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The Belizean Economy in the 21st Century: When and Why Belize Fell Behind and What to do About It

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Victor Bulmer-Thomas is Professor Emeritus of Economics at London University and Honorary Professor at the Institute of the Americas, University College London. The author of many books and articles on Latin America and the Caribbean, he coauthored (with Barbara Bulmer-Thomas) The Economic History of Belize, published by Cubola in 2012.

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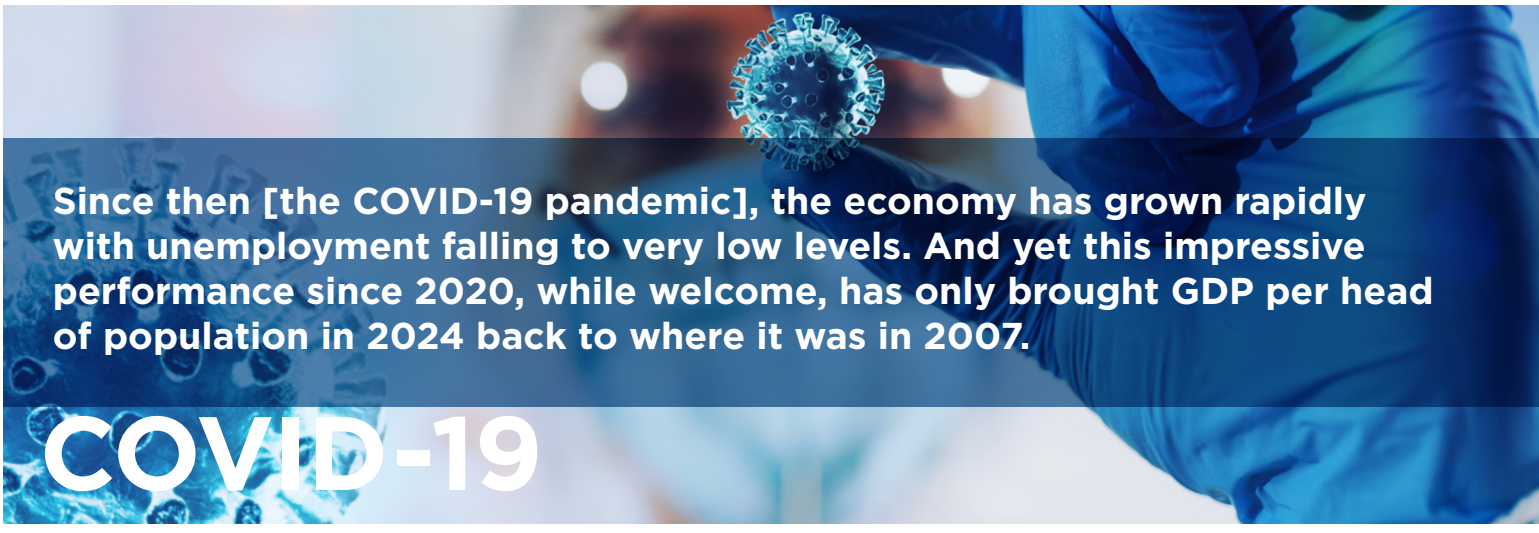
EXECUTIVE SUMMARY

The Belizean economy, like so many countries dependent on tourism, suffered a huge fall in Gross Domestic Product (GDP) in 2020 as a result of the pandemic known as COVID-19. Since then, the economy has grown rapidly with unemployment falling to very low levels. And yet this impressive performance since 2020, while very welcome, has only brought GDP per head of population in 2024 (after adjusting for inflation) back to where it was in 2007. This means that Belize has underperformed in comparison to both of its peer groups – the Caribbean and Central America – leaving it as the third poorest country in the Caribbean in terms of GDP per head and experiencing a relative decline against all Central American countries in the last two decades.

Forecasts of the Belizean economy by international agencies suggest that growth of GDP will soon revert to much lower rates that are only marginally higher than the increase in population. The forecasts may be incorrect, but it would be unwise to ignore them – especially as income and wealth distribution in Belize may be shifting towards greater inequality. Thus, the second part of the paper is concerned with new ways of looking at the Belizean economy to see what scope there might be for different approaches that could raise the long-run sustainable rate of growth of GDP per head while improving income distribution. The key to this approach is input-output analysis, never before employed in Belize, using an input-output table derived from data published by the Statistical Institute of Belize.



Since then [the COVID-19 pandemic], the economy has grown rapidly with unemployment falling to very low levels. And yet this impressive performance since 2020, while welcome, has only brought GDP per head of population in 2024 back to where it was in 2007.

As we shall see, despite the good economic performance after 2020, Belize is still one of the poorest countries in the Caribbean and no longer so well placed in Central America either.

INTRODUCTION

In his budget speech for 2025/6, Prime Minister John Briceño was understandably pleased with what he had to report. Paraphrasing the International Monetary Fund (hereafter IMF), not an institution to which Belizean governments normally defer, he stated:

'In 2024, according to recently published IMF data, Belize had the highest GDP growth rate in the Western Hemisphere, at 8.2 percent, second only to the oil exporting nation of Guyana.

97 out of every 100 Belizeans who seek jobs are now working. This government has achieved a primary budget surplus each year in office. The minimum wage was raised for all workers by 50 percent, to $5 per hour. And foreign direct investment has totalled $1.12 billion over the four year period January 2021-September of 2024.

Not only was default vanquished, but the Belize dollar is stronger than ever, sustained by combined central bank and commercial banks foreign exchange deposits of almost $2.2 billion.'

There is no doubt that the recovery of the Belizean economy since the start of the global pandemic (COVID-19) in early 2020 has been impressive. After falling 13.9 percent in 2020, GDP at constant prices rose 17.7 percent in 2021 and had surpassed its pre-pandemic level as early as 2022. Meanwhile, debt restructuring, especially the replacement of the Superbond by the Blue Bond, led to a sharp fall in the ratio of public debt to GDP and a reduction in the cost of debt servicing compared with what Belize would have had to pay if it had serviced the previous debts in full.[1] And the unemployment rate - aided, it must be admitted, by a change in methodology - fell from 14 percent in 2020 during COVID-19 to an unprecedented 2.1 percent in September 2024.[2]

Under these circumstances, it seems almost churlish to refer - as the title of this paper does - to regression and stagnation in the Belizean economy in the 21st century. And yet the long-term evidence is inescapable. As we shall see, despite the good economic performance after 2020, Belize is still one of the poorest countries in the Caribbean and no

1 The Blue Bond was launched in November 2021, replacing the Superbond on which Belize had defaulted and reducing the ratio of the stock of public debt to GDP by 12%. For details, see The Nature Conservancy (2023), pp.1-19.

2 See Labour Force Survey (September 2024, p.1). The new methodology has a much stricter definition of unemployment. According to the Statistical Institute of Belize (see Labour Force Survey for April 2024, p.2) 'Persons who are not employed and are not actively seeking or available for work fall outside of the labour force. This group includes people of various ages who are not active in the labour force for various reasons such as attending an educational institution, performing unpaid household work, being retired, or being discouraged from seeking employment.'

longer so well placed in Central America either. Furthermore, this is unlikely to change in the next few years since the growth of the economy since COVID is essentially a recovery and not a move to a higher sustainable long-run rate of growth.[3] Indeed, the IMF forecast for the next five years is annual growth of GDP at constant prices of 2.5 per cent in 2026 falling steadily to 2.0 percent in 2030.[4]

This IMF forecast refers to GDP at constant prices - not GDP per head (i.e. GDP divided by population). Since the number of people living in Belize is growing, we need to know what will happen to population if we are to forecast GDP per head and, by implication, living standards. This, as it turns out, is not as easy as it might seem and is one of the reasons why there is so much reluctance to publish estimates of Belizean GDP per head at constant prices (see below).

The 2022 Census recorded a lower population (397,500) than previously estimated for that year (444,800). This suggests that the demographic transition found in so many other countries is now under way in Belize. However, the Crude Birth Rate (CBR - births per thousand of the population) was still 15.7 in 2023 (it had been 41 as recently as 1982), while the Crude Death Rate (CDR) was 5.7 in the same year.[5] Thus, the natural rate (births less deaths) of population growth is currently around one percent per year.[6]

There is, however, net migration inwards to take into account - something that has been very important in Belize for many years as a result of more migrants arriving than leaving. Since it can be assumed that migration inwards will continue to be greater than migration outwards, it is likely that net migration will be at least 0.5 percent per year (equivalent to a net migration figure of around 2,000 a year). This gives a forecast of total (net births plus net migration inwards) population growth for the next five years of 1.5 percent.

This is not only reasonable, but possibly even conservative[7] – especially in the light of the new US approach to undocumented migrants (less Belizeans will go to the US and more will be deported). And if we deduct population growth of 1.5 percent per year from the IMF forecast of 2.0/2.5 percent growth in GDP at constant prices in the next five years, that means between half a percent and one percent per year for an increase in GDP per head at constant prices. That leaves hardly any room for an increase in living standards on current policies, which is a depressing prospect given how low living standards for many people currently are.

3 The forecasts by international bodies, to which Belize belongs, have already downgraded GDP growth for 2025 as a result of the turbulence in the world economy. ECLAC/CEPAL, for example, has lowered GDP growth at constant prices in 2025 to 3.0 percent. See ECLAC/CEPAL (2025).

4 See IMF, World Economic Outlook Database, April 2025

5 See Statistical Institute of Belize, Abstract of Statistics, 2023, p.154 and p.158.

6 I have not yet seen any figures for 2024. However, for 2023 the World Bank (using statistics provided by the Government of Belize) has a CBR of 18.03 and a CDR of 4.93, implying a natural increase in population of 1.3 percent - even higher than that published in the Abstract of Statistics (see footnote 5 above).

7 The annual rate of population increase between the census in 2011 and the census in 2022 was 1.75%.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The most common proxy for living standards, and the one that is easiest to compare across countries, is still GDP per head at constant prices. It may be flawed in many ways, and undoubtedly is (as much research has shown), but it is the indicator we have and the one that is most frequently used. Surprisingly, however, the Belizean authorities do not report it. Instead, the Central Bank of Belize (CBB) and the Statistical Institute of Belize (SIB) record each year (a) GDP at current prices, (b) GDP per head at current prices and (c) GDP at constant prices. However, they do not report GDP per head at constant prices, which is why government officials do not usually refer to it and nor does the IMF in its regular Article IV reports on the Belizean economy.

To know what has happened to GDP per head at constant prices, researchers must either make the calculations themselves, using population data published by both CBB and SIB, or use the estimates of GDP per head at constant prices in, for example, World Bank, *World Development Indicators (WDI)* or IMF, *World Economic Outlook Database*, which use data provided to them by the Belizean authorities. However, there is a big problem with the data published by CBB and SIB. This is because the census taken roughly every ten years, which is assumed by the authorities to give an accurate count of population in the census year, is always different from the intercensal estimates that are based on registered births and deaths and an estimate of net migration.

