined by 1.4 percentage points. Services gained about 2.0 percentage points in total employment share (Figure 3.13). While this observed structural change—from agriculture to services—is not too different than that in other LAC countries, the productivity gains along this process seem to be smaller than in other countries. In Nicaragua, the service subsector that experienced the largest employment gain was trade, hotels and restaurants, with a sectoral labor productivity well below the national average and only marginally better than labor productivity in agriculture. One plausible explanation is the weak quality of education in rural areas, which constrains workers moving from rural to urban areas to take on better, more productive jobs.

Table 3.3: Labor productivity growth (annualized), 2001–2014

	2001	2005	2009	2014	$\Delta\%$ 2001– 05	$\Delta\%$ 2005– 09	$\Delta\%$ 2009– 14	$\Delta\%$ 2001– 14
Employment	1,757,840	1,897,259	2,129,038	2,545,958	1.9%	2.9%	3.6%	2.9%
Working age population	2,921,273	3,038,249	3,529,344	3,965,879	1.0%	3.8%	2.4%	2.4%
Employment rate	60.2	62.4	60.3	64.2	0.9%	–0.9%	1.3%	0.5%
GDP (millions, 2006 \$C)	100,919	114,482	125,557	158,857	3.2%	2.3%	4.8%	3.6%
GDP per worker (C\$/worker)	57,411	60,341	58,974	62,396	1.3%	–0.6%	1.1%	0.6%

Source: Authors' calculations based on EMNV 2001, 2005, 2009 and 2014, and Central Bank of Nicaragua (2016).

Figure 3.13: Structural change has not contributed to productivity
Changes in employment and sectoral labor productivity



Source: Authors' calculations based on the EMNV 2001 and 2014 and data from the Central Bank of Nicaragua.

Knowledge Gap: Productivity analysis and firm level data

The analysis presented in this chapter has relied mainly on household surveys and national accounts series. In order to better understand firms and labor market dynamics, more specialized surveys are needed. The latest firm level data are from the 2010 Enterprise Surveys. Labor force surveys are conducted in the country, yet these were not readily available to conduct this analysis.

3.4. Potential sources of growth and its constraints

27. **GDP growth improved vastly over the past two decades, yet this performance was not up to par vis-à-vis other lower middle income countries.** This suggests that there is some potential to be able to grow at a faster pace. It would take the country about 14 years—with GDP per capita growing steadily at 2.5 percent per annum, the average per capita growth over 1994–2015—to surpass its GDP per capita of 1977. Should Nicaragua be able to grow at 3.6 percent in per capita terms (its average growth since 2010), it would still take about a decade to surpass that

level. Since Nicaragua is growing faster than other lower middle income countries in Central America, it will eventually catch up with them. However, back-of-the-envelope calculations show that it would take 15 years to get to the GDP per capita level of Honduras, 25 years to that of Guatemala, and 37 years to that of El Salvador. Moreover, it would take 79 years growing at current rates to reach the average GDP per capita of LAC.^{70,71}

28. Sustained, faster, and more inclusive growth is needed to make a significant dent to the prevailing levels of poverty. In order to sustain its growth over the short and medium-term, this section argues that Nicaragua can still rely primarily on factor accumulation. This requires education to harness the most from the ongoing demographic transition as well as basic infrastructure (road networks, electricity, and access to basic services) to foster private sector activity and trade, and promote inclusion. Yet a model based on factor accumulation alone will not be enough to lift a large share of the population from poverty and absorb new entrants into the labor market.⁷² In order to move into a faster growth trajectory, Nicaragua will also have to enhance its competitiveness by strengthening the quality of institutions and the capacity of the public sector for service delivery, improving the business environment and investment climate, and increasing productivity and lifting constraints at the firm level.

3.4.1. Enhancing the process of factor accumulation

Labor and human capital

29. Improving the overall education and skills of the population will be key to take full advantage of the ongoing demographic transition. Nicaragua is entering into a *window of demographic opportunity*.⁷³ The change in the age structure of the population, from having a very large share of a young population 0–15 years old to a larger share of working age population,⁷⁴ has already been supporting growth. Household surveys show that the employment rate has either remained constant or increased from 60.2 percent in 2001 to 62.5 percent in 2005, 60.3 percent in 2009,⁷⁵ and 64.2 percent in 2014. Even without considering changes in the employment rate, back-to-the-envelope calculations indicate that the labor supply effect has contributed about half of the average increase in GDP per capita over 1990–2015 (or slightly less than one percentage point increase over an annual increase of 1.9 percent in GDP per capita). Nicaragua’s *window of demographic opportunity* is expected to remain open until 2045 (Figure 3.14). This demographic

⁷⁰ Calculations assume that El Salvador, Guatemala, and Honduras grow at 1.6 percent, 1.5 percent and 2.0 percent respectively, their average GDP per capita growth over 2010–2015. It is assumed that the average LAC GDP per capita grows at 1.5 percent.

⁷¹ The time it will take a developing country to reach the GDP per capita of a high income reference is given by the following equation $T = \ln(R) / \ln\left(\frac{1+g_M}{1+g_H}\right)$ where R is the initial ratio of the high GDP per capita reference to the middle income country’s GDP per capita, g_M is the middle income country’s compound rate of growth of GDP per capita, and g_H is the high income country’s compound rate of growth of GDP per capita.

⁷² The SCD makes a clear cut between the process of factor accumulation and improvements in productivity. In practice, this distinction is not that clear. For instance, improvements in the provision of public infrastructure or access to and quality of education can generate positive spillovers and be productivity enhancing.

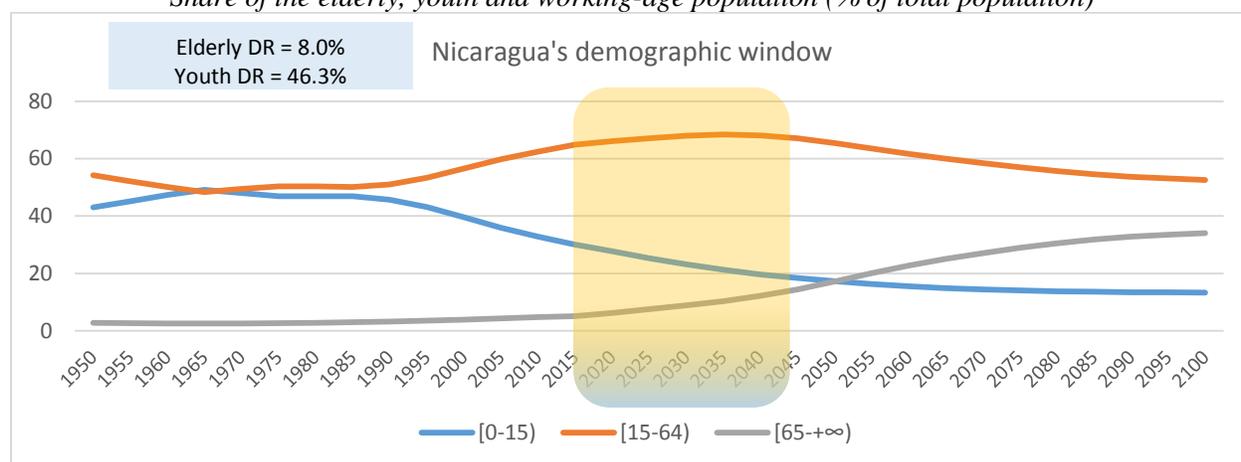
⁷³ The United Nations defines this window when a country’s youth share of the population falls below 30 percent and the elderly share of the population falls below 15 percent (2004).

⁷⁴ See Bloom et al. (2003) and Mason (2007).

⁷⁵ The fall in the employment rate can be partially linked to the contraction of the economy in 2009.

trend, if harnessed properly, could help boost growth over the next years, lifting the growth trajectory.^{76, 77}

Figure 3.14: Nicaragua’s “window of demographic opportunity” should remain open until 2045
Share of the elderly, youth and working-age population (% of total population)



Source: Authors’ calculations based on United Nations Population Statistics (2015).

30. **This effect can be further reinforced with increasing female labor force participation.** In fact, this has been gradually taking place as fertility rates have declined over time and more females have been entering the labor market. In 2001, female labor force participation stood at 46.8 percent, and by 2014, it had increased to 50.7 percent. Moreover, in 2001, only 4.2 out of 10 females in the working-age population were employed. This ratio rose to 4.7 in 2014. While the employment rate for females has also risen faster than for males over 2001–14, this figure is still much lower than that for men (at 8.3 out of 10). Narrowing this large gender gap can be another opportunity to further increase the supply of labor.

31. **As the dependency ratio falls and labor supply rises, Nicaragua faces a unique opportunity, if properly harnessed.**⁷⁸ To take full advantage of its demographics, Nicaragua needs to generate enough good quality jobs to absorb the emerging workforce, by addressing the multiple constraints to private sector activity analyzed later in this chapter. It is also crucial to improve education access and quality, and create a supply of human capital suited to the needs of an expanding modern sector.⁷⁹ Policies are also needed to provide labor market opportunities for young entrants, especially those from low-income households. Failing to do so could have long-lasting adverse effects on Nicaragua’s development prospects.

32. **The high level of dropouts, especially in lower secondary school, likely reflects a lack of job opportunities for secondary graduates.** Since 2008, Nicaragua has improved access and

⁷⁶ If we let $y = Y/N$ be the output per capita of a given country, we have that $\Delta \frac{Y}{N} = \Delta \frac{Y}{WAP} + \Delta \frac{WAP}{N}$ where the working-age population is denoted by WAP. Thus, if the working-age share of the population rises by one percentage point, then per capita output growth would rise by the same amount.

⁷⁷ Although an extended and comparable series of dedicated labor surveys are not available, this can be confirmed by studying the ENMV surveys.

⁷⁸ Bloom and Williamson (1998); Bloom et al. (2003); Mason (2007); and Li, Zhang, and Zhang (2007).

⁷⁹ See Better Jobs in Nicaragua—The Role of Human Capital (2012), The World Bank.

retention in basic education (grades 1 to 9) and has increased the educational attainment (average years of completed education) of the emerging cohorts. However, primary and secondary completion rates remain low, and learning outcomes (based on test scores) continue to be among the lowest in Central America. There is a very high dropout rate in lower secondary school, which suggests that the economic effort of keeping children in school is unprofitable for low-income families, due to the lack of job opportunities for lower secondary graduates. This problem is reinforced by outdated curricula and the lack of technical and vocational options.⁸⁰

33. Nicaragua’s educational attainment lags behind Central America and countries at similar levels of development. The high school dropout rate is a particular cause of concern due to its adverse consequences for youth opportunity, social cohesion and long-term productivity.⁸¹ Fewer young adults in Nicaragua have completed secondary compared to lower middle income countries (Box 3.3). A cohort analysis using survey data (Adelman and Székely, 2016) reveals that even though more young people now enroll in secondary than in the past, Nicaragua faces immense challenges to keep them in school. The secondary school dropout rate is 36 percent, with 44 percent occurring at lower secondary ages, 22 percent during the transition between lower and upper secondary, and 34 percent occurring at upper secondary ages (Table 3.4). In addition, primary dropout, and even initial participation, still remains a serious challenge in the country.

Table 3.4: % enrolled in school in two cohorts exiting upper secondary age circa 2000 and circa 2014 and % of dropout that occurs at each stage of secondary education

		% enrolled in school in two cohorts dropping out of secondary				% of dropout occurring at		
		Lower secondary	In transition	Upper secondary	Total	Lower secondary	In transition	Upper secondary
Costa Rica	2000	18	6	12	36	50	17	33
	2014	7	7	16	30	23	23	53
El Salvador	2000	12	6	12	30	40	20	40
	2014	11	7	22	39	28	18	56
Guatemala	2000	25	11	12	48	52	23	25
	2014	15	8	17	40	38	20	43
Honduras	2000	24	11	12	48	50	23	25
	2014	17	7	15	39	44	18	38
Nicaragua	2000	15	7	15	37	41	19	41
	2014	16	8	12	36	44	22	34
Panama	2000	11	5	18	34	32	15	53
	2014	9	6	19	34	26	18	56

Source: Adelman and Székely (2016).

34. The education system is not generating graduates adequately prepared for the labor market. About 17 percent of firms report having difficulty in hiring skilled workers, the problem being more prevalent for medium (21-100 workers) and large (+100) firms, at 42.8 percent and 59

⁸⁰ Central America Social Expenditures and Institutional Review: Nicaragua, 2016, p. 11,

⁸¹ See Adelman and Székely (2016).

percent respectively.⁸² Quality problems and skill mismatches likely contribute to the low skill premia, and the low-skill premia in turn, are undermining the demand for secondary education.

Box 3.3: Revisiting past World Bank advice (I)

Despite progress achieved over recent years, several World Bank studies indicate the need to address pending issues in the education sector to better equip new entrants in the labor market. For instance, findings in *Better Jobs in Nicaragua: The Role of Human Capital* (2012) indicate that “gains in years of education at the cohort level have been small. For example, in 2009 the 20–25 year old group had only half-a-year more of education than the 25–30 year old group, a small gain for a 5-year period, considering the young age group. And within the 20 years old cohort, 75% have finished primary education and only 50% have completed the first cycle of secondary education, placing Nicaragua behind Costa Rica, Panama, and El Salvador, and at a similar level to Honduras . . . Hence, Nicaraguan youth are ill equipped to face the demands in terms of skills of the labor market in the 21st century” (p. 27).

This situation, however, is not new. There are differences in the magnitude of the problem when compared to the past, yet the assessment is similar. A description of the education sector in a 1973 report also indicates that “in general, the labor force has a low level of education and only about 6 percent had post-primary or higher education. The low level of formal education, which implies high costs of training workers for the modern sectors, is evident also in urban areas where about 45 percent of the labor force has less than 3 years of formal education and only about 10 percent have post-primary education” (p. 14).

The 1973 report identifies issues such as low retention rates, weak performance of schools in particular in rural areas, teachers’ qualifications and the irrelevance of a large part of the curriculum: “The education system is extremely inefficient. At the end of the 1960’s, only 12 percent of students who started primary school five years earlier entered Grade VI. This very low retention largely reflects the exceptionally poor performance in rural areas where only 2 percent of students reach Grade VI. Even in urban areas, however, almost two-thirds of students do not complete the primary cycle. The low average retention indicates a tremendous wastage of resources, although it represents a significant improvement compared to the 8 percent of the 1955 cohort which reached Grade VI in 1960. About three-quarters of students drop out by the end of the third year and can be considered functionally illiterate. Most primary school graduates enter secondary school, but less than one-half continue beyond the basic cycle which is essentially a continuation of primary, nonterminal education . . . The main reasons for the inefficiency of the secondary system are inadequate facilities, uneven distribution of available capacity among various areas of the country, the large number of unqualified teachers and the irrelevance of a large part of the curriculum. Many students, especially in rural areas, cannot obtain a complete primary education simply because several schools—about 60 percent of those in rural areas—do not offer instruction beyond Grade III” (p. 18).

The *Central America Social Expenditures and Institutional Review: Nicaragua* (2016) provides a strikingly similar characterization: *Despite gains in basic education attainment, completion rates are still low when compared with peer countries. Furthermore, learning outcomes continue to be among the lowest in Central America. Policies implemented since 2008 have contributed to improved access and retention in basic education (grades 1 to 9), as well as to increased educational attainment of the population as a whole. However, completion rates for both primary and secondary school remain quite low in comparison to other Central American countries. Dropouts especially at late primary and lower secondary may be related to the prevalence of overage students, whose population has grown due to high repetition rates. Secondary school dropouts are likely driven by a lack of interest in school and/or by economic reasons. In addition, secondary school might not be sufficiently attractive for students due to an outdated curricula and the lack of technical and vocational education options”* (p. 11)

⁸² Encuesta de Empresas Sostenibles Nicaragua 2015, COSEP/OIT (2016).

Box 3.3: Revisiting past World Bank advice (I), continued

“Multigrade schools were mainly present in rural areas due to the dispersion of the population, the lack of teachers and/or the lack of infrastructure . . . Multigrade schools favor the existence of what are called “incomplete schools,” which only offer first through third grade, third to fifth grade, or fourth to sixth grades. Despite being a solution for very small communities, this division creates challenges to continuity of learning and results in higher levels of dropouts, especially when the schools are far away from each other (i.e., a student finishes first grade and has to move to another community school to attend third grade)” (p. 61).

Sources: World Bank (2016), World Bank (2012), and World Bank (1973).

35. **As Nicaragua’s structural transformation accelerates, enhanced skills will be in growing demand.** Labor market outcomes are already strongly linked to education attainment in Nicaragua. Unemployment rate for people ages 25–45 is higher among individuals who fell short of completing upper secondary (Table 3.5). Informality also seems to be more prevalent at lower levels of education attainment. The rate of informality among workers who only reached lower secondary is 12 percentage points higher than for workers who reached upper secondary and 33 percentage points higher when compared to individuals with at least some higher education. Adelman and Székely (2016) also present supporting evidence suggesting that there are important differences in wage levels. As discussed in Chapter 4, Nicaragua has relatively low-skill premia, likely reflecting a combination of limited labor demand growth and poor education quality. Nevertheless, the skills premium for upper secondary relative to lower secondary for individuals 19–24 years of age is already at 45 percent and is likely to rise as Nicaragua’s economic transformation accelerates. So if the quality issues in secondary education are not tackled, skills constraints could quickly choke off the transition toward upper middle income status.

Table 3.5: Labor market conditions & schooling level in Central America at ages 25-45, circa 2013

Country	Rate of unemployment			% of informal workers by education level			
	Average	10–12 years of schooling	13 or more years of schooling	Primary	Lower secondary	Upper secondary	Higher secondary
Average LAC	6.5	7.8	5.9	62	54	44	33
Costa Rica	8.2	9.6	4.2	32	28	20	10
El Salvador	5.6	7.7	5.6	84	72	64	59
Guatemala				87	74	54	38
Honduras	6.5	9.7	7.8	92	82	66	36
Nicaragua	8.4	9.4	8.8	87	76	64	43
Panama	4.7	5.9	3.9	71	56	38	20

Source: Adelman and Székely (2016).

36. **High school dropout rates are closely related to the problem of *ninis* in Nicaragua.** Youth who are neither working nor in school, or NEET, are often labeled *ninis* (“*ni estudia ni trabaja*” in LAC). Table 3.6 shows that about one in five youth in Nicaragua is not working nor

attending an educational institution.⁸³ Following a steep increase around 2009, the number of *ninis* only dropped marginally by 2014. Despite the strong economic rebound postcrisis and the observed reduction in poverty over the same period, the problem has been persistent. In order for Nicaragua to take full advantage of the first demographic dividend, and achieve higher levels of income and faster economic growth, a higher number of working-age people need to be employed productively. Youth who leave before completing the secondary level often fail to secure formal sector jobs, either falling into the unemployed ranks or ending up with lower incomes and poorer job prospects in the informal sector. Addressing the issues of *ninis* and school dropouts would likely accelerate the growth rate of the economy and labor productivity.

Table 3.6: Youth employment rate and *ninis*

	2001	2005	2009	2014
Employment (15–24)	541,847	589,379	567,891	617,117
Employment rate (15–24)	47.7	50.8	44.6	46.9
NEET	296,521	285,595	354,316	348,324
NEET (as % of 15–24)	26.1	24.6	27.8	26.5
Persons ages 15–24	1,137,139	1,161,247	1,273,247	1,315,182

Note: For years 2009 and 2014, the following question was used to compute the NEET: “*Actualmente asiste a clase*” (Do you currently assist to classes?). If question “*Se matriculó en el presente año escolar, en el sistema de educación formal*” (Have you enrolled in the current school year, in the formal education system?) is used, the NEET is 26.6% and 25.1%, respectively.

Source: Authors’ calculations based on the EMNV 2001, 2005, 2009 and 2014.

Infrastructure and capital accumulation

37. **Given Nicaragua’s large infrastructure gap, investments in basic infrastructure will generate high economic returns.** Improving infrastructure and access to basic services would help lift competitiveness, in particular for low value-added products such as agriculture, and also contribute to the reduction of existing regional disparities. The existing road infrastructure is among the least developed in the region, making access to markets difficult and decreasing product quality due to long transport periods. In addition, Nicaragua has one of the highest electricity prices in Central America, as well as across LAC, due to the country’s heavy dependence on oil for power generation. Addressing these issues would crowd in private investment and foster private sector activity.

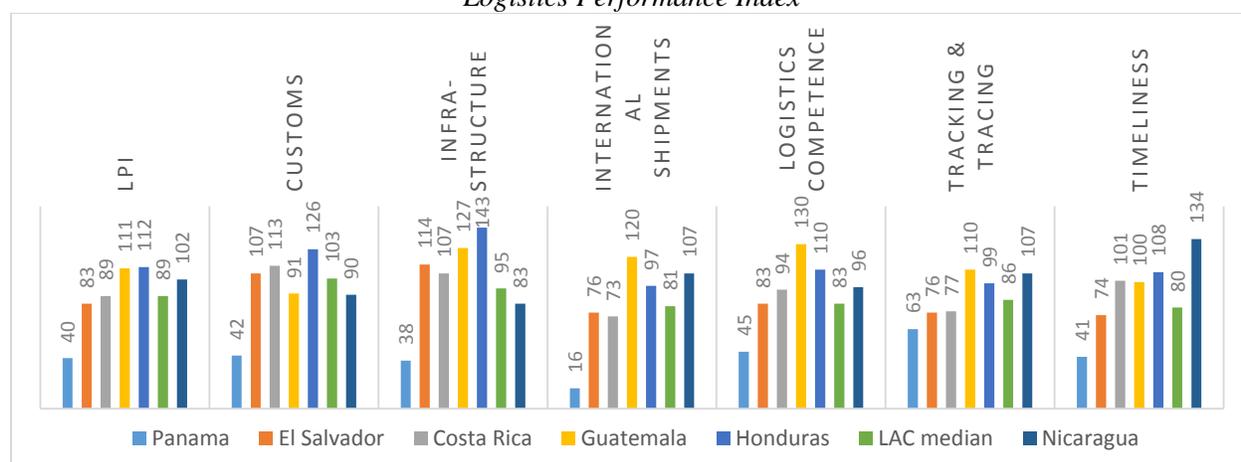
38. **Nicaragua’s economic development is closely linked to international trade.** A small domestic market with low purchasing power of the general population underscores the importance of external markets in the country’s development process. As of 2015, Nicaragua’s trade openness (93 percent of GDP) was well above the average for LAC (44 percent) and lower middle income countries (56 percent). As such, transport infrastructure and logistic systems will continue to be a critical factor influencing competitiveness and the country’s attractiveness as a FDI destination. In addition to some of the issues related to the road network discussed in more detail below, the main logistics challenges stem from the high transportation costs, limited capacity of ports, reliance on ports in neighboring countries, and long customs clearance waiting times.

⁸³ This is similar to the regional average. De Hoyos, Rogers and Székely (2016) estimate that one in five youth in the region—totaling more than 20 million people aged 15–24—is living as a *nini*. The authors point that the most common path to becoming a *nini* is school dropout followed by unemployment.

39. **Transport and associated logistics services account for a significant portion of the final prices of goods in Nicaragua, affecting competitiveness in many sectors.** Logistics systems (i.e., the different interrelated services necessary to transport inputs of production from suppliers to producers and to transport goods from producers to consumers) impact the effectiveness of a country’s supply chain and, thus, the final prices of goods.⁸⁴ High transport and logistics costs primarily affect traditional import and export products, which tend to be low unit value agriculture products, and therefore have direct implications for trade competitiveness. In addition, this is particularly severe for small and medium enterprises (SMEs) and the rural poor, due to their scale disadvantage and the longer distances they must cover to reach markets.

40. **Nicaragua has consistently received very low performance scores on macro indicators related to transport infrastructure and logistics.** The Global Competitiveness Index 2016–17 ranked Nicaragua 104 out of 138 countries in terms of general infrastructure, only ahead of Venezuela (121) and Paraguay (122). Similarly, scores on the Logistics Performance Index⁸⁵ signal Nicaragua’s relative disadvantage in terms of transport infrastructure and logistics (Figure 3.15).

Figure 3.15: Nicaragua can benefit from improvements in transport infrastructure and logistics
Logistics Performance Index



Source: WDI (2016).

⁸⁴ About 50 percent of Nicaraguan firms surveyed indicated that they used material inputs and/or supplies of foreign origin, highlighting the importance of imports for domestic production processes and the significance of an effective logistics system for both imports and exports (Nicaragua Country Economic Memorandum: Promoting Competitiveness and Inclusive Growth, World Bank 2014).

⁸⁵ The international Logistics Performance Indicator provides both quantitative and qualitative evaluations of countries in six areas: (i) efficiency of the clearance process (speed, simplicity, and predictability) by border control agencies; (ii) quality of trade and transport-related infrastructure (roads, ports, railroads, and information technology); (iii) ease of arranging competitively priced shipments; (iv) competence and quality of logistics services (transport operators and customs brokers); (v) ability to track/trace consignments; and (vi) timeliness of shipments in reaching their destination within the scheduled delivery time.

41. **Nicaragua’s road infrastructure is among the least developed in the region, and it is a major constraint for domestic and international trade.**⁸⁶ Nicaragua ranks 84th in the world in terms of its road infrastructure quality.⁸⁷ The country’s current classified road network totals 24,137 km. Since 2010, the amount of paved network increased from 2,812 km to 3,653 km, and the share of population with an access to a paved road rose from 28 percent to 38 percent. However, the share of paved roads in the whole road network remains quite low at only 15 percent, of which 28 percent is in fair or good condition (Box 3.4). Moreover, floods have caused significant damages to road infrastructure, and 30 percent of roads become unusable during the six-month rainy season (May to October).⁸⁸ Overall, lack of maintenance (Box 3.5) and poor condition of access roads translate into high postharvest losses, high cost of transportation and limited access to local and regional markets.⁸⁹ This, in turn, reduces the competitiveness of Nicaraguan firms. In the Pacific and Central regions, the poor quality of the roads rather than their availability is the main constraint. As paved roads linking the Pacific and the Atlantic coasts are still lacking, most of the country’s agricultural exports are shipped through Puerto Cortés in Honduras and Puerto Limón in Costa Rica at a significant cost.

Box 3.4: Revisiting past World Bank advice (II)

A World Bank Report of 1953 (*The Economic Development of Nicaragua*) identified challenges, constraints and opportunities that are still relevant today for this diagnostic. Some principal weak points of the country included “*generally low standards of health and education*” and “*a transportation system improved in recent years but still inadequate*” (p. 4). Nicaragua has made important progress in these areas over time, yet there is still ample room for improvement.

Road network

The report underscores the importance of transport investment centered “*on the construction and improvement of roads*” (p. 214) to stimulate growth and the need for “*a comprehensive network of main roads on the west coast, supplemented by local meshes of feeder, access, and farm-to-market routes throughout the country*” (p. 214). The rationale for an expanded road network is that “*Nicaragua needs good roads not only to reduce the burden of inland transport charges but also to expand the existing capacity of her transport arteries and to open for development new productive areas which are now inaccessible*” (pp. 214–15). Similarly, the *Country Economic Memorandum* of 2014 concludes that “*poor road quality leads to high domestic transport costs, reducing the competitiveness of Nicaraguan firms, especially of those located in rural areas*” (p. 123).

Source: World Bank (2014) and World Bank (1953).

Box 3.5: Nicaragua’s Road Maintenance Fund

The road sector is challenged by an increasing maintenance burden due to inadequate cost recovery and frequent natural disasters. The Road Maintenance Fund (*Fondo de Mantenimiento Vial* or FOMAV) has limited resources to maintain the country’s growing road network: in 2010, FOMAV was only able to maintain around 2,600 kilometers of the 6,000-kilometer core road network due to financial constraints. FOMAV is financed by levies on fuels (petrol and diesel) of 16 cents per dollar, licenses, spares and import duties on vehicles. FOMAV transfers around 20 percent of its revenue to Nicaragua’s association of municipalities for the maintenance of municipal road network. FOMAV is responsible for the core road network (paved national and secondary roads), and it is up to municipalities to invest and maintain local tertiary roads. Limited available resources, inadequate construction materials and procedures, and sometimes lack of clarity about each agency’s responsibilities result in some unpaved secondary roads often being neglected from proper maintenance. This has placed the road network at risk, especially in rural areas.

42. **Transport and logistic services play a key role in determining the competitiveness of Nicaraguan firms.** The analysis of key routes⁹⁰ for the transportation of agriculture products (the cases of beef in *Nueva Guinea* and watermelon in *El Tuma Dalia*) from production zones to Atlantic ports indicates that logistics bottlenecks increase transport time to the nearest port by 32.1 percent in the case of beef (via Puerto Limón in Costa Rica) and 48 percent in the case of watermelon (via Puerto Cortés in Honduras). A supply chain analysis for beef exports to the US suggests that logistics costs could add 11 percent to the final wholesale price of a kilogram of frozen ground beef in the best-case scenario and up to 21 percent in the worst-case scenario.⁹¹

43. **Heavy dependence on oil for power generation and sector weaknesses have led to relatively high and volatile electricity prices, with negative implications for competitiveness and investment.** Table 3.7 shows the electricity tariffs disaggregated by residential, commercial and industrial uses as of June 2016. Nicaragua had the second highest commercial and industrial tariffs among Central American countries, only behind Costa Rica. Several enterprise surveys (FUNIDES/COSEP 2016, World Bank 2010) identify electricity and the cost of electricity provision as major constraints.

Table 3.7: Selected electricity tariffs as of June 2016 (cents of a dollar/kWh)

		Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama
Residential	50 kWh	14.11	7.28	9.19	10.84	8.16	10.76
	99 kWh	14.11	7.46	11.15	13.27	8.49	10.2
	200 kWh	14.11	13.6	15.47	14.52	17.88	10.93
	751 kWh	22.41	14.02	14.99	15.42	22.95	17.31
Commerce	1,000 kWh	21.25	13.46	14.94	17.43	19.36	17.3
	15,000 kWh, 41 kW	18.46	11.02	17.89	14.08	20.29	16.72
	50,000 kWh, 137kW	18.47	11.02	11.52	12.77	19.98	13.62
Industrial	15,000 kWh, 41kW	18.46	11.02	15.27	14.08	18.43	16.72
	50,000 kWh, 137 kW	18.47	11.04	11.65	12.77	16	13.62
	10,0000 kWh, 274 kW	18.47	11.03	11.54	12.52	16.45	10.92

Source: CEPAL (2017).

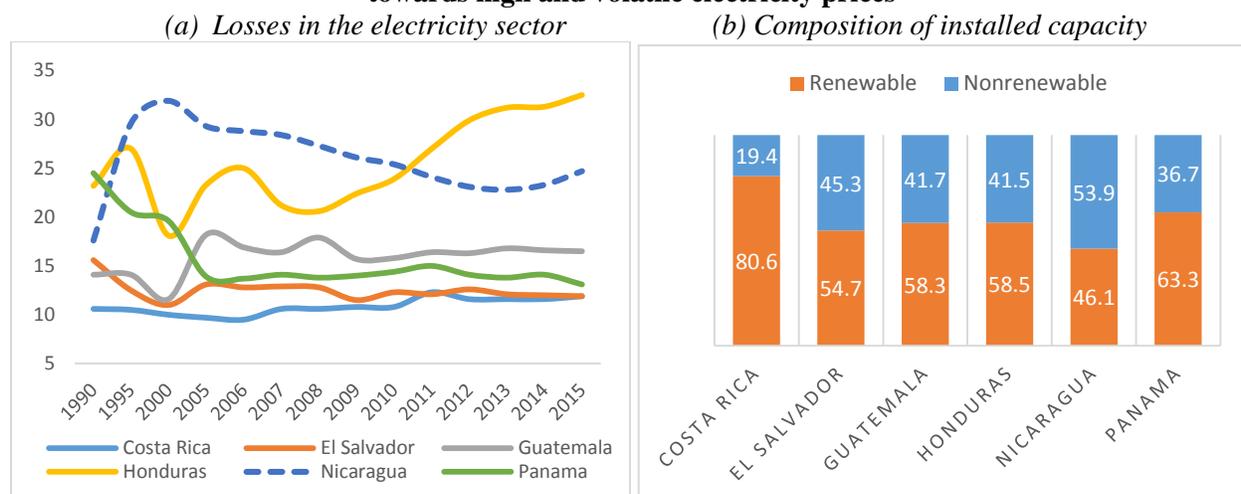
44. **Heavy reliance on fossil fuels for electricity generation has translated into high prices of electricity when oil prices were high.** The costs of electricity generation have also proved to be highly volatile given its strong correlation with international oil prices. Other underlying factors behind higher prices can be traced to technical losses and lack of economies of scale in production (FUNIDES, 2016) (Figure 3.16). Despite reducing losses from 31.9 percent of total generation in 2000 to 24.7 percent, Nicaragua displayed the second highest loss in 2015 only behind Honduras. In addition, Nicaragua's maximum demand of electricity was 665.4 MW, or just 61 percent of that in El Salvador, reflecting the small size of Nicaragua's market. Inefficient energy consumption

⁹⁰ An optimal path analysis is used to identify the most efficient routes of transportation. This takes into account five frictions: terrain slope, type of road, road quality, urban transit effect and border-crossing times (World Bank (2014)).

