INTERNATIONAL MONETARY FUND

IMF Country Report No. 22/44

JAMAICA

SELECTED ISSUES

February 2022

This Selected Issues paper on Jamaica was prepared by a staff team of the International Monetary Fund as background documentation for the periodic consultation with the member country. It is based on information available at the time it was completed on January 25, 2022.

The IMF's transparency policy allows for the deletion of market-sensitive information and

Copies of this report are available to the public from

International Monetary Fund • Publication Services
PO Box 92780 • Washington, D.C. 20090
Telephone: (202) 623-7430 • Fax: (202) 623-7201
E-mail: publications@imf.org Web: http://www.imf.org
Price: $18.00 per printed copy

International Monetary Fund
Washington, D.C.

© 2022 International Monetary Fund

INTERNATIONAL MONETARY FUND

JAMAICA

SELECTED ISSUES

January 25, 2022

Approved By
Western Hemisphere Department

Prepared By Bas Bakker, Saji Thomas and Gonzalo Salinas (all WHD).

CONTENTS

APPENDIX

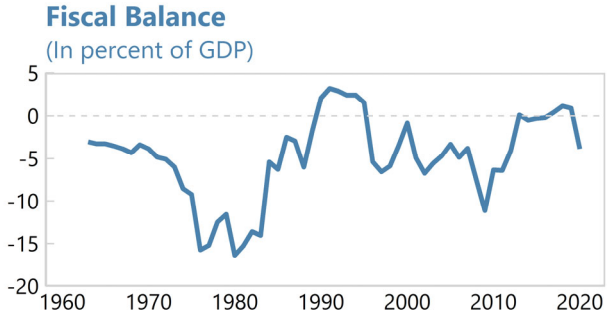
FIGURES

TABLE

FISCAL STRATEGY FOR JAMAICA: REDUCING PUBLIC DEBT AND RESTORING FISCAL BUFFERS

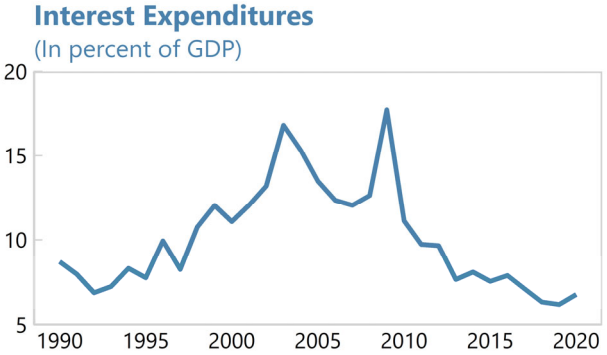
A. Background—A History of Fiscal Crises, 1970–2009

1. Jamaica has a long history of fiscal and debt crises. Between 1972 and 1980 GDP per capita declined by almost 30 percent. The decline was partly the result of external shocks (including the two oil crises and a decline in bauxite prices) but policies also played a role. Government spending rose from 23 percent of GDP in 1972 to 45 percent of GDP in 1978 resulting in large fiscal deficits of 15 percent of GDP. Much of the debt was foreign-currency denominated, and when the exchange rate depreciated sharply in the early 1980s, the debt-to-GDP ratio shot up to near 200 percent of GDP.

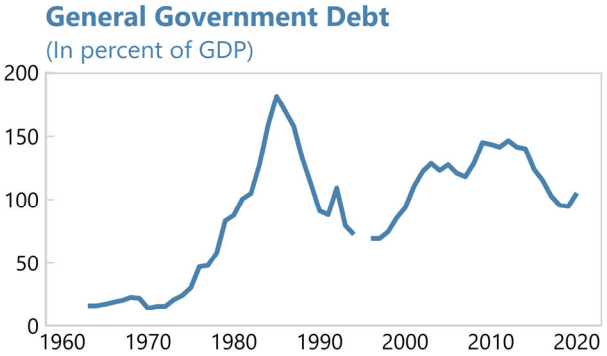


Sources: WEO databases, April 2021 and October 1993.
Note: Prior to 1990, data is from the central government, but from 1990, data is from the general government.

2. A banking crisis in the mid-1990s led to a fiscal and debt crisis. During the 1980s the financial sector had been liberalized, but without adequate strengthening of the regulatory and supervisory framework. The result was a boom in private sector credit, and the emergence of new large financial conglomerates, including of banks and life insurance companies. From 1991 onwards (when inflation reached 80 percent), monetary policy was tightened, and real interest rates rose sharply. Real estate prices fell, which created problems for life insurance companies which had invested heavily in this sector and the banks associated with them. In 1996, a banking crisis ensued. A blanket deposit guarantee helped restore stability but added almost 40 percent of GDP to the debt. High interest rates and rising debt then led to a renewed vicious cycle, with interest payments peaking at 17 percent of GDP in 2009 and debt reached 142 percent of GDP.



Source: WEO database, October 2021.

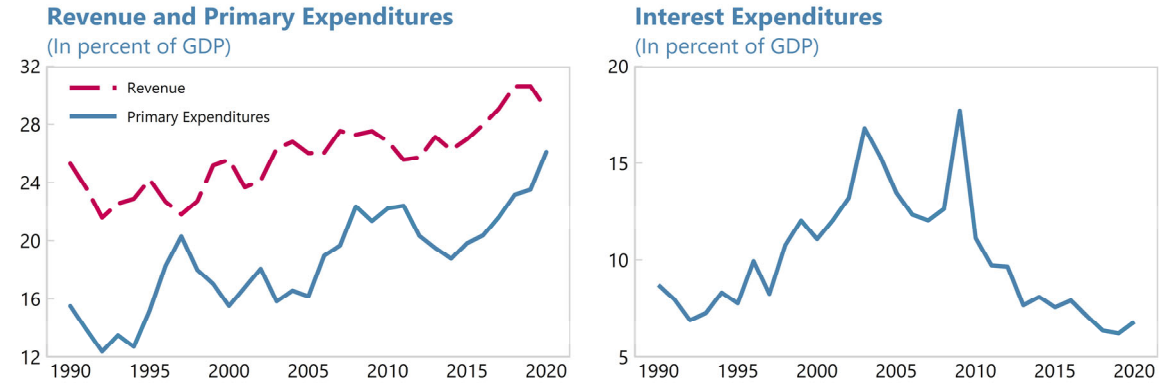


Source: Haver Analytics.

B. The Great Adjustment During 2009–2019

3. Between FY2009/10 and FY2019/20, and in the context of two IMF programs, Jamaica improved its fiscal balance by 12.4 percentage point of GDP, from a deficit of 11.2 percent to a surplus of 1.2 percent (Figure 1 and Table 1).

Figure 1. Jamaica: Revenue and Expenditures, 1990–2020



Sources: WEO database, October 2021; Jamaican authorities; and IMF staff calculations.

4. Most of the improvement in the fiscal balance was due to a reduction in interest payments, which fell by almost 11 percentage points to 6.3 percent of GDP. The primary balance increased by only 1.4 percent points. The reduction in interest payments was not just the result of the decline in debt. Jamaica also undertook two domestic debt exchange operation (in 2010 and 2013), which reduced interest payments and extended the maturities of the domestic securities). The government also bought back debt owed under the Petro caribe agreement which further reduced public debt. The low global interest rate environment further benefitted Jamaica (Figure 1).

- Revenue increased by 3.1 percentage points of GDP. The revenue measures included an increase in the general consumption tax (GCT) rate; and an increase in the personal income tax rate for high income earners.

- Primary expenditure increased by 1.8 percentage point. Several expenditure measures were implemented to contain spending categories, including a nominal freeze on wages and purchase of goods and services. But overall primary spending increased as program spending, especially on the social safety net program (PATH) was increased.

Overall, by FY2018/19, the primary balance had increased to 7.5 percent of GDP, the overall balance to 1.2 percent of GDP and public debt had declined to 94 percent of GDP (Table 1).

5. In short, prior to the pandemic, Jamaica had made good progress in stabilizing its macroeconomy. Macroeconomic stability was restored, foreign reserves were built up, and the current account deficit reduced. Access to domestic and international financial markets had been

restored,[1] buoyed by upgrades in credit ratings and high business confidence indicators. Fiscal discipline and proactive debt management helped place public debt on a downward trajectory.

EMBIG Spreads
(Basis Points)

Source: Bloomberg.

Table 1. Jamaica: Fiscal Balances, FY 2010–2019
(In percent of GDP)

	FY2009/10	FY 2018/19	Change
Total Revenue and grants	**27.5**	**30.6**	**3.1**
of which:			
Tax revenue (incl incentives)	24.5	26.4	1.9
Non tax-revenues	1.9	3.5	1.6
Total expenditure	**38.7**	**29.4**	**-9.3**
Primary Spending	21.4	23.2	1.8
Wage bill	11.6	9.7	-1.9
Programs (goods and services, transfers)	6.6	10.2	3.6
Capital spending	3.2	3.2	0.0
Interest spending	17.3	6.3	-11.0
Overall balance	**-11.2**	**1.2**	**12.4**
Primary balance	6.1	7.5	1.4
Public Debt	141.9	94.3	-47.6

Source: Jamaican authorities and staff estimates.

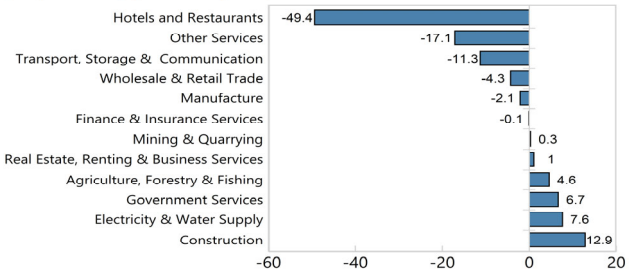
C. The Covid Crisis and the Impact on Public Finances

6. The Jamaican economy was severley affected by the pandemic. An early lockdown in the Spring of 2020 helped contain the number of Covid-19 cases but the impact on the economy was severe, especially the tourism and transport sector, with real GDP shrinking by 10 percent.

[1] The issuance of the 2045 global bond in September 2019 —at a historically low yield—reflects Jamaica's restored credibility in international markets.

According to World Bank, the headcount poverty rate is estimated to have increased to 23 percent in 2020 (from 19 percent in 2017).

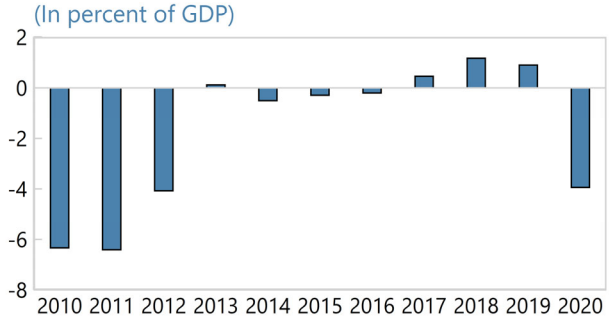
Sectoral Growth Rates
(In percent, year on year)



Source: WEO database, October 2021.
Note: Sectoral growth rates are calculted from 2019 Q4 to 2020 Q4. Wholesale & Retail Trade sector includes the installation and repair of machinery.

7. The fiscal rule was suspended for one year. As stipulated under the Fiscal Responsibility Law (FRL), the fiscal rule can only be suspended in case of a severe economic downturn, natural disaster, health and other disasters, and public emergencies, after an independent verification by the auditor general that the fiscal impact of the event exceeds the threshold of 1.5 per cent of GDP, and approval by parliament. The target date for reducing the public debt to 60 percent of GDP was shifted back two years, to FY 2027/28.

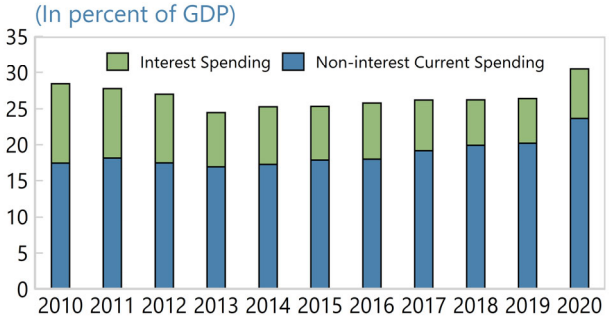
Central Government Balance
(In percent of GDP)



Sources: Bank of Jamaica and IMF staff calculations.

8. The fiscal balance turned into a deficit in FY2020/21. Tax revenues (tax to GDP) in 2020 were 1½ percent of GDP lower relative to 2019, due to revenue shortfalls from cyclical slowdown (notably in travel and accommodation taxes), cuts in the GCT rate and increased tax credits to SMEs. Spending of nearly 1.6 percent of GDP was used to support the COVID Allocation of Resources for Employees (CARE) program, aimed at providing temporary income support to workers, grants to businesses, and social assistance payments to vulnerable segments of the population exacerbated by the crisis. Accordingly, the overall fiscal deficit for FY2020/21 reached -3.1 percent of GDP (versus surplus of 0.9 percent of GDP in FY2019/20), and the debt to GDP ratio increased by about 14 percentage points to 108 percent in FY 2020 (mainly due to the decline of GDP and currency depreciation which increased the domestic currency value of foreign-exchange denominated debt). The authorities primarily used the existing fiscal buffers (government deposits from divestment) to finance the increase in fiscal deficit. Additional budgetary financing was also provided by IFIs (WB, IDB and CDB).

Central Government Current Spending
(In percent of GDP)



Sources: Bank of Jamaica and IMF staff calculations.

D. Revenue System: History of Tax Reforms and Current Shortcomings

History of the Tax System

9. During the1960s and 1970s, tax rates were raised, and the system became very complex. Income taxes were raised several times and by 1985 there were six tax brackets with a zero threshold and the highest rate set at 80 percent. The tax system became very complex. For example, the corporate income tax regime offered preferential terms and incentives to the agricultural sector to promote local production.