Since net migration includes undocumented migration inwards as well as unrecorded migration outwards, it is not surprising that it is very difficult to calculate accurately. The logical next step is therefore to adjust the intercensal results once each new census is published. However, the Belizean authorities are slow to do this. Thus, the most recent population series published by CBB (see 'Major Economic Indicators (2001-23)') shows a population (in thousands) of 333.2 in 2009 and 323.0 in 2010. This implies that the population **dropped** between those years, which is hardly likely. The series then records 'not available' for 2011 despite this being a census year. Meanwhile the figure for 2022 is still given as 444.8 despite the fact that the census in that year recorded a number of 397.5 - a difference of more than 10 percent.[8]

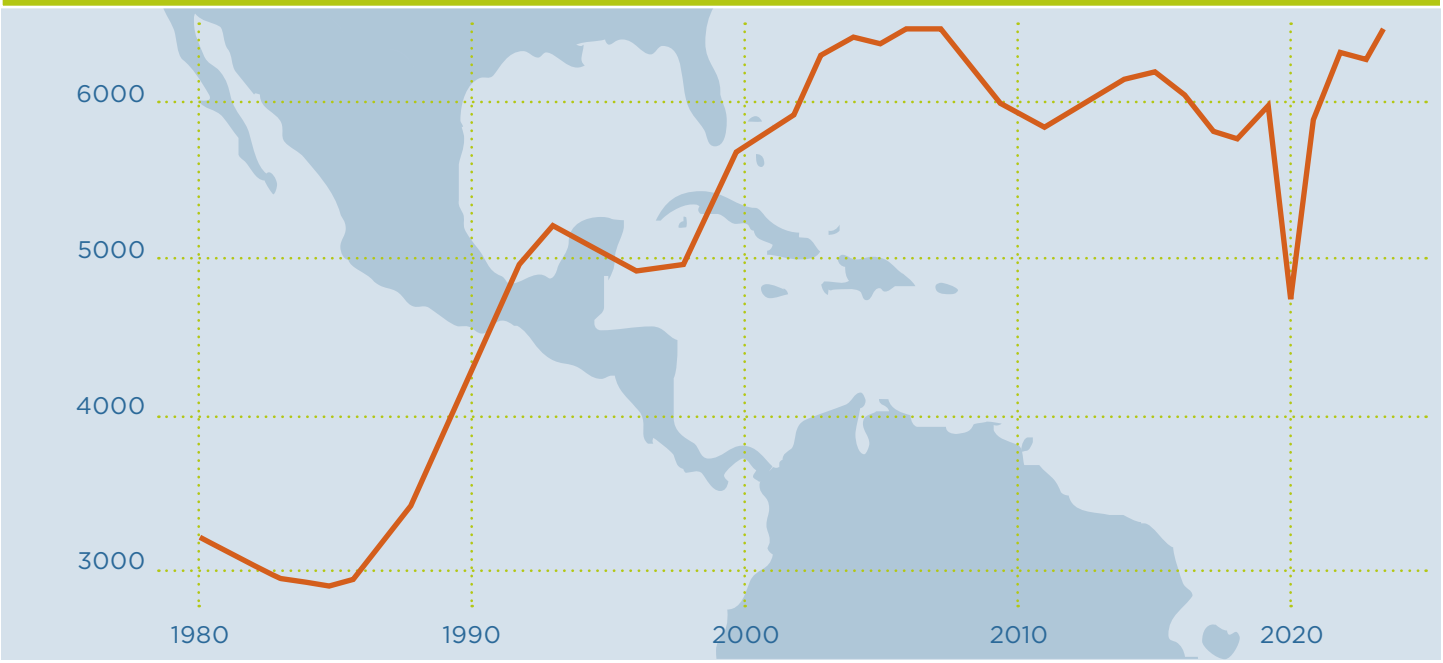
It is easier therefore to use the population series published by official multilateral agencies such as the World Bank. In *World Development Indicators*, for example, there is a series going back to 1960 that 'smooths' intercensal data to take account of the corrections needed as a result of each census. There are therefore no improbable changes in population such as those listed above. It is not ideal and it is not clear whether the smoothing has been done by World Bank or Belizean officials (I am assuming it is the latter), but it does avoid breaks in the series and inexplicable results.[9] I have therefore chosen to use it throughout this paper when referring to population either directly or indirectly.

8 In fairness to SIB, they have adjusted the data between 2011 and 2022 (census years), although it shows a fall in population between 2021 and 2022 that does not seem likely.

9 The SIB in its Annual Abstract of Statistics does smooth the data, but the most recent published series does not go back to independence.

FIGURE 1

BELIZE GDP PER HEAD (2015 CONSTANT US DOLLARS):1980-2024



Source: World Bank, World Development Indicators, for 1980-2023. For 2024 I have derived it from the figure in IMF, World Economic Outlook Database

Using GDP per head at constant (2015) prices taken from WDI - and remember the GDP numbers used to make these calculations are all provided to the World Bank by the Belize government - we find that living standards (using GDP per head at constant prices as a proxy) in 2024 were still no higher than their level between 2003 and 2007 (see Figure 1).[10] Indeed, the level in the previous year (2023) was much lower and the position was only rescued by rapid growth of GDP per head at constant prices in 2024 (a figure that may yet be revised downwards). Thus, living standards have stagnated for some 20 years with a decline from 2007 to 2019 and then a catastrophic drop in the year the pandemic struck (see Figure 1).

All this is in sharp contrast to the first 25 years after independence when living standards rose rapidly. True, there were periods of decline, but they only lasted a few years before growth was reestablished (see Figure 1). So living standards roughly doubled in the quarter century after independence, but have not only not increased in the two decades since then but actually declined for most of that time. Of course, it would be wonderful if the leap in GDP per head at constant prices starting in 2021 could be sustained for many years, but there is sadly no evidence that this can happen (indeed, GDP per head at constant prices actually fell in 2023). The IMF estimates the output gap[11] disappeared in 2024 and, as already mentioned, is forecasting growth of GDP at constant prices of 2.0/2.5 percent per year for the next five years (2026-30), implying a very small annual increase in GDP per head at constant prices over the same period.

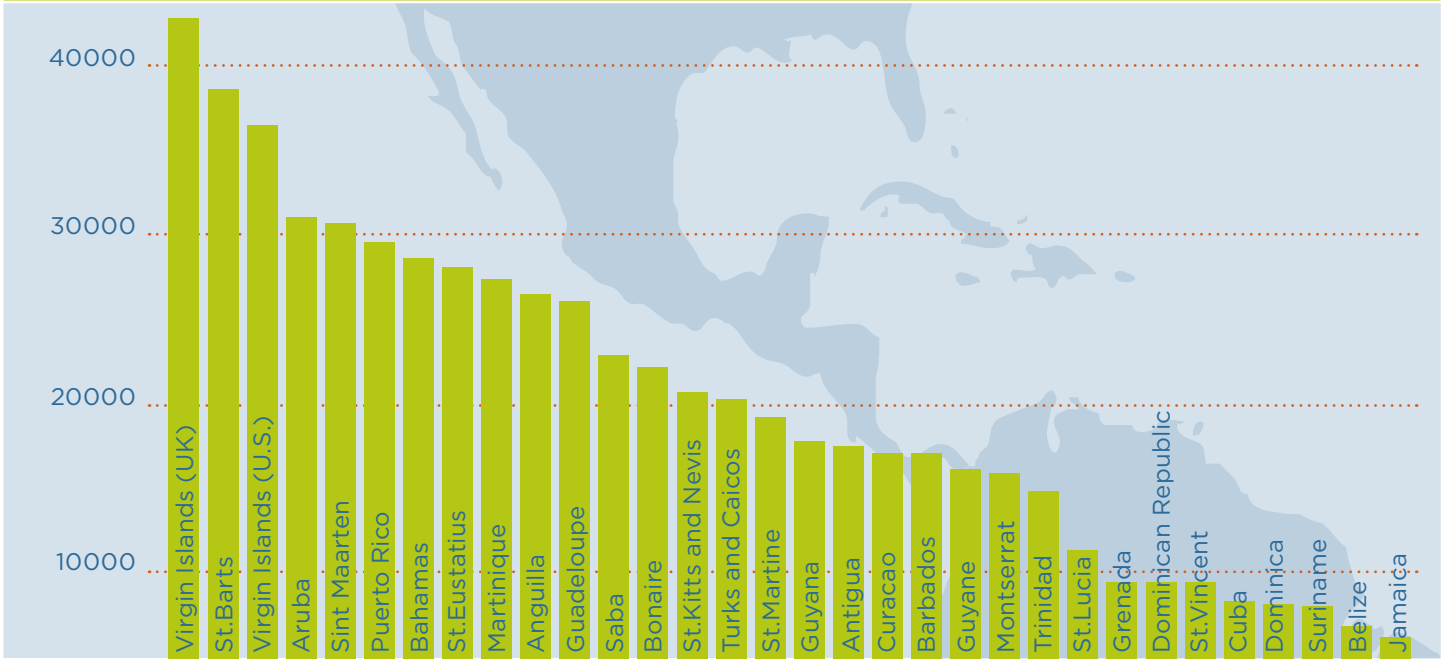
10 As there is no estimate yet for 2024 in the World Bank database, I used the estimate for that year in the IMF database. This is based on numbers provided to it by the Government of Belize.

11 The output gap measures the gap between actual GDP and the GDP that might be expected if the labour force and the capital stock were fully employed.

Where does this leave Belize in regional comparisons? Looking first at the Caribbean, we need to decide which countries should be in the comparison. If we define the Caribbean as all the islands plus the three Guianas and Belize, then there are 34 countries. Sixteen of these are independent and 18 are non-independent, of which six are Dutch (Saba, St. Eustatius, Sint Maarten, Curaçao, Bonaire and Aruba), five are French (la Guyane, Guadeloupe, Martinique, St. Barthélemy, St. Martin), five are British (Anguilla, British Virgin Islands, Cayman Islands, Montserrat and Turks & Caicos Islands) and two are US territories (Puerto Rico and US Virgin Islands). Data on all the independent countries and a few non-independent ones can be found in World Bank, World Development Indicators, but for most of the non-independent countries one has to go to their national sources. All 34 countries, however, do produce estimates of GDP per head at constant prices and I have used these (taking three-year averages) to rank all 34 from richest to poorest.[12]

FIGURE 2

CARIBBEAN GDP PER HEAD IN 2022 (2015 CONSTANT US DOLLARS AND 3 YEAR AVERAGE)



Source: derived by author from World Bank, World Development Indicators (WDI), and national sources for those non-independent countries not in WDI.