⁹¹ World Bank (2014).

further undermined the country’s competitiveness. Nicaragua’s economy’s energy intensity is among the highest in the Central America region and well above the LAC average. High, volatile electricity costs increase production costs, thus hampering firms’ competitiveness and acting as a disincentive for investment.

Figure 3.16: Technical losses and heavy reliance on fossil fuels for electricity generation contribute towards high and volatile electricity prices



Source: CEPAL (2017).

3.4.2. Enhancing competitiveness in Nicaragua

45. **Nicaragua has the potential to grow at a faster pace.** So far, Nicaragua has relied primarily on factor accumulation. Yet a model based on factor accumulation alone will not be enough to lift growth into a higher trajectory. To enhance competitiveness, Nicaragua has to take additional steps toward strengthening institutions and reforming the public sector to make it more efficient and improving its business regulations and investment climate—particularly in areas such as access to finance, regulations and red tape, customs procedures and competition—improving the productivity in the agriculture sector and lifting constraints for the private sector to flourish.

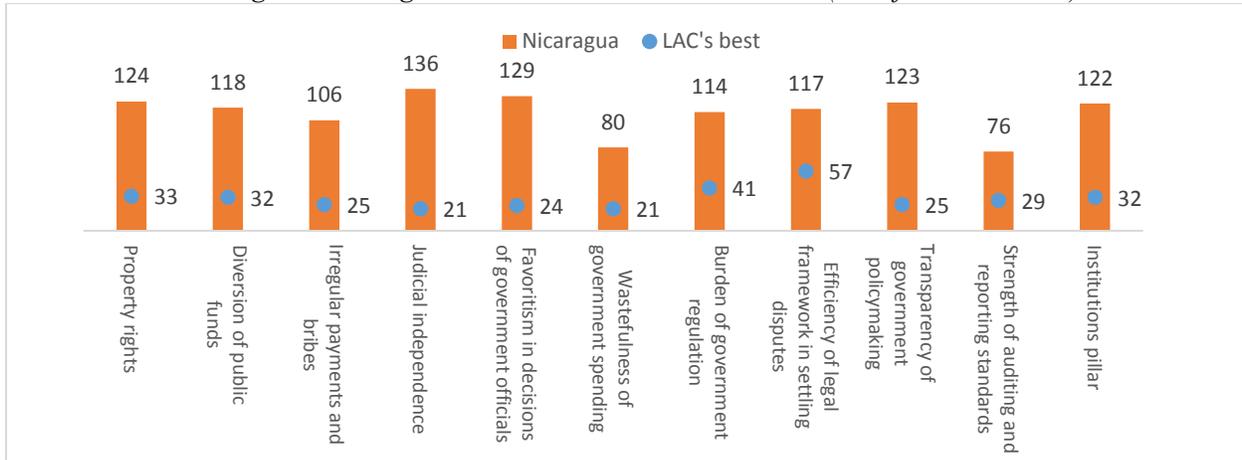
Strengthening institutions and capacity of the public sector

46. **Institutional indicators suggest that Nicaragua faces significant challenges in this areas.**⁹² The Global Competitiveness Index 2016–17 ranked Nicaragua 122nd out of 138 countries in the institutions pillar. The country ranks low in several categories (Figure 3.17), in particular in judiciary independence (136), favoritism in decisions of government officials (129), property rights (124), and transparency of government policy making (117). The Worldwide Governance Indicators (WGI) also signal broad institutional weaknesses. According to the WGI, for 2015 Nicaragua ranked at the bottom third of all countries: the median (mean) of the percentile rank across the WGI was 31.4 (30.9). A comparison with the region (Figure 3.18) shows that the country trailed LAC’s average (54.6) by a large margin. Nicaragua’s ranking in the WGI was also low compared to other lower middle income countries.

⁹² Since the 1990s, Nicaragua has gradually embarked in a transition process from being a conflict-affected state toward becoming a relatively effective state. According to the 2011 WDR, even the fastest transforming countries have taken between 15 and 30 years to raise their institutional performance from that of a fragile state to that of a functioning institutionalized state.

Figure 3.17: Nicaragua ranks low in the institutional pillar of the Global Competitiveness Index 2016–17

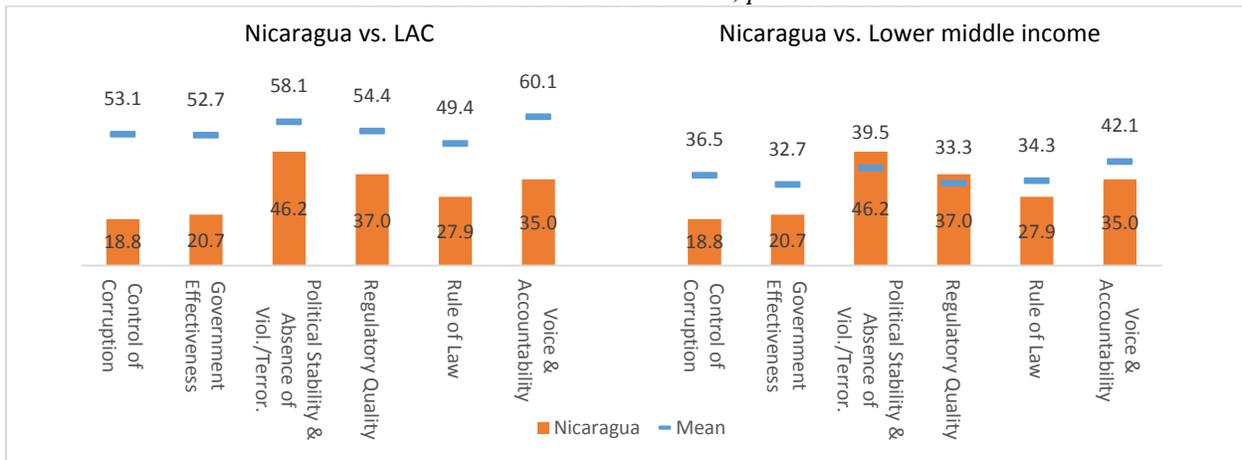
Nicaragua's ranking in selected institutional indicators (out of 138 countries)



Source: Global Competitiveness Report 2016–17, WEF (2016).

Figure 3.18: WGI signals broad institutional weaknesses. In 2015, Nicaragua ranked at the bottom third of all countries

Worldwide Governance Indicators, percentile rank



Source: WGI, 2015.

47. **Bureaucratic quality indicators suggest that there is a need to strengthen knowledge, capabilities, and systems for the civil service, including informing the public of the collection and use of public resources in delivering government services.** Respondents in the executive survey of the Global Competitiveness Report identified the inefficient government bureaucracy as the most problematic factor in doing business for six years in a row. In addition, bureaucratic quality indicators suggest that Nicaragua is lagging behind all other Central American countries.⁹³ In order to strengthen the capabilities of the civil service and their effectiveness, Nicaragua needs to work towards decision-making processes that are less concentrated and further empowering

⁹³ International Country Risk Guide, Bureaucratic Quality (Produced by the PRS Group, www.prsgroup.com/ICRG.aspx).

civil servants in this area. Failing to disentangle technical decisions from political forces may lead to inaction or failed implementation, as continuously ensuring political loyalty can affect the speed and the ability to take and implement decisions throughout the administrative chain. One identified weakness is the need to foster broad-based debate and evidence-based policy making. Establishing impact evaluations of selected programs and strengthening monitoring and evaluation systems could lead to better development outcomes. Although systematic administrative data is collected in every line ministry and agency, these are rarely effectively used to adapt and adjust policies and programs owing in part to weak capacity, but also to this over-centralization of key decision-making.⁹⁴

48. Nicaragua has shown incremental capacity to implement projects and improve access to basic services, yet there is still ample room to strengthen accountability and transparency. Challenges in this area, if left unaddressed, could become stumbling blocks in bringing long-term certainty to foreign and domestic investors. According to the International Country Risk Guide indicator,⁹⁵ Nicaragua’s democratic accountability has shown a steady deterioration since 2008, declining from 6 points to 2.5 by September 2016. The WGI *Voice & Accountability* indicator—reflecting freedom of press and association—has fallen from percentile rank 45.2 in 2000 to 35.0 in 2015. Survey results⁹⁶ also suggest a declining trend in political tolerance in the country, falling from 60 points (out of 100) in 2010 to 46.8 points in 2014.

49. The 2015 Nicaragua Public Expenditure and Financial Accountability Report identifies some key shortcomings in public financial management. The General Directorate of Government Accounting within the Ministry of Finance does not prepare consolidated financial statements, a practice that is also not followed by individual institutions, which makes assessment of the balance sheet of the government and public entities difficult. Lack of reliable and comprehensive information on public finances may have an impact on fiscal transparency and in the monitoring of fiscal risk. Effective and transparent management of public finances may help Nicaragua generate trust to mobilize internal and foreign investment, in addition to supporting a more strategic allocation of resources and monitoring of public expenditure. Given Nicaragua’s geographical location and institutional weaknesses, it is also important to strengthen the implementation of an anti-money laundering and combating the financing of terrorism (AML/CFT) framework to prevent and detect illicit financial flows (IFFs) in the country. Transparency and better access to information enhance accountability and the efficiency and efficacy of the public sector. Altogether, this suggests that citizens’ chances to make the government accountable and responsive are somewhat limited. These perceptions and indicators undermine trust in the system and the country, and can hamper investment prospects, and thus long-term growth.⁹⁷

⁹⁴ IMF, (2015) Article IV Consultation.

⁹⁵ Produced by the PRS Group, www.prsgroup.com/ICRG.aspx.

⁹⁶ Barómetro de las Américas (2014) Vanderbilt University.

⁹⁷ Good governance can be seen as an incentive structure that reduces uncertainty and promotes efficiency, thereby being a crucial building block for sustained growth, poverty reduction efforts and shared prosperity. Improved governance can contribute toward the effective delivery of public goods, a reduction of policy uncertainty and favoritism, lower transaction costs for businesses, ensuring public accountability of elected officials and public servants through public information disclosure, and better implementation of existing policies (North and Thomas (1973), Shleifer and Vishny (1993), De Soto (2000), Acemoglu and Johnson (2005), and WDR (2017), among others).

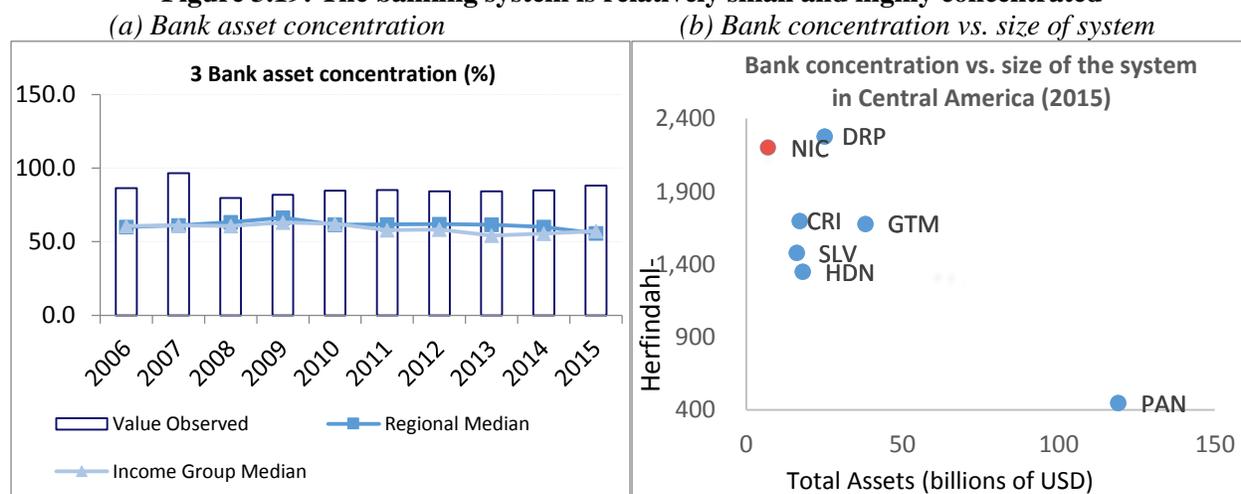
Business environment and investment climate

50. **Improving investment climate and firm productivity can be promising avenues to reinvigorate private sector activity and foster competitiveness.** The analysis presented below points to several constraining factors: limited market completion, barriers to entrepreneurship, high concentration in the financial system and limited access to credit for micro, small and medium enterprises (MSMEs), and cumbersome border crossing procedures. In addition, raising productivity in agriculture and lifting sector specific constraints remains crucial to accelerate growth in the country.

Access to Finance

51. **The financial system in Nicaragua is relatively small and highly concentrated.** The banking sector is comprised of seven private commercial banks (including two microfinance banks), and one development bank. Banking assets are 98 percent of total financial system assets. The three largest banks concentrate 77 percent of total assets, which is above the median for the LAC region and the income group. The combined shares of the five largest banks are 96 percent of assets, 92 percent of loans and 99 percent of deposits. The Herfindahl-Hirschman Index for assets is the second highest in the region (Figure 3.19, panel a, Figure 3.19, panel b). The high concentration of the Nicaraguan financial sector may be limiting competition and efficiency.

Figure 3.19: The banking system is relatively small and highly concentrated



Source: Finstats, Financial Sector Superintendence (SIBOIF), own calculations.

52. **Private credit remains low at 31 percent of GDP and with strikingly short maturities.** Central American countries with similar income per capita and population have higher private sector credit, for example, El Salvador with 42 percent and Honduras with 55 percent. Credit growth has been higher than that of deposits, and the total system portfolio is mainly concentrated in commercial credit (35 percent) and consumer credit (25 percent). Industry and real estate have a much lower share of total credit, representing 14 percent and 13 percent, respectively. Almost all sectors have maintained a constant share throughout the last five years, except for agricultural credit, which represented almost 13 percent in 2011 and decreased to around 8 percent by 2015. In terms of maturities, short-term credit is predominant: by 2015, 87 percent of the total credit portfolio was allocated to credit of up to 360 days, likely constraining potential long-term investment projects. Higher and longer term finance in the economy, particularly to productive

sectors, can enable more investment and support employment and entrepreneurship. Commerce (35 percent), personal loans (15 percent), housing (13.6 percent), industry (13 percent) and agriculture (11.2 percent) were the major components of financial institutions' loan portfolio over 2010–2015.

53. Deepening credit for MSMEs is an important channel to boost investment and employment. MSMEs represent more than 90 percent of registered companies, and it is estimated that they provide employment to around 1.5 million people. According to the Enterprise Survey 2010, firms surveyed identified access to finance as their fourth main obstacle (third for small firms). About 23.3 percent of companies mentioned that lack of access to finance was a main restriction for their business and investment prospects. As a result, internal financing is the most popular financing option among all types of enterprises. Historically, Nicaragua has had a vibrant microfinance sector, but the lack of effective supervision led to lax credit analysis and client selection practices in the industry, resulting in widespread lending to over-indebted borrowers. The creation of the National Commission of Microfinance in 2011 has aided in reducing the risks of the sector.

Customs procedures and border crossings

54. The efficiency and effectiveness of border processes and procedures have a direct effect on Nicaragua's trade and competitiveness and investment prospects.⁹⁸ According to the World Economic Forum's Global Competitiveness Report for 2016–17, Nicaragua is ranked 136th in the world in customs procedures, far behind other countries in Central America.⁹⁹ In the category of trading across borders of *Doing Business* 2017, Nicaragua is ranked 73rd, far behind El Salvador (44th) and Panama (53rd) in Central America. The 2010 World Bank Enterprise Surveys also supports this claim, as Nicaraguan firms seemed to suffer more than firms in other countries in the region in terms of customs procedures. Improvements in trade facilitation, border processes and procedures are critical areas to expedite export and import times, reduce costs and lift firms' competitiveness underlining the need of and benefit from further regional integration.¹⁰⁰

55. Despite recent modernization efforts, formalities and procedures at customs and other border agencies are still adversely affecting trade flows, leading to delays and long and uncertain waiting times at borders. Some of the main issues are lack of coordination between border agencies, burdensome processes and procedures, and antiquated equipment or systems to carry out inspections. Border crossings represent one of the biggest constraints on the cost-effective and reliable delivery of Nicaraguan imports and exports. Border crossings through Costa Rica and Honduras introduce the greatest delays into travel times for Nicaragua's trade, and can distort the flow of cargo toward a different route. This is of particular relevance because volumes traded through Nicaraguan ports are relatively small, reflecting not only the small economy but also the ports' limited infrastructure, a lack of a deep water port in the Atlantic and the capacity to

⁹⁸ For a comprehensive analysis on the topic: Nicaragua Country Economic Memorandum: Promoting Competitiveness and Inclusive Growth, World Bank (2014).

⁹⁹ Rankings for other Central American countries are: Panama (46), Costa Rica (88), Guatemala (111), Honduras (112), and El Salvador (123).

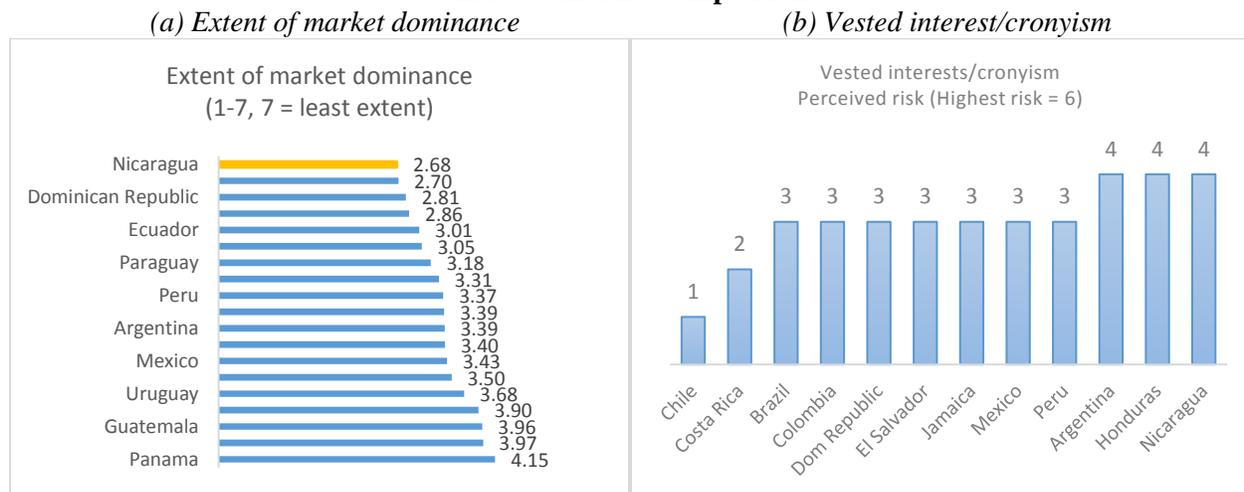
¹⁰⁰ Nicaragua was the first country in Central America to ratify the World Trade Organization Trade Facilitation Agreement in August 2015, which entered into force in February 2017. Most provisions are mandatory for all members, including Nicaragua. Estimates by the OECD suggests that the implementation of TFA provisions aimed at streamlining trade procedures could lead to cost reductions up to 15.1 percent in lower middle income countries.

handle growing volumes in a competitive manner. As a result, about 70 percent of Nicaraguan traded cargo travels along the Pan-American Highway in transit through Honduras to Puerto Cortés and through Costa Rica to Puerto Limón. Registration requirements for sanitary and phytosanitary standards (SPS) also represent a potential obstacle to regional integration, in particular for exports of agricultural and food products from developing countries. Increasing efficiency and reducing bottlenecks in border crossings could yield important competitiveness gains. In addition, improving coordination and harmonization of trade processes with neighboring countries would help integrate the region with global value chains.

Regulations and competition

56. Market competition is essential to spur entrepreneurship and innovation, and to raise productivity.¹⁰¹ Empirical and theoretical studies show that competitive product markets force companies to be more efficient, leading to an increase in labor productivity or multifactor productivity and also a positive effect on employment.¹⁰² Low total factor productivity growth in Nicaragua makes increasing market competition a priority. Nicaragua ranks at the bottom in the category of extent of market dominance of the Global Competitiveness Index 2016–17 (135 out of 138 with a score of 2.68). In addition, perception indicators that capture not only what is “on the books” but also implementation/application highlight potential discriminatory application in favor of incumbents (Figure 3.20, panel a, Figure 3.20, panel b).

Figure 3.20: Extent of market dominance and perception indicators suggest there is scope to increase market competition



Source: Global Competitiveness Index 2016–17 and Economist Intelligence Unit, Risk Tracker May 2015.

57. Nicaragua’s barriers to entrepreneurship are higher than in many other countries in LAC.¹⁰³ These results are driven by complex regulatory procedures (licenses and permits system for specific markets) and rules in network sectors that do not enable equally or more efficient firms

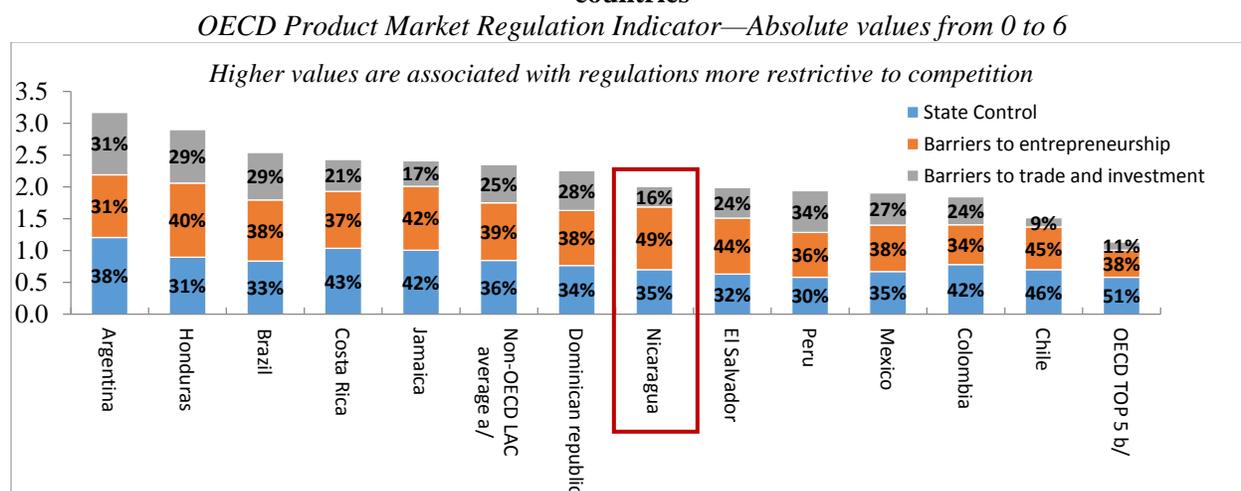
¹⁰¹ LAC Flagship on Entrepreneurship, 2014.

¹⁰² Wölfl, Wanner, Kozluk, & Nicoletti (2009), Nicoletti and Scarpetta (2003).

¹⁰³ Analysis performed using the OECD Product Market Regulation data tool, which is constructed based on three main sub-indicators: state control, barriers to entrepreneurship, and barriers to trade and investment. Nicaragua fares relatively well in barriers to trade and investment given the low tariffs and few restrictions to FDI, whereas it is in line with the region’s average in the State Control subcategory.

to enter and compete (by unduly favoring incumbents) in segments where competition is otherwise viable (Figure 3.21). Regulations that limit the entry of competitors where competition is viable may reinforce market dominance in key services sectors. In addition, even though Nicaragua has an overall adequate competition policy framework since 2006, competition law enforcement has not been effective.

Figure 3.21: Nicaragua’s barriers to entrepreneurship are higher than in many other LAC countries



Source: World Bank/OECD Product Market Regulation data 2013–2014.

Lifting constraints in Nicaragua’s key sectors and industries

58. **Nicaragua’s land productivity is the lowest among regional peers.** The average value generated is only USD 717/ha (constant USD). To put this into perspective, this is between 40–60 percent of average figures for Honduras, El Salvador, and Guatemala, and only 16 percent of Costa Rica’s value of land productivity. Table 3.8 shows productivity gaps for specific crops and livestock between Nicaragua and Central America. Raising land productivity could lift sectoral growth and overall GDP growth of the economy. Increases in agricultural output so far have been achieved mainly through an expansion in the agriculture area, raising concerns on the current model based on the expansion of the agriculture frontier. Nicaragua has ample room to increase agricultural production through intensification, optimization of land uses and sustainable expansion of the agricultural frontier. Improvements in productivity through investments in research and extension services aiming at agricultural intensification are needed to support a more sustainable pattern of sectoral growth and poverty reduction objectives.¹⁰⁴

59. **In addition, continued efforts to secure land property rights and strengthen Nicaragua’s land administration institutions are critical to increase productivity in the agricultural sector.** In terms of registering property, Nicaragua ranks poorly (146th) in the Doing Business report. The quality of land administration is low (index of 6.5 on a scale of 0–30); an estimated 35 to 40 percent of all land in Nicaragua faces some type of dispute or conflict. This includes boundary disputes, restitutions of past rights, lack of documentation to prove legal ownership or indigenous peoples’ claims over ancestral territories that overlap with other land

¹⁰⁴ World Bank (2015a).

tenure regimes.¹⁰⁵ The country’s conflict afflicted history had an important influence in the security of land tenure and property rights. Competing claims over the same plots of land and unsecured land tenure have partly limited investment in the agriculture sector, hence, undermining increases in land productivity. Several studies have found a positive relationship between the receipt of a registered title, land value and investment. For instance, Deininger and Chamorro (2004) found that, for the case of Nicaragua, receipt of registered title increased both land values and the propensity to invest. To address these issues, the government of Nicaragua, with support of the donor community, has made important strides to strengthen the land administration framework. These included the approval of key legislation and policies (Titling of Indigenous Peoples’ Lands Law (2003); Cadastre Law (2005); Public Registry Law (2009); Policy for Protected Areas Law (2009); and a General Land Policy Framework (2010)).

Table 3.8: Comparison of productivity of selected commodities in Nicaragua and Central America

Product	Nicaragua	Central America	Nicaragua vs. Central America
	kg/live animal		Ratio
Meat	151.8	192.2	0.79
Milk	748.1	1,272.0	0.59
	kg/ha		Ratio
Sugarcane	46,614.4	70,406.9	0.66
Beans	315.4	783.3	0.40
Rice	2,500.0	3,100.0	0.81
Coffee	388.6	689.2	0.56
Maize	529.8	2,205.8	0.24
Sorghum	829.0	1,484.9	0.56
Cacao	362.7	930.3	0.39

Source: Agriculture in Nicaragua: Performance, Challenges and Options, The World Bank (2015).

60. **The coffee sector in Nicaragua needs to improve productivity levels, adopt newer technologies, and ensure higher quality standards.** Production efficiency analysis of the sector¹⁰⁶ points to an important gap between low and high efficient producers. Only 20 percent of total producers displayed high levels of productive efficiency, accounting for 43 percent of total production. These units produced on average 5.2 times more output per land unit, 4.3 times more output per permanent worker, and 3.6 times more output per temporal worker than those displaying low efficiency levels. Land productivity (measured by yields) for low productive units was about 19 percent compared to high productive units. Low levels of productive efficiency are not just limited to subsistence and transition family farms, but also to an important share of both commercial family farms (40.8 percent) and business agriculture (47 percent), suggesting ample room for productivity gains through efficiency improvements among all segments of farmers. Factors correlated to high levels of productive efficiency were size of replanted coffee area, availability of proper equipment (e.g., milling equipment) and belonging to a producers’ organization, along with access to credit and technical assistance.¹⁰⁷ Institutional strengthening and coordination, and greater access to financing options, together with export market diversification—toward markets with growing coffee consumption, mostly in Asia—will also improve the outlook of the industry. Other factors to consider include the vulnerability to climatic

¹⁰⁵ World Bank (2013).

¹⁰⁶ World Bank (2015a).

¹⁰⁷ Ibid.

events and the fluctuation of international coffee prices. In particular, small producers do not have access to financial instruments that help mitigate these risks.

61. **The sugar sector is one of the most advanced agribusiness sectors in the country but to take it to the global standards, producers still face several challenges.** Although the Nicaraguan sugar sector has been at the forefront of technical advances such as energy generation from bagasse, they are still not able to sell ethanol domestically due to lack of a legal framework that would support the consumption of biofuels. Domestic production is highly exposed to weather fluctuations, which can seriously curb or even diminish yields. Variations in supply and stockpiles, due to challenges that the traditionally biggest players (Brazil, India, European Union, China) are facing, lead to high levels of price volatility. Revenues are generally defined by seasonal yields, which are mostly influenced by weather conditions. Improvements in agronomy (irrigation and harvesting) can lead to higher levels of efficiency in the sector.

Box 3.6: Agriculture in Nicaragua

Nicaragua's agricultural sector is characterized by the presence of a sharp duality. Subsistence farming (40.6 percent of all producers but only 2.5 percent of total farm area) is characterized by small farm size, generally unable to provide a sustainable livelihood for farmers and acting as a social safety net that prevents small-scale farmers from falling into poverty. Farms are often located far away from population centers, with poor infrastructure and access to social services. This sector comprises largely poor, small-scale producers of basic grains and coffee and other products for self-consumption and local markets (maize, beans, rain-fed rice, sorghum, and livestock). On the other end of the spectrum are commercial family farms and the agricultural business sector (accounting for 16.6 percent of total producers), characterized by larger average farm size, commonly located in geographic areas with higher productive potential, linked to agriculture value chains and commercially viable as businesses. This sector enjoys access to means of production: capital, land, labor force, modern technology and high-value markets, all of which provide producers with ample opportunities to improve efficiency.

This sharp duality calls for differentiated policies and interventions. Targeted by assistance programs such as income support and cash transfers, complemented food security programs may be better suited for subsistence family farmers. For transition family farmers (those in between subsistence and commercial farming), implementing strategies to link them to markets, improving access to agriculture productivity by enhancing services (i.e., extension, financial services, titling), assisting farmers in acquiring other sources of income (i.e., facilitating access to funding for business startups, retraining, and other agriculture and non-agriculture programs for income diversification), and promoting productive partnerships, associations, and alliances between producers and buyers that help boost competitiveness may work better. On the other hand, interventions for commercial family farmers need to focus on enhancing competitiveness and encouraging entry into foreign markets. The public sector can play an important role in dealing with markets failures such as credit, technology, logistics services, and infrastructure provision.

Source: Agriculture in Nicaragua: Performance, Challenges and Options, World Bank (2015).

62. **One major issue in the cattle and dairy industry is the sector's extremely low productivity.** Main constraints affecting the industry are: (i) poor technology and farm infrastructure both in husbandry and animal feed, (ii) poor genetics and the need for introducing new breeds, (iii) limited access to credit especially for small-scale farmers through commercial banks or microfinance institutions, and (iv) inadequate government support to the industry on more advanced phytosanitary standards and associated inspection and traceability systems. In addition,

access to export markets remains limited. Nicaragua is Bovine Spongiform Encephalopathy and Foot-and-Mouth disease free and maintains phytosanitary surveillance throughout the territory and borders, compliant with FDA guidelines. The Association of Agreement with the European Union, signed in August 2013, raised expectations for increased exports to this market. However, the results have been disappointing, with producers unable to fulfill the beef quota, mainly because of the industry's inability to meet technical standards related to traceability, quality and farm certification.

