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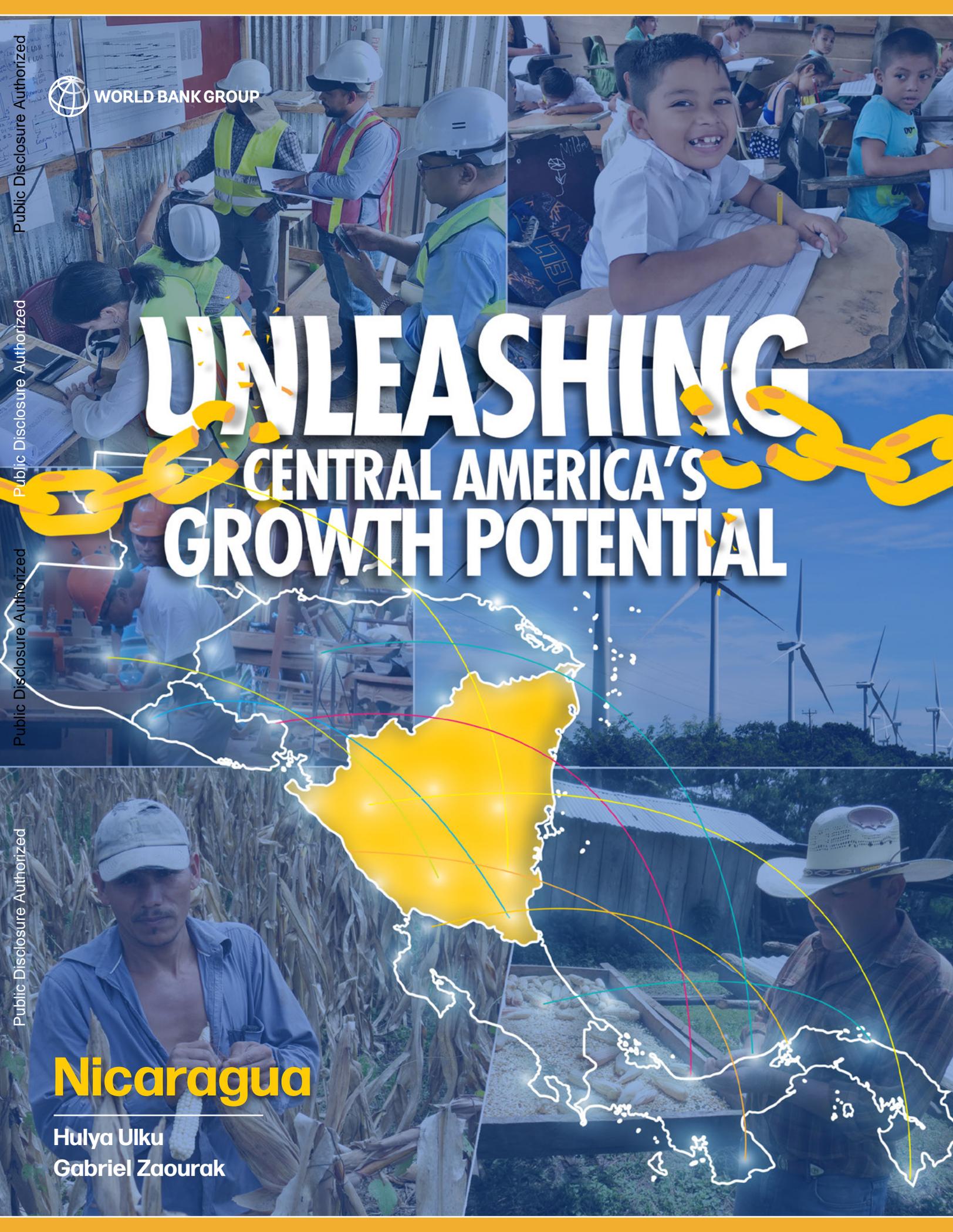
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WORLD BANK GROUP

UNLEASHING CENTRAL AMERICA'S GROWTH POTENTIAL



Nicaragua

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Contents

| | |
|---|-----------|
| List of Acronyms and Abbreviations | 1 |
| Acknowledgments | 3 |
| 1. Introduction | 5 |
| 2. Macroeconomic and Growth Performance: Historical Context | 9 |
| 3. Drivers of Growth: Growth and Development Accounting | 15 |
| 3.1. How would reforming the drivers of TFP affect growth? | 17 |
| 4. Aggregate Trends in Productivity and Structural Transformation | 21 |
| 4.1. Employment composition and structural change | 21 |
| 4.2. Sectoral labor productivity growth | 22 |
| 4.3. The contribution of structural change to productivity growth | 24 |
| 5. Growth Diagnostics Analysis | 29 |
| 5.1. Access to banking | 30 |
| 5.2. Financial depth and savings rate | 32 |
| 5.3. Bank competition | 33 |
| 5.4. Innovation | 35 |
| 5.5. Property rights | 37 |
| 5.6. Corruption | 38 |
| 5.7. Governance | 39 |
| 6. Diversification and Exports | 43 |
| 6.1. Why diversification matters to Nicaragua | 43 |
| 6.1. Diversification of exports would help sustain growth and create jobs | 44 |

| | |
|---|----|
| 6.3. What are the paths for diversification? | 47 |
| 6.3.1. <i>Export quality upgrading</i> | 47 |
| 6.4. New export opportunities based on current capabilities | 48 |
| 6.5. Services provide opportunities to boost trade and domestic linkage | 52 |
| Conclusion | 57 |
| Endnotes | 58 |
| References | 61 |

List of Acronyms and Abbreviations

| | |
|-----------------|--|
| AEs | Advanced Economies |
| BF | Business Freedom |
| CA | Central America |
| CABEI | Central American Bank for Integration |
| CAFTA-DR | Central America Free Trade Agreement (DR and US) |
| CBOE | Chicago Board Options Exchange |
| CGE | Computable General Equilibrium model |
| CIF | Cost Insurance and Freight |
| CPI | Corruption Perception Index |
| CRI | Costa Rica |
| DB | Doing Business |
| DGE | Dynamic General Equilibrium |
| DR | Dominican Republic |
| DVA | Domestic Value Added |
| EAI | Economic Activity Indicator |
| ECLAC | Economic Commission for LAC |
| EF | Economic Freedom |
| EMDEs | Emerging Markets and Developing Economies |
| EPU | Economic Policy Uncertainty |
| FDI | Foreign Direct Investment |
| FoB | Free on Board |
| FVA | Foreign Value Added |
| GDP | Gross Domestic Product |
| GDyn | Dynamic GTAP |
| GNI | Gross National Income |
| GTM | Guatemala |
| GVC | Global Value Chain |
| HND | Honduras |
| IADB | Inter-American Development Bank |
| ICSE | International Classification of Status in Employment |

| | |
|----------------|--|
| ICT | Information and Communications Technology |
| ILO | International Labor Organization |
| IMF | International Monetary Fund |
| IOM | International Organization for Migration |
| IRF | Impulse-response Functions |
| LAC | Latin America and the Caribbean |
| MIMIC | Multiple Indicators Multiple Causes |
| NIC | Nicaragua |
| NTB | Non-tariff Barriers |
| ODA | Official Development Assistance |
| OECD | Organization for Economic Cooperation and Development |
| PAN | Panama |
| PPP | Purchasing Power Parity |
| SEMP | Self-employment Data |
| SICA | Central American Integration System |
| SLV | El Salvador |
| SME | Small, Medium Enterprises |
| TFA | Trade Facilitation Agreement |
| TPS | Temporary Protected Status |
| U.S. | United States of America |
| UN | United Nations |
| UNECLAC | United Nations Economic Commission for LAC |
| UNESCAP | United Nations Economic and Social Commission for Asia and the Pacific |
| VAR | Vector Auto Regression/Regressive |
| VAT | Value-added Taxation |
| VIX | Volatility Index |
| WB | World Bank |
| WDI | World Development Indicators |
| WEF | World Economic Forum |
| WGI | Worldwide Governance Indicators |
| WoRLD | World Revenue Longitudinal Data |
| WTO | World Trade Organization |

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1. Introduction*

As the smallest economy in Central America, Nicaragua has undergone a structural transformation that has enabled the country to grow at a high pace since the mid-1990s. For nearly half a century, Nicaragua was plagued with political instability. Following the overthrow of the Somoza government in 1979 by the Sandinista National Liberation Front (*Frente Sandinista de Liberación Nacional—FSLN*), the country suffered from considerable economic deterioration and hyperinflation. However, a democratic transition in the 1990s enabled comprehensive reforms that put the country on a path of higher economic openness, allowing for exchange rate and trade liberalization, privatization, an overhaul of the banking system, and fiscal prudence. As a result, these reforms contributed to higher growth, a reduction in inflation, and lower public debt. However, the socio-political unrest of 2018 led to an economic contraction derailing the country's strong economic performance and halting progress achieved in poverty reduction. Moreover, Nicaragua's GDP per capita remained the second lowest in Latin America.

The objective of this study is to investigate the drivers and constraints of growth and productivity in Nicaragua and explore areas with high potential. Drawing on the historical growth experience of Nicaragua and employing a range of analytical tools, this chapter aims to provide an in-depth analysis of the drivers and constraints of the country's economic growth. The chapter first takes stock of the historical macroeconomic performance of the country, before moving to the growth accounting exercise to understand prior economic drivers. In the same vein, the subsequent section analyzes aggregate trends in productivity—that is, the engine of the long-term growth—and its link with the process of structural transformation. The study then uses a cross-country benchmarking and regression analysis based on the growth diagnostic developed by Hausmann et al. (2005) to find the binding constraints to growth. Finally, the analysis concludes with the link between growth, diversification, and exports.

The value added of this study is to provide an in-depth analysis of the drivers and constraints of Nicaragua's growth using a wide range of analytical tools. The analysis employs several quantitative methods to provide an objective assessment of the drivers and constraints of growth in Nicaragua, including the long-term growth model (LTGM), computable general equilibrium model (CGE), growth diagnostics and product space analyses. The novelty of this study is to employ the same framework, analytical tools and data to conduct a parallel analysis for six Central American countries to allow for a meaningful cross-country comparison. Therefore, given the wide breadth of the study, both in terms of the methodologies used and countries covered, it does not envisage to deep dive into each driver and constraint of growth and provide granular policy recommendations. The core objective of this study is to inform the policy makers and other interested parties about the country's strengths and weaknesses for its growth, and to form the analytical basis for a subsequent investigation of specific areas.

Using these tools, the chapter finds that boosting growth and reducing poverty requires raising productivity growth, and facilitating the entry of women to the labor market. Results using a Long-Term Growth Model (LTGM) show that closing the gaps with Nicaragua's aspirational peers in five determinants of Total Factor Productivity (TFP) by 2035 could increase TFP on average by 1.3 percentage points per year relative to the baseline. This translates into an average annual gain in GDP per capita of 1.6 percentage points.¹ Second, results from a computable general equilibrium model show that increasing female labor force participation to reach half of that of men would increase GDP by 6 percent by 2030.

* For all reports of “Unleashing Central America's Growth Potential” analytical body of work and the appendix, please see www.worldbank.org/BoostCentralAmerica.

According to the growth diagnostics methodology, this chapter finds that the areas preventing faster growth are: (i) corruption, (ii) financial development, (iii) governance, (iv) lack of innovation, and (v) property rights. Corruption is a fundamental problem in Nicaragua's political environment, and several factors have helped its spread, including: weak law enforcement and civil society; lack of judicial autonomy and legislative independence; impunity of high-ranking officials; as well as lack of political will to combat corruption. Notwithstanding the country's higher than average savings rate, its financial sector is not well developed: access to banking is low; competition is weak; and interest rate spread and collateral requirements are very high. Moreover, weak governance indicators in Nicaragua reflect political repression, high polarization, and low government effectiveness. Additionally, Nicaragua's investments in research and development (R&D) and innovation are among the lowest in the region, and its Global Innovation Index score is close to the average of Sub-Saharan African countries. Finally, despite laws in place to protect private property, bureaucracy and corruption pose limitations on their enforcement.

Addressing the identified growth constraints can help the country in the path towards diversification, which will increase the resilience to external shocks, create job opportunities, generate sustainable growth, and reduce dependence on remittances. One of the strategies to increase economic diversification is to upgrade export quality, particularly for products in which the country has a comparative advantage. In this regard, Nicaragua would require strengthening safety and quality regulations and acquiring knowledge about existing differences and evolving trends in the types of products high-income countries demand. Furthermore, these three sectors provide a good balance between feasibility and strategic opportunities for diversification: 1) foodstuffs; 2) metals, stone, and glass; and 3) machinery, electrical, and transportation. An additional strategy for export diversification would be to move toward services, as advancements in technology have provided for a rapid increase in cross-border trade in services. A sector that is especially promising for Nicaragua is information and communication technology (ICT). Within the most traditional services, Nicaragua has opportunities in tourism, a sector that has the potential to create jobs for low-skilled workers in related activities such as hotels, restaurants, and entertainment.

Reforms that improve financial development, innovation, property rights, corruption, and governance are necessary to unlocking Nicaragua's growth potential. Increasing domestic credit to the private sector, particularly to micro, small and medium enterprises (MSMEs), will allow for greater economic gains by raising access to banking and finance, promoting competition in the banking sector, decreasing the interest spread, and increasing the independence of the financial sector. With lower investment in research and development (R&D), stimulating innovation can be achieved by reallocating capital and labor from low-productivity to high-productivity sectors. Finally, safeguarding institutions to strengthen property rights, lower political risk, increase government effectiveness and transparency, and promote human rights and rule of law can all generate significant benefits for the Nicaraguan economy.

This chapter has identified several key areas where policy reforms can help boost productivity and growth over the medium to long term. They include:

- ▶ **Implementing measures to boost female labor force participation.** Introducing more economic support for parents such as early childhood education and childcare services, and addressing gender norms that perpetuate disparities could boost female participation. Educational and labor market policies that remove barriers and incentivize female labor force participation could also have positive impacts on growth, productivity and development in Nicaragua.
- ▶ **Increasing the access of small firms to finance and addressing collateral laws, credit information coverage, and competition.** Given that Nicaragua has the least-developed financial sector in the region, increasing the depth, efficiency, and inclusivity of the sector would promote its economic performance by mobilizing savings to productive areas and promoting entrepreneurship, innovation, and the resilience of MSMEs to shocks, among other.

- ▶ **Coordinate with the private sector to identify missing public goods and to design mechanisms to provide them.** For those products that are not produced within the country but are close enough to Nicaragua's capabilities, sectoral dialogue could be a solution to facilitate the emergence of new industrial clusters.
- ▶ **Creation of an enabling environment for innovation.** Nicaragua's investments in R&D and innovation are among the lowest in the region: R&D expenditure has averaged only 0.1 percent of GDP during 2011–2016. Promoting innovation and R&D requires large sustained investments in human capital, digital infrastructure, and technology transfer, as well as national science policies.
- ▶ **Strengthening public institutions through reducing bureaucracy, promoting transparency and rule of law, and strengthening the capacity of the public sector.** Safeguarding institutions to strengthen property rights, lower political risk, increase government effectiveness and transparency, and promote human rights and rule of law can all generate significant benefits for the Nicaraguan economy. This would also improve service delivery, increase efficiency, and restore trust. Finally, it would also help developing comparative advantages in the production of high-quality products.
- ▶ **Improving the property titling regime and the land administration system.** The lack of clear property rights generates misallocation since the producers with access to finance are those that have land titles. A stronger property titling regime could allow the collateralization of land to finance investment projects in agriculture. Improving the overall land administration system could generate efficiency gains in land disputes and in the reliability of the land administration's infrastructure.
- ▶ **Strengthening the institutional framework, including tackling corruption.** Since corruption is a multidimensional political and societal phenomenon in Nicaragua, anti-corruption policies will be effective only with the buy-in of the wider society. Nicaragua could also benefit from cooperation from international partners with expertise in institutional strengthening and public administration.



2. Macroeconomic and Growth Performance: Historical Context

Nicaragua is the smallest economy in Central America, with stable macroeconomic and growth performance until recently. With a GDP of US\$ 12 billion and a population of 6.47 million in 2018, Nicaragua has the lowest GDP and population density in Central America.² Between 2010 and 2017, the GDP growth rate averaged 5.2 percent, above the Central American average of 4.5 percent, before collapsing to -3.8 percent in 2018 due to prolonged protests and socio-political unrest amid the government's attempt to reform the pension system. The country's growth performance was among the least volatile during the 2010s among the comparator economies (at 0.8 percent, compared to its aspirational peers at 1.7 percent).³ The central bank's consistent inflation and exchange rate policy helped lower inflation, which fell sharply from 20 percent in 2008 to 3.7 percent in 2009 and stayed below 5 percent between 2015 and 2018.⁴ Gross public debt also decreased substantially, from an average of 88 percent of GDP during 1997–2006 to 30 percent during 2007–2018, though it is projected to increase due to the economic contraction started in 2018.⁵ Tax revenue averaged 14.7 percent of GDP during 2007–2017 (a 4 percentage points increase from the previous decade)—higher than Guatemala (10.8 percent) and Costa Rica (13.8), but lower than Honduras (15.5) and El Salvador (16.5). Even though Nicaragua's debt is low, given that its tax revenue is also low (Figure 1) and projected to decrease further, the country is at a moderate risk of public debt distress with limited space to absorb shocks.⁶

After half a century of political instability, Nicaragua started to recover a robust growth pattern in the mid-1990s. The Somoza government was overthrown by the FSLN after four decades of rule in 1979, following an armed conflict that cost the lives of over 35,000 people during the 1970s.⁷ The following decade, led by the FSLN, was marked by substantial economic deterioration, with negative growth rates throughout the 1980s and hyperinflation that reached 14,700 percent in 1988, caused by imprudent macroeconomic policies that weakened market institutions.⁸ High social and military spending to finance the suppression of the counterrevolutionary insurgency (the “Contra War”) left Nicaragua as one of the most indebted countries in the world at the end of 1980s.⁹ Real GDP per capita has recovered progressively since the democratic transition in the early 1990s (Figure 2). From 2000 to 2017, real GDP per capita growth in Nicaragua was close to 4 percent, surpassing the Latin American average and on par with aspirational peers (Figure 3). Fiscal prudence, greater export diversification, and improvements in tax policy and revenue collection have contributed to these higher growth rates.¹⁰

The comprehensive reforms of the Nicaraguan government in the 1990s placed the country on a high growth path. The country moved towards economic openness, most price controls were removed, the exchange rate and trade were liberalized, and companies that had been nationalized or expropriated in the 1980s, which accounted for 30 percent of the GDP in 1990, were privatized or returned to previous owners. In addition, the banking system was reformed to create an autonomous banking superintendence, inflation decreased, and foreign debt began to be reduced.¹¹ The recovery of a growth path in the second half of the 1990s was driven by capital accumulation and employment growth, as well as higher TFP in the agricultural sector. The increase in capital accumulation was supported by both external assistance and a rebound in domestic savings.¹²

In spite of its strong growth performance during the last decades, Nicaragua's real GDP per capita is the second lowest in Latin America. Nicaragua's GDP per capita relative to the United States has decreased

substantially, from 8.6 percent in 1960 to 3.8 percent in 2017, indicating that the country has been diverging from wealthier economies over time. The major decline in Nicaragua’s relative GDP occurred in the 1980s, falling from about 9 percent in 1975 to 3 percent in the late 1980s. This period was marked by negative growth and hyperinflation from which the country has not been able to fully recover, despite high growth rates (Figure 4). Divergence is also observed in comparison to other regional economies: In 1965 Nicaragua had the ninth-lowest real GDP per capita among 26 Latin America and the Caribbean (LAC) countries, compared to second lowest in 2018 (at US\$ 1,860 in constant 2010 US dollars).¹³

Figure 1. Government debt vs. tax revenue, 2010–2017

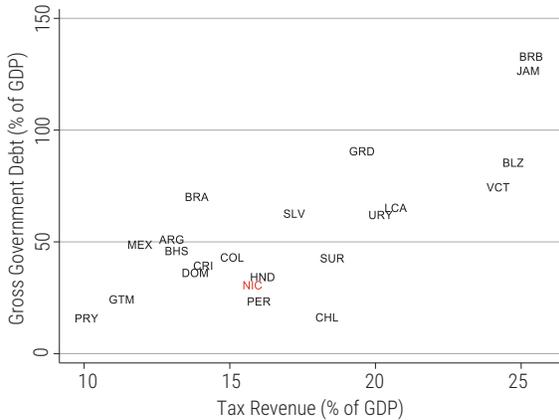


Figure 2. Real GDP per capita growth

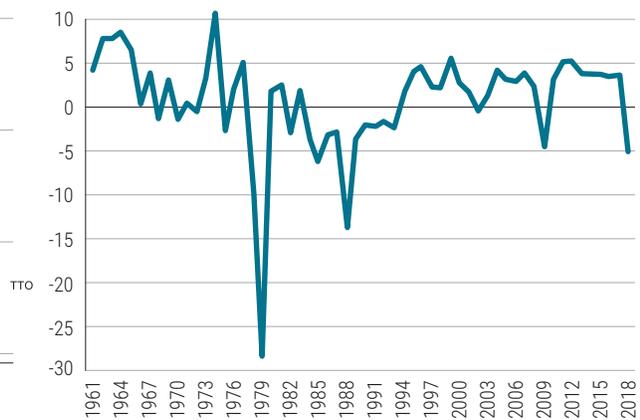
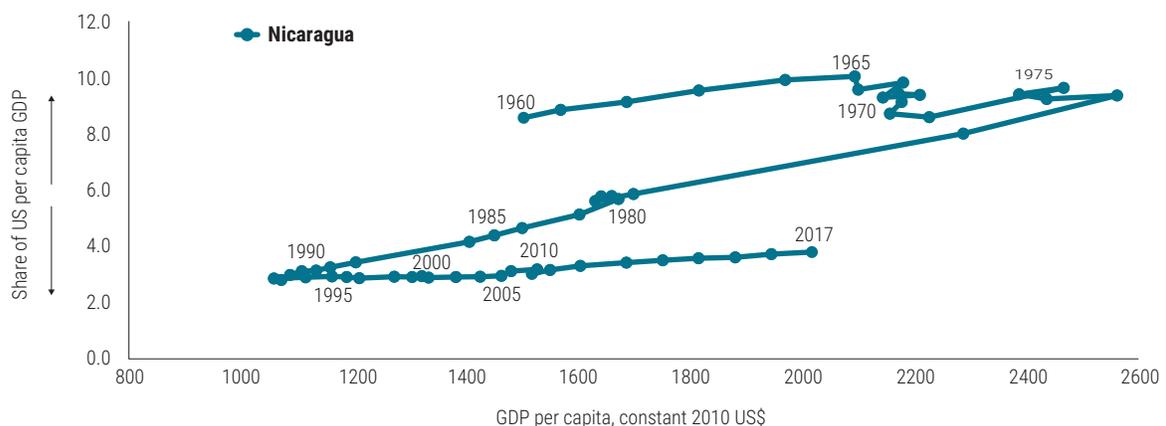


Figure 3. Real GDP per capita growth



Figure 4. Nicaragua per capita GDP relative to U.S.