10. In the 1980s and 1990s taxes were simplified, and rates reduced. This included the simplification of the personal income tax (PIT) with a single rate of 33⅓ per cent and the implementation of the general consumption tax (GCT). In 1990s, the PIT rate was further reduced to 25 percent. The agricultural bias was also removed from the corporate income tax structure. The standard GCT rate is currently at 16.5 percent (lowered to 15 percent during the pandemic) with a lower rate of 10 percent for the tourism sector.

11. In the 2000s the tax base was broadened by repealing tax incentives and lowering income tax thresholds. The exemption threshold for the personal income tax was raised to J$1.5 million in 2017. The marginal tax rate for earnings above J$6 million was increased from 25 to 30 percent. The 2013 reforms repealed a wide array of incentives and exemptions for entities ranging from hotels to industry to charities to the government itself. In addition to improving tax policy, the government also undertook numerous measures to improve tax and customs administrations. These include introduction of the ASYCUDA,[2] improved collection of arrears, expansion of e-filing for large taxpayers, and improved audit capacity in the Large Taxpayers' Office (LTO). At present, in addition to PIT, several payroll taxes (7.25 percent) related to pensions, education and housing are also applicable.

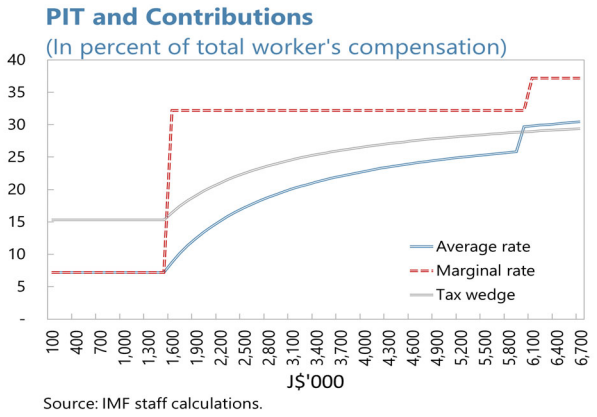
Table 2. Jamaica: Payroll Tax Rate

Tax categories	Base	Employee rate (%)	Employer rate (%)
PAYE income tax	Statutory income less income tax threshold of J$1.5 million per annum. Taxable emoluments in excess of J$6 million per annum.	25.0 30.0	--- ---
NIS contribution (pension)	Gross emoluments Gross income less allowable deductions	3.0	3.0
Education tax	Gross emoluments	2.25	3.5

[2] ASYCUDA is the UNCTAD Automated System for Customs Data. It is an integrated customs management system for international trade and transport operations in a modern automated environment.

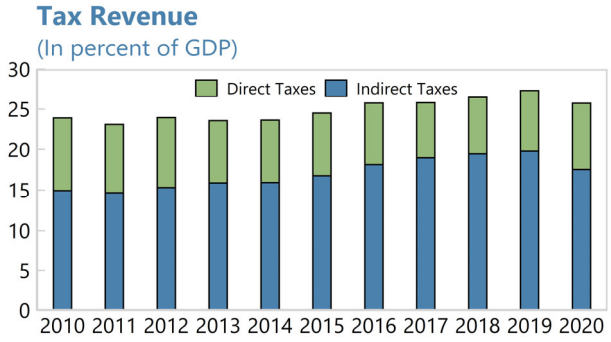
Table 2. Jamaica: Payroll Tax Rate (Concluded)			
Tax categories	**Base**	**Employee rate (%)**	**Employer rate (%)**
NHT tax (Housing trust)	Gross emoluments	2.0	3.0
HEART (Human employment and Resource training) contributions	Gross taxable payroll if employer's payroll costs exceed a turnover limit per annum	---	3.0
Source: Ministry of Finance and Planning, Jamaica.			

12. After a series of tax reforms in the last decade, the income tax system has become more progressive. The lowering of the income tax threshold and the introduction of a top rate for higher earners has increased the progressivity of the tax system. The standard PIT rate is 25 percent and for high earners it is 30 percent. The CIT rate is 33.3 percent. The PIT rates are comparable to other LAC countries, but top PIT rates are relatively high (see Appendix Table 1; IBFD 2011). The income tax threshold (JD$1.5 million) is twice the per-capita GDP which indicates that many individuals do not pay tax. When combined with payroll taxes for social programs (7.25 percent), the "tax wedge" is about 16 percent at lower income levels. At higher income levels the wedge increases to 30 percent[3].



Source: IMF staff calculations.

13. The composition of tax revenue has been shifting from direct to indirect taxes. The tax policy reforms aimed to rebalance the tax system from direct taxes to indirect taxes as the latter was more efficient and growth friendly. The share of direct taxes in total tax revenue has declined from 38 percent in FY2010/11 to 32 percent in FY 2020/21. However, when compared to



Sources: Bank of Jamaica and IMF staff calculations.

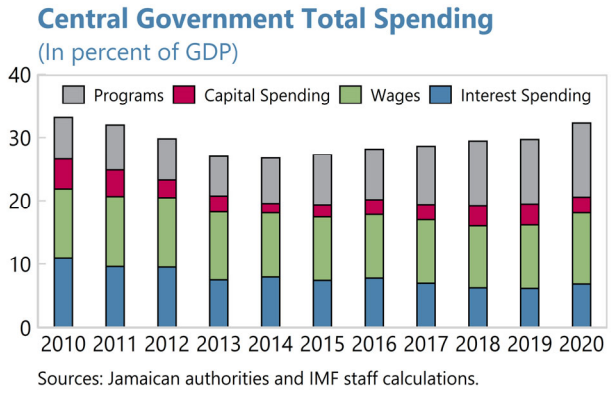
[3] The "*tax wedge*" shown in the Figure, calculated as the ratio of total wage taxes and social contributions divided by total employer costs (including wages), measures the burden of labor tax and social contributions on formal employment incentives. Most formal employees with wage income below the J$1.5 million face a marginal tax rate of about 7.25 percent—the sum of the various social charges (Table 2), excluding the HEART charge (which applies only to larger employers). Employees above the PIT threshold face a marginal tax rate of about 25 percent which increases to 30 percent for high earners.

other countries in the Caribbean region, Jamaica share of direct taxes in tax revenue is still relatively high.

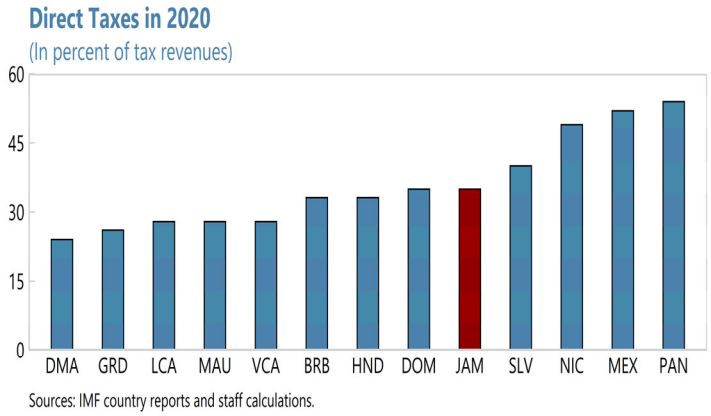
Current Shortcomings

14. Jamaica's tax regime is complicated, with relatively high rates, a narrow base, heavy reliance on direct taxes, and numerous exemptions and waivers. Both direct and indirect taxes are complex. The main tax instruments are consumption taxes (general consumption tax and special consumption tax), income tax, a stamp duty, general and customs duties, transfer tax, property tax, education tax, travel tax, and betting and gambling tax. Statutory rates are relatively high but yield relatively little revenue given the high level of informality and weak tax compliance. Despite the recent removal of several GCT exemptions, the uniformity of the tax code is adversely affected by numerous tax incentives, exemptions, and discretionary tax waivers.

15. There is limited room to mobilize additional revenues by reducing tax exemptions and discretionary tax waivers. A recent government report estimates that tax expenditures have fallen to 2 percent of GDP in 2019 (from 9 percent in 2008), with tourism, mining, and food items accounting for two thirds of tax expenditures. Discretionary tax waivers are only used for charitable causes and capped at JD$120 million annually (less than 0.01 percent of GDP). Thus, the revenue potential from tax expenditures is low. The potential yield from major categories are: reduced VAT rate for tourism (0.25%), zero rating on food items and health care (0.21%), tax incentives for mining sector (0.07%). Reviewing and streamlining tax exemptions could help in curbing tax expenditures that are inadequately targeted.



16. Given the large share of the informal sector and the low economic growth, a further shift toward indirect taxes may be desirable. Jamaica has a large informal sector, with weak tax administration and weak tax compliance, and direct taxes may not yield much in tax revenue. Many countries in the region collect a large share of tax revenues from indirect taxes (Figure). Also, indirect taxes are more growth friendly than direct taxes. Of course, tax incentives, exemptions and discretionary waivers can



narrow the tax base for indirect taxes and as such loses from tax expenditures need to be minimized.

E. Expenditure Measures

Brief Overview of Historical Trends in Spending

17. Public spending has steadily increased since 2015. Public spending during FY 2009-19 has been a story of two periods. (Table 3). During FY2009-14, primary spending declined by 2.6 percent of GDP even though program spending increased modestly. Bulk of the decline in total spending came from lower interest payments (from lower debt and lower global interest rates) and the overall balance improved by 10.7 percent of GDP. On the contrary, during FY2015-19 primary spending rose by 4.7 percent of GDP, mainly from program spending and capital expenditures. Interest payments fell modestly by 1.8 percent of GDP. In FY2020/21, primary spending further increased by 2.7 percent of GDP due to the sharp contraction in GDP and higher spending on Covid-19 related measures, and the overall balance declined to -3.1 percent of GDP.

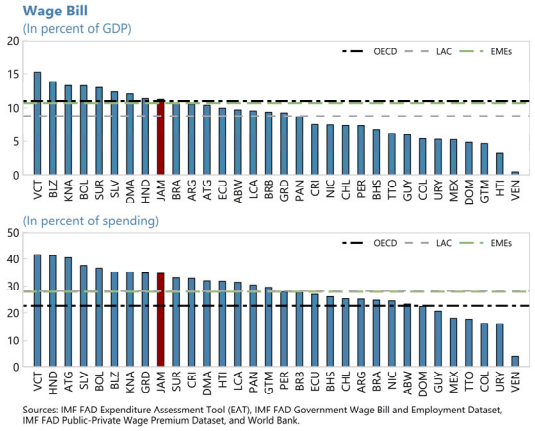
Table 3. Jamaica: Public Spending FY 2009/10–2020/21
(In percent of GDP)

	FY2009/10	FY2014/15	FY2019/20	FY2020/21	Change		
					FY2009-14	FY2015-2019	FY2009-2019
Total Revenue and grants	**27.5**	**26.2**	**30.6**	**29.2**	**-1.3**	**4.4**	**3.1**
Total expenditure	**38.7**	**26.7**	**29.7**	**33.1**	**-12.0**	**3.0**	**-9.0**
Primary Spending	21.4	18.8	23.5	26.2	-2.6	4.7	2.1
Wage bill	11.6	10.1	10.0	11.4	-1.5	-0.1	-1.6
Programs (goods and services, transfers)	6.6	7.2	10.2	12.2	0.6	3.0	3.6
Capital spending	3.2	1.5	3.3	2.6	-1.7	1.8	0.1
Interest spending	17.3	8.0	6.2	6.9	-9.3	-1.8	-11.1
Overall balance	**-11.2**	**-0.5**	**0.8**	**-3.1**	**10.7**	**1.3**	**12.0**
Primary balance	6.1	7.5	7.1	3.8	1.4	-0.4	1.0

Source: Jamaican authorities and staff projections.

Current Shortcomings

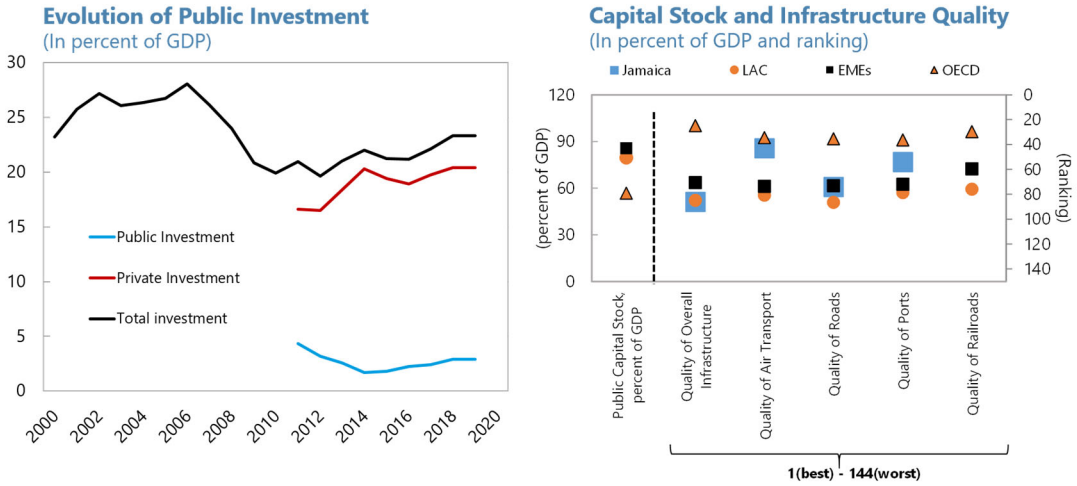
18. The wage bill is relatively high, limiting the scope for capital spending. Jamaica's wage bill (11 percent of GDP) is above the LAC average. Wages account for one-third of public expenditures, while the share of capital spending and social spending (CARE and PATH) is 8 percent and 6 percent, respectively.