The richest by far is the Cayman Islands and the poorest, also by a long distance, is Haiti.[13] Indeed, these two countries are such extreme outliers that it makes more sense to restrict our comparisons to the other 32 countries. This is done in Figure 2 using GDP per head at constant prices (three-year averages) and it shows that, using the most recent data, Belize is the poorest in the Caribbean apart from Jamaica (and, of course, Haiti). This may come as something of a shock to many readers of this paper in Belize and, indeed, may be dismissed as 'fake news'. However, it must be emphasised that the data come from information provided by national governments, including Belize, and are not based on guesswork by the World Bank.

12 Not all the non-independent countries produce estimates of GDP per head at constant prices every year, so that in these cases a three-year average was not possible. I have chosen the year closest to 2022 and adjusted the data to 2015 prices.

13 The figure for the Cayman Islands is roughly US$80,000 and for Haiti US$1,000.

And it gets worse. Jamaica is now the poster boy/girl of the international financial institutions, having swallowed wholesale the medicine prescribed by the IMF. The Fund now projects annual growth in GDP at constant prices in Jamaica of 1.6 percent from 2026-30, which may appear lower than Belize until it is remembered that the population of the island is not growing in any significant way - indeed, in some years it shrinks as a result of a low birth rate and net migration outwards. Thus, the growth of GDP **per head** at constant prices in Jamaica is forecast by the IMF to be 1.5 percent, which is higher than Belize (estimated at 0.5 to 1.0 percent). On present trends, therefore, Jamaica will overtake Belize leaving Belize as the poorest country in the Caribbean apart from Haiti unless something dramatic happens in Belize's favour.[14]

Belize has not been, at least since independence in 1981, one of the richer countries in the Caribbean. However, its position has deteriorated sharply in the last 25 years. At the start of the new millennium, for example, Belize was ranked seventh from bottom in the Caribbean league table for GDP per head at constant prices - in other words, there were six countries that were poorer (see Table 1). Ten years later, Belize was fifth from bottom with four countries poorer. And finally, in the period 2019-23, Belize was ranked third from bottom with only two countries (Jamaica and Haiti) worse off.

We can also pinpoint the moment when Belize was overtaken in terms of GDP per head at constant prices. St. Vincent & the Grenadines overtook Belize in 2006,[15] Cuba in 2008, Dominican Republic in 2011 and Guyana in 2017. Of course, it is easy to dismiss the latter as the fortunes of Guyana were transformed by the commercial exploitation of offshore oil a few years ago, but it is much more a matter of concern that Belize was overtaken by Cuba, the Dominican Republic and St. Vincent during the last 20 years as none of these countries won the commodity lottery in the way that Guyana did.

TABLE 1

BELIZE: POSITION IN GDP PER HEAD CARIBBEAN RANKINGS (FIVE-YEAR AVERAGES)		
1999-2003	**2009-2013**	**2019-2023**
Rank from Bottom - 7	Rank from Bottom - 5	Rank from Bottom - 3
COUNTRIES BELOW BELIZE	**COUNTRIES BELOW BELIZE**	**COUNTRIES BELOW BELIZE**
St. Vincent	Dominican Republic	Jamaica
Dominican Republic	Guyana	Haiti
Guyana	Jamaica	
Cuba	Haiti	
Jamaica		

Source: derived by author from World Bank, World Development Indicators

14 If nothing changes, Jamaica would overtake Belize in terms of GDP per head by 2050. Of course, things will change so such a forecast is fairly pointless!

15 Interestingly, in a speech in December 2024, at the meeting to celebrate 20 years of ALBA-TCP, the Prime Minister of St. Vincent & the Grenadines said ""We went from an average level of development to a high one; this is thanks to the significant contribution of the ALBA Bank, PETROCARIBE, Cuba and Venezuela."

The other region to which Belize belongs is Central America, where there are seven countries. Apart from Belize, they are Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. At first sight, the position of Belize looks more promising. Since independence, Belize has been ranked third in this group - below Costa Rica and Panama, but above El Salvador, Guatemala, Honduras and Nicaragua. There have been no changes in the rankings, but Belize has suffered a relative decline against all other countries in the region when we look at the ratio of GDP per head at constant prices compared with the same metric in the other six countries.

This is done in Table 2, where we look at the five-year average for GDP per head at constant prices at the start of the millennium (1999-2003), ten years later (2009-13) and also most recently (2019-23). In every case, the ratio for Belize has declined. If we start with Belize in comparison with the average for the whole of Central America, it has gone from 134.5 in 1999-2003 to 87.7 twenty years later - in other words, Belize was above the regional average in terms of living standards at the start of the Period and is now below (100 being the regional average). Similarly, Belize has gone from 74 percent of GDP per head in Costa Rica to only 45 percent in the most recent period (for Panama the ratio went from 82 percent to 40 percent). And when it comes to the four countries where living standards are lower than in Belize, the gap has been shrinking in every single case.

TABLE 2

RATIO OF GDP PER HEAD IN BELIZE (BZ) TO OTHER CENTRAL AMERICAN STATES (%)

	1999-2003	2009-2013	2019-2023
Ratio (BZ/Central America)	134.5	106.3	87.7
Ratio (BZ/Panama)	82	52	40
Ratio (BZ/Costa Rica)	74	56	45
Ratio (BZ/Guatemala)	179	159	133
Ratio (BZ/El Salvador)	193	169	140
Ratio (BZ/Honduras)	325	276	241
Ratio (BZ/Nicaragua)	400	334	284

Source: derived by author from World Bank, World Development Indicators

We are therefore left with the inescapable conclusion that GDP per head at constant prices in Belize has stagnated in the last 20 years, that it is now the lowest in the Caribbean (except for Haiti and Jamaica) and that Belize's position in Central America has deteriorated relative to all other six countries in the region - all this, despite the impressive recovery in GDP per head since 2020.

There are, of course, a number of qualifications. First, the IMF forecasts for GDP per head at constant prices may be completely wrong (the Government of Belize, for example, assumes much higher

numbers). Secondly, GDP per head at constant prices is such a flawed metric that it may not matter what it says. Thirdly, other measures of living standards might be pointing in the opposite direction. Fourthly, inequality might have improved to such a degree that the stagnation of GDP per head is a price worth paying. And, finally, if inequality has reduced, the number of people living in poverty might also have fallen.

Sadly, however, there is no evidence that any of these qualifications are correct. The IMF forecast may be wrong, but at this stage there is no reason to believe that it is. Other metrics (e.g. labour productivity) seem to be pointing in the same direction as GDP per head at constant prices rather than the opposite. Inequality (both of income and of wealth) almost certainly has not reduced and has probably increased in the last 20 years (see below). Furthermore, poverty has also not fallen in any meaningful way even if the data are not sufficiently robust to draw clear conclusions.[16]

16 The 2022 Census calculated a poverty rate of 35.7%, which is still high by comparison with earlier years. The multidimensional poverty index that SIB now uses does suggest that poverty is less acute than 20 years ago since the incidence of poverty in 2024 was given as 22.1% (down from 33.5% in 2002), but the index is not easy to compare from one year to the next. Meanwhile, the intensity of multi-dimensional poverty was recorded as 38.0% in 2024, which is a high figure. See SIB, Multidimensional Poverty Index, 2024, p.1.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Since we have used GDP per head at constant prices as a proxy for living standards, the easiest way to understand why Belize has fallen behind on this metric is to look at the components of GDP in the last two decades and ask why each component has failed to increase at a rate that might have raised living standards. Collectively, the answers give us important evidence as to why Belize fell behind and provide clues as to what is required to improve the performance of the Belizean economy.

There are three ways to calculate GDP and each should give the same result. The first is the sum of final expenditure -consumption (private and public), investment (including stock change) and exports less imports. The second is the sum of value added (gross output less inputs) in each sector of the economy. The third is the sum of factor incomes (wages, salaries and profits) plus net indirect taxes. Belize only uses the first two and there is a small discrepancy between them.[17]

It should always be possible to reconcile changes over time in the three estimates. Thus, an increase in final expenditure due, for example, to higher exports will lead to an increase in value added in the different sectors affected, while the increase in value added will in turn lead to higher wages, salaries, profits and net indirect taxes. Similarly, an increase in household consumption will partly leak away in higher imports, but the part spent domestically will then lead to a rise in value added in different sectors that in turn generates higher factor incomes.

In order to understand why Belize fell behind, we will look at final expenditure in detail and we will start with exports. The entry for exports in the final expenditure estimate of GDP refers to exports of goods and services (not just commodities), but it does not include remittances nor such things as sale of economic citizenship to foreigners (very important for some small Caribbean countries, but no longer for Belize). However, the Belizean authorities sometimes include sales from the Free Zones in the estimate of exports and these need to be excluded as they are not remotely equivalent to exports of commodities such as sugar or of services such as tourism. Free Zone activities are more like retail parks and contribute very little value added to the Belizean economy.

17 The discrepancy is resolved by adding it to the final expenditure estimate, suggesting that the Belize statistical authorities consider the sum of value added ('Gross Domestic Product by Industrial Origin') as the more reliable. However, the difference is not large.

TABLE 3

ACTUAL V. PREDICTED EXPORTS PER HEAD (US$) C.2023			
ACTUAL EXPORTS *(PER HEAD)*	PREDICTED EXPORTS *(PER HEAD)*	DIFFERENCE *(%)*	COUNTRY
1,516	471	68.9	Honduras
1,341	432	67.8	Nicaragua
16,888	10,485	37.9	Guyana
4,138	2,856	31	Suriname
6,796	4,938	27.3	Grenada
7,588	6,127	19.2	St. Lucia
1,113	946	15	Guatemala
11,089	9,482	14.5	Antigua
11,989	10,583	11.7	St. Kitts
1,848	1,816	1.8	El Salvador
8,083	8,626	-6.7	Panama
6,768	7,257	-7.2	Costa Rica
2,623	2,830	-7.9	Jamaica
2,981	**3,752**	**-25.9**	**Belize**
6,719	8,540	-27.1	Trinidad
11,726	15,156	-29.2	Bahamas
2,236	2,946	-31.8	Cuba
1,884	2,561	-35.9	Dom Rep
7,146	9,728	-36.1	Barbados
3,183	4,615	-45	St. Vincent
2,492	4,279	-71.7	Dominica

Source: derived by author from multiple regression analysis. See footnote 18.

Using this measure of exports (i.e. goods and services, but excluding sales from the Free Zones), I have conducted a cross-section linear regression analysis across the two regions to which Belize belongs that seeks to 'explain' exports per head (as defined above) in terms of GDP per head and population using the most recent year for each country.[18] As expected, the coefficient on population is negative (*ceteris paribus*, we expect countries with smaller populations to have higher exports per head because they must pay for all the imports that cannot be produced locally in the small domestic market) and the one for GDP is positive (higher GDP is positively correlated with higher exports per head in the Caribbean and Central America). The model can then be used to see by how much any given country, including Belize, has exports per head above or below what is predicted by the model.

