

Grenada: Fiscal System and its Incidence on Poverty and Equity*

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Abstract

This paper analyzes the distributional effects of fiscal policy in Grenada prior to the COVID-19 pandemic. Based on the 2017–2018 Living Conditions and Household Budgets Survey and following the Commitment to Equity (CEQ) analysis framework, we estimate changes in inequality and poverty related to fiscal policy interventions. Specifically, we analyze the distributional incidence of direct and indirect taxes, direct transfers provided by SEED and the school feeding program, and in-kind transfers generated by public services in health and education. The results show that Grenada has a tax system that is neutral on the VAT side and progressive on the personal income tax side. Likewise, direct transfers make a modest contribution to poverty reduction and are almost neutral in their distributive impact. Our analysis is complemented with a useful simulation tool that can be used by the Grenadian authorities to analyze possible changes in the tax structure and design social programs with greater effectiveness and efficiency.

Keywords: fiscal incidence, poverty, inequality, taxes, social transfers, public expenditure, public revenue.

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Content

1. Introduction.....	4
2. Growth, Poverty, and Inequality	6
3. Fiscal System in Grenada.....	9
4. Methodology	16
4.1 CEQ framework.....	16
4.2 Estimation of income aggregates in Grenada.....	17
4.4 Components of the fiscal incidence analysis	19
5. Main Results	20
5.1 How does the fiscal system affect poverty?	20
5.2 How does the fiscal system affect inequality?	21
5.3 Who pays the taxes, and who receives the transfers?	22
5.4 How progressive are the fiscal interventions?	26
5.5 How progressive or regressive are interventions and overall fiscal policy? ...	27
5.6 What is the marginal contribution to the redistributive effect of fiscal interventions?	29
6. Conclusions and Regional Comparisons.....	30
References.....	33

Figures

Figure 1: GDP Growth (% annual).....	6
Figure 2: GDP per Capita, 2019 (constant 2017 US\$).....	6
Figure 3: Unemployment Rate and Informality (%)	7
Figure 4: Poverty and Inequality Measures.....	8
Figure 5: Fiscal Balances	9
Figure 6 Revenue and Grants Collection	10
Figure 7 Tax Revenue by Tax Type	10
Figure 8: Expenditure by Type	12
Figure 9: Budgeted Expenditure (excluding Debt Service).....	13
Figure 10: Health and Education Budgeted Expenditures	14
Figure 11: CEQ Income Concepts	18
Figure 12: Average Amount Paid in Direct and Indirect Tax by Deciles of Market Income	23
Figure 13: Direct Transfers Incidence by Market Income Decile (in EC\$)	23
Figure 14: Net Payers (Direct Transfers and Direct and Indirect Taxes) by	24
Figure 15: Transfers in Health Care Received by Households by Market Income Decile	25
Figure 16: School Attendance and Transfers Received by Households	25
Figure 17: In-kind (Health and Education) Transfers Received by Households	26
Figure 18: Concentration index by fiscal intervention	27
Figure 19 Marginal Contribution to Redistributive Effect by Fiscal Intervention	30

Tables

Table 1: Poverty and Inequality Trends.....	9
Table 2: Poverty measures according to CEQ-income definitions	21
Table 3: Inequality measurements according to CEQ-income definitions.....	22
Table 4: Concentration index and progressivity of fiscal intervention	29
Table 5: Gini coefficients for CEQ income definitions for selected countries.....	32
Table 6: Central Government Fiscal Balance , 2014–2018 (in EC\$, millions).....	34
Table 7: Estimate of Value Added Tax (in EC\$, millions)	35
Table 8: Adult Equivalence Scales (ae)	37

Box

Box 1. Progressivity Criteria for Taxes and Transfers in the CEQ Handbook	28
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1. Introduction

Grenada is a small island developing state (SIDS) with a projected population around 113,000. It is among the countries most dependent on tourism, with tourists contributing 43.6 percent of GDP and 44.4 percent of employment directly and indirectly. This high dependence results in the country's elevated susceptibility to downturns in developed economies. Meanwhile, according to the Global Climate Risk Index 2020, Grenada is among the countries that face the highest risk, ranking third globally in terms of vulnerability of GDP in percentage losses and seventh for fatalities per 100,000 inhabitants to weather-related losses, because the country experiences hurricanes, tropical storms, major landslides, earthquakes, and droughts. The resulting socioeconomic shocks have translated to welfare losses for Grenadians, especially the most vulnerable. The 2018 household survey showed that approximately one-fifth of the population, almost 28,000 people, lived below the national poverty line.

Prior to the pandemic, Grenada's position in the region was remarkable for its steadfast commitment to reform in order to build economic resilience, though it remains vulnerable to climate-related extreme events. Supported by the World Bank Group (WBG), the International Monetary Fund (IMF), and the Caribbean Development Bank (CDB), the Government of Grenada (GoG) initiated a series of economic reforms. Pro-growth reforms and expanding tourism supported average annual growth of 4.5 percent annually between 2014 and 2019, significantly outpacing the average annual growth of 2.8 percent in the Organization of Eastern Caribbean States (OECS) region. In addition, the government adopted the Fiscal Responsible Act (FRA) in 2015 to improve fiscal sustainability and accumulate fiscal space for building climate resilience. Growth-friendly fiscal consolidation measures led to a primary surplus that averaged 4.2 percent of Gross Domestic Product (GDP) between 2014 and 2019. Prudent fiscal management anchored in the FRA, together with strong economic growth and debt restructuring supported by the IMF program, led the public debt stock to drop from 108 percent of GDP in 2013 to an estimated 58.6 percent in 2019. Nevertheless, despite the solid progress, Grenada faces unique development challenges, including a less-diversified economy and vulnerabilities to climate change and natural disasters, particularly hurricanes. Fiscal conditions remain susceptible to external shocks and constrain the government's capacity to build climate resilience.

The COVID-19 pandemic had massive negative socioeconomic impacts in 2020 that are expected to exacerbate the country's preexisting challenges. The COVID-19 crisis slammed the brakes on tourism, plunging Grenada into an economic contraction of 13.8 percent in 2020. Timely government response measures successfully contained the local spread of cases for the first 16 months. However, the Delta and Omicron variants led to large spikes of cases starting in September 2021, averaging around 300–400 cases per day (compared to 180 cases in total for the first 16 months). The new waves further delayed the recovery of the tourism sector and related economic activities. Despite this, public investment projects and the return of international students to the island¹ have

¹ Before the pandemic of Covid-19, the presence of the international students on the island was spillover effects into other sectors such as wholesale and retail trade (groceries), Restaurants, Transport

meant that GDP is estimated to have rebounded to 5.3 percent in 2021. However, GDP remains far below the pre-pandemic level. The unemployment rate surged to 28.4 percent in Q2 2020 from a historic low of 15.7 percent in Q4 of 2019. The delayed recovery worsened the labor market in 2021, especially for women and the poorest groups. The extended impacts of the pandemic have made additional fiscal stimulus necessary (see Annex 6 Table 6) to support vulnerable groups and maintain economic activities. To create temporary fiscal space to cushion the extended impacts, the GoG suspended the fiscal rule for the third consecutive year in 2022, following the Fiscal Responsibility Act (FRA).

The war in Ukraine is expected to further aggravate the socioeconomic impacts through the inflation spike, and more-efficient fiscal responses in light of the surged debt level will be necessary. The war in Ukraine has significantly driven up fuel and wheat prices globally. This compounds the continued impacts on inflation from global value chain interruptions due to the pandemic. Though Grenada's direct imports from Ukraine or Russia are minimal, Grenada is a net importer of fuel and wheat (14.4 percent and 0.6 percent of total goods imports, respectively) and is expected to bear the impacts directly. Thus, food and fuel prices are expected to be the main driver of inflation increases in 2022. Domestic inflation in Grenada and high inflation in the major tourism-source economies could delay the nascent tourism recovery by eroding household income and increasing travel costs. The poor and vulnerable groups will suffer the most impacts from high inflation, given that a higher proportion of their income goes to food and fuel consumption and that they lack a financial cushion. Meanwhile, the public debt has increased significantly due to the pandemic, leaving limited fiscal space to address the current crisis. More efficient and effective fiscal spending is needed to mitigate the compounded impacts.

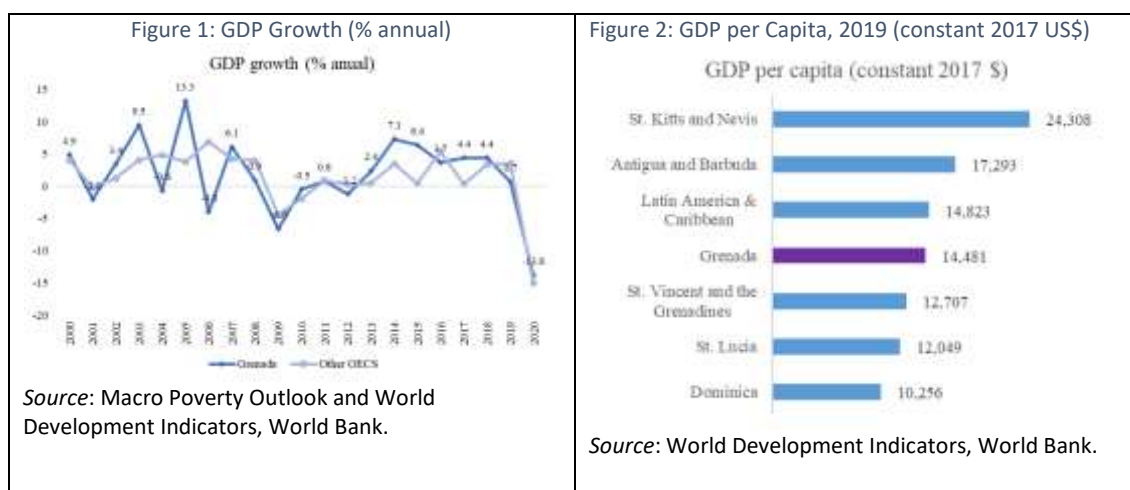
The paper offers a timely and key analysis to evaluate the current fiscal incidence and improve further fiscal efficiency, which can inform the immediate fiscal responses and provide advice regarding long-term fiscal reforms. To strengthen fiscal efficiency, it is necessary to understand the contribution of taxation and social programs to poverty and inequality. Following the Commitment to Equity - CEQ framework (Lustig, Nora, 2018), this paper uses incidence analysis, a description of who benefits from government spending and who is burdened by taxation. Thus, this paper provides evidence to answer the following questions: (1) Who bears the burden of taxation and who benefits from direct and indirect transfers? (2) To what extent is fiscal policy redistributive in Grenada? and (3) What is the potential of fiscal policy to reduce poverty? The purpose of the CEQ analysis is to get a comprehensive picture of the redistributive effect of as many tax and expenditure items as possible on household disposable income and household consumption. This would enable policy makers to analyze the consequences of potential changes in fiscal policies.

(vehicle rentals), accommodation (student apartments) and to a lesser extent, agriculture & fishing through increased demand for food. The suspension of face-to-face classes at the university and the mass exodus of the students in 2020 occurred during the initial stages of Covid. This, coupled with the halt in visitor arrivals was the largest contributor to the contraction in that year. The return of students in 2021 was therefore a major contributor to the recovery, since the tourism sector will take a longer period to fully bounce back.

Following this introduction, section 2 provides the context of Grenada’s economic performance; section 3 outlines the country’s fiscal system, including the main taxes and expenditure items. A summary of the fiscal incidence methodology is described in section 4, while section 5 presents the main results. Section 6 concludes the document.