Sources: IMF FAD Expenditure Assessment Tool (EAT), IMF FAD Government Wage Bill and Employment Dataset, IMF FAD Public-Private Wage Premium Dataset, and World Bank.

19. Infrastructure needs are significant. The level of investment has been declining, and the quality of infrastructure is relatively low.

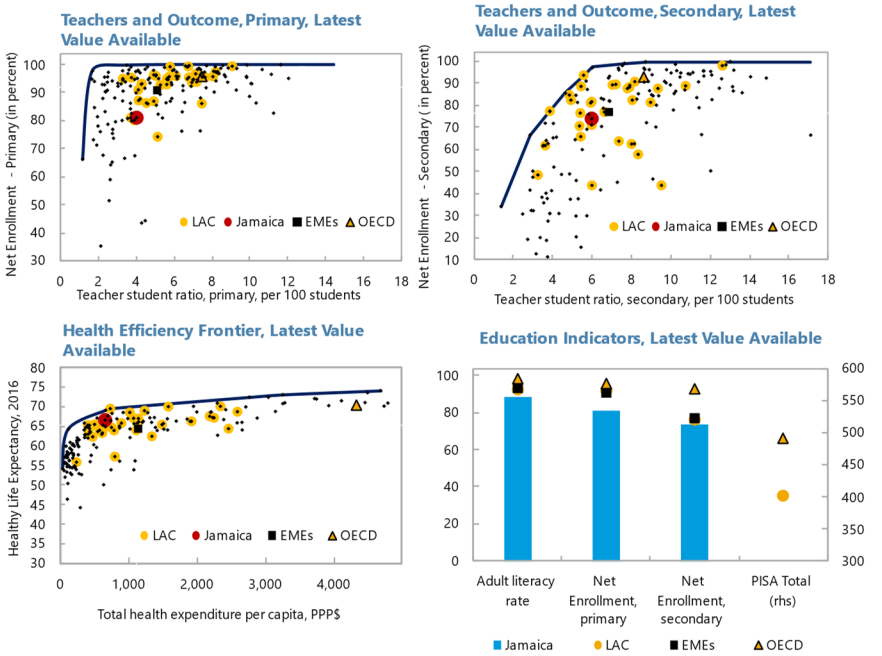
Figure 2. Jamaica: Investment and Infrastructure



Sources: IMF FAD Expenditure Assessment Tool (EAT), World Economic Outlook, World Development Indicators, IMF Investment and Capital Stock dataset, and World Economic Forum.
Note: LAC, EMEs, and OECD aggregates are averages.

20. There is scope to make existing expenditure more effective. Spending on primary and secondary education, for example, is in line with other countries in Latin America and the Caribbean, but education test scores and the number of years of schooling are relatively low.

Figure 3. Jamaica: Efficiency of Expenditure in Health and Education



Sources: IMF FAD Expenditure Assessment Tool (EAT), World Bank, and World Health Organization.
Note: LAC, EMEs, and OECD aggregates are averages.

F. Completing the Restoration of Fiscal Sustainability

21. Once the pandemic is over, adherence to the fiscal responsibility law targets will be needed to preserve debt sustainability. The government aims at a fiscal surplus of 0.3 percent of GDP for FY2021/22 and the next three fiscal years. IMF staff estimates suggest that a surplus of 0.3 percent of GDP is not high enough to attain the FRL debt target of 60 percent of GDP by 2027/28, and in later years higher fiscal surpluses would be needed (see Figure). Running a surplus of 1 percent of GDP from FY2023/24 onwards could avoid the need for much sharper adjustments later on. Jamaica will be facing gross financing needs of between 4-6 percent of GDP over the medium term.

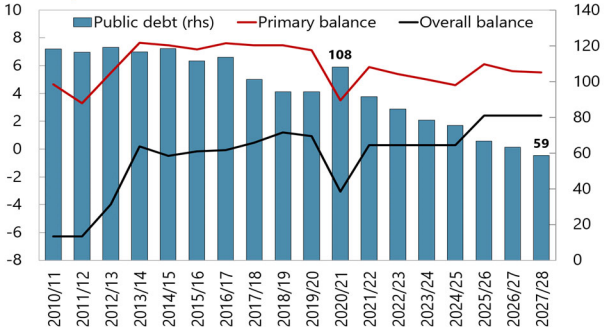
22. Publication of a fiscal framework that extends to FY2027/28 and shows how debt reduction will be achieved would further increase the credibility government's fiscal target. This would go beyond the requirements of the Financial Administration and Audit Act Regulations, which only require publication of a fiscal framework for the next four fiscal years. The soon to be established fiscal council will further strengthen policy credibility. The law to establish a Fiscal Council was passed recently and the government is now working on the composition of the council. The task of the council would be to ensure that Government's policy commitments are consistent with the Fiscal Responsibility Law.

23. Lower interest payments from lower debt and by retiring expensive debt would create fiscal space for growth enhancing expenditures. Lower debt and the maturing of the (high interest-rate) bonds from the debt exchange operation of 2010 and 2013 would further reduce interest payments and create more fiscal space for spending in growth critical areas. Many infrastructure projects were nearing completion and would provide fiscal space to undertake new projects.

Possible Revenue Measures

24. A fiscal surplus of 0.3 percent would not be enough to get to FRL debt target of 60% of GDP by FY 2027 and would necessitate sharp increases of the surplus in later years. Raising the surplus to 1.0 percent from FY 2023/24 onward would avoid the need for sharper adjustment in later years. Unwinding of Covid-19 related GCT rate cuts once the pandemic is over could yield 0.7% of GDP and help attain the debt target.

Fiscal Developments
(In percent of GDP)



Sources: Ministry of Finance and IMF staff estimates.

25. Tax expenditures are about 2% of GDP, so the potential is low. However, minimizing losses from tax incentives would help broaden the tax base. An in-depth rationalization of the cost and effectiveness of all tax incentives would be useful, while continuing

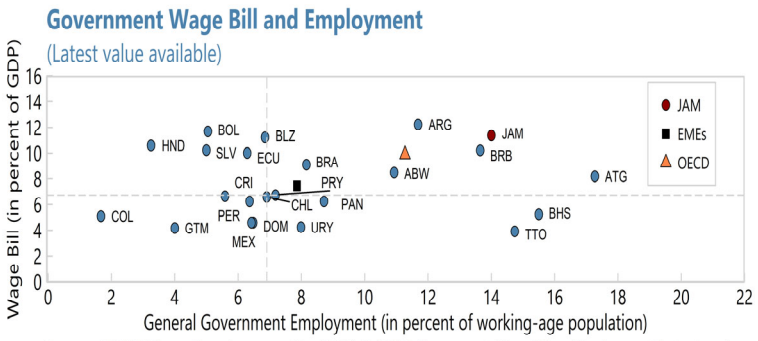
to improve the methodology for measuring tax expenditures. A close monitoring of "specialized zones or single entity" SEZs would help prevent transfer pricing and migration of existing domestic businesses.

26. There is scope to further strengthen tax administration. A key reform of the Tax Administration of Jamaica (TAJ) has been the strengthening of the Large Taxpayers' Office (LTO) which yields half of total Corporate Income Tax (CIT) revenues. Amendments to the Revenue Administration Act have allowed TAJ to access third-party information to cross-check taxpayers' information and activities. TAJ was empowered to collect outstanding arrears and seize and sell taxpayers' property. Reforms could address inaccurate taxpayer data, low on-time filing and payment rates, delays in the payment of GCT refunds, and low quality of audits leading to high rates of objections. In terms of tax policy, a continued broadening of the GCT base will not only reduce the policy gap but also improve compliance as exemption loopholes are closed.

Potential Expenditure Measures

27. The new wage structure is more transparent, standardized and equitable, but it will also further add to the wage bill. The new public sector compensation structure is a long-overdue reform. It could make the wage structure more transparent, standardized and equitable, and reduce the large differences in pay with the private sector. But it will also further add to the wage bill, which is already one of the highest in the region, reducing the room for other critical expenditures.

28. Increasing efficiency in the provision of public services could facilitate a reduction in the size of the public workforce and help offset the costs of the new wage structure. A reassessment of the various roles and responsibilities of government, as well as increasing efficiency in the provision of public services, could facilitate a reduction in the size of the public workforce, and could help offset the costs of the new wage structure. The figure indicates that General government employment in Jamaica is high relative to other countries in the region.



Sources: IMF FAD Expenditure Assessment Tool (EAT), IMF FAD Government Wage Bill and Employment Dataset, and IMF FAD Public-Private Wage Premium Dataset, World Bank.
Note: Dashed lines indicate LAC medians for wage bill and general government employment. EMEs and OECD aggregates are medians.

29. Undertaking Public Investment Management Assessment (PIMA) would help identify key areas where investment efficiency could be improved.

30. Minimize fiscal costs through better management of potential fiscal risks from Public bodies and public private partnerships. In Jamaica, the main sources of fiscal risks are

contingent liabilities from public bodies and public private partnerships (PPPs). A comprehensive assessment of contingent liabilities of the consolidated public sector would be useful. PPPs can be useful to access private sector expertise and efficiency, but they also come with risks. The selection process needs to be transparent, with clear rules on the accounting for risks as well as the monitoring of the execution of the projects.

G. Conclusion

31. Jamaica has a long history of fiscal and debt crises. In the decade preceding the pandemic, Jamaica made good progress in restoring macroeconomic and financial stability. The economy was heavily affected by the pandemic, which severely affected its fiscal position. However, the availability of fiscal buffers built-up during the pre-crisis period and the policy response to the crisis ensured that the pandemic related shock was not followed by a fiscal, financial, or balance of payments crisis.

32. As the crisis recedes and the recovery advances Jamaica should restart debt reduction and rebuild buffers, given high susceptibility to external shocks and risks to debt sustainability. A fiscal surplus of 0.3% of GDP is too low to attain the FRL debt target of 60 percent of GDP by FY2027. Raising the fiscal surplus to about 1 percent of GDP in FY 2023/24 and beyond would help attain the debt target and avoid the need to raise the fiscal surplus much sharper in later years to meet the debt target. Reverting the VAT tax cut that occurred during the pandemic would help towards that goal.

33. Increasing revenue and re-orientation of expenditure could free additional resources for growth-enhancing expenditures. Tax expenditures are about 2% of GDP, so the potential is low. However, minimizing the losses from tax expenditures could help broaden the tax base. Given the large share of the informal sector and the low economic growth, a further shift toward indirect taxes may be desirable. Indirect taxes such as VAT have the greatest revenue generating capacity and are the most efficient. Jamaica's wage bill is high (relative to countries in the region) and is crowding out growth-critical spending. The new wage structure will likely increase it further. Increased efficiency in the provision of public services could facilitate a reduction in the size of the public workforce and help offset the costs of the new wage structure. Lower interest payments (from lower debt) could also create fiscal space for much needed growth critical spending.

References

Caribbean Policy Research Institute (2018). *In search of the most efficient tax for Jamaica*. Issue No. R1809.

King, Damien (2001). T*he evolution of structural adjustment and Stabilization policy in Jamaica*. Social and Economic Studies, Vol. 50, No. 1.

International Monetary Fund. (2020). *Jamaica: Request for Purchase under the Rapid Financing Instrument*. IMF Country Report No. 20/167.

_____ (2018). Jamaica: 2018 *Article IV consultation and Third review under the Stand-By arrangement*. IMF Country Report No. 18/103.

_____ (2013). *Jamaica: Request for an extended arrangement under the Extended Financing Facility*. IMF Country Report No. 13/126.

Government of Jamaica (2021). *Tax Expenditure Statement for 2021*. Ministry of Finance and the Public Service., Taxation Policy Division, Jamaica. February 2021.

_____(2020). *Fiscal Policy paper for FY2021/22*. Ministry of Finance and the Public Service. September 2021.

International Bureau of Fiscal Documentation (IBFD), 2011. *Tax reform for Jamaica: Green Paper* no. 1-2011. Jamaica.

Malcolm, Xavier and Pedro Schmid (2016). *Debt, fiscal adjustment, and economic growth in Jamaica.* Inter-American Development Bank. Policy Brief No. DB-PB-249.

Mera, Manuel (2020). *Social and economic impact of the COVID-19*. Center for Income Distribution, Labor and Social Studies (CEDLAS), UNDP, LAC C19 PDS No. 9.