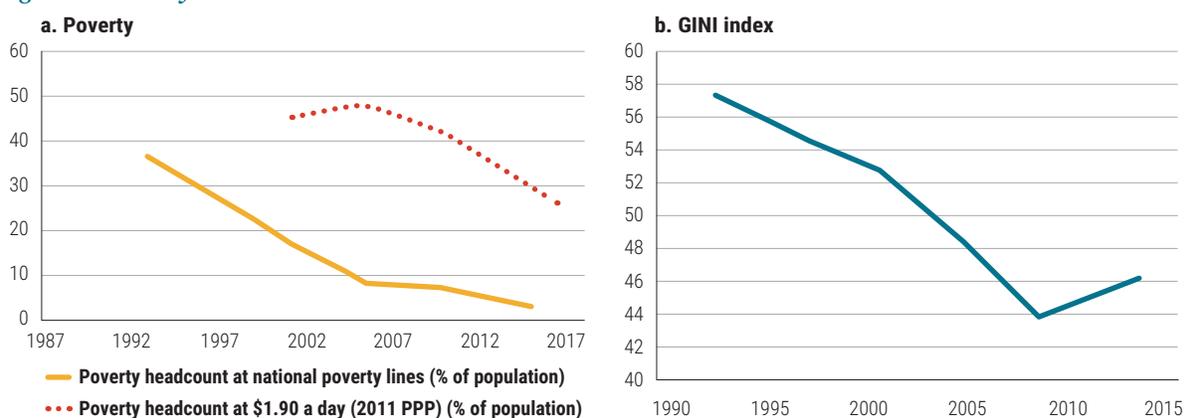
Source: World Development Indicators (WDI), World Economic Outlook (WEO) and Madison Tables.

Nicaragua has long been one of the poorest countries in Latin America, after Haiti. During the four decades of the Somoza government, economic growth mainly benefited the elites. The subsequent ten years under the leadership of the FSLN failed to significantly improve social indicators, despite the increase in social spending.¹⁴ In 1988, the literacy rate was only 20 percent, the primary education completion rate was 22 percent, and infant mortality reached 72 children per 1000 births.¹⁵ By 1993, 50.5 percent of the Nicaraguan population was living in poverty, a figure that remained almost unchanged until the early 2000s.¹⁶ In 2005, the national poverty headcount marked 48.3 percent of the population, which was only a two-percentage-point reduction in twelve years. Sustained economic growth since the beginning of the century has fueled a reduction in poverty,¹⁷ which steadily dropped to 25 percent in 2016 (Figure 5). Still, the geographic distribution of poverty is very uneven. While urban poverty was 14.8 percent in 2014, in rural areas 50.1 percent of the population lived in poverty (total poverty averaged 29.6 percent).¹⁸ This is aggravated by the high levels of labor informality in the country particularly in rural areas.¹⁹

Income and gender inequality have decreased considerably by international standards, but access to basic services is still uneven. Inequality, measured by the GINI coefficient, decreased from 57 percent in 1993 to 46 percent in 2014 (Figure 5). In terms of gender inequality, Nicaragua has considerably reduced the labor gender gap in recent years, ranking 5 out of 153 countries in the Global Gender Gap Report 2020 by the World Economic Forum (WEF). However, opportunities for and participation of women in economic activities are still behind by international standards. In 2018, only 48.6 of women had a full-time job, and just 35 percent of managerial positions were occupied by women.²⁰

Nicaragua does not perform as favorably in other dimensions of well-being and should take advantage of potential gains through education. The human development index for dwelling in Nicaragua was the second lowest in Latin America in 2014, with access to water, particularly among children, among the lowest in the region, which poses significant health risks.²¹ However, increased social spending has contributed to the reduction of poverty and inequality in Nicaragua.²² Current public expenditure on education as a percentage of GDP increased from 3 percent in 2000 to 4.3 percent in 2017.²³ However, the majority of this spending is allocated to primary education.²⁴ Most of the reduction in inequality during the 2000s in Nicaragua is explained by the increase in real earnings of workers with low education compared to those of the higher-educated workers,²⁵ due to relative decrease in demand for the latter.²⁶ With 46 percent of the population under 16 years old,²⁷ the country must take advantage of its demographic bonus by increasing the coverage and improving the quality of secondary and higher education.²⁸

Figure 5. Poverty rates and GINI index

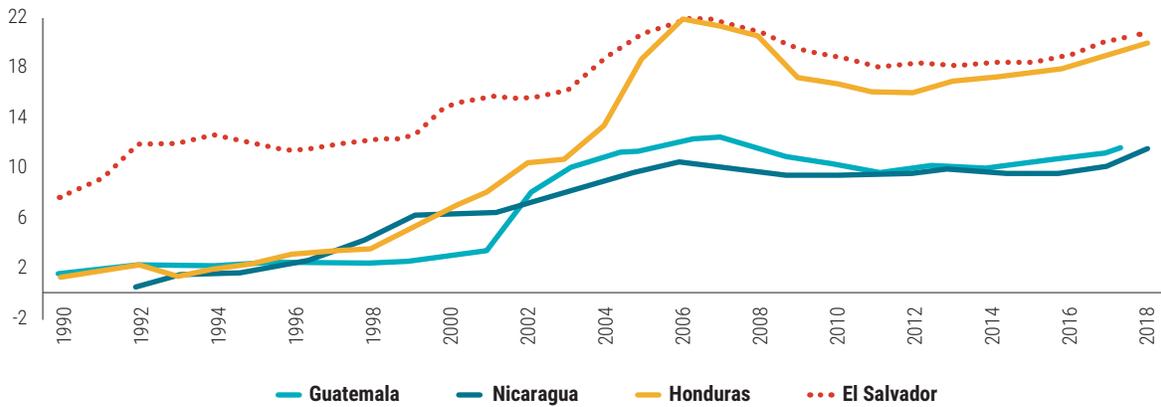


Source: WDI.

Remittances and FDI play a key role in financing the current account deficit. Remittances sent by Nicaraguan workers from abroad have become an essential source of foreign exchange income in Nicaragua since the early 1990s. They represented just above 1 percent of GDP in 1990 but reached 11.5 percent in 2018 (Figure 6). The flow of remittances into the Nicaraguan economy has not only had a positive effect in attenuating

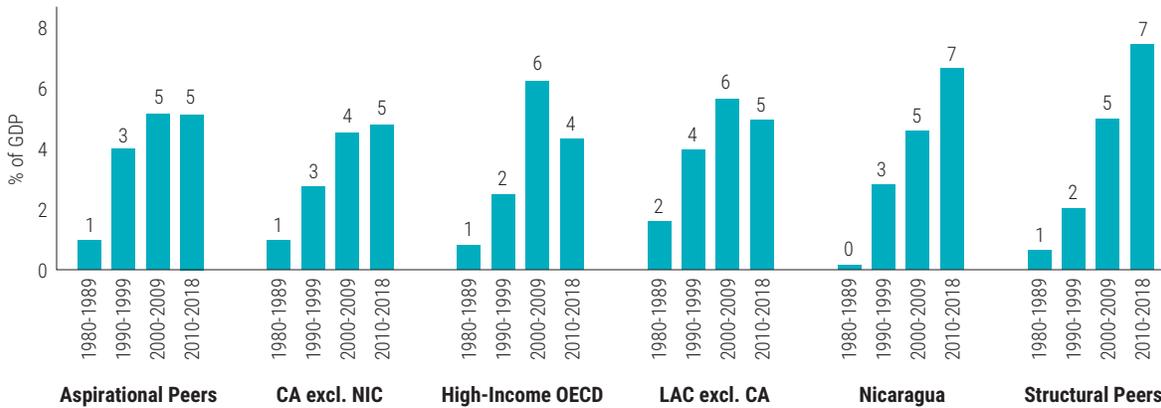
the current account deficit,²⁹ but has also improved other indicators such as savings, investment, health and education, which has reduced poverty and inequality.³⁰ In terms of FDI, it has also been an important source of foreign exchange and funding for the current account deficit.³¹ FDI is high compared to its aspirational and regional peers, having grown considerably since the 1990s (Figure 7). However, the socio-political unrest of 2018 has had a negative impact on financial stability, causing a drop of 63.2 percent in FDI in 2018.³² Prior to the 2018 economic contraction, the risk indicators for Nicaragua had been more favorable than in other countries of Central America.³³ The lower risk and lower rates of violence and crime than in neighboring countries had been Nicaragua’s main advantages in the region in attracting FDI.³⁴

Figure 6. Remittances inflows (% of GDP)



Source: Authors’ computation using data from World Bank.

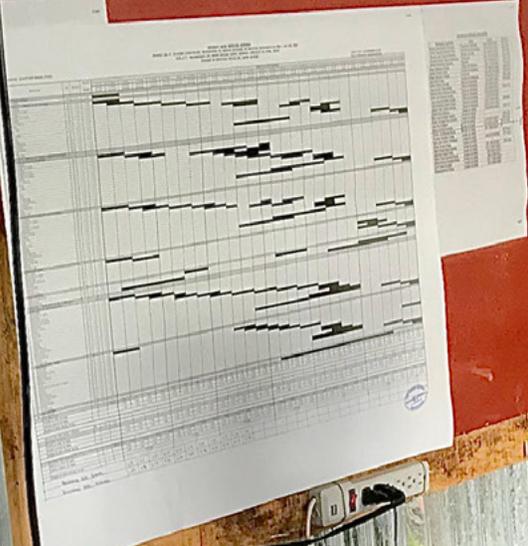
Figure 7. Net FDI inflows (% of GDP)



Source: Authors’ computation using data from the International Monetary Fund (IMF).



ADADURA
JUNNA - PUNA-BASE
E.6011 → 3/16 0
E.6012 → 1/16
3/16
1/16
ARMADO DE COLUMNAS
Amplitud de Cordon = 10"
Control a Centro
10"
2"
2"
EXTREMOS DE CONTROL



5. COMENTARIOS
PLAN
PUNES

3. Drivers of Growth: Growth and Development Accounting

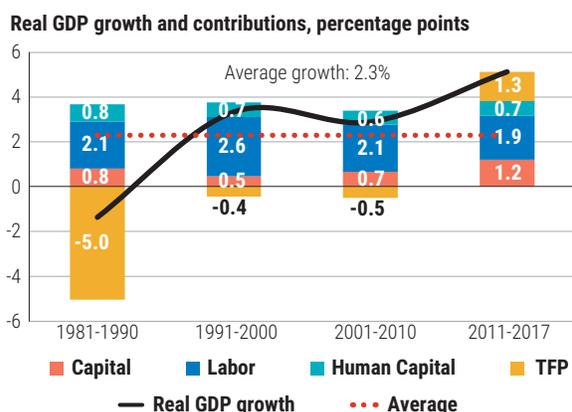
The analysis of the role of factor accumulation and productivity in economic growth, a method known as growth accounting, helps to understand Nicaragua's recent economic history.³⁵ Economic theory indicates that countries grow by accumulating factors of production, such as capital and labor, and by increasing the efficiency in their use.³⁶ International experience suggests that at low levels of development, countries are able to increase their production by increasing the amount of their factors. However, given the existence of diminishing returns to the accumulation of capital and labor, sustainable long-term growth comes from improving efficiency in the use of factors. By identifying the factors that drove economic growth in the past, growth accounting sheds light on areas of the economy that could be strengthened to foster economic growth in the long run.

In the past 40 years, Nicaragua's growth model has been primarily based on factor accumulation, especially labor (adjusted for quality of education). An analysis of the decomposition of GDP growth shows that since 1970, Nicaragua's growth was mainly driven by factor accumulation (labor and capital), while TFP had a negative contribution, except for 2011–2017. In the period 1980–2017, 127 percent of economic growth (which averaged 2.3 percent) was driven by labor and human capital accumulation. Physical capital contributed 33 percent of GDP growth, while TFP growth contributed negatively, at nearly 60 percent. Most of this large decline in TFP was the result of the political instability and economic deterioration of the 1980s. Since the 1990s, the contributions of labor and capital have moved in different directions: in the period 1991–2000, capital and labor contributed 14 and 78 percent, respectively, while in the period 2011–2017, the contribution of capital rose to 23 percent and the contribution of labor dropped to 38 percent.

Sluggish TFP growth has not helped Nicaragua close the gap with rich countries. TFP declined on average 1.4 percent between 1981 and 2017, with significant fluctuations over time.³⁷ In the 1980s, TFP fell significantly (with an average decrease of 5.0 percent) in the context of internal turbulences coming from the conflict between the FSLN and the opposition rebels (Figure 8). Even after the civil war, TFP did not contribute significantly to Nicaragua's growth. In the 1990s, TFP's contribution to growth was -0.4 percent, a similar figure to the period 2001–2010 (-0.5 percent average). In 2011–2017, TFP recovered enough to contribute positively to growth (1.3 percent). Indeed, simulations indicate that increasing TFP is even more critical for Nicaragua than for other Central American countries: following the methodology in Caselli (2016), if Nicaragua reached the level of TFP of the United States, given the actual levels of capital, labor, and education, the level of output per worker would be 4.6 times the current level.

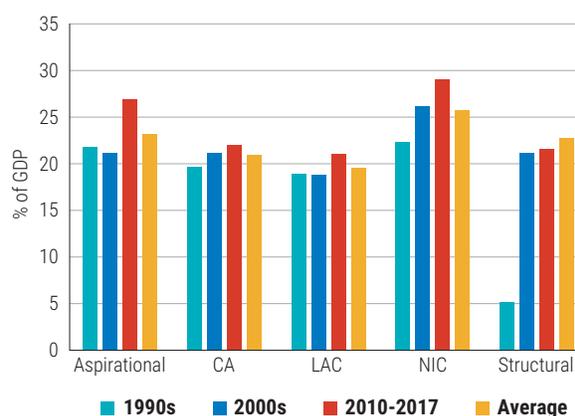
In the period 1990–2017, Nicaragua's capital accumulation contribution to growth was slightly higher relative to peers and was mostly driven by private investment. Since 1990, aggregate investment was on average 25 percent of GDP, higher than LAC, structural, and Organisation for Economic Co-Operation and Development (OECD) peer countries, and even higher than aspirational peers, which averaged 23 percent during the same timespan (Figure 9). Private investment as a share of GDP averaged 20 percent between 1990 and 2017, whereas the average public investment rate was around 5 percent of GDP. During the commodity super cycle in the 2000s, private investment boomed, up to 28 percent of GDP, but it fell significantly in the 2008 financial crisis and has declined since then. On the other hand, public investment tended to be less cyclical throughout the period 2000–2017, averaging 6 percent. From 2000 to 2017, investment was financed with both local savings, at around 19 percent annually, and FDI, which contributed almost 6 percent per year.

Figure 8. Growth decomposition, 1981–2017: average (%) per year



Source: World Bank staff using data from Penn World Tables 9.1.

Figure 9. Investment as a share of GDP, 1990-2017

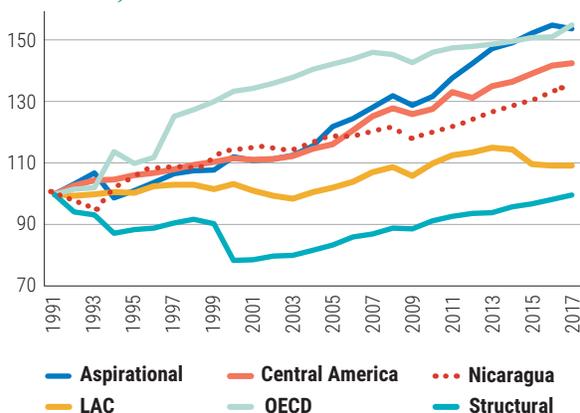


Source: World Bank staff using data from WDI.

Low TFP is reflected in Nicaragua’s labor productivity, which outpaced only LAC and structural peers. Labor productivity is a measure closely linked to TFP, and it is calculated as value added per worker.³⁸ Between 1992 and 2017, value added per worker in Nicaragua grew less than in aspirational peers, OECD countries, and Central American peers (Figure 10). In particular, while labor productivity in Nicaragua increased an average of 1.0 percent per year, it increased an average of 1.7 percent for Nicaragua’s aspirational peers and 1.8 percent in OECD countries. As a result, the gap in labor productivity between Nicaragua and its aspirational peers and OECD countries increased. In contrast, Nicaragua was able to increase its labor productivity faster than its structural (at 0.1 percent) and LAC (0.3 percent) peers. The next section explores the determinants of the low performance in labor productivity in Nicaragua.

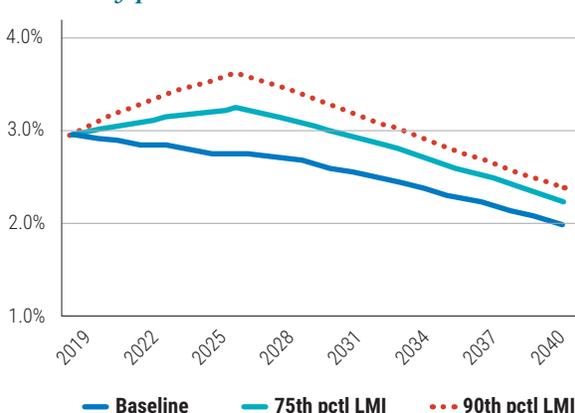
Increasing public investment would have a strong positive effect on growth and poverty in Nicaragua.³⁹ Boosting public investment is important for Nicaragua. Based on simulations using a Long Term Growth Model (LTGM), increasing public investment from its trend baseline rate of around 5–6 percent to the 75th percentile for Low- and Middle-Income (LMI) countries (9 percent of GDP) boosts growth over 2020–30 by 0.4 percentage points, and increasing public investment to the 90th percentile (12 percent of GDP) increases growth by 0.6 percentage point (Figure 11).⁴⁰ The effects of increasing public investment on poverty are also significant: in the proposed scenarios, poverty can decrease by between 1.3 and 2.3 percentage points by 2030. The poverty rate, at US\$ 5.5/day, is still expected to be very high—around 26 percent by 2030 in the baseline scenario—so these large drops are 5–10 percent of the baseline poverty rate at that time.

Figure 10. Labor productivity over time, 1991–2017, 1991=100



Source: World Bank staff using data from WDI and estimates using Loayza and Pennings (2018).

Figure 11. Real GDP growth rate under different scenarios of public investment

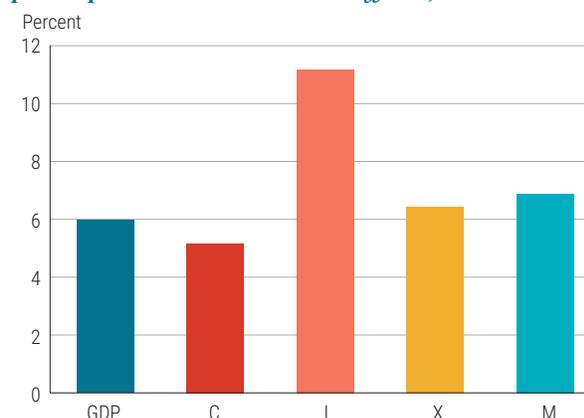


Increasing female labor force participation would have strong positive effects on growth.

Women's labor force participation in Nicaragua is currently at 48 percent, well below that of men (80 percent) and slightly above the Central American average (43 percent). Educational and labor market policies that remove barriers and incentivize female labor force participation could have significant positive impacts on growth, productivity, and development in Nicaragua. In addition, introducing more economic support for parents such as early childhood education and childcare services, and addressing gender norms that perpetuate disparities could boost female participation. Based on simulations using a computable general equilibrium (CGE) model, increasing women's labor force participation to reach half of that of men would gradually boost labor supply and is estimated to increase GDP by 6 percent (Figure 12).⁴¹

Traditional labor-intensive industries (textiles and wearing apparel) as well as labor-intensive services sectors (construction and trading services) are shown to benefit the most. Higher levels of activity would encourage investment (both domestic and foreign) in Nicaragua, estimated to increase by 11 percent by 2030.⁴² Households would also benefit through an increase in income and consumption, estimated to increase by 5 percent by 2030.

Figure 12. Increasing female labor force participation: macroeconomic effects, 2030



Source: World Bank staff simulations.

3.1. How would reforming the drivers of TFP affect growth?

A counterfactual scenario where Nicaragua achieves the levels of TFP drivers in its aspirational peers provides some insights for the country's growth potentials. As widely cited in both the theoretical and empirical literature, TFP—also referred to as technical progress—is the main driver of the long-term growth rate of an economy.⁴³ Here an extended LTGM, drawing on the latest available data,⁴⁴ is used to quantify how an increase in the determinants of TFP, which include innovation, education, market efficiency, infrastructure, and institutions,⁴⁵ affects the long-term growth rate of Nicaragua. In each of these five indicators, Nicaragua underperforms its aspirational peers and the United States (see Appendix III for details). This points out the need for reforms in these areas in order to promote the country's long-term growth.

Reforms in each determinant of TFP could increase annual GDP per capita growth rate by 3.1 percentage points by 2035.

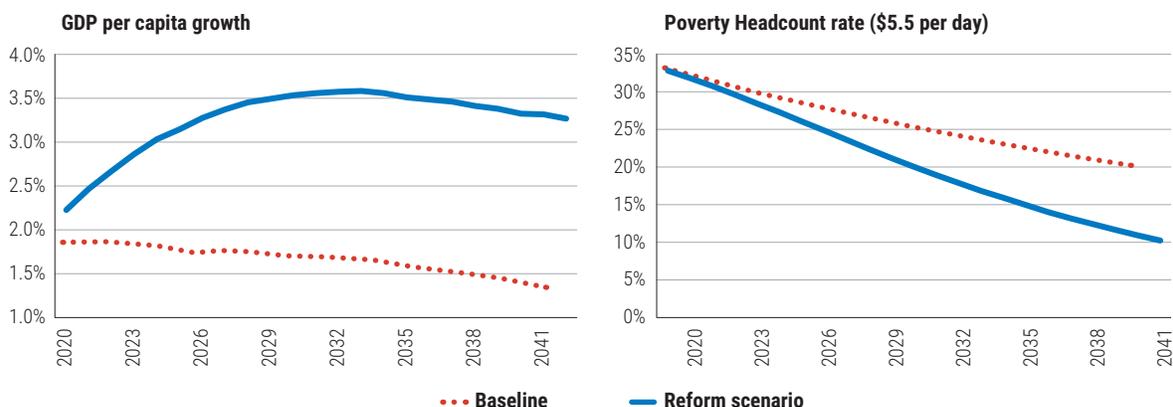
To implement these reforms, it is assumed that each TFP determinant increases linearly, so that the country reaches the target by 2035 (Table 1). This scenario generates a path of TFP that follows an inverted U-shape, rising from a growth rate of 0.6 percent in 2020 to a maximum of 1.8 percent by 2032, and then declining gradually over time. On average, the growth rate of TFP between 2020 and 2035 is 1.5 percent per year, which is almost 1.3 percentage points higher than in the baseline scenario (0.2 percent).⁴⁶

Figure 13 shows that the evolution of per capita GDP (left panel) and the poverty rate at US\$ 5.5 per day (right panel). Annual GDP per capita growth would be 1.6 percentage points higher than the baseline and the poverty rate could be 1.5 percentage points lower than the baseline after four years. By 2035, the poverty rate could be as low as 12.5 percent, which is 6 percentage points lower than the baseline.

