



Regulation



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Economic Analysis of the Regulation of the Cannabis Industry in Saint Lucia

Prepared for: Cannabis Commission

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1.0 EXECUTIVE SUMMARY

Back Ground and Context

The United Nations (UN) introduced the Single Convention on Narcotic Drugs in 1961, the 1971 Convention on Psychotropic Substances and the 1988 Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. These international conventions became the legislative basis for the prohibition and criminalization of the production, non-medical use and trade of cannabis and several other drugs in UN member states. However, despite its status as an illegal substance, cannabis is the most widely used illicit drug worldwide.

The surge in scientific evidence on the medical and industrial benefits of cannabis undermines the arguments for prohibition and criminalization on the basis that cannabis is a dangerous drug without value. Furthermore, there is consensus in the literature that prohibition and criminalization policies have not delivered on the intended outcomes and come at high enforcement, economic and social costs. Nonetheless, concerns remain surrounding the psychoactive and health effects associated with cannabis use especially in children and young people.

Amidst these debates, global sentiments have changed as many countries advance regulatory reforms to capitalize on the opportunities in the cannabis industry. Over 33 countries have amended their legislations to decriminalize the medical and or the recreational use of cannabis. Uruguay in 2013 became the first country to legalize Cannabis for recreational use, followed by Canada in 2018. The Caribbean region through CARICOM are currently taking action towards a new regulatory framework that balances the economic benefit of legalization with public health concerns.

Within this context, the Government of Saint Lucia has committed to implementing a new legislative and regulatory framework for the production, sale and distribution of cannabis. In pursuit of this objective, a Cannabis Commission was established in July 2019. The objective of this report is to guide the work of the Cannabis Commission, by undertaking an economic analysis of the costs and benefits of following three (3) proposed regulatory models:

- i) Model 1: Decriminalization of Cannabis Use Only
- ii) Model 2: Full Legalization of Cannabis Production, Sale and Use (within a Competitive Market Framework)

- iii) Model 3: Full Legalization of Cannabis Production, Sale and Use (with State Control)

Review of Current Landscape in Saint Lucia

A review of the current landscape in Saint Lucia revealed that Cannabis and other related products are classified as controlled drugs under The Drugs (Prevention of Misuse) Act, Chapter 3.02 of the revised laws of Saint Lucia (2008). The penalty for offence ranges from three (3) years in prison or a fine of \$100,000 on summary conviction and up to fourteen (14) years in prison and a fine of \$200,000 on indictment. Despite the illegality and associated severe penalties for use, the past year prevalence of use in the general population was estimated at 8.9¹ percent and 17² percent among students, with a higher incidence among males than females.

In the 2016 Student's Drug Use Study, 50 percent of the students surveyed in Saint Lucia reported that cannabis was easily accessible. The study also found that the frequency of behavioral problems and repeated years of school increased with the prevalence of cannabis use. Correlation patterns in the data from the National Mental Wellness Centre suggested that cannabis use may be connected to a higher risk of dependency and mental disorders such as drug induced psychosis and schizophrenia.

According to statistics from the Royal Saint Lucia Police Force, cannabis related offences in Saint Lucia have increased steadily over the last 5 years. In 2018, unlawful possession of cannabis accounted for over 60 percent of all cannabis related offences. As of October, 2019, 7 percent of the inmates (39 inmates) at Bordelais Correctional Facility (BCF) were incarcerated for cannabis related offences. Of these 39 inmates, 32 were on remand awaiting trial. Furthermore, during the period 2014-2018, 70 percent of the inmates admitted at BCF for cannabis related offences were between the ages of 20-35 years. Over 50 percent of these inmates had a secondary or tertiary education and over 97 percent were previously employed in farming, fishing and other industries. These statistics suggest that criminalization has

¹ World Drug Report 2019, prepared by United Nations Office on Drugs, and Crime (2019).

² Data Source: Student's Drug Use Study, prepared by Inter-American Drug Abuse Control Commission (2016).

a negative impact on the youth, employment and productive capacity of the economy as a whole.

Economic Assessment

An economic assessment of the proposed models was undertaken, drawing from economic theory, empirical evidence from country studies and cost benefit analysis to investigate the impact on selected indicators including prevalence of use, prices, implementation and government revenue.