63. The Nicaraguan palm oil industry has the ideal agroecological conditions and necessary industrial facilities for the production and processing of concentrated palm oil.

Palm oil production is concentrated in the South Caribbean Coast Autonomous Region of Nicaragua (RACCS, for its acronym in Spanish), with approximately 70 percent of the total planted area, and Río San Juan with approximately 30 percent. Palm oil production currently uses more than 21,075 hectares and has been developed by companies that work with small producers and is mainly focused on the export market. According to PRONicaragua, Nicaragua's investment promotion agency, there are approximately 1.5 million hectares suitable for palm oil in the country. In addition, these companies have invested in access roads and energy, which have improved the infrastructure in the local communities. Challenges to increase production and exports of concentrated palm oil include: (i) weak institutional capacity, reflected in the lack of capacity to process permits and perform inspections in a timely manner by government agencies; (ii) weak infrastructure, as access to roads, energy, and telecommunication is limited in most areas suitable for palm oil plantations; (iii) high cost of establishing palm oil mills, which are not only limited to limited basic infrastructure, but also to complex land ownership and land tenure; (iv) lack of qualified/skilled labor due to low density, seasonal migration patterns, difficult training and hiring of personnel; (v) growing demand from the consumers in the developed countries to buy certified oil (certification of sustainable production); and (vi) lack of a deep water port in the Atlantic to increase access to markets.

64. The light manufacturing sector is dealing with lack of product diversity and sophistication as well as high energy prices.

Firms are generally focusing on simple garments, wire harnesses and basic medical devices, not yet engaging in high value-added products. As the country has no raw material production (plastics, synthetics, nylon, lycra, etc.), value-addition within Nicaragua is limited. In addition, roads are poorly maintained and sometimes impassable, with the exception of a few major intercity links. Seaport infrastructure is limited, and costs are high.¹⁰⁸ More importantly, high energy prices impose a significant operating cost. Nicaraguan operators therefore often find that their competitive advantage due to lower labor cost is erased due to higher energy prices, which represent a large share of the firms' operating costs. Also expansion to higher value products is limited due to low productivity and lack of skilled labor.

65. In addition, while the special economic zone regime succeeded in generating employment and increasing exports, it is costly and has fallen short in forging backward linkages to the domestic economy.

The special economic zone system provides a number of benefits to firms at the expense of important fiscal costs. These include exemptions such as: (i) income tax in the first ten years with the possibility of a ten-year extension; (ii) custom duties and

¹⁰⁸ Doing Business in Nicaragua: A Country Commercial Guide for U.S. Companies, https://build.export.gov/build/groups/public/@eg_ni/documents/webcontent/eg_ni_048474.pdf

tariffs on inputs and goods, machinery and transport equipment related to its operation; (iii) indirect, sales and excise taxes; (iv) municipal taxes; (v) export taxes; and (vi) taxes on purchases of domestic goods. In addition, the tax code provides additional benefits for exporters.¹⁰⁹ Yet, unlike East Asian experience of successful free economic zones, firms under special economic zones have not managed to build linkages with firms in the domestic economy. An increase in the interactions through supply chain links between special economic zone firms and the domestic economy could generate positive knowledge and technology spillovers from FDI. Part of the problem in these schemes is the implicit incentive for firms to access imports free of duty and therefore less likely to opt to buy inputs from local suppliers. The lack of a local supplier base may also act as a barrier.

66. Nicaragua's tourism industry lags behind its regional peers. While low levels of crime and a low-cost, well-educated workforce make the country an attractive location, the industry is lagging behind its regional peers in terms of size, investment and tourism arrivals. The most critical constraints for the industry are (i) inadequate infrastructure and insufficient public-private sector coordination to develop access to tourism locations; (ii) comparatively weaker brand and promotion efforts; (iii) limited support for micro businesses and SMEs in the tourism sector, since they are not covered by Law 306; (iv) lack of skilled labor force; and (v) lack of access to competitive bank financing for SMEs due to higher perceived risk and interest rates of over 12 percent.¹¹⁰

67. Key binding constraints for sustained private sector growth. There are several cross-cutting or recurring themes from the different industries that need to be improved in order for productivity to increase in the private sector such as: (i) access to finance; (ii) targeted education; (iii) inadequate infrastructure; (iv) high energy costs; and (v) difference between low and high efficient producers.

¹⁰⁹ Ley de Concertación Tributaria (Ley 822) and Régimen de Admisión Temporal (Ley 382).

¹¹⁰ Revista Turismo e Inversión. (6/08/2016). *Escaso financiamiento para PYMES.*

4. EQUITY AND INCLUSION

Nicaragua's income inequality is among the lowest in LAC, while it is among the highest worldwide. This chapter looks at elements that could have contributed to these relatively low levels of inequality, including low skill premium. Low returns to education are the result of low quality formal education and a skill mismatch in the labor market. Despite improvements, many policy tools have not reached full potential, and there is room for progress on a number of dimensions to promote more inclusive growth going forward. These instruments include: investment in basic infrastructure and services; access to quality education, health, and social protection programs and transfers; taxation and subsidies; and female labor force participation and gender wage gaps.

1. **Nicaragua ranks among the countries with the lowest income inequality in LAC.** Chapter 2 shows that inequality fell between 2005 and 2009, while it increased slightly in the following five years. Despite this rise in income inequality (and the high levels of inequality for international standards), Nicaragua's economy continued to be among the most egalitarian in Central America and LAC in 2014. The relatively low levels of inequality are consistent with Nicaraguans' own perception of income inequality in the country. In 2015, opinion polls asked citizens about their own perception of income inequality—i.e., whether they thought that income distribution was (i) very fair, (ii) fair, (iii) unfair, or (iv) very unfair.¹¹¹ About three out of five Nicaraguans thought that income distribution was either unfair or very unfair, making Nicaragua with the most favorable perception of income distribution in LAC after Bolivia and Ecuador.

2. **What are the main factors behind this relatively low inequality?** There are many external and internal factors and policy tools that can potentially affect inequality in a given country. This chapter focuses on a limited set of elements with substantial evidence supporting their inequality reduction effects. These factors include the following: (i) investment in basic infrastructure and services; (ii) access to quality education, health, and social protection programs and transfers; (iii) female labor force participation and gender wage gaps; and (iv) earning gaps between skilled and unskilled workers. Our analysis suggests relatively low returns to education are among the main forces behind the relatively low levels of income inequality (for LAC's regional standards) in Nicaragua.

4.1. Restricted and unequal access to basic opportunities and services

3. **Children's access to running water and sanitation in Nicaragua is among the lowest and most unequally distributed in LAC.** The Human Opportunity Index (HOI) measures access to basic opportunities and services—e.g., access to water, sanitation, and electricity—adjusted for how fairly they are distributed.^{112,113} Access to basic infrastructure and services early in life

¹¹¹ See *Latinobarómetro* (2015).

¹¹² See Barros et al. (2009), Molinas et al. (2010), and World Bank (2014) for a detailed description.

¹¹³ The HOI penalizes the traditional coverage rate—i.e., percentage of children with access to some basic service—by subtracting a measure that captures the degree of inequality in access to basic infrastructure. Therefore, the difference between the HOI and the coverage rate for a given opportunity reflects the degree of inequality in the access to that particular opportunity. The stronger is the relationship between access to basic services and individual, family, and community circumstances that are out of children's control (e.g., gender, household income, and place of residence) the bigger is this penalization and the larger is the gap between the coverage rate and the HOI—see Box 4.1 for a detailed description of the circumstances considered for measurement.

improves children’s health and well-being throughout their life cycle.¹¹⁴ The indicator focuses on children aged 16 and under to focus on opportunities early in life, as well as to eliminate the effect of effort and choices. The HOI for running water within the dwelling (see Box 4.1 for definitions) was 24 percent in 2014 (Figure 4.1, panel a), only higher than the HOI in El Salvador (18 percent). Similarly, the HOI for access to sanitation within the property was 45 percent in 2014, being only higher to the HOI in Honduras (38 percent), Bolivia (32 percent), Guatemala (25 percent), and El Salvador (16 percent).

Box 4.1: Definition of basic housing opportunities and services

This section focuses on access to basic opportunities and services that are relevant for development and that are used in multidimensional poverty indexes in LAC. In particular, it focuses on access to three housing services: running water, sanitation, and electricity. These indicators are computed using harmonized household surveys from SEDLAC project (CEDLAS and the World Bank) and available at the LAC equity LAB within the World Bank. Harmonized definitions of access are used to increase cross-country comparability. Therefore, the numbers presented in this report might differ from official statistics on access to basic services reported by national statistical offices.

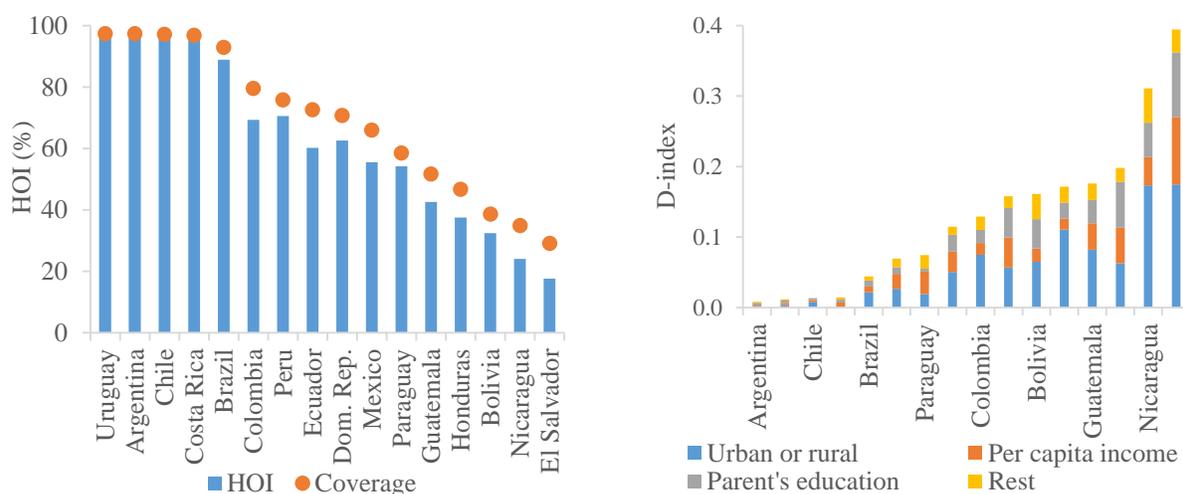
Given data limitations and the need to increase comparability across countries, we define the simplest form of access to these services. To do that, we follow Molinas et al. (2012) and World Bank (2014). A household is defined as having access to electricity if it reports having access independently of the source of the service received. A household is also classified as having access to sanitation if it has a toilet within the property connected to any source of waste-removal system. Finally, a household is defined as having access to running water if it has running water within the dwelling. All these opportunities are also used to measure the HOI. Individual circumstances used to measure this index are: parent’s education, child’s gender, gender of the head of the household, household per capita income, area of residence (urban or rural), presence of both parents in the household, and number of child’s siblings.

4. **A systematic way to explore the contribution of access to water and sanitation to income inequality is the D-index, which shows that access is largely unequal.** Societies with unequal access to children’s basic opportunities are more likely to present higher income inequality. The D-index reflects how access is affected by children circumstances. The larger the D-index, the more unequal is the access to basic opportunities—i.e., the larger is the gap between coverage and HOI. Nicaragua presents an important challenge to achieve equality in children’s access to water and sanitation (Figure 4.1, panel b). The D-index is the second highest in LAC after El Salvador. A decomposition exercise helps to understand the relative contribution of individual, household, and community characteristics to the overall inequality in access to water.

¹¹⁴ Broader and more egalitarian access to basic infrastructure and services is associated with lower poverty and inequality, and improved well-being of the population. Empirical evidence has found a strong link between lower children’s mortality rates and higher access to water and sanitation (Barros et al. 2009). Access to water and sanitation improves children’s health and reduces communicable diseases, and it also saves time by reducing the need to fetch water and decreasing missed school days due to sickness. Higher levels of environmental contamination are also associated to poor water and sanitation systems (World Health Organization, UN-water 2014). Similarly, access to electricity improves well-being and increases access to other basic opportunities—e.g., allowing nighttime studying, accessing information via television and internet, etc. (Molinas et al. 2012). Electrification can also increase rural incomes by making business more productive and reducing gender inequality by freeing up women’s time—e.g., time previously spent collecting firewood (World Bank 2016b). Therefore, inequities in access to all these basic opportunities and services among children at early stages translates into children with different jobs and earnings, which may increase inequality of outcomes later in life.

Place of residence (urban vs. rural), household income, and parents' education are the main circumstances limiting children's access to water and sanitation services: almost 85 percent of this inequality is attributable to these circumstances, which represents an important barrier for intergenerational mobility.

Figure 4.1: Children's access to running water remains low and largely unequal
 (a) Human Opportunity Index for access to running water in LAC, circa 2014 (b) D-Index decomposition of access to running water in LAC, circa 2014



Source: LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank). Note: The height of each bar in panel b represents the D-index, a measure of inequality in access to water within the dwelling. Rest of circumstances includes gender (both of the child and the head of household), number of siblings, and the presence of both parents in the home. See Box 4.1 for definitions.

5. The share of the total population with access to running water and sanitation has increased significantly in recent years, though it still remains among the lowest in the region.

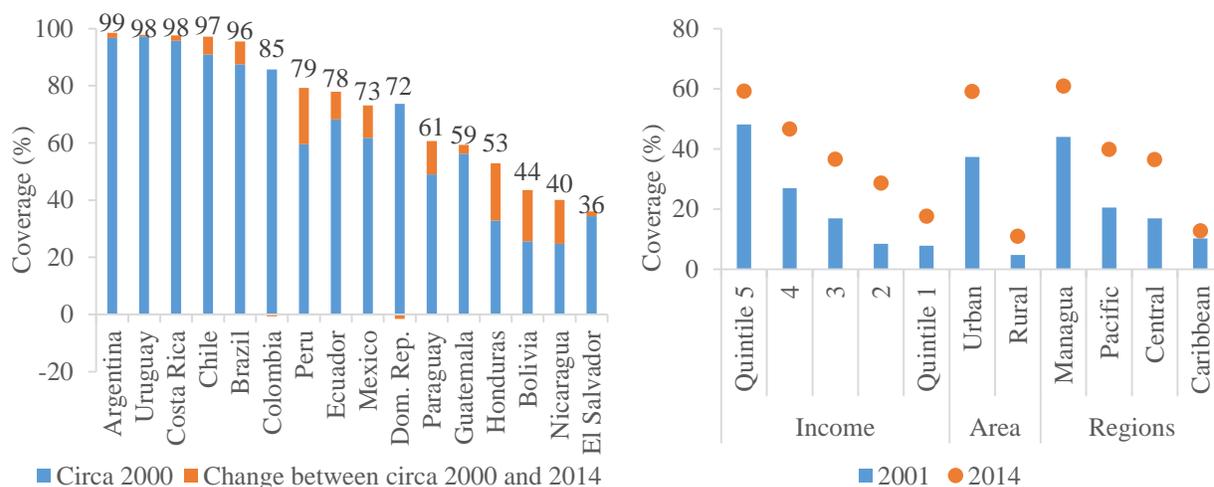
Nicaragua witnessed important gains in expanding access to running water and sanitation in the last 15 years. The proportion of households with running water within the dwelling increased significantly from 25 percent in 2000 to 40 percent in 2014 (Figure 4.2, panel a), the second largest increment in LAC after Bolivia. Similarly, the proportion of households with access to proper sanitation increased from 52 to 58 percent between both years. Still, access to water and sanitation services remains far from universal in the country—over 60 and 40 percent of Nicaraguans do not have access to such services, respectively—and lag behind other countries in LAC.

6. Provision of water and sanitation services is highly unequal across the country.

Access to water and sanitation remains low, especially for those at the lower end of the income distribution. In 2001, only 8 percent of households in the poorest quintile of the income distribution had access to running water within their dwellings, compared to 48 percent of those among the richest 20 percent (Figure 4.2, panel b). Nicaragua saw gains in terms of access in the last 15 years, especially among the poorest. Still, about eight out of ten individuals in the lowest quintile did not have access to water within their dwellings in 2014. Access was extremely low even among the better off; in 2014, about four out of ten individuals in the highest quintile of the per capita income distribution did not have access to running water. The distribution of the service also varies considerably within the country: almost nine out of ten households in rural areas and in the

Caribbean did not have access to running water in 2014. As discussed in Chapter 5, climate change will disproportionately affect areas dependent on groundwater for household consumption and agricultural production, which can result in significant economic losses.

Figure 4.2: Nicaragua lags behind in access to water compared to other countries in the region
 (a) Percentage of households with access to running water within the dwelling in LAC, circa 2000–2014
 (b) Percentage of households with access to running water by quintiles, area, and region of residence in Nicaragua, 2001–2014



Source: Authors' own elaboration based on 2001 and 2014 ENMV surveys. Note: See Box 4.1 for definitions.

7. **The quality of basic infrastructure is also lagging behind.** Recent available micro data does not allow for measuring the quality of the services directly. The 2005 Living Standard Measurement Study (LSMS) survey—the latest available survey that included a measure of quality—showed that quality of the water provision—measured as continuity of service supply—was poor in general and in particular among the most vulnerable groups of the population.¹¹⁵ About a third of the population in Managua had partial water supply in 2005, while roughly half of those living in the Caribbean lacked constant service provision. A 2015 study also presents similar evidence in 20 rural municipalities of the country;¹¹⁶ roughly 40 percent of households had water less than five hours per day in 2013. The situation is critical during the dry season; approximately one in ten families had more than three consecutive days without access to water. Many families needed to travel long distances in order to get water. Finally, nearly one out of five families thought that the water they consumed was polluted either from feces, soap, rubbish, or dead animals. As discussed in Chapter 5, mining is another activity that is contaminating rivers and aquifers. Sewer systems rarely operate in an acceptable manner, which results in wastewater discharged without treatment and poor sewage disposal.

8. **Since adult women are relatively more in charge of fetching water, walking long distances to get water affects their productivity.** The task of fetching water places important constraints on women's use of time for more productive activities. About one in ten families spent

¹¹⁵ World Bank (2008).

¹¹⁶ ONGAWA (2015).

more than 30 minutes to fetch water daily that year. Roughly one in five families consumed below the critical value of 20 liters per person per day recommended by the World Health Organization.

9. **Poor access to water and sanitation has resulted in heightened environmental health risks, especially in children under five years of age.** The total estimated cost associated with inadequate water supply, sanitation, and hygiene amounted to 0.9 percent of GDP in 2007, imposing a significant burden on Nicaragua's economy. These costs include the diarrheal mortality and morbidity, related health impacts (medical treatment, medicines, and value of lost time), and averting expenditures mostly associated with the purchase of bottled water and disinfecting water through boiling or chlorination to avoid health risks. The cost of health impacts represents an estimated 87 percent, and preventive expenditures related to filtering or chlorinating water represent about 13 percent of total costs.¹¹⁷

10. **Access to electrification services also remains far from universal, significantly lower than other LAC countries, and highly unequal.** Despite increasing significantly in the last 15 years, the proportion of households with access to electricity remained the lowest in LAC in 2014. Roughly one out of five Nicaraguan households did not have access to electricity in 2014 (30 percent of households in the wealthiest quintile of the income distribution vs. 8 percent in the bottom quintile) up from one out of three in 2000.¹¹⁸ There are also marked regional differences in access: electrification was almost universal in urban areas in 2014 (98 percent), while four out of ten Nicaraguans living in rural areas did not have access. Nicaragua also faces an important challenge to achieving equality in children's access to electricity. The D-index for electrification is by far the largest in LAC and almost 55 percent of this index was linked to the place of residence.

11. **Lack of access to energy has also important implications for health risks as households tend to rely on solid fuels for cooking.** Nine out of ten households burn fuelwood in inefficient stoves in poorly ventilated places in rural areas and one-third of the urban population use solid fuel for cooking.¹¹⁹ Acute respiratory infections (ARIs) and chronic obstructive pulmonary disease are the most common diseases associated with indoor air pollution in Nicaragua. Women and children spend more time at home, therefore they are the most affected by indoor air pollution. Each year, an estimated 140 to 200 children under age five die from ARIs in rural areas, and an additional 40 to 70 children die in urban areas in Nicaragua. Among children under age five, more than half a million annual cases of ARIs in rural areas, and more than 200,000 cases in urban areas, can be linked to indoor air pollution. The total estimated annual cost for indoor air pollution accounted for about 0.83 percent of GDP in 2007 and the rural poor accounted for 56 percent of that cost.

12. **Nicaragua spends large amounts of resources in water and electricity subsidies that tend to benefit more those who are better-off.** Given that the provision of piped water and electricity is highly unequal along the income distribution, subsidies in general tend to be regressive as they do not benefit the poor. Hernandez et al. (2016) show that Nicaragua's electricity subsidies are among the least equitable in Central America; only a quarter of subsidies are received by the bottom 40 percent of the income distribution, while 56 percent are received by the top 40

¹¹⁷ Kemper (2013).

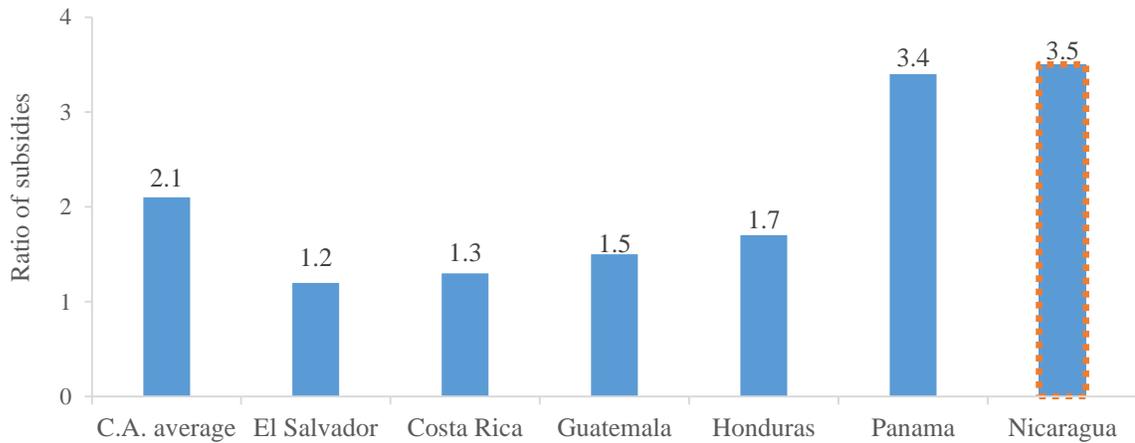
¹¹⁸ Access to electricity comes from LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank).

¹¹⁹ Kemper (2013).

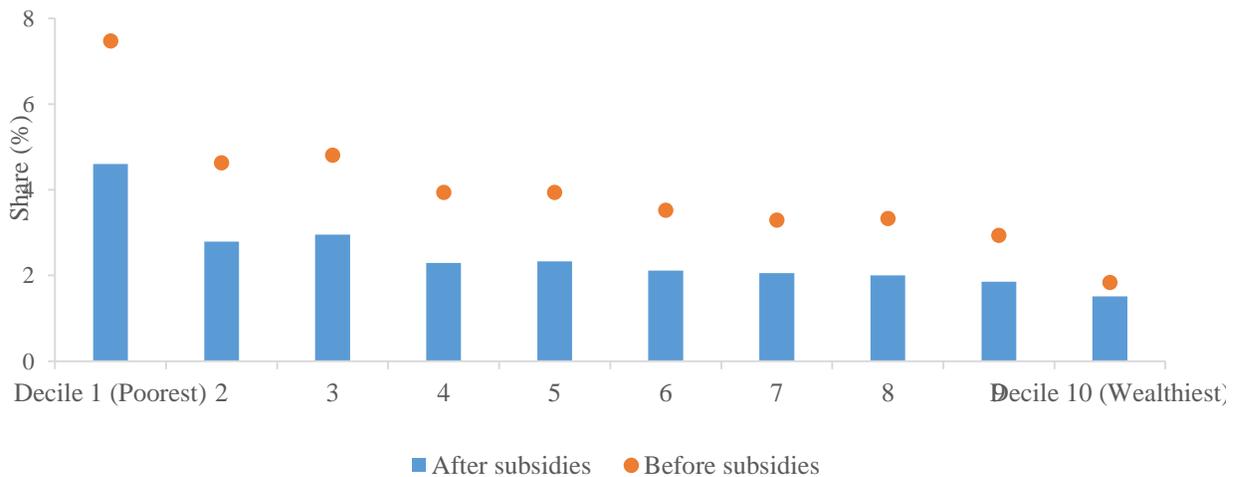
percent. The study shows that for every dollar received by Nicaraguans in the lowest quintile of the per capita income distribution, about USD 3.5 is received by individuals in the wealthiest quintile (Figure 4.3, panel a); the least progressive subsidies in Central America—and significantly higher than the Central American average of USD 2.1. However, even when they tend to be regressive, electricity subsidies generate important savings among the poorest households. In the bottom income decile, electricity costs are reduced from 7.5 percent of household income before subsidies to 4.6 percent after subsidies (Figure 4.3, panel b).

Figure 4.3: Electricity subsidies are regressive in Nicaragua

(a) Ratio of subsidies received by the wealthiest and poorest quintile of the per capita income distribution



(b) Electricity costs as a share of household income by decile in Nicaragua, before and after subsidies



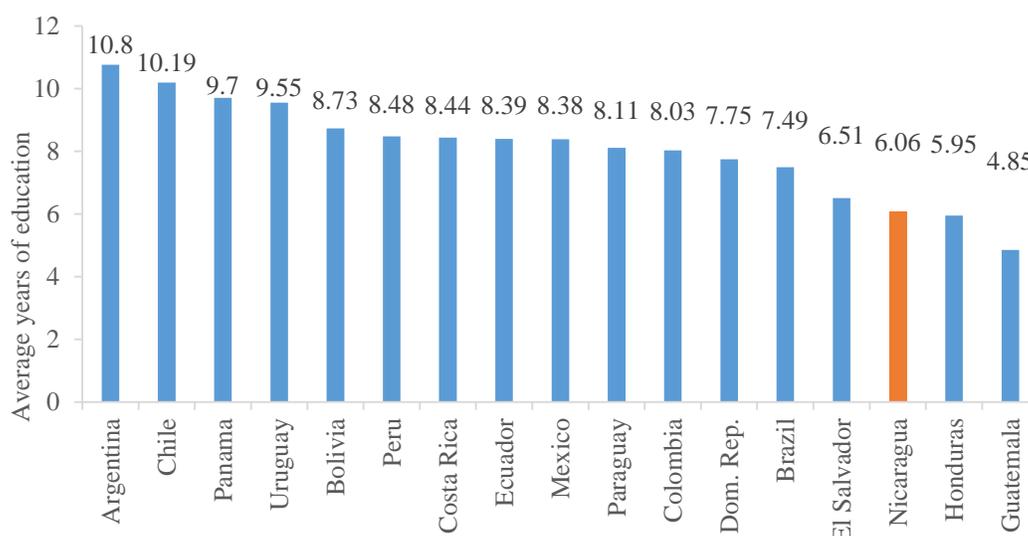
Source: Hernandez et al. (2017).

4.2. Limited and unequal access to and quality of education

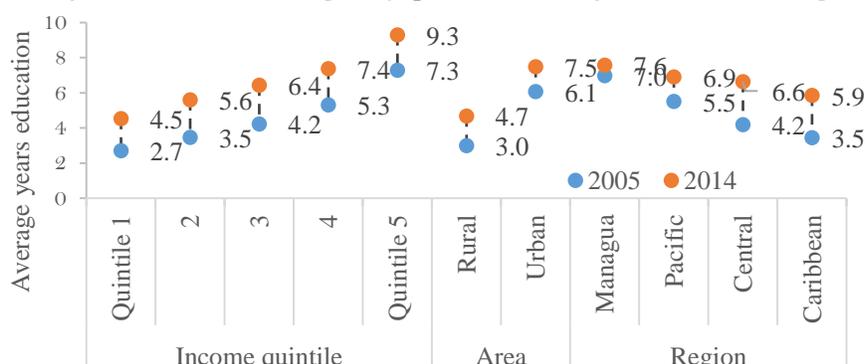
13. **Access to education of good quality provides many opportunities later in life and it is highly associated with poverty reduction.** Inequities in education access and quality translate

into higher income inequality later in life and tend to perpetuate poverty.¹²⁰ Youth with lower levels of education have less opportunities in the labor market in general—i.e., employment and wages.¹²¹ As such, poverty is highly associated with education outcomes. For instance, the poverty rate of Nicaraguans living in households where at least one member completed secondary education is lower (23 percent) than those who live in households where no member completed secondary level (49 percent).¹²² A decomposition analysis conducted to understand the contribution of the years of education to the reduction of the poverty in the country between 2005 and 2014 concluded that years of education explained about a quarter of that poverty reduction.¹²³

Figure 4.4: Nicaragua is among the least educated countries in LAC
 (a) Average years of education of head of households in LAC, circa 2014



(b) Average years of education in Nicaragua by quintiles, area of residence, and region, 2005–2014



Source: Own calculations based on SEDLAC (CEDLAS and the World Bank). Note: Argentina and Uruguay refer to urban areas only.

¹²⁰ Barros et al. (2009).

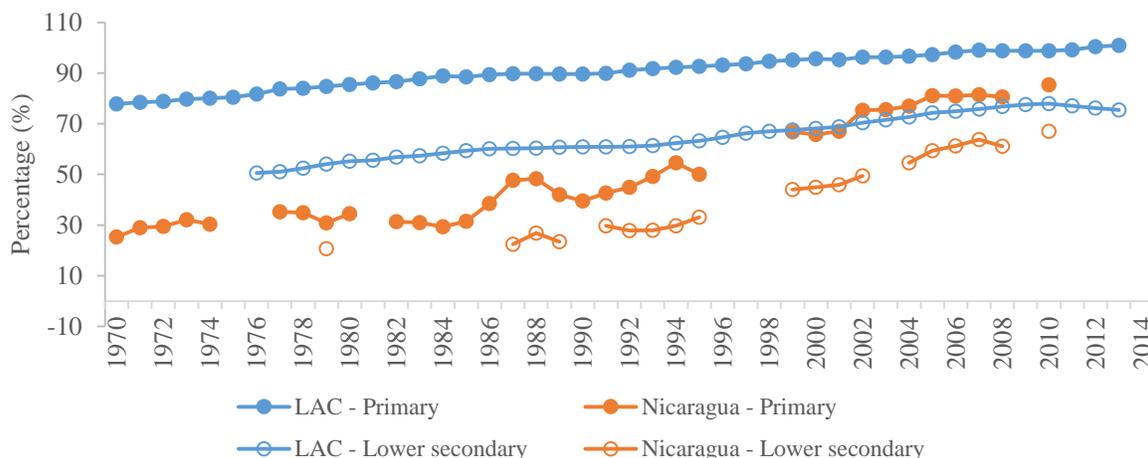
¹²¹ Aldelman and Szekely (2016).

¹²² Similarly, the poverty rate of individuals living in households where at least one member completed tertiary education is significantly lower (90 percent) than those who live in households where none completed that level (41 percent).

¹²³ Results based on the Oaxaca (1991) and Blinder (1973) decomposition of poverty changes.

14. **Nicaragua ranks among the countries with the lowest years of education in LAC.** In 2014, the average years of education of head of households in Nicaragua were the lowest after Guatemala and Honduras and significantly lower than the LAC regional average (Figure 4.4). In addition, the average years of education of households' heads in the top 60 percent of the income distribution almost doubled the average years of education of head of households in the bottom 40 (Figure 4.5). Years of education also varied significantly across regions and areas of residence within the country.