Table 1. TFP reform scenario

| Determinant | NIC | Aspirational peers | Target Year |
|----------------|------|--------------------|-------------|
| Innovation | 1.8 | 9.5 | 2035 |
| Education | 36.6 | 59.0 | 2035 |
| Efficiency | 48.0 | 73.4 | 2035 |
| Infrastructure | 38.2 | 50.6 | 2035 |
| Institutions | 30.3 | 50.6 | 2035 |

Source: World Bank staff elaboration.

Figure 13. GDP per capita and poverty simulations under reform scenarios

Source: World Bank staff elaboration based on Kim and Loayza (2019).

The above evidence suggests that Nicaragua needs to raise TFP growth to boost GDP per capita and lift people out of poverty. Nicaragua's growth has been mainly driven by factor accumulation and, to a lesser extent, by human capital. After internal turbulences coming from the conflict between the FSLN and the opposition rebels in the 1980s, and the reforms implemented in the first half of the 1990s, the role of TFP and capital in growth have increased, while the contribution of labor has diminished over time. This decline in labor as a source of growth indicates the necessity to increase labor force participation, especially women's participation. Educational and labor market policies that remove barriers and incentivize female labor force participation could have significant positive impacts on growth, productivity, and development in Nicaragua. To double its GDP per capita in the next 15 years, Nicaragua would need to grow at 4.7 percent annually. In order to meet this target, raising productivity growth is necessary. The experience from Asian countries shows that maintaining TFP growth over time is possible, but requires political will to remove constraints and distortions affecting markets.⁴⁷ Given that Nicaragua lags behind its aspirational peers in all the determinants of TFP, efforts to close the gap in the short run will be important to reach a higher TFP growth. As discussed in more detail in section five below, developing the financial system, promoting innovation, and strengthening the business environment through improvements in governance, control of corruption, and stronger property rights would help Nicaragua step up its productivity and growth. Before moving to the analysis of key areas constraining growth in Nicaragua, the next section investigates the determinants of the TFP dynamics in the country.



4. Aggregate Trends in Productivity and Structural Transformation

4.1. Employment composition and structural change

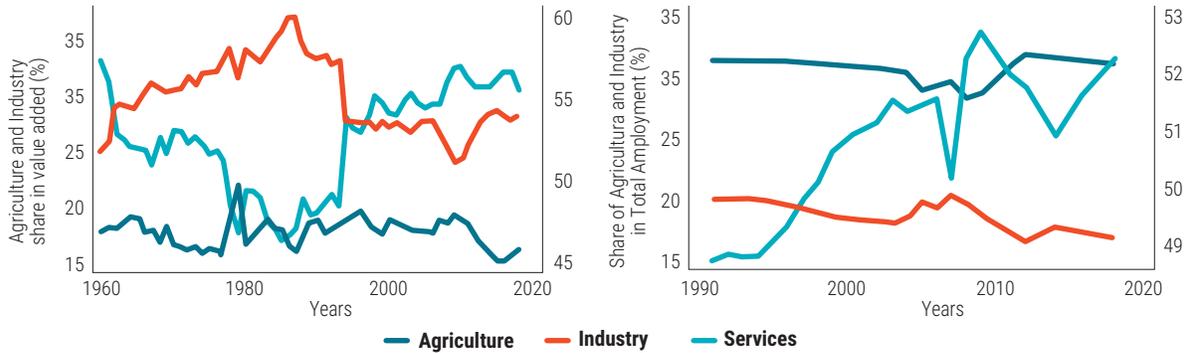
As countries develop, they move resources away from agriculture to industry and services. This process is known as structural transformation.⁴⁸ The structural transformation literature established that as an economy grows, the following patterns emerge:

1. The employment share and nominal value-added share in agriculture declines.
2. The employment share and nominal value-added share in services rises.
3. Industry follows a hump-shaped path: The employment share and the value-added share of industry rise at early stages of development, eventually reach a peak, then decline as the economy grows.

Nicaragua's economic expansion was accompanied by a shift in its sectoral composition. Figure 14 displays the evolution of sectoral shares of GDP for agriculture, industry, and services. Agriculture's share of GDP (left panel) showed an uneven evolution over the years, although its share in the total value added oscillated mostly around 15–20 percent, with no clear evidence of reduction with growth. The industry share followed the standard hump-shaped path, steadily increasing from 25 percent in the early 1960s to 37 percent in the mid-1980s, before declining sharply to 27 percent by 1995, near its current value. The share of services in GDP followed the reverse pattern, decreasing from around 57 percent in the early 1960s to 46 percent in the mid-1980s, before picking up thereafter to settle near 56 percent in recent years. This evidence suggests that structural transformation is not happening as robustly in Nicaragua as in other countries in the region like Guatemala or Honduras (see related country chapters).

The structure of employment in the service and industrial sectors in Nicaragua experienced a slight transformation, while the agricultural sector does not depict a clear change. In 1991, around 30 percent of workers were employed in agriculture, about 50 percent in services, and 20 percent in industry. By 2018, the employment share of services increased to 53 percent, while that of industry decreased to about 17 percent (Figure 14). In contrast, the share of agriculture in total employment remained relatively stable during the same period, suggesting that workers are not reallocating from agriculture to more productive sectors, as in other countries in Central America, such as Honduras and Guatemala.

Figure 14. Structural transformation in Nicaragua: Value added share and employment share in agriculture, industry, and services

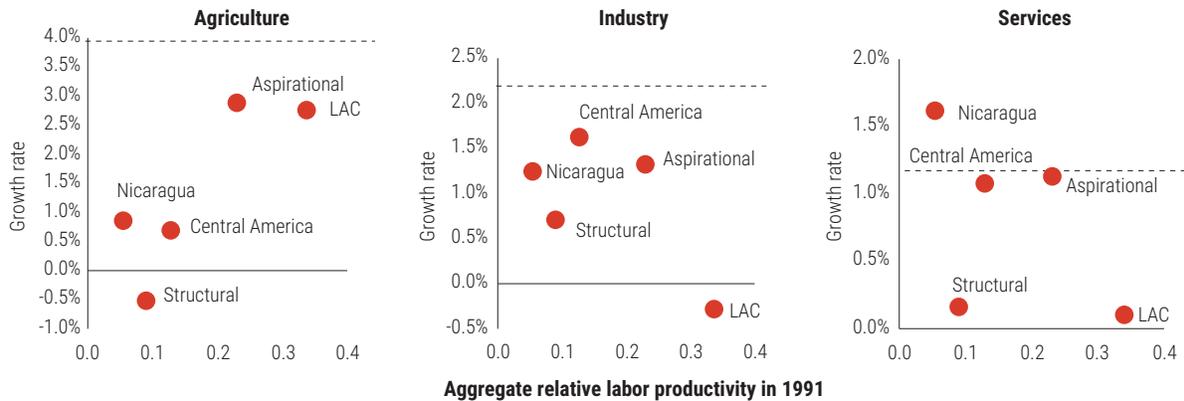


Source: World Bank staff elaboration using data from WDI. Note: Value added, constant 2010 US\$.

4.2. Sectoral labor productivity growth

Nicaragua’s labor productivity growth performance relative to its peers varies across sectors. The process of structural change is characterized, among other things, by differences in the pattern of productivity growth across sectors and countries.⁵² Figure 15 depicts the relationship between average labor productivity growth in each sector and aggregate labor productivity in 1991 for Nicaragua and a set of its peers, together with a dotted blue line representing labor productivity growth in OECD countries. Between 1991 and 2017, agricultural labor productivity in Nicaragua grew, on average, 0.8 percent per year, a pace significantly below that of OECD countries, aspirational peers, and LAC countries, but above those of structural peers and Central American countries. Despite having the lowest initial level of aggregate labor productivity, industrial labor productivity growth in Nicaragua was lower than in OECD countries and many of its peers, including Central American and aspirational peers. However, Nicaragua outperformed all its peers and OECD countries, in terms of labor productivity growth in services.

Figure 15. Sectoral labor productivity growth



Source: World Bank staff elaboration using data from WDI.

In Nicaragua, the productivity gap between agriculture and most sectors has increased. Empirical evidence shows that there tend to be large differences in productivity at the firm level within sectors and between sectors.⁵³ In addition, these gaps tend to be larger in developing countries than in advanced economies, indicating the presence of distortions affecting the allocation of resources between sectors and reducing aggregate productivity. However, large productivity gaps across sectors could potentially increase aggregate productivity, if workers reallocate from a sector with low productivity to a sector with high productivity. The relative labor productivity gap between agriculture in 2017 (the least-productive sector) and the most productive sectors is large: the financial intermediation, real estate, and business activities sector is 9.7 times more productive than agriculture; utilities is 9.3 times more productive; and transport, storage, and communications is 4.6 times more

Box I. Drivers of premature deindustrialization in Nicaragua between 2003 and 2012

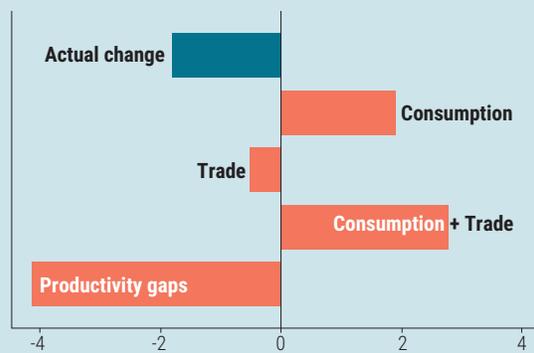
Deindustrialization has captured the attention of academics due to systematic differences in the paths followed by today's developed countries, in contrast to today's developing countries. Rodrik (2016) points out that the reallocation of resources from industry into services is starting for today's developing countries at lower levels of development and at lower peaks than evidenced by developed nations. This *premature deindustrialization*, in general, is a policymaking concern, as industrialization is often considered to be an engine of growth. This view contends that robust industrial growth is essential for developing countries to catch up with the developed world, and premature deindustrialization strips an economy of one of the fundamental drivers of growth.⁴⁹

Sinha (2019a) investigates the relative strength of different forces in shaping the behavior in industrial employment in the region using a model that links the production in one sector to the production of other sectors and countries. In this model, employment in a sector is affected by three channels: i) domestic consumption; ii) net exports; and iii) labor market distortions restricting the flow of labor between sectors. While the first two forces increase sectoral employment, the third one contracts it. These distortions are important to account for the differences in labor productivity observed in the data.⁵⁰

In Nicaragua, the industrial share of employment contracted by 1.8 percentage points between 2003 and 2012.⁵¹ To understand how much each channel contributed to the actual change in employment, the model is used to perform the following counterfactual: what would be the industrial employment share in 2012 if all variables were kept fixed at the initial year of analysis, except for the variable that corresponds to the channel of interest? Figure I provides the results of this exercise. As in other regional peers, changes in distortions are the principal channel driving down the industrial employment. Changes in the domestic consumption profile created an opportunity for employment expansion (1.8 percentage points). In contrast to the regional trend, shifts in trading patterns reduced industrial employment in Nicaragua. Considered jointly with consumption profile, the net impact of the two channels together was of an expansionary nature.

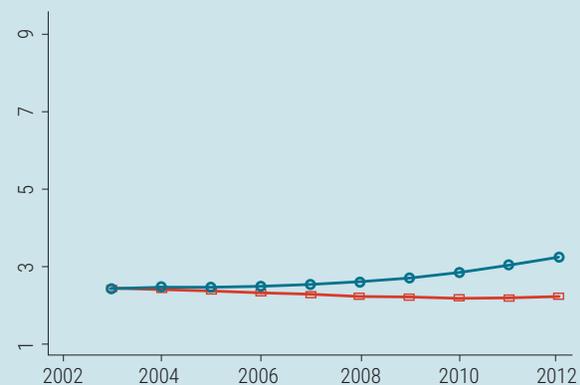
When compared to its neighbors, and based on model estimates, Nicaragua has the lowest levels of labor market distortions in both industry and services. Different from most economies in Central America, the services sector experiences smaller distortions relative to industry. While industry faces higher barriers in hiring labor in 2012 compared to what it faced in 2003, the services distortions declined a bit over the years (Figure II). The eliminations of these distortions that weakened structural change imply an output gain of 1.4 percent, below the average gains for the region.

Figure I. Decomposition of changes in employment share



Source: Sinha (2019a). Note: The bars represent the actual change in employment shares. The symbols depict the counterfactual change in employment shares when the variables pertaining to a factor are changed, keeping all the other variables fixed at the initial levels.

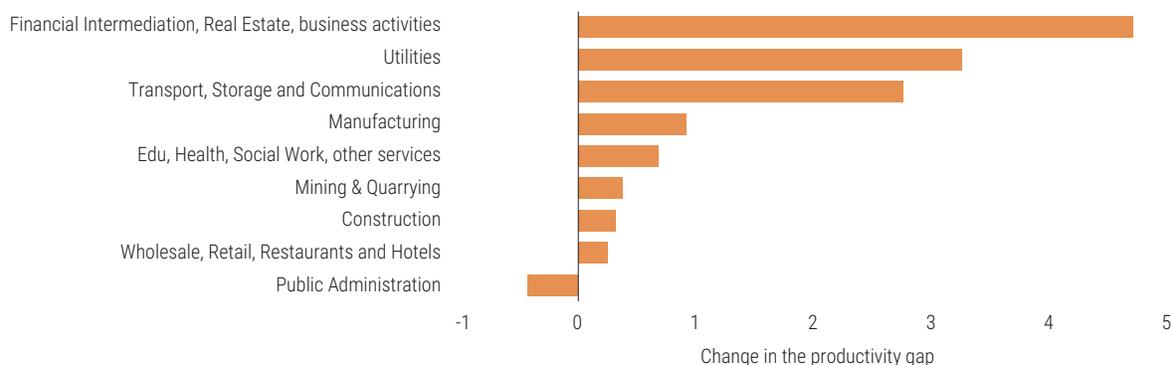
Figure II. Estimates of labor market distortion



Note: Circles (●) and squares (□) denote the labor market distortions in industry and services, respectively. An increase in the value of the distortion in a given sector means that it is costly to workers to reallocate from agriculture to that sector.

productive. Between 1992 and 2017, labor productivity growth was uneven across sectors, which implies that the pace of convergence was quite different (Figure 16). Unfortunately, most sectors have increased the gaps since 1992, indicating that there are still opportunities for reallocation of resources. The next section examines the contribution of structural transformation to aggregate labor productivity.

Figure 16. Change in sectoral productivity gap relative to agriculture, 1992–2017



Source: World Bank staff elaboration using data from WDI.

4.3. The contribution of structural change to productivity growth

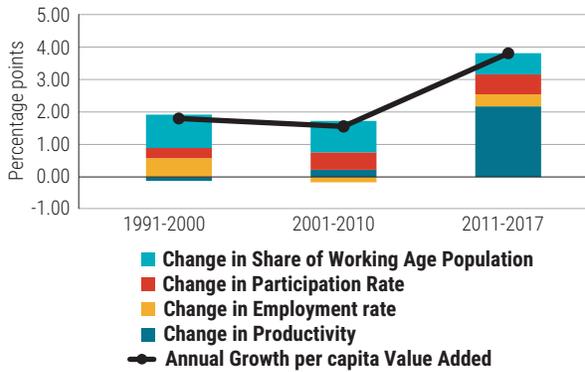
Structural change is the growth of GDP per capita caused by the reallocation of labor across sectors.

Changes in GDP per capita (or value added per capita) can come from four sources: (i) demographic changes, (ii) changes in labor force participation and employment levels, (iii) changes in sectoral productivity (within-sector component), and (iv) the reallocation of labor across sectors (between-sectors component). This last component is typically known in the literature as structural change or structural transformation. Furthermore, the structural transformation component can be decomposed into a “static” and “dynamic” component. While the “static” component measures whether workers move to sectors with above-average productivity, the “dynamic” component measures whether productivity growth is higher in sectors with an increase in employment.

After two decades of moderate growth, Nicaragua’s per capita GDP expanded at a significantly faster pace in recent years, boosted by substantial gains in labor productivity. After averaging 1.8 percent in the 1990s and 1.59 percent in the 2000s, Nicaragua’s per capita GDP growth stepped up to an annual average of almost 3.9 percent in 2011–2017. Figure 17 presents a decomposition of per capita GDP growth into the sources described above. In the period 1991–2017, the main drivers of growth were increases in the share of the working-age population and the participation rate, contributing 40 percent and 21 percent of the total change, respectively. Expansion in the share of the working-age population contributed significantly to growth in all sub-periods: about 57 percent in the 1990s, 62 percent in the 2000s, and 17 percent in 2011–2017. Labor productivity growth, which had a negative contribution to per capita GDP growth in the 1990s (-7 percent), became its main driver in the period 2011–2017, at 57 percent. Increases in the participation rate contributed to per capita GDP growth in every period: around 17 percent in the 1990s, 32 percent in the 2000s, and 16 percent in the period 2011–2017. Finally, changes in the employment rate, which had contributed 32 percent of GDP growth in the 1990s, became a drag in the 2000s (at -10 percent), before contributing 10 percent of growth in recent years.

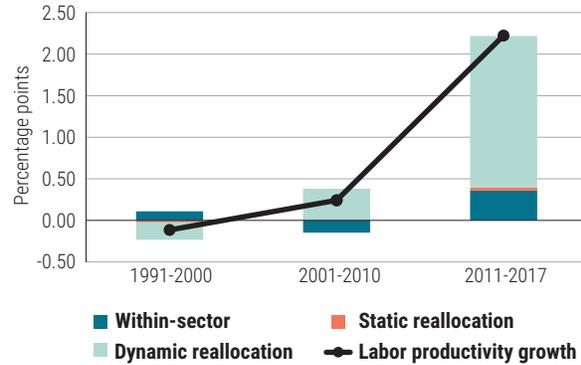
After a poor performance in the 1990s and 2000s, labor productivity gains became the main driver of per capita GDP growth in recent years. Labor productivity growth stepped up from about negative 0.1 percent in the 1990s and 0.2 percent in the 2000s to 2.2 percent in 2011–2017. Figure 18 decomposes the evolution of labor productivity growth into within- and between-sector components (reallocation). After subtracting from labor productivity growth in the 1990s, the within-sector component became the major contributor in the following years, with an average growth of 0.4 percent in the 2000s and 1.8 percent in recent years, largely explaining labor productivity growth in the last 17 years. The reallocation of workers across sectors had only a modest impact on labor productivity growth in the period of analysis.

Figure 17. Value added per capita decomposition



Source: World Bank staff elaboration using data from WDI.

Figure 18. Decomposition of annual growth of labor productivity

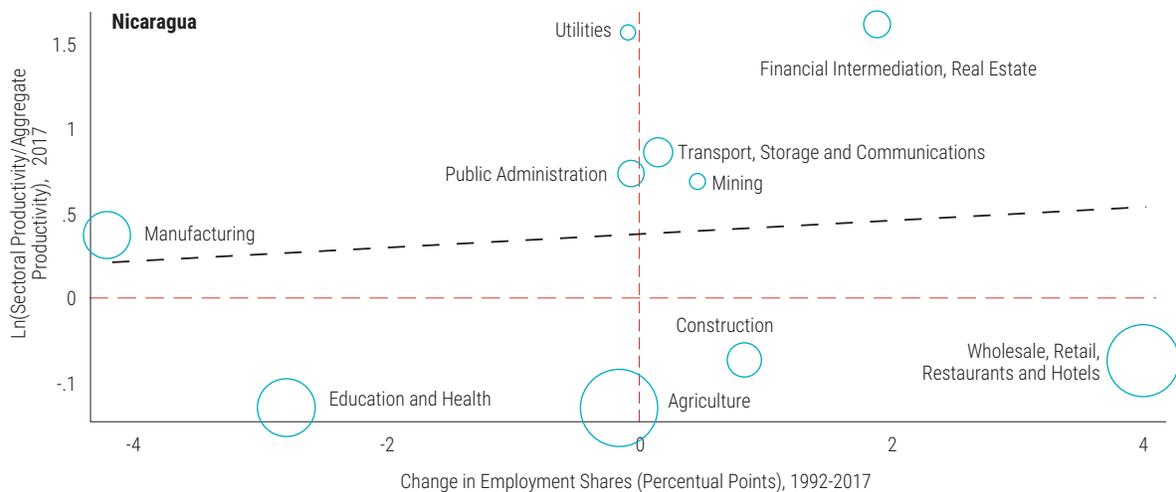


Source: World Bank staff elaboration using data from WDI.

Structural change led to only limited productivity gains in the period 1992–2017, as the sectors that increased their employment share were not necessarily productive ones. Figure 19 shows changes in employment shares and the relative productivity of sectors, measured as the log of the ratio between sectoral productivity and average productivity from 1992–2017. Positive structural change occurs when (i) workers move to relatively high-productivity sectors or (ii) when workers move out of relatively low-productivity sectors. In the case of Nicaragua, the sectors that experienced a decline in their employment shares comprise a mix of below-average (education and health, agriculture) and above-average (manufacturing and public administration) productivity sectors. The same situation emerges in the case of sectors that increased their employment shares, with some above-average (financial intermediation & real estate; mining; and transport, storage, and communications) and some below-average (wholesale, retail, restaurants, and hotels) productivity sectors. As a result, the reallocation of employment across sectors had limited impact on aggregate productivity.

The employment share of agriculture marginally declined between 1992 and 2017, contributing negligibly to labor productivity growth in that period. Figure 19 shows that the employment share of agriculture in Nicaragua remained almost unchanged in this period, preventing the productivity-enhancing reallocation of labor away from agriculture experienced by most of its peers. In addition, wholesale, retail, restaurants, and hotels, a below-average productivity sector, experienced the largest increase in its employment share in this period, limiting the aggregate productivity gains from a decline in the employment share of other below-average productivity sectors. The small aggregate productivity gains from structural change in this period are largely driven by the rise in the employment share of the most productive sector, financial intermediation and real estate.