Norregaard, John, David Bevan, and Alexander Klemm (2008). Jamaica: A strategy for reform of tax incentives. Fiscal Affairs Department, IM

Appendix 1. International Comparison of Main Taxes

Table AI.1. International Comparison of Main Taxes

	Jamaica	Barbados	Dominican Republic	Mauritius	Panama
RESIDENT COMPANIES					
Corporate tax rates	33.33%	25%	25%	15%	-) 25% on net income -) 30% for insurance, banks and certain fin. services
Source	Worldwide	Worldwide	-) Active income: territorial -) Passive income: worldwide	Worldwide	Territorial
Capital gains	Generally not taxable	Not taxable 1/	25%	Not taxable	-) Yes, if part of business income -) Reduced rate otherwise
Unilateral double taxation relief	Yes, for income which is subject to Commonwealth income tax	Yes	Yes	Yes	No
NON RESIDENT COMPANIES					
Corporate tax rates	Same as resident	Same as resident	Same as resident	Same as resident	Same as resident
Branch profits	0%	10%	25%	No	10%
Dividends	33.33%	15% 2/	25%	Exempt	5%, 10% (20% on dividends paid on bearer shares)
Interest	33.33%	15%	25%, 10%, 0%	15% (creditable)	27.5% on 50% of gross amount; 5% for registered bonds and securities bonds; securities placed through a stock exchange exempt
Royalties	33.33%	15%	25%	15% (creditable)	27.5% on 50% of gross amount
Fees (technical)	33.33% (not final)	15%	25%	15%	27.5% on 50% of gross amount
Fees (management)	33.33% (not final)	15%	25%	0%	27.5% on 50% of gross amount
INDIVIDUALS					
Income tax rates	Progressive, top rate 25%	Progressive, top rate 35%	Progressive top rate 25%	Flat rate, 15%	Progressive, top rate 25%
Capital gains	Generally not taxable	Not taxable 1/	Up to 25%	No	Part of income
Unilateral double taxation relief	Yes, for income which is subject to Commonwealth income tax	Yes	Yes	Yes	No
TURNOVER TAXES					
VAT/GST (standard)	17.5%	17.5%	16%	15%	5%
VAT/GST (reduced)	10% (tourism)	7.5% (hotel accommodation)	0% (certain food items)	No	No
VAT/GST (increased)	20% (telephone services) 5/	No	No	No	10% for alcoholic beverages; 15% for cigarettes, tobacco and similar goods

Table AI.1. International Comparison of Main Taxes (Concluded)

	Jamaica	Trinidad and Tobago	Canada	United Kingdom	United States
RESIDENT COMPANIES					
Corporate tax rates	33.33%	-) 25% -) 15% for insurance companies -) 35% for gas/oil industry	-) Federal rate: 16.5% -) Provincial rates: 10% to 16%	26%	-) Federal top rate: 35% -) State rates: 0 to 12%
Source	Worldwide	Worldwide	Worldwide	Worldwide	Worldwide
Capital gains	Generally not taxable	-) Short-term gains taxed at general rate -) Long-term gains exempt	50% of capital gains are taxed at the applicable corporate tax rate	Same rates as ordinary income	Same rates as ordinary income
Unilateral double taxation relief	Yes, for income which is subject to Commonwealth income tax	Yes	Yes	Yes, ordinary foreign tax credit or deduction method (upon election)	Yes
NON RESIDENT COMPANIES					
Corporate tax rates	Same as resident	Same as resident	Same as resident	Same as resident	Same as resident
Branch profits	0%	5%	25%	No	30%
Dividends	33.33%	10%, 5%	25%	0%	30%
Interest	33.33%	15%	25% (no withholding tax on arm's length payments)	20% (several exemptions. e.g. Eurobonds); exempt for EU parent companies	30%; (0% for portfolio interest and bank deposits)
Royalties	33.33%	15%	25%	20%; exempt for EU parent companies	30%
Fees (technical)	33.33% (not final)	15%	25%	0%	30%
Fees (management)	33.33% (not final)	15%	25%	0%	30%
INDIVIDUALS					
Income tax rates	Progressive, top rate 25%	Flat rate, 25%	Progressive: -) Federal top rate 29% -) Provincial top rate up to 24%	Progressive, top rate 50% 3/	Progressive -) Federal top rate 35% -) State top rate 11%
Capital gains	Generally not taxable	-) Short-term gains taxed at general rate -) Long-term gains exempt	50% of capital gains included in income and taxed at normal tax rate	Generally 18% 4/	Maximum of 35%
Unilateral double taxation relief	Yes, for income which is subject to Commonwealth income tax	Yes	Yes	Yes, ordinary foreign tax credit	Yes
TURNOVER TAXES					
VAT/GST (standard)	17.5%	15%	-) Federal: 5% -) Provinces: 0 to 10%	20%	No
VAT/GST (reduced)	10% (tourism)	0%	No	0%, 5%	No
VAT/GST (increased)	20% (telephone services) 5/	No	No	No	No

Source: IBFD, IMF. Information is indicative only and must be interpreted within the context of each country's income tax laws. Base might be different, as well as thresholds and various trigger conditions.

1/ Regular gains from the disposal of real property that is part of trading stock are taxed as business income.

2/ 25% if paid out of profits that are exempt/have not been taxed; 0% under certain conditions.

3/ 42.5% rate applies to dividend income exceeding GBP 150,000

4/ 28% generally for higher income earners; 10% for gains qualifying for entrepreneurs relief; Short-term gains part of business income

5/ A 5% withholding at source is collected on commercial importers.

REVERTING EXPORT STAGNATION IN JAMAICA

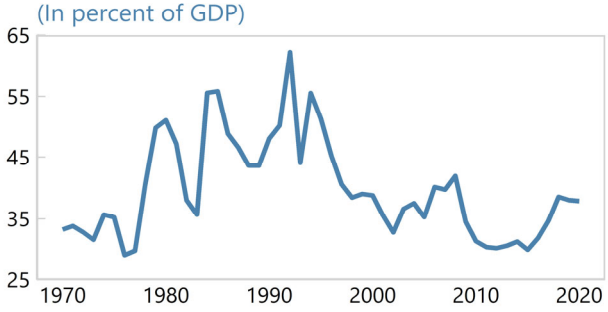
Export growth in Jamaica has been among the weakest in the world in the past quarter century. This largely reflects a major decline in its traditional exports (aluminum, textiles, sugar, and bananas). But there are significant structural constraints that hold back exports development in Jamaica, including relatively weak education and infrastructure, high crime, and competition from many nearby countries with FTAs with the United States and other large economies. Analysis produced and cited in this paper suggests that tackling these factors could boost Jamaican exports to the levels of manufacturing powerhouse countries/regions.

A. Introduction

1. In the past 25 years, export growth in Jamaica has been very low. In constant dollar terms, exports of goods and services grew at an annual rate of 0.16 percent only, the third lowest in the world. The ratio of exports of goods and services dropped from about 50 percent in the early 1990s to about 35 percent in recent years.

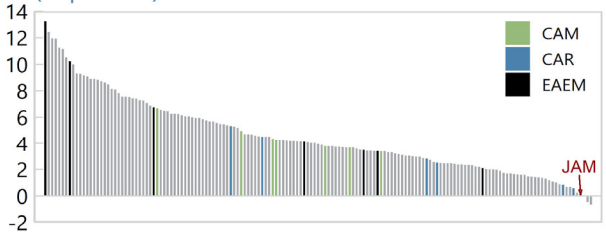
2. Slow export growth may have been an important factor behind slow productivity and slow GDP growth. Rapid export growth can boost productivity growth both through learning-by-doing and economics of scale. Of course, causality can run both ways: to the extent structural factors have held back productivity growth, they likely also held back export growth.

Exports of Goods and Services
(In percent of GDP)



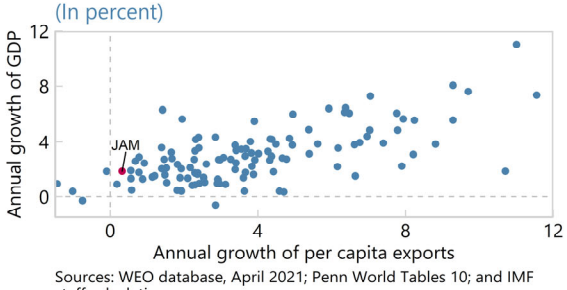
Sources: World Bank World Development Indicators (WDI) and CEIC.

Annual Export Growth, 1995–2019
(In percent)



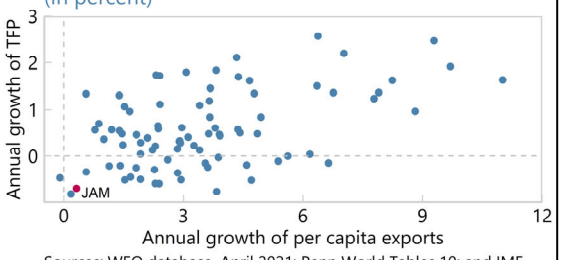
Sources: World Bank World Development Indicators (WDI) and IMF staff calculations.
Note: Based on export values in 2010 US$ and includes goods and services.

Per Capita Exports and Per Capita GDP
(In percent)



Sources: WEO database, April 2021; Penn World Tables 10; and IMF staff calculations.
Note: Exports include goods and services. Data does not include major oil exporters.
Annual growth in exports and GDP is from 1994 until 2019.

Per Capita Exports and TFP
(In percent)



Sources: WEO database, April 2021; Penn World Tables 10; and IMF staff calculations
Note: Exports, TFP, and GDP are in US$ and deflated by the U.S. GDP deflator.
Annual growth in exports and TFP is from 1994 until 2019.

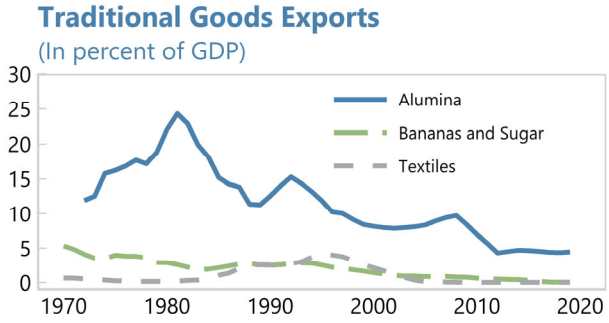
3. More rapid export growth would likely boost productivity and GDP growth. But how can exports be boosted? What has been holding back export growth? The analysis below analyzes in more detail the evolution of exports in recent decades, as well as the strength of factors identified by the empirical literature as key to export development.

B. Exports Developments: A Short History

4. Jamaica's traditional goods exports-to-GDP ratio has declined by 15 percentage points from their average in1991-95. Of this decline, 9 percentage point was due to lower alumina exports, 3 to lower textiles exports and 3 to lower bananas and sugar exports.

5. The share of alumina exports in GDP started to decline in the early 1980s. During the 1970s, alumina exports had grown sharply as new plants came into operation. This surge was rapidly reversed during the 1980s. Output fell by half between 1980 and 1985 as half of the six North American companies ceased production or left the country, and international Aluminum and Bauxite prices entered a prolonged depression because of oversupply.

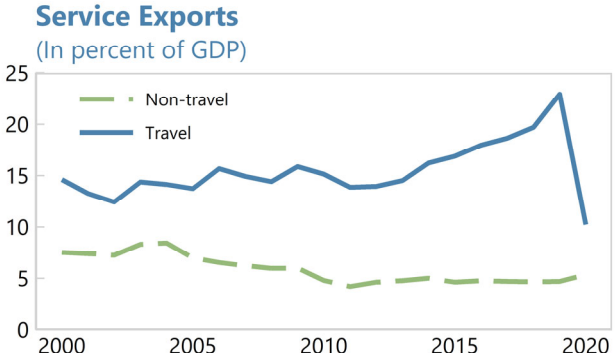
6. Initially, this was partly offset by an increase in textiles, the result of the establishment of preferential access to EU markets under the Multifiber Agreement (MFA), which benefited Jamaica and other African and Caribbean countries. The gradual phase out of the MFA starting in the mid-1990 reversed this increase.



Sources: UN Comtrade and IMF staff estimates.
Note: Traditional export products include alumina, banana, sugar, and textiles.

7. Bananas and sugar exports were hurt by the simultaneous phase out of EU preferences on Bananas and Sugar exports.

8. The decline in goods exports was partly offset by an increase in services exports. The share of tourism exports in GDP grew by almost 10 percentage points between 2010 and 2019 before Covid-19 hit. Other services exports, notably transport and communications, have declined after the early 2000s.



Sources: UN Comtrade and IMF staff estimates.

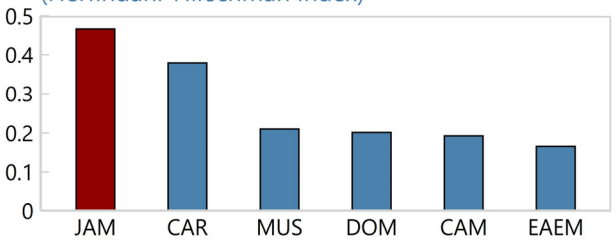
9. Jamaica's export outlook is therefore uncertain. Especially because, historically, the country's exports have relied more on exogenous resource abundance (of alumina abundance and paradisiacal nature) than

on its productive capabilities. This is evident from the following analysis of the strength of its non-commodity and non-tourism exports.

C. Diversifying Into More Complex Sectors

10. We review Jamaica's export history by focusing on non-resource-based exports as these are more dependent on the country's export competitiveness and the country can therefore more effectively foster them through policies. We first assess the levels of these exports compared to other emerging countries. In this section we compare Jamaica with other middle-income regions close to large international markets.[1] Mauritius, a remote country, is added separately due to its relative success in development of non-commodity exports and similar population size as Jamaica. The Dominican Republic is also added separately given its relative success in non-commodity export development and nearness to Jamaica.

Export Concentration, 2016–2018
(Herfindahl-Hirschman Index)

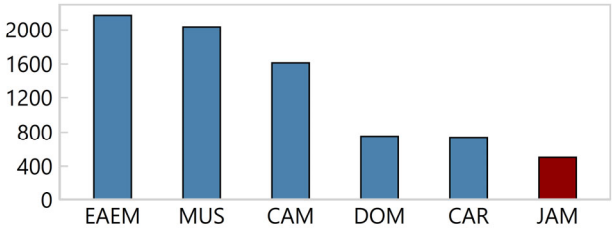


Sources: UN Comtrade and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean; EAEM=East Asia Emerging Markets. Regional groupings described in Table A.1.

11. Jamaica's export concentration index is high relative to its comparators. Jamaica's Herfindahl-Hirschman Index (HHI) is considerably above the average for Caribbean countries and even more significantly above the HHI of high performing manufacturing exporter regions (East Asia Emerging Markets, EAEM, Central America and Mexico, CAM) and two individual countries (Dominican Republic and Mauritius). The high concentration index is the result of the high share of alumina in its exports.