2. Growth, Poverty, and Inequality in Grenada

Grenada’s economic growth is heavily affected by external factors, though structural reforms contributed to the sustained positive growth between 2014 and 2019. Hurricanes Ivan (2004) and Emily (2005), followed by the oil price spike and the global financial crisis in 2008, created a decreasing trend in GDP that ended in a recession that lasted until 2013 (figure 1). Starting in 2014, the government initiated a series of structural reforms to promote economic growth, strengthen fiscal sustainability, and reduce poverty. Growth-enhancing reforms included the development of e-business systems, better labor skill training, improvements to the education system, and tourism branding. The government also promoted a national strategy to develop the energy and agricultural sectors and the Blue Economy to pursue a sustainable and climate-resilient economy. Supported by pro-growth reforms, expanding tourism, and a benign global economic environment, real output growth averaged 4.5 percent annually between 2014 and 2019. The high growth rate led to a fast increase in Grenada’s per capita GDP. By 2019, Grenada’s GDP per capita was only surpassed by those of St. Kitts and Nevis and Antigua and Barbuda (figure 2). However, the pandemic, compounded by the war in Ukraine, ended the trend of solid growth and led to a sharp economic contraction of 13.8 percent in 2020, followed by a slow recovery in 2021 and 2022. The economic volatility driven by external factors reflects the intrinsic vulnerabilities of Grenada as a SIDS.



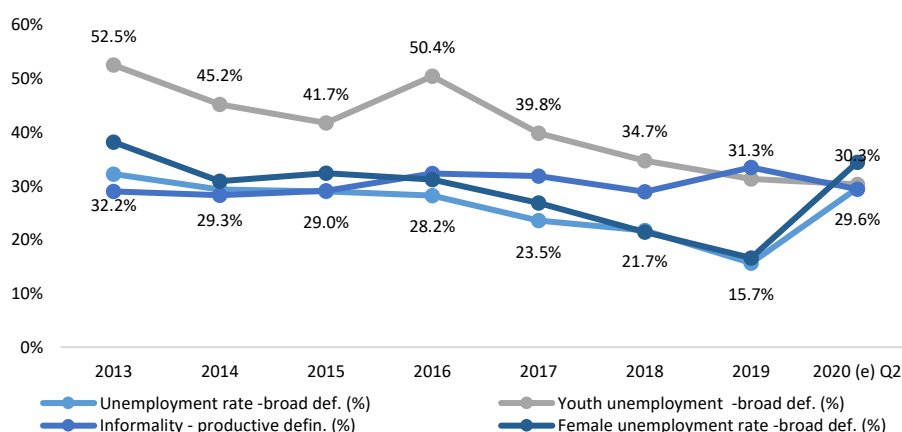
Grenada’s improved debt sustainability and accumulated fiscal space prior to the pandemic increased its resilience. Supported through the IMF program from 2014 to 2017, Grenada implemented a set of growth-friendly fiscal reforms to enhance revenues and contain expenditures, including measures related to the VAT, property taxes, CBI revenues, and wage bills. These measures have been maintained throughout the post-IMF program period. In addition, debt management transparency has been substantially strengthened, reflected for example in the regular publication of annual debt reports, quarterly debt bulletins, and fiscal risk statements. As a result, Grenada maintained an

increasing primary surplus of an average of 5.3 percent of GDP between 2015 and 2019, well above the minimum requirement in the Fiscal Responsibility Act (FRA) of 3.5 percent.

Nevertheless, the crises of the pandemic and the war have led to surging fiscal burdens and the government has triggered the escape clauses three years in a row (2019–2022). In response to the social and economic fallout from the pandemic, the government implemented timely measures to support the economy and mitigate the negative impacts on the poor and the most vulnerable groups, which contributed to increases in expenditure by around 7 percent of GDP in 2020 (excluding the Grenlec purchase). Loan moratoria and regulatory forbearance supported credit provision and buffered the pandemic’s impact on the financial system. At the same time, lower collections of taxes on goods and services and on international trade resulted in a decline in tax revenues by 13.5 percent year on year in 2020. The fiscal improvement in 2021 was due to the gradual recovery of the tourism sector and the partial exit of the government’s stimulus measures. However, the improvement was interrupted due to the urgent needs arising from the war in Ukraine and the associated inflationary pressures. To accommodate the temporary spending needs, the government triggered the escape clauses under the fiscal rule, which allow temporary deviation from the numeric target of the fiscal rule.

Similarly, employment behavior in Grenada was in line with the economic recovery experienced since 2013. The overall unemployment rate in Grenada declined steadily from 32.2 percent in 2013 to 23.5 percent in 2017 and kept decreasing to 15.7 percent in 2019; however, in 2020, due to the COVID-19 crisis, unemployment rose to almost 30 percent. Similarly, youth and female unemployment presented a decreasing trend before the onset of the pandemic and suffered a significant increase in 2020, which was more pronounced for female unemployment. It should be noted that youth and female unemployment levels always remain above the national average (figure 3).

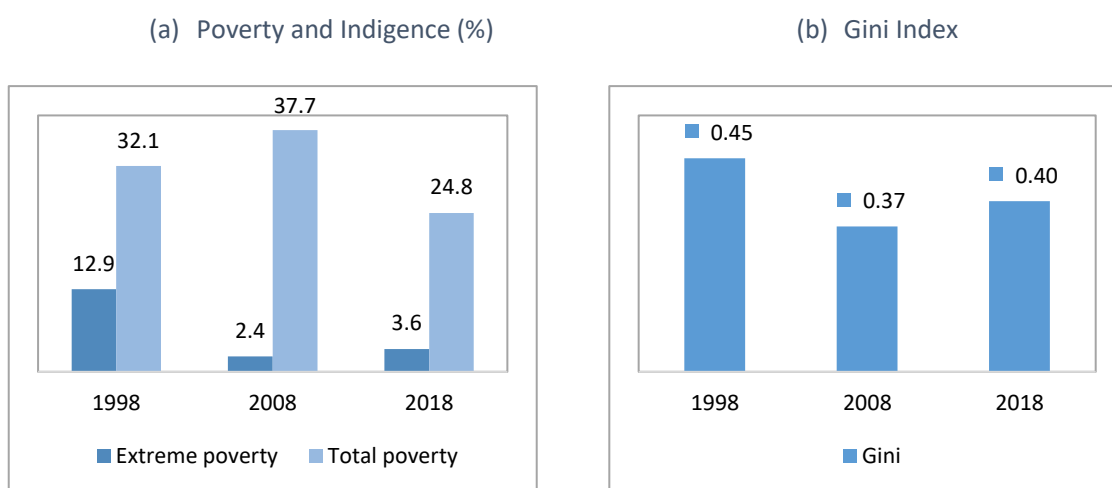
Figure 3: Unemployment Rate and Informality (%)



Source: Authors’ calculations based on the Labour Force Survey (LFS) 2013–2020 by the Central Statistical Office (CSO) in Grenada and in the Grenada Survey of Living Conditions and Household Budget Survey (SLCHBS) 2018.

In line with the macroeconomic behavior, moderate poverty has decreased since 2008. However, extreme poverty increased slightly. As of 2018, Grenada’s poverty rate had decreased by almost 13 percentage points compared to 2008 (the previous available information). However, unlike moderate poverty, extreme poverty in Grenada increased by 1.2 percentage points in the last 10 years, probably due to the increase in inequality during this period and the lack of measures to redistribute the growth experienced, as well as a statistical effect given the already quite low levels of extreme poverty in the country. (figure 4, panel a). Regarding inequality, we observe that during these 10 years, the Gini coefficient, which measures the inequality of income distribution, increased from 0.37 to 0.40 (figure 4, panel b). This increase in inequality since 2008 may imply some degree of deterioration of conditions for the lower part of the consumption distribution, which is also shown in the increase of the extreme poverty rate during this period. This could be the product of economic development failing to improve the well-being of citizens of the lower consumption groups.

Figure 4: Poverty and Inequality Measures



Sources: SLCHBS 1998, 2007–08, and 2018–19.

The impacts of the COVID-19 pandemic may have reversed the decline in poverty. Poverty projections for Grenada produced by the World Bank suggest that Grenada’s poverty levels were expected to continue to decline, had the pandemic not taken place (see table 1, column 2020a). In that scenario, the national poverty headcount ratio would have been 23.4 percent in 2020, 1.4 percentage points lower than the official rate of 2018, which was 24.8 percent.

Fiscal policy has also played a key role in preventing a larger increase in poverty and inequality. In an additional analysis of 2020, our simulation results indicate that without the fiscal measures implemented by the government, the official poverty rate would have climbed to 31.5 percent that year, and in so doing, the government’s achievements in the fight against poverty would have been reversed. Implementing the fiscal measures is expected to have reduced poverty by almost 0.2 percentage points. Given that we were only able to simulate certain programs in this study; these results represent an estimate of the lower bound on the true impact of the programs.

Table 1: Poverty and Inequality Trends

	2018	2019	2020a	2020b	2020c	2021	2022	2023	2024
National poverty	24.8	24.7	23.4	31.5	31.3	29.4	27.4	23.8	21.1
Extreme poverty	3.6	3.5	3.5	6.3	5.9	4.8	4.1	3.7	3.3
Gini	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

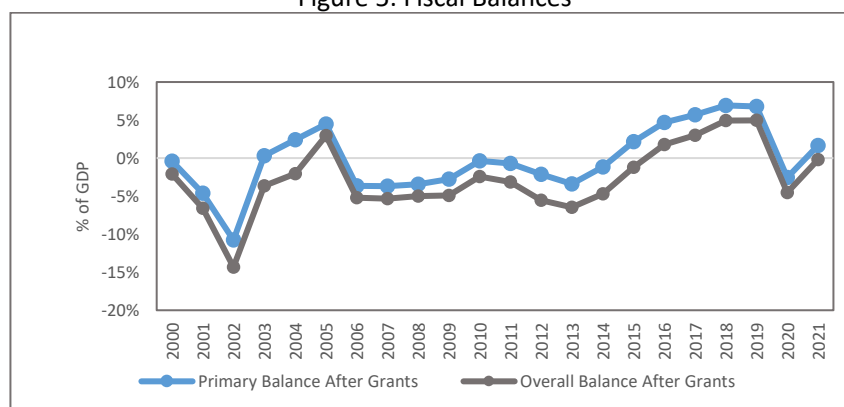
Source: Authors' calculations based on data from the SLCHBS 2018.

Note: Column 2020a presents a scenario without COVID-19, column 2020b is a scenario with COVID-19 and without mitigation measures, and column 2020c is a scenario with COVID-19 and mitigation measures.

3. Fiscal System in Grenada

Grenada's fiscal position has varied over the years, partly due to natural and external shocks. The natural disasters in 2004 and 2005 (Hurricanes Ivan and Emily) and economic shocks such as the oil spikes and the global financial crisis in 2007–2008 have significantly affected Grenada's fiscal position, leading to a structural adjustment program (supported by the IMF) in 2013–2016. As a result of this program, the primary² and overall balance³ averaged 4.2 and 1.5 percent of GDP, respectively, between 2014 and 2019 (figure 5). However, it dipped to -2.6 and -4.6 percent in 2020 due to fiscal pressures brought on by the COVID-19 pandemic. The primary balance returned to positive territory in 2021, while the overall balance remained slightly negative. Before 2014, these fiscal balances were largely negative, with the only positive outturns occurring in 2004 and 2005—outturns buoyed by grant receipts after Hurricanes Ivan and Emily. Implementing the Fiscal Responsibility Act in 2015 and other supporting pieces of legislation was integral to maintaining the fiscal discipline that was partly responsible for the improvement in Grenada's public accounts. Additionally, several fiscal reforms were undertaken, including tax rate adjustments and improved tax administration and expenditure management.