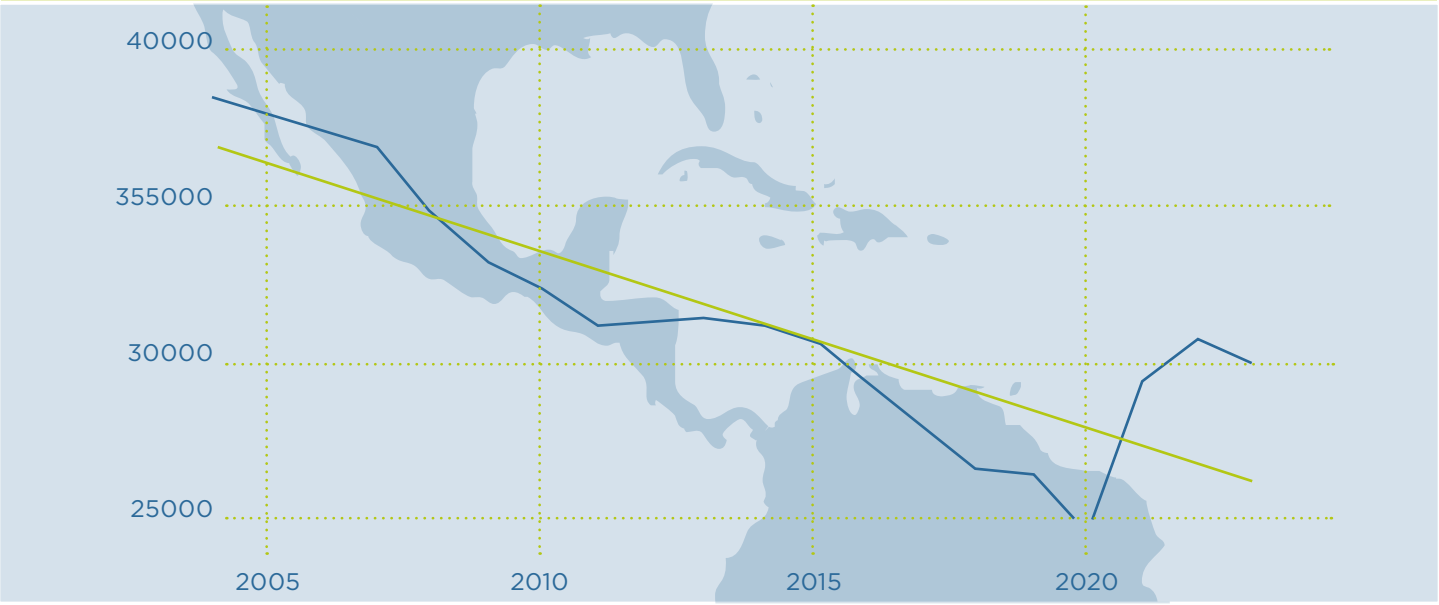
18 I applied a model with no intercept on the assumption that there would be no exports if population and GDP were zero. The coefficient on population is negative (-0.1155) and on GDP per head positive (+0.4671). The coefficient of determination (R2) is very high (0.92) and the F-statistic is significant at the 1% level. All independent (except Haiti) and some non-independent countries in the Caribbean and all Central American countries have been included in the model. Haiti was excluded as the model predicted an impossible negative exports per head (this is a consequence of a large population and very low exports per head).

The model shows that Belize is significantly under-exporting (see Table 3). Instead of predicted exports per head of US$3,752, the actual exports per head in 2023 were US$2,981. This means that actual exports per head were 25.9 percent **below** predicted exports per head in that year. By contrast, exports per head in Honduras were nearly 70 percent above the predicted level. Belize was by no means the worst performer (see the countries below Belize in Table 3). Indeed, the worst performer was Dominica with actual exports per head more than 70 percent below the predicted level. However, one of the reasons that Belize has fallen behind is likely to have been its export performance.

This may seem strange given that exports of goods and services in Belize represent more than 50 percent of GDP and that tourism (at least the overnight kind) has been booming since the recovery from the pandemic. However, there are many countries in the Caribbean (and other regions) with much higher ratios and some with ratios above 100 percent (there is no upper limit). And in Belize itself the ratio was 60 percent in 2012, so the current ratio is low by comparison with the recent past and also when compared to many other small Caribbean economies. We therefore need to look in more detail at exports and we will do this in the next section.

FIGURE 3

GDP PER EMPLOYED PERSON (2015 CONSTANT US DOLLARS): 2004-23



Source: World Bank, World Development Indicators

What about investment? This is mainly Gross Fixed Capital Formation (GFCF) with the difference accounted for by changes in inventories. It is usually the key to rising living standards, as labour productivity does not normally increase without at least an increase in the capital stock per worker. However, while the capital stock per worker probably has increased in Belize (it is hard to be certain given the limitations of the data), it is unfortunately the case that output per worker employed has been on the decline. This is demonstrated by the useful metric of GDP (at constant prices) per employed worker, for which we do have data, and it shows labour productivity in Belize has actually been **falling** in the last 20 years (see Figure 3).[19] This suggests something has gone very wrong with the investment process, although we cannot rule out the possibility that both the private and public sector have engaged in labour hoarding, i.e. employing workers who are not productive simply for family or political reasons.[20]

19 This finding is reinforced by other research. In an IMF Working Paper (WP/19/24), for example, Total Factor Productivity (TFP) in Belize between 2000 and 2015 was negative. This is the result of applying a simple model (Cobb-Douglas Production Function), in which TFP is the residual after taking into account the contribution to the change in GDP per head from growth in capital and labour inputs. Normally, the unexplained residual (i.e. TFP) is positive, meaning that the increase in capital and labour inputs do not explain all of the change in output per head. When it is negative, it means that output per head should have been higher taking into account only the change in capital and labour inputs.

20 Labour hoarding is something that is normally considered to take place only in the public sector, but it can be found in the private sector as well.

The average ratio of Gross Fixed Capital Formation to GDP (the investment ratio) has been on the low side in Belize over the last 20 years (less than 20 percent). Most countries with rising living standards have an investment ratio well above 20 percent and some even exceed 30 percent (e.g. Dominican Republic). Having said that, there are a few countries (e.g. Costa Rica) that have performed much better than Belize despite lower investment ratios. This suggests that it is not enough to look only at the gross numbers and that it is important to examine investment in more detail to see where the problems might lie.

TABLE 4

GROSS FIXED CAPITAL FORMATION IN 2014 AS A PERCENTAGE OF TOTAL INVESTMENT (%)

	PUBLIC *(%AGE)*	PRIVATE *(%AGE)*			TOTAL *(%AGE)*
		RESIDENTIAL	CORPORATE	SUB-TOTAL	
Civil engineering works	29.2	0	3.6	3.6	32.8
Scientific & other technical services	0	0	12	12	12
Residential buildings	0	10.9	0	10.9	10.9
Non-residential buildings	7.2	0	2.6	2.6	9.8
Machinery	0.8	0	18	18	18.8
Other	4.8	0	10.9	10.9	15.6
Total	42	10.9	47.1	58	**100**
of which:					
Imports	1.4	0	33.2	33.2	34.6

Source: derived by author from multiple regression analysis. See footnote 18.

The published annual data on investment is quite meagre, but we are fortunate to have a detailed analysis for 2014 as a result of the preparation by SIB of Supply and Use Tables for that single year.[21] In particular, the Use Table disaggregates investment into numerous columns that show the different types of demand for gross fixed capital formation (e.g. the corporate sector) and various rows showing the goods and services that go into the investment process (e.g. machinery). I have summarised this information in Table 4 and expressed every entry as a percentage to show its contribution to total investment in that year.

We can see in Table 4, for example, that public investment accounted for 42 percent of the total with most of that (29 percent) explained by civil engineering works. Meanwhile, nearly 11 percent of the total came from expenditure on residential buildings by households leaving only 47 percent for the corporate sector. Of the latter, most came from machinery (18 percent) and Scientific & Other Technical Services (12 percent), while two-thirds of corporate investment consisted of imports. Of course, 2014 was only one year, but the breakdown of investment in that year does seem to correspond with what we know more broadly about the investment process in Belize: a strong contribution from the public sector, a significant input from residential housing and a corporate sector very dependent on imports.

21 These two tables are the raw material for preparing an input-output table, about which more will be said below. See also the Appendix.

This picture seems to be confirmed by what has happened to the different types of investment in the last 20 years. Table 5 shows in the columns Gross Fixed Capital Formation (GFCF), Foreign Direct Investment (FDI), Domestic, Public and Private Investment.[22] The rows then show for the period 2004 to 2023 the average investment ratio, the maximum, the minimum and the standard deviation. We can now see that the average investment ratio for the whole period has been 17 percent (a low figure), that FDI has accounted for about one-third of this (albeit with very high variance), that public investment has also been about one-third of the total and that private investment has been little more than ten percent of GDP.

TABLE 5

SHARE OF INVESTMENT IN GDP (%), 2004-23					
AS %AGE OF GDP	GFCF	FDI	DOMESTIC	PUBLIC	PRIVATE
Average	17	5.5	11.5	5.8	11.2
Maximum	22.2	10.2	20	11.7	17
Minimum	13	0.5	2.8	3.7	4.7
Standard Deviation	2.4	2.7	3.8	2	3.1

Source: derived by author from data published by SIB and CBB

Mainstream economists tend to focus on the high share of investment accounted for by the public sector (averaging 5.8 percent of GDP - see Table 5), arguing that it risks 'crowding out' private investment and driving up interest rates. I do not share this view as the investments, especially in civil engineering works, are essential if the productivity of all sectors is to rise. However, it is true that the state of the budget in Belize means that nearly all public investment tends to be financed by grants or soft loans meaning that donors have huge influence. This may not always coincide with what is best for Belize. Similarly, spending on residential housing is closer to consumption than investment and may therefore have little or no impact on labour productivity in the economy. And private sector investment, at an average of 11.2 percent of GDP (see final column in Table 5), is clearly too low to do the heavy lifting required while its dependence on imports means that it has been held back by limited access to foreign exchange as a result of the balance of payments constraint in the last two decades.

One type of capital formation that is not held back by balance of payments problems is FDI. This has averaged 5.5 percent of GDP in Belize in the last 20 years (see Table 5) - a respectable figure. However, it has been extremely volatile, reaching a maximum of 10.2 percent (in 2012) and a minimum of 0.5 percent (in 2023). It is therefore not a reliable form of investment and tends to be focused on large projects. And there have been so many disputes between the government and foreign investors, with each side blaming the other and cases often ending up in court, that only the most determined and/or ruthless foreign investors tend to come to Belize.