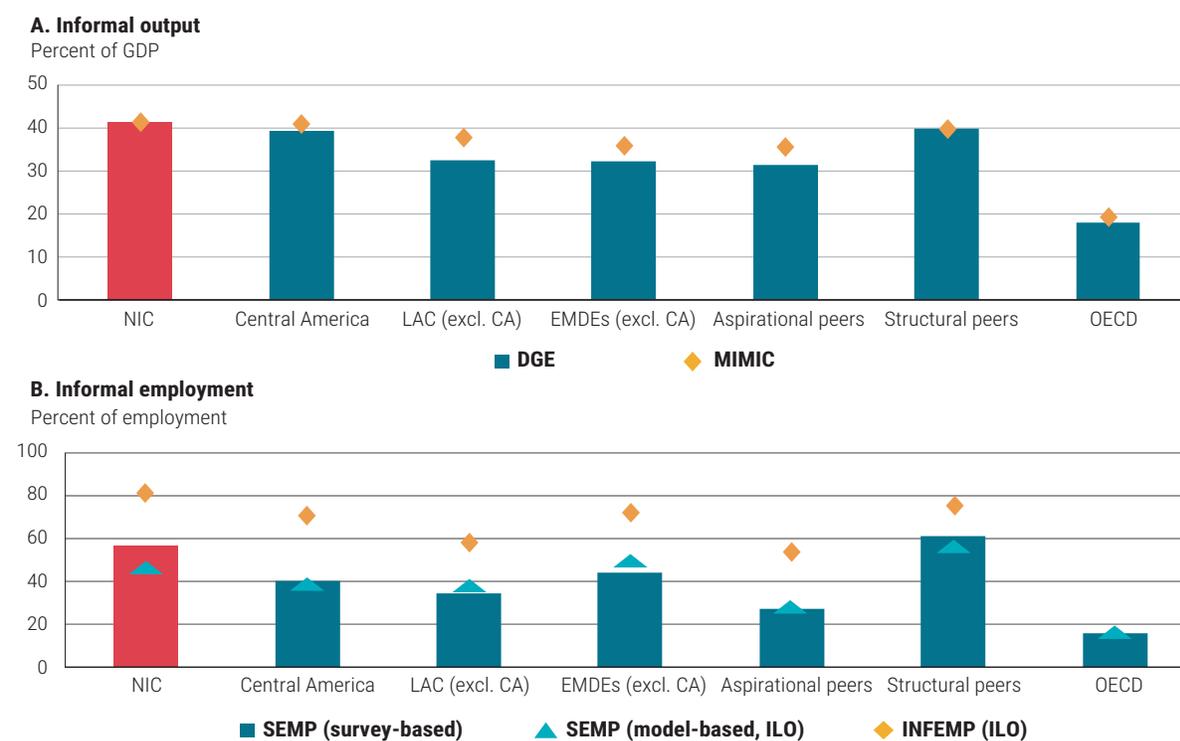
Figure 19. Change in average employment share and deviation from average labor productivity, ratio



Source: World Bank staff using data from the United Nations and International Labour Organization (ILO).

Nicaragua also has a large informal sector, where most workers have far lower productivity. Informality in Nicaragua is relatively more prevalent than in all other Emerging and Developing Economies (EMDEs). In 2016, the informal sector in Nicaragua amounted to 41 percent of GDP and contributed to more than 80 percent of total employment, out of which more than half were self-employed (45–56 percent of total employment; Figure 20). While informality declined in other Central American countries after 1990, Nicaragua’s informal output remained at around 42 percent of GDP, while self-employment rose from 45.3 percent of total employment in 1993 to 56.3 percent of total employment in 2012 (see regional chapter). To bring down the informality to the average shares of informality in other EMDEs, formal output of Nicaragua needs to rise by 6–9 percentage points of GDP and formal employment needs to increase by 10–13 percentage points of employment. The gap between informality in Nicaragua and OECD countries and aspirational peers is even wider, suggesting more untapped potential for growth.

Figure 20. Informality in Nicaragua



Source: Elgin et al. (2019), ILO, World Bank (2019).

Notes: DGE (MIMIC) = DGE-(MIMIC)-based estimates on informal output in percent of official GDP. SEMP (INFEMP) =self-employment (informal employment) in percent of total employment. Data are from the latest year available (2016 for DGE, MIMIC and model-based SEMP estimates).

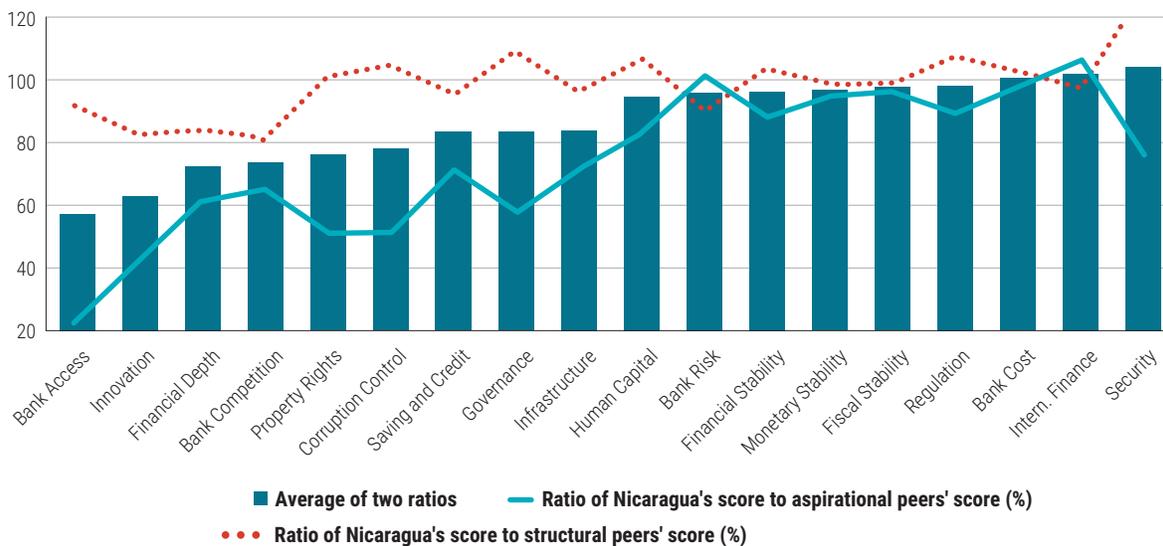


5. Growth Diagnostics Analysis

Drawing on the growth diagnostics analysis of Hausmann et al. (2005), this section aims to identify the binding constraints to Nicaragua's investment and growth. The analysis is carried out in two steps: In the first step, 18 areas of Nicaragua's economy are assessed, using 138 indicators from 2000 to 2018, to identify in which areas the country has poorer performance in comparison to its structural peers (Republic of Congo, El Salvador, Honduras, Kyrgyz Republic, Lao PDR, and Tajikistan) and aspirational peers (Chile, Latvia, Lithuania, Panama, and Peru).⁵⁴ Each indicator is first standardized to range from 0 to 100, with higher values referring to stronger desired outcomes, which are then averaged to create aggregate indexes proxying the performance of each of the 18 areas. In the second step, the relationship between the economic performance and the six areas where the country has a weaker performance is investigated using econometric analysis.

Figure 21 presents the scores of all 18 areas of Nicaragua's economy relative to its structural and aspirational peers, as well as the averages of those scores. Based on the average scores, Nicaragua has the lowest relative values in finance (namely bank access, financial depth, bank competition, and savings and credit), innovation, property rights, corruption, and governance. The remainder of this section provides an in-depth analysis of these indicators and their association with GDP growth and the per capita GDP of Nicaragua to better understand whether and to what extent they constrain the growth performance of the country.

Figure 21. Growth diagnostics indicators of Nicaragua relative to its structural and aspirational peers



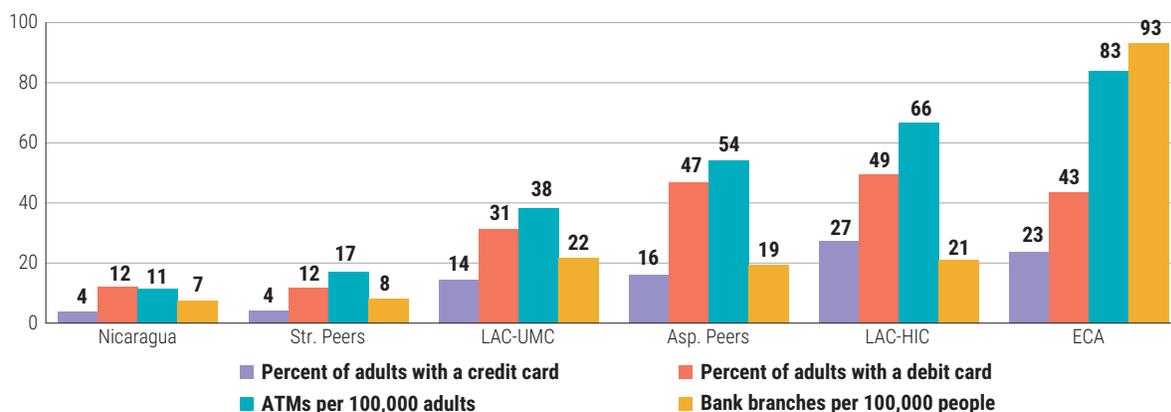
Source: See Table 5.1 in the Appendix for methodology and sources of all indicators used to compute the indexes.

5.1. Access to banking

Access to banking in Nicaragua lags comparator economies, despite a significant increase over time. During 2004–2018, the average numbers of ATMs and bank branches per 100,000 adults/people were 11 and 7, respectively, the lowest among all comparator and aspirational economies (Figure 22). During the same period in structural peers, the number of ATMs and bank branches per 100,000 adults/people was 17 and 8, respectively, and 54 and 19, respectively, in aspirational peers. Even though there is a significant increase in the number of ATMs, from 3 in 2004 to 22 in 2018, the number is still lower than in structural peers (31) and well below aspirational peers (69) (Figure 23). The number of bank branches in the country increased from 5 in 2004 to 11 in 2017, which surpassed structural peers (at 10 in 2017), but still lagged behind aspirational peers (at 16). The percentages of adults with credit and debit cards in Nicaragua reached 5 and 16 in 2017, respectively, surpassing the levels of structural peers at 4 and 6, respectively, but remaining lower than aspirational peers, at 16 and 52 percent, respectively.⁵⁵

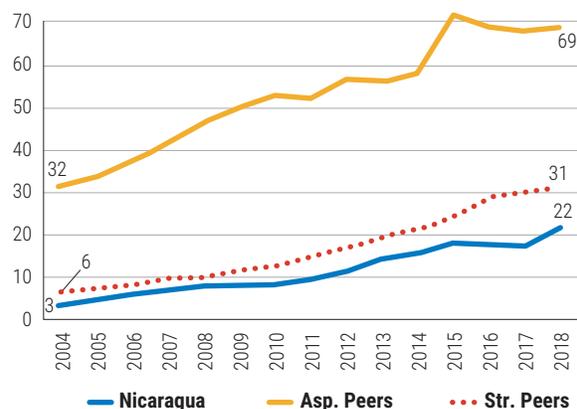
In 2018, the Global Competitiveness Report ranked Nicaragua 100 out of 137 countries in financial market development indicators, reflecting the country's weaker financial market. Firm financing constraints also seem significant, as 11 percent of companies in Nicaragua identified access to finance as a barrier for their businesses. However, this is less than in neighboring countries, such as Guatemala (with 12 percent), El Salvador (21), and Honduras (41).⁵⁶

Figure 22. Access to bank indicators, 2004–2018



Source: Author's computation using WDI. Note: Bank branch data is until 2017 and credit and debit card data are from 2011 to 2017.

Figure 23. Number of ATMs per 100,000 adults



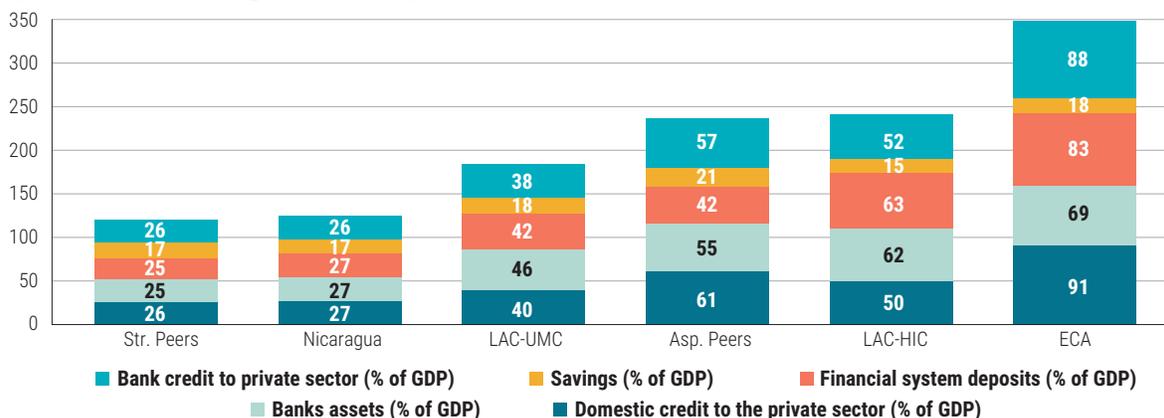
Source: Author's computation using WDI. Note: Bank branch data is until 2017 and credit and debit card data are from 2011 to 2017.

Access to banking is positively associated with real GDP per capita in Nicaragua. As expected, there is a significant positive association between real GDP per capita and access to banking in Nicaragua. Particularly, a one percentage point increase in the access to banking index is associated with a 0.02 percentage point increase in GDP per capita.⁵⁷ Cross-country regression analysis also reveals a strong positive correlation between these indicators for the full sample, as well as for Nicaragua (Figure 24), implying that an increase in access to banking may increase income opportunities, and vice versa. One reason for the low access to banking in Nicaragua could be the high interest rate. Figure 25, reporting the scatter plot of ATM numbers per 100,000 adults against interest rate spread, provides support for this argument. It shows that Nicaragua's access to banking index is among the lowest, while its spread rate is higher than the majority

5.2. Financial depth and savings rate

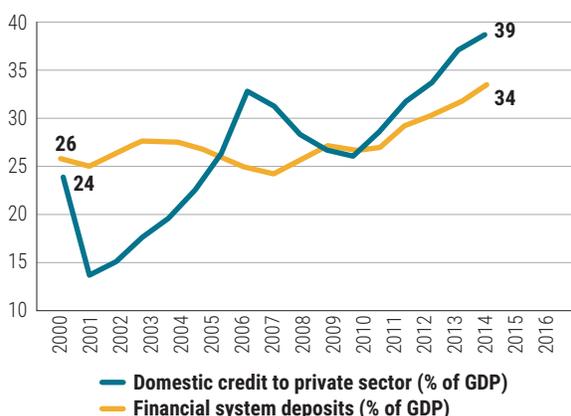
Financial depth indicators of Nicaragua lag all comparator economies except structural peers, while its savings rate is on par with most comparator countries. Domestic and bank credit to the private sector, financial system deposits, and bank assets, each representing 26–27 percent of GDP, each rank the second lowest after structural peers (at around 26 percent) (Figure 26). Even though domestic credit to the private sector and financial deposits increased significantly from 24 and 26 percent of GDP in 2000 to 39 and 34 in 2016, respectively, they are still lower than in aspirational peers (with 77 and 49 percent, respectively) (Figure 27). On the other hand, Nicaragua's saving rate of 17 percent during 2000–2018 is higher than the average of high-income LAC countries and on par with other economies, with rates of 17–18 percent, except its aspirational peers, with 21 percent.

Figure 26. Financial depth and saving rate



Source: Author's computation using data from World Bank and IMF.

Figure 27. Domestic credit and financial deposits



Source: Author's computation using data from World Bank and IMF.

Access to finance for micro, small, and medium enterprises (MSMEs), which account for 90 percent of all companies in Nicaragua, continues to be a key barrier for development. Bank credit to the private sector contracted by 18 percent during 2019. Although timely measures by the Central Bank helped to cope with the credit contraction, MSMEs still face difficulties obtaining bank loans, since the majority of the credit from the financial system is targeted to large business groups and consumers. Despite 83 percent of formal firms having bank accounts, only 48 percent have access to a bank loan/line of credit (Figure 28) due to high collateral requirements and high spread rates, among others. As a result, many small and informal firms exclude themselves from the financial system, choosing instead to fund their operations using their own limited capital. These practices restrict the growth of most companies. Improving collateral regulations and competition in the banking sector would promote the growth of MSMEs.⁶²

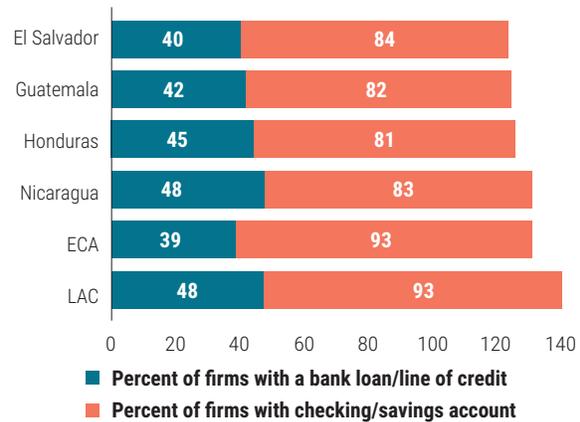
These practices restrict the growth of most companies. Improving collateral regulations and competition in the banking sector would promote the growth of MSMEs.⁶²

The results of the panel and cross-sectional analysis suggest that increasing domestic credit to the private sector is associated with an increase in real GDP per capita in Nicaragua (Figure 29).⁶³ Both the panel and cross-sectional analysis show that Nicaragua's GDP per capita is positively associated with domestic credit to the private sector and the savings rate. Given that Nicaragua has the least-developed financial sector in the region,⁶⁴ increasing the depth, efficiency, and inclusivity of the sector would promote its economic performance by mobilizing savings to productive areas and promoting entrepreneurship, innovation, and the resilience of MSMEs to shocks, among others.⁶⁵ The Nicaraguan government has been collaborating with international institutions to increase small firms' access to finance.

For example, during 2012–2017, the International Finance Corporation (IFC) invested US\$ 461.8 million, which increased the number of MSMEs with financial services from 62,152 in 2012 to 85,790 by 2017, particularly for those in the trade and housing sectors.⁶⁶

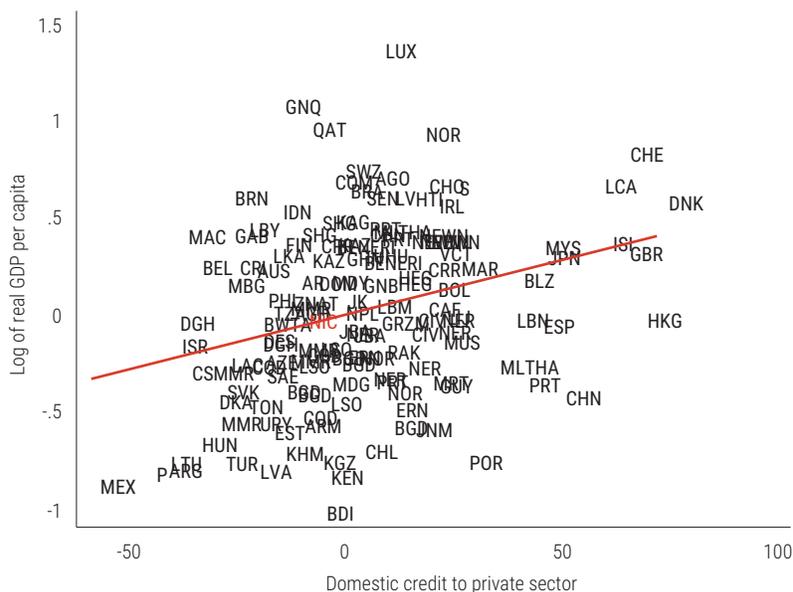
For a longer-term solution, however, government policies should address the structural issues in the financial system, including those related to collateral laws, credit information coverage, and competition. In the Doing Business 2020 report, Nicaragua scored 8 out of 8 in the credit information indicator; however, it scored 2 out of 12 in the strength of legal rights indicator that measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending.

Figure 28. Financial Depth indicators from Enterprise Surveys



Source: Enterprise Surveys, World Bank Group.

Figure 29. Domestic credit vs. real GDP per capita (log), 2000–2018

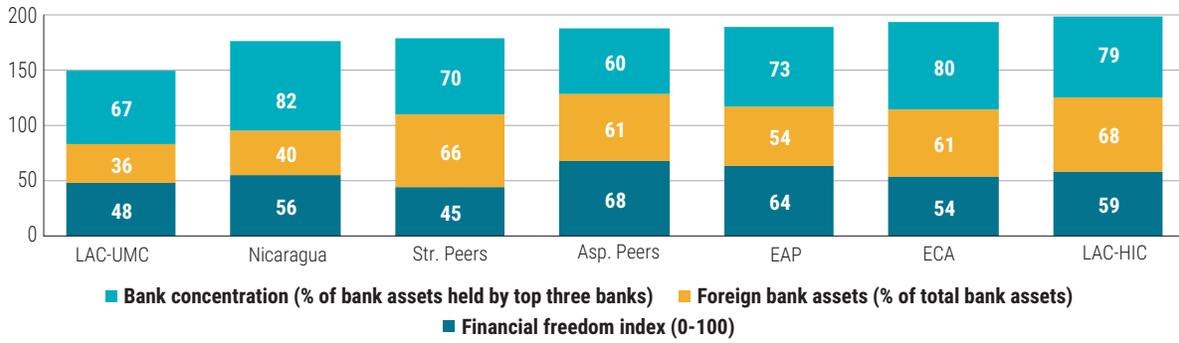


Source: World Development Indicators.

5.3. Bank competition

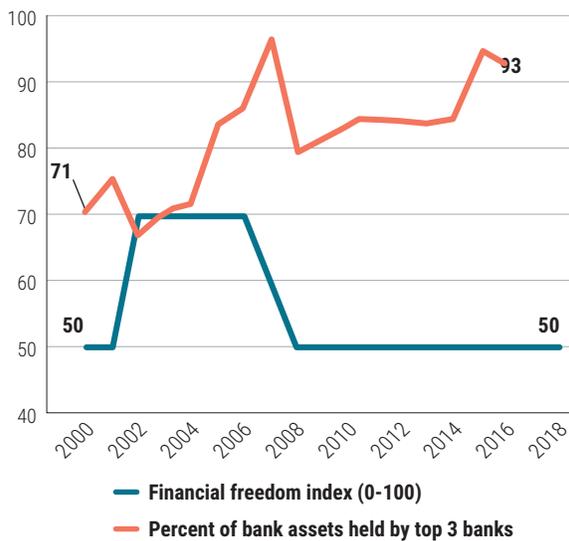
Although the financial sector of Nicaragua is more efficient and independent than many economies at similar levels of development, it lags behind its aspirational peers and high-income LAC countries, and has the most concentrated banking sector among its comparator economies. In 2000–2018, 82 percent of bank assets in Nicaragua, on average, were controlled by only three banks, just above the average of high-income countries in Latin America, but much higher than its structural (70 percent) and aspirational (60 percent) peers (Figure 30). The financial crisis that affected the Nicaraguan banking system in the early 2000s left only six banks in the country,⁶⁷ which has remained fairly constant.⁶⁸ In the financial freedom index for 2000–2018, which measures banking efficiency and independence from government control and interference, Nicaragua scored 56 out of 100, above its structural peers (45) and upper-middle-income countries in LAC (48), but lower than its aspirational peers (68). Foreign investment in local banks, used as one of the measures of competition in the banking sector, is low, at 40 percent of total banking assets, compared to aspirational peers at 61 percent and structural peers at 66 percent (Figure 30). Although the financial freedom index has remained static in the last ten years, the banking system has become even more concentrated: in 2016 the top three banks held 93 percent of total bank assets (Figure 31).