Figure 5: Fiscal Balances



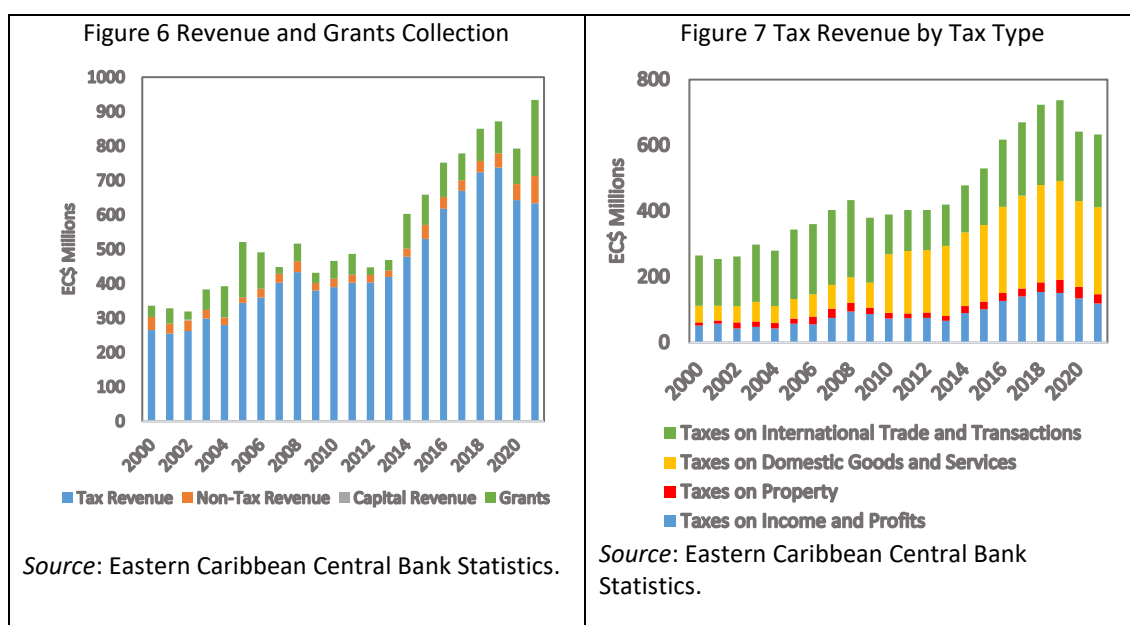
Source: Eastern Caribbean Central Bank Statistics.

² Total Revenue and Grants less Non-Interest Expenditure.

³ Total Revenue and Grants less Total Expenditure.

3.1 Revenues

Following a modest performance in 2009–2013, revenue and grant collection shifted to an upward trajectory in 2014, growing by an average of 11.2 percent annually until 2019. Taxes accounted for 83.2 percent of total government revenue between 2009 and 2021, while non-tax revenue represented 5.1 percent, with grant financing accounting for the remaining 11.7 percent (figure 6). Tax and non-tax income were obtained from individuals and businesses in Grenada, while grant financing is largely sourced from the citizenship by investment program (CBI) and regional and international donors. Prior to 2014, revenue collection was modest, with an uptick credited to the fiscal reforms undertaken at the time coupled with increased economic activity. The economic fallout from the COVID-19 pandemic disrupted this upward trend, with a decline in revenue and grant receipts of 9.0 percent recorded in 2020. Despite a decline in tax revenue in 2021, overall revenue and grants bounced back that year due to a spike in grant receipts. Tax Revenue comprises direct and indirect taxes levied on individuals and businesses. The direct taxes are taxes on income and profits, and taxes on property, while taxes on domestic goods and services, and taxes on international trade and transactions comprise the indirect taxes. For the purposes of this paper, we focus on the personal income tax under direct taxes and the value-added tax (VAT) and excise tax under indirect taxes, because these have the most significant impact on individuals and households while also being crucial income earners for the government, as shown in figure 7.



Over the years, the contribution of the Personal Income Tax (PIT) to tax revenue has increased due to several changes to the structure of this tax. After abolishing the PIT in 1986, the GoG reintroduced it in 1994, with four tax brackets being charged at progressively higher rates.⁴ This was simplified in 1996 to one tax bracket, where income

⁴ The rate structure of personal income tax in 1994 was 10 percent on the first EC\$20,000 earned, 20 percent on income between EC\$20,000 and EC\$35,000, 25 percent on income between EC\$35,000 and EC\$50,000, and 30 percent on income in excess of EC\$50,000.

exceeding 60,000 Eastern Caribbean Dollars (EC\$) per annum is taxed at a rate of 30 percent. During the structural adjustment program, the Income Tax Act was later amended in 2014 to include an additional tax bracket for incomes between EC\$36,000 and EC\$60,000, with a rate of 15 percent applied to the lower bracket. Upon completion of the structural adjustment program in 2016 and owing to its overall success in stabilizing the fiscal accounts, the government reduced the rate applied to the lower bracket (between EC\$36,000 and EC\$60,000) from 15 percent to 10 percent, and then in 2019 reduced the rate for the higher bracket (over EC\$60,000) from 30 percent to 28 percent. In 2000, PIT made up 12.7 percent of Taxes on Income and Profits and 2.5 percent of Tax Revenue. By 2021, due to the various reforms, PIT accounted for 53.4 percent of Taxes on Income and Profits and 10.2 percent of Tax Revenue. The introduction of the lower bracket for PIT in 2014 added over 6000 individuals to the tax net and increased the liability of existing taxpayers. Individuals earning less than EC\$36,000 per annum remain exempt from PIT.

The value added tax (VAT) is a broad-based consumption tax that was reintroduced in 2010⁵ to replace the general consumption tax (GCT),⁶ the motor vehicle purchase tax, and the airline ticket tax. It has generated the highest proportion of tax revenue for the GoG since its implementation, accounting for 83.8 percent of Taxes on Domestic Goods and Services and 35.0 percent of total tax revenue in 2021. The VAT is considered easier to administer than the taxes it replaced and covers a wider range of goods and services. The VAT is currently set at 15 percent on most goods and services, 10 percent on hotel accommodation and tourism, and 20 percent on mobile phone service. Additionally, there is a list of zero-rated and exempt items, largely food items, that are not subject to VAT application. As an indirect tax, the VAT is charged to consumers at the point of purchase and therefore has implications for individual and household consumption. Including various basic food items on the zero-rated and exempt list seeks to add progressivity to the structure by providing a measure of relief to the poorer and more-vulnerable sections of the population. Unlike the VAT, which is charged as a percentage of the value of a good or service, the excise tax is charged at a fixed rate per quantity of specific goods referred to as “excisable goods.” It is charged on imported and locally manufactured goods and accounted for 2.8 percent of tax revenue in 2021. This paper focuses on the excise tax applied to alcohol and tobacco products as these are the most important in the country.

3.2 Expenditures

Since the Fiscal Responsibility Act in 2015, government expenditure has been stable (relative to the volatility of previous years), as it is managed within the parameters of fiscal rules.⁷ However, in 2020, the rules were suspended to provide the GoG with

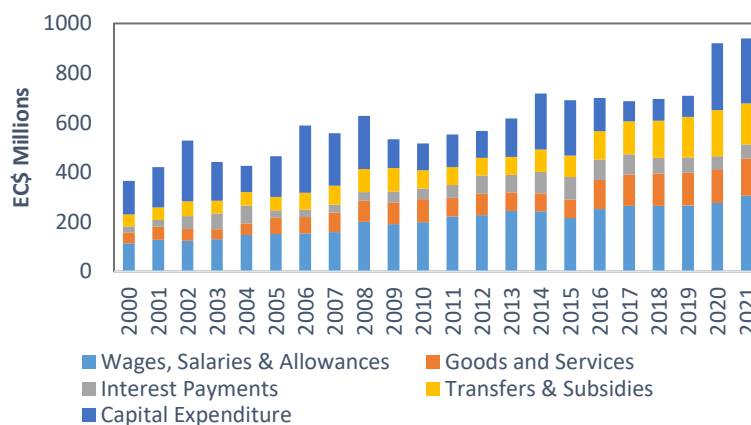
⁵ The VAT was first introduced in 1986 at a rate of 20 percent (in tandem with the abolishment of Income Taxes), but failed to produce the revenue expected due to “inadequate preparation and education” (UN Economic Commission for Latin America and the Caribbean, 1999). The VAT was removed in 1995.

⁶ The GCT was applied to goods and services at the point of importation and/or sale, with the rate depending on the type of good or service and the country of origin.

⁷ The Fiscal Responsibility Act includes fiscal rules and targets pertaining to the management of expenditure and debt to which the GoG must adhere.

flexibility to employ fiscal measures, including increased spending, to respond to the pandemic adequately. Due to the protracted nature of the crisis brought on by COVID-19, it is envisaged that the fiscal rules will remain suspended until 2023 (figure 8).

Figure 8: Expenditure by Type

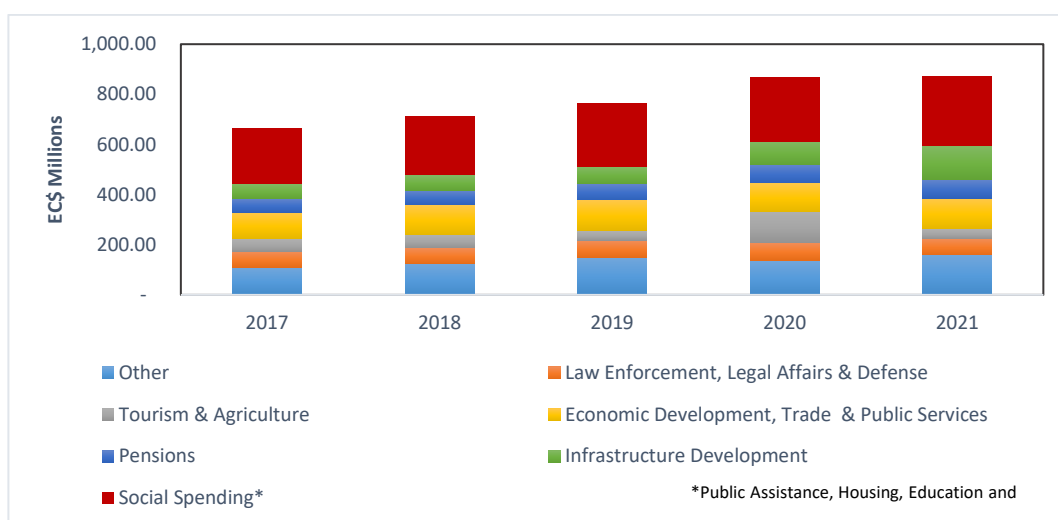


Source: Eastern Caribbean Central Bank Statistics.

On average, from 2017-2021, the Government allocated roughly 32 percent of its expenditure to social programs, including education, health and public assistance transfers⁸. This is the largest expenditure grouping in the government’s budget as shown in Figure 9. Perhaps the most important direct transfer to poor and vulnerable households is done through the Support for Education, Empowerment and Development Program (SEED) administered through the Ministry of Social Development. Also of the note is the School-Feeding Program which focuses on providing meals to needy students. This program is run by the Ministry of Education in several primary and secondary schools throughout the island. In-Kind transfers through the education and health sectors are also considered in this grouping and includes all spending for the provision of these services to the public, which are provided at minimal cost to the consumer. These programs are elaborated on later in the paper. Finally, assistance provided to needy households in the area of housing is also categorized as social spending but is not covered in this paper.

⁸ This is based on data retrieved from the Annual National Budget and excludes debt repayments (both principal and interest). Recently, in 2022, the Grenada government has been capped on gasoline prices constituting an energy subsidy. This measure will be analyzed in a future development of the tool.

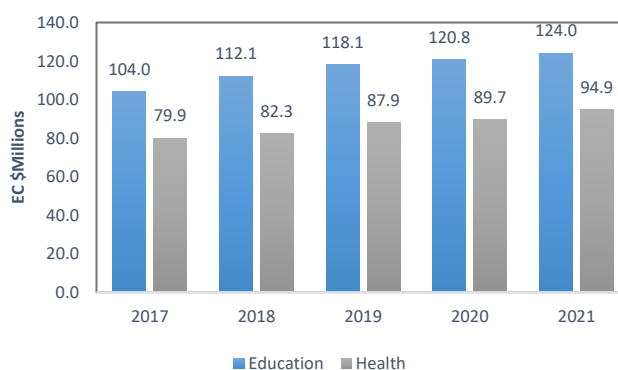
Figure 9: Budgeted Expenditure (excluding Debt Service)



Source: Ministry of Finance, Grenada

Expenditures in education have increased since 2017 and account for roughly 10 percent of annual government expenditures. Government recurrent expenditure in public education generally comprises the payment of teachers and ancillary staff within the sector and funds provided for supplies and general maintenance of schools and related facilities. Public education is provided in four stages: preprimary, primary, secondary, and tertiary (including vocational training). Several institutions also provide special education to serve students with disabilities and special needs. The government largely subsidizes education up to the secondary level (including special education), with parents/guardians being responsible for the payment of minor school fees. However, external examination fees are not covered by the government and must be paid by the parents/guardians of the students. The level of subsidization decreases at the tertiary level, with higher fees required to access training leading to associate degrees and certifications from the institutions providing this level of schooling. Government expenditure in public education is considered an in-kind transfer because the service can be accessed by all school-age children regardless of socioeconomic background. The quality of education received at any level may vary based on the institution. Education can be accessed at any desired institution at the preprimary and primary levels. However, academic/technical ability and geographic location determine where a student can access education at the secondary and tertiary levels. Nonetheless, the government’s investment in each institution at each level is determined by the individual needs and characteristics of the institution.