Figure 4.5: Completion rates have increased but lag behind regional averages
Primary and lower secondary completion rates in Nicaragua and LAC, 1970–2014



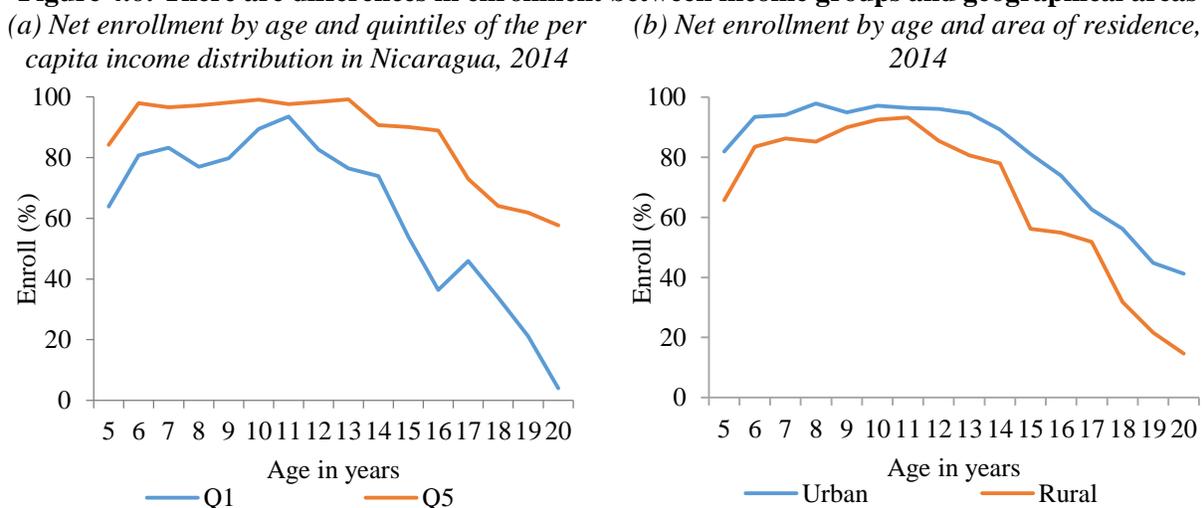
Source: World Development Indicators.

15. **Chronic malnutrition and low access to quality early education affect children's development and performance in the education system, particularly for children living in rural areas.** Stunting impairs brain development and is negatively correlated with educational attainment (Galasso and Wagstaff 2016; Grantham-McGregor et al. 2007; Victora et al. 2008, Glewwe et al. 1995; Glewwe et al. 2001). International evidence shows that children who did not attend to preschool education are more likely to have poor academic performance, to repeat grades, and to drop out of school more than those whose cognitive skills and overall school readiness were higher upon primary school entry (Naudeau and Hasan 2016; Feinstein 2003; Pianta and McCoy 1997; Currie and Thomas 1999). Nicaragua has the lowest access rates to preschool of Central America, after Guatemala (World Bank 2016a). Late entrance to the system is related to both cultural aspects (i.e., lack of interest in preschool education by the indigenous and rural communities) and low preschool supply (MINED 2016). According to EMNV 2014, the percentage of students entering the system at the age of five is about 80 percent in urban areas, 60 percent in rural areas, and only 50 percent in the Caribbean Coast Regions. In addition, preschool quality tends to be lower in rural areas, where about 60 percent of the children attend community preschools, led by low trained volunteer teachers. This late entry and low quality derives in high dropouts and repetition in early grades, as well as high overage rates: 15 percent repetition and 16 percent dropout in first grade and ten percent repetition and nine percent dropouts in second grade (MINED 2016).

16. **The country has significantly improved access to education and completion rates, but still lags behind regional averages.** Completion rates increased from 30 percent in 1985 to 85 percent in 2010 for primary education, while lower secondary increased by about 45 percentage points from 21 percent to 67 percent between both years (Figure 4.5). Even when this implies a significant progress, completion rates lag behind regional averages. Girls outperform boys in terms of completion rates: in 2010, 89 and 74 percent of girls completed primary and lower secondary education respectively, compared with 82 and 61 percent of boys.¹²⁴

17. **The education system does not perform well with respect to student retention.** As discussed in Chapter 3, high school dropout raises concerns due to its impact on productivity and inclusiveness. About 12 percent of lower secondary school age adolescents were out of school in 2010 compared with 6 percent in LAC. In primary education, both demand- and supply-side challenges exist; distance to the school is among the main reasons for dropping out. In secondary education, demand-side factors are more relevant: the lack of interest, financial problems, and the opportunity cost are mentioned among the main reasons for not attending secondary education.¹²⁵ Boys and girls leave school for different reasons: boys are more likely to leave school prematurely to enter the labor market, while girls leave for resource constraints and/or to assist with domestic work.¹²⁶ Teenage pregnancy is another important factor affecting female exit from secondary school.¹²⁷ Discouragement for overage, driven mainly by late entry and repetition since early grades in primary education, is also likely to have an impact on dropout rates. Nicaragua has the highest overage rate in LAC at the primary level (63 percent in 2014). Overage in the primary level is disproportionately higher among the poorest, in rural areas, and in the Caribbean coast.¹²⁸

Figure 4.6: There are differences in enrollment between income groups and geographical areas



Source: World Bank (2016).

¹²⁴ Bonfert, Jaén, Müller, and Reyes (2016).

¹²⁵ World Bank (2016).

¹²⁶ Anna Tabitha Bonfert, Martha Jaén, Miriam Müller, and Germán Reyes (2016).

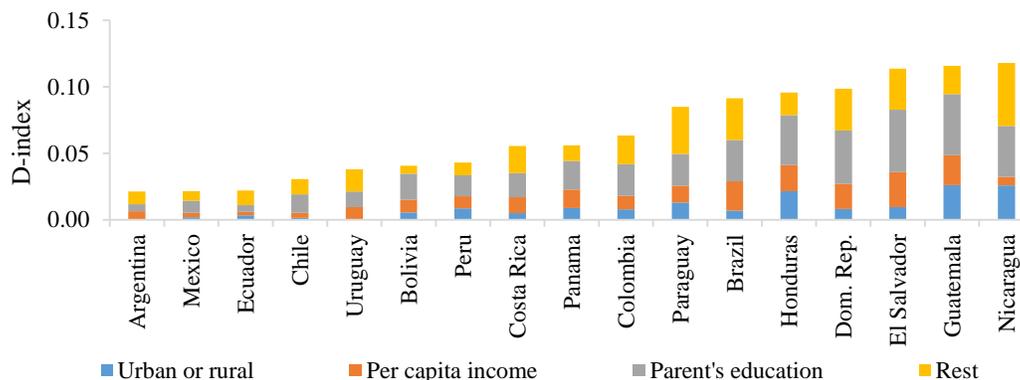
¹²⁷ Ibid.

¹²⁸ World Bank (2016).

18. **There are marked inequities in access to education, particularly in secondary and postsecondary education.** Large inequalities exist in access to education between income groups, area of residence, and regions. Net enrollment rates are roughly universal in primary education, however enrollment declines for all income groups, and the gap between the lowest and highest quintile widens in secondary and postsecondary levels (Figure 4.6, panel a). Access to education is particularly low in rural areas (Figure 4.6, panel b) and in the Caribbean. The gap between urban and rural areas—and Caribbean and the rest of the regions of Nicaragua—in the first years of education is associated with late entry into school of those children living in poor households, while it is linked to restricted access to education opportunities and geographical and climate obstacles for children aged more than 12 years.

19. **The probability of finishing primary level is highly unequal in Nicaragua compared to other countries in the region.** Once again, we use the D-index to explore the contribution of education to the inequality in Nicaragua. The index is the largest in LAC (Figure 4.7), reflecting a high inequality in the probability of completing primary education. Parental education is among the main circumstances determining inequality in access to this basic opportunity; roughly one-third of the inequality in finishing primary education across groups of circumstances is attributable to parents' education, which stresses the high intergenerational transmission of poverty in the country.

Figure 4.7: Parents education largely affect children's chances of finishing primary education
D-Index decomposition for finishing primary education in LAC, circa 2014



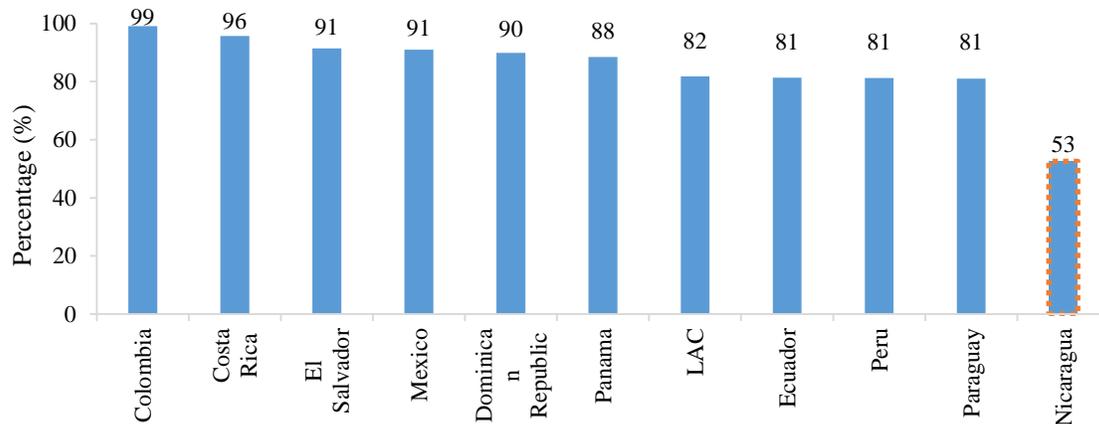
Source: LAC Equity Lab tabulations of SEDLAC (CEDLAS and the World Bank). *Note:* The height of each bar in panel b represents the D-index, a measure of inequality in the probability of finishing primary education. *Rest* of circumstances included are gender (both of the child and the head of household), number of siblings, and the presence of both parents in the home.

20. **Not only is unequal access a source of great concern; the quality of education is also lagging behind.** Education of good quality has important implications for development as it contributes to sustained long run economic growth. Hanushek and Woessmann (2012) provide evidence that low quality education may explain more than half of the differences in incomes between LAC and the rest of the world. Many countries in the region have made some progress regarding school attendance and enrollment, however they are still behind in terms of quality of education.¹²⁹ Nicaragua is not the exception, the level of training and qualification of Nicaragua's

¹²⁹ World Bank (2016c).

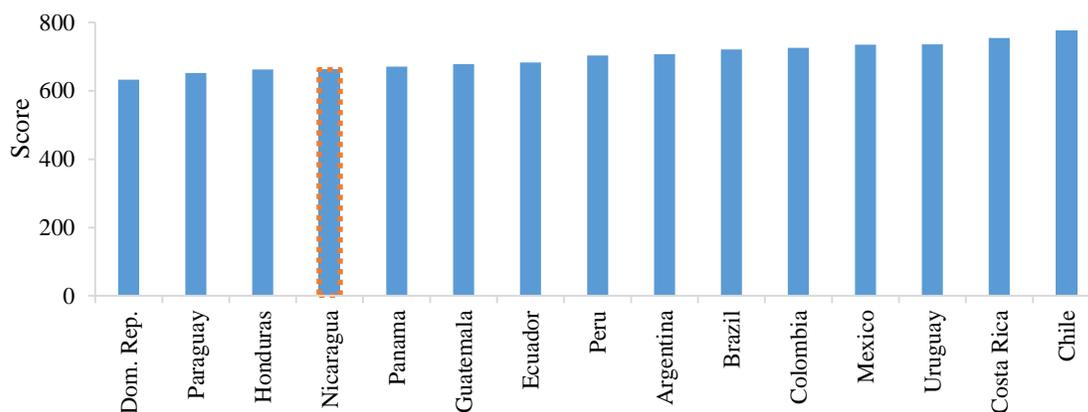
teacher workforce is of concern. Teacher qualification has improved for the primary level in recent years, however it remains quite low for preschool and the secondary level. In 2013, about one in six teachers in the primary level did not have a graduate degree. That share was much higher in secondary level: 43 percent of teachers did not have a graduate degree that year.¹³⁰ The country presents the lowest share of trained teachers compared with other countries in the region for which data are available (Figure 4.8). In 2010, about half of the teachers were not properly trained in the secondary level, compared to about eight out of ten teachers on average at the regional level.

Figure 4.8: Quality of education is low in Nicaragua
Percentage of trained teachers in secondary level, circa 2014



Source: International Education Statistics (2016). Note: Numbers for Nicaragua are from 2010.

Figure 4.9: Standardized test scores are among the lowest in LAC
TERCE reading scores in 6th grade, circa 2014



Source: UNESCO/TERCE 2016.

21. **Low quality education is notorious when comparing the standardized reading, math, and natural sciences scores.** Standardized test scores in LAC countries are in general significantly lower than more developed economies.¹³¹ Nicaragua is not an exception. The country has one of the lowest TERCE reading scores in sixth grade after the Dominican Republic, Paraguay, and

¹³⁰ Ibid.

¹³¹ World Bank (2014).

Honduras (Figure 4.9)—though they are slowly improving.¹³² Learning outcomes are affected by the lack of an early education: results of international standardized evaluations applied in the country show that students from grades three and six who attended preschool have better reading and math scores (MINED, based on UNESCO/TERCE results, 2016). However, World Bank (2016) shows that despite being among the lowest in the region, the gap in scores among income groups, private/public schools, urban/rural areas, boys/girls, and regions within the country is small in general, which suggest that low scores are equally distributed across different groups. Nicaraguans area also generally satisfied with the public education they receive (Box 4.2).

Box 4.2: Nicaraguans are in general satisfied with the public education they receive

Despite having among the lowest quality education in the region, Nicaraguans are in general satisfied with the quality of their public education. Even when education tends to be of poor quality according to objective measures—e.g., proportion of teachers trained, standardized tests, etc., Nicaraguans tend to be satisfied with the public education they receive. According to opinion polls, in 2015 Nicaragua ranked second in terms of LAC countries where individuals were satisfied with the public education (*Latinobarometro* 2015): 77 percent of Nicaraguans were satisfied with public education, the second highest after the Dominican Republic (82 percent) and much higher than the LAC unweighted average (55 percent in LAC). Similarly, the country had the lowest proportion of individuals who rated public school teachers' knowledge of the subject they teach, their presentism, and their ability to teach as very poor or fairly poor in 2011 (*Latinobarometro* 2011). World Bank (2008) finds similar results: perception about the quality of education of parents with children in primary school are positive in general. The study suggests that high satisfaction with the education received coupled with low quality of education is of great concern as it might end up reducing individuals' demand for better education.

4.3. Health: many challenges still lie ahead

22. **Despite the increase in overall public spending on health, the still low per capita public expenditure limits service coverage and quality.** Although Nicaragua's public spending on health's share of GDP increased from 3.8 percent in 2007 to 5.1 percent in 2014, its per capita public spending on health remained the same in 2007 constant dollars at 145 dollars since 2007, being among the lowest in Central America and LAC.

23. **Nicaragua's achievements in the reduction of infant mortality rate is uneven.** Under-five mortality rate declined from 42 to 17 per 1,000 live births between 1998 and 2011–2012. This is partly due to an overall decrease in adolescent pregnancy, as well as an increase in the share of babies born to adolescent mothers that were delivered in health facilities from 74 percent in 2007 to 94 percent in 2014. However, regional disparities persist: despite all efforts, mortality rates in rural areas remain more than ten points higher than those in urban settings.

24. **The country has reduced maternal mortality, however, some challenges are still present.** MDG-related efforts included improving institutional births, providing immediate post-delivery checkups, and implementing a 'maternal houses' strategy to provide women from rural areas a place to stay to ensure safe and assisted delivery and postnatal care, among others. The maternal houses strategy is a Government effort that complements institutional delivery and is important for women's birth plans, and includes a short stay prior to and postdelivery. The Birth Plan is agreed between the parents to be and community leaders and includes details such as the

¹³² The situation is similar for math and natural sciences and for third grade scores.

possible use of maternal houses, a transportation plan, a support network to care for the children left at home, and possible emergency scenarios. In 2014 alone, the Ministry of Health identified 46,536 birth plans. The maternal house strategy was accompanied by measures for improving the quality of care¹³³ in an effort to reduce maternal mortality. This contributed to reducing the maternal mortality rate from 63 to 38 maternal deaths per 100,000 live births between 2009 and 2014. Despite this progress, Nicaragua ranks as the fourth highest in maternal mortality in LAC and the highest in Central America.¹³⁴ Challenges related to quality of care and inequities also persist in the system with several Local Systems for Integral Health Care (*Sistema Local de Atención Integral en Salud*, SILAIS) such as Boaco (78.5 per 100,000 live births), Jinotega (55.9 per 100,000 live births) and RAAS (160 per 100,000 live births) still having higher mortality rates.

25. While adolescent pregnancy has decreased, it remains a major contributor to the high maternal mortality rates and continues to be a challenge with widespread social and economic implications. The rate of pregnancy among girls 10 to 19 years of age showed a small decline from 26 percent in 2006–07 to 24 percent in 2011–12,¹³⁵ but remains high. As discussed in the previous section, adolescent pregnancy affects female exit from school: many young girls either drop out of school and become pregnant or drop out of school due to pregnancy, thus facing a vicious cycle of poverty.

26. The nutritional status of Nicaraguans reflects accomplishments and highlights the challenges ahead. Nicaragua witnessed improvements in chronic malnutrition and total undernutrition among children under five years of age. From 1998 to 2011–12, chronic malnutrition decreased by 8 percentage points and total undernutrition decreased by 15 percentage points. However, Nicaragua is now reporting a different type of malnutrition: increasing rates of overweight and obesity, particularly among children and women of reproductive age. The prevalence of overweight¹³⁶ among boys and girls under 20 years of age is 15 percent and 23 percent, respectively. Overweight prevalence was much higher among men and women over 20 years of age, at 43 percent and 68 percent, respectively.¹³⁷ Poor nutrition perpetuates the cycle of poverty and malnutrition through three main routes: direct losses in productivity from poor physical status, losses caused by disease linked with malnutrition, and indirect losses from poor cognitive.

4.4. Limited redistributive impact of fiscal policy

27. Social protection spending grew in recent years driven by both social assistance and social insurance spending, although it remains low compared with other countries. World Bank (2016a) shows that social protection spending grew from 2.4 percent to 4.4 percent of the GDP between 2007 and 2014, a growth that was above the rest of the Central American countries.

¹³³ Other strategies include training at all levels of care including midwives and community leaders for a prompt response and support.

¹³⁴ World Health Organization (2016).

¹³⁵ Latest available data from the National Demographic and Health Survey which has nationally representative data. All other available data are only administrative data from the Ministry of Health. This data cannot be compared over the years because it only recently started collecting data from all health centers.

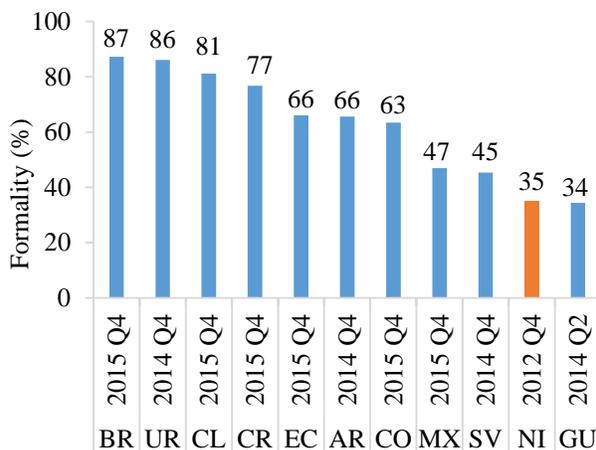
¹³⁶ Overweight is defined as having a body mass index (BMI) ≥ 25 to < 30 kg/m² in adults aged > 18 years. In children classification is based on the International Obesity Task Force definition.

¹³⁷ Global, regional, and national prevalence of overweight and obesity in children and adults during 1980–2013: a systematic analysis for the Global Burden of Disease Study (2013). Murray et al. (2014).

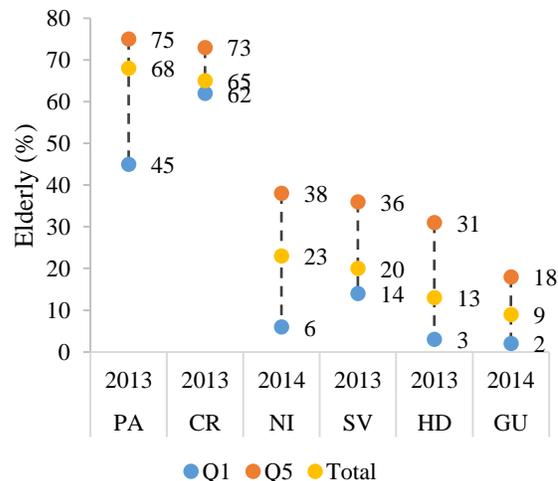
This increment responded both to a rise in social insurance—mostly through the implementation of a pension reform—and higher social assistance spending. However, social protection spending in 2014 continued to be relatively low if compared to the rest of the Central American countries; social protection spending in per capita terms was 124 USD (in 2007 PPP dollars) in 2014, compared to the Central American average of 416 USD.

Figure 4.10: Social security contributions and pension coverage remained low

(a) *Formality in LAC: legal definition, circa 2014*



(b) *Percentage of elderly covered by pensions in Central America, circa 2013*

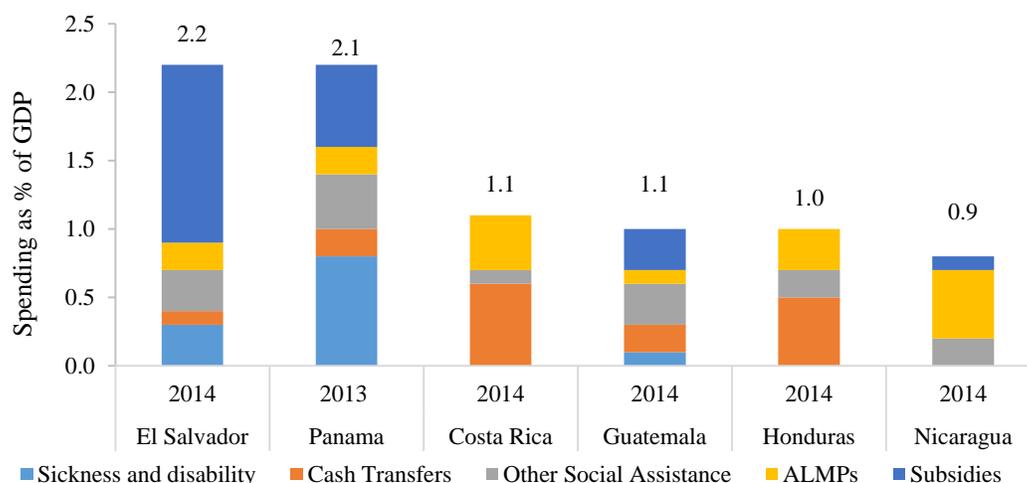


Sources: Panel a: LAC Equity Lab tabulations of LABLAC (CEDLAS and the World Bank). Panel b: World Bank (2016a). Note: Formality based on legal definition in panel a refers to having the right to a pension linked to employment when retired and is only measured for salary/wage workers.

28. **Even when social security contributions and pension coverage have increased, both are low and coverage is unequal.** The share of employees 15–65 years old contributing to the social security system increased by 45 percent in the last ten years from 18 percent in 2005 to 26 percent in 2014.¹³⁸ However, coverage remains among the lowest in LAC, which is associated with the relatively high informality of the labor market in Nicaragua. About one in three salary workers is formal, significantly lower than most LAC countries for which recent labor data is available and only slightly higher than Guatemala (Figure 4.10, panel a). As result of this relatively high informality rate, coverage of pensions is low and unequal. The proportion of the elderly who were covered by pensions more than doubled, increasing from 10 percent in 2005 to 23 percent in 2014. However, coverage in 2014 was still less than half of the coverage in Costa Rica and Panama, and the coverage among the better off was more than twice the coverage of the less well off in 2014 (Figure 4.10, panel b).

¹³⁸ World Bank (2016).

Figure 4.11: Social assistance spending as percentage of GDP was the lowest in Central America



Source: World Bank (2016a).

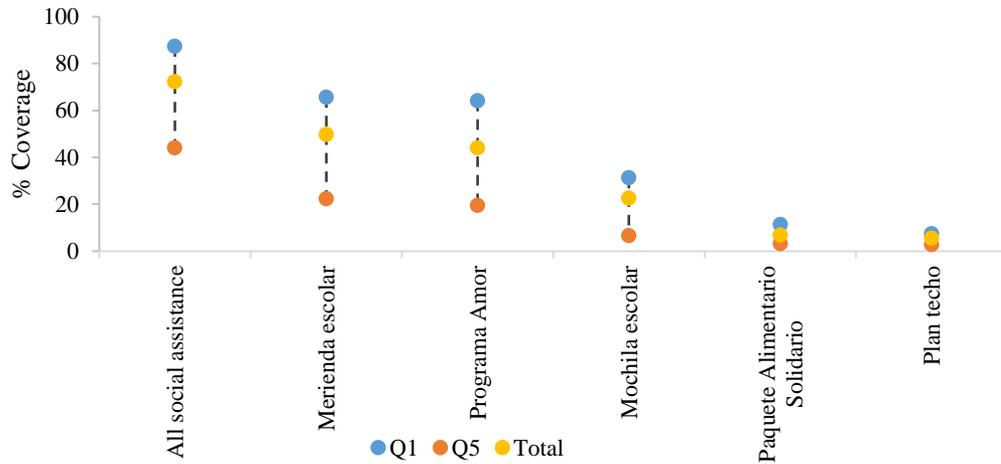
29. **Social assistance spending is the lowest of Central America, and programs have limited coverage and are insufficiently targeted.** Social assistance spending as share of GDP almost doubled from 0.5 to 0.9 percent of GDP between 2007 and 2014, but remains the lowest of Central America (Figure 4.11). Coverage of social assistance programs has increased in recent years, with over 40 programs managed by 22 institutions.¹³⁹ Roughly 70 percent of the population is covered by at least one of these social assistance programs at the national level. Beneficiaries include children, women, the elderly and disabled. Coverage is higher in rural areas, among the less well off, and in the Central and Caribbean regions. However, coverage is generally low for most programs for which data are available and targeting could be improved significantly. About 13 percent of those in the lowest quintile are not covered by any social assistance program and none of the programs covered more than 70 percent of the poorest 20 percent (Figure 4.12, panel a). Costly leakage is also an important problem since about half of beneficiaries did not belong to the poorest quintiles in 2014 (Figure 4.12, panel b). This suggests that there is room for social protection spending to support more inclusive household income growth, which might become increasingly important given the recent trend in income inequality.

Box 4.3: The *Red de Protección Social* program

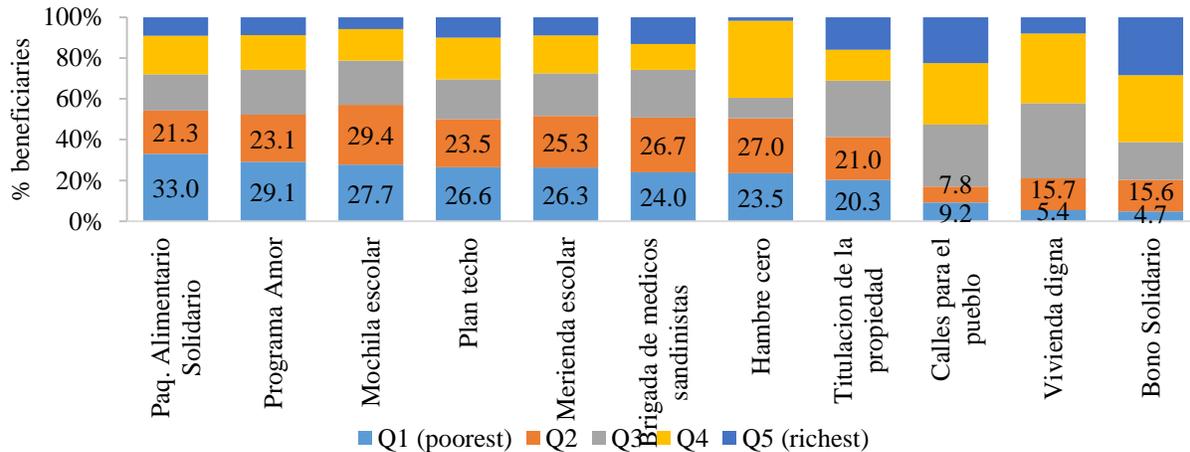
Nicaragua does not have a CCT program today, though it had the *Red de Protección Social* program from 2000 to 2006. The program targeted poor households with children aged 7–13 enrolled in primary school (grades 1–4) and children aged 0–5 years receiving health care services. The program has been extensively evaluated and identified as the CCT with the highest impact in terms of increase in consumption and poverty reduction. A number of indicators improved for household beneficiaries, such as food consumption, school enrollment, and stunting (Maluccio and Flores 2005). Bustelo (2012) found positive schooling impact on nontargeted siblings. The program also worked as a social safety net, protecting families affected by the reduction of prices during the 2001 coffee crisis (Maluccio 2007, Vakis, Kruger, and Mason 2006). Dammert (2009) found that the program had a higher positive impact on schooling and negative impact on work on boys compared to girls. Lessons from the program should be taken into consideration when designing social assistance programs in Nicaragua (World Bank 2016).

¹³⁹ These programs are social care services, family and child benefits, school feeding, education benefits, housing and emergency benefits, among others.

Figure 4.12: Social assistance programs have low coverage and limited targeting accuracy
 (a) Coverage of social assistance programs (those with more than five percent of coverage), 2014



(b) Distribution of beneficiaries of social assistance programs, 2014

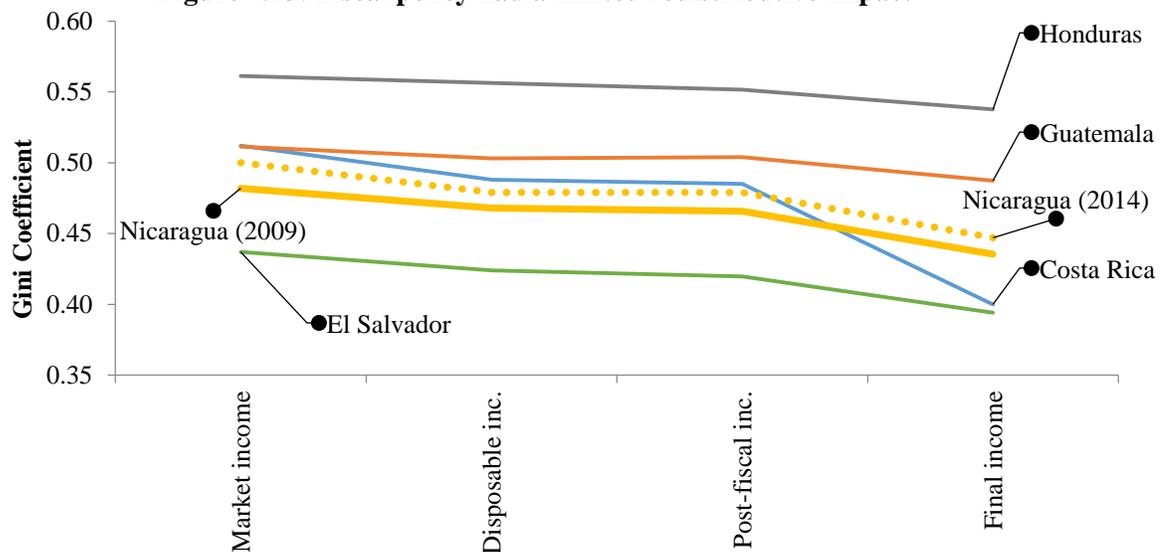


Source: World Bank (2016).