12. The high export concentration index does not just reflect that alumina exports are high, but also that other exports are low. Jamaica's non-hydrocarbon/mineral (NHM) exports per capita are considerably below the average in comparator regions/countries, and this weakness is even more notable when comparing manufacturing exports per capita.

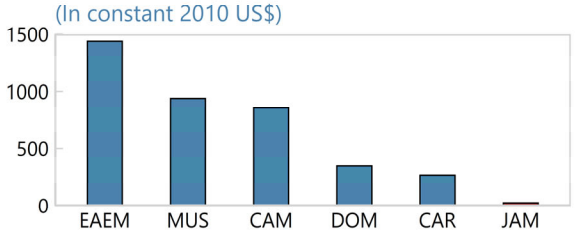
NHM Exports Per Capita, 2016–2018
(In constant 2010 US$)



Sources: UN Comtrade and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean; EAEM=East Asia Emerging Markets. Regional groupings described in Table A.1

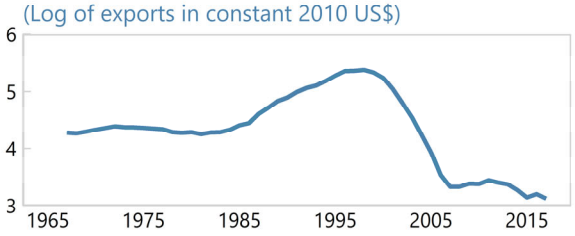
[1] International trade theory and empirics indicate that remote countries are expected to have lower exports per capita.

Manufacturing Exports Per Capita, 2016–2018
(In constant 2010 US$)



Sources: UN Comtrade and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean; EAEM=East Asia Emerging Markets. Regional groupings described in Table A.1.

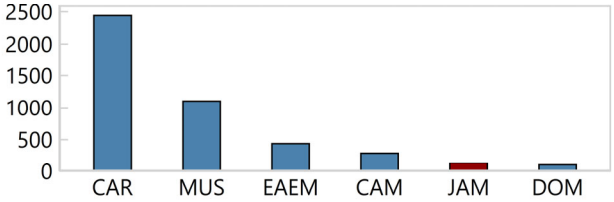
Manufacturing Exports Per Capita, 1967–2018
(Log of exports in constant 2010 US$)



Sources: UN Comtrade and IMF staff calculations.

13. Tourism exports are high, but non-tourism services exports are low according to official statistics. Jamaica's impressive nature and close location to the large North American market underpin its notably high tourist exports which, by 2019, were twice as large as Alumina exports. Exports of non-tourism service exports, on the other hand, are considerably below most comparator regions/countries in per capita terms. Official statistics, however, do not accurately register Business Process Outsourcing (BPOs) exports. After the collapse of textile exports, BPOs have become the largest exports from Jamaica's SEZs.

Non-Tourism Services Exports Per Capita, 2016–2018
(In constant 2010 US$)

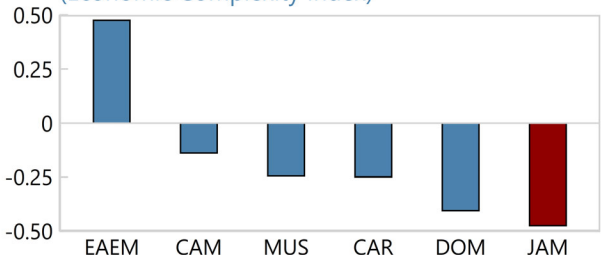


Sources: UN EBOPS and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean; EAEM=East Asia Emerging Markets. Regional groupings described in Table A.1.

14. Jamaica's export complexity is low. With an Economic Complexity Index (Hidalgo and Hausmann, 2009) below zero, Jamaica ranks considerably below comparable regions and in the lower half of the worldwide range of this index.

15. Jamaica's low complexity development is confirmed by comparing the per capita value of its complex exports. As discussed in Salinas (2021), the Economic Complexity Index does not properly reflect a country's capacity to export complex products as it may be distorted by exogenous commodity abundance and price fluctuations. Summing up the value of exports with a Product Complexity Index (PCI) above a certain threshold and normalizing them by population is a cleaner measure of capacity to export complex products. Defining those

Export Complexity, 2015–2017
(Economic Complexity Index)

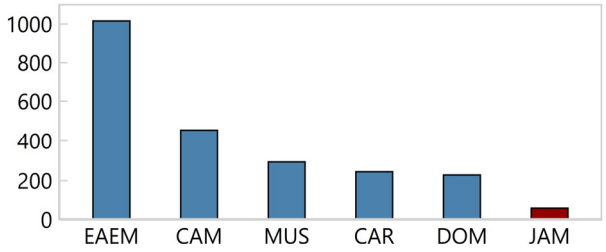


Sources: Hausmann and others (2013); and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean; EAEM=East Asia Emerging Markets.

products with PCI above zero (the upper half of the range) as *Complex Exports* and comparing their per capita ratio between Jamaica and comparators corroborates the low development of complexity.

16. Jamaica does export several of the complex products that comparator region/countries export but at much lower levels. For example, Jamaica's top ten complex exports include Medicaments and Perfumes, which several island countries tend to export, but their per capita level is only a small fraction of those in Dominican Republic and Mauritius. Like these countries, Jamaica also exports Medical Equipment, Electrical Machinery, Metal Structures, but at even lower per capita amounts.

Complex Exports Per Capita, 2016–2018
(In constant 2010 US$)



Sources: UN Comtrade and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean; EAEM=East Asia Emerging Markets.

17. This quick review of Jamaica's development of non-resource dependent countries shows that the country has not been able to sustainably go beyond alumina and tourism exports. This may denote structural factors, which we review in the next section.

Table 1. Jamaica: Largest Complex Exports by Country in 2018 1/

	Product	US$ m	US$ per capita	Product Complexity Index
Dominican Rep.	Pharmaceutical goods	89.8	8.3	1.30
	Medicaments	34.6	3.2	0.59
	Paper and paperboard in rolls or sheets nes	11.1	1.0	0.33
	Poultry,incl.offals ex.liver fresh,chilled,froz	5.7	0.5	0.31
	Wire rod of iron or steel	5.2	0.5	0.35
	Materials of rubber	4.5	0.4	0.75
	Copper and alloys of copper, worked	4.0	0.4	0.08
	Fin.structural parts & structures of iron steel	4.0	0.4	0.03
	Oats,unmilled	3.8	0.4	0.19
	Aluminium and aluminium alloys, worked	3.5	0.3	0.00
Jamaica	Alcohols,phenols,phenol alcohols,glycerine	8.8	3.0	0.68
	Medicaments	2.8	1.0	0.59
	Chocolate & other food prep. Of cocoa	1.8	0.6	0.04
	Office machines, nes	1.2	0.4	1.65
	Copper and alloys of copper, worked	1.0	0.3	0.08
	Cider & fermented beverages,nes	1.0	0.3	0.29
	Poultry,incl.offals ex.liver fresh,chilled,froz	0.7	0.2	0.31
	Books and pamphlets,printed	0.7	0.2	0.34
	Fin.structural parts & structures of iron steel	0.7	0.2	0.03
	Lighting fixtures and fittings and parts	0.6	0.2	1.11
Mauritius	Medicaments	30.1	23.9	0.59
	Synthetic or reconstructed prec.stones,not set	9.0	7.1	0.62
	Orthopadic appl.,hearing aids,artif.parts/body	8.9	7.1	1.19
	Glass, nes	7.6	6.0	0.80
	Fin.structural parts & structures of aluminium	4.7	3.8	0.40
	Tinned plates and sheets	3.4	2.7	0.62
	Books and pamphlets,printed	3.2	2.6	0.34
	Childrens toys, indoor games, etc.	2.7	2.2	1.01
	Alcohols,phenols,phenol alcohols,glycerine	2.7	2.1	0.68
	Fabrics, woven, of regenerated fibres	1.6	1.3	-0.06

Source: UNCTAD Comtrade

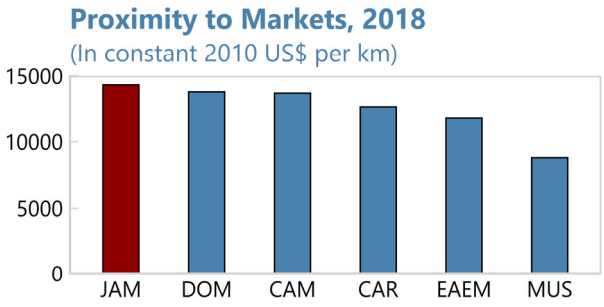
1/ Complex exports are those with Product Complexity Index (PCI) above zero. The PCI in 2018 had mean zero and standard deviation one.

D. Export Determinants in Jamaica

18. What explains Jamaica's low exports? This section will look at various factors that may have played a role.

19. The economic literature has found that "horizontal policies"[2] and location are key factors in explaining export developments. Countries with better economy wide policies (such as better education and governance) and that are closer to their export market tend to see faster export growth than other countries. Whether industrial policies[3] *boost* export growth is not yet clear and Jamaica has already intensely implemented them unsuccessfully in the past. [4]

20. Location does not seem to explain the low export growth of Jamaica. In fact, an index of Proximity to Markets (PM) that aggregates the size of its trading partners divided by their distance to Jamaica is higher than the PM index of all its comparators except EAEM.[5] Noteworthy, Mauritius' proximity to other economies is much lower than Jamaica and has a considerably stronger export development, as shown in the previous section.



Sources: Head, K. and T. Mayer, (2014); and IMF staff calculations.
Note: Proximity to Markets is the sum of GDP of partner countries weighted by their distance to the country.
CAM=Central America and Mexico; EAEM=East Asia Emerging Market; and EE=Eastern Europe.

21. It is also commonly argued that small countries like Jamaica are less capable of achieving enough economies scale to develop competitive export sectors. However, panel regressions in Table A.2 do not find a negative relation between being a small state and non-commodity exports per capita. Population size does not seem to be an unsurmountable barrier to export development as small countries like Iceland, Mauritius, or Seychelles have multiple times higher non-commodity and manufacturing exports per capita than Jamaica.[6] In fact, with only about 50,000 people, St. Kitts and Nevis has about twice as high manufacturing exports per capita than Jamaica.

22. The rest of the section, therefore, focuses on Jamaica's horizontal policy areas that are most associated with export development, including governance, education, infrastructure, and trade policy openness. Several studies (Hausmann and others (2006), Weldemicael (2012); Ding and Hadzi-Vaskov (2017), Giri and others (2019), and Salinas (2021)

[2] Horizontal" policies target broad sectors by improving their business environment, for example by improving governance, education, or infrastructure.

[3] industrial policy is defined as government intervention in a specific sector which is designed to boost the growth prospects of that sector.

[4] As suggested in a recent review of the empirical evidence on the effectiveness of these policies Rodrik (2019), it is too early to suggest that research on the effectiveness of industrial policies has taken off. For sure, there is yet no cross-country statistical evidence supporting their contribution.

[5] East Asian Emerging Markets have a high PM because they are part of the large East Asian economic agglomeration, including the large Japanese, South Korean, and Chinese economies. Besides the relatively short distance among them, their connection is sea-based (a most efficient means of transportation).

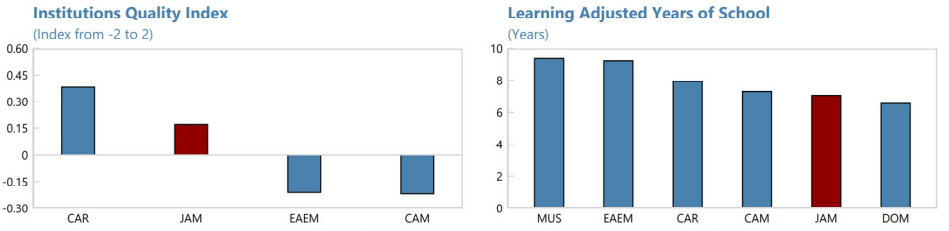
[6] Note, however, that regression analysis in Table A.2. suggests there is a negative relation between population size and per capita exports of non-tourism services.

have established a strong association between export development and these factors. In fact, Salinas (2021) finds that these factors added to gravity equation variables explain above four fifths of cross-country heterogeneity in non-commodity export development.

23. We also compare an indicator of unit labor cost (the minimum wage to GDP per capita ratio) as this is a key variable in international trade models. And further tailoring the analysis to Jamaica, we look at the potential effect of its very high homicide rate and level of remittances.

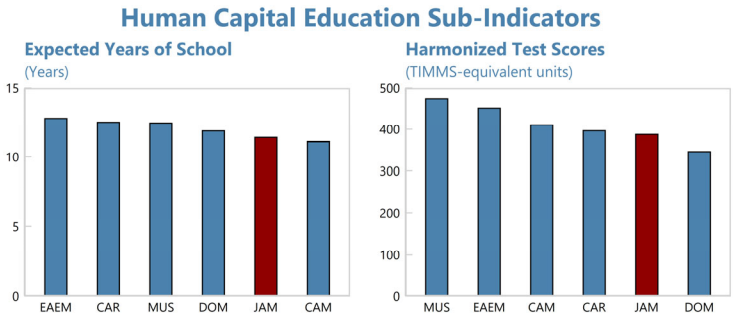
24. A glance at broad measures of governance, education, infrastructure, and trade policy openness, highlights relative weaknesses in the latter three export determinants. On education, Jamaica's Learning Adjusted Years of Schooling (a measure that combines access to and quality of education), is below most comparators including the average for Caribbean countries and is especially low relative to Mauritius and the EAEM region.