Theoretical Model

The results of the economic theoretical model projected an increase in consumption and a decrease in prices under all three models, with the effects lower under decriminalization as compared to legalization. Model 2, had the largest increases in consumption and decline in prices. Under Model 3, the Government had the option of controlling prices by placing restrictions on the quantity supplied to mitigate the expected increase in consumption. This could also be achieved through licenses and taxes on cannabis consumption. State invention can affect the extent of black operations based on the variance created between the legal and illegal price of cannabis. If the regulated price or the price after tax is higher in the legal market than the illegal market then black market operations will increase. Conversely, if legal prices are lower than illegal prices then black market operations decline.

Country Experiences

Consumption and Prices

The evidence from country studies largely supported the results predicted by the theoretical model of an increase in consumption following decriminalization and legalization. However, there was no clear evidence that the increase in consumption was lower under decriminalization as compared to legalization. In Colorado and Washington State, countries with market-based legalization, the increase in adult prevalence was lower than in the case of Uruguay. However, among youth populations the results of the theoretical model were confirmed with higher increases in prevalence under Model 2 compared to Model 1 and Model 3. Concerning the impact on prices, it was found that Decriminalization led to no significant change in prices in most countries. However, in Colorado and Washington State, the market dynamics of supply and demand led to significant declines in prices. In Uruguay,

prices are regulated by the State and restrictions are placed on supply through licensing regimes.

Arrests and Crime

Country experiences confirmed a drop in cannabis related charges, arrests, and court cases. However, the impact on crime is uncertain as it is often related to the extent of black market activity and cartelization. Some reports³ claimed that drug related crimes decreased following legalization in Uruguay, however other studies⁴ report a rise in gang violence and organized crime.

Black Market Operations

Black market operations accounted for 60 percent of the cannabis market in Uruguay on year after legalization. In Washington State and Colorado, black market operations comprised of 50 percent and 30 percent of the market respectively. This supports the argument that black market operations may still persist if the variance between the legal and illegal price is positive.

Cannabis Related Traffic Fatalities

The effects of the two legalization models on cannabis related traffic accidents were mixed in the country cases. The market-based legalization cases reported a rise in cannabis related traffic fatalities. However, Uruguay saw a decline in traffic accidents because of the implementation of strict policies and penalties for driving under the influence.

Implementation

Cost of operations of the regulatory division in Colorado was estimated at US\$15.8 while in Uruguay regulatory cost was US\$0.650 million in 2016. The cost per revenue earned was much higher in Uruguay than in Colorado.

³ Crime Rate Drops but Uruguay Struggles with Illicit Sale of Cannabis to Tourists | News | teleSUR English [Internet]. 2018. [cited 2018 May 17]. Available from: <https://www.telesurtv.net/english/news/Crime-Rate-Drops-but-Uruguay-Struggles-with-Illicit-Sale-of-Cannabis-to-Tourists-20180113-0015.html>

⁴ G. Ramsey “Getting Regulation Right”: Assessing Uruguay’s Historic Cannabis Initiative. Washington DC, 2016.

Revenue

Government revenue from licenses fees and taxes increased significantly under Model 2. In Colorado, US\$302.5 million in revenue was generated in 2019. Revenue generation was more modest under Model 3. In the case of Uruguay, revenue collected in 2016 was US\$0.138 million.

Costs Benefit Analysis

The different models were evaluated using cost benefit analysis using available country data. In the case of Saint Lucia, the results of the costs benefit analysis indicated that the existing legal framework of prohibition and criminalization (Model 0) had the lowest net benefit, at an annual cost of \$3.6 million. While the net benefit of decriminalization (Model 1) was 43 percent higher than the present regime, this model still came with net costs to the economy of \$2.1 million, as it does not offer the added benefits of employment and revenue generation that comes with the options of legalization.

Of the three models, Model 2 offered the highest net benefit of \$553.6 million, but also came at the highest health and treatment costs. The total costs under Model 2 was \$2.1 million, however the benefits to the economy from employment, wages and revenue significantly exceeded those costs. Model 3, had the second highest net benefit of \$544.1 million, however it was associated with the highest cost levels driven by sizeable implementation costs.