30. **Overall fiscal policy had a limited redistributive impact, which raises concerns with respect to the country’s capacity to reduce inequality going forward.** A 2014 study shows that fiscal policy had a modest redistributive impact in LAC countries compared with non-LAC OECD countries.¹⁴⁰ Like in most of LAC countries—and Central American ones—the redistributive impact of taxes and public spending has been limited in Nicaragua (Figure 4.13). Most of this impact in 2009 and 2014 was driven from in-kind government transfers (provision of public schooling and health). However, the simulated impact of in-kind transfers does not take into consideration the quality of services provided, which is relatively low in the case of in Nicaragua. This section suggests that overall fiscal policy is not a key factor behind the relatively low income inequality in Nicaragua and remains an important instrument for promoting a more inclusive growth in Nicaragua going forward.

¹⁴⁰ World Bank (2014).

Figure 4.13: Fiscal policy had a limited redistributive impact



Source: Commitment to Equity Institute Data Center, 2017. Based on information from: Costa Rica (Sauma and Trejos, 2014); El Salvador (Beneke, Lustig and Oliva, forthcoming; advance online version, October 2016); Guatemala (Cabrera, Lustig and Moran, 2015); Honduras (Castaneda and Espino, forthcoming); and Nicaragua 2009 (Cabrera and Moran, forthcoming). Nicaragua 2014 is from FUNIDES (2017). *Note:* The figure shows the Gini coefficient for different income definitions (see Box 4.4).

Box 4.4: What has been the contribution of the overall fiscal policy to low income inequality?

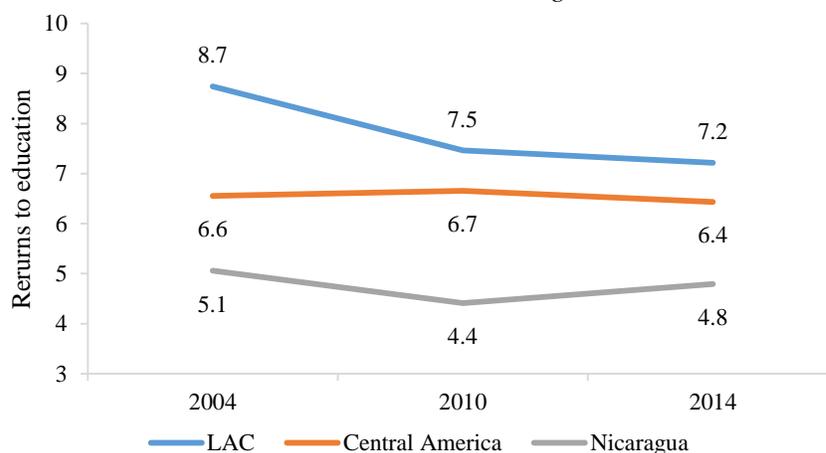
Both government spending and taxes might have a redistributive impact, depending mainly on the progressivity of fiscal policy and the composition of spending and taxes. To explore the contribution of the overall fiscal policy to income inequality, the Commitment to Equity Project (CEQ), a joint initiative of Tulane University and the Inter-American Dialogue, was used. The CEQ is a standardized methodology to assess the distributional impact of the fiscal policy in LAC countries. The method decomposes fiscal policy into direct taxes (e.g., income taxes); direct transfers (e.g., noncontributory pensions, and conditional and unconditional cash transfers); and indirect taxes and transfers (e.g., value added taxes, and fuel subsidies). The method uses four income concepts. First, Market Income refers to the household income before taxes and public transfers. Second, Disposable Income subtracts direct income and payroll taxes and adds direct transfers to Market Income. Third, Post-Fiscal Income adds indirect subsidies and subtracts taxes from disposable income. Final Income is Post-fiscal income plus in-kind public transfers on health and education (World Bank 2014).

4.5. Low returns to skills contributed to the low levels of income inequality

31. **Returns to education slightly increased in the last five years, in contrast with the decline in LAC and in Nicaragua before 2009.** There are two elements that can contribute to labor income inequality (and consequently to total income inequality): (i) the composition and variance of education and skills, and (ii) the returns to those skills (World Bank 2011). Gindling and Trejos (2013) and Gasparini et al. (2011) present evidence that the returns to education fell in Nicaragua before 2005. The first authors find a reduction in the returns to education of about 20 percent between 1998 and 2005, while the second analysis shows a decline of seven percent between 2001 and 2005. Montenegro and Patrinos (2014) show the evolution of the returns to education for all LAC countries for which data is available on a regular basis. According to this study, the returns to education in Nicaragua presented the strongest reduction, where they ended

up being the lowest in LAC in 2009. World Bank (2012a) also finds a strong reduction of returns to education in Nicaragua, with a reduction of 80 percent between 2001 and 2009. Figure 4.14 shows similar trends; the premium for an additional year of education decreased from five percent in 2005 to 4.5 percent in 2009. This reduction was similar to the LAC region as a whole, where returns to education decreased from 7.8 percent in 2004 to 7.4 in 2009. However, the education premium slightly increased to 4.8 percent in 2014 in Nicaragua, while it continued decreasing—although at a slower pace—in LAC, reaching 7.2 percent in 2014.

Figure 4.14: Returns to formal education is lower than in LAC and Central America
Returns to education in LAC, Central America, and Nicaragua, circa 2005, 2010, and 2014



Source: Own calculations based on SEDLAC (CEDLAS and the World Bank). See Box 2.1 for a description of the set of countries included.

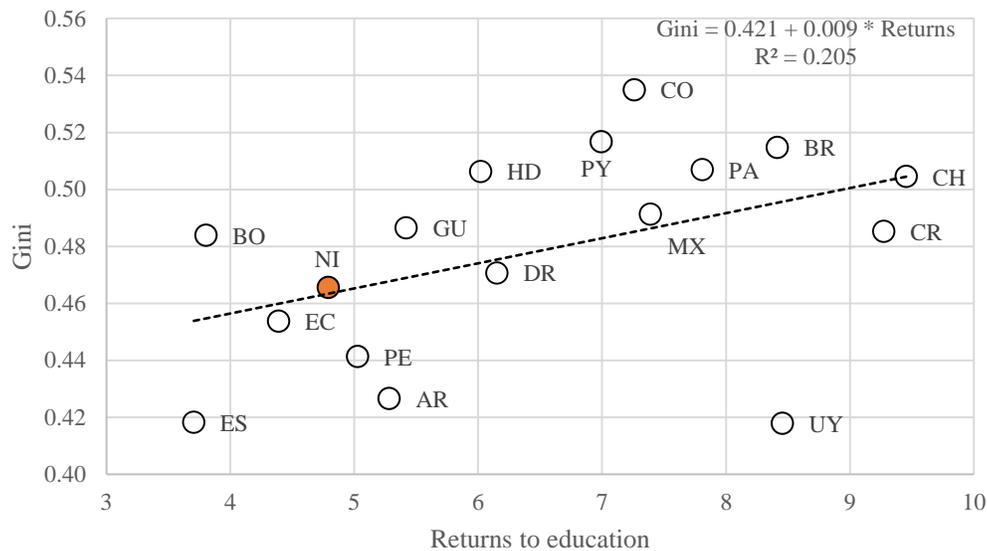
32. Poor quality education and a skill mismatch in the labor market contributed to lower returns to formal education. As with changes in any price, supply and demand of more educated individuals translates into changes in the returns to their specific skills. Decreasing returns to education can be the result of an increasing supply of a more educated workforce, a lower demand for skills, and/or a lower quality of the education (World Bank 2011). Gasparini et al. (2011) show that demand for more educated workers decreased in the early 2000s in Nicaragua, leading to a reduction of the returns to education. World Bank (2016a) and Gindling and Trejos (2013) suggest that the low quality of education could potentially explain the lower demand for more educated individuals.¹⁴¹ World Bank (2012, 2016) explains that low returns to education could also be the result of a mismatch between those skills offered by the formal education system and those demanded by employers; Nicaraguans do not have the skills to face the labor market demands. A survey collected in 2016 provided evidence of this skill mismatch; Nicaraguan firms have problems finding the needed competencies when hiring individuals aged 24 years old or less.¹⁴² This survey finds that socio-emotional skills (e.g., honesty, initiative, etc.) are the most relevant skills required by firms and also the most difficult to find in the Nicaraguan labor market. The Enterprise Survey (2010) provides similar evidence: more than 61 percent of the firms with vacancies find soft skills to be the most difficult to find in Nicaragua, compared to 52 percent in

¹⁴¹ Gindling and Trejos (2013) also suggest that the commodity boom could partially explain an increase in exports of unskilled labor intensive products which translates into declining returns to education through higher real earnings among the less educated workers.

¹⁴² FUNIDES (2016).

Central America (World Bank 2012). Moreover, an inadequately educated workforce has become the second most problematic factor for doing business in Nicaragua according to World Economic Forum (2016).

Figure 4.15: Returns to education are positively correlated with income inequality
Returns to education and income inequality in LAC, circa 2014



Source: Own calculations based on SEDLAC (CEDLAS and the World Bank).

33. **Low returns to the education might be the leading factor behind low inequality.** The trend in returns to education shown in Figure 4.14 closely mirror that of the income inequality in Figure 2.4, which suggests that the education premium is likely to determine inequality of incomes. Gindling and Trejos (2013) find that a declining education premium was the main driver of the inequality reduction in Nicaragua before 2005. Similarly, Cord et al. (2016) find evidence that labor markets also played a key role in reducing inequality between 2005 and 2009; about 80 percent of the fall of income inequality was explained by this source between both years. The authors found that falling education premia were one of the main factors behind this reduction of inequality: the returns of tertiary education compared to secondary completed decreased by 6.2 percent on an annual basis between 2005 and 2009. A low education premium might also explain the relatively low levels of income inequality in the country in a given year. As shown in Figure 4.15, there is a strong correlation between returns to an additional year of education and income inequality measured by the Gini coefficient; an increment of about five percentage points in the returns to education would translate into an increment of about ten percent in income inequality in Nicaragua.¹⁴³

¹⁴³ Analyzing the returns to education is challenging when using household surveys. As discussed in Chapter 2, many Nicaraguans decide to migrate to other countries and we are not able to observe their incomes. Since migrants tend to be relatively more educated, migration introduces a problem of selection by creating a downward bias in the estimation of returns to skills that we cannot address with the information available. Therefore, returns to education would be higher if incomes of migrants were captured in household surveys. For this reason, our results should be interpreted with caution.

Knowledge Gap: What are the main constraints that impede women to enter the labor force?

Nicaragua ranks among the countries with the lowest female labor force participation. Given the importance of women participation in the labor force for poverty reduction and economic growth, it is crucial to fully understand the main drivers of lower labor force participation in the country.

Box 4.5: Uneven progress in reducing gender disparities¹⁴⁴

Nicaragua has witnessed important progress in terms of reducing gender disparities; however progress has been uneven and many outcomes are still different between men and women. This box presents the main gender disparities focusing on the following five outcomes: (i) economic opportunities; (ii) health and teenage pregnancy; (iii) gender-based violence; (iv) political participation; and (v) entrepreneurship.

Economic opportunities

There has been an improvement in the participation of women in the labor market, yet it remains one of the lowest in LAC. Gender equality in the labor market is crucial for development, poverty and inequality reduction, and economic growth.¹⁴⁵ Like most of the countries in LAC, women participation in the labor market has increased in the last ten years. However, Nicaragua still lags behind other countries in LAC: in 2014, only half of women aged 15–64 were in the labor market, the lowest proportion after Honduras (45 percent) and Mexico (48 percent) and significantly lower than LAC’s average (55 percent). Education is an important driver of low female labor force participation, with the gap between men and women narrowing at higher levels of education. Women are also lagging their male peers in terms of unemployment: in 2014, women’s unemployment rate was 6.7 percent higher than the one for men. Low quality of women's jobs and employment vulnerability are also of concern. Women are more likely to work informally and under vulnerable conditions. About 56 percent of women are working in a vulnerable employment—defined as the ratio between unpaid family workers and own-account workers over total employment—compared to 41 percent of males. Furthermore, women tend to earn less than their male counterparts when they manage to work in formal employment. In 2014, women’s monthly income was 78 percent the income earned by males. This gap was mainly the result of fewer hours of work: Nicaragua together with Argentina had the highest proportion of women working part-time (about 35 percent).

Reproductive health and teen pregnancy

Despite progress, maternal mortality is still high and there are marked regional differences in terms of prenatal care and contraceptive use. A World Bank (2012b) study finds evidence of a link between teenage pregnancy and poverty, rural residence, higher maternal mortality, and lower secondary completion rates among teen mothers in LAC, as well as the long-term impact on the child, for instance through higher rates of sexual activity. Nicaragua has made important progress on reproductive health indicators likely due to increase in health services, maternity facilities for high-risk pregnancies, and medical staff. Maternal mortality has decreased while prenatal care and contraceptive use has increased. Still, the rate of maternal mortality is high compared with the regional average: 150 deaths per 100,000 live births in Nicaragua vs. 67 deaths per 100,000 live births in LAC. In addition, important regional differences remain regarding prenatal care and contraceptive use within the country. Some departments have almost universal coverage of prenatal medical attention for pregnant women, while less than 87 percent of women can make use of these services in *Región Autónoma de la Costa Caribe (RAAN)* and *Región Autónoma del Atlántico Sur (RAAS)* regions. Similarly, contraceptive use also varies across regions: contraceptive prevalence is less than 77 percent in RAAS and RAAN regions compared with 80 percent at the national level.

¹⁴⁴ This box largely relies on Bonfert et al. (2016) and World Bank (2016b).

¹⁴⁵ Gasparini and Marchionni (2015), World Bank (2012b), Loko and Diouf (2009), and Daly (2007). This last study finds important implications for growth: closing the employment gap between male and female would translate into an increment of GDP growth of nine percent in the US, 13 percent in the Eurozone, and 16 percent in Japan.

Box 4.5: Uneven progress in reducing gender disparities, continued

Adolescent childbearing also remains high compared with LAC. Teenage childbearing has important consequences for development and growth as it is highly associated with school dropout, poorer labor outcomes, and poverty. Adolescent fertility rate has decreased significantly in Nicaragua in the last 15 years, with a reduction of about 24 percent in the number of births per 1,000 women aged 15–19 years old, decreasing from 118 in 2000 to 90 in 2014. Still, Nicaragua stands out as one of the countries with the highest adolescent fertility rate in LAC in 2014, surpassed only by the Dominican Republic (98). Gender norms and inequalities play an important role in shaping young women's fertility outcomes, and many girls lack the agency to control decisions pertaining to sexual relations and contraceptive use.¹⁴⁶ Teenage childbearing is closely correlated with early marriage and the age of sexual initiation, which decreased from 17.4 years in 2006/7 to 16.8 in 2011/12.

Gender-based violence

Gender-based violence has decreased slightly though it continues to be a serious concern in Nicaragua. Violence against women has serious repercussions in terms of agency and presents limitations to women's empowerment. In addition, it also has important implications in terms of economic growth, through lower labor productivity. The proportion of women who declared being beaten or physically abused at some point in life is relatively high in Nicaragua. In 2007, 27 percent of women declared being physically abused by their partners, an average higher than many LAC countries for which data is available.

Political participation

Nicaragua is among the best performers in terms of female political participation in the region. The LAC region has witnessed important gains in terms of women's representation in national parliaments and in ministerial positions and Nicaragua stands up in both indicators. The country has shown important progress in the last seven years and is among the countries with the highest proportions in both dimensions. The proportion of women in ministerial level positions increased more than 40 percent from 33 percent in 2008 to 47 percent in 2015; being the highest proportion in LAC. Similarly, the proportion of seats held by women in national parliaments has more than doubled from 18 percent in 2008 to 41 percent in 2015, being the highest in the region after Ecuador (42 percent) and Mexico (42 percent). At the local level, the country has also the highest share of women among mayors; 40 percent of mayors were women in 2014.

Entrepreneurship

Nicaragua is the best performer in terms of female participation in firm's ownership and on firm's top management. The LAC region in general presents relatively high levels of female entrepreneurship, and Nicaragua performs better than any other country in the region. Six out of ten firms had female participation in ownership in 2010, significantly higher than the rest of the LAC countries. Similarly, one-third of firms had a woman in top management that year, also significantly higher than most of the countries in the region. However, both leadership and ownership tends to be concentrated in small firms.

¹⁴⁶ Bonfert, Jaén, Müller, and Reyes (2016).

5. SUSTAINABILITY

Addressing Nicaragua's large external vulnerabilities, strengthening the financial sustainability of the INSS and reducing the vulnerability to shocks and climate change are among some of the most critical issues to continue making progress toward the twin goals. These efforts would need to be supported, as a precondition, by macroeconomic stability and prudent fiscal policies. Gradually moving away from an energy matrix that is intensive in non-renewables would reduce external vulnerabilities, the associated volatility in electricity tariffs, and mitigate the potential fiscal impact associated with energy subsidies should a renewed surge in international oil prices occur. Demographic changes are expected to further strain the finances of the INSS, which if left unaddressed, could potentially result in a drain of fiscal resources. Natural disasters, climate change, and mismanagement of natural resources remain at the center of Nicaragua's developmental agenda. These issues are compounded by the high concentration of poverty in rural areas (especially along the Dry Corridor), rapid unplanned urbanization, and the importance of the agriculture sector in Nicaragua.

5.1. Maintaining macroeconomic stability and prudent fiscal policies

1. **Strong economic growth and progress toward the twin goals over the past decade were supported by a stable macro policy framework and favorable external conditions.** The country applied prudent fiscal and monetary policies which resulted in declining public debt-to-GDP ratios and inflation rates consistent with the rate of devaluation of the crawling peg regime. These policies were supported by favorable external factors, such as strong remittances and FDI flows. Household data suggest that a key driver of the observed gains in poverty reduction was labor income in agriculture, in particular, through increases in labor earnings rather than employment. This suggests that cyclical factors rather than structural policies were among the main drivers behind the recent progress toward the twin goals. This underlines the fragility of such gains to changes in the external environment while maintaining a stable macroeconomic framework.

2. **This underscores the need to continue Nicaragua's commitment to macroeconomic stability and fiscal sustainability in order to promote growth, reduce poverty, and foster shared prosperity.** A recent debt sustainability analysis suggests that there are no immediate risks of debt distress (IMF 2016). The assessment supports that Nicaragua remains at moderate risk of external debt distress, underpinned by the concessional and long-term nature of most of the government's external borrowing and the country's prudent track record of macroeconomic management.¹⁴⁷ Exchange rate policy management has been predictable, providing a nominal anchor for the economy and helping achieve price stability, against the backdrop of a highly dollarized economy.¹⁴⁸ In addition, the real effective exchange rate seems to be broadly in line with fundamentals (IMF 2016). The current fiscal position remains sound, with manageable overall fiscal deficits averaging 0.8 percent of GDP and primary surpluses averaging 0.2 percent over

¹⁴⁷ Risks factors include the magnitude of private external debt together with the quasi-fiscal nature of some share of this debt and the likelihood that some projects and programs currently funded by resources from Venezuela's oil cooperation to end up being absorbed into the budget. For instance, since 2014, the authorities incorporated a wage supplement ("*Bono Cristiano, Socialista y Solidario*") into the budget.

¹⁴⁸ The country maintains a crawling peg exchange rate regime, with the preannounced rate of devaluation of 5 percent, which has been maintained since 2004.

2010–15. Building up fiscal buffers would strengthen the capacity of the government to respond to external shocks.

3. **One area that could potentially help generate fiscal buffers is the rationalization of tax expenditures, which could bring additional resources to the government.** Nicaragua has been relatively successful in mobilizing revenues compared to other Central American countries, yet tax expenditures limit the availability of a significant amount of fiscal resources. Tax collections have been gradually growing after the global financial crisis (from 14.4 percent in 2010 to 16.4 percent in 2015) helped by improving economic conditions, efforts to strengthen the tax administration and changes in its tax code. Nicaragua has undertaken a series of tax reforms in the recent past, which had a positive impact on fiscal revenues.¹⁴⁹ However, additional changes to the tax code were introduced in 2014 that backtracked some of the reductions in tax exemptions and exonerations envisaged in the 2012 tax reform (IMF 2016). A study by Pecho et al (2012) estimated that tax expenditures in Nicaragua amounted to 7.6 percent of GDP in 2010, 88 percent of which corresponded to Value-Added Tax exonerations and exemptions.¹⁵⁰ These are forgone fiscal resources that could have been otherwise used to either build fiscal buffers in the eventuality of a shock or increasing social expenditures and public investment to address existing gaps in key areas such as education.

Knowledge Gap: *What are the potential implications of the recent tax reforms (Ley de Concertación Tributaria and subsequent changes) in terms of tax expenditures?*

Pecho, Peláez, and Sánchez (2012) estimated the magnitude of tax expenditures at 7.6 percent of GDP in 2010, prior to the recent changes introduced in the tax code.

5.2. Addressing Nicaragua's large external vulnerabilities

4. **Nicaragua has been running large current account deficits, averaging 9.7 percent of GDP over 2010–15.** The country is a net importer of oil, which accounts for a large share of its trade deficits (21.6 percent in 2015). Oil imports, including crude oil, fuels and lubricants, amounted to 6.1 percent of GDP in 2015. A steady inflow of workers' remittances, averaging about 9.6 percent of GDP over 2010–15, has helped offset the trade deficits.

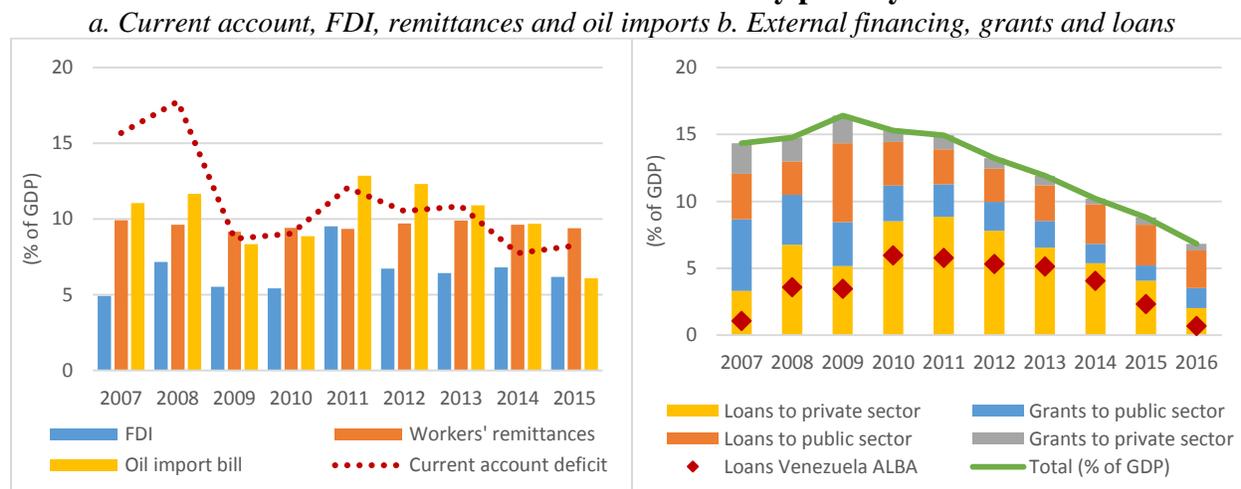
5. **Reducing the country's external vulnerabilities arising from the financing of large current account deficits remains one of the key priorities.** The current account balance has been financed by FDI flows and other investment (Figure 5.1.a). FDI flows averaged about 6.8 percent of GDP between 2010 and 2015. Nicaragua's oil collaboration with Venezuela under the ALBA Collaboration Agreements (see Box 5.1), has helped finance these large current account deficits since 2007 (Figure 5.1.b). These exceptional flows from Venezuela averaged about \$540mn between 2010 and 2014 (or 5.3 percent of GDP), but declined to just \$298mn and \$92.8mn in 2015 and 2016 (or 2.3 and 0.7 percent of GDP, respectively) largely due to the progressive deterioration of Venezuela's economic situation. While lower oil prices in recent years have temporarily

¹⁴⁹ These tax reforms included the 2009 Law 712 (*Ley de Equidad Fiscal*) and the 2012 Law 822 (*Ley de Concertación Tributaria*). Law 712 broadened the income tax base to include capital income and eliminated exemptions in excise taxes, whereas Law 822's goal was to address structural deficiencies in the tax system (IMF 2016).

¹⁵⁰ Nicaragua had the second highest level of tax expenditures in the LAC region (second only to Guatemala).

reduced vulnerabilities on the external side, the decline in Venezuela’s oil cooperation financing and potential oil price increases in the near- to medium-term pose significant risks to the outlook.¹⁵¹

Figure 5.1: Reducing Nicaragua’s external vulnerabilities from the financing of its large current account deficits is a key priority



Source: Banco Central de Nicaragua (2017).

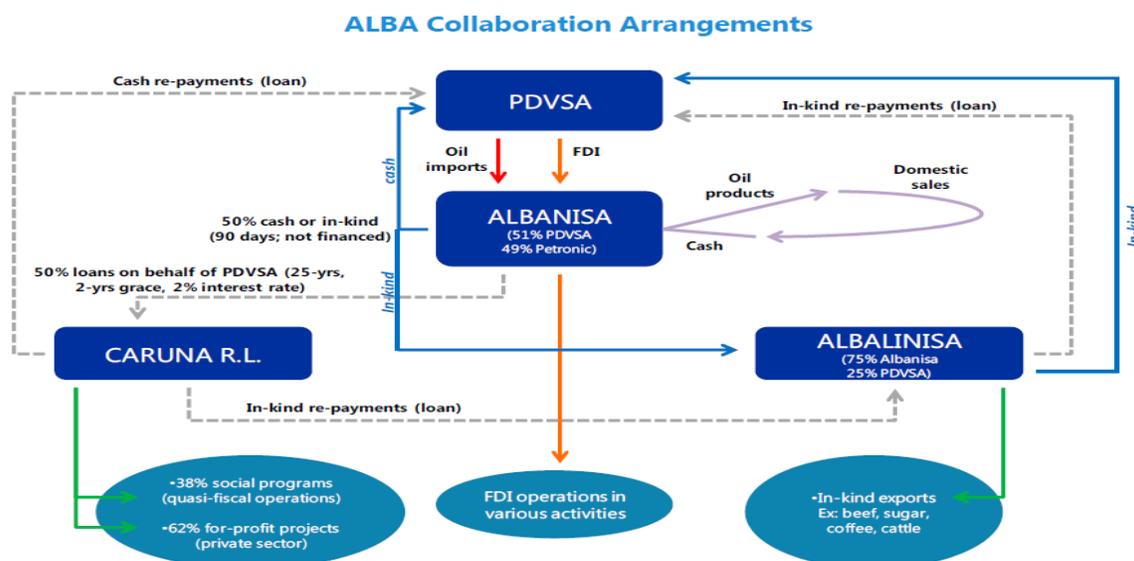
6. **Nicaragua has taken important steps to address those external vulnerabilities.** Since the power crisis in the mid-2000s, progress has been achieved on several fronts by: a) adjusting tariffs to better reflect actual generation costs, while temporarily subsidizing consumption of disadvantaged neighborhoods; b) reducing nontechnical losses; c) strengthening the legal framework to penalize electricity theft; and d) shifting the composition of the electricity generation matrix towards renewables (IMF 2012).

7. **Moving away from fossil fuels toward a more diversified electricity matrix is key to ensure a sustainable sector from both environmental and economic perspectives.** Electricity demand in Nicaragua is projected to increase by 72 percent from 2014 to 2027, at an average pace of 4 percent per year. The World Bank has supported the Ministry of Energy and Mines (MEM) in conducting a power system optimization study in 2015–2016, to inform future generation expansion plans. According to this study Nicaragua could potentially meet 96 percent of its generation needs in 2027 using renewable energy technologies, resulting in lower power generation costs, electricity prices, less dependency on imported fuels, and significant greenhouse gas (GHG) emissions reductions—the energy sector being one of the main contributors to GHG emissions. However, the capital cost of achieving this optimal solution doubles the business as usual scenario. Access to global climate funds and the setup of a favorable regulatory framework and business environment to attract private sector investment are key to address funding gaps for the addition of sustainable generation capacity.

¹⁵¹ Under the oil cooperation agreement, Nicaragua purchases oil at market prices with 50 percent of the oil bill paid upfront and the remainder over 25 years (including a two-year grace period) at an interest rate of 2 percent. In 2016, the share of financing of the oil bill was reduced to 25 percent. The Debt Sustainability Analysis Update in the 2015 Article IV Consultation for Nicaragua (IMF 2016) indicates that “the authorities reiterated that the debt owned by ALBANISA and CARUNA to PDVSA is private and that staff welcomes that the government’s policy is neither to absorb nor to extend public guarantees on this debt.”

Box 5.1: Venezuela's oil cooperation scheme

Nicaragua's oil collaboration with Venezuela was agreed by Presidents Ortega and Chavez in April 2007. The collaboration is based on a broad framework for oil import-related financing as well as other financing (e.g., FDI) and debt servicing schemes (through in-kind repayments). The scheme works as follows:



- PDVSA, a Venezuelan state-owned oil company, is Venezuela's representative under the agreement. It supplies petroleum and is a financial agent for FDI and other arrangements in Nicaragua.
- ALBANISA (*ALBA de Nicaragua*) was created in 2008 and is owned by PDVSA (51 percent) and PETRONIC (a Nicaraguan state-owned company; 49 percent). ALBANISA imports oil from PDVSA which is subsequently sold in Nicaragua at market prices. It also serves as Venezuela's agent in FDI in various sectors in Nicaragua's economy. Under the agreement, 100 percent of the oil bill is paid by ALBANISA to PDVSA within 90 days. On behalf of PDVSA, 50 percent of the oil bill (FOB) is then transferred to CARUNA (*Caja Rural Nacional*), a privately owned Nicaraguan financial cooperative, in the form of a long-term loan (payable over 25 years, with a 2-year grace period, 2 percent interest, and grant element of 30 percent).
- Under the oil collaboration scheme, 38 percent of the funds received by CARUNA are used for quasi-fiscal operations (e.g., subsidies and transfers for electricity and transport, and public sector wage bonuses). The remaining 62 percent is used to finance *for-profit* projects.
- Payments to PDVSA for oil or the debt service on oil financing can be made *in cash* or *in kind*. The latter can take place only through exports of goods by ALBALINISA (*ALBA Alimentos de Nicaragua*), a joint venture between ALBANISA and PDVSA, to Venezuela. ALBALINISA purchases primary products (e.g., cattle, beef, sugar, coffee, and beans) from domestic private firms and re-sells these to retail chains in Venezuela.

Changes in the administration of the oil collaboration scheme were reported (IMF 2016): (i) at the request of the government of Venezuela, all assets and liabilities associated with the oil cooperation scheme are in the process of being transferred from a private financial cooperative (CARUNA) to ALBANISA. The government's current policy is not to extend public guarantees on any of the associated liabilities; and (ii) the number of barrels per day that can be imported under the oil collaboration was increased in 2013 from 27,000 to 30,000, and represented external financing of 2.7 percent of GDP in 2015 (5.2 percent in 2014).