Figure 10: Health and Education Budgeted Expenditures



Source: Estimates of Revenue and Expenditure (Grenada National Budget).

Expenditures on health have also increased since 2017, accounting for 7 percent of annual government expenditure as of 2018. In the case of health care, government expenditure in this area includes wages and salaries for public health employees and purchases of medical supplies and equipment, as well as investment in machinery and infrastructure. Public health care in Grenada is provided at a comparatively low cost to the user, with primary health care being mostly free of charge. Relatively small fees are charged for medicines, lab tests, and other diagnostics at public health facilities; additional care levels carry fees that the government highly subsidizes. Because Grenada does not have a national health insurance mechanism in place, services the government does not fully fund must be paid for out of pocket by the patient. In order to improve the health of its citizens and minimize increases in the costs of health care, Grenada has emphasized primary health care and preventative measures. There are around seven medical centers and clinics in the country. St George’s General Hospital is the main facility and there is a small private hospital in the St Paul district, which has a 24-hour emergency room and can arrange air ambulance evacuation. The public hospital’s infrastructure offers modern facilities and is intended to cater to medical residents. Over 90 percent of the population in Grenada uses public health centers and over 80 percent of the population in Grenada uses private health centers, so that benefits reach people of different income levels. However, the middle- and high-income population is much more likely to seek treatment that involves hospitalization

In this paper, sums spent by the government in the health sector amount to in-kind transfers to the public, because these services are available to all. Citizens, residents, and visitors can freely access the services in the public health system with no differentiation in fees⁹ according to income level or socioeconomic class.

In addition to the in-kind transfers in education and health, the government implemented a social protection system within the SEED program. The SEED program is a conditional cash transfer program implemented in 2011 to replace (and consolidate) three previous government cash transfer programs. It replaces the Public Assistance Program, the Necessitous Fund, and the School Public Transportation Allowance scheme. The program targets school-aged children, people with disabilities, the elderly,

⁹ Fees are waived for some services provided to children, the elderly, and the indigent. All fees and co-payments were not included in the analysis given the low amounts reported in the SLCHB 2017-2918.

the chronically ill, pregnant, and lactating mothers, and the adult poor. Beneficiaries are selected via proxy means testing, which uses household characteristics such as age, household size, marital status, assets, disability, and housing conditions as indicators or “proxies” to determine household expenditure or consumption. Cash is transferred to households who qualify on the condition that the beneficiaries assume several co-responsibilities. They commit to activities and practices that promote human capital development, adherence to health protocols, and regular school attendance (Ministry of Social Development, Government of Grenada). The transfers are made on a household basis, with the maximum amount per household in 2017 being EC\$300 per month or EC\$3,600 per annum. In 2018, the amount given to elderly households was increased by EC\$100 per month, and in 2022, upon consideration of cost-of-living increases in Grenada, the government raised the amount paid to all beneficiaries by EC\$150 per month. Additionally, as part of its measures to cushion the impact of the economic downturn caused by COVID-19, the government temporarily expanded the list of beneficiaries for SEED to include households who had transitioned into poverty or vulnerability as a result of the pandemic. Government annual expenditure on SEED increased from EC\$14 million in 2017 to approximately EC\$18 million in 2021 and is expected to increase further in 2022. Within the social expenditures of the government is the school feeding program, which aims to give students of disadvantaged socioeconomic backgrounds a nutritious meal while at school. This is the oldest social program, which began in 1950. It is present in all public primary schools, some preprimary schools, and approximately 60 percent of secondary schools. The program is funded through monthly transfers from the government, both in cash and food goods, to schools for the daily preparation of meals by the kitchen staff. In primary and secondary schools, meals are subsidized to EC\$1 and EC\$2, respectively. From 2017 to 2021, the government spent an average of EC\$2.9 million per year on the school feeding program.

Grenada developed the National Insurance Scheme (NIS) in 1983 as a social security system. The NIS provides social security protection for contributors who experience economic distress caused by the loss or substantial reduction of earnings that results in sickness, employment injury, invalidity, childbirth, retirement, or death. It provides pensions for people 60 years old, maternity benefits, employment injury, funeral grants, and invalidity, survivor, and sickness benefits. All employed and self-employed persons in Grenada are mandated by the National Insurance laws to register and pay contributions. Due to its contributory nature and special institutional framework, this system is not considered in the CEQ analysis. On the other hand, although the possibility of including NIS income as part of market income plus pensions was analyzed, the absence of data on household income makes it difficult to obtain consistent and accurate income concepts, including those for differentiating long-term social security contributions and benefits.

4 Methodology

4.1 CEQ framework

This paper follows the **Commitment to Equity (CEQ) methodology to assess the distributional impact of the fiscal system in Grenada**. According to Lustig (2018), “The CEQ Assessment is a diagnostic tool that uses fiscal incidence analysis to determine the extent to which fiscal policy reduces inequality and poverty in a particular country” (p. 62). Fiscal redistribution effects refer to the process by which the state collects revenue from individuals and households (through taxation) and allocates this revenue to finance direct transfers, subsidies, and in-kind benefits enjoyed by individuals and households (Lustig & Higgins, *The CEQ Assessment: Measuring the Impact of Fiscal Policy on Inequality and Poverty*, 2018). Because this study focuses on the population's distributional effects, state interventions that affect firms or other private sector institutions are excluded from the methodology. The CEQ framework aims to answer four main questions: (1) How much income redistribution and poverty reduction is being accomplished through fiscal policy? (2) How equalizing and pro-poor are specific taxes and government spending? (3) How effective are taxes and government spending in reducing inequality and poverty? and (4) What is the impact of fiscal reforms that change the size and/or progressivity of a particular tax or benefit? (Lustig, 2018).

To calculate the distributional effects of fiscal policy, the CEQ framework constructs different income concepts in sequential stages, starting from pre-fiscal income that includes only private income sources to final income that incorporates the (almost) full set of taxes and government benefits. In summary, the CEQ (Lustig & Higgins, 2018) identifies four main concepts of household income (when the household's surveys include variables of different sources of income):

- **Market income**, which includes factor income (all wages and salaries received by workers and capital income), plus private transfers (remittances, private pensions, etc.) plus imputed housing rent, all income before taxes and social security contributions, government transfers and old-age pensions, minus the contribution to social insurance old-age pensions, only in cases where pensions are considered deferred. (The contribution to old-age pensions is not subtracted when contributory pensions are financed by state.)
- **Disposable income** is market income plus direct cash and near-cash transfers, minus personal income taxes and employee social security contributions (only in the case where contributory pensions are treated as transfers).
- **Consumable income** is disposable income including indirect subsidies (energy, food, and other general targeted price subsidies) and excluding indirect taxes (VAT, excise taxes, and other indirect taxes).
- **Final income (post-fiscal)** is consumable income plus the value of in-kind transfers, like free or subsidized government services in education and health and subtracted co-payments and user fees; it reflects post-fiscal income.

For each income concept, the inequality and poverty indices are calculated and the magnitudes of both are compared before and after fiscal interventions. In this regard,

the CEQ framework considers variants according to the characteristics of each country, harmonizing the aggregates but not the specific items.

4.2 Estimation of income aggregates in Grenada

Grenada's information system has limitations when it comes to applying the detailed CEQ framework. To model fiscal incidence within the CEQ framework, certain data characteristics are needed, such as an adequate household income aggregate. While Grenada has a recent Survey of Living Conditions and Households Budget (SLCHB),¹⁰ as well as administrative records of social programs and the characteristics of the tax system, the module of incomes within the SLCHB is limited, because it captures income data in brackets and little detail on non-labor incomes. Thus, the National Statistics Office (NSO) opted for building welfare aggregates from household consumption¹¹ instead of household incomes. This poses a challenge for the implementation in this paper, because we need to retrieve household incomes to estimate the fiscal incidence and run simulations. Following (Katamaya & al., 2021) for the case of Jamaica, in this paper we assume that current consumption equals disposable income, other cases that use consumption as *primary income* can be found for African countries such as for Egypt (Gabriel Lara Ibarra, 2019), Kenya (World Bank, 2018) and Uganda (Majia-Mantilla et al, 2019). This assumption is the most important in applying the CEQ methodology to Grenada and simplifies the reconstruction of income aggregates by tracing back to market income definition as our measure of base income (before taxes or fiscal interventions). As is known in the estimation of welfare measures in developing countries, the distribution of household consumption tends to be more concentrated than income. Of course, this characteristic could introduce some bias and underestimate the extremes of the distribution; however, there is no other option in the absence of household income data.

Once household consumption is defined and thus consumable income is available, the rest of the income aggregates established in the CEQ methodology are calculated according to both the tax structure and social protection and social delivery in Grenada. The starting point is considered to be disposable income, assuming that it is equal to household consumption. Then, to identify the distribution of gross income and after that the market income, it is necessary to work backward, following the steps shown in figure 10:

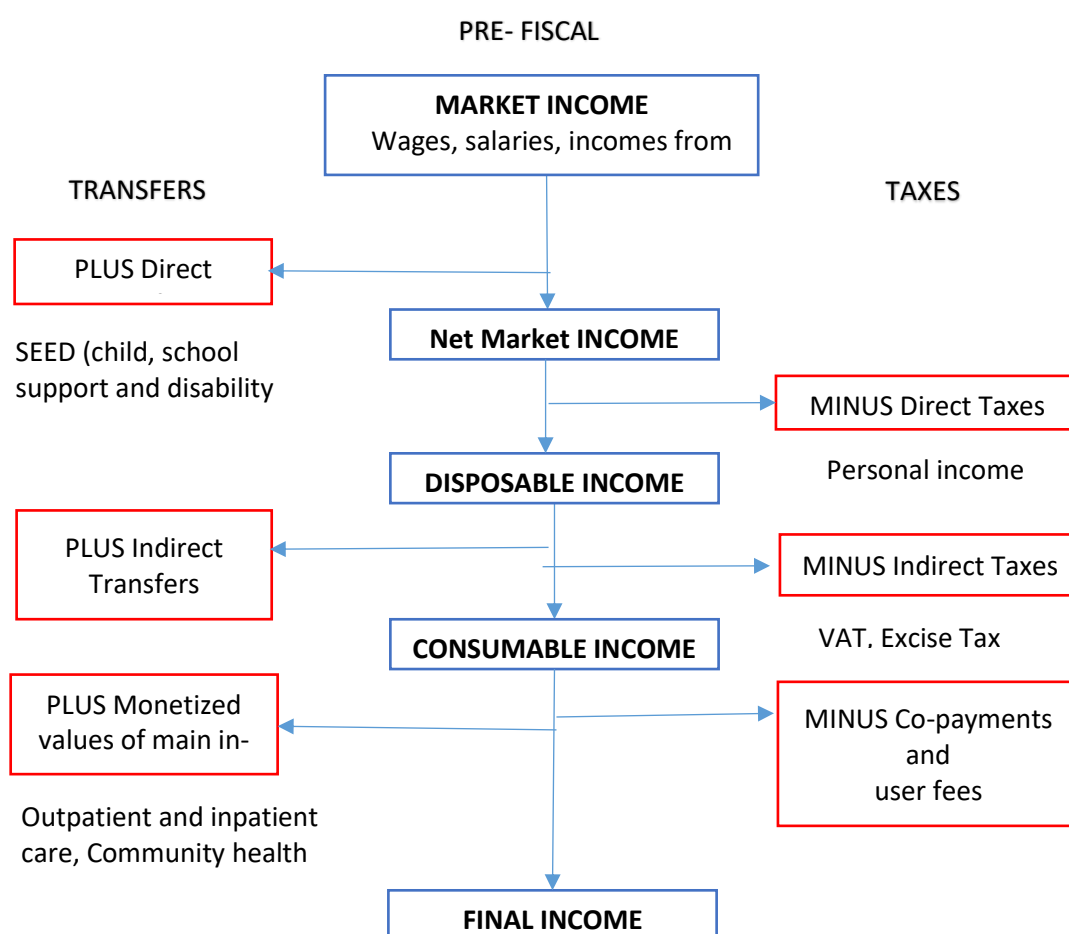
1. Net market income (NMI): This concept (a pre-tax income) is obtained by adding the amount of personal income tax (PIT) to disposable income (DI): $NMI = DI + PIT$

¹⁰ Through the NSO, Grenada implemented two SLCHBs in 2007–2008 and 2017–2018. The latter (used in this paper) contains information on household characteristics (housing, demographics, education, health status, social protection, and shocks and coping strategies), this survey emphasizes household consumption expenditures on food and non-food items and other transactions such as financial payments, investment acquisitions, fees, and voluntary contributions.