22 Domestic is GFCF less FDI, while Private is GFCF less Public.

Fortunately, the investment ratio has improved since the worst year of the pandemic with an average of 20 percent in the period 2021-3 (2024 data are not yet available). This has been achieved not by an increase in the public investment ratio, which has remained around five percent, but by a big increase in the private (mainly domestic) investment ratio. Whether this is due to a more favourable environment for private domestic investors, as the government claims, or to a recovery after the end of the pandemic and a loosening of the foreign exchange constraint is too soon to tell. It is, of course, very welcome but it is unlikely to be the case that investment in Belize has suddenly overcome all the obstacles that have held it back over the last 20 years. Thus, as with exports, we will have more to say on the investment process in the next section.

What about imports? We can apply the same model as we used for exports and carry out a cross-section linear multiple regression with imports per head as the dependent variable and population together with GDP per head as the independent variables. Using the same set of countries as before in the two regions to which Belize belongs and for the same year (2023) and adjusting imports for Belize by deducting imports destined for re-export through the Free Zones, the results are consistent with what we found earlier. Actual Belizean imports per head are 40 percent below what is predicted by the model, suggesting that Belize has not fallen behind because it failed to take advantage of import substitution opportunities in the last 20 years.[23]

We should, however, be careful before accepting this result too quickly. When we look at the share of imports of goods and services in GDP over the last 20 years, it has been rising despite the fact that GDP per head itself (at constant prices) has been virtually unchanged. This suggests that there has been a structural change in Belize leading to higher imports per head despite no change in overall living standards. Indeed, imports per head in US dollars (at 2014 constant prices) have risen significantly in the last 15 years. This again suggests that there has been a structural change at work in the Belizean economy that is driving imports higher.

The most plausible hypothesis to explain this is an increase in income inequality. Richer households tend to consume more imports per head than poorer ones, so a shift in income towards the better off would indeed increase imports per head despite no increase in living standards. Unfortunately, the statistics on income inequality are woefully inadequate in Belize. It was measured in 2002 and 2009 using the Gini coefficient with the aggregate Gini increasing from 0.40 to 0.42.[24] This may not seem much of an increase.[25] However, what really matters is what has happened in the last 15 years for which there are no published estimates (of

23 Imports per head are 'only' 19% below the predicted rate when imports are not adjusted for those imports destined for re-export. However, even this lower figure suggests that Belize has taken advantage of import substitution possibilities in recent years by replacing imports with domestic production in certain key areas.

24 The Gini was based on household per capita consumption. Since richer households consume less of their income than poorer ones, a Gini based on consumption is always smaller than one based on income.

25 There are, however, questions over the reliability of the estimates. In 2009, for example, the Gini coefficients for each part of the country suggested a huge fall in the Belize district that is very hard to believe given that the district is dominated by Belize City. See SIB, 2009 Country

course, the Ministry of Finance has access to individual income tax data that could be used, but this is not available to the public).

We are forced therefore to use proxies to measure overall income inequality. The SIB Abstract of Statistics (2023), for example, gives the number of workers with their monthly pay starting from zero (unpaid family workers) to BZ$2,880+.[26] Assuming a figure of BZ$3,500 as the average for the last group and taking the simple average of all the other ranges, we have the raw material to calculate the Gini coefficient for wages and salaries (not, sadly, for all incomes).[27] This works out at 0.33. This may seem low by comparison with the Gini for consumption in 2002 and 2009 (see above), but wages are less than half of total incomes in Belize and profits (non-wage incomes) are always more unequally distributed than wages. If the Gini for non-wage income were 0.6, for example, the overall Gini for Belize would be nearly 0.5 - a very high figure and much higher than in 2009.

Sadly, the table used for this calculation was not published before 2023, so we cannot compare the results with those for earlier years. However, the SIB did for a number of years (2017-21) publish the monthly pay of different categories of workers (elementary occupations at the bottom to managers at the top) with the numbers of workers in each category. This shows the ratio of the top (managers) to the bottom (elementary occupations) rising from 2.82 to 3.26 between 2017 and 2021 - another indicator of an increase in income inequality.

The hypothesis that income inequality has increased in the last 15-20 years and has contributed to the stagnation in overall living standards cannot be definitively proved or disproved on the basis of the data available to us. And yet, judging by the luxurious mansions that have sprung up in different parts of Belize and other visible signs of conspicuous consumption, it seems highly plausible that income (and wealth) inequality has increased sharply.

What about public consumption? This represents just over 15 percent of GDP and is often referred to as general government expenditure. This is a little higher than public spending in some countries in the two regions to which Belize belongs. However, Belize is a country with a small population and a low ratio of population to land area, meaning that there are high fixed costs associated with running public services. We would expect the share of public consumption to be inversely correlated with population (the smaller the population, the bigger the share). Thus, there is no reason to believe that Belize has fallen behind because the 'state is too big' or 'spends too much', as is the mantra of free market economists and some international financial institutions.

26 See SIB, Abstract of Statistics 2023, Table 7.16.

27 There are two groups of workers who could not be included ((a) 'seasonal work, piece work with no fixed period' and (b) 'those that did not state their pay'), as no income data are provided.

On the contrary, it can easily be argued that in Belize the state is too small and has been unable to meet the demand for an increase in the quality of public services (including health, education, defence and national security) leading to a decline ceteris paribus in labour productivity and the stagnation of living standards. However, it is true that a policy of expanding public consumption without increasing taxation is unlikely to be sustainable, since it would lead to higher inflation and/or a balance of payments crisis. It is therefore not plausible to argue that Belize has fallen behind because the government failed to spend more on public consumption with the resources at its disposal.

The government, of course, could have increased revenue before spending additional resources on an improvement in public services and this might have led to an improvement in labour productivity and living standards. Unpopular though this might be in certain circles, support for it comes from an unusual source - the IMF. It is unusual not because the IMF argued for an increase in taxation, but because it showed the need for increased public spending. The Fund, in its Article IV Consultation with Belize in 2024, stated:

'Belize's key policy priorities include..... increasing priority spending on infrastructure, targeted social programs, and crime prevention, financed with additional revenues and expenditure reprioritization.....Revenue measures [include] broadening the GST [General Sales Tax] base, raising excise taxes, rebalancing manufacturing taxes, and strengthening revenue administration [and] can raise revenue by 2.2 percent of GDP.'

The revenue measures the IMF outlined may not be the best, but they do suggest that Belize has been under-taxed. This may seem surprising to those ordinary Belizeans who feel overwhelmed by the taxes they have to pay, but exemptions and allowances - not to mention evasion and avoidance - are legion in Belize. And with higher spending on public consumption over the last 20 years, the government might have avoided the fall in output per worker and the stagnation in living standards.

An example of fiscal weakness in Belize is provided by tax receipts. In the 2024/5 budget, income tax collection (P.A.Y.E) in 2023/4 was listed as BZ$126.1 million. This is only 4.6 percent of estimated wages and salaries in 2023 whereas the income tax rate above the tax-free threshold is 25 percent.[28] Business tax receipts were BZ$209.4 million, which is 6.2 percent of estimated gross profits (the official rate of business tax is much higher).[29] We can make the same calculations for import duties and General Sales Tax, all of which suggest that revenue could indeed have been raised by at least two percent of GDP without introducing any new taxes.

28 The threshold (nearly BZ$20,000 per year in 2023) meant that about 25% of wage and salary earners (the best paid) were above it (it has, however, been increased to $29,000 from 2025 onwards). Using Table 7.16 in the SIB Abstract of Statistics for 2023, it can then be estimated that tax receipts - if everything above the threshold had been taxed at 25% - 'should' have been BZ$211mn rather than BZ$126mn. This is a difference of BZ$85mn or 1.4% of GDP at current prices in 2023 and this is just one tax.

29 I have assumed 45% of GDP is wages and 55% profits.

To recap, Belize fell behind over the last 20 years because exports per head needed to be higher and because the investment ratio was too low. Other causes may have included a shift in income distribution in favour of greater inequality leading to a rise in imports per head and a failure to raise taxes in a manner that would allow an increase in general government expenditure sufficient to improve the quality of public services.

The only remaining item of final expenditure is household (private) consumption. This represents around 65 percent of GDP in Belize and is the largest single component. If, however, we are correct in arguing that Belize has fallen behind because exports per head need to be higher, that the investment ratio is too low and that the supply of public services (especially in education) is insufficient, then private consumption as a share of GDP will need to fall to accommodate these changes.

This presents a potential problem since it is safe to assume that all those on the median income and below consume almost all their disposable income. There is therefore no slack in their consumption habits. However, it is very different for the top deciles of the income distribution who account for a large proportion of the income received in Belize. If, for example, the Gini coefficient in Belize is around 0.45 (it may well be higher), then it is safe to assume (based on a global comparison of countries with similar income inequality) that one third of income goes to the top decile and one half to the top quintile. Since higher private (domestic) investment and increased tax receipts will almost certainly have to come from individuals in this latter group (the top quintile), then the shift from private consumption to investment and public consumption will have to be facilitated by the top two deciles.


WHAT
TO DO

WHAT TO DO

Let us start by imagining what would have happened if Belizean GDP per head (at constant prices) had grown at the same rate after 2007 (the peak year) as it did from independence in 1981 to 2007. In the first 25 years of independence, GDP per head grew at 2.73% per year and, if that rate had continued, GDP per head in 2024 would be above US$10,000 - nearly two-thirds higher than the actual figure. Belize would then be ranked 11th from the bottom in the Caribbean with ten countries below it instead of two. Indeed, the country just above Belize would have been Trinidad & Tobago. It is a sobering thought.

Instead of this golden age, GDP per head at constant prices in 2024 was almost the same as in 2007, while the IMF is forecasting growth of a mere 0.5 to 1.0 percent a year for the medium-term (assuming population growth of 1.5 percent a year). This needs to be addressed as a matter of urgency and a more ambitious, if challenging, target adopted as soon as possible. Something like 2.5 percent growth in GDP per head at constant prices would seem reasonable - especially as that does not even reach what Belize achieved in the first 25 years after independence.

There are various steps that need to be taken before discussing the policy issues that might take Belize to a higher sustainable long-run growth path for GDP per head at constant prices. First is theoretical - an understanding of how the Belizean economy works. Second is empirical - building a statistical framework, a model if you like, that reflects the working of the economy. Third is simulation - looking at how the model reacts to various exogenous changes or shocks. Finally, we get to public policy - what measures might be most appropriate given all of the above.

The theoretical framework for understanding the Belizean economy needs to be based on the export sector (goods and services). Belize is a small economy, albeit with a lot of land for its current population, which means that it is unable to produce a high proportion of what it consumes. To compensate, Belize has to export and use the foreign exchange to purchase the goods and services needed for intermediate and final consumption that are not produced locally. This dependence on the export sector can be mitigated occasionally by changes such as increases in remittances, debt restructuring, a surge in (untied) foreign aid or a rise in external debt. However, these changes are not sustainable in the long-run and the boost to the economy soon wears off, leaving Belize once again with the need to promote exports. That is why the model that Belize follows is often called export-led growth.