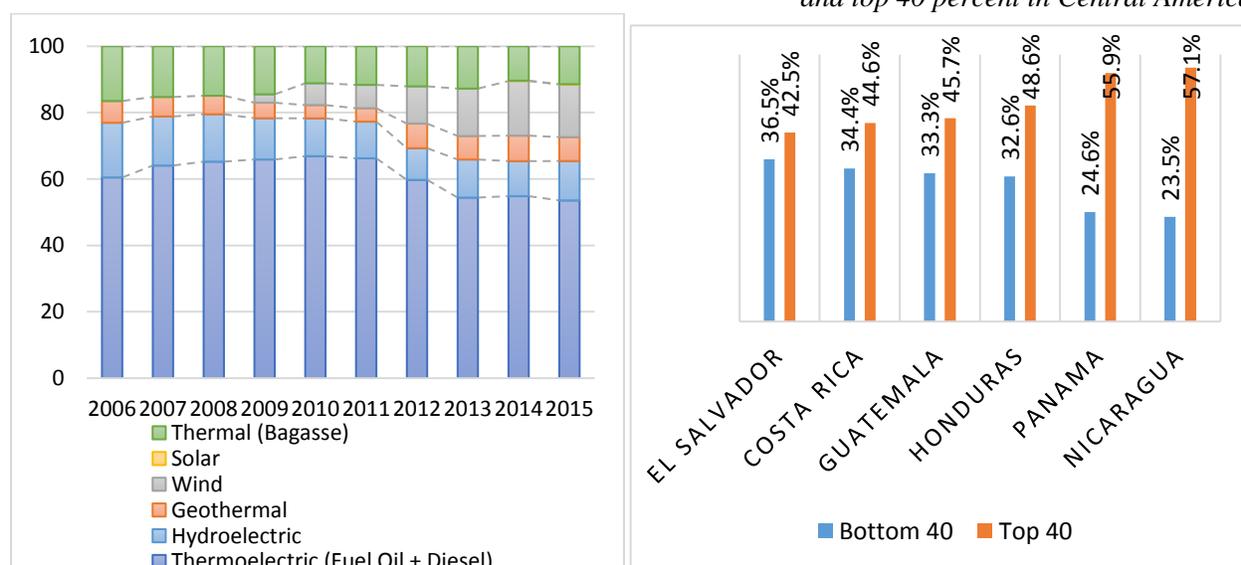
Sources: IMF (2013) Article IV Consultation, Staff Report (Box 3, page 15) and IMF (2016) Article IV Consultation, Staff Report (page 4).

8. **A diversified electricity matrix would also improve fiscal sustainability by containing government subsidies and lowering volatility of tariffs that accrue the volatility of oil prices.** Electricity produced oil and diesel fell from 67 percent in 2010, but it still accounted for 54 percent of total installed capacity in 2015 (Figure 5.2.a).¹⁵² Progress in strengthening the electricity sector has also contributed to reducing a source of fiscal vulnerability. The fiscal cost of electricity subsidies is estimated at about one-and-one-fourth percent of GDP in 2015, of which consumption-based electricity subsidies account for about two-thirds of the total cost of electricity subsidies (IMF 2016). The fiscal cost of electricity subsidies in Nicaragua was the highest among Central American countries in 2012–15, amounting to 1.6% of GDP on average. While electricity subsidies do make electricity more affordable for lower-income households, they do it at the cost of inefficient targeting (Figure 5.2.b). It is estimated that only 23.5 percent of subsidies were received by households in the bottom 40 percent of the distribution (Hernández Oré, Sánchez, Sousa and Tornarolli, 2017).

Figure 5.2: Moving away from fossil fuels toward a more diversified electricity matrix is key to ensure a sustainable sector

(a) Electricity installed capacity in Nicaragua

(b) Share of electricity subsidies to bottom 40 percent and top 40 percent in Central America



Sources: INE, 2017 and Hernández Oré, Sánchez, Sousa and Tornarolli, 2017.

9. **Instituto Nicaragüense de Seguridad Social or INSS.**¹⁵³ The INSS provides benefits for old age, disability, illness, death, maternity and occupational risk. Nicaragua has both noncontributory and contributory pension regimes. The noncontributory pension system assists people living in extreme poverty, the military or war victims. The contributory general regime works as a pay-as-you-go system, financed by contributions of employers and employees. Currently, the replacement rate of the contributory system is high. Both the share of employees

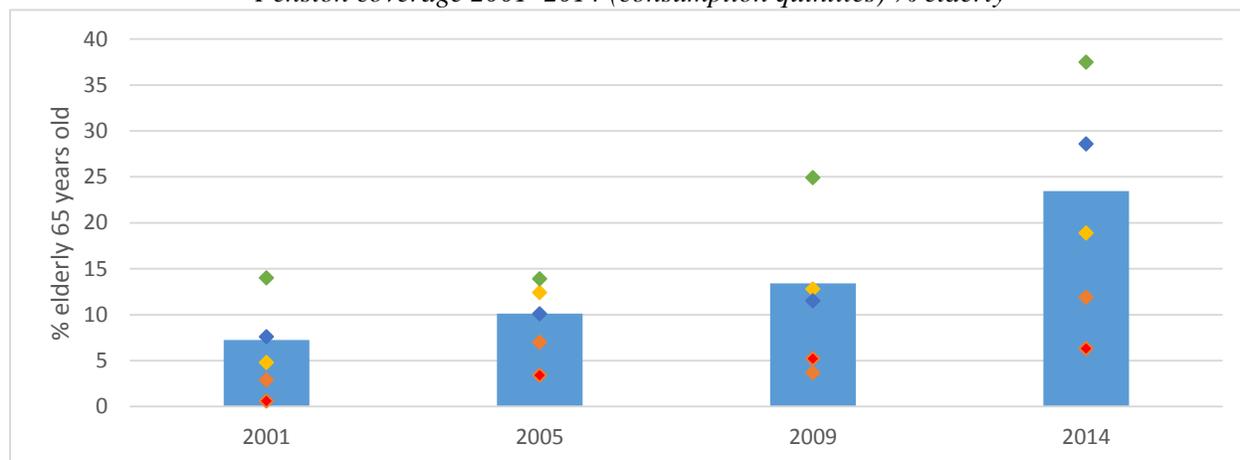
¹⁵² Nicaraguan electricity generation is the most polluting in the region. The high share of thermal generation in the generation mix boost GHG emissions per generated unit. According to the International Energy Agency (IEA CO₂ Statistics 2009), the average grid CO₂ emission factor of Nicaragua reaches 514 g CO₂/kWh, which almost doubles the average emission factor of the other grids in the region. Relevant improvements can be achieved by the renewal of the generation park and the diversification of the generation mix.

¹⁵³ Central America Social Expenditures and Institutional Review: Nicaragua, World Bank (2016).

contributing to the system and the share of the elderly receiving social security payments have increased over time, yet social security coverage is low compared to other countries in the region. In addition, participation among the poor remains low (see Figure 5.3).¹⁵⁴

Figure 5.3: The share of the elderly receiving social security payments has increased over time, yet social security coverage is low relative to other countries in the region.

Pension coverage 2001–2014 (consumption quintiles) % elderly



Source: Central America Social and Institutional Review: Nicaragua, World Bank (2016).

10. **A parametric reform was introduced in 2014 to address the sustainability of the INSS.** The reform included a phased-in increase in employers’ contributions and linking pension increases to increases in the average wage. Other measures included a reduction in old age and disability pension benefits for those making over two minimum wages. The introduction of a “reduced pension” in 2013 and a subsequent legislated increase in these pensions in 2015, and higher than budgeted expenditures on health services, capital goods, and administration offset the impact of the enacted parametric changes.¹⁵⁵ Since 2013, the INSS has been running increasingly larger deficits (about 0.4 percent of GDP in 2016). While social contributions (total revenues) have increased from about 3.5 (3.8) percent of GDP in 2006 to 5.3 (5.5) percent of GDP in 2015, total expenditure grew at a faster pace, increasing from 2.8 percent of GDP in 2005 to 5.8 of GDP in 2015 (Figure 5.4). A recent assessment (IMF 2016) suggests that the INSS is projected to start running persistent deficits by 2017, and the reserve fund to be depleted by 2024.

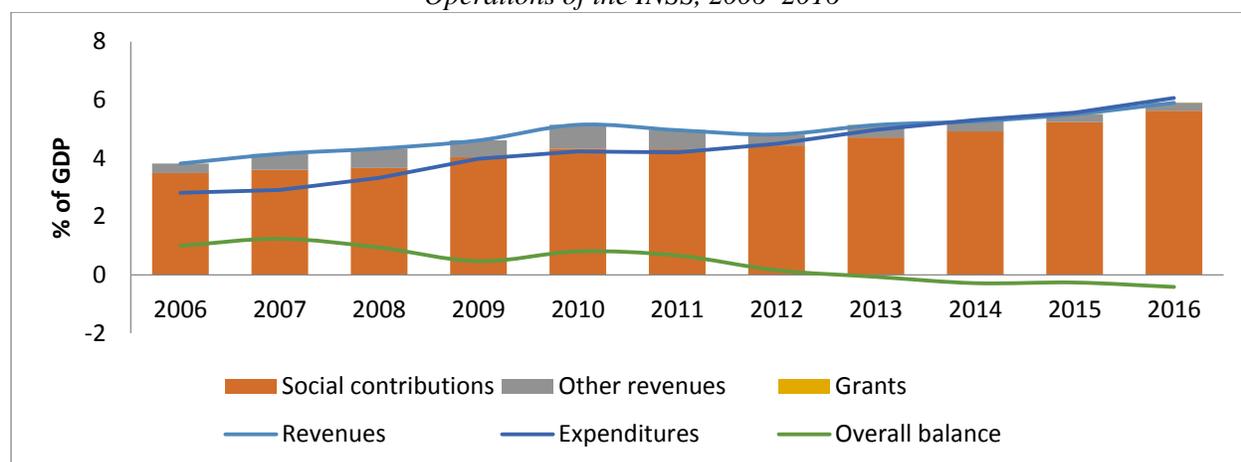
11. **Limited coverage of the labor force due to high levels of informality in labor markets and ongoing changes in demographic trends pose important challenges to the system.** Only 29.2 percent of the total employed population was covered by social security in 2016. Moreover, the ratio of employees contributing to the system versus pensioners has been on the decline: 4.4 employees were supporting a pensioner in 2016, down from 5.7 in 2008. Falling fertility rates and

¹⁵⁴ Replacement rate is 100 percent for minimum wage workers, declining to 80 percent for the highest wage workers if they have contributed for the minimum of 15 years. The share of employees contributing to the system has increased over time, from 18 percent in 2001 to 26 percent in 2014. The share of the elderly that benefit from social security has also increased, from less than 10 percent in 2001 to 24 percent in 2014 (EMNV 2001, 2014).

¹⁵⁵ Decree No. 28 extended pension coverage to INSS members who accumulated between 250 and 749 weeks of contributions. Previously, a minimum of 750 weeks of contributions was required to be eligible for an old age pension.

increasing life expectancy of the general population are expected to continue exerting pressure into the system. Following Jacobsen and Jensen (2014) for the case of Nicaragua, baseline projections show that changes in the demographic structure of the population would result in a decline in expenditures in education and an increase in health care spending. The largest projected increase corresponds to pension expenditures. Increases in social security contributions are also projected to increase but this variation only is forecast to offset about 24 percent of the increase by 2045.¹⁵⁶

Figure 5.4: The INSS has been running increasingly larger deficits since 2013
Operations of the INSS, 2006–2016



Source: Banco Central de Nicaragua (2017).

5.4. Environment

12. **Environmental issues are at the center of Nicaragua’s developmental agenda.** If left unaddressed, they are likely to result in the reversal of the many gains achieved in poverty reduction and shared prosperity during recent years. This is particularly important due to the country’s high exposure to natural hazards, the high concentration of poverty in rural areas, and the impact of climate change on water resources and agriculture. In addition, Nicaragua’s capacity to promote sustainable growth depends heavily on how well its natural resources (soil, water, and forests) are managed. This is critical in view of the growing and competing demand for these resources and the fact that their supply is becoming more limited and less reliable. Climate change and more frequent natural disasters, together with poorly managed natural resources, are putting pressure on ecosystems, impacting their potential to support growth in the medium and long-term.

Reducing vulnerability to shocks and climate change

13. **Nicaragua is highly exposed to natural hazards, including hurricanes and tropical storms, droughts, seismic and volcanic activity.** In terms of long-term climate risk the country ranks 4th among 177 countries most affected by extreme weather events worldwide.¹⁵⁷ Hydro-meteorological events are the highest threat in the northern Caribbean coast, while floods and landslides are recurrent in the Pacific and Central regions, generating localized impacts of high frequency. Drought risks are concentrated across the Dry Corridor (or *Corredor Seco*), which covers about 28 percent of Nicaragua’s territory and pose significant risks to water and food

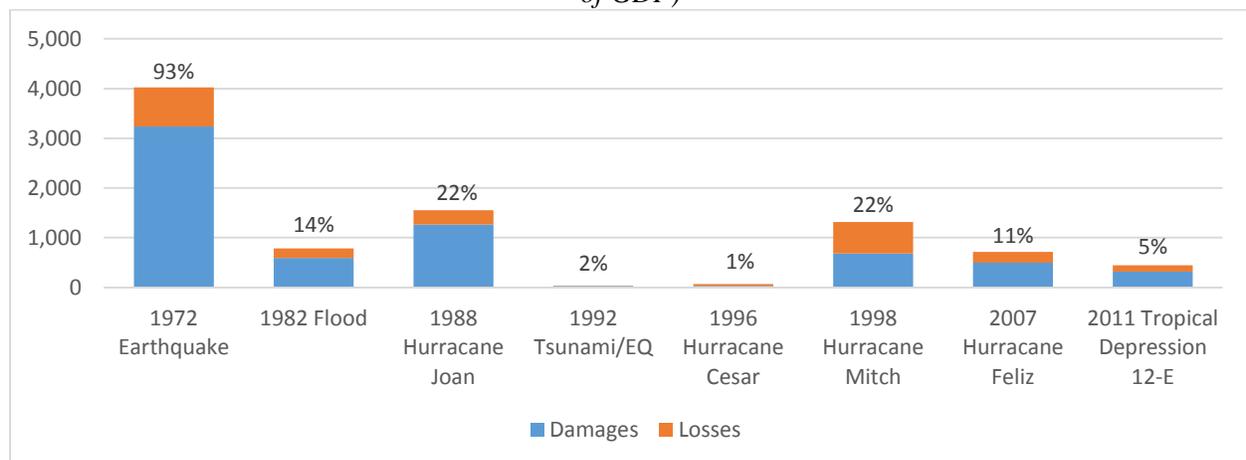
¹⁵⁶ Authors’ calculations based on Jacobsen, R. H., & Jensen, S. E. H. (2014): “Future changes in age and household patterns: Some implications for public finances.” *International Journal of Forecasting*, 30(4), 1110–1119.

¹⁵⁷ Germanwatch: Global Climate Risk Index 2017 (<https://germanwatch.org/en/download/16411.pdf>)

security. Seismic activity could potentially lead to major catastrophic impacts involving high mortality and asset loss. Six of the country’s volcanoes are considered active and are situated in the Pacific region, precisely where the larger cities are located.

14. **Extreme weather events and seismic activity threaten human and physical capital.** Hurricane Mitch (1998), Hurricane Felix (2007), and Tropical Depression 12E (2011), the three more recent extreme weather events, affected a total of 1.2 million people,¹⁵⁸ including more than 3,500 deaths (95 percent of which were due to Hurricane Mitch). Economic losses caused by the three events amounted to 22 percent, 11 percent and 5 percent of GDP, respectively (Figure 5.5). The damages and losses resulting from the 1972 earthquake that struck the city of Managua alone equal the sum of all damages and losses from hydro-meteorological events for the 1980–2011 period. The earthquake affected an area of approximately 27 square kilometers and destroyed at least 50 percent of all existing buildings. The event killed about 6,000 people, injuring about 20,000 others. Total losses were estimated at 93 percent of GDP for the previous year.¹⁵⁹

Figure 5.5: Economic losses from extreme weather events seismic activity have been sizable
Nicaragua damages and losses from the most significant disasters¹⁶⁰ (in millions of 2010 USD and as a % of GDP)



15. **Nicaragua’s rapid urbanization, paired with absence of urban planning, are also factors contributing to increased vulnerability to disasters.** Nicaragua’s urban population was estimated at 58.5 percent of total population in 2014, and has been growing at a rate of 1.96 percent per year from 2010 to 2015 on average.¹⁶¹ Limited economic opportunities and rising urbanization without proper planning (including the inability to update and enforce building codes) have led to the proliferation of precarious settlements in areas that are exposed to different natural hazards with no access to quality housing. Available data suggest that approximately 45 percent of the population lives in slums.¹⁶² Certain building characteristics prevalent in poor areas tend to be less

¹⁵⁸ EM-DAT: The OFDA/CRED International Disaster Database—www.emdat.be—Université Catholique de Louvain, Brussels—Belgium. 2016.

¹⁵⁹ Post Disaster Needs Assessment Reports, ECLAF (2010). Values calculated using 2010 USD.

¹⁶⁰ The “most significant events” are those for which the government declared a national state of emergency and requested support from the international community.

¹⁶¹ U.N. (2014).

¹⁶² World Bank (2016a).

resilient, increasing the level of vulnerability to natural disasters. For example, the presence of adobe, wood, and mud-walled buildings increase the risk of urban areas to disasters such as earthquakes and hurricanes.¹⁶³ Particularly, single-family, residential houses constructed with reinforced masonry bearing walls—prevalent in Nicaragua—are the buildings most vulnerable to earthquakes.¹⁶⁴

16. Frequent climatic shocks result in sizable production losses in agriculture. Agriculture in Nicaragua is subject to frequent climatic shocks produced by excessive precipitation (hurricanes and tropical depressions) and droughts of varying intensities, sometime associated with the El Niño Southern Oscillation. Total agricultural production losses due to unmanaged production risks—in area planted and due to declines in yield for basic grains and export crops—were estimated at about USD 107 million annually (or 6.1 percent of agricultural GDP) between 1994–2013. The most significant factor is the erratic distribution of precipitation during the planting season, which directly impacts the area planted. The regions most affected—as a percentage of area lost by crop in each region—are generally considered part of the Dry Corridor. Reduced performance of the area harvested has also resulted in average annual losses estimated at USD 8.4 million. This decline is caused by risk events that happen during crop development, and happens when the rainy season arrives late or is erratic, which forces producers, already under increased economic constraints, to replant, using poorer quality seeds with consequent reductions in yield. Severe droughts and to a lesser extent pests and diseases are the main causes of yield variability for export crops.¹⁶⁵

17. Risks arising from climate change are exacerbated by deforestation, land degradation, and the spatial distribution of natural resources relative to where they are needed. Forest cover is decreasing mainly due to a rapid expansion of the agricultural frontier into areas not suitable for agricultural practices. This expansion as well as unsustainable land use practices have caused the degradation of soil over time, also negatively affecting water retention. In addition, historically, agricultural activity in Nicaragua was concentrated in the Pacific and the Dry Corridor, areas that have always been at the lower end of water availability for intensive agriculture. With more extreme and erratic patterns of rainfall variation caused by climate change those challenges are becoming more pressing.

18. Deforestation is caused by the rapid expansion of the agricultural frontier. While still about 26 percent of the national territory covered by forests (about 3,398,000 hectares), current unsustainable land and forest management practices have increased deforestation and biodiversity loss (Figure 5.6). About 72,500 hectares of forests are lost in Nicaragua every year.¹⁶⁶ Declared protected areas have not been immune from forest loss. In 2016, more than a dozen protected areas experienced deforestation and conversion into pastures or agriculture land. Main drivers of deforestation have been the expansion of agriculture and cattle ranching. Other factors contributing

¹⁶³ Ibid.

¹⁶⁴ World Bank (2015).

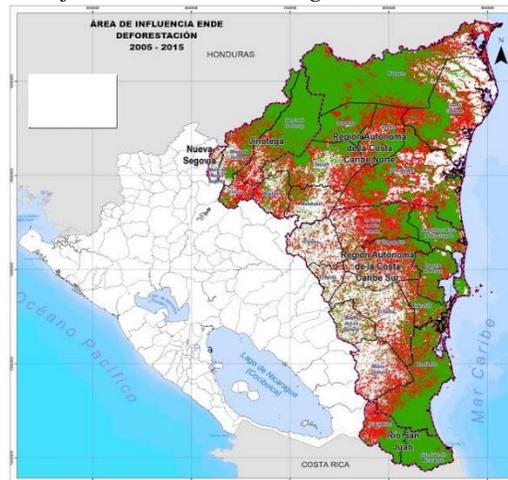
¹⁶⁵ Agriculture in Nicaragua: Performance, Challenges and Options (World Bank, 2015).

¹⁶⁶ Forestry coverage estimated for 2009. Source: Government of Nicaragua. 2011. *Propuesta de Preparación del Proceso REDD+ en el Marco de la Estrategia Nacional para la Reducción de la Deforestación y la Degradación Forestal. Versión Borrador 2*. RPP/ENDE. World Bank (2017): Análisis de Causas de la Deforestación y Degradación Forestal en las Regiones Autónomas de la Costa del Caribe Norte (RACCN) y Sur (RACCS), la Reserva de la Biósfera Bosawas y la Reserva Biológica Indio Maíz.

to forest degradation and deforestation include legal and illegal logging, fires, and the unsustainable use of fuelwood.¹⁶⁷

Figure 5.6: While still about 26 percent of the national territory is covered by forests, about 72,500 hectares of forests are lost every year in Nicaragua

Deforestation in Nicaragua, 2005–2015



Source: Análisis de Causas de la Deforestación y Degradación Forestal en las Regiones Autónomas de la Costa del Caribe Norte (RACCN) y Sur (RACCS), la Reserva de la Biósfera Bosawas y la Reserva Biológica Indio Maíz (2017).

19. **Land degradation and soil erosion is threatening the sustainability of the current growth path.** Soil loss negatively affects fertility and lowers agricultural production. The major on-site effect of erosion is a decline in soil productivity (Alfsen et al., 1996), resulting in declining production in the agricultural sector. Soil erosion and acidification is affecting different regions in the Pacific and the Caribbean.¹⁶⁸ The acidity of the soil blocks the functioning and capturing of some nutrients, affecting plants' development. This issue has been reinforced in recent years by rapid deforestation and heavy rainfall. Sustainable forest and landscape management is needed (including community-based programs). Pressure from the expansion of the agriculture and livestock frontier can be addressed by promoting silvopastoral and agroforestry systems.

20. **Despite the country's rich water resources, Nicaragua faces challenges from the spatial and seasonal distribution of its resources.** With average annual water availability of some 27,059 cubic meters/year, Nicaragua is far above water stress levels.¹⁶⁹ Nevertheless, this apparent abundance masks important spatial considerations, as 87 percent of the population resides along the Dry Corridor in the Pacific and Central regions of the country, while some three-quarters of all water resources are situated in the Atlantic region. Cyclical droughts aggravate water stress

¹⁶⁷ World Bank (2017): Análisis de Causas de la Deforestación y Degradación Forestal en las Regiones Autónomas de la Costa del Caribe Norte (RACCN) y Sur (RACCS), la Reserva de la Biósfera Bosawas y la Reserva Biológica Indio Maíz.

¹⁶⁸ UNFAO, 2015. Status of World's Soil Resources.

¹⁶⁹ UNAQUASTAT database, United Nations Food and Agriculture Organization, Nicaragua 2015 Factsheet, http://www.fao.org/nr/water/aquastat/countries_regions/NIC/index.stm. Per UNWATER, "when annual per capita renewable freshwater availability is less than 1,700 cubic meters, countries begin to experience periodic or regular water stress," http://www.unwater.org/downloads/Water_facts_and_trends.pdf

in already dry areas.¹⁷⁰ Uneven spatial distribution, coupled with a strong seasonal variability (90 percent of the precipitation is concentrated from May to November) and the lack of hydraulic storage infrastructure, result in a fragile water balance in the most densely populated regions during the dryer months (between February and April). In addition, groundwater resources, which are the main source of water supply for 80 percent of the population,¹⁷¹ have started to show signs of overexploitation in recent years.

21. Increasing competing usages over water resources, water quality deterioration and climate change are expected to impact economic activities that rely on these resources. Main pressures on water resources will result from: (i) agricultural expansion; (ii) increase in the hydropower generation (expected to double by 2030); and (iii) population growth. These drivers, together with the current deterioration of water quality and climate change, are expected to put more stress on water availability.¹⁷² Water quality is deteriorating due to poor sanitation coverage and service, resulting in untreated discharges of wastewater. Sanitation treatment infrastructure for domestic wastewater is essentially nonexistent in rural areas, and latrines employed in rural areas often suffer from poor sewage disposal. Mining activity also contributes to the pollution of rivers and aquifers. Surface waters across various parts of the country show elevated levels of arsenic and other pollutants, especially in urban areas.¹⁷³ Improving the management of water resources to secure current and future demands will call for smart investments in water storage facilities, aqueducts, and reforestation, along with effective water resources management, institutional strengthening and local-level capacity building.

Natural resources and climate change and their impact on poverty reduction

22. Natural hazards and climate change could jeopardize poverty reduction efforts. The populations located in the dry corridor, in particular in the departments of Madriz, Nueva Segovia, Matagalpa and Chinandega, are highly exposed to hydrometeorological events, including droughts and floods, not only having their lives at risk but also their livelihood. Municipalities with higher than national average poverty levels are located in the dry corridor and it is estimated that 25 percent of the population of the dry corridor (approximately 650,000 people) live with two or more unsatisfied basic needs.¹⁷⁴

23. Poverty in Nicaragua is exacerbated by the country's exposition to the above described weather related shocks and natural hazards, and by the absence of an effective safety net.¹⁷⁵ Recurrent climate events (floods or landslides), including low-intensity long duration events (droughts) will have cumulative impacts in the long run that will eventually

¹⁷⁰ A climate change impact assessment suggests that water availability (projected water balance, measured as the difference between precipitation and actual evapo-transpiration), will likely decrease in most of Nicaragua's basins (Cestti et al., 2013).

¹⁷¹ Estimations from ENACAL, 2017.

¹⁷² MEM, Expansion Plan for Energy Generation, 2017.

¹⁷³ Cestti, Afanador, Escurra, Klytchnikova and Pagiola (2013) indicate that pollution from agrochemical runoff, untreated wastewater, and natural contamination by arsenic limits water supply in rural and urban areas.

¹⁷⁴ Caracterización de pobreza como parte del MECS en Nicaragua.

¹⁷⁵ The lack of an effective social program that protects Nicaraguans households from the negative impacts of aggregate shocks and natural disasters might be limiting the capacity of the country to continue reducing poverty. The *Red de Protección Social* (RPS) program, which functioned as a social safety net against the negative consequences of shocks, protected Nicaraguan households from reducing consumption during the 2001 coffee crisis (Maluccio (2007), Vakis, Kruger, and Mason (2006)).

intensify poverty conditions, in particular those households that rely heavily on agricultural income.¹⁷⁶ These climatic shocks affect upward income mobility and tend to perpetuate poverty. A recent study shows that a drought in 1997–1998 and scarce rains in July 2004 increased the likelihood that poor households remain at the bottom of the distribution by ten percent in Nicaragua.¹⁷⁷ Exposure to climate shocks can have an impact on child development and perpetuate poverty across generations through a reduction in human capital accumulation. For instance, children affected by Hurricane Mitch in Nicaragua in 1998 were 8.7 percentage points more likely to be malnourished two years after the shock,¹⁷⁸ and child labor was more prevalent as a result of the storm in rural areas of the country.¹⁷⁹

24. Certain social groups already experiencing high poverty levels, such as indigenous communities, may be more vulnerable to the impact of disasters. Hurricane Felix’s effects were overwhelmingly felt by communities in the *Región Autónoma del Atlántico Norte* (RAAN), one of the regions with the highest incidences of poverty and malnutrition and lowest levels of education and health in Nicaragua. Cayos Miskitos, a unique marine ecosystem that ensured food security and the economic livelihoods for roughly 30 indigenous communities on the Northern Coast of the RAAN, was particularly hit at the time of the event.

25. Managing water resources and natural capital in a sustainable manner are key challenges to solidify recent gains achieved in poverty reduction and shared prosperity. Renewable natural capital—whether it is fish stocks, forests, or fertile soil for agricultural land—represents key assets to support economic growth and poverty reduction efforts in a sustainable manner. Forests support the livelihoods of an important share of Nicaragua’s population by providing food, fuelwood, and other resources. Forests also protect at least 21 watersheds of high socioeconomic relevance. Fisheries are an important economic activity for coastal communities. Land, on the other hand, is a key input of production given the important role played by the agriculture and livestock in Nicaragua. It is also a key asset for the livelihood of rural households. Deforestation, soil degradation and biodiversity loss can have a negative impact on the livelihoods of the poor and vulnerable.

26. Practices aimed at building the resilience of agricultural and forestry systems are not new to Nicaragua. Nevertheless, due to the urgency to manage interannual weather shocks and the need to adapt to climate change, large-scale implementation of these practices must take place. This could be achieved by fostering Climate Smart Agriculture (CSA) activities, that could strengthen resilience of agricultural systems through: (i) promulgating practices in cattle raising with regard to conservation of forage and creation of protein banks of leguminous shrubs and leguminous hay varieties, along with energy banks of sugarcane; (ii) promoting elimination of open burning of waste in basic grain production and the use of green fertilizers, Rhizobium, and improved seed varieties. Leasing and sharecropping contracts must contain clauses ensuring the protection of natural resources in keeping with national legislation; (iii) introducing programs incorporating silvopastoral and agroforestry systems. Silvopastoral and agroforestry systems have

¹⁷⁶ The poor are concentrated in rural areas of the country and tend to be small farmers without irrigation and therefore vulnerable to droughts (Macours, Premand, and Vakis (2012)).

¹⁷⁷ Premand and Vakis (2010).

¹⁷⁸ Baez and Santos (2007).

¹⁷⁹ Vakis et al. (2004).

proven themselves to be key with regard to environmental restoration and food security, and will contribute significantly in adapting to and mitigating the impacts of climate change; (iv) developing and promulgating an action plan with defined roles and goals for the agriculture sector to adapt to climate change. The objective is to ensure operational collaboration among public institutions and to align their activities with the various initiatives carried out by NGOs; and (v) facilitating transfer of technology and financial assistance to producers is vital, particularly in hard-hit areas of the dry corridor of Nicaragua.

Box 5.2: Reducing vulnerabilities and building resilience

To reduce Nicaragua's vulnerability and build resilience, the country should address the following four main challenges.

Improving disaster risk knowledge for better Early Warning Systems. Existing climate and hydrometeorological services face various technical and financial constraints and the country's understanding of environmental, social and economic impacts associated to extreme weather and climate events is still limited. Preliminary assessments have highlighted that the *Instituto Nicaragüense de Estudios Territoriales* (INETER), the entity responsible for hydrometeorological services, as well as other agencies involved are facing significant challenges in terms of data management capacities, equipment, human resources, technical skills and overall budget sustainability. In particular, it has been highlighted that the overall meteorological station network, where available, requires consistent upgrade, maintenance and update. Moreover data treatment and analysis need to be improved through capacity building and training in the area of meteorology, agrometeorology, statistics, climate change, information technology, risk analysis and management.

Improving disaster risk knowledge for better land use planning and disaster risk reduction investments. To reduce Nicaragua's vulnerability and build resilience, the development process at the national and subnational levels needs to be informed by sound disaster risk knowledge. Municipalities would need to develop local vulnerability and hazard profiles to identify and implement risk reduction policies, including building codes and inform local land use plans. The absence of the necessary technical and financial resources for the development of local disaster risk assessments (including models, maps, and indexes) poses a real challenge. Enhanced disaster risk knowledge will also allow Nicaragua to invest in disaster risk mitigation measures, including (i) retrofitting of critical infrastructure and buildings, such as schools, hospitals, roads, and cultural heritage sites, (ii) housing improvements, and (iii) human settlement relocation from high risk areas to safer locations.

Financial protection against disaster risk. To ensure the sustainability of Nicaragua's economic growth and protect the country against economic losses due to disasters, the country needs to develop a comprehensive financial protection strategy based on sound analytical knowledge, including the quantification of contingent liabilities, and the assessment of adequate reserve funds.

Social protection and safety nets can support long-term adaptation to changing risks. In Nicaragua, the *Red de Protección Social* cash transfer scheme significantly helped beneficiary households recover in the aftermath of the 2000–2001 “coffee crisis” (coffee price decline) and also helped coffee laborers implement alternative agricultural activities even before the crisis (Maluccio 2005). This type of approach, which focuses on disaster risk prone areas, could help reducing both physical vulnerability levels and poverty rates.