Figure 30. Indicators of bank competition, 2000–2018



Source: Author's computation using data from WDI and the Heritage Foundation.

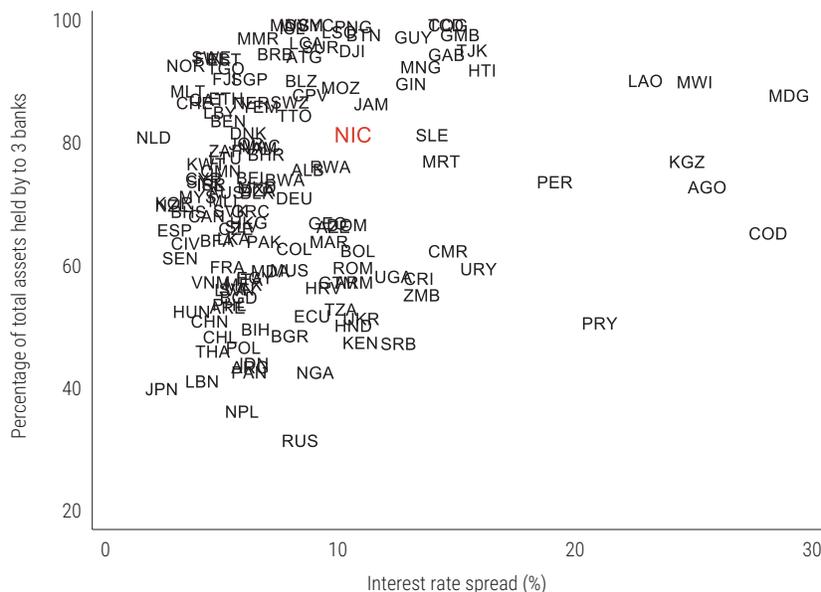
Figure 31. Bank competition indicators, 2000–2018



Source: Author's computation using data from WDI and the Heritage Foundation.

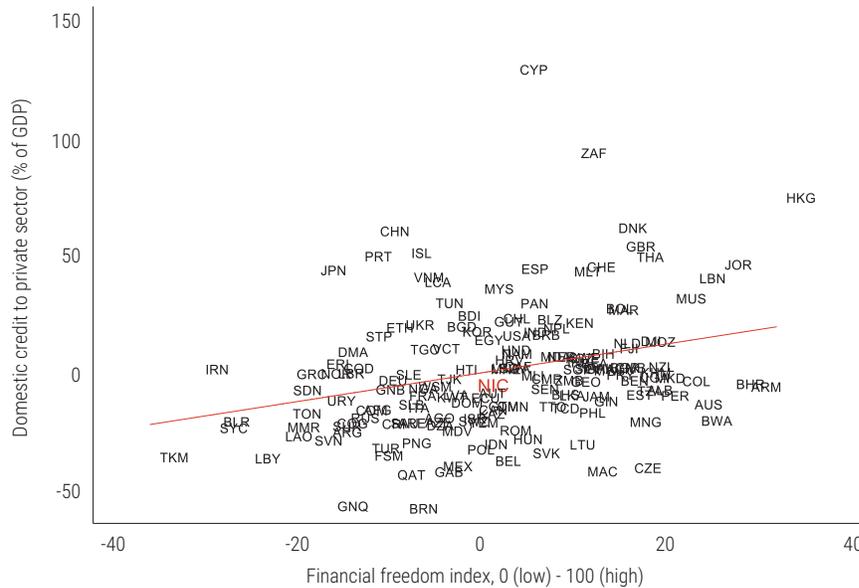
High bank concentration and interest rate spread in Nicaragua suggests low competition in the banking sector, and policies to address this may promote domestic credit to the private sector. As seen from Figure 32, Nicaragua's interest spread is among the highest, as well as its bank concentration. In fact, in 2016, Nicaragua's interest rate spread was 18th highest out of 100 countries, at 10.3 percent compared to sample average of 7.1.⁶⁹ The regression results do not indicate a positive link between bank competition or financial freedom and output per capita, however there is a strong positive relationship between the financial freedom index and the share of domestic credit to the private sector in GDP (Figure 33). Therefore, policies that aim to promote competition in banking sector, decrease spread, and increase the independence of financial sector are likely to promote domestic credit to the private sector in Nicaragua, particularly to MSMEs.

Figure 32. Bank concentration vs. lending interest rate



Source: See Table 5.1 in Appendix.

Figure 33. Domestic credit to private sector and financial freedom

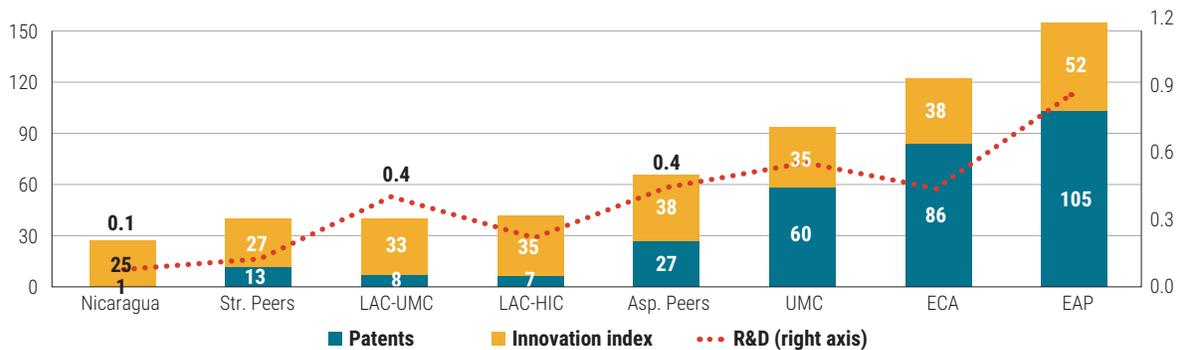


Source: See Table 5.1 in Appendix. Figure 33 is an added variable plot from the regression analysis of domestic credit with respect to financial freedom and GDP per capita.

5.4. Innovation

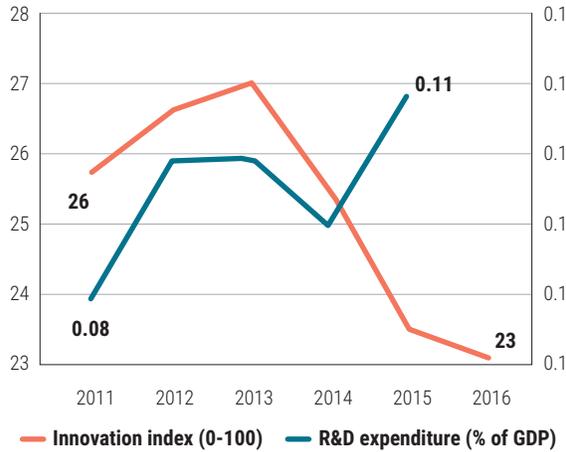
Low R&D expenditures, as well as a declining global innovation index, are suppressing Nicaragua’s competitiveness. Nicaragua’s investments in R&D and innovation are among the lowest in the region: R&D expenditure has averaged only 0.1 percent of GDP during 2011–2016 (on par with its structural peers). From 2011 to 2019, its average score on the Global Innovation Index was 25, lower than that of its structural peers and upper-middle-income countries in LAC (Figure 34) and just matching the average value of Sub-Saharan African countries.⁷⁰ The index value has been declining since 2013, dropping to 23 in 2019 (Figure 35), placing Nicaragua in the tenth worst place among 129 countries. Other innovation indicators are also low. For example, the number of patent applications by residents per million population was only 1, far below the country’s structural peers, with 9. Only 28 percent of the population used the internet in 2017, one of the lowest percentages in the region, after Haiti and Saint Vincent and the Grenadines.⁷¹ Furthermore, in 2016, Nicaragua has the lowest percentage of firms with their own website (40 percent) compared to other Central American countries and the averages of LAC and Europe and Central Asia (ECA) (Figure 36).

Figure 34. Patents, R&D, and innovation by regions



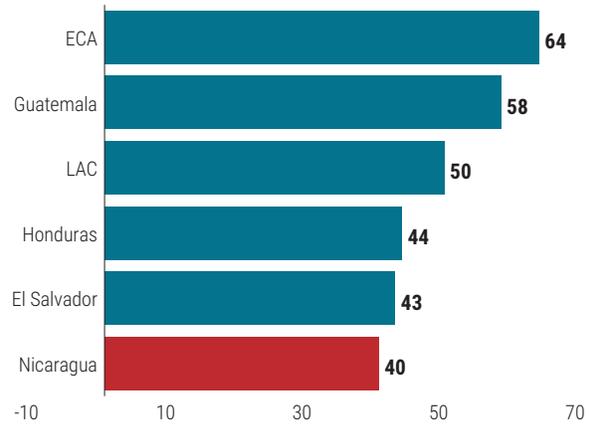
Source: Author’s computation using data from World Bank and WEF.

Figure 35. Innovation index and R&D expenditure



Source: Author's computation using data from World Bank and WEF.

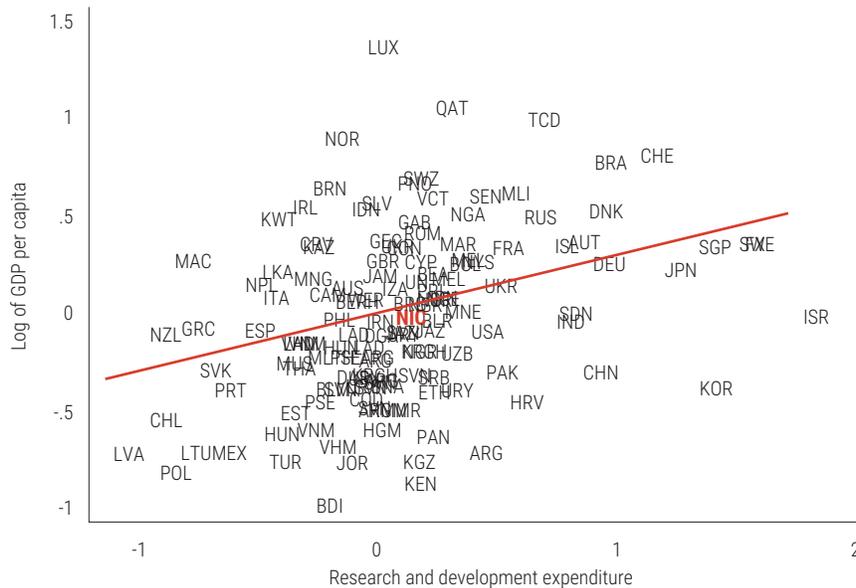
Figure 36. Percent of firms having their own website in 2016



Source: Enterprise Surveys, World Bank Group.

Given a strong positive correlation between R&D and output per capita, investment in innovation activities is likely to have significant positive returns. Both panel and cross-sectional regression analyses confirm a positive and strong correlation between Nicaragua's GDP per capita and R&D expenditure's share of GDP, after controlling for key determinants of output (Figure 37).⁷² Low R&D investment and scarce access to information and technology, as well as structural issues such as high informality (with 82 percent of total employment), are likely to hamper the innovation efforts of the country.⁷³ Reallocating capital and labor from firms with low productivity, a key characteristic of informal firms, to high-productivity formal firms could increase innovation and TFP by 51 percent in Nicaragua.⁷⁴

Figure 37. GDP per capita and R&D expenditure, 2011–2016



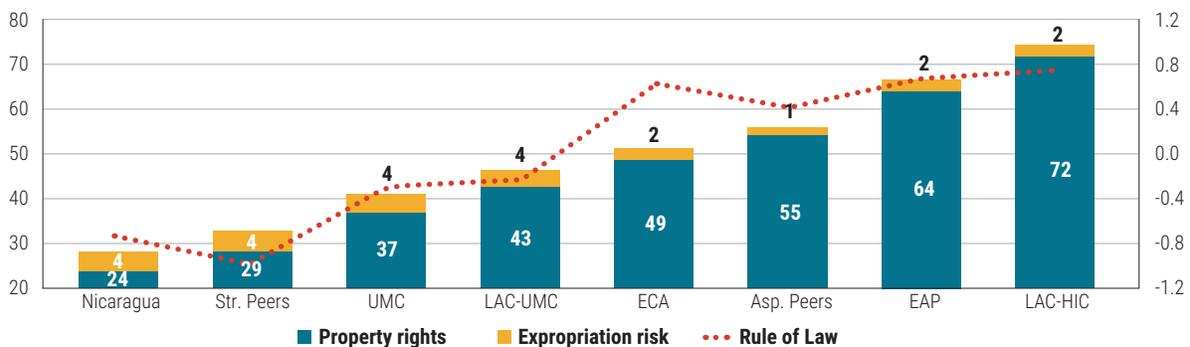
Source: Enterprise Surveys, World Bank Group.

5.5. Property rights

Even though property rights in Nicaragua are protected by law, due to high bureaucracy, corruption, and weak enforcement, they are not adequately protected in practice.⁷⁵ Nicaragua had the lowest property rights index among all comparator economies in 2000–2018, with a score of 24 out of 100 (compared to 29 and 55 in its structural and aspirational peers, respectively) (Figure 38).⁷⁶ In rule of law and expropriation risk indexes, the country had the second worst scores, with -0.7 out of 2.5 and 4.2 out of 7, respectively. Its score on the property rights index had deteriorated from 30 in 2007 to 10 in 2015, before registering a substantial increase to 31 in 2016 (Figure 39). Its score on the rule of law index also improved slightly during 2010–2018. Even though the provisions of laws safeguard property rights and contracts, they are not always enforced, and the judiciary is susceptible to influence.⁷⁷ Property rights of women and indigenous and rural populations are particularly under-protected.⁷⁸ In addition, property registries are poorly recorded, making it hard to trace the history of a property title.⁷⁹ In 2017, about 35–40 percent of all land in Nicaragua faced some type of legal conflict or dispute, including competing claims over the same land, lack of documentation to prove legal ownership, boundary disputes, and unsecured land tenure. In 2019, Nicaragua’s registering property indicator had a score of 46.4 out of 100, while the quality of its land administration had a score of 5.5 out of 30.⁸⁰

Historical conflicts have played an important role in the property rights and land tenure in Nicaragua. The 1990s unchecked privatization policies led to the concentration of economic power in small groups of elites and the creation of the patronage system.⁸¹ The weak property titling regime has partly limited investment in the agriculture sector, which consequently, undermined land productivity.⁸² In 2019, Nicaragua ranked 115 out of 190 countries in the registering property indicator of Doing Business, measuring the efficiency and effectiveness of land administration system. It scored 4 out of 30 on the quality of its land administration, which measures the reliability of land administration’s infrastructure, transparency of information, geographic coverage of land registration, existence and effectiveness of land dispute resolution system, and equal access to property rights.

Figure 38. Property rights, expropriation risk, and rule of law, 2000–2018

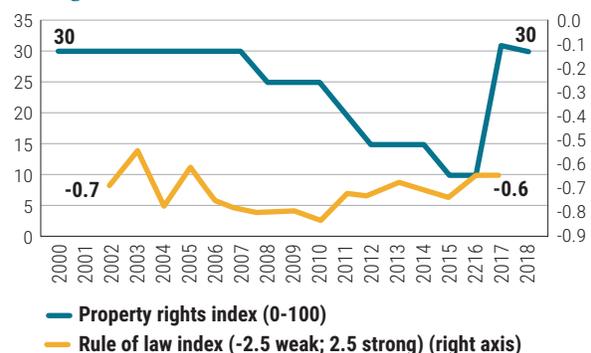


Source: Author’s computation using data from Credendo Group, the Heritage Foundation and World Bank.

Strengthening property rights and rule of law is likely to promote output per capita of Nicaragua.

According to fixed effects regression analysis, Nicaragua’s real GDP per capita is negatively associated with expropriation risk and positively associated with property rights index and rule of law index.⁸³ Specifically, a one-unit increase in the expropriation risk is associated with a 0.04 percent decrease, while a one-unit increase in rule of law is associated with a 0.2 percent increase in real GDP per capita.⁸⁴ Other studies also show that enhancing property rights by limiting expropriation risk positively affects resource allocation, shaping the incentives of individuals to carry out productive activities and undertake investment.⁸⁵

Figure 39. Property rights and rule of law in Nicaragua

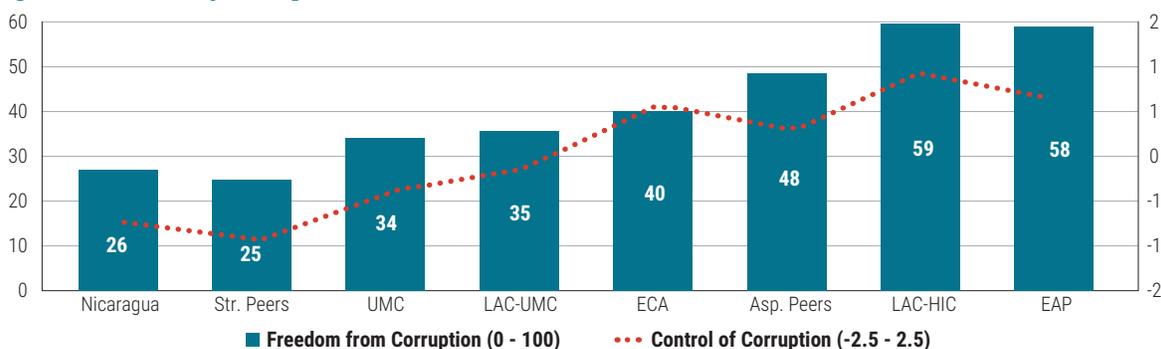


Source: Author’s computation using data from the Heritage Foundation and World Bank.

5.6. Corruption

Nicaragua’s control of corruption indicators are the lowest in Central America. During 2000–2018, the country scored the lowest in freedom from corruption index (25 out of 100) across several comparison groups (Figure 40), and the second-lowest in the control of corruption index (at -0.7 along the range of -2.5 to 2.5), after its structural peers (-0.9). Furthermore, Nicaragua’s freedom from corruption index has worsened in recent years, along with its aspirational and structural peers—scoring lower than both in 2018 (Figure 41). On the micro level, Nicaragua shows relatively low levels of corruption. For example, in 2016, 4.8 percent of firms reported that they were expected to give gifts to tax officials, 2 percent reported that they were expected to give gifts to get an operating license, and 26 percent reported corruption as a major obstacle to their businesses, all of which are lower than the average of Latin American countries at 6, 9, and 37 percent, respectively (Figure 42).

Figure 40. Control of corruption indicators, 2000–2018

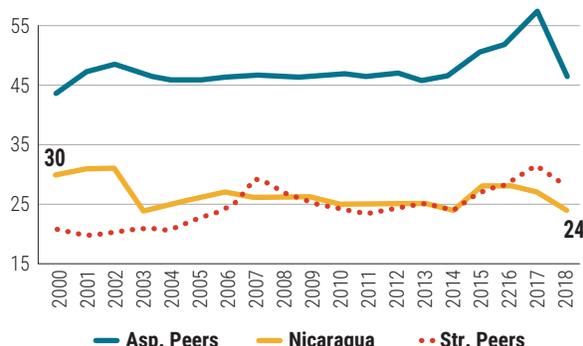


Source: Author’s computation using data from World Bank and the Heritage Foundation.

Public sector corruption, weak law enforcement, and bribery are major challenges for Nicaragua.

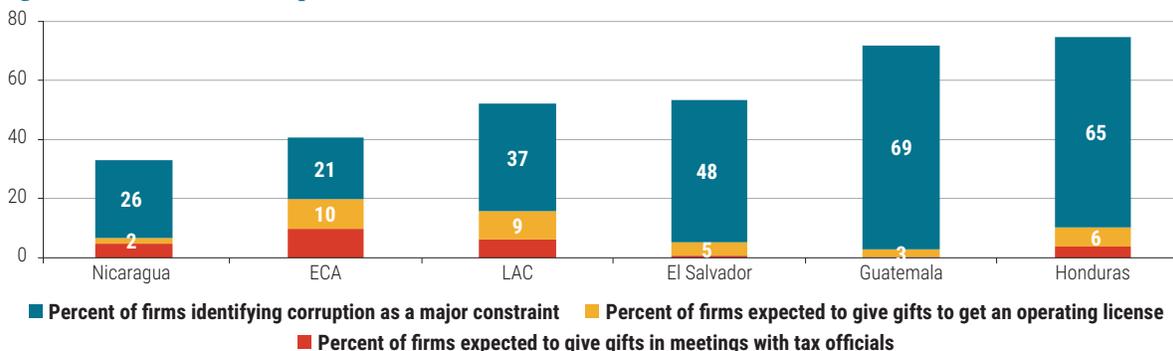
Corruption is a fundamental problem in Nicaragua’s political environment, and several factors have helped its spread: weak law enforcement, lack of judicial autonomy and legislative independence, impunity of high-ranking officials, lack of political will to combat corruption, and a weak civil society.⁸⁶ Public sector corruption and bribery of public officials are major challenges for the country, but will not be easy to tackle, given the recent changes in constitution.⁸⁷ Since corruption is a multidimensional political and societal phenomenon in Nicaragua, anti-corruption policies will be effective only with the buy-in of the wider society. Nicaragua could also benefit from cooperation from international partners with expertise in institutional strengthening and public administration.⁸⁸

Figure 41. Freedom from corruption index



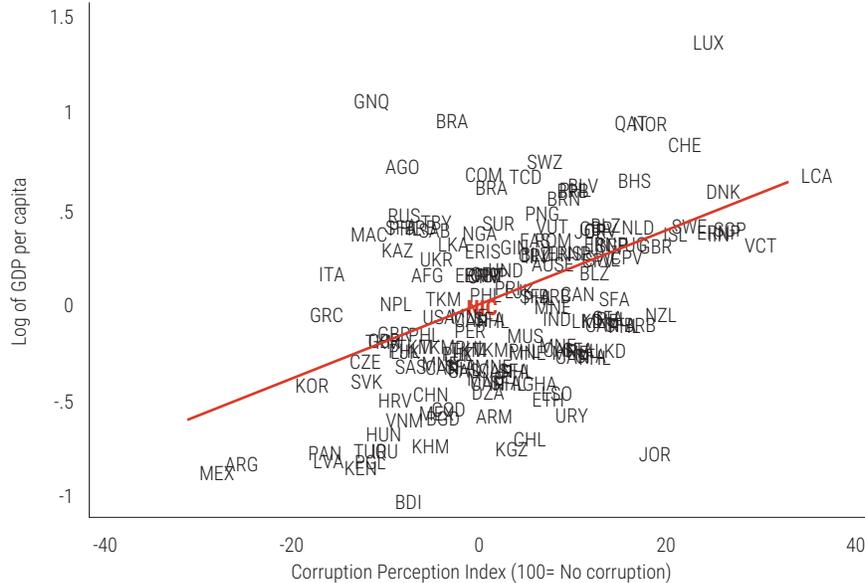
Source: Author’s computation using data from the Heritage Foundation.