This export-led growth has been the main feature of the economy since the late 17th century when logwood started to be exported. A century later mahogany was added to the list and in the first half of the 19th century Belize became a re-exporter of note as a result of its role as an entrepôt between Europe and Central America. That role then diminished with the opening of new trade routes into Central America and Belize was left once again dependent on forest exports (this time including chicle) until agricultural exports started to challenge the importance of timber.[30]

It was not until 1959, however, that the value of agricultural exports (including fishing) exceeded timber exports, after which forestry declined rapidly in importance. Service exports, notably tourism, became significant in the 1980s and then rose rapidly including a number of non-tourism service exports such as business outsourcing (e.g. call centres), finance and transport. Today, if we exclude reexports through the Free Zones, service exports are much more important than commodity exports - especially after the decline in the value of exports of crude oil that started a decade ago.

So exports - primary activities such as sugar and service activities such as tourism - are the key sectors in the Belizean economy. To generate exports, these sectors use intermediate inputs, much of which is imported, and pay out wages, salaries and profits as well as incurring indirect taxes and receiving, in a few cases, subsidies. To support and expand all this activity (not just exports), public and private investments are needed that also depend heavily on imports. The wages, salaries and profits (the sum of which is value added) in all these activities are largely spent on (a) goods with a high import content and (b) private services most of which are produced locally. Finally, there is general government expenditure that provides the public services that are largely financed by government revenue.

There is one other important feature of the Belizean economy and that is the destination of exports (goods and services) and the origin of imports of goods and services. The published data are much better on the destination and origin of trade in goods, while we have to use a bit of guesswork on the destination and origin of trade in services. About 20 percent of goods exports (excluding those from the Free Zones) go to each of the United States of America (US), the European Union (EU), the United Kingdom (UK) and the Caribbean Community (CARICOM). The remaining 20 percent goes mainly to Central America with a small percentage (1-2 percent) destined for Mexico. Hardly any goes to China.[31]

The data on the origin of gross imports does not unfortunately distinguish between imports for use in Belize and imports for

30 See Bulmer-Thomas and Bulmer-Thomas (2012), Chapters 2-6.

31 See SIB, Abstract of Statistics 2023, Table 5.5, p.101.

re-export (e.g. through the Free Zones).[32] The US is the main source of imports with around 40 percent followed by China with nearly 20 percent (part of which is destined for the Free Zones). Central America and Mexico each account for around 10 percent with the remaining 20 percent distributed across many countries or regions. The former colonial power (UK), incidentally, is the source of only around one percent of Belizean imports of goods.

As exports of goods are much smaller than gross imports, it is clear from this that the US enjoys a trade surplus in goods with Belize. Thus, a US trade policy targeting those countries with which the US runs a trade deficit should not be concerned with Belize. This helps to explain (it is not the only factor) why Belize was subject to the minimum 10 percent tariff on US imports of goods exported from Belize in April 2025 imposed by President Trump. Belize therefore need not fear trade diversion, since any other country selling the same goods will be subject to at least the same minimum tariff. However, it might be affected by import substitution in the US as some of the goods exported can (and are) produced in the US while for others (e.g. cane sugar) there are close substitutes (e.g. beet sugar).

By contrast, the US almost certainly has a deficit in trade in services with Belize. This is because the vast majority of overnight tourists come from the US, while relatively few Belizeans travel to the US. Of course, non-tourism service exports (e.g. air travel) are weighted in favour of the US, but these are not enough to wipe out the deficit that the US has in tourism trade with Belize. Fortunately for Belize, trade in services has not yet been targeted by US trade policy, but that might change in the future.

Turning now to the supply-side of the Belize economy, and in particular the labour market, we find that most companies are small - indeed, many people are self-employed - and account for about 70 percent of employment.[33] Roughly half of all jobs are classified as ‘elementary occupations’ or ‘services/sales workers’ while only 8.5 percent are ‘managers and professionals’.[34] Wages and salaries represent less than half of factor payments with more than 50 percent represented by profits. And the wage bill is split more or less equally between those that can be classified as ‘unskilled’ and those that can be called ‘skilled’.

32 See SIB, Abstract of Statistics 2023, Table 5.4, p.100.

33 See Belize Chamber of Commerce and Industry, Business Policy Roadmap 2025, March 2025.

34 See SIB, Labour Force Survey, September 2024.

This is, very crudely, the structure of the Belizean economy today and the statistical framework needs to reflect these realities. There are, of course, nuances that need to be taken into account including remittances, contraband, the stock of debt and debt servicing, foreign aid, illegal activities, undocumented migration and so on. However, the basic structure does not change when these nuances are taken into account, although anyone studying the Belizean economy needs to be aware of them.

SIB and CBB between them publish annual data on a variety of topics. For the purposes of this article, the key tables are those that measure GDP by final expenditure and those that measure it by industrial origin. These are very useful, but still insufficient for our purposes. Instead, I propose as a starting point a table (matrix) that has six sectors in the first six rows and columns, additional columns for the elements of final expenditure and additional rows for the components of value added as well as one row for imports, two for employment (skilled and unskilled labour) and one for taxes & subsidies. The rows represent sales and the columns purchases. The total for each sector then represents the gross value of production and the sum of the row is the same as the sum of the column.

This is what is known as an input-output table, a tool that is used in an increasing number of countries (see Appendix) and it can only be built if there are Supply Tables (domestic and foreign sources of supply for each commodity/activity) and Use Tables (showing the demand for each commodity/activity from all the different purchasers). Fortunately, Belize does have one such set of tables (they refer to 2014 and were published in 2022 by SIB) and they can be used to build an input-output table in the manner described in the previous paragraph adding data from other sources compiled by SIB and CBB for a recent year (in this case 2023). The result is far from perfect and requires some fairly heroic assumptions, but the idea is to produce a statistical framework that is within the means of the statistical authorities and ideally could be produced every year. Indeed, the Belizean Supply and Use Tables are sufficiently detailed to produce an input-output table with far more rows and columns than will be used here.

The columns of the input-output table, in addition to those for the six sectors, are household (private) consumption, public consumption (current spending by government), investment (public and private) and exports. However, there is no column for imports as all entries in each row of the table are assumed to be net of imports and therefore refer to purchases of domestic goods and services only.[35] Thus, the entry in the column for household consumption and the row for manufacturing, for example, refers only to the value of goods purchased from domestic manufacturers. The sum of all final expenditure measures GDP.

35 Unfortunately, this is not what is done in the Use Table published by SIB, where no distinction is made between domestic and imported purchases in the rows and columns. Since such a large part of the goods used in Belize for both intermediate and final consumption are imported, a method had to be found to separate them out. This is explained in the Appendix.

The additional rows refer to wages (including salaries) and profits (including net indirect taxes). The sum of wages and profits in each column gives value added for each sector and the sum of wages and profits for all sectors measures GDP. There is also a row for imports, which records the purchases from abroad of all imported goods and services by each sector and by the different components of final expenditure.

THE SIX PROPOSED SECTORS ARE AS FOLLOWS	
	Primary commodities (including processed products). Included here are not just the raw material (e.g. sugar cane), but also any processed products (e.g. cane sugar). This sector includes all food and drink.
	Manufacturing (excluding anything in sector 1). This includes activities such as textiles & clothing.
	Construction. This includes all construction activities including repair works.
	Tourism. This is the gross output of the tourism industries. It is possible to measure directly because the SIB now produces a Tourism Satellite Account (TSA) that shows the gross value of output as well as the value added of tourism (after deducting intermediate purchases).
	Other Service Exports. This is the gross output of all non-tourism services that are mainly exported.
	Domestic Services. This is the gross output of all other services (both private and public).

The result is an input-output table in which each entry is recorded in $BZ million. The first six rows show sales by each sector to all the other sectors as well as sales to final demand/expenditure. The sum of each row is the gross output or gross value of production. The first six columns show the purchases by each sector from the other sectors (excluding imports), the value added in the sector and the value of all imports purchased by the sector. The sum of the column is then also the gross output or gross value of production.

The SIB has plans to produce input-output tables in future years, but at present the one produced for this research paper is the first to have been compiled. The table is a mix of 'real' data, in particular the parts that can be reconciled with GDP data for 2023, and simulated data based on updating the Supply and Use Tables published by SIB in 2022 and referring to 2014. All of this requires assumptions that would be more reliable if carried out by the statistical authorities with access to unpublished data, but I have had to go with what was available in published form. Thus, the table should be used with caution and is meant more as a guide to what can be done in the future. And, if an official input-output table is produced in future, it needs to have many more rows and columns than are used here.

The input-output table can now be turned into a model (an input-output model) by making one simple assumption: that there is a linear relationship between the value of purchases by the sectors in each column and the gross output of the same sectors. This means we can turn the flows in the first six rows and columns of the absorption matrix into coefficients. Each entry records the fixed relationship between the gross output of a given sector and the value of its purchases from all other sectors including itself. The result is a square matrix (known in the literature as the 'A' Matrix) with six rows and six columns (the numbers refer to the sectors listed above) and the results are shown in Table 6. Each entry, e.g. a_{ij} refers to the ratio of domestic purchases from sector 'i' by sector 'j'.

TABLE 6

'A' MATRIX FOR BELIZE, 2023

	1	2	3	4	5	6
1	0.25	0.26	0.1	0.03	0.05	0.1
2	0.02	0.02	0.08	0	0	0.01
3	0	0	0	0	0	0
4	0	0	0	0	0	0
5	0	0	0	0	0	0
6	0.1	0.16	0.13	0.23	0.24	0.11

Derived by author from SIB, Supply and Use Tables 2014, Belmopan (2022).

Some simple mathematics now allows us to use Table 6 to simulate the workings of the Belizean economy. If the vector 'x' stands for the gross output of the six sectors, 'A' is the matrix in Table 6 and 'f' is the vector of final expenditure on the six sectors, then:

$$x = Ax+f$$

Where 'Ax' represents intermediate demand and 'f' represents final demand. We then find:

$$x = [I-A]-1f$$

We can now simulate the impact of any change in final demand on the gross output of the six sectors. This works as follows: imagine an increase in demand for exports of the first sector (primary and processed products). The sector must 'deliver' this increase and then purchase intermediate inputs from other sectors as well as paying wages and salaries and importing goods and services. The extra demand generated for each of the other sectors then requires that they also purchase additional inputs, paying wages etc., until the process finally comes to an end with an equilibrium marked by higher gross output in all sectors - not just the first sector.

The result can be seen in Table 7. This is the famous 'inverse matrix' that is the key to input-output analysis. It shows the impact on the whole economy when final demand for each sector increases. For example, when final demand for the first sector increases by $BZ1 million (mn), the eventual outcome is an increase of $BZ 1.36 mn for sector 1, a very small increase for sector 2 and a bigger increase for sector 6. Similarly, when final demand for construction increases by $BZ 1 mn, there is an increase of $BZ 190,000 for sector 1, $BZ 80,000 for sector 2 and $BZ 180,000 for sector 6 as well as the $BZ 1 mn increase for construction itself. The sum of each column is then known as total backward linkages and, as can be seen in Table 7, the value of total backward linkages is highest for sector 2 (manufacturing) and lowest for sector 6 (domestic services).