¹¹ This consumption aggregate is constructed from the following components: (1) expenses and received gifts of food and beverage items, (2) expenses of non-food articles, (3) value of consumption of durable goods (such as vehicles), and (4) imputed rent of own housing. The household consumption was used as the basis for the official measurement of poverty and inequality in Grenada (World Bank 2021), following the guidelines for measuring welfare aggregates (Deaton & Zaidi, 2002).

2. Market income (MI): This aggregate is constructed by subtracting direct transfers (DTr; e.g., SEED and School Feeding) from GI : $MI = NMI - DTr$
Consumable and final income, on the other hand, are constructed forward from DI.
3. Consumable income: This is equal to DI minus indirect taxes, including VAT and Excise taxes plus indirect subsidies (IS): $CI = DI - (VAT + Excise) + IS$. While this component is important for calculating consumable income, no information was obtained to estimate indirect subsidies.
4. Final income (FI): This aggregate is obtained after including in-kind transfers for internal and external care provided by the health system (hospitals and community health centers) (kTrH), as well as care provided by the educational system at the preschool, primary, secondary, university, and special levels (kTrS)
 $FI = CI + kTrH + kTrS$.

Figure 11: CEQ Income Concepts



Source: Author's adaptation based on CEQ Framework (Lustig, CEQ - Handbook, 2018).

To construct new aggregates after the policy simulations are implemented, we simply proceed using the steps described in figure 10. This assumes that all possible fiscal simulations have the same market income, this income concept remain constant across simulations; thus, labor market income and other non-labor income sources are not affected by fiscal interventions. This study also incorporates policy simulations based on partial and cumulative changes in taxes and spending programs. However, because the

simulations change income definitions, we assume that consumption patterns will not change. For example, if the disposable income of a given household increases by 10 percent, we assume that the amount spent on all items consumed by that household will also increase by 10 percent. In other words, we assume that income does not affect consumption preferences.

4.4 Components of the fiscal incidence analysis

PIT paid by households

We assume that PIT is only paid on the labor income of the employed population in the formal sector. Because we do not have a direct measure of labor income, we use an approximation based on our definition of market income. The following steps were taken to calculate the PIT payment for formal workers using the SLCHBS 2018: (1) we identify the disposable income (DI), (2) we obtain the net market income, subtracting direct transfers but considering that this income is not negative, (3) we divide the resulting value by the employed adults, (4) we calculate the taxes paid based on the PIT rates corresponding to the brackets, and (5) we aggregate again at the household level.

VAT paid by households

The VAT is levied on all forms of consumer spending—goods and services. The tax is computed on the value of imports and the value added (or mark-up) that one business charges another or the final consumer, when a good or service is provided. The rate of the VAT is 15 percent on the selling price; however, hotels and dive operations are charged a rate of 10 percent. Some goods and services, for example flour, rice, sugar, and powdered and evaporated milk are not taxed, nor are postage stamps and supply of textbooks as prescribed by the regulations.

Expenses associated with cellphone services have a tax rate of 20 percent and water and electricity services are partially subsidized, based on consumption bounds. In the case of the electricity the quantities are obtained from the costs paid and the exogenous estimates of the prices per kWh obtained from the Grenada authorities. Households that consume less than 99 kWh per month are exempt from paying vat, while households that exceed this consumption pay on the excess over the limit. Similarly, the water consumption limit is 2900 gallons per month, so households pay VAT for the excess consumption over the stated limit.

Because VAT is already incorporated in the price, a pre-tax good rate is first calculated for each good using the equation: $Pb_j = \frac{Exp}{1+\tau_{vat}}$ and then the rate is applied to the pre-tax value.

Although VAT requires companies to have a special registration showing that they offer taxable products for \$12,000 per year or operate for at least 12 months, this information is not available in the data source consulted. It is therefore difficult to know whether households buy in stores that are exempt from VAT registration or sell informally. Likewise, the application of the incidence of indirect taxes does not consider cascading effects, given the difficulty of imputing deductions made by households to reduce the

net payment of these taxes. Consequently, there is an overestimation of the effect of VAT and excise tax.

Transfers received by households

Direct transfers in the model are mainly associated with two programs: the SEED Programme and the school feeding program. The SEED transfer is identified in the survey through a direct question to the households. Based on administrative records, we identify the amounts of program transfers to children, youth, and old-age individuals. Finally, we aggregate the amounts at the household level. The SEED amounts are reduced for households to ensure that base/market income is never negative, so that if the income is less than the transfer, the latter is adjusted to avoid the definition of income being negative.

Estimated value of health care and education services received by households

Using data from the SLHBS we identify individuals who used public education and health services and imputed values for the use of these services. Based on the utilization of health services by the individuals who responded to the survey, a distinction is made between those who received inpatient care and those who received outpatient care in hospitals and community health centers. We then found data on average unit costs by type of care and imputed it to the individuals who used the service to proxy to the state's current expenditure on health services. As for education, we assume that the public education system serves the entire preschool, primary, secondary and postsecondary school population. The current expenditure on education was derived from the costs per level of education as specified by the government of Grenada. Once the annual cost of each level of education was obtained, it was imputed to the students enrolled at that level.

Due to the limitations of information on household income structure and national accounts in Grenada, this document to perform a basic application with direct effects, omitting considerations on agents' behavior. As more information and parameters on fiscal interventions become available, they could be added to the estimates of fiscal incidence.

5 Main Results

A set of poverty, income distribution, and indicators of progressivity measures were constructed to answer the questions posed previously. Here we present the main results of the simulations.

5.1 How does the fiscal system affect poverty?

The fiscal system has a high potential for poverty reduction in Grenada, with the highest impact being associated with in-kind transfers. After adjusting the disposable income, poverty rates in Grenada for 2018 reached 22.77 percent under the definition of consumption per equivalent adult (equivalent to the definition of disposable income

in this document), using the national poverty lines as defined by the CSO (EC\$ 6,782 per year per person, 2017–2018). Departing from this measure, the model builds all the other income aggregates as described in the previous section. In the absence of fiscal interventions, such as PIT and cash transfers, 25 percent of the population would live in poverty, with an estimated poverty gap of 8.24 percent. Moreover, after accounting for all taxes and direct transfers, the poverty headcount would be 26.35 percent. In sum, four relevant aspects can be noted. First, the direct transfers (SEED and school feeding) reduce the incidence of poverty by 2.2 percentage points and are also reflected in other indicators sensitive to changes in income distribution among the poor, such as poverty severity and the Sen and Watts indices. Second, the PIT does not change the poverty measures, because it is paid by the population with incomes above the national poverty lines. In fact, based on our estimates, only around 10 percent of the employed population has earnings large enough to be subject to the PIT. Third, indirect taxes such as the VAT (and Excise taxes) increase poverty by about 3.6 percent; this is explained by these being structured to be neutral taxes.

Table 2: Poverty measures according to CEQ-income definitions
(In percent)

Poverty measures	Market income	Net market income	Disposable income	Consumable income
Headcount poverty	25.00	22.77	22.77	26.35
Poverty gap * 100	8.24	6.73	6.73	7.80
Poverty severity * 100	4.10	2.97	2.97	3.45
Watts Index * 100	11.94	9.23	9.23	10.71
Sen Index * 100	11.56	9.06	9.06	10.54

Source: Authors' estimation based on SLCHBS 2018.

Although the net balance of transfers and taxes (direct and indirect) translates into a higher incidence of poverty, the same is not true for the poverty gap (it decreases the poverty gap by about one percentage point) and other poverty measures. All of these show a reduction after the fiscal interventions.

5.2 How does the fiscal system affect inequality?

The fiscal system in Grenada has heterogeneous redistributive characteristics with an important potential to reduce inequality. The effects of fiscal interventions on income distribution are heterogeneous, as seen in table 4. First, the direct transfers (SEED and school feeding program) have low redistributive potential; in fact, between the market income and net market income, the Gini index change is below one percentage point. The potential of these transfers is better understood when examining the lower section of the income distribution through the ratio P90/P10, which decreases from 7.4 to 6.8. Second, because the PIT is concentrated in the middle- and upper-income distribution, the effect is noticeable only in the P90/P10 ratio (from 6.8 to 6.6) and on the Gini coefficient, which declines from 0.406 to 0.397. Third, though the VAT and Excise Taxes seem to be very neutral, in fact they cause all inequality measures to decline, although not significantly.

Table 3: Inequality measurements according to CEQ-income definitions

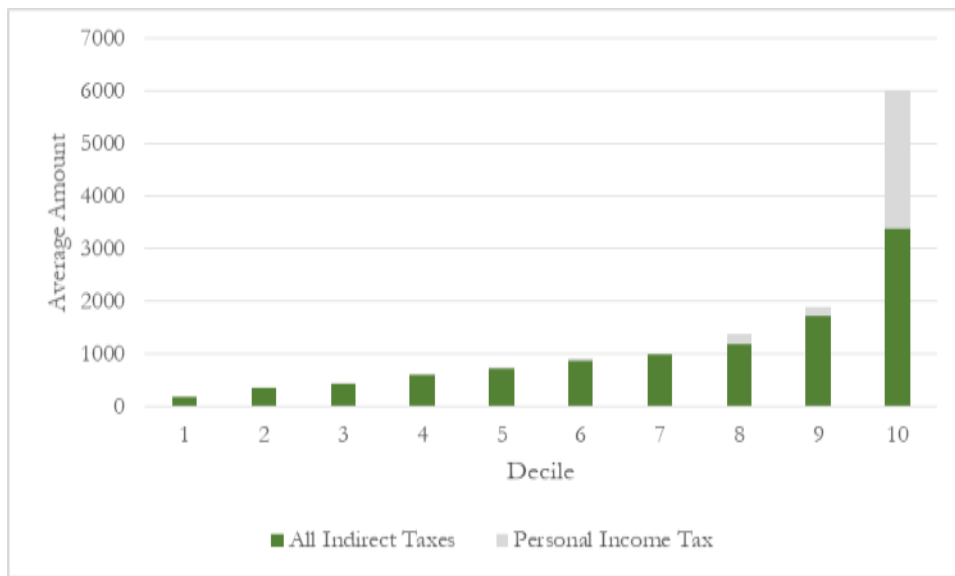
Inequality measures	Market income	Net market income	Disposable income	Consumable income
P90/P10 ratio	7.461	6.856	6.639	6.775
P90/P50 ratio	2.822	2.781	2.701	2.733
P10/P50 ratio	0.378	0.406	0.407	0.403
Gini index	0.416	0.406	0.397	0.395
GE(-1) index	21638.163	0.362	0.346	0.340
GE(0) index	0.304	0.279	0.267	0.264
GE(1) index	0.302	0.288	0.272	0.270
GE(2) index	0.411	0.393	0.364	0.360
Atkinson (0.5) index	0.140	0.132	0.126	0.125
Atkinson (1) index	0.262	0.244	0.234	0.232
Atkinson (2) index	1.000	0.420	0.409	0.405

Source: Authors' calculation based on SLCHBS 2018.

5.3 Who pays the taxes, and who receives the transfers?

Given the current PIT structure, the taxpayers are highly concentrated in the top deciles, while individuals across the income distribution pay the VAT. According to the current PIT structure, this tax is aimed at those earning EC\$30,000 or more. Given the distribution of disposable income (approximated by consumption), the size and incidence of the tax affect only the 8th, 9th, and 10th deciles (see figure 12). Of course, because household income is not measured directly in the survey, it is considered a rough estimate and should be interpreted with caution. On the contrary, due to its characteristics, the collection of the VAT is directly proportional to total consumption, so that tax collection increases as wealth increases. However, small differences across deciles are present because of the consumption structure, the existence of tax exemptions and goods with special tax rates, and perhaps some tax evasion.