Figure 42. Firm-level corruption indicators in 2016



Source: Enterprise Surveys, World Bank.

Figure 43. GDP per capita vs. corruption perceptions



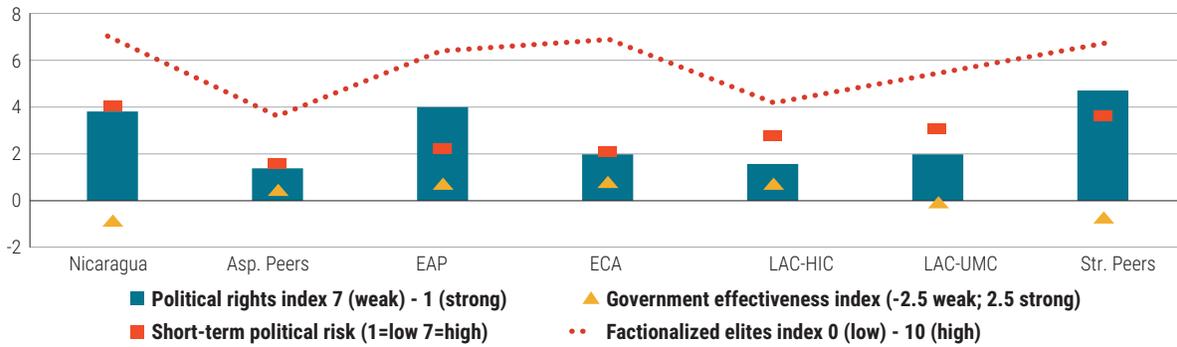
Source: See Table 5.1 in the Appendix.

High levels of corruption are a constraint for investment and growth in Nicaragua. After controlling for several growth determinants, regression analysis confirms a positive average correlation between the freedom from corruption index and real GDP per capita of Nicaragua.⁸⁹ In particular, a one percentage point increase in the freedom from corruption index is associated with about a 0.01 percent increase in the real GDP per capita of Nicaragua. Furthermore, as seen in Figure 43, there is a strong positive relationship between real GDP per capita and freedom from corruption index both for the full sample and for Nicaragua (after controlling for investment, human capital, and regional and income dummies). These findings, combined with those from the existing literature,⁹⁰ suggest that reducing corruption is likely to promote productive economic activities and increase the economic performance of the country.

5.7. Governance

Weak governance indicators in Nicaragua reflect political repression, high polarization, and low government effectiveness. From 2000 to 2018, the country scored a four in the political rights index of Freedom House, where one indicates secure rights and seven weak rights (Figure 44). This index measures the fairness of the electoral process, political pluralism and participation, and the functioning of government. High political polarization between pro- and anti-Sandinistas, as well as political repression, contribute to the low ranking. The election of 2016 increased polarization, as several opposition parties were unable to present candidates,⁹¹ and the political rights index rating has worsened since then, reaching six in 2019.⁹² Government effectiveness has averaged -1 (2.5 equals high effectiveness and -2.5 equals low), the lowest among comparator economies (Figure 44).⁹³ Though both government effectiveness and political risk indicators have improved over time, reaching -0.6 and 2 in 2017, respectively, Nicaragua still lags behind its aspirational peers (with scores of -0.1 and 6, respectively). Its short-term political risk and level of fractionalized elites are also very high, on par with the Central American average (Figure 45). The government provides limited public access to state data and holds the second-lowest position in LAC in the 2019 Open Government Index, above only Venezuela.⁹⁴ Publicizing laws and government data would substantially improve transparency and government accountability and credibility.

Figure 44. Governance indicators, 2000–2018

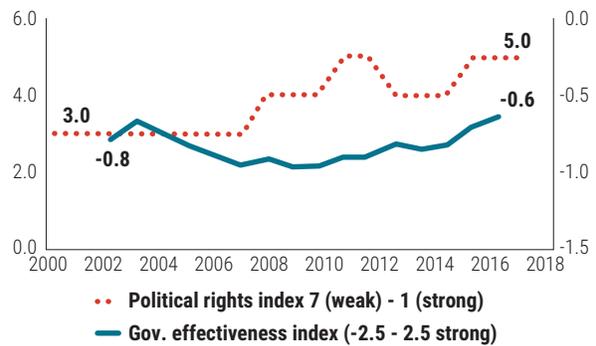


Source: The Freedom House, Credendo Group, World Bank and Fund for Peace.

High political risk, low government effectiveness, human rights and rule of law appear to pose a threat for the growth prospects of Nicaragua.

Fixed effects regression reveal that real GDP per capita is negatively associated with high political risk and lack of confidence in government institutions and positively associated with government effectiveness, political stability and human rights, and rule of law.⁹⁵ These results suggest that reducing political risk, increasing government effectiveness and transparency, and promoting human rights and rule of law would increase productive investment in Nicaragua. Nicaragua’s bureaucracy is measured among the most cumbersome by the World Bank’s Doing

Figure 45. Government effectiveness and political rights indexes in Nicaragua



Source: The Freedom House and World Bank.

Business 2020, with a ranking of 142 out of 190 economies in 2019. Promoting better institutions and strengthening the service delivery capacity of the public sector would improve public service delivery, increase efficiency, and restore trust.⁹⁶ Specifically, strengthening the areas of contract enforcement, the efficiency of the legal framework in settling disputes, protection of property rights, investor protection, registering property, and resolving insolvencies would have high payoffs in improving the country’s investment environment.



6. Diversification and Exports

6.1. Why diversification matters to Nicaragua

Global trends such as slower trade growth, rising trade in services, and the fragmentation of production and automation pose challenges and opportunities for developing countries. Trade and capital flows have increased dramatically over the past 25 years. A wave of structural reforms in the 1990s geared toward trade liberalization and the ascent of China into global markets propelled the rise in global trade flows and a shift in the patterns of production worldwide. More recently, globalization has experienced important transformations. Global trade in goods has slowed and is expected to grow modestly in the future, as growth rates in emerging markets even out and trade in services continues to increase in prominence. The increase in trade in intermediates and the separation of production into tasks has given rise to regional and global value chains (GVCs). The signing of deep free trade agreements has been the main vehicle for bringing in new disciplines that allow factories to connect across borders in a seamless way.⁹⁷ Value chains offer LMI countries such as Nicaragua a path to diversify production and new ways to export tasks, services, and other activities. However, low wages alone will become less of an advantage in low-skill-intensive industries, as machines replace certain tasks, and logistics and infrastructure aimed at increasing connectivity will become more important.

Since Nicaragua is a small open economy, an export-oriented growth strategy is a sound approach to create job opportunities, generate sustainable growth, and reduce dependence on remittances. To import the desired goods, countries need to export. Economic diversification is the shift of production and trade toward a more wide-ranging productive structure, pursued to increase productivity, generate jobs, and foster sustainable growth to reduce poverty.⁹⁸ Trade plays a significant role in economic diversification. The successful East Asian countries' diversification toward the manufacturing sector was accompanied by their integration into the global economy.

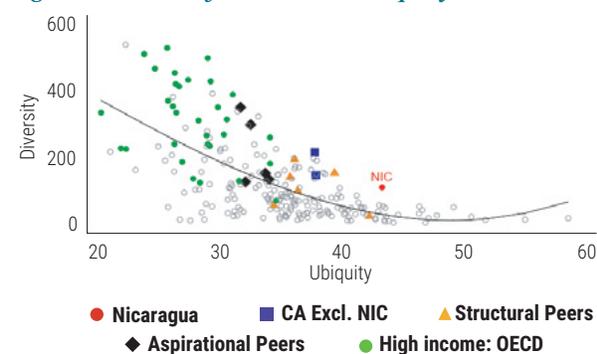
Economic diversification is critical for long-term development in Nicaragua to reduce volatility. The literature provides various benefits of economic diversification (Appendix VI), which is critical for Nicaragua to achieve sustainable growth. Diversification would reduce the country's reliance on only a few sectors and help create buffers against climate shocks and commodity cycles. Koren and Tenreyro (2007) find that if a developing country with weak financial infrastructure specializes in sectors with high intrinsic volatility, it will tend to suffer greater aggregate volatility.⁹⁹ The study states that if a country's volatility is linked to high exposure to few high-risk sectors, strengthening financial institutions and diversifying the economy may be virtuous policy choices to reduce volatility.

The literature emphasizes the opportunity to create new and better-quality jobs (high productivity jobs) in the context of the structural transformation that diversification entails.¹⁰⁰ Growth decompositions in section 2 showed that growth in the past 40 years was driven by labor and capital accumulation rather than productivity improvements, which were actually detracting from GDP growth. This development model is not sustainable in the long run, given that the demographic dividend—the increases in the share of the working-age population observed in the last 40 years—is disappearing, along with its positive contribution to growth. Since an export-oriented strategy implies higher competition in global markets, productivity growth is key for success.

Nicaragua is at a low level of diversification, producing goods that many countries are capable of doing. Economic development typically involves a structural transformation, where countries evolve from manufacturing poor-country products to producing rich-country goods. As countries develop, they tend to diversify their productive structures into more complex products. As a result, there should be a negative relationship between

the number of products a country effectively exports (diversity) and the average ubiquity of its products.¹⁰¹ Figure 46 indicates that, on average, OECD and aspirational countries exhibit this negative relationship: they have high diversity and low ubiquity, that is, they tend to export a large set of products that are made by relatively few other countries. On the other hand, poorer countries export few products (low diversity), which are produced and exported by most countries (high ubiquity). Nicaragua exhibits low diversity and high ubiquity in its exports in comparison to its structural and Central American peers.

Figure 46. Diversification and Ubiquity

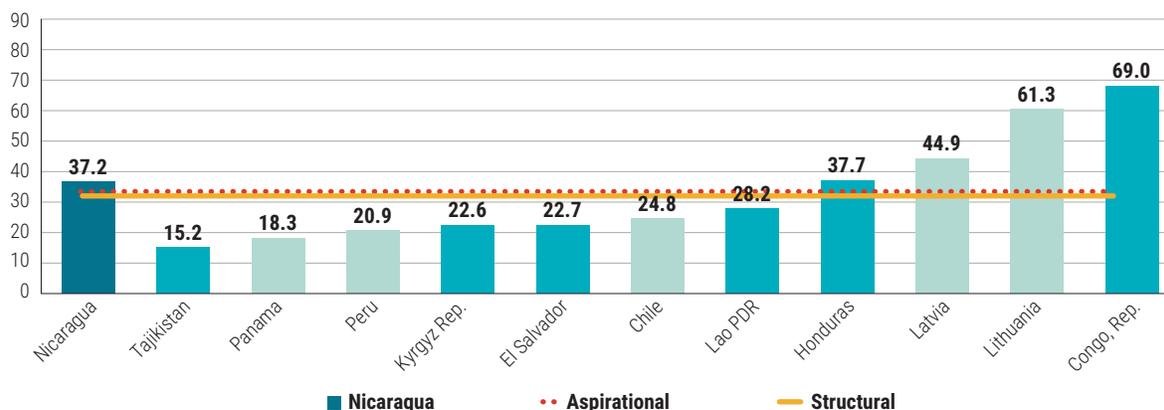


Source: World Bank staff using Atlas of Economic Complexity.

6.1. Diversification of exports would help sustain growth and create jobs

Nicaragua seems to be more open than other countries at the same level of development, displaying higher export and import shares of GDP than most of its peers (Figure 47). At 37.2 percent, Nicaragua's merchandise export share of GDP is higher than the average export share among its aspirational (34 percent) and structural peers (33 percent). Figure 48 shows that Nicaragua's trade openness increased substantially from the mid-1990s to 2012—reflecting a continuous rise in exports, as well as a surge in imports between 2006 and 2012—and has remained elevated since then. In addition, Nicaragua's exports of services as a share of its GDP has remained about the same for the last 50 years.

Figure 47. Merchandise exports as a percentage of GDP, Average 2016–2018



Source: World Bank staff using WDI.

While the diversity of Nicaragua's merchandise exports has improved, they still largely comprise low-complexity products, such as food and apparel, with limited exports of high value-added content. In 2000, low value-added products represented more than 83 percent of total merchandise exports. Food products (for example, meat, coffee, tea, cocoa, sugar, vegetables, and fruits) and articles of apparel and clothing accessories represented 49 percent and 34 percent, respectively, of Nicaragua's total exports of goods. The complexity of Nicaragua's exports improved somewhat in the following two decades, as the share of food products declined significantly, and more complex products, such as electric machinery, apparatus, and appliances, increased (Figure 49). Consequently, exports are now more diversified, with 244 new products introduced since 2000, but they are still highly concentrated in primary products and low-complexity manufactures such as coffee, meat of bovine animals, and crustaceans and mollusks (Figure 50).

In terms of sophistication and technological composition, Nicaragua's exports are mostly composed of primary products and low-tech manufactures. Exports are important regarding development and growth. As discussed by Hausmann et al. (2007), the composition of a country's export bundle matters for an export-led

Figure 48. Trade, exports of merchandise, and exports of goods and services (percent of GDP)

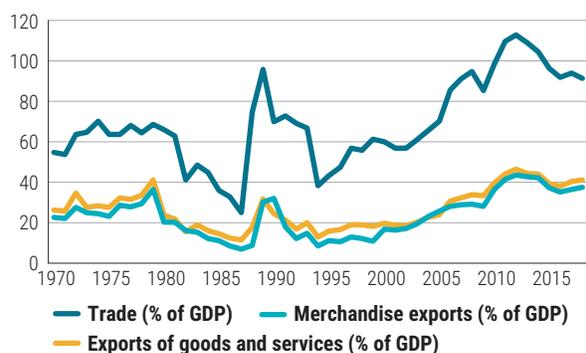
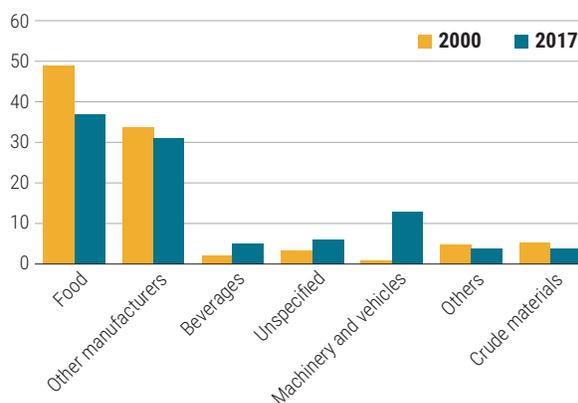
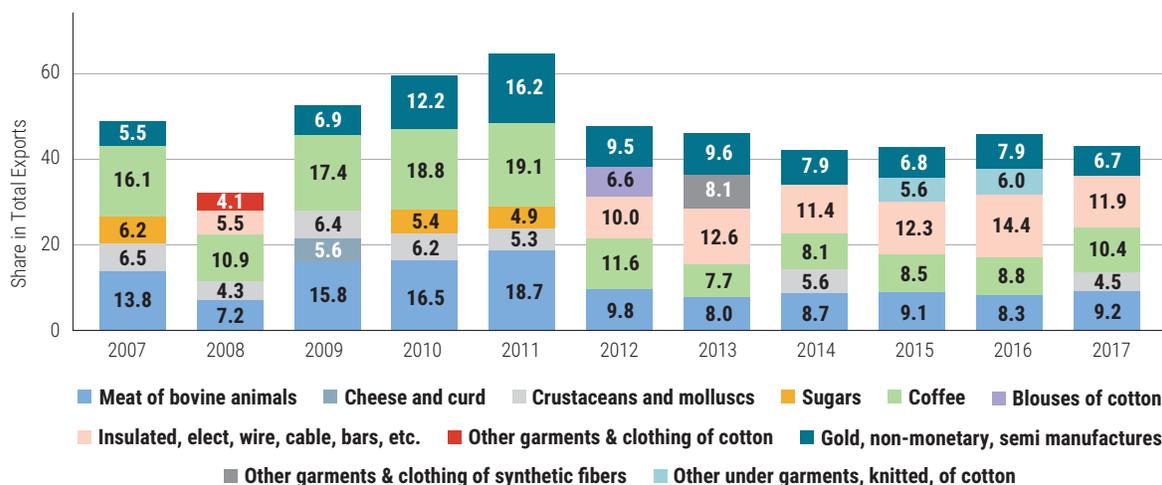


Figure 49. Nicaragua's Exports Composition, 2000 and 2017



Source: World Bank staff using WDI.

Figure 50. Nicaragua's main exports, 2007–2017

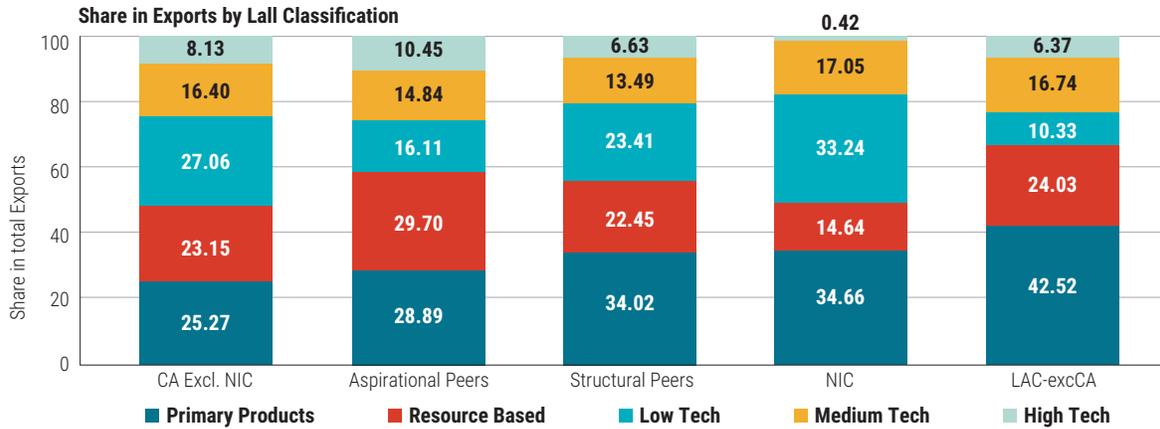


Source: World Bank staff using COMTRADE, SITC2.

growth strategy. The literature regarding trade and growth indicates that when export composition is biased toward industries that are more intense in human capital and technology, the country will experience higher growth rates in the future.¹⁰² Nicaragua's merchandise exports are 35 percent primary products, the same as its structural peers, but higher than aspirational peers. Low-tech exports represent 33 percent of total merchandise exports, larger than all peers, whose low-tech exports range between 10 and 27 percent (Figure 51). Finally, the complexity of the export basket of Nicaragua does not have a trend toward sophistication, and in fact it is diverging from the complexity of the export basket in its structural peers (Figure 52). In this sense, Nicaragua has space to improve its future growth by reshaping its exports toward goods with higher complexity that typically embody higher value added.

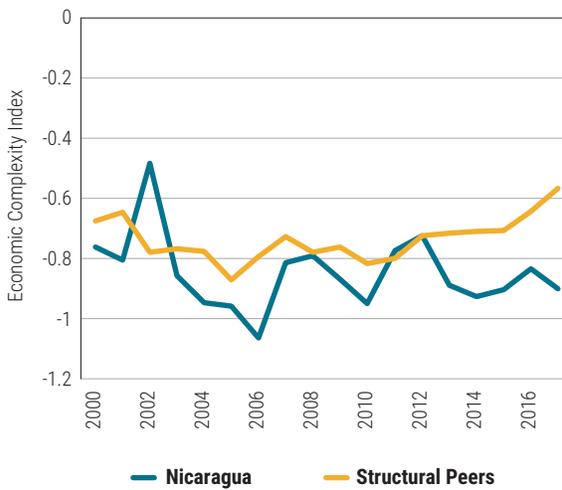
The reliance on the United States as the main destination of exports has increased in the last decade, which makes Nicaragua more vulnerable to shocks in the market. Figure 53 shows that since 1990, the total number of Nicaragua's export destinations has followed an upward trend, similar to the experience of its structural and aspirational peers. However, the share of its exports imported by the United States (Figure 54) increased from an already elevated value of 31.9 percent in 2007 to 58.5 percent in 2017, significantly increasing the concentration of Nicaragua's export destinations. Since most remittances are also coming from the United States, the growing reliance on this market to obtain foreign reserves is creating an important source of external vulnerability.

Figure 51. Technological content of exports, 2017



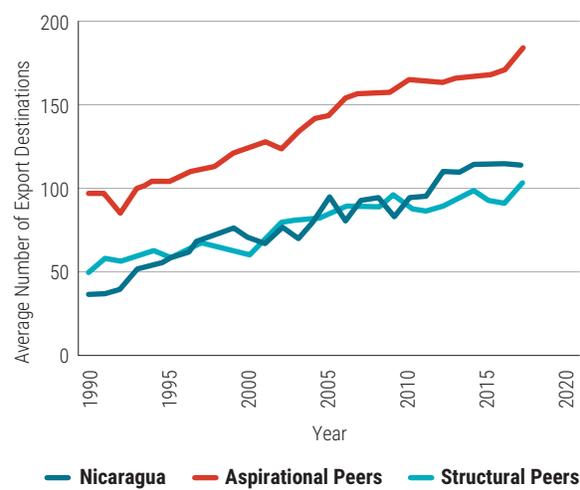
Source: World Bank staff using COMTRADE, SITC2.

Figure 52. Nicaragua's sophistication of exports



Source: World Bank staff using COMTRADE, SITC2.

Figure 53. Average number of export destinations



Source: World Bank staff using Atlas of Economic Complexity.

Figure 54. Nicaragua's main export destinations, 2007-2017



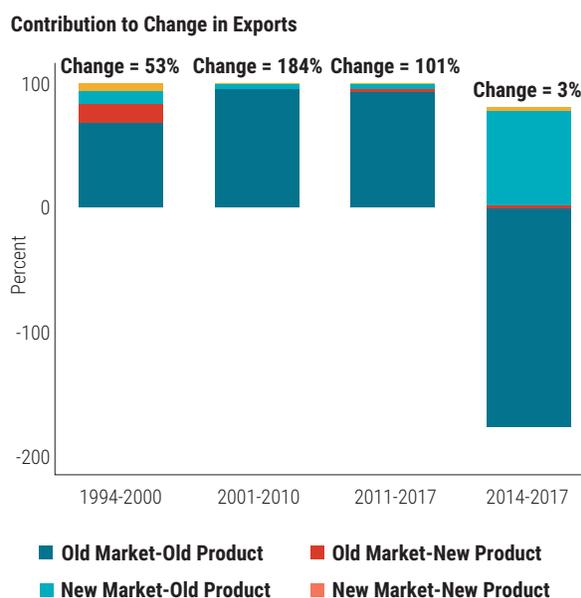
Source: World Bank staff using COMTRADE SITC2 classification.