6. PRIORITY AREAS

This SCD has identified the following set of priority areas for policy action: (i) education, skills, and job outcomes for the youth, (ii) provision of infrastructure (transport, energy, and water) and public service delivery, (iii) improvements in private sector productivity and investment climate, (iv) reduction of vulnerabilities from climate change and management of natural resources (water, forestry, and land), and (v) reduction of external vulnerabilities. The cross-cutting theme is strengthening institutions and the capacity of the public sector. While areas (i)–(iii) refer to changes that can have positive impacts on growth and the twin goals, areas (iv)–(v) are critical for the sustainability of the growth path, which are needed to avoid any negative externalities and consequences associated with the selected path. The cross-cutting theme is key to enable progress in the other areas. The priority areas have been identified as most critical for improving the current growth trajectory, reducing poverty and increasing inclusion, while safeguarding the sustainability of the development path based on cross-country benchmarking, analytical work, and country knowledge.

1. The objective of the prioritization process is to identify the most critical factors that constrain or drive growth, inclusion, and sustainability. Improvements in the identified areas would help lift the current growth trajectory and ensure poverty reduction and inclusion, while safeguarding the sustainability of such a growth path. This is particularly important given Nicaragua’s many development challenges despite its remarkable economic turnaround since the mid-1990s. The country has significant upside potential for growth and to accelerate progress toward poverty reduction and inclusion. Faster growth is needed to lift the standards of living of the large share of the population that still lives below the official poverty line and secure the gains achieved in recent years, in particular for those segments of the population that remain at risk of falling back into poverty.

2. The prioritization is based on the diagnostic presented in the previous chapters and relies on cross-country benchmarking, analytical work, and country knowledge. The previous chapters rely on cross-country benchmarking of various aspects of Nicaragua’s development model, findings from existing literature, as well as analytical work carried out on growth, poverty and inclusion. Moreover, the findings were validated on the basis of country knowledge. During the preparation of the diagnostics, the World Bank undertook consultations with country stakeholders in Nicaragua to validate the identified priority areas. In addition, the prioritization benefited from the deep country knowledge within the World Bank through various interactions with World Bank Group staff, including a prioritization workshop.

3. Three selection criteria served to narrow down the most critical priority areas. First, improvements in the selected area would lead to a significant impact on poverty and shared prosperity. Second, identified changes and policy actions would generate synergies and complementarities. Third, improvements in a given area would be critical to sustain achieved gains toward the twin goals.

6.1. Emerging priority areas

4. The analysis in this report supports the conclusion that a growth model that relies on higher factor accumulation can still accelerate and sustain growth going forward. There is

ample room to improve the process of factor accumulation in Nicaragua to generate faster economic growth. Despite recent progress, education still suffers from significant shortcomings (e.g., high dropout rates, large rural/urban inequities, low teacher qualifications, etc.). There is also a significant skills mismatch between the skills that the education system provides and those that the private sector demands. Addressing these challenges to take advantage of the favorable demographic transition has therefore been identified as a priority area. The country also faces significant infrastructure gaps: its roads are among the least developed in LAC; water is unevenly distributed and polluted; and electricity prices are among the highest in LAC. Investments in roads, electricity, and water storage will enhance competitiveness and reduce regional disparities. Furthermore, access to basic opportunities and services (i.e., electricity, water, and sanitation) is among the lowest and most unequally distributed in the region. Addressing this low and unequal access to basic opportunities can break the cycle of the intergenerational transmission of poverty. The area of infrastructure and the provision of basic public services is therefore reflected as one of the priority areas.

5. **However, the analysis also finds that a model based on factor accumulation alone will fall short in making a significant dent into poverty.** Despite a remarkable economic turnout since 1994, the economy continues to be among the poorest in LAC. Nicaragua needs to move to a higher growth trajectory in order to absorb new entrants into the labor market and continue lifting Nicaraguans out of poverty. This will require the implementation of policies aimed at improving the investment climate and business regulations and raising productivity at the firm level. Therefore, the area of private sector productivity and investment climate has been identified as a priority.

6. **Moreover, there are significant risks to the sustainability of the development.** Most importantly, Nicaragua is highly vulnerable to climate shocks and natural disasters. In the past, extreme weather events and seismic activity have caused serious long-term damage to human and physical capital. This high vulnerability is exacerbated by mismanagement of natural resources. Leaving those risks unaddressed would undermine the country's development process going forward. Therefore, this area is identified as a priority. In addition, Nicaragua has been running large current account deficits, driven in part by a sizable oil import bill. These deficits have been financed by FDI flows and the oil collaboration agreement signed with Venezuela since 2007. This financing has been declining since 2015, due to the progressive deterioration of Venezuela's economy and finances. In order to mitigate external shocks stemming from oil price increases, Nicaragua has to continue to move toward a more diversified energy matrix. In addition, improvements in the competitiveness in the tradable sector would help narrow the trade balance. Given the significant downward risks arising from those external vulnerabilities, this area is identified as a priority.

7. **Finally, the analysis indicates that the strengthening of institutions and improving public sector efficiency is key to enable progress in Nicaragua.** Improving institutional quality and efficiency of public service delivery is key in all identified priority areas, be it in improvement of education and facilitation for young Nicaraguans to find employment, provision of infrastructure, or reduction of vulnerabilities from climate change and management of natural resources.

8. **As a result, this SCD has identified five priority areas and one cross-cutting theme.** These priority areas are: (i) improvements in education, skills, and job outcomes for the youth; (ii) provision of infrastructure (transport, energy, and water) and public service delivery; (iii) improvements in private sector productivity and investment climate; (iv) reduction of vulnerabilities from climate change and management of natural resources (water, forestry, and land); and (v) reduction of external vulnerabilities. On top of these priority areas, while areas (i)–(iii) refer to changes that can have positive impacts on growth and the twin goals, areas (iv) and (v) are critical for the sustainability of the growth path, which are needed to avoid any negative externalities and consequences associated with the selected path. The selected priority areas are aligned with the idea of continuing to support the current model of factor accumulation while lifting additional levers that enhance competitiveness and productivity growth. The identified cross-cutting theme of strengthening institutions and the capacity of the public sector is relevant in all priority areas and a key building block of achieving progress.

Priority #1: Improvements in education, skills, and jobs outcomes for the youth

9. **Improving education, skills, and jobs outcomes for the youth is a critical priority for Nicaragua.** Ongoing demographic changes represent a unique window of opportunity to accelerate growth. International evidence shows that a growing working-age population has helped spur growth in other countries. If the higher share of working-age population can be employed productively, this would automatically translate into higher growth (the so-called “first demographic dividend”). This requires, among other things, well-functioning labor markets and an education system that adequately prepares its graduates for the job market. Poor quality of education and skills mismatches not only hinder growth, but also limit opportunities, especially for low-income households which heavily rely on their labor supply as their main source of income. In addition, a well-prepared workforce (both in terms of education and skills) would help absorb new entrants and raise productivity. Failing to do so could have long-lasting adverse consequences for Nicaragua’s development prospects, with broad impacts on growth, poverty and inclusion, and sustainability (reflected in the *ninis* and the financial sustainability of the social security system).

10. **Education access and quality is relatively low and Nicaraguans generally lack the skills to meet the demands of the labor market.** Nicaragua’s average years of education are among the lowest in the region. There are major inequities in access to education between income groups and areas of residence. The quality of education as measured by standardized test scores lags behind other LAC countries. The education system is not functioning adequately with regard to school retention. Increasing access to and improving the quality of education, as well as developing effective policies to address student dropout, are key priorities for fostering more and better education and skills. More and better quality education in early years of life contributes to the cognitive development of children and prevents disadvantaged children from falling behind their wealthier peers. Moreover, improving access to secondary education, especially in rural areas, with revised curricula that are more relevant for the labor market will increase school retention, support labor market entry, and reduce youth engagement in negative social behaviors. Finally, it is crucial to strengthen teacher quality by sustaining reforms to teacher observation and mentoring programs, improving incentives for training, and modifying the selection mechanisms.

11. **Better suited skills are also a priority to increase economic opportunities and labor market outputs for the youth.** Given that the skills offered by the education system are not generally those demanded by the labor market, it is essential that the country strengthen its technical education to better meet these needs. Improving the education and skills of the young population is key to building human capital and increasing the productivity needed to foster more inclusive growth and to continue reducing poverty going forward. Some possibilities include an evaluation of training programs to identify gaps in the short run and the introduction of vocational trainings linked to internships and job opportunities in the medium-term.

Priority #2: Provision of infrastructure (transport, energy, and water) and public service delivery

12. **Several factors make the provision of infrastructure and service delivery a priority area.** Public infrastructure plays an important role in the competitiveness of firms and helps crowd in private and FDI. High, volatile electricity costs increase production costs, thus hampering firms' competitiveness and acting as a disincentive for investment. Policy actions in this area should focus on strengthening and modernizing the energy sector and taking additional steps towards the diversification of the energy matrix. On the other hand, Nicaragua's road network is among the least developed in the region. The poor condition of existing roads due to the lack of maintenance and spatial disparities represent important bottlenecks for private sector activity. This is of particular importance given Nicaragua's reliance on international trade and that high transport and logistics costs primarily affect traditional import and export products, which tend to be low unit value agriculture products. Improvements in these areas will boost economic growth and foster job creation, thus helping to reduce poverty. One pressing need is to improve access to markets and services in rural areas by continued investment in rural road infrastructure. In addition, investment on water management infrastructure is another critical area, given its impact on both agricultural productivity and water availability for human consumption.

13. **Low and unequal access to good quality water and sanitation services represents an important barrier for intergenerational mobility.** Despite progress in recent years, access to water and sanitation remains low and unequal. Moreover, the quality of services (measured by continuity of services and pollution) lags behind, especially among the most disadvantaged population in rural areas. Poor quality and inadequate hygiene translates into higher diarrheal mortality and health costs. Ensuring clean water provision and sanitation improves health, education, and productivity, thereby promoting economic growth and contributing to poverty reduction. The entry points to increase access to good quality water and sanitation include approving and implementing a water and sanitation development plan, improving management infrastructure, augmenting the capacity of key sectoral institutions, and expanding the infrastructure for the delivery of services in the rural areas of the Pacific Coast.

14. **High prevalence of adolescent pregnancy remains a challenge as it is associated with lower secondary education completion rates, poorer labor outcomes, and poverty.** In 2014, Nicaragua ranked among the countries with the highest adolescent fertility rates in LAC. In addition, violence against women was relatively high in the country, which negatively affects economic growth through lower labor productivity. Tackling teenage pregnancy and preventing intra-family violence can go a long way to increase human capital accumulation and improve youth job outcomes, decreasing the intergenerational transmission of poverty. An area of interest

includes the support of an integrated multisector adolescent strategy that promotes community-based approaches.

Priority #3: Private sector productivity and investment climate

15. **Improvements in the investment climate and firm productivity in the private sector are crucial to lift Nicaragua’s growth path into a higher trajectory.** Limited access to finance for MSMEs constrains private sector activity and job creation. This is compounded by existing barriers to entry, which reinforce market dominance in some sectors. Formalities and procedures at customs and other border agencies lead to delays and increases in costs of firms’ eroding competitiveness. Low productivity makes increasing market competition a priority. Provision of public infrastructure (electricity, water storage and distribution facilities, and roads) is also crucial to crowd in private sector activity. Some entry points to make improvements in the investment climate include the implementation of a *Doing Business* reform program, the implementation of the World Trade Organization Trade Facilitation Agreement (TFA), performing a regulatory impact assessment analysis and implementing a regulatory simplification program.

16. **A more disaggregated analysis for some key Nicaraguan sectors and industries helps shed light on a number of existing challenges and opportunities for expansion.** Land productivity in agriculture—a key sector for the economy in terms of exports and employment—is among the lowest in the region. Increases in agricultural output so far have been achieved mainly through an expansion in the agriculture frontier, rather than through intensification and optimization of land uses. This raises concerns in terms of the sustainability of this model. One recurrent theme is the low productivity in some key sectors, such as coffee and cattle and dairy. The light manufacturing sector faces challenges of lack of value addition and product diversity. In addition, the special economic zones under which some of these firms operate have fallen short in forging backward linkages to the domestic economy. Some pressing issues for the private sector include moving towards higher value-added sectors in manufacturing, increasing productivity and traceability in the cattle and dairy industry, and selective interventions in agriculture.

Priority #4: Reduction of vulnerabilities from climate change and management of natural resources (water, forestry, and land)

17. **Reducing vulnerabilities arising from climate change and natural disasters, and improving the management of natural resources are critical to ensure the sustainability of the recent progress toward the twin goals.** Nicaragua is highly exposed to natural disasters and climate change. Spatial distribution of urban centers, rapid urbanization and proliferation of precarious settlements, high concentration of poverty in rural areas, and the impact of climate change on water resources and agriculture are some factors contributing to increased vulnerability to natural hazards and climate change. Identified areas for policy action include the need to enhance early warning systems for disaster management and climate change, a better integration of knowledge of disaster risk management in land-use planning, building resiliency in public infrastructure (power and roads), and better managing increased climatic risks in agriculture.

18. **This problem is exacerbated by mismanagement of natural resources.** Nicaragua’s capacity to promote sustainable growth depends heavily on how well its natural resources (soil, water, and forests) are managed. This is critical in view of the growing and competing demand for these resources and the fact that their supply is becoming more limited and less reliable. Some

areas of interest include the need to improve water demand management across sectors given the existing seasonal and spatial disparities, strengthening water pollution control and remediation programs, and promoting reforestation programs and reducing land degradation.

Priority #5: Reduction of external vulnerabilities

19. **Finally, reducing the country's external vulnerabilities arising from the financing of large current account deficits remains one of the key priorities.** While lower oil prices in recent years have temporarily reduced vulnerabilities on the external side, the decline in Venezuela's oil cooperation financing and potential oil price increases in the near to medium term pose significant risks to the outlook. Taking additional steps toward a diversified electricity matrix would improve fiscal sustainability by containing government subsidies and lowering volatility of tariffs that accrue from the volatility of oil prices. Policies aimed at improving competitiveness and strengthening the fiscal position of the government would also be critical, by improving the trade balance and the government's ability to respond to external shocks.

Cross-cutting theme: Strengthening institutions and public sector efficiency

20. **On top of these priority areas, the analysis indicates the strengthening of institutions and improving public sector efficiency is key to enable progress in the identified areas.** Overall, indicators of institutional quality suggest that Nicaragua faces significant challenges in these areas.¹⁸⁰ In addition, indicators of bureaucratic quality suggest that there is a need to strengthen knowledge, capabilities, and systems for the civil service, including informing the public of the collection and use of public resources in delivering government services. Respondents in the executive survey of the Global Competitiveness Report identified the inefficient government bureaucracy as the most problematic factor in doing business for six years in a row. Improving institutional quality and the efficiency of public service delivery is key in all identified priority areas, be it in the improvement of education and facilitation for young Nicaraguans to find employment, be it in the provision of infrastructure, or in the reduction of vulnerabilities from climate change and the management of natural resources.

6.2. Policy actions and opportunities within the priority areas

21. **Going beyond the broad priority areas, the SCD provides a set of policy actions that have been identified within those areas as opportunities to generate advances.** The SCD seeks to identify the most critical actions or policies within these priority areas that represent opportunities for Nicaragua to continue to improve its progress on shared prosperity and poverty reduction. To hone in on those opportunities with the greatest potential impact, a series of filters or criteria have been applied during consultations with World Bank Group staff and some stakeholders in Nicaragua. This list of policy actions/opportunities can serve as a starting point for deeper analysis and discussion going forward:¹⁸¹

- **Impact on twin goals:** Under this criterion, the potential impact on the twin goals of reducing poverty and increasing the welfare of the bottom forty percent was assessed.

¹⁸⁰ Since the 1990s, Nicaragua has gradually embarked in a transition process from being a conflict-affected state toward becoming a relatively effective state. According to the 2011 WDR, even the fastest transforming countries have taken between 15 and 30 years to raise their institutional performance from that of a fragile state to that of a functioning institutionalized state.

¹⁸¹ These criteria are those suggested in the "Analytics Approaches for a Systematic Country Diagnostic: A Resource Document," Section 5 prepared by Jeeyeon Seo, February 2014.

- **Time horizon of impacts:** Here the possible timeframe in which the impact could be expected to be realized was taken into account, identifying low-hanging fruits and seeking a balance between short- and long-term impacts.
- **Complementarities:** This filter sought to assess the degree to which an identified opportunity in an area would have possible positive impacts on other constraints and priority areas.
- **Evidence-base:** The greater the evidence base, the more weight an identified opportunity was given in the prioritization process.
- **Political feasibility:** The country’s political economy affects the feasibility of addressing the proposed actions or reforms. Although each opportunity was assessed against this criterion, opportunities with low political feasibility were still included.
- **Essential preconditions:** Two definitions of this criterion were used. The first was if the proposed actions or reforms were a necessary condition for a productive life, such as ensuring a “basic minimum standard of living for all.” The second was if the opportunity was a critical one for other equally important opportunities to be addressed.

22. **This last step was carried out through two activities: (i) a half-day workshop with World Bank Group staff and sector experts and (ii) consultations with stakeholders in Nicaragua.** In the workshop, World Bank Group staff gathered information and inputs on possible policy actions and interventions that could address the challenges and constraints identified under each of the priority areas. These inputs were organized in the form of matrices around specific opportunities to which the SCD filters were applied. This allowed sectoral teams to cross-fertilize across thematic areas, and engage in discussions on the feasibility and relevance of some of the interventions. These matrices were then refined and shared broadly with World Bank Group staff to seek additional input as needed to fill remaining gaps in some of the areas/filters. Consultations with stakeholders in Nicaragua allowed for the discussion and validation of identified priority areas as well as prioritized opportunities. In particular, it allowed for better understanding of the political economy context and time horizon of some of the proposed actions. A list of these actions is presented in Annex 1 of this chapter.

REFERENCES

- Acemoglu, A. and D. Johnson (2005): “Unbundling Institutions,” *Journal of Political Economy* 113(5), pp. 949–995.
- Adelman, M. and M. Székely (2016): “School Dropout in Central America: An Overview of Trends, Causes, Consequences, and Promising Interventions, Policy Research Working Paper No. WPS 7561, Washington, D.C., World Bank Group.
- Alfsen, K., T. Bye, and E. Holmoy (1996): “MSG-EE: An Applied General Equilibrium Model for Energy and Environmental Analyses,” *Social and Economic Studies* 96, Statistics Norway.
- Alkire, S. and J. Foster (2011): “Counting and multidimensional poverty measurement” *Journal of Public Economics*, Elsevier, vol. 95(7), pages 476-487.
- Atlas of Economic Complexity Data: <http://atlas.media.mit.edu/en/profile/country/nic/#Exports>.
- Azevedo, J., G. Inchauste, and V. Sanfelice (2013): Decomposing the recent inequality decline in Latin America. Policy Research Working Paper No. WPS 6715. Washington, D.C., World Bank Group.
- Baez, J. and I. Santos (2007): “Children’s Vulnerability to Weather Shocks: A Natural Disaster as a Natural Experiment.” Unpublished manuscript.
- Barómetro de las Américas (2014): <http://www.vanderbilt.edu/lapop-espanol/acerca-americasbarometer.php>, Vanderbilt University.
- Barro, R. and J. Lee (2013): “A New Data Set of Educational Attainment in the World, 1950–2010,” *Journal of Development Economics* 104, pp.184–198.
- Barros, R., M. Carvalho, M. Franco, and R. Mendonça (2006): “Uma Análise das Principais Causas da Queda Recente na Desigualdade de Renda Brasileira.” *Revista Econômica*, vol. 8(1), pp 117-147.
- Beneke, M., N. Lustig, and J. Oliva (2014): “CEQ Master Workbook: El Salvador. Version: June 26, 2014,” CEQ Data Center (CEQ Institute, Tulane University and Inter-American Development Bank).
- Blinder, A (1973): “Wage discrimination: Reduced form and structural estimates.” *Journal of Human Resources* 8: 436–455.
- Bloom, D., D. Canning, and J. Sevilla (2003): “The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change,” RAND Corporation.
- Bloom, D. and J. Williamson (1998): “Demographic transitions and economic miracles in emerging Asia,” *World Bank Economic Review* 12(3), pp. 419–456, Washington, D.C., World Bank Group.
- Bonfert, A., M. Jaén, M. Müller, and G. Reyes (2016). Mimeo

Booth, J (1991): “Socioeconomic and Political Roots of National Revolts in Central America,” *Latin American Research Review* 26(1), pp. 33–74.

Bourguignon, F (2003): *The Poverty-Growth-Inequality Triangle*. Unpublished manuscript.

Brockett, C (1988): “Land, Power, and Poverty: Agrarian Transformation and Political Conflict in Central America,” Allen and Unwin.

Brogan, Patrick (1998): *World Conflicts: A Comprehensive Guide to World Strife since 1945*, Scarecrow Press.

Bustelo, M (2012): *Three Essays on Investments in Children’s Human Capital*. University of Illinois at Urbana-Champaign. Unpublished manuscript.

Cabrera, M. and H. Moran (2015): “CEQ Master Workbook: Guatemala. Version: May 6, 2015,” CEQ Data Center (CEQ Institute, Tulane University, Instituto Centroamericano de Estudios Fiscales (ICEFI) and International Fund for Agricultural Development (IFAD)).

Cabrera, M., and H. Moran (2015): “CEQ Master Workbook: Nicaragua. Version: October 14, 2015,” CEQ Data Center (CEQ Institute, Tulane University, Instituto Centroamericano de Estudios Fiscales (ICEFI) and International Fund for Agricultural Development (IFAD)).

Castaneda, R. and I. Espino (2015)” “CEQ Master Workbook: Honduras. Version: August 18, 2015,” CEQ Data Center (CEQ Institute, Tulane University, Instituto Centroamericano de Estudios Fiscales and International Fund for Agricultural Development).

Central Bank of Nicaragua (2017): www.bcn.gob.ni.

Cestti, R., A. Afanador, J. Escurra, I. Klytchnikova, and S. Iagiola, S. (2013): “Climate Change Impacts on Water Resources and Adaptation in the Rural Water Supply and Sanitation Sector in Nicaragua,” *Latin America and Caribbean Region Environment and Water Resources Occasional Paper Series*, Washington, D.C., The World Bank Group.

Clodfelter, M (2002): “Warfare and Armed Conflicts: A Statistical Reference to Casualty and Other Figures, 1500–2000,” 2nd edition Jefferson: McFarland.

Comisión Económica para América Latina (2017): “Estadísticas del Subsector Eléctrico de los Países del Sistema de la Integración Centroamericana (SICA), 2015,” Ciudad de México.

Cord, L., O. Barriga-Cabanillas, L. Lucchetti, C. Rodríguez-Castelán, L. Sousa, and D. Valderrama (2017): “Inequality Stagnation in Latin America in the Aftermath of the Global Financial Crisis,” *Review of Development Economics*, 21: 157–181.

Cruces, G., P. Lanjouw, L. Lucchetti, E. Perova, R. Vakis, and M. Viollaz (2015): “Intra-Generational Mobility and Repeated Cross-Sections: A Three-Country Validation Exercise.” *Journal of Economic Inequality* 13 (2): 161–79.

Currie, J. and D. Thomas (1999): “Does Head Start help Hispanic children?” *Journal of Public Economics*, Elsevier, vol. 74(2), pages 235–262, November.

- Daly, K (2007): *Gender Inequality, Growth and Global Ageing*. Goldman Sachs. Global Economics Paper No. 154.
- Dammert, A (2009): “Heterogeneous Impacts of Conditional Cash Transfers: Evidence from Nicaragua.” *Economic Development and Cultural Change*, 58(1):53–83.
- Dang, H. and P. Lanjouw (2014): “Measuring Poverty Dynamics with Synthetic Panels Based on Cross-Sections.” Washington, D.C., World Bank Group.
- Dang, H., P. Lanjouw, J. Luoto, and D. McKenzie. 2014. “Using Repeated Cross-Sections to Explore Movements into and out of Poverty.” *Journal of Development Economics* 107: 112–28.
- Datt, G. and M. Ravallion. 1992. “Growth and Redistribution Components of Changes in Poverty Measures: A Decomposition with Applications to Brazil and India in the 1980s.” *Journal of Development Economics*, 38, pp 275–95.
- De Ferranti, D., G. Perry, F. Ferreira, and M. Walton (2004): “Inequality in Latin America: Breaking with History.” World Bank Publications.
- De Hoyos, R., H. Rogers, and M. Székely (2016): “Out of School and out of Work—Risk and Opportunities for Latin America’s Ninis,” Washington, D.C., World Bank Group.
- Deininger, K. and Chamorro, J (2004): “Investment and Income Effects of Land Regularization: The Case of Nicaragua,” *Agricultural Economics* 30(2), pp. 101–116.
- De Soto, H (2000): “The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else,” New York: Basic Books.
- Doing Business in Nicaragua: A Country Commercial Guide for U.S. Companies (https://build.export.gov/build/groups/public/@eg_ni/documents/webcontent/eg_ni_048474.pdf) publications.
- Duryea, S. and M. Robles (2016): *Social Pulse in Latin America and the Caribbean 2016: Realities and Perspectives*. Inter-American Development Bank.
- ECLAF (2010): *Post Disaster Needs Assessment Reports*.
- Economic Commission for Latin America and the Caribbean (2016): “Foreign Direct Investment in Latin America and the Caribbean 2016,” Santiago, Chile.
- Economist Intelligence Unit (2015): *Risk Tracker May, 2015*.
- EM-DAT (2016): *The OFDA/CRED International Disaster Database*, Université Catholique de Louvain—Brussels, Belgium. 2016. www.emdat.be.
- Fajnzylber, P. and J. López (2008): “Remittances and Development: Lessons from Latin America.” Washington, D.C., World Bank Group.

Feenstra, R., R. Inklaar, and M. Timmer (2015): “The Next Generation of the Penn World Table,” *American Economic Review* 105(10), pp. 3150–3182, available for download at www.ggd.net/pwt.

Feinstein, L (2003): Inequality in the Early Cognitive Development of British Children in the 1970 Cohort. *Economica*. Volume 70, Issue 277.

Ferreira, F., J. Messina, J. Rigolini, M. Lugo, R. Vakis, and L. López-Calva (2012): “Economic Mobility and the Rise of the Latin American Middle Class.” World Bank Publications. Washington, D.C., World Bank Group.

Fideg (2016): Informe de resultados de la encuesta de hogares para medir la pobreza en Nicaragua, FIDEG 2015.

FUNIDES (2016): “Competencias que demandan las empresas en Nicaragua,” Serie de documentos de trabajo Número 6, Managua, Nicaragua.

FUNIDES (2017): Coyuntura Económica I Trimestre 2017. Managua. Nicaragua.

Galasso and Wagstaff (2016): The Economic Cost of Stunting and How to Reduce Them. Policy Research Note PRN/16/05. Washington, D.C., World Bank Group.

Gasparini, L., S. Galiani, G. Cruces, and P. Acosta (2011): Educational Upgrading and Returns to Skills in Latin America. Evidence from a Supply-Demand Framework, 1990–2010. The World Bank. Policy Research Working Paper 5921. Washington, D.C., World Bank Group.

Gasparini, L., and M. Marchionni (2015): “Bridging gender gaps? The rise and deceleration of female labor force participation in Latin America.” La Plata: Universidad Nacional de La Plata.

Germanwatch (2017): Global Climate Risk Index 2017 (<https://germanwatch.org/en/download/16411.pdf>).

Gindling, T. and J. Trejos (2013): “The Distribution of Income in Central America,” IZA Discussion Paper No. 7236.

Glewwe, P. and H. Jacoby (1995): “An Economic Analysis of Delayed Primary School Enrollment in a Low Income Country: The Role of Early Childhood Nutrition.” *The Review of Economics and Statistics* 77(1): 156–169.

Glewwe, P., H. Jacoby and E. King. 2001. "Early childhood nutrition and academic achievement: a longitudinal analysis." *Journal of Public Economics* 81 (3):345–368. doi: [https://doi.org/10.1016/S0047-2727\(00\)00118-3](https://doi.org/10.1016/S0047-2727(00)00118-3).

Government of Nicaragua (2011): Propuesta de Preparación del Proceso REDD+ en el Marco de la Estrategia Nacional para la Reducción de la Deforestación y la Degradación Forestal. Versión Borrador 2. RPP/ENDE.

Grantham-McGregor, S., Y. Cheung, S. Cueto, P. Glewwe, L. Richter, and B. Strupp (2007): "Developmental potential in the first 5 years for children in developing countries." *The Lancet* 369 (9555):60–70. doi: [https://doi.org/10.1016/S0140-6736\(07\)60032-4](https://doi.org/10.1016/S0140-6736(07)60032-4)

Hanushek, E. and L. Woessmann Ludger (2012): "Schooling, educational achievement, and the Latin American growth puzzle," *Journal of Development Economics*, Elsevier, vol. 99(2), pages 497–512.

Hernández O., M. Sánchez, L. Sousa, and L. Tornarolli (2017): "Fiscal and Welfare Impacts of Electricity Subsidies in Central America," Washington D.C., World Bank Group.

Icefi/FIDA. 2016. Nicaragua: incidencia de la política fiscal en la desigualdad y la pobreza.

Instituto Nacional de Información de Desarrollo (2011): CENAGRO IV—Censo Nacional Agropecuario 2011, Managua, Nicaragua.

Instituto Nicaragüense de Energía (2017): <http://www.ine.gob.ni/>.

Instituto Nicaragüense de Turismo—INTUR (2015). Boletín de Estadísticas de Turismo No. 26.

International Country Risk Guide: www.prsgroup.com/ICRG.aspx—produced by the PRS Group.

International Energy Agency—IEA (2009): International Energy Agency CO2 Statistics 2009.

International Monetary Fund (2004): "Nicaragua: Enhanced Initiative for Heavily Indebted Poor Countries—Completion Point Document," IMF Country Report No. 04/72, Washington D.C.

International Monetary Fund (2012): Nicaragua: Selected Issues, Washington, D.C.

International Monetary Fund (2013): Nicaragua 2013 Article IV Consultation, IMF Country Report No. 13/377, Washington, D.C.

International Monetary Fund (2016): Nicaragua 2015 Article IV Consultation, IMF Country Report No. 16/34, Washington, D.C.

International Monetary Fund (2016a): "Heavily Indebted Poor Countries (HIPC) Initiative and Multilateral Debt Relief Initiative (MDRI)—Statistical Update," Washington D.C.

Jacobsen, R. and S. Jensen (2014): "Future Changes in Age and Household Patterns: Some Implications for Public Finances." *International Journal of Forecasting*, 30(4), pp. 1110–1119.

Keefer, P (2012): "Why Follow the Leader? Collective Action, Credible Commitment and Conflict," Policy Research Working Paper No. 6179, Washington, D.C.

Kemper, K (2013): Environmental health in Nicaragua: Addressing key environmental challenges. Latin America and Caribbean Region Environment and Water Resources occasional paper series. Washington D.C., World Bank Group.

Kinzer, S (2007): "Blood of Brothers: Life and War in Nicaragua," The David Rockefeller Center Series on Latin American Studies, Harvard University.

Latinobarómetro (2015): <http://www.latinobarometro.org/latContents.jsp>.

Leitenberg, M (2006): “Deaths in wars and conflicts in the 20th century,” Cornell University Peace Studies Program.

Li, H. and J. Zhang (2007): “Effects of Longevity and Dependency Rates on Saving and Growth: Evidence from a Panel of Cross Countries,” *Journal of Development Economics* 84, pp. 138–154.

Loko, B. and M. Diouf (2009): “Revisiting the Determinants of Productivity Growth: What’s New?” IMF Working Paper WP/09/225WP/09/225. Washington, D.C., International Monetary Fund.

Macours, K., P. Premand, and R. Vakis (2012): “Transfers, Diversification and Household Risk Strategies: Experimental Evidence with Lessons for Climate Change Adaptation,” Policy Research Working Paper No. 6053, Washington D.C., World Bank Group.

Maluccio, J (2005): “Household targeting in practice: The Nicaraguan Red de Protección Social,” International Food Policy Research Institute, Washington D.C.

Maluccio, J. and R. Flores (2005): “Impact Evaluation of the Pilot Phase of the Nicaraguan Red de Protección Social.” Research Report No. 141, International Food Policy Research Institute, Washington, D.C.

Maluccio, J (2007): “Coping with the Coffee Crisis in Central America: The Role of the Nicaraguan Red de Protección Social.” Food Consumption and Nutrition Division Discussion Paper No. 188, International Food Policy Research Institute, Washington, D.C.