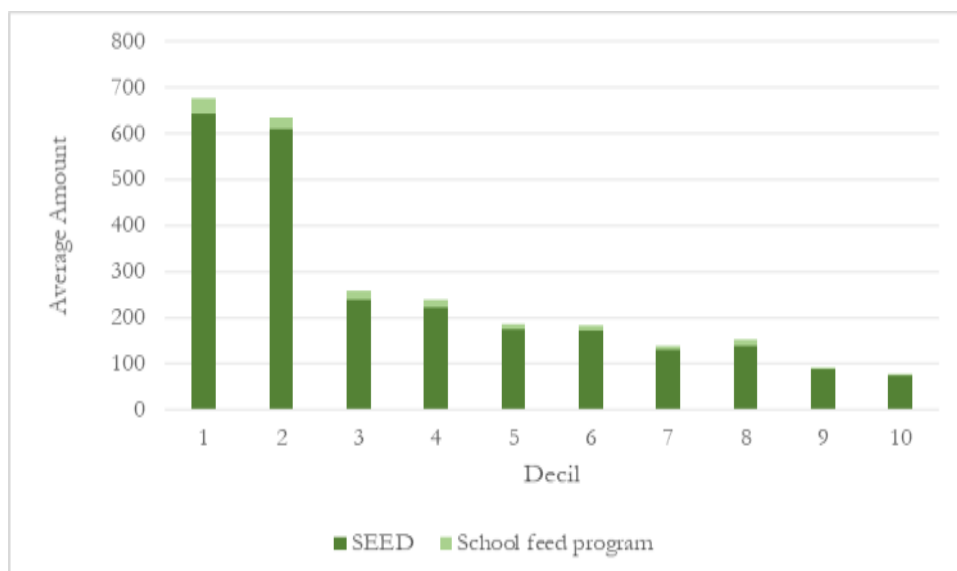
Figure 12: Average Amount Paid in Direct and Indirect Tax by Deciles of Market Income (in EC\$)



Source: Own calculation based on SLCHBS 2018.

The main effects of the social protection programs are highly concentrated in the lower part of the income distribution, especially in the first two deciles. As described previously, Grenada has two main interventions in its social protection system, the SEED and the school feeding program (described above). While SEED, which includes several subprograms, generates transfers to households across all deciles, it has a greater impact on low-income households below (**Error! Reference source not found.**).

Figure 13: Direct Transfers Incidence by Market Income Decile (in EC\$)



Source: Own calculation based on SLCHBS 2018.

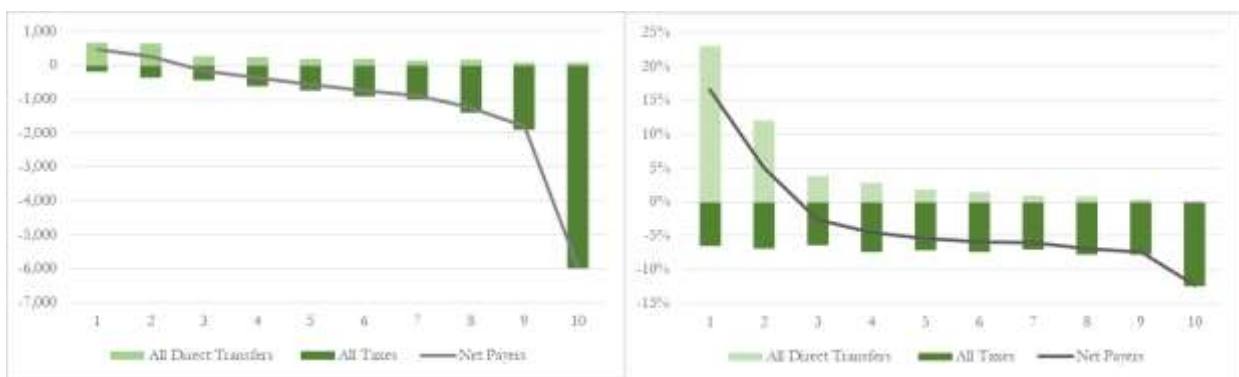
The net effect of the direct fiscal policies benefits the poor. When the population is ordered according to net market income, it is observed that the first two deciles receive

transfers to a greater extent than what they pay in direct and indirect taxes, while the third decile of the population and above are net payers. According to this result, Grenada’s fiscal policy design is focused on the low-income population. While the middle of the income distribution pays more than they receive, the net effect is important in the top deciles (especially in the 10th decile) (figure 14). It is usual for taxes such as the VAT or other general sales taxes to be neutral or to affect household disposable income proportionally across the income distribution. In addition, by having the PIT targeted at middle and high incomes, Grenada’s tax system has taxpayers from the population across all income distribution groups.

Figure 14: Net Payers (Direct Transfers and Direct and Indirect Taxes) by decile of Market Income

(a) in EC\$ per year

(b) As a percentage of market income (change scale to %)



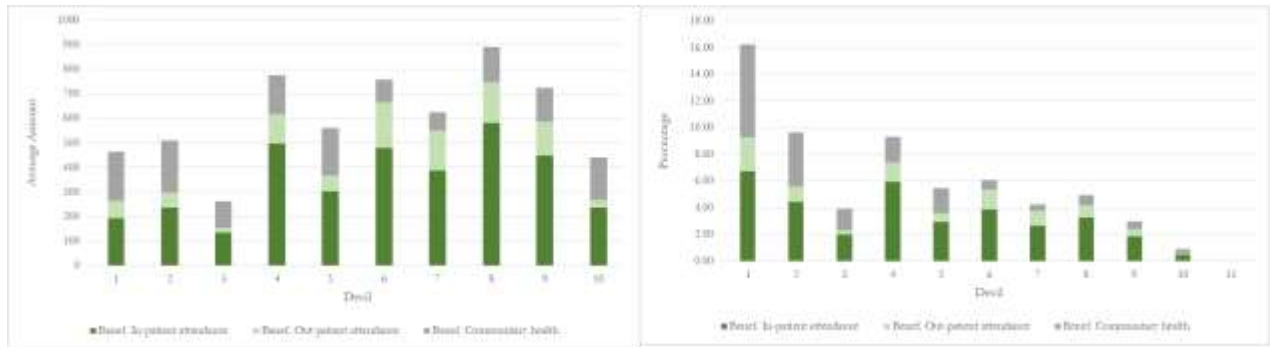
Source: Own calculation based on SLCHBS 2018.

In-kind transfers, especially those related to education, greatly benefit the poor. Based on SLCHBS 2018, primary and secondary attendance is almost universal, so the tax incidence is even higher in the low- and middle-income population. However, the structure by level is different across the income distribution: while in the lower strata primary education has a greater weight, in the middle and upper strata the incidence of postsecondary education is higher (figure 16). Furthermore, despite the high enrollment rates, there is also a high educational lag. The value of schooling, as a fraction of net market income, has a high share in households in the lower part of the income distribution, especially in preschool, primary, and secondary school, while it is less relevant for the upper deciles. As a fraction of net market income, the value of health care transfers is relevant for households in the lower part of the distribution, especially care provided by community health centers, while the value decreases in the upper deciles (figure 15). In summary, in-kind transfers received by households, including education and health services, are similar in levels (per equivalent adult) across the different income levels. When expressed as a fraction of net market income, both are relevant for the population located at the lower end of the income distribution; they decrease in relevance the more economic capacity households have (figure 17).

Figure 15: Transfers in Health Care Received by Households by Market Income Decile

(a) in EC\$ per year

(b) As percentage of market income

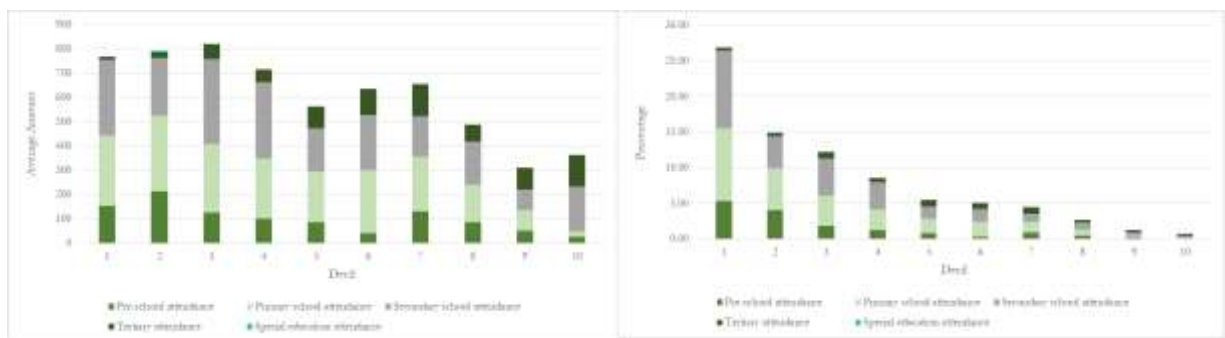


Source: Authors' calculation based on SLCHBS 2018.

Figure 16: School Attendance and Transfers Received by Households by Market Income Decile

(a) in EC\$ per year

(b) As percentage of market income



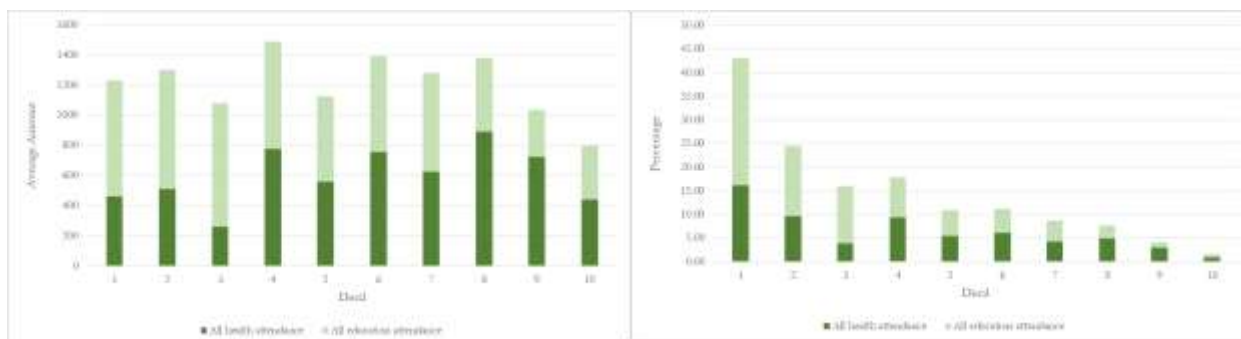
Source: Authors' calculation based on SLCHBS 2018.

In summary, in-kind transfers received by households, including those associated with education and health services, are similar in levels (per equivalent adult) across the different income levels, but when expressed as a fraction of net market income, both are relevant for the population located at the lower end of the income distribution and decrease in relevance the more economic capacity households have.