The limited diversification of destinations affects most of Nicaragua’s export products, as the United States is the main destination for each of Nicaragua’s core exports. Over 60 percent of Nicaragua’s exports of coffee in 2017 were shipped to the United States, as well as 90 percent of gold manufactured products, 40 percent of the meat of bovine, and over 80 percent of other undergarments. Although not primarily to the United States, Nicaragua’s exports of insulated, electrical wire, cable, and bars were also exported to only a few destinations, with about 70 percent shipped to Mexico and over 20 percent to the United States.

Export growth in the period 1994–2014 was largely driven by exports of old products to old markets. Figure 55 portrays the decomposition of export growth since 1994. As is standard in the literature, export growth can be decomposed into the intensive margin of trade, which refers to the exports of “old products to old markets,” and the extensive margin of trade, which refers to exports of “old products to new markets,” “new products to old markets,” or “new products to new markets.”¹⁰³ Of the 53 percent increase in the volume of exports during the period 1994–2000, the intensive margin of trade (selling old products to old markets) accounted for two-thirds of export growth, while exports of old products to new markets and new products to old markets together accounted for almost one-third. New products to new markets made a small contribution throughout this period.

Exports of new products to old markets began to play a significant role in 2014. In 2003, Nicaragua, neighboring countries, and the United States signed the CAFTA-DR free trade agreement, which was ratified in 2005. This enabled exports to experience a remarkable increase of 184 percent, which again was mainly driven by the intensive margin of trade. For the period 2011–2017, the performance of exports showed a different behavior: While in previous years, the intensive margin contributed positively to the growth of exports, in this period it created a series of ups and downs, with an initial positive role but ending with a negative contribution between 2014 and 2017, which was in part offset by the increase in exports of old products to new markets (Figure 55).

Figure 55. Nicaragua’s export growth decomposition



Source: World Bank staff using COMTRADE SITC2 classification.

6.3. What are the paths for diversification?

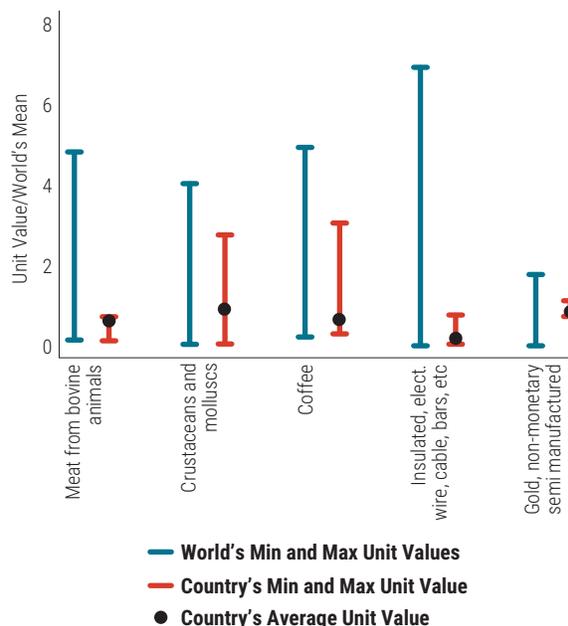
Diversification strategies can take many forms, from adding value to existing exports to developing new products and services. This section uses several standard trade analytical measures like revealed comparative advantage, export quality, and product space analysis to indicate paths for diversification.

6.3.1. Export quality upgrading

Building on comparative advantages, quality upgrading can boost productivity and support an export-oriented strategy.¹⁰⁴ A common finding in the literature is that developed countries tend to export and consume higher quality products than developing countries. Consequently, the ability of developing countries to transition from low-quality to high-quality products is seen as an important step toward export success and, ultimately, economic development.¹⁰⁵ However, there is substantial heterogeneity in the scope for product differentiation, given that some products are characterized by a larger “quality ladder” than others.¹⁰⁶ In general, the evidence suggests that the potential for quality upgrading is larger in manufacturing than in agriculture, but there are opportunities in the latter. Two products with a “long ladder” are wine and champagne, which have been used extensively in the trade literature, given the existence of objective measures of quality.¹⁰⁷

Nicaragua has untapped opportunities to increase the quality of products in which the country already has comparative advantages.¹⁰⁸ The trade literature has relied on unit value price distribution to proxy quality ladders. Figure 56 shows the worldwide maximum and minimum price (normalized to the average price) for the main merchandise exported by Nicaragua (blue line), together with the minimum, maximum, and average price charged by Nicaragua across all destinations (red line).¹⁰⁹ As discussed, the scope for quality differentiation (blue line) varies across products. In the case of Nicaragua, insulated, electrical, wire, cable, and bars, and meat of bovine animals present the best opportunities for upgrading, followed by coffee, crustaceans and mollusks, and gold, non-monetary, semi-manufactured. The products that are close to the “price frontier” are coffee and crustaceans and mollusks. These products still have some room for potential gains from increasing quality. Finally, the prices charged by Nicaragua (red line) for other products are close to the worldwide minimum, indicating that there are opportunities to increase the quality of production.

Figure 56. Quality upgrading opportunities for Nicaragua



Source: World Bank staff using data from CEPIL. HS96 6-digit products.¹²⁸

Quality upgrading entails strengthening safety and quality regulations and acquiring knowledge about existing differences and evolving trends in the types of products rich countries demand. The inability to comply with international quality standards has been identified as one of the main constraints to achieving quality upgrading.¹¹⁰ Strengthening safety and quality regulations to move toward international standards could be a first step to improving quality. The literature has found that quality upgrading is associated with the adoption of a new set of business practices more oriented to export markets.¹¹¹ These practices are radically different from those typically used in the domestic market and involve adapting products to foreign demand. The practices also require upgrading production processes and complying with the strict requirements of foreign distributors, with whom long-term relationships should be established to secure up-to-date information about foreign markets.

Improving the institutional framework is key to upgrade the quality of products in the country. Theoretical and empirical evidence suggest that the production of higher-quality varieties of a good typically requires the use of higher-quality inputs, which demand more customization and relationship-specific investments. Accordingly, countries with a more developed institutional framework, including governance, rule of law, property rights, and a strong contracting environment tend to have a comparative advantage in the production of high-quality products.¹¹² Given that most of the development constraints in Nicaragua are in part attributable to the poor quality of institutions and weak governance, improvements in these areas could open up opportunities for quality differentiation.

6.4. New export opportunities based on current capabilities

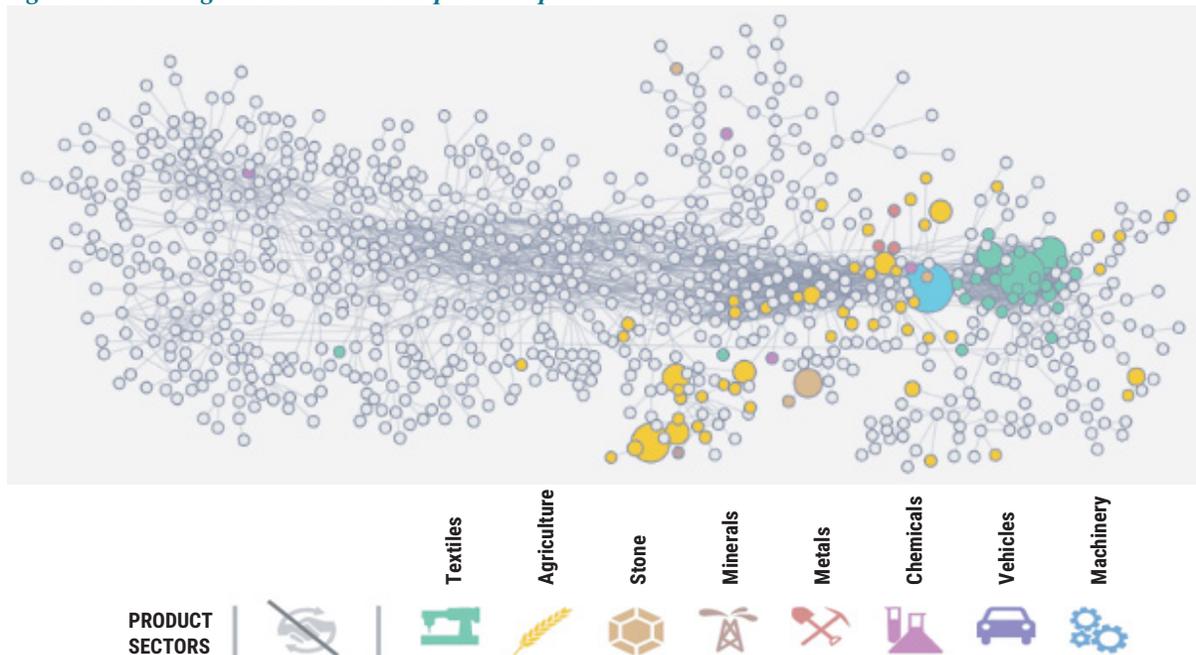
Recent research has shown that the process of economic diversification does not occur at random, rather there is path dependence. Changes in the revealed comparative advantage of nations are governed by the pattern of relatedness of products. In general, when countries diversify their export bundles, there is a propensity to move from products they are producing to products that are close, in terms of production knowledge and capabilities. Empirically, similarity is measured as the likelihood that a pair of products is co-exported. If two goods require roughly the same knowledge and capabilities, this should show up in a higher probability of a

country having a comparative advantage in both products.¹¹³ Intuitively, if countries that tend to export wheat also export corn, then a country that starts exporting wheat should be able to diversify toward corn, given that the knowledge to produce them is similar. To graphically represent the connection of similarity across products (a network), the literature developed what is called the product space: two products are connected by links based on their probability of being co-exported by countries.¹¹⁴

Products in the same product space differ in complexity and in the opportunities they bring to diversify in the future. Figure 57 shows this network structure for Nicaragua. The color of each node/product corresponds to a community, which is defined as a set of products that tend to be connected to each other more frequently because they tend to require the same set of knowledge and capabilities to be produced.¹¹⁵ Products and their communities differ not only in complexity, but also in how connected they are: the higher the connectivity of a product, the higher the opportunities to diversify to other products. Based on this, the Country's Opportunity Gain (COG) is defined as the value of diversifying to a product that allows a country's export basket to improve connectivity.

Nicaragua has started production in the larger, more complex, and more connected communities. The country has a significant presence in many products at the center of the product space, such as agricultural products (cheese and ice cream) and textiles (t-shirt knits). However, key export products such as sugar and gold are still close to the periphery of the product space and have low opportunity gains. As is evident from the product space, Nicaragua only has strong footing in agriculture and textiles, and products in other communities are almost nonexistent, leaving little room for diversification. Yet Nicaragua has made limited inroads into the larger, more complex, and more connected communities such as electronics (insulated electrical wire), which could open doors to diversifying the productive capacity of the country.

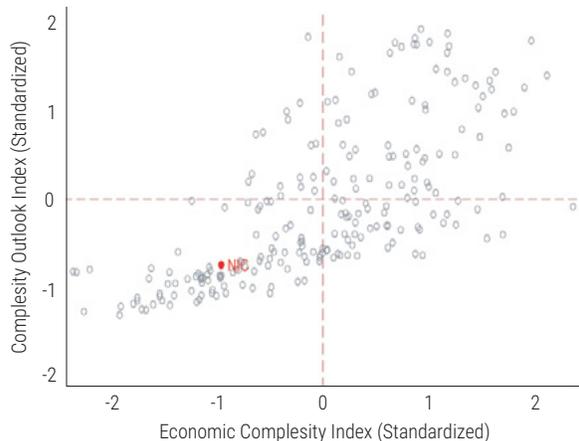
Figure 57. Nicaragua's location in the product space



Source: World Bank staff using Atlas of Economic Complexity.

Countries can follow different approaches to diversify their economic structure, depending on their complexity and connectivity needs. Figure 58 maps each country in the space of the Economic Complexity Index (ECI) and Complexity Outlook Index (COI).¹¹⁶ Countries with low complexity typically have many products that are not at the core of the network and as a result do not have good connectivity. For these countries, the optimal approach is to diversify into products that provide more opportunities for future diversification. Countries with low complexity but that are well connected to more complex products might emphasize proximity of products. Countries with high complexity and good connectivity are in the best position to continue raising the

Figure 58. Nicaragua's position in the Complexity-COI space



Source: World Bank staff using Atlas of Economic Complexity.

average complexity and connectivity without much effort. Finally, countries with good complexity but lacking connectivity should weigh equally proximity of the products to diversify and opportunity. Based on these considerations, a diversification strategy for Nicaragua should take into account the trade-offs between distance, complexity, and opportunity value. To do this, two approaches are suggested: feasible diversification and complex diversification.

The feasible diversification strategy emphasizes feasibility rather than opportunities for further diversification. According to this strategy, a country should expand the set of goods it produces by focusing on products that have a higher level of sophistication, and for which the expertise required to produce them is closest to the country's present set of knowledge and production capabilities. This strategy

stresses labor-intensive industries that will immediately create jobs. Specifically, the feasible index gives more weight to products that are close to the export basket of the country and gives less weight to the opportunity gain. This index weights closeness by 0.6, while the Product Complexity Index (PCI) and COG have a weight of 0.2 each.¹¹⁷ The government's role is to provide incentives for attracting private investment, generate new production capabilities, and provide crucial public goods, such as infrastructure.

Of the 50 most feasible products for diversification, about half belong to foodstuffs, textiles, and footwear, but the products belonging to foodstuffs score higher, on average, on the feasible diversification index. Table 2 shows the distribution across sectors of the top 50 four-digit harmonized system (HS) products according to the feasible transformation index (see Appendix VII for details), as well as the mean of the index for these products by sector. In terms of the number of products, foodstuffs, with 13, presents the highest number of diversification opportunities, followed by textiles and footwear with 12 products, and animal and vegetable products with 7. However, according to the mean value of the index, foodstuffs seems to offer the most feasible diversification opportunities, followed by wood.

Combining the information on the number of top 50 products in each sector, and their average feasibility index value, three sectors are revealed as providing better strategic opportunities: i) foodstuffs, ii) textiles and footwear iii) wood.¹¹⁸ The feasible analysis identified opportunities within the foodstuffs sector in articles for the preparation of vegetables, fruits, nuts or other parts of plants (such as jams, jellies, and marmalades; and pickled fruits and vegetables). Within the textiles and footwear sector, the opportunities exist in parts of articles of footwear, gaiters, and the like (for example, waterproof footwear, leather footwear, and parts of footwear). Finally, in the wood products sector, diversification is more likely in paper and paperboard and art of paper pulp (such as paper labels, cardboard packing containers, notebooks, and toilet paper). These products are closely related to the country's current comparative advantages.

The complex diversification strategy emphasizes the development of more complex products that provide greater opportunities for further diversification (larger strategic value). The products identified by this strategy may require production capabilities that are not close to those in the country. This index weights COG by 0.6, while PCI and closeness have a weight of 0.2 each. The sectors identified in this strategy are important to boost economic growth, improve the diversification outlook, and create jobs of higher quality.

Among the 50 products with the largest strategic diversification value, close to 80 percent of the products belong to three sectors: machinery, electrical, and transportation; metals, stone, and glass; and chemical and allied industries. Table 3 shows the distribution across sectors of the 50 four-digit HS products scoring higher on the complex diversification index (see Appendix VII for details), as well as the mean of the index

Table 2. Main sectors on the top 50 products for export diversification using the feasible approach

| Sector | Feasible Diversification Index | |
|--------------------------------|--------------------------------|------|
| | Numbers of products | Mean |
| Animal and Vegetable Products | 7 | 0.51 |
| Chemical and Allied Industries | 4 | 0.45 |
| Foodstuffs | 13 | 0.62 |
| Metals, Stone, Glass | 3 | 0.54 |
| Mineral Products | 2 | 0.46 |
| Plastics and Rubbers | 3 | 0.54 |
| Textiles and Footwear | 12 | 0.52 |
| Wood | 6 | 0.59 |

Source: World Bank staff using COMTRADE and Observatory of Economic Complexity.

Table 3. Main sectors of the top 50 products for export diversification using the complex approach

| Sectors | Complex Diversification Index | |
|---------------------------------------|-------------------------------|------|
| | Numbers of products | Mean |
| Chemical and Allied Industries | 10 | 0.87 |
| Machinery, Electrical, Transportation | 19 | 0.95 |
| Metals, Stone, Glass | 11 | 0.87 |
| Miscellaneous | 6 | 0.93 |
| Plastics and Rubbers | 3 | 0.90 |
| Textiles and Footwear | 1 | 0.74 |

Source: World Bank staff using COMTRADE and Observatory of Economic Complexity.

in each sector.¹¹⁹ In terms of the number of products, the machinery, electrical, transportation sector, with 19, presents the highest number of complex diversification opportunities, followed by metals, stone, glass, with 11 products, and chemical and allied industries, with 10. Based on the mean value of the index in a given sector, the machinery, electrical, and transportation sector seems to also offer the diversification opportunities with the largest strategic value.

Combining the information on the number of top-50 products in each sector under the complex approach and their average strategic value, three sectors are identified as the ones providing the best opportunities:¹²⁰ i) machinery, electrical, transportation; ii) miscellaneous; and iii) metals, stone, glass. The complexity analysis identified opportunities within machinery, electrical, transportation mainly in the subsector “boilers, machinery and mechanics appliances” (such as machines not elsewhere classified, calendaring or other rolling machines, other than for metals or glass, lathes for removing metals). Within miscellaneous, the opportunities are placed in the subsector “optical, photo, cine, checking, precision equipment” (such as X-ray machines, machines for testing the mechanical properties of materials, measuring instruments, etc.). Finally, in metal, stone, glass industries, diversification is more likely in the subsectors “iron and steel,” and “tool, implement, cutlery, spoon and fork of base metal articles” (such as bars of stainless steel, articles for utensils, of cermet).

Combining the two approaches, three sectors provide a good balance between feasibility and strategic opportunities for diversification: i) foodstuffs; ii) metals, stone, glass; and iii) machinery, electrical, transportation. Although not all the sectors offering higher feasible diversification opportunities present good strategic diversification opportunities, by combining the results of two approaches, these sectors provide the best overall diversification opportunities. The foodstuffs sector provides the best feasible diversification opportunities and the machinery, electrical, transportation sector offers the best complex diversification opportunities. Finally, the metals, stone, glass sector provides a valuable opportunity, as it is one of the top five sectors in the feasible diversification approach, while also providing one of the best complex diversification opportunities (in the top three).

The capabilities to achieve some of these products within the feasible and complex approaches require government involvement to build capacity and incubate new industries. To venture into the production of some of these products, it is not enough to just provide more education or improve infrastructure. The process of diversification requires the emergence of industries that in most cases are not currently available. In fact, these industries may require inputs or know-how that is not currently within the country. Given that some of

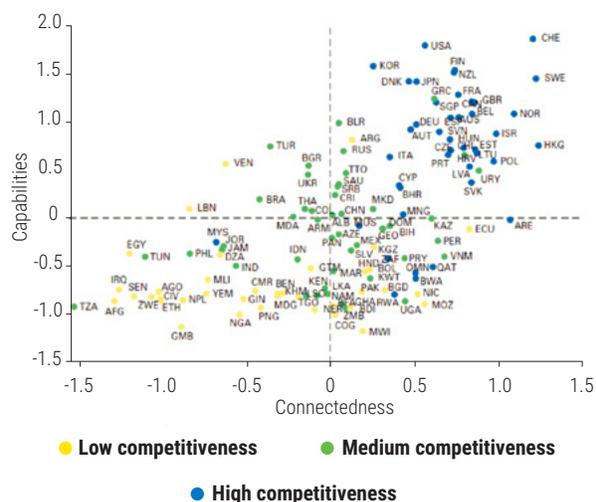
the industries do not exist in the country, there is little incentive for workers to acquire the necessary skills to operate in these industries. The government could ease this problem by providing incentives to the private sector and creating an enabling environment to nurture the new sectors.

For products close to current capabilities, sectoral dialogue could be a solution, but for products far from current capabilities there must be a new and specialized approach. In particular, dialogue could lead to the identification of the necessary missing public goods and ways to provide them. However, for products far from existing capabilities, specialized institutions such as a public venture could be set up to fund new business models and initiatives that could trigger significant future entries into the market. The fund would give the government access to those ideas, analyze the obstacles they face, and inform public policy, so that the requisite public inputs could be provided if deemed reasonable.¹²¹ Some successful examples of these type of institutions are the *Fundación Chile* and the *Industrial Development Corporation in South Africa*.

To take full advantage of the new technologies and changing globalization patterns and to mitigate some of the costs associated with export-led manufacturing strategies, countries need to embrace three areas: competitiveness, capabilities, and connectedness. *Competitiveness* addresses the shift from low wages as the main incentive to produce in developing countries to broader considerations of the business environment in determining low unit labor costs. *Capabilities* addresses the need for workers and firms to strengthen their ability to adopt and use new technologies. In addition, it requires the necessary infrastructure and regulations to support the spread of new technologies. Finally, *connectedness* relates to the importance of access to inputs and the output market. Key elements to progress in this area are improvements in logistics, reductions in tariffs and nontariff barriers, and the reduction of restrictions in services, particularly trade restrictions.¹²²

Nicaragua needs to strengthen its capabilities and competitiveness. Countries can be mapped in each of the three areas to identify where they need to improve. Figure 59 illustrates such mapping. Competitiveness is constructed by combining different indicators such as ease of doing business and the rule of law. Capabilities to support technology diffusion and innovation combine dimensions such as ICT use and tertiary school enrollment. Finally, connectedness to markets combines dimensions such as logistics performance, restrictions on trade in manufactured goods, and restrictions on trade in professional services. Based on these measures, Nicaragua is considered to have low levels of capabilities to adopt new technologies and low competitiveness. Consequently, improving in these areas could have large payoffs. Tackling the constraints identified in section 4 could have significant returns in strengthening the competitiveness of the country.

Figure 59. Country distribution in the space of competitiveness, capabilities, and connectedness



Source: Hallward-Driemeier and Nayyar (2017).

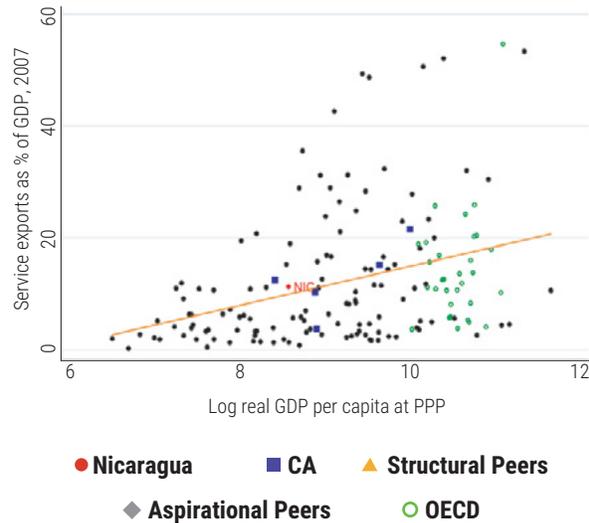
6.5. Services provide opportunities to boost trade and domestic linkage

Exports of services have become an area of great potential for job creation and growth in developing countries. Two characteristics that made manufacturing the preferred sector for growth in the past were the possibility to face competitive pressures that would force firms to improve efficiency to survive and the possibility of expanding demand by exporting to global markets. Today, the old view of services being non-tradable, with low scale and low productivity, is being challenged by the disruption of ICT. The evolution of the internet, digitalization, and electronic storage are allowing a rapid increase in cross-border trade in services, which is an opportunity for developing countries to sustain services-led growth. The increasing prevalence of

productivity-enhancing characteristics in services, including in LMI countries, expands the range of activities that will likely have positive spillovers for development.¹²³

Nicaragua's exports of services are in line with what it is expected, opening the door for improvements and growth. The performance of service exports as a share of GDP are in line with the expected level, given Nicaragua's per capita income level (Figure 60). In a regional context, Nicaragua does better than Guatemala and Honduras in terms of service exports, but it is far from Panama and Costa Rica, the stars of the neighborhood. Ghani and Kharas (2010) show that there is a linear positive relationship between the growth of services and the growth of GDP, indicating that there is a correlation between high growth in services and high growth in GDP. Figure 60 confirms this correlation: While aspirational peers and OECD countries have exports of services as a large share of GDP, low-income countries minimally participate in trade in services.