Figure 1. Jamaica: Complex Exports Determinants and Comparators, 2017



Note: CAM=Central America and Mexico; CAR=Caribbean; and EAEM=East Asia Emerging Markets.

25. Learning Adjusted Years of Schooling are low in Jamaica because of both low expected years of school and harmonized test scores. In turn, enrollment rates are especially low on secondary and tertiary education. An important explanatory factor behind low enrollment is the low student retention. The impact of

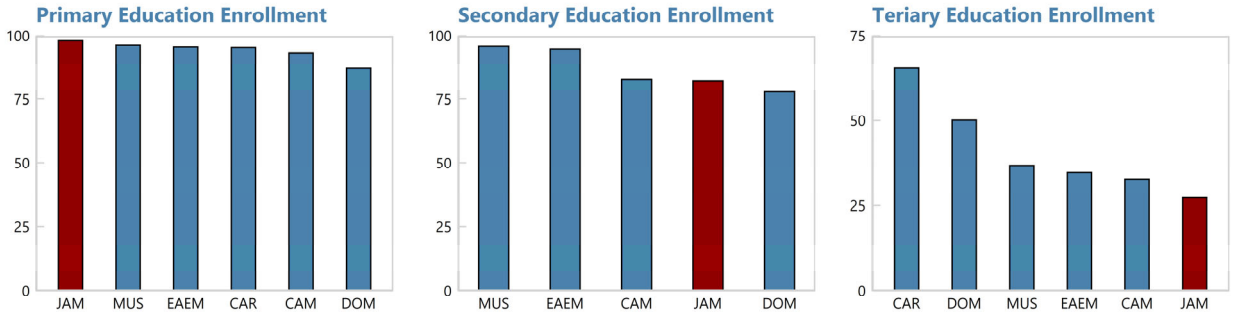


Sources: World Bank Human Capital Index and IMF staff calculations.
Note: TIMMS stands for Trends in International Maths and Science Study. Scale is such that 300 is minimal attainment and 625 is advanced attainment. CAM=Central America and Mexico; CAR=Caribbean; and EAEM=East Asia Emerging Markets.

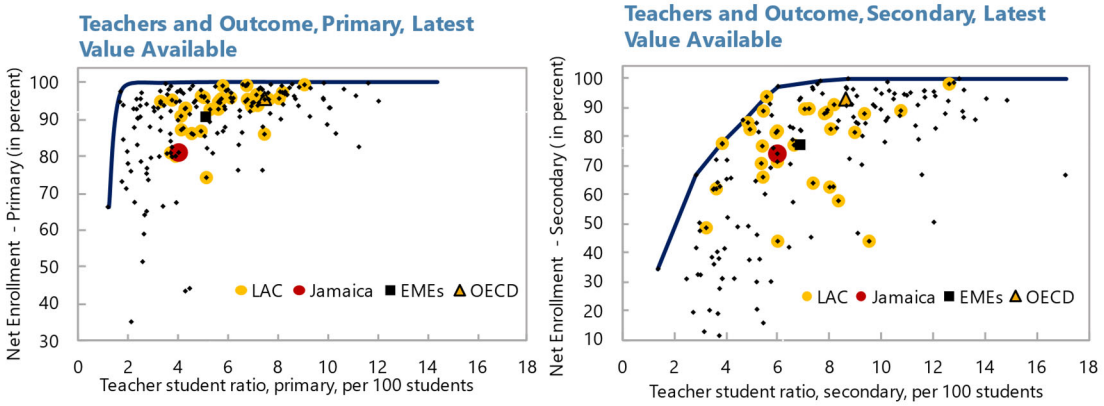
low enrollment is worsened by brain drain from historically high emigration (about 40 percent of Jamaican nationals live out of the country). Test scores may be relatively low partly because of low teacher-to-student ratios.

Figure. 2 Jamaica: Education Indicators and Comparators

(In percent)



Sources: World Economic Forum Global Competitiveness Report and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean; and EAEM=East Asia Emerging Markets.

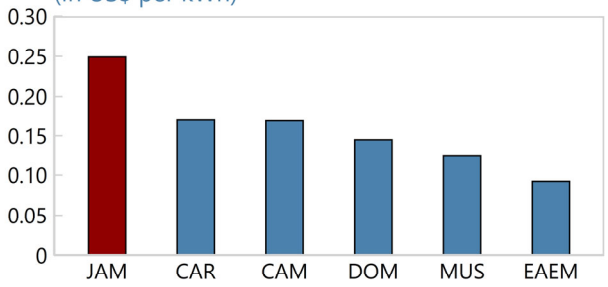


Sources: IMF FAD Expenditure Assessment Tool (EAT) and World Bank.
Note: LAC, EMEs, and OECD aggregates are averages.

26. Empirical estimates of the positive impact of stronger education on export development suggests Jamaica's relative weakness in education is a major drawback. Salinas (2021) estimates that an increase in years of schooling of one world standard deviation is associated with an increase of 160 percent in complex exports. Noting that Mauritius' years of schooling are half a standard deviation above Jamaica's complex exports will increase by about 80 percent if it reaches Mauritius.

27. Jamaica scores low in the World Bank's Logistics Performance Index where it only surpasses the Caribbean average. High electricity cost is a major infrastructure weakness. Electricity cost to firms at US$0.24 per kWh is the fourth highest in the world. It is 70 percent higher than the Dominican Republic, and 50 percent higher than the average in Central America and Mexico, Jamaica's nearby competitors for the US market. Factors behind this are a Special Consumption Tax on fuel, abundant non-paying users (about 200,000), and high reliance on imported fuel. The global move to renewables should reduce relative cost differences.

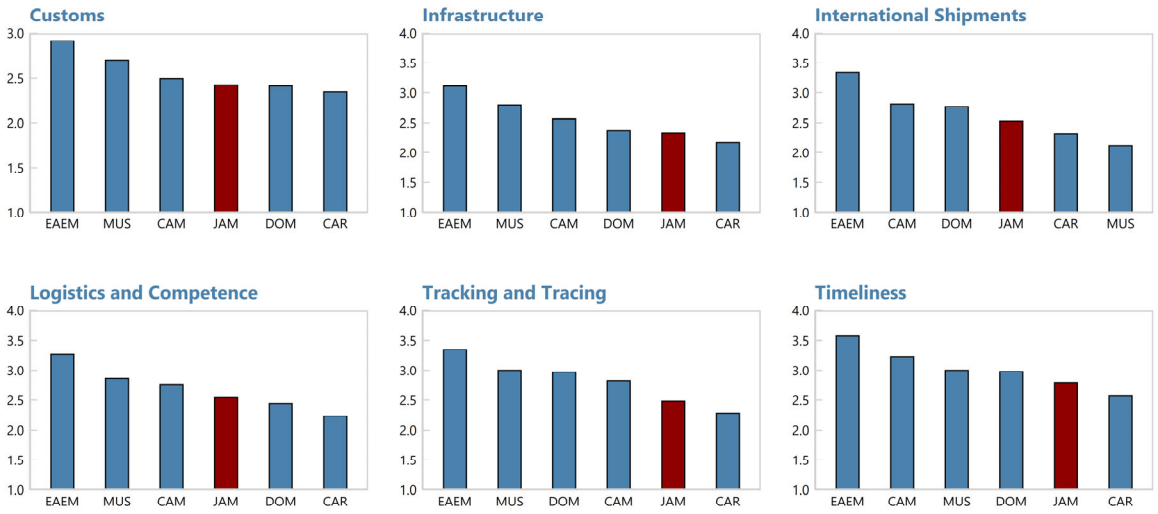
Electricity Costs for Firms
(In US$ per kWh)



Sources: GlobalPetrolPrices.com and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean countries; and EAEM=East Asia Emerging Markets.

28. Moreover, the effectiveness of Jamaica's infrastructure is severely hampered by poor logistics and red tape. In fact, the country ranks in 131st place in the World Bank's Logistics Performance Index, with particularly low scores in the logistics of Customs and International Shipments. Processing times and costs at customs are high, with only limited use of risk-based inspections.[7] Similarly, even though JAM ranks well on electricity supply at GCR, the red tape involved in obtaining electricity is higher than in Latin American and the Caribbean.

Figure 3. Jamaica: Logistics Performance Indicators and Comparators
(Index from 1 to 5)



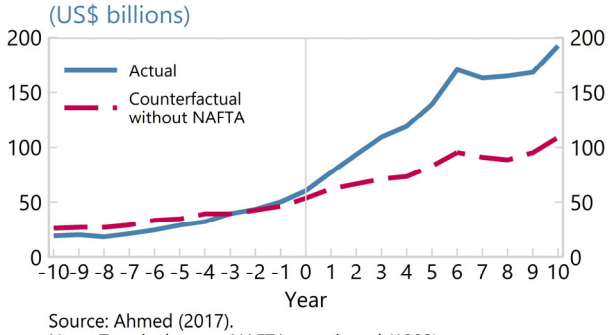
Sources: World Bank Logistics Performance Index and IMF staff calculations.
Note: CAM=Central America and Mexico; CAR=Caribbean; and EAEM=East Asia Emerging Markets.

[7] Risk-based inspection systems are already in place, but IMF technical assistance experts and government officials agree their use could be extensive.

29. Another weakness in Jamaica's export competitiveness is its high import tariffs. This is an important factor as, according to Salinas (2021), a reduction of 10 percentage points in average tariffs is associated with about 60 percent higher complex exports per capita. Arguably, the negative impact could be even more detrimental to small countries as they require global integration to enhance their economic scale.

30. Besides having a high simple average, Jamaica's import tariffs have a high dispersion with a maximum tariff of 100% (on vegetables and animal products). And the very high average tariff on agricultural goods (about 20 percent), considerably increases living costs and, therefore, unit labor costs. Stamp duties further increase average border protection from 10.4 to 12.6 percent (World Trade Organization, 2017). Jamaica's high imports barriers and loss of preferential market access compares particularly unfavorably with the nearby countries in Central America and Dominican Republic, all of them with Free Trade Agreements (FTAs) with the United States and among themselves. Empirical evidence of the trade boosting impact of FTAs suggests this is a major drawback. For instance, comparing actual exports from Mexico to Canada and the United States to those from a synthetic counterfactual, Ahmed (2017) finds that NAFTA doubled these exports.

Mexico: Exports to U.S. and Canada
(US$ billions)

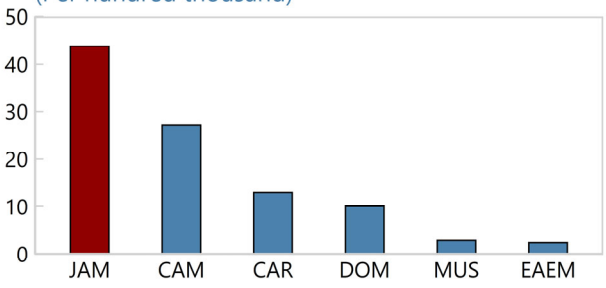


Source: Ahmed (2017).
Note: Zero is the year NAFTA was signed (1993).

31. On the other hand, Jamaica, like many other Caribbean countries have relatively good standing on institutional quality. A closer look at the areas that make up the World Bank's Worldwide Governance Indicators, shows that Jamaica ranks particularly well on Voice and Accountability and Regulatory Quality, and less favorably on Political Stability and Absence of Violence and Rule of Law, but even then, it ranks at about the average of its comparators (Figure 4).

32. However, crime in Jamaica, as measured by its homicide rate, counterpoises the stability provided by its relatively strong institutions. The homicide rate is much higher than in comparator regions/countries, including Central America and Mexico, the region with the highest homicide rates in the world.

Intentional Homicides, 2018
(Per hundred thousand)

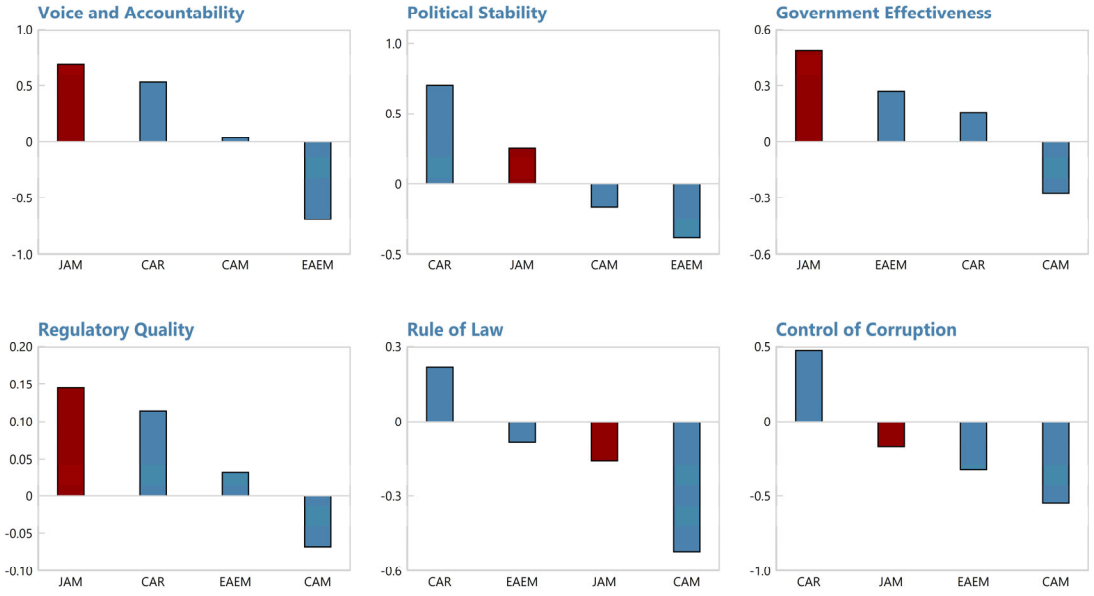


Sources: World Bank World Development Indicators (WDI) and IMF staff calculations.