Figure 17: In-kind (Health and Education) Transfers Received by Households by Market Income Decile

(a) in EC\$ per year

(b) As percentage of market income (change to %)



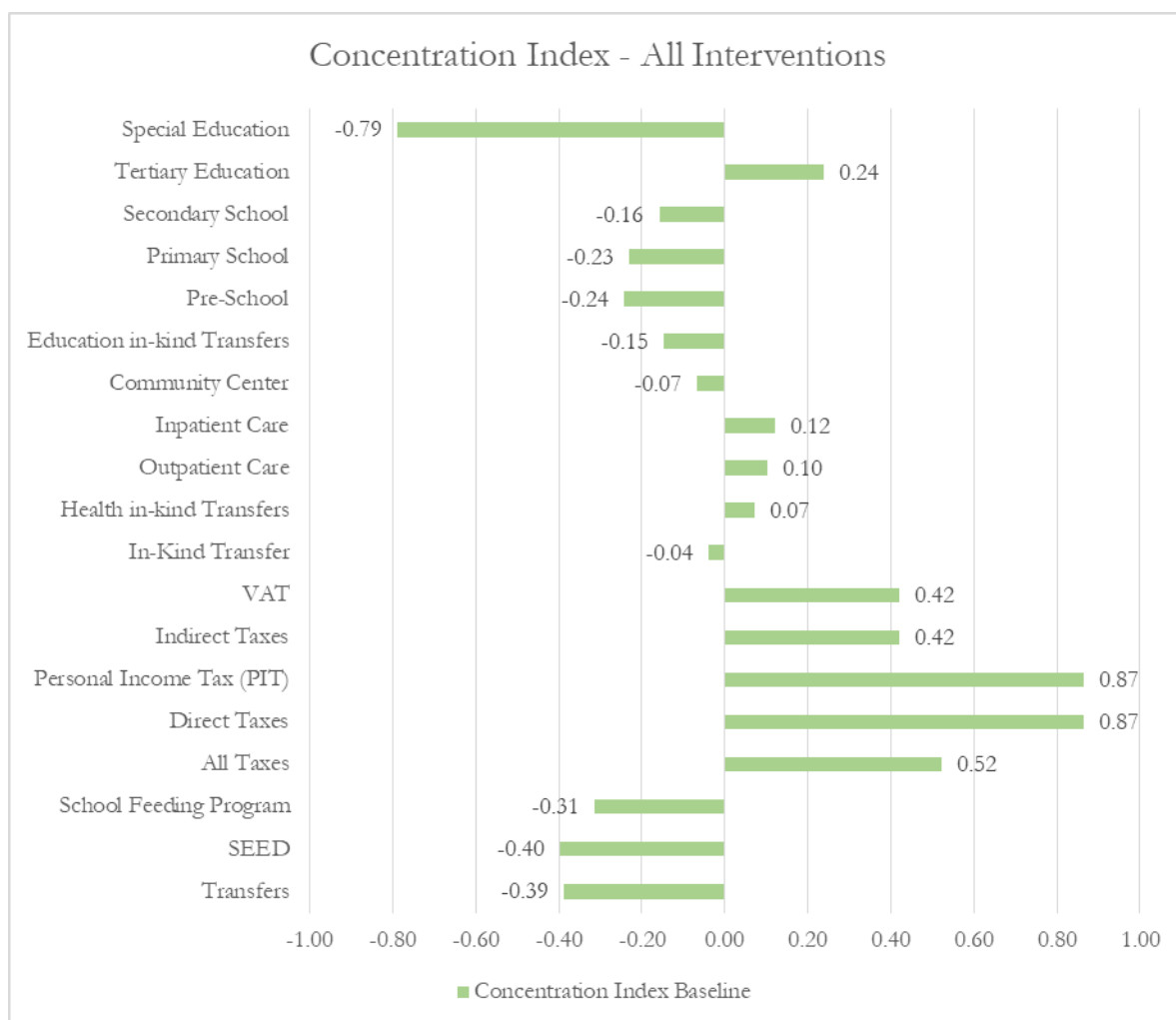
Source: Own calculation based on SLCHBS 2018.

5.4 How progressive are the fiscal interventions?

Concentration indices were calculated for each direct transfer, direct and indirect taxes, and in-kind transfer to examine the distributive characteristics of fiscal interventions. A concentration index (CI) summarizes the relationship between initial income and the intervention analyzed. In the case of a tax, a concentration index with a positive ($CI > 0$) sign and high value indicates households with higher incomes pay more; if it tends to zero, then the tax is not related to the level of income. On the other hand, when direct transfers are analyzed, if they have a negative concentration index ($CI < 0$), it indicates that the lower the income, the higher the amount of transfers received; if it is zero, it indicates that the transfer is universal and the level of pre-fiscal income does not matter.

Direct taxes and direct transfers present high levels of concentration. The concentration indexes provide some interesting insights about Grenada's fiscal system (figure 18). First, the SEED program and school feeding mainly targets low-income people; this is observed through the negative sign of the concentration coefficient and indicates a negative relationship between income and transfer. Second, the PIT concentration index is very high and positive, which shows that this tax impacts high incomes. Third, as noted above, indirect taxes show a positive concentration index, although significantly lower than in the case of the PIT. Thus, this tax is paid by the entire population, but those at the top of the distribution pay proportionally more relative to their income. Finally, health transfers are almost neutral, even though the middle- and high-income population uses the services. However, health services in community centers show a negative concentration index, indicating that these are preferentially used by the population in the lower part of the distribution (on both an inpatient and an outpatient basis), as opposed to hospital care. Regarding education services, it should be noted that, except for tertiary education, all levels serve mainly the low- and middle-income population. At the same time, tertiary education is available mainly to the high-income population, with education as a whole being progressive.

Figure 18: Concentration index by fiscal intervention



Source: Own calculation based on SLCHBS 2018.

Grenada developed a fiscal policy with distributively neutral characteristics and a modest potential to reduce monetary poverty. Disposable income, which incorporates transfers and subtracts direct taxes, is virtually unchanged from market income and the change in inequality is imperceptible. On the other hand, consumable income, which considers the payment of indirect taxes (VAT and Excise Tax), represents 92.7 percent of market income. Although this difference is significant, its contribution to changes in inequality is not very noticeable. When in-kind transfers are added, final or post-fiscal income is 0.7 percent higher than market income, with a modest potential for inequality reduction.

5.5 How progressive or regressive are interventions and overall fiscal policy?

Progressivity measures enable the understanding of the effects of fiscal interventions across the income distribution. The concepts of progressivity and the impact of fiscal interventions on inequality have been discussed extensively using well-known

instruments such as the Lorenz curve (L) and concentration coefficients (CC), as well as the Kakwani disproportionality index (Π_T^K).¹² The last is the difference between the concentration index of a tax (CT) and the Gini index of pre-fiscal revenue (G_x), expressed as $\Pi_T^K = C_T - G_x$. The condition for a tax to be equalizing, neutral, or unequal is that $\Pi_T^K > 0$, $\Pi_T^K = 0$, or $\Pi_T^K < 0$, respectively. In a framework of various interventions, taxes, and transfers, Lustig and Higgins (2018) use Lambert's conundrum for distinguishing progressivity from equalization, especially when assessing the overall fiscal outcome.

Box 1. Progressivity Criteria for Taxes and Transfers in the CEQ Handbook

Based on the analysis of the distribution of tax policy interventions, Lustig and Higgins (2018) established criteria for whether taxes and transfers are progressive or regressive by looking at both concentration (CC) and Kakwani indices (Kk). For **taxes**, the following rules are valid:

- ✓ Taxes are highly regressive if $CC = 0$ and $Kk < 0$
- ✓ Taxes are globally regressive if $CC < \text{Gini (market income)}$ and $Kk < 0$
- ✓ Taxes are proportional if $CC = \text{Gini (market income)}$ and $Kk = 0$
- ✓ Taxes are globally progressive if $CC > \text{Gini (market income)}$ and $Kk > 0$

For **transfers**, the rules are

- ✓ Transfers are globally progressive in absolute terms if $CC < 0$ and $Kk > 0$
- ✓ Transfers are globally progressive if $CC < \text{Gini (pre-transfer income)}$ and $Kk > 0$
- ✓ Transfers are neutral in absolute terms if $CC = 0$ and $Kk > 0$
- ✓ Proportional transfer if $CC = \text{Gini (pre-transfer income)}$ and $Kk = 0$
- ✓ Transfers are globally regressive if $CC > \text{Gini (pre-transfer income)}$ and $Kk < 0$

Source: Lustig and Higgins (2018)

Grenada has managed to establish a tax system with progressive direct taxes, neutral indirect taxes, and globally progressive transfers that is redistributive but that has substantial space to increase efficiency in the reduction of inequalities. Calculation of the concentration indexes of fiscal interventions in Grenada and obtaining the revenue concepts yielded the following results (Table 4). All taxes have a concentration index of 0.522, higher than the Gini index of market income, and a Kakwani index that is positive but close to zero, which defines this intervention as globally progressive. This result is stronger in the PIT case, while the VAT behaves more like a proportional tax. Similarly, when the transfers are analyzed, they show a negative concentration index and a positive Kakwani measure, so that they can be considered globally progressive in absolute terms. Both transfers have this characteristic in such a way that the benefits (per equivalent adult) decrease when (pre-fiscal) market income increases.

¹² The Kakwani index is defined as the difference between the concentration coefficient of an intervention and the Gini coefficient of the base income. This index ranges from -1 to 1 and the higher its level, the more progressive the fiscal intervention under consideration. In the case of transfers, the index is defined as $K_m^{Trans} = -(D_m^{Trans} - G_m)$, while for taxes it is defined as $K^{Tax} = (D_m^{Tax} - G_m)$, where K is the Kakwani index, D_m^{Trans} is the concentration ratio of the considered transfer when the population is ordered as a function of market income, D_m^{Tax} is the concentration coefficient of the considered tax when the population is ordered as a function of base income, and G_m is the Gini index without the transfer/tax (base income index).

Table 4: Concentration index and progressivity of fiscal intervention

	Size (wrt Market income)	Gini index	Concentration index	Kakwani index	Inequality reduction effect
MARKET INCOME	1	0.416			
DISPOSABLE INCOME	0.998	0.397			
- SEED	0.016		-0.396	0.812	0.013
- Schooling program	0.001		-0.312	0.729	0.001
All Direct Transfers	0.017		-0.387	0.803	0.014
- PIT	0.019		0.865	0.449	0.009
CONSUMABLE INCOME	0.927	0.395			
- VAT	0.070		0.422	0.006	0.000
- Excise Tax					0.000
All Indirect Taxes	0.070		0.422	0.006	0.000
All Taxes	0.089		0.522	0.106	0.010
FINAL INCOME	1.007	0.367			
- Benef. In-patient attendance	0.024		0.121	-0.295	-0.007
- Benef. Out-patient attendance	0.007		0.104	-0.312	-0.002
- Benef. Community health	0.010		-0.066	-0.482	-0.005
All health attendance	0.040		0.072	-0.344	-0.014
- Pre-school attendance	0.006		-0.241	-0.657	-0.004
- Primary school attendance	0.013		-0.230	-0.647	-0.009
- Secondary school attendance	0.015		-0.157	-0.573	-0.009
- Tertiary attendance	0.005		0.240	-0.177	-0.001
- Special education attendance	0.000		-0.788	-1.204	0.000
All education attendance	0.039		-0.147	-0.563	-0.023
All In-kind Transfers	0.079		-0.039	-0.455	-0.039

Source: Own calculation based on SLCHBS 2018.

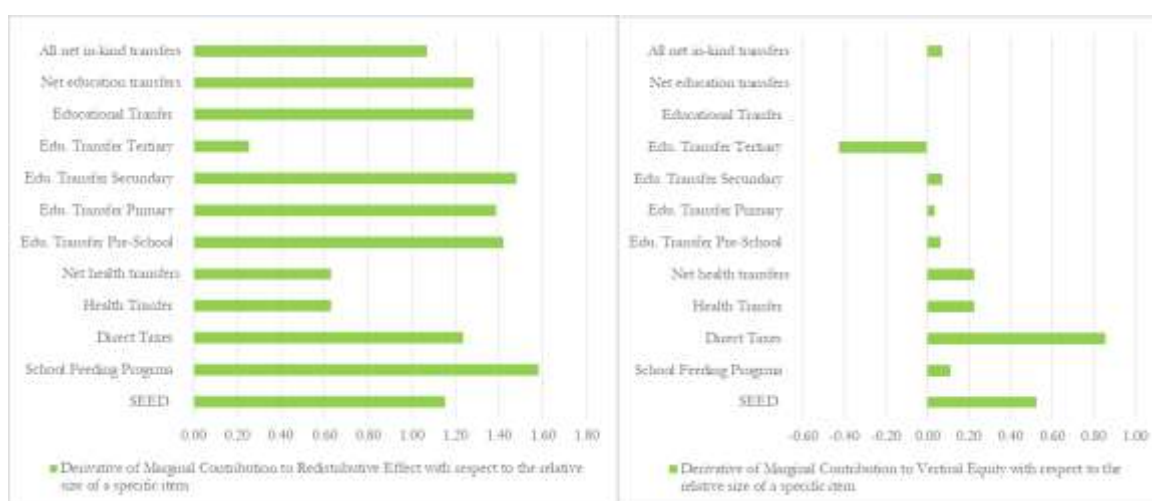
5.6 What is the marginal contribution to the redistributive effect of fiscal interventions?