Figure 60. Exports of services as a share of GDP



Source: World Bank staff using WDI.

Modern services are consistently gaining as a share of total exports worldwide, and therefore they are becoming a potential source of quality job creation. Developed countries tend to export more complex services, often called “modern or nontraditional services.”¹²⁴ Among these services, economists typically include ICT, financial and insurance services, and health and other business services, which are mostly professional services (consulting, architecture, and so on). A feature of these services is that in general they involve more high-skilled labor, and this implies that they are important to generate high-wage jobs that allow the absorption of highly-skilled workers. After studying trade in services, Loungani et al. (2017) find that modern services are growing worldwide and present a relevant opportunity for many countries, since they do not require proximity between buyers and supplier. This reduction in trade costs opens the door for developing countries to participate in global markets, since the reallocation of services worldwide is each day more of a possibility. However, regulatory barriers continue to slow down trade in these services.¹²⁵

In Nicaragua, the share of modern services as a percentage of service exports has remained stable between 2010 and 2018. At 16 percent of total service exports, modern services have failed to take off. In addition, this figure covers two very different sub-periods: between 2010 and 2017, modern services declined from 15.7 percent of service exports to 12 percent. In 2018, these exports managed to recover the lost ground when exports of modern services climbed to 16.3 percent of service exports.

Tourism is one of the fastest-rising sources of growth for total services. The tourism (travel) industry has made important progress as a genuine source of exports, increasing the value of exports, the share of services in total exports, and its comparative advantage, which implies that the sector is growing faster as a share of exports than elsewhere in the world.¹²⁶ Travel exports grew from US\$ 314 million in 2010 to US\$ 544 million in 2018—a 70 percent increase. Tourism is an important sector to support, given its potential to create jobs for low-skilled workers in related activities such as hotels, restaurants, and entertainment. The country is blessed with natural beauty and an abundance of natural attractions, such as Cristobal Volcano. On the flip side, these types of sectors are less likely to provide much by way of productivity gains.

In addition to tourism, ICT is a sector that deserves more support to create more and better jobs. In the same 2010–2018 time period, ICT grew close to 60 percent and maintained its comparative advantage. However, ICT participation decreased from 14.2 percent of services exports in 2010 to 13.6 percent in 2018, as a result of the lower pace of growth relative to total service exports. Strengthening the ICT sector not only is important

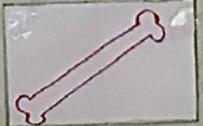
as a source of growth, but also because it is a key input for trade integration, private sector development, and public service delivery.

Better institutions and higher levels of education are complementary sources of comparative advantage in the more complex goods and services. The value-added content or complexity of services is not homogenous. For instance, professional services are more complex than hotel services. In general, the production of more complex processes implies a larger number of tasks. An economic environment with a well-defined rule of law is associated with comparative advantages in complex services, and as a result with higher exports of complex services. This is because complex services are dependent on good institutions that enforce contracts: better institutions increase the probability that contracts are enforced, and therefore complex services with multiple tasks have a higher probability of being delivered.¹²⁷ Similarly, complex services require high-skilled workers, and therefore the quality of the pool of workers is a key enabler of services trade.

To exploit the untapped opportunities in tourism, Nicaragua needs to improve the infrastructure, address skill gaps, and build a tourism plan. First, setting up key infrastructure such as more international airports, more agile customs for the entry of tourists, terminals, paved roads, and better telecommunication services are necessary to connect the Nicaragua with the rest of the world, as well as improve travel and communication within the country. Second, the elaboration of a long-term tourism strategy to attract tourists would define clear goals and objectives. To define such a strategy, a close collaboration between the public and private sectors is essential. Finally, to improve the quality of service, it is necessary to increase the number of people that speak English fluently.



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Conclusion

Despite Nicaragua's strong growth performance over the past decade, real GDP per capita remains the second lowest in Latin America. Since the democratic transition in the 1990s, the country has undergone a structural transformation and implemented reforms towards more economic openness. As a result, these reforms led to higher growth, reduced inflation, and lower public debt. Although Nicaragua has experienced a reduction in poverty and inequality, economic gains were not equally distributed among the population and the geographic distribution of poverty remains very uneven. While growth was driven primarily by factor accumulation, TFP lagged, declining on average 1.4 percent between 1981 and 2017, as workers did not reallocate from low-productivity sectors to high-productivity sectors.

To enhance Nicaragua's growth prospects and sustain poverty reduction, this study proposes to reinforce the export-oriented growth model, increase TFP, and strengthen institutions. Increasing TFP by boosting public investment and incentivizing female labor participation is an important step toward unlocking the country's growth potential. It is equally important to implement reforms in innovation, education, market efficiency, infrastructure, and institutions to stimulate TFP. Greater credit to the private sector through increased access to banking and finances and promotion of property rights and rule of law through stronger institutions would help Nicaragua further harness its growth potential. Ensuring an export-oriented growth model would enable the country to increase economic diversification through an upgrade of export quality, diversification of export destinations, and transition towards higher value added in services. These policies would support building greater resilience to external shocks, creation of job opportunities, and reduction in the dependence on remittances.

Nicaragua has the potential to reverse the economic downturn induced by the sociopolitical crisis of 2018 and COVID-19 pandemic, and accelerate economic development going forward. Commitment to prudent reforms and strong political will are essential to secure the necessary reforms to enable an improvement in TFP, strengthen institutions, and diversify the export base. Exploiting Nicaragua's growth potential will support inclusive growth, a reduction in poverty, and reinforcement of the country's capacity to weather shocks, both external and internal.

Endnotes

- 1 The five determinants are innovation, education, market efficiency, infrastructure and institutions that are linked to policy choices. This model is an excel-based tool that could be use by policymakers for more detailed counterfactuals if desired.
- 2 World Development Indicators (WDI).
- 3 Structural peers of Nicaragua are Republic of Congo, El Salvador, Honduras, Kyrgyz Republic, Lao PDR, and Tajikistan and aspirational peers are Chile, Latvia, Lithuania, Panama, and Peru. See Table 1.6 in the Appendix for the methodology used to identify structural and aspirational peers of the country. All figures are computed using the data from WDI 2019. Volatility is measured as the standard deviation of the growth rate of real per capita output.
- 4 WDI; IMF ; BTI (Bertelsmann Stiftung's Transformation Index) (2018). <https://www.bti-project.org/en/reports/country-reports/detail/itc/NIC/>.
- 5 IMF Article (2019).
- 6 IMF (2020); Banco Central de Nicaragua (2018). <http://www.bcn.gob.ni>. The contraction in economic activity in 2018 reduced tax revenues by 6.1 percent compared to 2017, increasing the public sector deficit.
- 7 World Bank (2017). <http://documents.worldbank.org/curated/e/365991498843795990/Nicaragua-Systematic-Country-Diagnostic>.
- 8 World Bank (1993). <http://documents.worldbank.org/curated/en/151021468288356457/Nicaragua-Review-of-social-sector-issues>. programs, and issues in the social sector in Nicaragua. It is IDA's first such study for Nicaragua, and covers the areas of population, poverty, water and sanitation, nutrition, health, and education. While trying to fill in large gaps in basic data over the last ten years, the study focuses primarily on issues now facing the Government of Nicaragua (GON
- 9 World Bank (2017).
- 10 IMF (2017).
- 11 IMF (1999). <https://www.imf.org/en/Publications/CR/Issues/2016/12/30/Nicaragua-Recent-Economic-Developments-and-Statistical-Annex-3271>.
- 12 IMF (2002). <https://www.imf.org/en/Publications/CR/Issues/2016/12/30/Nicaragua-Selected-Issues-and-Statistical-Appendix-16236>.
- 13 WDI (2019).
- 14 World Bank (2017).
- 15 World Bank (1993). programs, and issues in the social sector in Nicaragua. It is IDA's first such study for Nicaragua, and covers the areas of population, poverty, water and sanitation, nutrition, health, and education. While trying to fill in large gaps in basic data over the last ten years, the study focuses primarily on issues now facing the Government of Nicaragua (GON
- 16 Gobierno de Nicaragua (2013).
- 17 IDB (2018); World Bank (2017); BTI (2018); World Bank (2018). D.C.
- 18 INIDE (2014).
- 19 IDB(2018); Narvaez and Rivera (2016).
- 20 WEF (2019).
- 21 UNDP (2011). 2011World Bank (2018).
- 22 BTI (2018).
- 23 WDI.
- 24 IMF (2020).
- 25 Gindling and Trejos (2013).”plainCitation”:”T. H. Gindling and Juan Diego Trejos, ‘The Distribution of Income in Central America’, IZA Discussion Paper No. 7236 (2013
- 26 Gasparini et al. (2011).
- 27 World Bank (2018). more inclusive, and sustained growth as well as better access to quality basic services are at the core of the financial year 2018-2022 Country Partnership Framework (CPF
- 28 UNDP (2011); According to the UNDP, if in 1980, for every two people of working age, there were two dependent people (under 15 years of age and 65 years and over), it is estimated that by 2030 there will be only one dependent for every two people. This transition is known as the demographic bonus and brings with it a series of unique and unrepeatable opportunities for the country.
- 29 The current account deficit has decreased from -42.89 percent of GDP in 1992 to 0.63 percent in 2018 (WEO 2019).
- 30 Banco Central de Nicaragua (2012); World Bank (2017); IMF (2017).
- 31 Banco Central de Nicaragua (2018).
- 32 Banco Central de Nicaragua (2018); IMF (2020).
- 33 Banco Central de Nicaragua (2018).
- 34 World Bank (2017).
- 35 See Appendix I for a discussion on the concept of productivity and how it is measured.
- 36 See Solow (1958).
- 37 This largely reflects our calculation of TFP as a residual (in line with standard growth accounting methodologies) such that the recent period of growth slowdown and recession appears caused by a negative contribution of productivity, when in fact it was driven by other unobserved factors that are bundled into the TFP residual, such as an increase in spare capacity and inventories.
- 38 See Appendix II for a discussion of different measures of productivity commonly used in the literature.
- 39 Here, it is assumed that the public capital stock generates social benefits in the future. In this sense, investment with low social returns shouldn't be considered. To see more details of the model, see Appendix III.
- 40 The Long Term Growth Model (LTGM) is an Excel-based tool building on the celebrated Solow-Swan growth model, but adapted to include growth and poverty reduction drivers. See Appendix III for more details on the model and the methodology to perform the simulations. All the quantitative results presented in this section are pre-Covid estimates on long-term output.

- 41 Estimates are based on simulations using the dynamic GTAP model (GDyn) – a multi-sector, multi-region, multi-factor CGE model. The model is ideal for measuring the impact of labor market policies as it takes into consideration general equilibrium linkages such as interactions between consumers, producers, and governments; inter- and intra-industry links; interactions between domestic and foreign markets; and resource constraints. Results capture the long-run impacts of policy changes as results are reported relative to a baseline scenario by 2030.
- 42 It is implicitly assumed that women entering the labor force had no previous economic value added. Taking care of children or their employment in informal activities is only captured to the extent that these are in the official labor force statistics. Wages for women are assumed to be the same as those of men.
- 43 See for example endogenous growth theories of Romer (1990), Aghion and Howitt (1998).
- 44 Indicators used to conduct the indexes for each of these areas are listed Appendix III and the data used to compute these indicators are available upon request.
- 45 Kim, Loayza, and Meza-Cuadra (2016); Kim and Loayza (2019).
- 46 See Appendix III for information on the calibration of the baseline.
- 47 Buera and Shin (2013).
- 48 Structural transformation typically holds for developed and developing countries. See the flagship “Economic transformation and Future of Work in LAC” 2019. Also, see Kutznets (1973) and Herrendorf, Rogerson, and Valentinyi (2014).
- 49 Rodrik (2013).
- 50 See Buera and Kaboski (2009). Obstacles to migration reduce labor flows from the agricultural to services and industry (see Restuccia et al 2008).
- 51 Unfortunately, the data required to perform the exercise is only available until 2012.
- 52 See Duarte and Restuccia (2010, 2018 and 2019) and Herrendorf, Rogerson, and Valentinyi (2014).
- 53 For between sectors see Hsieh and Klenow (2009) and Busso and Madrigal (2013), among others. For references on within sector, see Rodrik and Mc Millan (2011).
- 54 See Appendix I for full list of indicators and for the methodology used to determine the structural and aspirational peers of the country.
- 55 WDI.
- 56 Enterprise Surveys, World Bank. Data for Nicaragua is from 2016; data for Guatemala, El Salvador, and Honduras is from 2016–2017.
- 57 The results are obtained from the fixed effects regression analysis of GDP per capita (log) with respect to bank access indicators and their interaction terms with country dummies as well as a set of control variables including investment, labor, human capital, and year dummies. The analysis also controls for heteroskedasticity and cross-correlation across countries. The coefficient reported in the text is obtained from the partial derivation of GDP per capita regression equation with respect to bank access indicator for Nicaragua. Results are not reported here for the interest of space but are available upon request.
- 58 Vargas et al. (2013).
- 59 Medina and Schneider (2018) and Enterprise Surveys of World Bank Group in Central America during 2016–2017 and in other LAC countries in different years. See Enterprise Surveys web page for further details on global data.
- 60 IMF (2020).
- 61 IMF (2017); IMF (2020).
- 62 IDB (2018).
- 63 Fixed effects regression results are not reported here but available upon request.
- 64 IMF (2020).
- 65 Beck, Demirgüç-Kunt, and Maksimovic (2005); Ayyagari, Demirgüç-Kunt, and Maksimovic (2011); King and Levine (1993).
- 66 World Bank (2018). <https://doi.org/10.1596/29601>.
- 67 After the end of the Sandinista regime in 1990 that nationalized the banking system, ten private banks were created with Nicaraguan capital. By 1999, private banks concentrated more than 90 percent of total deposits, with a relatively balanced distribution of assets and liabilities. However, in 2000, the Nicaraguan financial system faced a series of bank failures that threatened the country’s financial stability. The crisis started abruptly, with the intervention of the Intercontinental Bank (Interbank), the largest bank in the country, by the Superintendencia de Bancos. At that time, it had 14 percent of the total system’s assets. The intervention eroded public confidence in the stability of the banking system; between June and December 2000, there was an outflow of 8.2 percent of deposits, shrinking deposits from US\$ 1,539 to US\$ 1,414 million. Other banks in the system were affected by these deposit withdrawals; the loss of credibility, as well as irregularities in the bank portfolios, led to the bankruptcy of four other banks (CEPAL 2008).
- 68 Banco Central de Nicaragua (2018). <http://www.bcn.gob.ni>.
- 69 IMF (2020).
- 70 The Global Innovation Index ranks from 0 to 100—higher values indicate better results in innovation. It captures elements of the national economy that enable innovative activities such as institutions, human capital and research, infrastructure, market sophistication, and business sophistication. Two output pillars capture actual evidence of innovation outputs, which are knowledge and technology outputs and creative outputs. See Cornell University, INSEAD, and WIPO, “Global Innovation Index 2019”, 2019, <https://www.globalinnovationindex.org/gii-2019-report#>.
- 71 World Bank Open Data (2020).
- 72 Fixed effects regression results are not reported here but available upon request.
- 73 Narvaez and Rivera (2016).
- 74 Busso et al. (2013) <https://doi.org/10.1515/bejm-2012-0087>.
- 75 Heritage Foundation Freedom in the World Report (2019).
- 76 The property rights index measures the degree to which a country’s laws protect private property rights and the degree to which its government enforces those laws. It also assesses the likelihood that private property will be expropriated and analyzes the independence of the judiciary, the existence of corruption within the judiciary, and the ability of individuals and businesses to enforce contracts. From 0 to 100, higher index values denote more certain legal protection of property (The Heritage Foundation, 2020).
- 77 Freedom House (2017) <https://www.ecoi.net/en/document/1401714.html>.
- 78 World Bank (2018).
- 79 Investment Climate Statements 2019, Nicaragua, Bureau of Economic and Business Affairs, United States: <https://www.state.gov/reports/2019-investment-climate-statements/>.
- 80 Doing Business 2020, World Bank Group.
- 81 Krylova (2016) and Norris (2012)2012.
- 82 World Bank (2017). <http://documents.worldbank.org/curated/en/365991498843795990/Nicaragua-Systematic-Country-Diagnostic>.

- 83 The results are from the fixed effects regression analysis of real GDP growth with respect to expropriation risk and other key determinants of growth such as GDP per capita, investment, human capital and labor as well as year dummies using 703 data points for 149 cover 2014-2018. Results are not reported here but available upon request.
- 84 The results are obtained from the fixed effects regression of real GDP per capita (log) on each indicators of property rights index and their interaction terms with country dummies, after controlling for investment and labor rate, human capital index and time trend. Average numbers of observations used in the regressions range from 708 to 2955 observations covering 149 to 166 countries over 2000–18.
- 85 Besley and Ghatak (2010) https://econpapers.repec.org/bookchap/eedevchp/v_3a5_3ay_3a2010_3ai_3ac_3ap_3a4525-4595.htm.
- 86 Krylova (2016).
- 87 BTI (2018). <https://www.bti-project.org/en/reports/country-reports/detail/itc/NIC/>.
- 88 Krylova (2016).
- 89 The results are obtained from the fixed effects regression of real GDP per capita (log) on freedom from corruption index and its interaction term with country dummies, after controlling for investment and labor rate, human capital index and time trend. Average numbers of observations used in the regressions range from 2790 observations covering 161 countries over 2000–18.
- 90 Murphy et al. (1991); Shleifer and Vishny (1993); Rose-Ackerman (1997); Amin and Ulku (2019).
- 91 BTI (2018).
- 92 https://www.theglobaleconomy.com/Nicaragua/political_rights/
- 93 Rocha, Cloke, and Browne (2007).
- 94 World Justice Project (2019) <https://worldjusticeproject.org/news/wjp-rule-law-index-2019-now-available-spanish>.
- 95 The results are obtained from the fixed effects regression of real GDP per capita (log) on governance indicators and their interaction term with country dummies, after controlling for investment and labor rate, human capital index and time trend. Average numbers of observations used in the regressions range from 724 to 2790 observations covering 157-161 countries over 2000–18.
- 96 OECD (2019), <https://www.oecd.org/publications/latin-american-economic-outlook-2025140.htm>; World Bank (2018).living standards improved, and poverty and inequality declined. Yet, large structural vulnerabilities remain and new ones have emerged. Many of these are linked to countries' transition to higher income and development levels. The Latin American Economic Outlook 2019: Development in Transition (LEO 2019)
- 97 See Licetti et al. (2018).
- 98 OECD/WTO (2019).
- 99 Which can limit a country's ability to defend itself against economic fluctuations.
- 100 OECD/WTO (2019).
- 101 Diversity measures the number of products a country effectively exports. By “effectively” we mean the number of products for which the country has revealed a comparative advantage as measured by the Balassa index (Balassa 1965). Ubiquity refers to the number of countries that effectively export a product. Behind this measure lies the assumption that countries only export those products for which they have the required knowledge. See Appendix VII for a formal definition of these concepts.
- 102 See Lall (2000) and Hausmann, Hidalgo et al. (2011).
- 103 Old products are defined as those exported at least twice in the previous five years from the beginning of the period. Similarly, old markets are comprised of all partners to which the home country exported in at least two out of the last five years, starting from the beginning of the period. Therefore, the products and markets classified as old vary depending on the period analyzed. For example, old products in the period 2001–2005 are those exported at least twice in the years 1997–2001. In the period 2006–2010, the corresponding old products are those exported at least twice in the years from 2002 to 2006, and so on.
- 104 See Henn et al. (2017).
- 105 See Khandelwal (2010).
- 106 The difference between the maximum and minimum quality of a given product is called “length of the quality ladder. See Khandelwal (2010).
- 107 See Crozet et al. (2012).
- 108 As it is standard in a large part of the literature, we will proxy quality with unit values. See Schott (2004), Hummels and Klenow (2005), Khandelwal (2010).
- 109 Here we are using a weighted average, where the weights are given by the export value for a given unit price relative to the value of exports of a HS96 product.
- 110 OECD/WTO (2019).
- 111 Artopoulos, et al. (2013).
- 112 See Levchenko (2007), Hallak and Schott (2010), and Essaji and Fujiwara (2012).
- 113 See Hausmann and Klinger (2007).
- 114 Technically, the product space is a network that formalizes the idea of relatedness between products traded in the global economy.
- 115 Notice that this concept is different from the idea of input-output linkages. Here two products could be integrated in a value chain but be part of two different communities, given that the stock of knowledge and capabilities to produce them are different.
- 116 The COI is a measure of how many complex products are near a country's current set of capabilities. It captures the ease of diversification for a country, where a high COI reflects an abundance of nearby complex products with similar capabilities to the ones the country is using.
- 117 For more details on the construction of these indexes, please refer to Appendix VII.
- 118 These sectors were selected based on an index that combines the number of products and mean value of the feasible index (normalized series). More details on the construction of these indexes, please refer to Appendix VII.
- 119 Please see www.worldbank.org/BoostCentralAmerica for the appendix.
- 120 These sectors were selected based on an index that combines the number of products and mean value of the complexity index (normalized series). For more details on the construction of these indexes, please refer to Appendix VII.
- 121 Lopez-Cálix et al (2010).
- 122 Hallward-Driemeir and Nayyar (2017).
- 123 See Ghani and Kharas (2010).
- 124 See Anand et al. (2012) and Duarte and Restuccia (2019).
- 125 See Hallward-Driemeir and Nayyar (2017).
- 126 Competitiveness is measured using the revealed comparative advantage (RCA) index developed by Balassa in 1965. Country A has revealed comparative advantage in a given product i when its ratio of exports of product i to its total exports of all goods (products) exceeds the same ratio for the world as a whole.
- 127 Costinot (2009).
- 128 Note: To reduce the influence of measurement error and outliers, we “winsorized” the unit prices for each HS6 product by keeping the values between the 3rd and 97th percentile.

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