33. The potential impact of such high homicide rate can be quite significant. IADB cross-country statistical analysis suggests that crime-

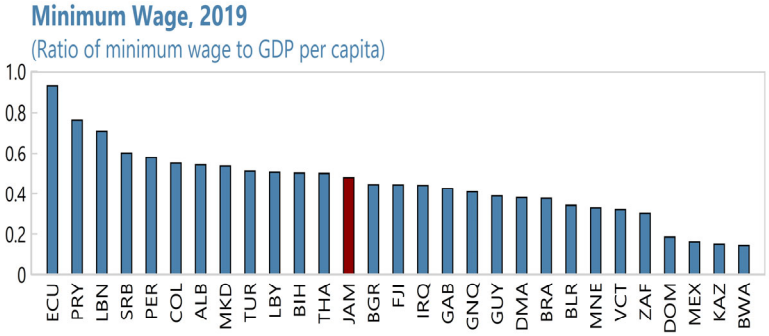
related costs in Jamaica could be up to 4 percent of GDP, and therefore it most likely significantly erodes its export competitiveness (Jaitman and Torre, 2017). The estimated coefficient of the homicide rate in Table A.2. implies that if Jamaica were to reduce it from its current 56 homicide per 100,000 people to the world average of 7, it would boost complex exports by 82 percent. As discussed earlier, crime and remittances are particularly high in Jamaica and it is very likely that they constrain export development. Scatter plots in Panel Figure A.1. shows that both factors are negatively related to non-commodity exports, and panel regression analysis in Table A.2 confirms their statistical significance.

Figure 4. Jamaica: Governance Subindices in and Comparators
(Index from -2.5 to 2.5)



Sources: Worldwide Governance Indicators (World Bank) and IMF staff calculations.
Note: The accuracy of these indices can be biased by experts' views.
CAM=Central America and Mexico; CAR=Caribbean; and EAEM=East Asia Emerging Markets.

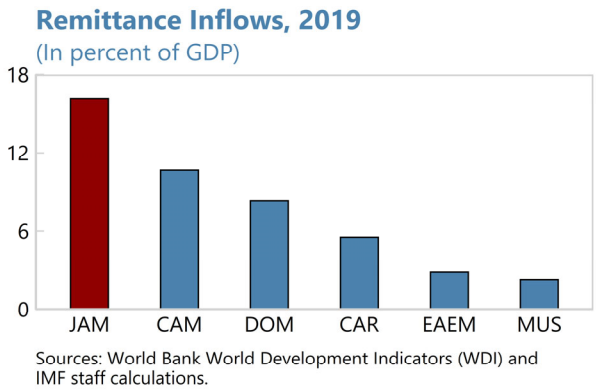
34. Labor costs for low skilled workers do not appear particularly high in Jamaica, but the country faces significant labor cost competition from nearby manufacturing exporters. As suggested in most international trade models (for example, Eaton and Kortum, 2002) export development is expected to be negatively affected by high unit labor cost. In



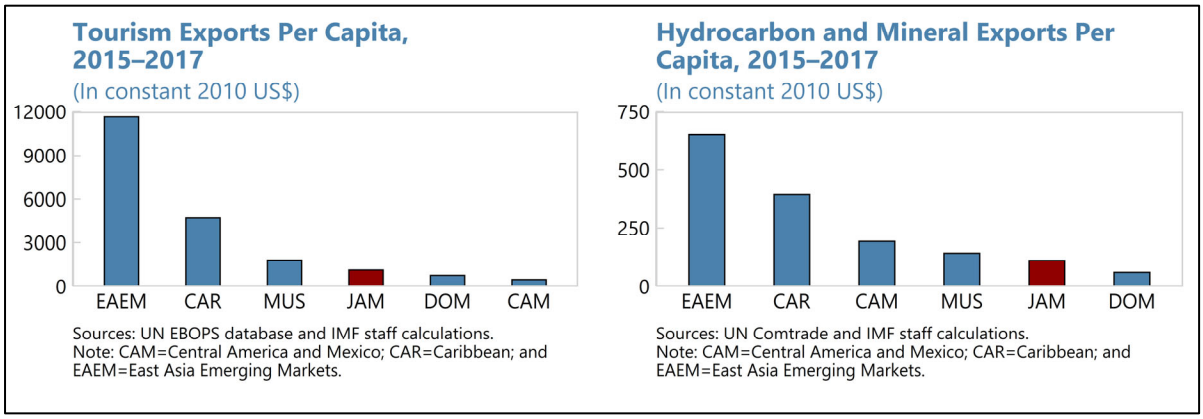
Sources: WEO, October 2020; U.S. State Department; and IMF staff estimates.
Note: Includes countries with GDP per capita between 5,000–10,000 US$.

the absence of more refined cross-country indicators of unit labor costs we can compare Jamaica's minimum wage to GDP per capita to those of other relevant countries.[8] A comparison of this ratio in 2019, shows that Jamaica's ratio is not particularly high. However, Dominican Republic and Mexico, two important competitors for the North American market have a much lower ratio, as is also the case of comparator Mauritius.

35. The remarkably high remittances in Jamaica can have an important Dutch-disease effect on exports. Accounting for 17 percent of GDP in 2015-20, Jamaica' remittances are higher than all comparators. A scatterplot in Panel Figure A.1. shows a significantly negative relation between the level of remittances and non-commodity exports per capita, and regressions in Table A.2. confirm this negative effect. The estimated coefficient indicates that were Jamaica to receive the world average level of remittances as a share of GDP it would increase its complex exports by 107 percent.



36. A priori there could be a similar Dutch Disease effect from natural resource-based exports on other exports. Whether this helps explain Jamaica's development of non-alumina and non-tourism exports depends on the relative dominance of these exports. This does not seem to be the case as Jamaica's hydrocarbon/mineral exports per capita are low relative to comparators, only higher than the average in Central America. And despite the dominance of tourism exports, in per capita terms they are much lower than in comparators, except Dominican Republic.



[8] Panel Figure A.1. shows a strong negative relation between the minimum wage per capita ratio and per capita exports.

E. Conclusions

37. A short review of Jamaica's export determinants points at several weaknesses in its export development framework, which can help design policy strategies to remedy them. The most significant constraints to export development appear to be its low access and quality of education, weak infrastructure (notably its expensive energy), relatively high import barriers, strong competition from nearby countries with FTAs with the largest economies of the region, as well as its very high homicide and remittances rates.

38. While strengthening its export determinants will require substantial efforts, statistical analysis produced and cited in this paper suggests these could have major payoffs. This analysis suggests that the combined effect of boosting educational attainment to the highest among its comparators, significantly reducing tariffs or signing FTAs with large countries, and reducing the homicide rate to the world average would multiply complex exports 4 or 5 times. Such efforts would allow Jamaica to match the export complexity of manufacturing powerhouses such as Mauritius and Central America and Mexico, and thus more fully take advantage of its proximity to the United States and other large economies.

References

Ding, Xiaodan and Metodij Hadzi-Vaskov, 2017, "Composition of Trade in Latin America and the Caribbean," IMF Working Papers 2017/042, International Monetary Fund.

Eaton, Jonatahan and Samuel Kortum, 2002, "Technology, Geography, and Trade," *Econometrica*, Econometric Society, vol. 70(5), pages 1741-1779.

Giri, Rahul, Saad N Quayyum, Rujun Yin, 2019, "Understanding Export Diversification: Key Drivers and Policy Implications," IMF Working Papers 19/105, International Monetary Fund.

Hannan, Swarnali A, 2016, "The Impact of Trade Agreements: New Approach, New Insights," IMF Working Papers 2016/117, International Monetary Fund.

Hausman, Jerry A. and William E. Taylor, 1981, "Panel Data and Unobservable Individual Effects," *Econometrica*, Econometric Society, vol. 49(6), pages 1377-1398.

Hausmann, Ricardo, Jason Hwang and Dani Rodrik, 2006, "What You Export Matters," CEPR Discussion Papers 5444, C.E.P.R. Discussion Papers.

Hausmann, Ricardo, César A. Hidalgo, Sebastián Bustos, Michele Coscia, Alexander Simoes, Muhammed A. Yildirim, 2013, "The Atlas of Economic Complexity: Mapping Paths to Prosperity," The MIT Press.

Hidalgo, Cesar and Ricardo Hausmann, 2009, "The Building Blocks of Economic Complexity," *Proceedings of the National Academy of Sciences of the United States of America*, 106 (26), pp. 10570-10575.

International Monetary Fund, 1980, *World Economic Outlook*, Washington, D.C: International Monetary Fund.

Jaitman, Laura and Ivan Torre, 2017, "The Direct Costs of Homicides," Chapter 3 in *The Costs of Crime and Violence: New Evidence and Insights in Latin America and the Caribbean*, Inter-American Development Bank, Washington, DC.

Rodrik, Dani, 2019, "Where are we in the economics of industrial policies?", VoxDev Public Economics, retrieved from: https://voxdev.org/topic/public-economics/where-are-we-economics-industrial-policies.

Salinas, Gonzalo, 2019, "Proximity and Horizontal Policies: The Backbone of Export Diversification," IMF Working Paper WP/21/64, Washington, DC.

United Nations, 2020, *UN Comtrade*. Available at <http://comtrade.un.org>.

United Nations Development Program, 2020, *Human Development Reports*, Various editions, retrieved from: http://hdr.undp.org/en/content/education-index.

Weldemicael, Ermias O., 2012, "Determinants of Export Sophistication," The University of Melbourne, available at https://www.business.unsw.edu.au/About-Site/Schools-Site/Economics-Site/Documents/E.Weldemicael%20-%20Determinants%20of%20Export%20Sophistication.pdf

World Bank, 2020a, *Worldwide Governance Indicators*, various editions, World Bank Publications, World Bank, Washington DC, retrieved from: <https://info.worldbank.org/governance/wgi/>.

World Bank, 2020b, *World Integrated Trade Solution*, various editions, World Bank, Washington DC, retrieved from: https://wits.worldbank.org/.

World Economic Forum, and Harvard University, 2020, *The Global Competitiveness Report*, various editions, Geneva: World Economic Forum, retrieved from: https://www.weforum.org/reports/the-global-competitiveness-report-2020.

World Trade Organization, 2017, "Report by The Secretariat", in *Trade Policy Review: Jamaica 2017*, WTO, Geneva, retrieved from: https://www.wto.org/english/tratop_e/tpr_e/s359_e.pdf.

Appendix I. Complexity Determinants

Table AI.1 Regional Classification of Countries

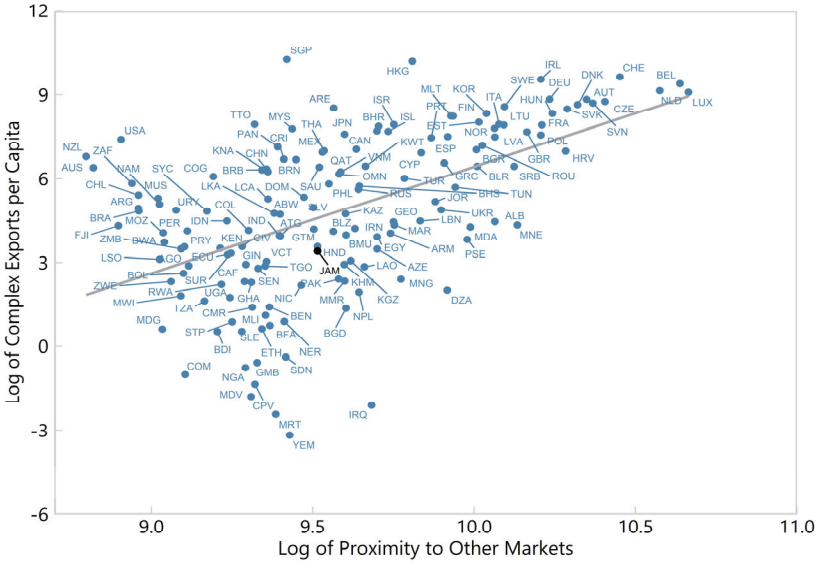
Region	Region Code	Country	Region	Region Code	Country	Region	Region Code	Country
Andean	AND	Bolivia	Eastern	EE	Albania	Pacific Isl.	PAC	Tonga
		Colombia	Europe		Bosnia and Herzegovina			Tuvalu
		Ecuador			Croatia			Vanuatu
		Peru			Cyprus	South Asia	SAR	Afghanistan
		Venezuela			Czech Republic			Bangladesh
Arab	ARB	Bahrain			Estonia			Bhutan
		Brunei			Georgia			Nepal
		Kuwait			Hungary			Pakistan
		Oman			Latvia			Sri Lanka
		Qatar			Lithuania			Timor-Leste, Dem. Rep. of
		Saudi Arabia			Montenegro, Rep. of	Southern	SCC	Argentina
		United Arab Emirates			North Macedonia	Cone		Brazil
		Yemen			Poland			Chile
Central Asia	CA	Armenia			Moldova			Paraguay
		Azerbaijan			Romania			Uruguay
		Belarus			Russia	Scandinavia	SCN	Denmark
		Kazakhstan			Serbia			Finland
		Tajikistan			Montenegro, Rep. of			Iceland
		Turkmenistan			Slovak Republic			Norway
		Uzbekistan			Slovenia			Sweden
Central Am.	CAM	Costa Rica			Turkey	Sub-Saharan	SSA	Angola
& Mexico		El Salvador			Ukraine	Africa		Benin
		Guatemala	European	EU	Andorra			Botswana
		Honduras	Union		Austria			Burkina Faso
		Mexico			Belgium			Burundi
		Nicaragua			France			Cameroon
		Panama			Germany			Cabo Verde
Caribbean	CAR	Anguilla			Greece			Central African Republic
		Antigua and Barbuda			Greenland			Chad
		Aruba			Ireland			Comoros
		Bahamas			Italy			Democratic Republic of the Congo
		Barbados			Luxembourg			Congo, Republic of
		Belize			Malta			Côte d'Ivoire
		Bermuda			Netherlands			Djibouti
		Cayman Islands			Portugal			Eritrea
		Cuba			Spain			Ethiopia
		Dominica			Switzerland			Gabon
		Dominican Republic			United Kingdom			Gambia
		French Guiana	India	IND	India			Ghana
		Grenada	Middle East	ME	Iran			Guinea
		Guadeloupe			Iraq			Kenya
		Guyana			Israel			Lesotho
		Haiti			Jordan			Liberia
		Jamaica			Lebanon			Madagascar
		Martinique			Syria			Malawi
		Montserrat	North Africa	NA	Algeria			Mali
		St. Kitts and Nevis			Egypt			Mauritania
		St. Lucia			Morocco			Mauritius
		St. Vincent and the Grenadines			Tunisia			Mayotte
		Suriname	North	NAM	Canada			Mozambique
		Trinidad and Tobago	America		United States			Namibia
East Asia	EAEM	China	Oceania	OCE	Australia			Niger
Emerging		Macao SAR			New Zealand			Nigeria
		Indonesia	Pacific Isl.	PAC	Cook Islds			Rwanda
		Malaysia			Micronesia, Fed. States of			São Tomé and Príncipe
		Philippines			Faroe Islds			Senegal
		Vietnam			Fiji			Seychelles
East Asia	EAHI	Hong Kong SAR			French Polynesia			Sierra Leone
High Income		Japan			Kiribati			Somalia
		Singapore			Maldives			South Africa
		South Korea			New Caledonia			Sudan
East Asia	EAOTH	Cambodia			Palau			Togo
Others		Lao P.D.R.			Papua New Guinea			Uganda
		Mongolia			Samoa			Tanzania
		Myanmar			Solomon Islands			Zimbabwe