Except for tertiary education, fiscal policies contribute to the reduction of inequality. In this part of the paper, we use the definitions of the marginal contribution to the redistributive effect of fiscal interventions, mainly those contributions with respect to the relative size of specific items as well as vertical equity, included in the concepts proposed by CEQ. Both help with showing which interventions (or groupings of them) are effective in reducing inequality through fiscal policy. This exercise shows that, with the exception of tertiary education, the rest contribute to the reduction of inequalities. When looking at vertical equity, direct transfers are more effective in reducing inequality than direct taxes, which, as we recall, are mainly targeted at middle- and high-income earners.

Figure 19 Marginal Contribution to Redistributive Effect by Fiscal Intervention

(a) With respect to the relative size of a specific item

(b) Marginal contribution to vertical equity



Source: Own calculation based on SLCHBS 2018.

6 Conclusions and Regional Comparisons

This paper analyzes the distributional incidence of recent fiscal policy in Grenada using the framework of the Tulane University CEQ methodology. Based on the 2017–2018 Survey on Living Conditions and Household Budgets, we estimate the household consumption aggregate (which includes food, non-food, durable goods consumption, and imputed housing rent). Assuming that this aggregate represents disposable income, we constructed the concepts of pre-fiscal and post-fiscal income required for the distributional incidence analysis.

This document provided evidence of the incidence of direct and indirect taxes; direct transfers provided by SEED and the school feeding program; and in-kind transfers generated by public services in health and education. We concentrate on answering three questions:

(1) Who bears the burden of taxation and who benefits from direct and indirect transfers?

When the population is ordered according to net market income, it is observed that the first two deciles receive transfers to a greater extent than what they pay in direct and indirect taxes, while the population in the deciles from the third upward is a net payer. According to this result, Grenada’s fiscal policy design is indeed focused on the low-income population. While the middle of the income distribution pays more than they receive, the net effect is significant in the top deciles (especially in the 10th decile). It is usual for taxes such as a VAT or other general sales taxes to be neutral or to affect household disposable income proportionally across the income distribution.

(2) What is the potential of fiscal policy to reduce poverty?

According to proposed estimates, the headcount poverty index in Grenada decreases by about 2.2 percentage points (from 25 to 22.77 percent) from market income due to the effects of direct transfers and direct taxes, while this reduction is reversed when indirect taxes (VAT and excise tax) are included. However, we must take into account the overestimation of the VAT payment due to cascading effects since deductions were not incorporated nor the evasion due to purchases in the informal sector.

(3) To what extent is fiscal policy redistributive in Grenada?

According to our results, the Gini index changes by 4.9 percentage points between net market income and post-fiscal income, which includes all the interventions analyzed. However, the changes attributed to direct transfers and direct and indirect taxes account for about 2 percentage points while the remainder is attributed to in-kind transfers associated with education and health services.

At the same time, to determine the progressivity of the interventions, the concentration indexes of transfers and taxes were calculated. The results are summarized as follows:

- (a) both the SEED and the school feeding programs mainly target low-income people; this is observed through the negative sign of the concentration coefficient and indicates a negative relationship between income and transfer;
- (b) the PIT concentration index is very high and positive, which shows that this tax impacts high incomes;
- (c) as noted above, indirect taxes are associated with a positive concentration index, although significantly lower than in the previous case; and
- (d) health transfers are almost neutral, even though the middle- and high-income population uses the services. However, health services in community centers show a negative concentration index, indicating that these are preferentially used by the population (on both an inpatient and outpatient basis) in the lower part of the income distribution, as opposed to hospital care.

Regarding education services, it should be noted that, except for tertiary education, all levels serve mainly the low- and middle-income population. At the same time, tertiary education is available mainly to the high-income population, with education as a whole being progressive.

Regarding changes in inequality attributed to fiscal interventions, Grenada presents results in line with what is expected in comparable countries (mainly Central America and Jamaica). In Grenada, the Gini index is more sensitive than in Jamaica but less

sensitive than in Costa Rica. These results point to the redistributive potential of fiscal policies pursued by the Government of Grenada.

Table 5: Gini coefficients for CEQ income definitions for selected countries

Country	Market income*	Disposable income	Consumable income	Final income
Grenada (2018)	0.416	0.397	0.395	0.367
Costa Rica (2010)	0.508	0.489	0.486	0.402
Dominican Republic (2013)	0.517	0.505	0.496	0.417
El Salvador (2017)	0.400	0.384	0.381	0.331
Guatemala (2014)	0.476	0.463	0.463	0.427
Honduras (2011)	0.577	0.571	0.568	0.506
Panama (2016)	0.557	0.534	0.529	0.432
Jamaica (2018)	0.367	0.361	0.358	0.351

Source: Authors' calculation (Grenada) and CEQ – Standard Indicators (2022).

This analysis has aimed to obtain as complete a picture as possible of the redistributive effect of taxes and expenditures in Grenada. With the support of the World Bank Group, the International Monetary Fund, and other international organizations, Grenada is developing economic reforms to promote growth and support economic activities, especially after the impact of COVID-19, which hit the economy and the health situation of the population hard.

Along with this document, the project incorporates policy simulation tools to evaluate policies that promote poverty reduction and equity.

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APPENDIX A: MACROECONOMIC AND FISCAL DATA

Table 6: Central Government Fiscal Balance , 2014–2018 (in EC\$, millions)

	2014	2015	2016	2017	2018
Total revenue	602.8	658.5	751.6	778.2	849.1
Revenue	502.3	571.3	651.6	700.1	754.8
Tax revenue	448.1	511.8	600.5	651.9	703
- Tax on income and profits	89.9	101.7	127.3	140.6	153.9
- Taxes on property	21.3	23.3	23.9	24.3	29.2
- Taxes on goods and services	193.4	214	244.8	263.7	276.4
- Taxes on international trade	143.5	172.8	204.5	223.3	243.4
Non tax revenue	54.2	59.5	51.1	48.2	51.8
Citizenship by investment program	0.3	16.3	3,4	4,9	3,3
Fees, fine, and sales	19	18,5	23.1	22.8	25.4
Licences and other	30.0	18.4	16.6	18.2	23.1
Grants	100.5	87.2	100	78.1	94.3
Total expenditure and net lending 1/	717.6	690.6	685.6	686.6	695.3
Current expenditure	490.9	467	565.5	605.9	608.5
Wages and salaries	242.4	215.3	240.4	246.9	251.6
NIS contributions	11.4	10.6	11.2	18.4	12.7
Goods and services	72.2	75.9	117.6	126.5	130.7
Transfers	77.7	75.3	113.9	133.2	150.3
Transfers abroad (Contributions)	13.1	13.8	14.3	20.8	19.6
Grants and subventions (other private sector)	24.2	23.7	41.4	48.1	56.5
Public assistance	0	0	16.9	20.6	21.5
Pensions	40.3	37.8	41.4	43.7	52.6
Interest payments	87.2	89.9	82.3	81	63.2
Capital expenditure and net lending w/o natural disaster	226.7	223.6	120.1	80.6	86.8
Grant financed	90.6	87.2	74	64.2	74.9
Non-grant financed	136.1	136.5	46.1	16.4	11.9
Primary balance 2/	-27.6	57.8	148.3	172.6	217
Overall balance	-114.8	-32.2	66	91.6	153.8
Public debt	2504.5	2425.4	2338.1	2130.9	2030.8
Memo items:					
Nominal GDP (EC\$, millions)	2461	2692	2866	3043	3202

Source: IMF.

Table 7: Estimate of Value Added Tax (in EC\$, millions)

			Est. Outturn	Est. Outturn
	2018	2019	2020	2021
Total revenue and grants	849.1	871.9	792.7	886.3
Tax revenue	703	718.7	622.8	596.4
Taxes on income and profits	153.9	151.4	135.0	114.0
Personal Income Tax			65.9	58.0
Corporate Income Tax			58.3	45.1
Withholding Tax			10.8	10.9
Taxes on property	29.2	39.7	34.8	29.4
Taxes on domestic goods and services	276.4	282.2	128.2	120.6
Value Added Tax			103.7	98.5
Excise Tax			2.7	2.7
Stamp Duty			2.5	1.8
Annual Stamp Tax			18.9	16.9
Embarkation Tax			0.1	0.1
Gaming Tax			0.4	0.5
Taxes on international transactions	243.4	245.4	324.8	332.3
Import Duty			73.7	75.3
Consumption Tax; Imported G & S			-	-
Petrol Tax			55.4	58.2
Customs Services Charge			50.9	54.1
Environmental Levy			10.2	10.1
Miscellaneous Customs Revenue			1.3	1.7
Value Added Tax			113.2	114.7
Excise Tax			19.9	18.3
Memo ítem				
VAT domestic + imports			216.9	213.3

Source: own's estimation based on World Bank preliminary tables

Appendix B: Construction of Consumption Aggregate

From the SLCHBS, this aggregate includes the following items:

- (a) Purchases of food consumption (F). Survey respondents are asked whether they consume each product on a list, the quantities purchased in the past seven days and the corresponding expenditure (bakery, cereals, beef and meats, fish, milk, vegetables, fruits, meals and snacks, non-alcoholic and alcoholic beverages and food and drinks consumed out of home). All expenditures were annualized. Food received as a gift in the last four weeks was imputed with the information on the average expenditure per unit observed for the purchases.
- (b) Non-food expenditures (N). These include expenses related to housing, utilities, services, furniture and furnishing, electronic products and equipment, clothing and shoes, transport and other expenses in education, and health care and others. Because expenses have different reference periods, this component was also annualized.
- (c) Estimated consumption of vehicles (V). To obtain the consumption value of vehicles, the difference between the purchase price (MPr) and the residual price (RPr) was estimated, divided by the years of age of vehicle (Age) and weighted by the fraction of household use (f) :
$$V = \frac{MPr - RPr}{Age} * f$$
- (d) Imputed rent of own-occupied housing (R). According to the recommendations for the construction of the consumption aggregate (Deaton and Zaidi, 2002), this part is relevant due to the flow of welfare received by homeowners living in their own homes. The survey captures the self-report of the rent that the owner would pay (R). However, because this amount is overestimated, we obtain estimates based on observations of rents actually paid (although the number of observations of rented housing was relatively small). In this project, this value was estimated through the following steps: (1) a distribution of paid rents was obtained and ordered in a variable (Y) using 20 brackets; (2) a Poisson model of self-reported rents (R) was estimated, conditional on housing characteristics, including the geographic location: $E(R|X) = \exp(XB)$; (3) the prediction of these values was also ordered in 20 percentiles; (4) the values of the observed distribution were matched to the ordering of own housing; and (5) we obtained the net imputed rent by subtracting the homeowners' expenses for home repairs (labor). Because of this, the expenses of construction and labor are not taxed. This concept is closer to the welfare flow that households receive for occupying their own home. In case of households with rental house pay, this amount is part of non-food expenditures.

The consumption aggregate (C) is thus equal to food purchases and gifts (F), non-food purchases (N), household vehicle consumption (V), and imputed rent of own housing (R): $C = F + N + V + R$. Of these items, only food and non-food items are subject to the VAT or excise taxes. According to the methodology, this aggregate is expressed by adult equivalent (instead per capita) and used for the estimation of official poverty and inequality statistics in the country. The adult equivalence scales are determined

following the same as used in the 2007–2008 poverty estimation by the World Bank and adopted by the GoG.

Table 8: Adult Equivalence Scales (ae)

Age range	Male	Female
Less than one	0.27	0.27
1 to 3	0.47	0.44
4 to 6	0.61	0.55
7 to 9	0.70	0.61
10 to 14	0.83	0.70
15 to 18	0.92	0.74
19 to 29	1.00	0.74
30 to 60	0.97	0.73
61+	0.77	0.62

Source: CDB – Country Poverty Assessment: Grenada Carricou, Martinique 2007/2008.

Finally, instead of using this aggregate in per capita terms, it is calculated considering the sum of equivalent adults: $C(ae)_h = \frac{C_h}{\sum_{i=1}^{m|h} ae_{i|h}}$.