Maluccio, J (2007): “The Impact of Conditional Cash Transfers on Consumption and Investment in Nicaragua,” Middlebury College Working Paper Series 0722, Middlebury College, Department of Economics.

Mason, A (2007): “Demographic Transition and Demographic Dividends in Developed and Developing Nations,” in Proceedings of the UN Expert Group Meeting on Social and Economic Implications of Changing Population Age Structures, United Nations, New York.

Ministry of Education of Nicaragua (MINED). Plan de Educación 2017–2021 (Preliminary version). December 2016. Nicaragua.

Ministry of Energy and Mines (2017): Expansion Plan for Energy Generation 2017, Managua, Nicaragua.

Molinas, J., R. Barros, J. Saavedra, and M. Giugale (2012): “Do Our Children Have a Chance? A Human Opportunity Report for Latin America and the Caribbean.” Washington, D.C., World Bank Group.

Montenegro, C. and H. Patrinos (2014): Comparable estimates of returns to schooling around the world. World Bank Policy Research Working Paper No 7020. Washington, D.C., World Bank Group.

National Committee of Sugar Producers of Nicaragua (CNPA): <http://www.cnpa.com.ni/importancia-economica/>.

Naudeau, S. and H. Rifat (2016): Early childhood development: a review of the global evidence. Country Policy Brief. Washington, D.C., World Bank Group.

Nicoletti, G., and S. Scarpetta (2003): “Regulation, Productivity and Growth: OECD Evidence,” *Economic Policy* 18(36), pp. 9–72.

North, D., and R. Thomas (1973): “The Rise of the Western World,” New York, Cambridge University.

Oaxaca, R. (1973): “Male–female wage differentials in urban labor markets.” *International Economic Review* 14: 693–709.

ONGAWA (2015): A proposal to broadly measure the human right to water and sanitation: the reality of the rural area of Nicaragua.

Ocampo, J (1991): “Collapse and (incomplete) stabilization in Nicaragua,” in R. Dornbusch and S. Edwards (Eds.), *The Macroeconomics of Populism*, University of Chicago Press.

Pecho, M., J. Peláez, and J. Sánchez (2012): “Estimación del Incumplimiento Tributario en América Latina: 2000–2010,” Inter-American Center of Tax Administrations (CIAT).

Peñate, M., K. de Escobar, A. Quintanilla, and C. Alvarado. (2016): “Estimación del Costo Económico de la Violencia en El Salvador 2014,” Banco Central de Reserva de El Salvador (<http://www.bcr.gob.sv/bcrsite/uploaded/content/category/1745118187.pdf>).

Pianta, R. C., and S. McCoy (1997): The first day of school: The predictive validity of early school screening. *Journal of Applied Developmental Psychology*, 18, 1–22.

Premand, P. and R. Vakis (2010): “Do Shocks Affect Poverty Persistence? Evidence Using Welfare Trajectories from Nicaragua” *Well-Being and Social Policy* Vol 6(1): 95-129.

PRONicaragua (2016): <http://pronicaragua.gob.ni/en/why-invest-in-nicaragua/31-competitive-operational-costs/>.

Ravallion, M., and S. Chen (2003): “Measuring Pro-poor Growth.” *Economics Letters* 78 (1): 93–99.

Ravallion, M. and M. Huppi (1991): “Measuring Changes in Poverty: A Methodological Case Study of Indonesia during an Adjustment Period.” *The World Bank Economic Review* 5 (1): 57–82.

Revista Turismo e Inversión. (6/08/2016): “Escaso financiamiento para PYMES.”

Rocha, J (2006): “A Region Torn Apart: The Dynamics of Migration in Central America,” San José: Lara Segura Editores.

Sarkees, M (2000): “The Correlates of War Data on War: An Update to 1997,” *Conflict Management and Peace Science* 18(1), pp. 123–144.

Sauma, P. and J. Trejos (2014): “CEQ Master Workbook: Costa Rica. Version: February 2014,” CEQ Data Center (CEQ Institute, Tulane University).

SEDLAC (Socio-Economic Database for Latin America and the Caribbean). Center for Distributive, Labor and Social Studies (CEDLAS) of Universidad de La Plata, Argentina, and World Bank, Washington, DC. <http://sedlac.econo.unlp.edu.ar/eng>.

Shleifer, A. and R. Vishny (1993): “Corruption,” *The Quarterly Journal of Economics* 108(3), pp. 599–617.

Sosa, S., E. Tsounta, and H. Kim (2013): “Is the Growth Momentum in Latin America Sustainable?,” IMF Working Paper WP/13/109, Washington, D.C., International Monetary Fund.

Superintendencia de Bancos y de Otras Instituciones Financieras (2016): <http://www.superintendencia.gob.ni/>.

The Maddison-Project, <http://www.ggd.net/maddison/maddison-project/home.htm>. (2013 version).

UN—Water Global Analysis and Assessment of Sanitation and Drinking Water GLAAS. 2014. Investing in water and Sanitation: Increasing Access, Reducing Inequalities. Geneva, WHO http://apps.who.int/iris/bitstream/10665/139735/1/9789241508087_eng.pdf?ua=1.

United Nations (2004): “World Population to 2300,” Department of Economic and Social Affairs, Population Division, New York: United Nations.

United Nations (2014): “World Urbanization Prospects: The 2014 Revision,” Department of Economic and Social Affairs, Population Division.

United Nations (2015): “World Population Prospects: The 2015 Revision,” Department of Economic and Social Affairs, Population Division.

United Nations Food and Agriculture Organization (2015): Status of World’s Soil Resources.

United Nations AQUASTAT database (2015): Nicaragua 2015 Factsheet, http://www.fao.org/nr/water/aquastat/countries_regions/NIC/index.stm.

UNODC Statistics (2016): United Nations Office on Drugs and Crime (<https://data.unodc.org/>).

USDA (2016): Nicaragua Coffee Annual Report, June 2016.

U.S. Department of Homeland Security (2008): “2008 Yearbook of Immigration Statistics,” Office of Immigration Statistics.

U.S. Department of Homeland Security (2014): “2014 Yearbook of Immigration Statistics,” Office of Immigration Statistics.

Vakis, R., J. Rigolini, and L. Lucchetti (2016): *Left behind: chronic poverty in Latin America and the Caribbean*. Washington, D.C., World Bank Group.

Vakis, R., D. Kruger, and A. Mason (2006): “Shocks and Coffee: Lessons from Nicaragua in Income Stabilization in Agriculture: The Role of Public Policies,” *Proceedings of the 86th EAAE Seminar*, Anacapri, Italy: pp. 171–231.

Victora, C., L. Adair, C. Fall, P. Hallal, R. Martorell, L. Richter and H. Sachdev (2008): “Maternal and child undernutrition: consequences for adult health and human capital.” *The Lancet* 371 (9609):340–357. doi: [https://doi.org/10.1016/S0140-6736\(07\)61692-4](https://doi.org/10.1016/S0140-6736(07)61692-4).

Wölfl, A., I. Wanner, T. Kozluk, and G. Nicoletti (2009): “Ten Years of Product Market Reform in OECD Countries 1998–2008: Insights from a Revised PMR Indicator,” *OECD Economics Department Working Papers No. 695*. OECD Paris.

World Bank (1953): “The Economic Development of Nicaragua,” Johns Hopkins Press.

World Bank (1973): “Long-term Economic Growth and Prospects of Nicaragua,” Report 197a-NI, Washington, D.C., World Bank Group.

World Bank (1973): “The Effects of the December 23 Earthquake upon the Economic Position and Prospects of Nicaragua,” Report 139-NI, Washington, D.C., World Bank Group.

World Bank (1981): “Nicaragua: The Challenge of Reconstruction,” Report No. 3524-NI, Washington, D.C., World Bank Group.

World Bank (1993): *Republic of Nicaragua: Review of Social Sector Issues*, Report No. 10671-NI, Washington, D.C., World Bank Group.

World Bank (1994): “Nicaragua Country Economic Memorandum,” Report No. 12066-NI, Washington, D.C., World Bank Group.

World Bank (2008): “Nicaragua Poverty Assessment” Report No. 39736-NI, Washington, D.C., World Bank Group.

World Bank (2010): “Enterprise Survey 2010.” <http://www.enterprisesurveys.org/>. Washington, D.C., World Bank Group.

World Bank (2011): “World Development Report 2011: Conflict, Security, and Development,” Washington, D.C., World Bank Group.

World Bank (2011a): *A Break with History: Fifteen Years of Inequality Reduction in Latin America*, Washington, D.C., World Bank Group.

World Bank (2012): “Better Jobs in Nicaragua—The Role of Human Capital,” Report No. 72923, Washington, D.C., World Bank Group.

World Bank (2012a): “Mejores empleos en Nicaragua: El rol del capital humano.” Human Development Department, Latin American and the Caribbean Region, Washington, D.C., World Bank Group.

World Bank (2012b): “Gender Equality and Development”. World Development Report. Washington, D.C., World Bank Group.

World Bank (2013): “Nicaragua—Second Land Administration Project,” Washington D.C., World Bank Group.

World Bank. (2013a): “Nicaragua. Country Economic Memorandum: Promoting Competitiveness and Inclusive Growth.” Washington, D.C., World Bank Group.

World Bank (2014): “Nicaragua Country Economic Memorandum: Promoting Competitiveness and Inclusive Growth,” Washington D.C., World Bank Group.

World Bank (2014a): Social Gains in the Balance: A Fiscal Policy Challenge for Latin America and the Caribbean, Washington, D.C., World Bank Group.

The World Bank (2015): Indigenous Latin America in the Twenty-First Century. Washington, D.C., World Bank Group. License: Creative Commons Attribution CC BY 3.0 IGO.

World Bank (2015a): “Agriculture in Nicaragua: Performance, Challenges and Options.” Washington, D.C., World Bank Group.

World Bank (2015b): Nicaragua, Earthquakes and Hurricanes Risk Profile. Washington, D.C., World Bank Group.

World Bank (2016): Central America Social Expenditures and Institutional Review—Nicaragua, Washington, D.C., World Bank Group.

World Bank (2016a): “Central America Urbanization Review,” Washington D.C., World Bank Group.

World Bank (2016b): Latin America and the Caribbean Region: Gender diagnostic 2016. Working document. Washington, D.C., World Bank Group.

World Bank (2016c): Poverty and Shared Prosperity 2016: Taking on Inequality. Washington, D.C., World Bank Group. doi:10.1596/978-1-4648-0958-3. License: Creative Commons Attribution CC BY 3.0 IGO

World Bank (2017): “World Development Report 2017—Governance and the Law,” Washington, D.C., World Bank Group.

World Bank (2017a): “Análisis de Causas de la Deforestación y Degradación Forestal en las Regiones Autónomas de la Costa del Caribe Norte (RACCN) y Sur (RACCS), la Reserva de la Biósfera Bosawas y la Reserva Biológica Indio Maíz,” Washington D.C., World Bank Group.

World Economic Forum (2016): Global Competitiveness Report 2016–2017, World Economic Forum, Geneva.

World Travel and Tourism Council (2016): “Economic Impact 2016—Nicaragua.”

Worldwide Governance Indicators (2015): www.govindicators.org.

ANNEX 1: POLICY ACTION MATRICES

Priority #1: Improvement of education, skills and jobs for the youth				
Policy action	Increase access to and improve quality of early education, especially for disadvantaged children	Improving teacher practices in primary and secondary education	Reform secondary curricula and develop effective policies and programs to reduce student dropout	Strengthen targeted public/private technical education to better respond to labor market demands
Impact on twin goals	Cognitive development, higher returns to human capital investment and economic growth, improvement in educational attainment for disadvantaged children	Improvement in student learning performance and economic growth, positive impact on socioeconomic mobility and poverty reduction	Reforming curricula better tailored to demands from the labor market, improvements in retention and educational attainment, impact on growth and poverty reduction	Better demand responsiveness of training and skills/labor market insertion programs will enhance employment creation for youth and increase income generation. Impact on economic growth
Time horizon (short, medium, long-term)	Short: Improve preschool teacher practices and learning materials in public preschools Medium to long: Improve preschool quality and learning outcomes	Short to medium: Reforms on teacher observation and mentoring programs, national assessment of the quality of teacher training, systematic use of student learning assessments to evaluate and improve teacher quality Medium to long: Changes in incentives for teacher training and selection mechanisms to recruit teachers	Short: Development of strategies to identify and retain students at high risk of dropout, identification of priority areas for reforms in the curricula. Medium to long: Support the systematic M&E of policies and programs to reduce dropouts, selected key sectors have development strategies for jobs creation.	Short: Assessment of training and TVET programs to identify gaps and potential synergies Medium: Introduction of vocational and skills development training linked to internships, job opportunities or entrepreneurship
Complementarities	Increases returns to investments in health and education beyond preschool	Increases quality of learning and ultimately labor productivity and employability of youth	Reducing dropouts in secondary education will increase individual employability and labor productivity	Foster private sector activity
Evidence-based	Positive association between preschool attendance and poor academic performance, grade repetition, and dropout (Feinstein 2003; Pianta and McCoy 1997; Currie and Thomas 1999, TERCE)	Teacher quality is the single most critical factor in determining learning outcomes of children in school (Bruns and Luque 2015)	Several LAC's countries experiences (Chile, Mexico, Brazil, and Colombia) are prioritizing the completion of basic education through a combination of "supply-side" and "demand-side" policies	Good results in other countries such as France and Germany; failure of traditional education system to prepare youth. For initiatives in LAC, see CEDLAS (2013).
Political feasibility	Non-contentious	Extension of ongoing primary education reform to secondary	Interest from MINED, MoF and Presidency	Market is open for private services provision and the private sector has identified job creation in high productivity sectors as a priority in their Agenda 2020.
Essential preconditions		Assessment of institutional quality of the existing framework for teacher training	MoF and MINED agreement to conduct this assessment and access to administrative data	Buy-in from MoF to conduct assessment of training and TVET programs, and scale up financing

Priority #1: Improvement of education, skills and jobs for the youth (cont.)	
Policy action	Develop a National Jobs Strategy informed by a jobs diagnostic
Impact on twin goals	The Jobs Strategy will propose policies to promote job creation and productivity growth
Time horizon (short, medium, long-term)	Short: Definition of high productive sectors for jobs creation and a route for economic transformation, with a main focus in women's participation and development. Medium: Reform INATEC and active labor market programs
Complementarities	Safeguards investments in education and skills development
Evidence-based	Sixteen IDA countries have developed or are in the process of developing job strategies. Chile and Colombia have successfully reformed training and labor market programs
Political feasibility	MoF and the Presidency have interest in promoting jobs creation and economic transformation
Essential preconditions	MoF leads a multisectoral technical working group to develop the jobs strategy

Note: Policy actions regarding the cross-cutting theme of strengthening institutions and public sector efficiency are included in the matrices of the five priority areas due to the cross-cutting nature of the agenda.

Priority #2: Provision of infrastructure (energy, transport and water) and service delivery				
Policy action	Improving safe and sustainable access to markets and services in rural areas	Strengthen, modernize and improve the energy sector	Invest on water management infrastructure (multipurpose reservoirs and conveyance systems)	Increase access to and quality of water supply and sanitation and strengthen the capacity of the sector institutions (ENACAL, FISE, Municipalities, Water and Sanitation Committees)
Impact on twin goals	Competitiveness of agricultural sector, reliable access to productive zones and markets, better access to health and education services	Increases employment creation, FDI, and growth	Less vulnerability to climate change and variability, increase in productivity and water availability for human consumption	Ensuring access to clean water and sanitation improves human health and safeguards human capital investments, hence contributing to growth and poverty reduction
Time horizon (short, medium, long-term)	Short to medium-term: Improved rural road infrastructure and access Medium to long-term: Reduction of transportation costs, increased agricultural production and investments in agribusiness (increased value chain for local products)	Medium-term: Diversification of energy matrix by adding more renewable energy sources Long-term: Improved productivity and access to more sophisticated productive processes	Short to medium: Identify and develop multisector projects (water supply, hydropower, irrigation) Medium to long: Increase water productivity and water service provision	Short to medium: Engage a tariff study aiming at making significant reforms on water tariffs Medium to long: Provide assistance to strengthen technical and managerial capacities and restructure the organization of the sector to clarify roles and responsibilities
Complementarities	Increased investment; job creation and enhanced competitiveness and productivity (especially in agriculture)	Lower electricity costs, access to clean energy, increased investment attractiveness; virtuous cycle of jobs creation, competitiveness and productivity	Reduced impacts of floods and droughts; increased water security	Improved water and sanitation services reduce health risks, improved education outcomes (healthy children are better able participate in school and learn), and have a positive effect on women's time use

Evidence-based	Impact observed in Kenya and Mozambique between better road access and agricultural outputs. Nicaragua rural roads project impact evaluation	The electrification in the country favors only 76.2% of the population; the remaining has no access to energy services. Energy prices are among the highest in Central America and well above the LAC average	Good results in other countries (Peru, Chile, Mexico, Spain), technical studies under the National Water Resources Plan	Interventions in water supply, sanitation and hygiene are estimated to reduce incidence of diarrheal disease by 25% and child mortality by 65% (World Health Organization). Evidence from Bank-funded projects
Political feasibility	Ongoing support	Market open for private services provision	Focus area of the NWRP	Within government's priorities
Essential preconditions	Included in Government's priority programs	Included in Government's priorities	A stronger water authority needed for promotion, development and regulation	Institutional strengthening should be a government priority together with the improvement of the water governance

Priority #2: Provision of infrastructure (energy, transport and water) and service delivery (cont.)	
Policy action	Support integrated, multisector, and community approaches for adolescent development, including promotion of gender equity and prevention of family violence
Impact on twin goals	Positive impact deriving from the demographic dividend, reduce the intergenerational transmission of poverty (impacts through poverty and inclusion)
Time horizon (short, medium, long-term)	Short: Develop an integrated multisector adolescent strategy that promotes community-based approaches Long run: Reduction of teenage pregnancy and gender-based violence
Complementarities	Improvements in education, skills and job outcomes for youth
Evidence-based	Lower rates of teenage pregnancy have been linked to reduction in poverty and demand for social assistance (Furstenberg 2008)
Political feasibility	Yes
Essential preconditions	Requires collaboration between the three social sectors and coordination with the youth inclusion strategy

Priority #3: Improvements in private sector productivity and the investment climate				
Policy action	Improving access to credit	Implementing a Doing Business reform program to reduce business regulations and procedures that affect private sector competitiveness	Implementing the World Trade Organization TFA to streamline customs and other border agencies procedures	Facilitating potential Public Private Partnerships (PPPs) in the infrastructure sectors to improve logistics and export performance
Impact on twin goals	Job creation and increased income generation	Increased investment opportunities, job creation, increased income generation, positive impact on growth	Increased investment opportunities, job creation, increased income generation, positive impact on growth	Creation of jobs and higher income.
Time horizon (short, medium, long-term)	Short-term: It will allow SMEs to increase investments in working and physical capital and new technologies. Medium-term: Increased productivity	Short to medium-term: Implement selected reforms included in a Doing Business Reform Memorandum with the World Bank Group. Medium to long-term: Implement necessary reforms to improve the investment climate and the TFA	Short to medium-term: Implement priorities already defined with technical assistance of the World Bank Group Medium to long-term: Implement all TFA provisions and investment climate	Short to medium-term: Bankable projects identified and proposed Medium to long-term: PPPs established in large infrastructure projects
Complementarities	Increased investment attractiveness; virtuous cycle of jobs creation, enhanced competitiveness	Reinvigorating private sector activity to help boost growth. Increased private investment attractiveness and enhanced competitiveness	Reinvigorating private sector activity to help boost growth. Increased private investment attractiveness and enhanced competitiveness	Increased FDI, creation of jobs, improved logistics value chains, better regional competitiveness, increased trade opportunities
Evidence-based	SMEs in general, and tourism related businesses particularly, have difficulty accessing credit due to the cyclic nature of their business, which increases perceived risk and interest rates (over 12%)	Positive link between good business regulatory environments and growth	The OECD estimates that cost reductions could be 15.1% in lower middle income countries that implement all TFA provisions and 12.6% in those that implement only mandatory provisions. (OECD 2015)	PPP tool applied in Panama to attract more PPP investments, 2015, WB, showing increased FDI in the country
Political feasibility	Market open for private services provision	High: Presidential decision to improve investment climate and trade facilitation	High: presidential decision to improve investment climate and trade facilitation	The Government demonstrated willingness by promoting institutional and regulatory changes
Essential preconditions	Accurate property registration Improvement of judicial system Access to public or soft funds for micro credit	Included in Government's priority programs	TFA approved by the congress (already achieved)	

Priority #3: Improvements in private sector productivity and the investment climate (cont.)		
Policy action	Upgrading manufacturing to higher value added	Productivity and traceability improvements in the cattle and dairy industry
Impact on twin goals	Job creation and increased income generation	Employment and income improvements in rural areas, impact on poverty, inclusion and growth
Time horizon (short, medium, long-term)	Medium-term: Attract more sophisticated players in the textile sector Long-term: Invest in education for a more qualified workforce	Medium-term: Access preferred markets such as the European Union Long-term: Improve productivity to meet exporting quotas already established with preferred markets such as the European Union
Complementarities	Increased investments in more advanced manufacturing, higher employment, access to new supply chains, higher revenues	Access to new export areas, new markets, global supply chains, higher revenues, potential new operations
Evidence-based	Clear evidence of overall economic benefits of moving into higher value added chains	Majority of cattle and dairy farmers are small, focus on informal sector
Political feasibility	Market already open for foreign investment	Aligned with government priorities
Essential preconditions	Support skills development Research & development	Improvement of SPS and traceability systems

Priority #4: Reduction of vulnerabilities from climate change and improving natural resource management (water, forestry, land)				
Policy action	Strengthening water pollution control and remediation programs in highly polluted sites	Improving the productivity of the forest sector	Reducing land degradation	Improving disaster risk knowledge, early warning systems (EWS) and climate data to support informed decision-making
Impact on twin goals	Better water quality contributes to the reduction of waterborne diseases and improves water availability for other water users, lowers health expenses for the poor	Increases employment creation and income generation	Improves the livelihoods of the rural poor	EWS save lives of communities located in high risk prone areas
Time horizon (short, medium, long-term)	Short to medium: Develop a detailed assessment on water quality and identify critical areas for action Medium to long: Develop remediation plans to improve water quality and protect the water sources	Short to medium: Increased areas of reforestation and assisted natural regeneration; Medium to long: Impact on employment, carbon storage	Short to medium: Introduction of agroforestry and silvopastoral systems Long-term: Increased land productivity	Short: More precise forecasts and alerts related to extreme events Medium: Better seasonal forecasts for agriculture and water resource management Long: Better understanding of climate change and related impacts
Complementarities	Impact of water quality on biodiversity and environment. Using reclaimed water contributes to manage water demand for other uses such as irrigation	Increased possibilities to access climate forest finance from international sources through the reduction of forest degradation	Reduce pressure on natural forests, as agriculture is currently expanding at the expense of the conversion of forests lands to other uses Promotion of avoided deforestation	Food security, increased agricultural productivity and reduction of crop losses in order to increment food security. Better hydrometeorological and climate information is key to plan on water resources, Managua urban resilience, Dry Corridor

Evidence-based	Good results in other countries like Peru and Mexico. Studies under NWRP.	Country experiences in Costa Rica, Chile and Mexico	Vergara et al. (2016)	World Bank (2016), other country experiences
Political feasibility	Aligned with government priorities	High political will in the country to gain access to forest climate finance	High political will in the country to gain access to forest climate finance	Ongoing government efforts to increase Disaster Risk Management capabilities (INETER's modernization plan)
Essential preconditions	A stronger water authority for the monitoring and control of water quality	Included in Government's priority programs	Included in Government's priority programs	Basic information about hazards is accessible

Priority #4: Reduction of vulnerabilities from climate change and improving natural resource management (water, forestry, land) (cont.)

Policy action	Strengthening construction codes, urban development, and territorial and sectoral planning to better integrate Disaster Risk Management/Climate Change in land-use planning	Managing the increased climatic risks to build the resilience of agri-food systems, with emphasis on smallholders	Strengthening sustainability and resilience of road assets to climate change impacts
Impact on twin goals	Avoiding precarious settlements located at risk prone areas will reduce impact in poor communities.	Improved food security, reduced vulnerability of agri-food systems to weather variability, increased and more stable incomes for farmers	Sustainable and year-round road access to agricultural productive zones, markets and services in poorest rural areas
Time horizon (short, medium, long-term)	Short to medium: Incorporation of urban development planning in the municipality's mandates Medium to long: Generation of local Disaster Risk Management plans is key to build urban resilience	Short-term: Promoting CSA systems; investing in water management techniques; promoting soil management; implementing a dynamic information system; transferring drought/flood monitoring and early warning information to farmers via cell phones Medium-term: Enhanced decision-making to address climate variability; improved seeds and other CSA technologies available to farmers; agricultural risk management strategies piloted and selected for scaling up; reduced carbon footprint by participating in result-based payment schemes under REDD+ Long-term: Model of sustainable use of available water; dynamic information system on agriculture and climate variability and efficient design of climate-smart productive landscapes; collective agricultural insurance schemes available	Short to medium-term: Implementation of climate resilient standards in road design; introduction of sustainable asset management measures for road maintenance Medium to short-term: Climate resilient road infrastructure; reduction of transportation costs for agricultural producers; year-round and sustainable road access; increased income from direct and indirect jobs
Complementarities	Reducing future risk is inherently more economical than reducing existing risk Reducing vulnerabilities associated with inefficient land use, poor water management, and inappropriate building practices	Increased private sector engagement along with increased provision of financial services to agriculture, on the basis of more resilient and less risky productive systems; enhanced productivity and competitiveness; improved and more resilient ecosystems; reduced carbon emissions from agriculture and cattle ranching	Safer roads in case of natural disaster or major climate event; increased private sector engagement; virtuous cycle of jobs creation (also during construction); enhanced competitiveness and productivity (especially in agriculture); lower cost of doing business

Evidence-based	Other country experiences, for example, Malawi	CIAT (2015) and World Bank (2015)	Evidence on areas to increase transport infrastructure resilience
Political feasibility	Among government's priorities	Climate change is very high in the Government's priorities (agriculture and the Dry Corridor)	Climate change is high in the Government's priorities
Essential pre-conditions	Development planning as a mandate for sectors and municipalities	Effective partnerships with private sector organizations, strengthening of INETER's capacity, risk transfer strategies explored in collaboration with private financial and insurance sectors. Implementation of national REDD+ strategy	Adoption of measures from FOMAV Study (financing of road maintenance); completion of vulnerability assessment of road network and development of robust climate change models

Priority #5: Reduction of sources of external vulnerability

Policy action	Provision of adequate financial solutions and reinforcement of the regulatory framework and system's planning in the power sector to progressively incorporate affordable new renewable energy capacity and promote energy efficiency initiatives	Strengthening fiscal position to face shocks	Improving quality of public expenditures through implementation of performance management frameworks and internal accountability mechanisms in specific sectors, and development of an efficiency gains program through public procurement
Impact on twin goals	More affordable electricity and reduced exposure to external impacts from a diversified energy matrix with least-cost technologies. Reduction of electricity bill for households and free up cheap electricity for other uses from energy efficiency measures. Under more affordable electricity prices, reduced need for energy subsidies and transfers to the power sector	Prudent fiscal and macroeconomic policies are critical for growth and poverty reduction. Fiscal buffers can help enact countercyclical policies/respond to sudden stops	Reducing fiscal vulnerability and sustaining public sector effectiveness is critical to making progress toward the twin goals It would help manage fiscal constraints resulting from external vulnerabilities and will help boost sector specific programs in health, education and others
Time horizon (short, medium, long-term)	Short-term: Direct impact in electricity bill and energy generation cost Medium-term: Reduced exposure to droughts and volatile international oil prices Long-term: Increased competitiveness and energy affordability, with potential stimulation of the ESCOs market	Short-term: Assessment of the impact of tax exemptions/tax expenditures from the most recent tax reform, assessment of contingent liabilities of State Owned Enterprises and municipalities Medium-term: Strengthening the financial sustainability of the INSS	
Complementarities	Additional capacity to meet the growing demand at affordable prices, reduced electricity dependence through energy efficiency. Renewable energy and energy efficiency reduce GHG emissions by displacing thermal plants. More competitive and stable electricity prices. Improved and more reliable service through enhanced system's planning and management	Instilling confidence in private sector and long-term investment decisions (FDI, investment, job creation)	Actions to improve quality and efficacy of public spending will also have impact on improved service delivery

Evidence-based	Continuous cost-drop of renewable energy generation technologies has made them more attractive/rapidly increased their share in the energy matrix in most countries of the region	Ample evidence available	Public procurement data available to develop evidence-based policy design PFM reform supported through the PMSAF project and Boost exercise would inform implementation of this initiative
Political feasibility	Aligned with government's priorities	Aligned with government's objectives. Some degree of inertia in some areas (SOEs/INSS)	Interest in improving effectiveness of programs Noncontroversial topic
Essential preconditions	No preconditions envisaged	Completion of analytical work in the respective areas	

ANNEX 2: DATA GAPS

Section 1: General Information about the Statistical System	
Legal status of NSO	Independent Government Agency
Statistical legislation (latest)	Law on Statistics, 1979
NSDS/statistical masterplan	Estrategia Nacional de Desarrollo Estadístico, Nicaragua

Section 2: Micro Data						
Type of census/survey	Latest (Year)	Second Latest (Year)	Representativeness (national, regional, urban/rural)	Data Accessibility (open access/w/ permission/no access)	Disaggregation (Y/N)	
					Sex	Regional
Censuses						
Population census	2005	1995	National, regional	Accessible	—	—
Agriculture census	2011	2001	National	Accessible	—	—
Business/establishment census		—	—	—	—	—
Surveys						
Household survey on income/consumption	2014	2009	National, regional, urban/rural	Accessible	—	—
Household survey on education (e.g., MICS)	2001	1998	—	Accessible	Y	—
Household survey on health (e.g., DHS, MICS)	2006–2007	2001	National/regional	Accessible	Y	—
Labor force survey (LFS, household survey on labor only)	2009–2010	—	—	No access	—	—
Business/establishment survey	—	—	—	—	—	—

Section 3: Macro Data				
Does the country subscribe to the IMF SDDS or participate in the eGDDS?	eGDDS			
If SDDS	Periodicity		Timeliness	
	SDDS	Country	SDDS	Country
National accounts: Gross Domestic Product by production and expenditure at current and constant prices.	—	Q	—	3M
Consumer price index	—	M	—	1M
Central government operations	—	Q	—	3M
Balance of payments	—	Q	—	3M
External debt	—	M, Q	—	1M, 3M
Merchandise trade	—	M	—	2M
Production index	—	M	—	3M
Employment	—	M	—	2M
Unemployment	—	A	—	4M
Producer Price Index	—	M	—	1M

Section 4: Compliance with World Bank Group Core Data Standards			
	World Bank Group Standard	Compliant (Y/N)	Actual Yearly Interval or %
Household survey of income or consumption	One every 3 years	N	5 years
PPP price survey	One every 3 years	N	Over 5 years
Civil Registration and vital statistics	<ul style="list-style-type: none"> • 80% of births registered • 60% of deaths registered with cause of death 		

Section 5: Statistical Capacity Indicators	
Method	60.0
Source data	70.0
Periodicity	80.0
Overall (memo: overall average all IDA)	70.0

Section 6: Data Openness Indicators	
Open Data Barometer Score	NA
Open Data Index Score	NA

Section 7: Data Gaps Identified and Recommended Actions	
Major Data Gaps Identified	Recommended Actions
Infrequent household surveys	The SCD welcomes that the NSO is currently experimenting with shorter but more frequent household surveys that capture the essential aspects of well-being
Population census	Conduct and disseminate census as recommended internationally
Agricultural census or survey	Conduct and disseminate census or survey as recommended internationally
Labor force survey	Conduct and disseminate survey as recommended internationally
Business census/survey	Conduct and disseminate census or survey as recommended internationally