Table AI.2 Determinants of Complex Exports

Dependent Variable: Log NHM exports	(1)	(2)	(3)
Log distance	-1.295***	-1.569***	-1.701***
Governance (WB Index)	0.748***	0.717***	0.991***
Education (UN Index)	6.635***	6.156***	6.524***
Infrastructure (GCR Index)	0.268***	0.273***	0.0672*
Average Tariff (percent)	-0.0499***	-0.0491***	-0.0365***
Small states dummy (1 if population below 1 million)		-0.522***	-0.454***
Remittances (% of GDP)			-0.0507***
Homicide rate (per 100,000 persons)			-0.206***
Constant	4.940*	1.16	8.539***
Observations	44,172	44,172	38,890
Rho	0.92	0.92	0.94

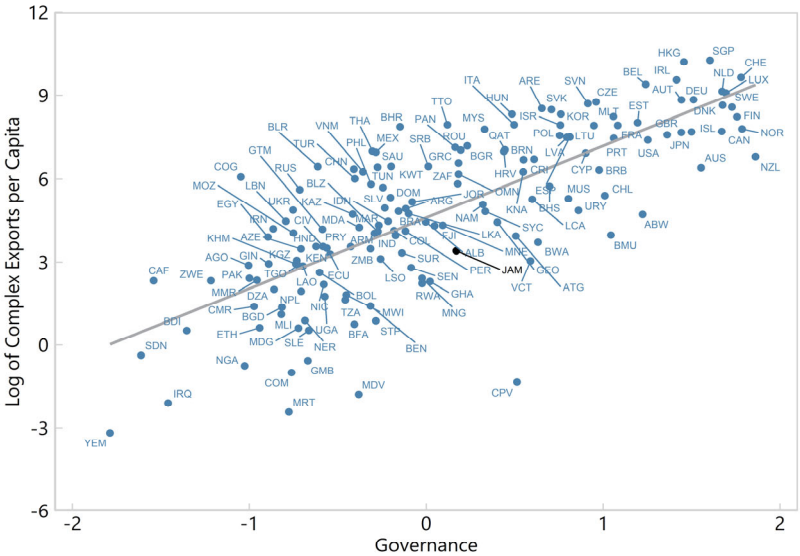
Notes: * p<0.1, ** p<0.05, *** p<0.01. Panel regressions based on Hausman and Taylor (1981) technique with groups consisting of all combinations of reporter and partner countries in UN Comtrade database. Observations are non-overlapping 5-year averages within the 1962-2018 period, depending on data availability. Regression specification based on equation (7). Multilateral resistance terms and partner country's policy variables included (coefficients not reported). Dependent variable is the logarithm of the value of complex exports, defined as exports of products with a Product Complexity Index (PCI) above zero according to Hausmann and others (2013).

Figure AI.1 Export Complexity and Proximity to Other Markets



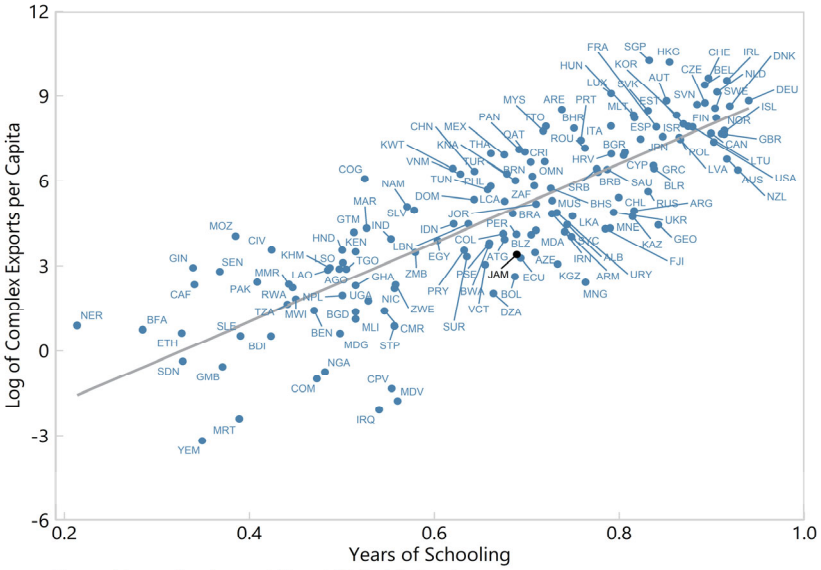
Source: Salinas (2021).

Figure AI.2 Export Complexity and Governance



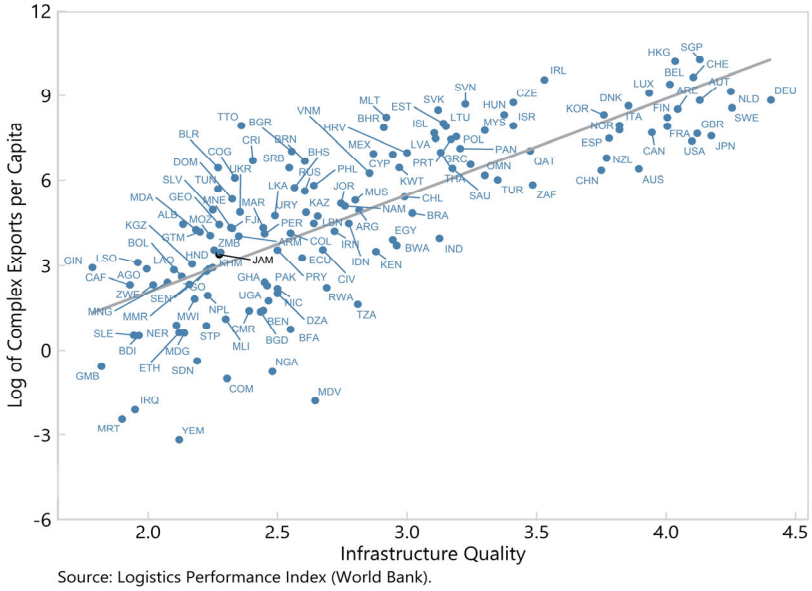
Sources: Worldwide Governance Indicators (World Bank) and IMF staff calculations.
Note: The accuracy of these indices can be biased by experts' views.

Figure AI.3 Export Complexity and Education



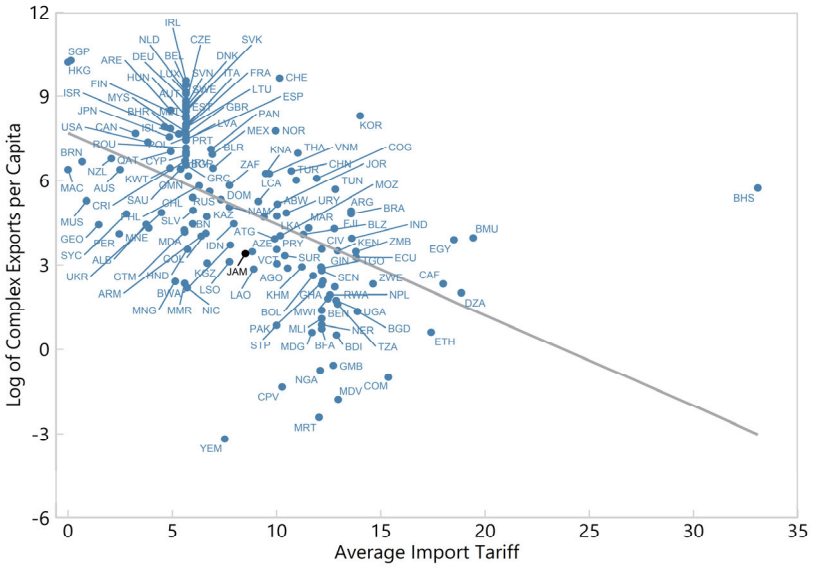
Source: Human Development Report (United Nations).

Figure AI.4 Export Complexity and Infrastructure



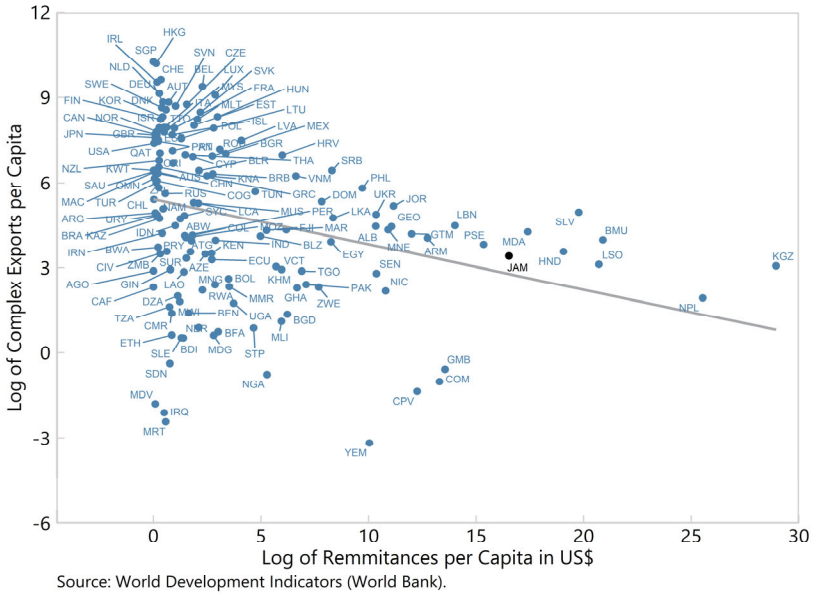
Source: Logistics Performance Index (World Bank).

Figure AI.5 Export Complexity and Import Tariffs



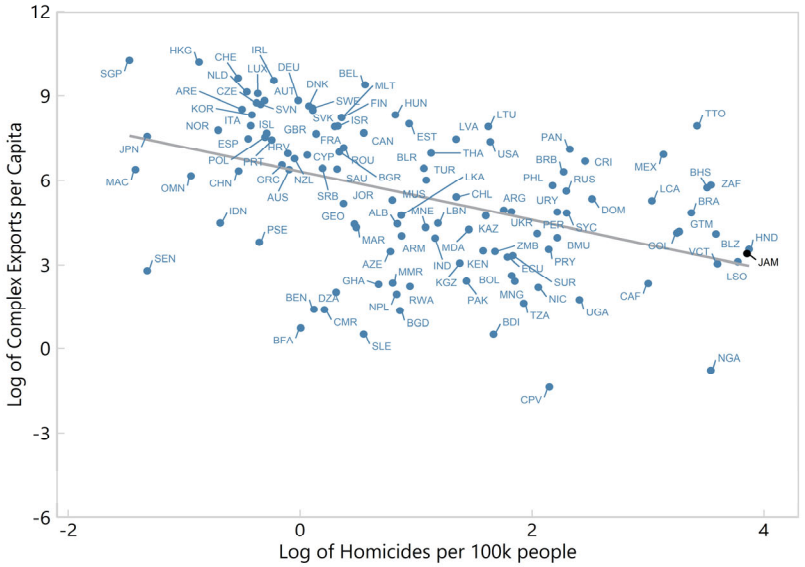
Source: World Integrated System (World Bank).

Figure AI.6 Export Complexity and Remittances



Source: World Development Indicators (World Bank).

Figure AI.7 Export Complexity and Crime



Source: World Development Indicators (World Bank).

Figure AI.8 Export Complexity and Labor Costs

Sources: U.S. State Department and Salinas (2021).