TABLE 7

INVERSE MATRIX FOR BELIZE AND TOTAL BACKWARD LINKAGES, 2023.

	PRIMARY COMMODITIES *(INC. PROCESSED PRODUCTS)*	MANUFACTURING *(EXCL. FOOD PROCESSING)*	CONSTRUCTION	TOURISM *(TRAVEL EXPORTS IN BOP)*	OTHER SERVICES *(NON-TOURISM SERVICES IN BOP)*	DOMESTIC SERVICES
SECTOR	**1**	**2**	**3**	**4**	**5**	**6**
1	1.36	0.39	0.19	0.08	0.1	0.16
2	0.03	1.03	0.08	0	0	0.01
3	0	0	1	0	0	0.01
4	0	0	0	1	0	0
5	0	0	0	0	1	0
6	0.16	0.22	0.18	0.26	0.28	1.14
TOTAL	**1.55**	**1.65**	**1.46**	**1.35**	**1.39**	**1.33**

Source: derived by author from input-output table (see Appendix)

It is not just gross output, however, that changes when final demand increases. Assuming a linear relationship between gross output and imports on the one hand as well as gross output and factor payments on the other, we can estimate the impact of changes in final demand on imports, wages of unskilled workers, wages of skilled workers, profits and employment of unskilled and skilled workers. The result is Table 8 and it can be interpreted as follows: when final demand for sector 1, for example, increases by $BZ1 mn, there will be an increase of $BZ 1.55 mn in the gross output of all six sectors combined, an increase in total imports by all six sectors of $BZ 272,120, an increase in the value of unskilled wages in the economy to the tune of $BZ 163,415, an increase in skilled wages of $BZ 108,008 and in profits of $BZ 455,236.

It is clear from Table 8 that an increase in final demand for each sector has different effects on the totality of the economy. Thus, the biggest stimulus (see numbers in bold) to gross output occurs when the increase in final demand is for the second sector (manufacturing); the biggest increase to total imports and the unskilled wage bill happens in response to an increase in final demand for the third sector (construction); the biggest increase in the skilled wage bill occurs when the increase in final

demand is for the sixth sector (domestic services); and the biggest increase in total gross profits happens when the stimulus is caused by an increase in final demand for the fifth sector (non-tourism service exports). Finally, the biggest impact on the demand for unskilled labour (number of workers) happens in response to an increase in final demand for the third sector (construction) while for skilled labour it is the second sector.

TABLE 8

IMPACT OF BZ$ 1MN INCREASE IN FINAL DEMAND BY SECTOR ON TOTAL GROSS OUTPUT, IMPORTS, WAGES, PROFITS AND EMPLOYMENT (UNSKILLED & SKILLED WORKERS)

SECTOR	GROSS OUTPUT *(BZ$)*	IMPORTS *(BZ$)*	UNSKILLED WAGES *(BZ$)*	SKILLED WAGES *(BZ$)*	GROSS PROFITS *(BZ$)*	UNSKILLED WORKERS *(NO.)*	SKILLED WORKERS *(NO.)*
1	1,554,664	272,120	163,415	108,008	455,236	12	6
2	**1,649,491**	315,099	97,657	162,093	425,266	13	**14**
3	1,457,428	**400,562**	**196,164**	140,869	261,687	**17**	13
4	1,349,487	308,048	158,479	178,171	354,680	11	9
5	1,389,658	156,406	72,087	151,379	**623,701**	6	6
6	1,325,632	182,481	185,169	**199,210**	428,495	15	12

Source: derived by author from input-output table (see Appendix)

We now have a sense of how the economy works, although it is still fairly broad in outline. We also have a framework with which to simulate changes in the economy. Now, therefore, is the time to return to **why** the Belize economy fell behind and these were (a) exports per head too low (b) unsatisfactory private investment ratio (c) inadequate public services (d) a suggestion of increasing income inequality and (e) a possible failure to exploit import substitution possibilities fully (although this is not so clear).

To show how this might work, consider the case of exports. To increase exports per head to the level that the model predicted for Belize, total exports (of goods and services) would have to rise by $BZ600 million. There are three sectors in the input-output table that can contribute to additional exports: sector 1 (primary commodities and processed products); sector 4 (tourism); and sector 5 (non-tourism service exports). Let us now simulate the impact on the economy when the extra $BZ600 million comes from each sector in turn. The results are shown in Table 9.

TABLE 9

IMPACT OF BZ$ 1MN INCREASE IN FINAL DEMAND BY SECTOR ON TOTAL GROSS OUTPUT, IMPORTS, WAGES, PROFITS AND EMPLOYMENT (UNSKILLED & SKILLED WORKERS)

EXPORTS BY:	GROSS OUTPUT	IMPORTS	UNSKILLED *(WAGES)*	SKILLED *(WAGES)*	GROSS PROFITS	UNSKILLED WORKERS *(NO.)*	SKILLED WORKERS *(NO.)*
PRIMARY	**933**	163	**98**	65	273	**7,247**	3,560
TOURISM	810	**185**	95	**107**	213	6,750	**5,100**
NON-TOURISM	834	94	43	91	**374**	3,430	3,710
MIXED	859	147	79	88	287	5,808	4,124

Source: derived by author from input-output table (see Appendix)

We can see at once that, if the increase in exports of $BZ600 mn comes from the primary sector (see first row of Table 9), the gross output increase from **all** six sectors will sum to $BZ 933 mn, total imports will rise by $BZ 163 mn, unskilled wages by $BZ 98 mn, skilled wages by $BZ 65 mn, gross profits by $BZ 273 mn and an additional 7,247 unskilled workers and 3,560 skilled workers will be required. Not shown in the table is that, in the case of unskilled workers, nearly 6,000 will be required by the primary sector itself and the rest by the other five sectors. In the case of skilled workers, 2,450 would be needed by the primary sector and the remaining 1,110 by the other sectors of the economy.

We can then see the results of the same exercise for tourism and non-tourism service exports. Each simulation has different results. The biggest impact on imports and skilled wages, for example, will come from a rise in tourism exports (in **bold** in Table 9), while the biggest impact on gross profits will come from a rise in non-tourism service exports (also in **bold**). Similarly, the impact on the demand for unskilled workers will be greatest if the additional exports come from the primary sector, while in the case of skilled workers the greatest impact will happen if tourism exports rise. Finally, we can measure the impact if the increase in exports is spread equally across the three export sectors ('mixed' in Table 9).

Insofar as they have influence over where the exports originate, policy-makers on the evidence of Table 9 will have to make hard choices. If the priority is a higher unskilled wage bill (and unskilled jobs), then the primary sector is the best bet. If the priority is a higher skilled wage bill (and skilled jobs), then tourism exports are the most effective despite the fact that they have the highest impact on imports. On the other hand, if the priority is to minimise imports, then non-tourism service exports are safer. Thus, each type of export expansion - primary, tourism and non-tourism services - has a very different impact on the economy as a whole.

A similar exercise can also be carried out for the other areas where Belize needs to perform better including an increase in private (domestic) investment and public services while exploiting opportunities for import substitution in primary, secondary and even tertiary activities. Space does not permit a presentation of the results, but the framework shown above can be used to examine the impact of all these changes on gross output, imports, wages, profits and employment taking into account the different kinds of investment, public services and import substitution options. Needless to say, the results on the total economy are quite different depending on the activities for which final demand increases are simulated.

Finally, we come to public policy - the steps that the Belize government can take that might push the economy towards a higher sustainable long-run rate of growth of GDP per head at constant prices. It is easy to fall into the temptation of thinking that there is a 'silver bullet' - a single policy that might make all the difference. The list is well-known and includes reducing corruption (especially in the award of public sector contracts); reducing ministerial discretion; fiscal incentives; debt reduction; improved public services (especially in education); and bilateral or multilateral trade agreements. However, while each of these policies is important, it would be a mistake to imagine that any one of them will make all the difference.

Faced with the challenges the economy presents, and in particular the struggle to raise the long-run rate of sustainable growth of GDP per head at constant prices, policy-makers have appeared at times to adopt the 'go big or go home' approach.[36] In other words, focus on giant projects which - if they come to fruition - can transform the economy. Examples are enlargement of the international airport to receive direct flights from Europe, a cruise ship port that avoids the need for tenders, huge hotels where passengers from giant jets can be accommodated and major infrastructure projects such as paved roads.

Such projects are normally only possible with the participation of multinational companies or wealthy foreign investors who expect all sorts of concessions (not just fiscal breaks). It does not necessarily conform to the structure of the Belizean economy as outlined above and may miss the myriad opportunities available to improve conditions for many Belizeans through a series of small changes that do take into account the economic realities. However, it would be churlish not to recognize the potential advantages that large projects offer, so it is still important to subject them to the same kind of analysis as outlined above in which the impact of each project on all sectors of the economy is examined.

The alternative approach suggested here is for the government to use the input-output framework outlined above to prioritise the changes needed in economic outcomes. These will almost certainly include higher exports of goods and services per head; a higher investment ratio, especially by the private domestic sector; a reduction in income and wealth inequality; improved public services; and a search for viable opportunities in import substitution especially in energy use. Once there is a clear consensus around these priorities, whatever they are, all proposed projects can then be subject to a rigorous analysis of the extent to which they might meet the prioritised targets.

36 This is the theme of a recent book. See Torsten Bell, Great Britain? How we Get our Future Back, 2024.

This information then needs to be conveyed to all the economic actors, including donors, so that they are aware what kind of projects will elicit government support. This does not necessarily mean fiscal incentives - indeed, it should probably not, since for too long governments in Belize have given the impression that favoured projects will always be rewarded through tax concessions. However, the private sector actors - large and small - need to have a sense of where the government wants the country to be heading.

The government may respond that it is already doing this; that the Blue Economy, for example, is a priority area; or boosting the number of overnight visitors; or seeking to establish new growth sectors. Yet there is a danger that, at the end of the day, Belize will still be falling short because of the potential conflicts between these objectives. The conservation measures needed to promote the Blue Economy may, for example, fall foul of the emphasis on boosting visitor numbers. So it is better to take a step back and ask, based on why Belize fell behind, what priorities are now needed so that the country can catch up.

CONCLUSIONS

In this uncertain future, Belize needs a new framework for exploring its options and this paper is designed to help in that choice.

CONCLUSIONS

In the last 20 years, Belize - already a poor country by Caribbean standards - has fallen further behind its peer group. Despite the rapid recovery of the economy since 2020, it remains the poorest country in the Caribbean as measured by GDP per head at constant prices with the exception of Haiti and Jamaica. It has also lost ground when comparisons are made with other countries in Central America. The economic recovery since COVID, while impressive in many ways and very welcome, has not reversed this relative decline and there is a danger that the recovery is losing its dynamism (as demonstrated, for example, by the drop in GDP per head at constant prices in 2023).

Analysis of the causes of this relative decline over the last 20 years point to a number of causes. Exports per head are not high enough. The investment ratio (the ratio of GFCF to GDP) is too low. Public services, especially education, are inadequate. Income and wealth inequality might have risen to the point where the increase may have done serious damage to growth prospects. And – less certain - there may have been opportunities in import substitution that have not been fully exploited.

Some of these deficiencies are in the process of being rectified by the recovery in the economy since 2020, but not all of them. What is proposed therefore is a new framework for viewing the Belizean economy that takes into account the impact of changes in final demand on the whole economy including not just the gross output of all sectors but also imports, wages, income inequality and employment. Such a framework could also be extended to include the impact on the environment.

It could also be extended to include the geographical links between Belize and the rest of world if globalization unravels and the US, Belize's main trade partner, retreats behind a high tariff wall. The outcome of the trade war unleashed by President Trump in April 2025 - even earlier in the case of Mexico, Canada and China - is still uncertain and may not be known for some time. However, it seems certain to leave Belize facing some tariffs on its main goods exports to the US, requiring careful consideration by Belizean policymakers on how, if necessary, to diversify the geographical destination of trade. Meanwhile, the restrictions on migration to the US from Belize and elsewhere, coupled with the deportation of undocumented migrants, will have a negative impact on remittances. In this uncertain future, Belize needs a new framework for exploring its options and this paper is designed to help in that choice.

APPENDIX. THE INPUT-OUTPUT TABLE

Wassily Leontief (1905-99), a Russian economist who moved to the United States in the 1930s, is widely credited with being the creator of input-output analysis. For his work in this field, he was awarded the Nobel Prize in Economics in 1973. He explained the purpose of the work as 'an economic modelling technique that examines the interconnectedness of different sectors and industries within an economy'. In other words, instead of working with the concept of a single aggregate output as happens in standard macroeconomics, input-output analysis seeks to reflect the complexity of modern economies that arise from the interconnections between different sectors.

The main building block in input-output analysis is an input-output table that shows sales by each sector in the rows and purchases by each sector in the columns. These rows and columns for each sector are then supplemented by additional rows for the different components of value added and additional columns for the different components of final expenditure. Since the sum of value added and the sum of final expenditure both measure GDP, an input-output table is therefore a useful check on the accuracy of the national accounts. Indeed, many countries - including almost all members of the European Union (EU) - use input-output tables in this way.

There is no limit to the number of sectors/activities that can be used in input-output analysis and some input-output tables have been constructed with over 800 sectors. However, for most countries - especially small countries - there is no need for so many sectors. A 'typical' middle-income country might have 30-40 sectors while a heavily industrialised country might have 100-200 sectors. Below I will talk about the optimal size of an input-output table for the Belizean economy.

An input-output table can be turned into a model (as is done in this paper) by making a number of assumptions. The main one is constant returns to scale, i.e. the use of intermediate inputs by each sector is assumed to be proportional to the output of the same sector. This means that doubling the gross output of a sector, e.g. citrus, will double the use of each intermediate input, e.g. fertilizers. The relationship between inputs and outputs is therefore linear and this means that an input-output model can be constructed using linear or matrix algebra. Thanks to modern computing power, not available to Leontief in his earliest work, the task of running the input-output model is vastly simplified.

In addition to its use as a check on the accuracy of the national accounts, input-output tables/models are used by a large number of countries for a variety of purposes. The Asian Development Bank, for example, holds a database of input-output tables for seventeen countries and these have been used to make comparisons between the impact of

specific sectors on the rest of the economy in each country. One example is the construction sector, which has very strong backward linkages in all countries through its purchase of intermediate inputs creating powerful multiplier effects on the rest of the economy. Another popular use, especially in richer countries transitioning towards 'net zero' in carbon emissions, is to measure the impact on the environment of different patterns of growth, taking into account the different carbon emissions associated with each sector of the economy.

In Latin America and the Caribbean, ECLAC/CEPAL holds a database of 14 input-output tables compiled up to 2022. Some of these are very large (the most recent one for Mexico, for example, has 822 sectors), while the smallest has 12 sectors. Some countries produce tables with great frequency (to help with the preparation of the national accounts among other reasons), while a few countries (e.g. Jamaica) have produced only one table. Among Belize's neighbours, Costa Rica has been particularly active in producing input-output tables and does so in great detail, which allows the government to use the tables for industrial planning, employment projections, studies of income inequality and inflation forecasting among other purposes.

Turning now to the Belizean economy, SIB published in 2022 two tables based on 2014 data from which an input-output table can be constructed. The first is called a Supply Table and it shows total supply (the supply of domestic production and the supply of imports) at basic prices for each activity in the economy. Basic prices refer to the price before the addition of trade and transport margins and indirect taxes and the subtraction of subsidies. When basic prices are adjusted for all these, we have supply at purchasers' prices, i.e. the price the consumer pays. The second table is a Use Table that shows, at purchasers' prices, how total supply is used by all the different parts of the economy starting with intermediate purchases by the different sectors/activities and finishing with final demand by the different components of final expenditure such as household consumption, government expenditure, investment and exports. There is then a final column that deducts imports (given in the Supply Table) from the sum of all uses in each row to give domestic supply or gross output in each sector at purchasers' prices.

There is enough information in the Supply and Use Tables published by SIB to produce an input-output table with nearly one hundred rows and columns. However, many of these sectors would be very small and add little information. Preliminary research suggests that the optimal size for Belize would be between 30 and 40 sectors with each sector contributing significantly to the whole economy. For the purposes of this paper, which is by way of illustration only, I have gone for six sectors.

The biggest problem in constructing an input-output table of any size in Belize is that the Use Table does not distinguish between purchases from domestic producers and purchases of imports. Since imports of goods constitute such a large part of the Belizean economy, failing to separate them from domestic production will produce massive distortions. I therefore used the Supply Table to calculate for each sector the share of total supply accounted for by

imports and applied this ratio to each entry of the relevant row in the Use Table. This is a big assumption, since it assumes that all intermediate and final demand for any given sector is split between domestic production and imports in the same proportion.

Another problem is the prices in which the input-output table should be expressed. Best practice is normally assumed to be basic prices, but this would require estimates for each entry in the Use Table of the proportion of the cost accounted for by transport margins etc. I therefore kept the table in purchasers' prices since the small table I constructed is primarily for purposes of illustration.

Once the Supply and Use Tables had been manipulated to produce a small 6x6 input-output table, I divided each entry by the gross output of each sector in 2014 to calculate the input-output coefficients (see Table 6). I then used these coefficients to estimate intermediate purchases in 2023 using the gross output of each sector in that year and then added additional rows for the components of value added in 2023 using actual value added in that year and the breakdown of value added in the Use Table for 2014. I did the same for the components of final expenditure, so that the final input-output table refers to 2023 and is consistent with the national accounts for 2023 published by SIB and CBB. After that, it is a simple matter to construct an input-output model and then do the calculations shown in Tables 7, 8 and 9.

Finally, it is necessary to add a note of caution. The construction of the input-output table in this paper required some heroic assumptions. It would be far better if the work was undertaken by SIB for a future year using new Supply and Use Tables in which imports are separated from domestic production in the Use Table and in which it is possible to construct the input-output table at basic prices. It should have many more sectors than six (30-40 is reasonable) and there needs to be only a short lag between collection of the raw data and publication of the tables. After that, the relevant authorities can use the information not only to assess the accuracy of the national accounts but also to run many simulations - some of which have been shown in this paper by way of illustration.

GLOSSARY	
BLUE ECONOMY	That part of the economy that seeks to conserve marine resources to use in a sustainable way
BOP	Balance of Payments
BOP CONSTRAINT	The restriction on economic growth due to a shortage of foreign exchange
CAPITAL STOCK	The value of the stock of physical capital (e.g. machinery)
CAPITAL STOCK PER WORKER	Value of the capital stock per worker
CBB	Central Bank of Belize
CBR	Crude Birth Rate (number of live births per thousand of the population)
CDR	Crude Death Rate (number of deaths per thousand of the population)
COEFFICIENT OF DETERMINATION	The proportion of the variation in the dependent variable that is predictable from the independent variables
DEBT SERVICING	The cost of servicing the national debt (interest plus amortization)
DECILE	A decile is ten percent of whatever is measured (e.g. income)
DEMOGRAPHIC TRANSITION	The shift from high to low population growth as a result of a fall in the birth rate and rise in the death rate
ECLAC/CEPAL	Economic Commission for Latin America and the Caribbean/Comisión Económica para América Latina y el Caribe
F-STATISTIC	Sees if there is a statistically significant relationship between the independent and dependent variables in a model
FACTOR INCOMES/PAYMENTS	The income of/payment to the different factors of production (labour, owners of capital)
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GDP AT CONSTANT PRICES	GDP adjusted for inflation
GDP AT CURRENT PRICES	GDP in the prices of the same year
GDP PER HEAD AT CONSTANT PRICES	GDP at constant prices divided by population in the same year
GFCF	Gross Fixed Capital Formation
GINI COEFFICIENT	Measures income inequality from zero (complete equality) to 1
IMF	International Monetary Fund
IMPORT SUBSTITUTION	The replacement of imports by domestic production
INCOME INEQUALITY	The unequal distribution of income among individuals or households
INPUT-OUTPUT TABLE	A matrix that records sales by sectors in the rows and purchases in the columns
LABOUR PRODUCTIVITY	Output per worker

GLOSSARY	
MATRIX	A matrix has rows and columns that can either be square (same number of rows and columns) or rectangular
MEDIAN INCOME	The income that half of all individuals earn above and half earn below
MULTI-DIMENSIONAL POVERTY INDEX	An index that measures the percentage of households in a country according to different indices
MULTIPLE REGRESSION ANALYSIS	Predicts the value of a dependent variable by considering the influence of two or more independent variables
OUTPUT GAP	The gap between actual GDP and potential GDP based on labour and capital supply
P.A.Y.E	Pay As You Earn
POVERTY RATE	The proportion of the population (or households) living below a given monetary income
QUINTILE	A quintile is 20 percent of whatever is measured (e.g. income)
RATIO OF PUBLIC DEBT TO GDP	The value of public debt as a percentage of GDP
STANDARD DEVIATION	A measure of the amount of variation of the values of a variable about its mean (average)
SIB	Statistical Institute of Belize
TRADE DIVERSION	The replacement of imports from one country by imports from another
TSA	Tourism Satellite Account
VALUE ADDED	The difference between gross output and the value of intermediate inputs
VECTOR	A single row or column with more than one number in it
WEALTH INEQUALITY	The unequal distribution of wealth among individuals or households

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