Summary of Costs and Benefits

(Cost)/ Benefits	Model 0	Model 1	Model 2	Model 3
Cost	(\$2,812,476)	(\$2,403,461)	(\$2,119,209)	(\$4,489,714)
Enforcement Costs	(\$2,424,181)	(\$1,914,830)	(\$626,598)	(\$626,598)
Implementation Costs	\$0	\$0	(\$645,353)	(\$3,240,000)
Health and Treatment Cost	(\$388,295)	(\$488,631)	(\$847,258)	(\$623,116)
Benefits	(837,258)	312,992	555,762,593	548,619,023
Employment and Wages	(\$837,258)	\$29592	\$45,894,504	\$46,182,159
Government Revenue	\$0	\$17,900	\$82,994,799	\$80,789,398
License Fees and Taxes on Goods	\$0	\$17,900	\$82,222,857	\$79,992,488
Taxes on Income	\$0	\$0	\$771,941	\$796,910
Value Added	\$0	\$0	\$426,873,291	\$421,647,466
Net Benefit/(Costs)	(\$3,649,734)	(\$2,090,469)	\$553,643,384	\$544,129,309

Macro-economic Impact Assessment

The results of the cost benefit analysis confirm that the establishment of a cannabis industry, (whether under Model 2 or Model 3) offers significant economic benefits to Saint Lucia. These include:

- i) 9.8 percent increase in the size of the economy;
- ii) Reduction in the unemployment rate from 20.2 percent (2018) to 18.2 percent;
- iii) 6.9 percent increase in revenue;
- iv) Reduction in overall fiscal deficit from 57.3 million or 1.1 percent of GDP (2018) to a fiscal surplus of 25.7 million or 0.5 percent of GDP;
- v) 314.9 percent increase in exports; and
- vi) Narrowing of the external trade deficit from \$1,397.3 million or 27.4 percent of GDP (2018) to \$868.3 million or 17 percent of GDP.

Conclusion

Global sentiments are changing as countries move towards a more regulatory rather than prohibitive legislative framework for cannabis. The results of the economic analysis indicated that in Saint Lucia policies of prohibition and criminalization have not been effective in reducing the use of cannabis. However, the existing regime come at net annual costs of \$3.6 million to the economy. Decriminalization presents a better option compared to the status quo, with net costs of \$2.1 but does not provide the significant benefits of additional government revenue, employment generation and value added found under legalization.

According to the results of the cost benefit analysis, Model 2 (legalization within competitiveness markets) yielded the highest net benefit, but was also associated with the highest health and treatment costs across all the models. However, given the significant revenue generated under Model 2 social programs can be implemented to mitigate the prevalence of cannabis use and related adverse health and social effects.

Nevertheless, regardless of the model chosen for implementation, the 2018 report of the regional Commission on Marijuana offered useful guidelines for the design of the regulatory framework. These include; age limits to prohibit cannabis use among

children and young people; public education programs to raise awareness of the associated risk of cannabis use; restrictions on public smoking; restrictions on advertising; limits of allowable THC content in products; and the introduction of drug driving regulations.

2.0 INTRODUCTION

2.1 BACKGROUND AND CONTEXT

The use of cannabis in various forms and preparations dates back to early civilizations in Asia⁵. The cannabis plant was first used for medical and religious purposes and then industrially in soap, lamp fuel and fibre production. The recreational use of cannabis in the western world became popular in the 1960's. This development precipitated prohibitive measures and later the criminalization of cannabis use based on unsubstantiated associations with criminality and its perceived harmful effects.⁶ These sentiments gained momentum leading to the adoption of a common legal framework for drug control by the international community.

In 1961, the United Nations (UN) introduced the Single Convention on Narcotic Drugs, followed by the 1971 Convention on Psychotropic Substances and the 1988 Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances. These international conventions were adopted to eliminate the unlawful production, non-medical use and trade of cannabis and several other drugs⁷. In compliance with the terms of the conventions, UN member states have instituted legal frameworks and penalties for cannabis use, production and sale ranging from punitive to more regulated and tolerant approaches.

However, despite prohibition and criminalization policies, cannabis is the most commonly used illicit drug. According to the World Drug Report (2019), an estimated 3.8 percent of the global population (188 million people) between the ages of 15-64 reported using cannabis at least once in 2017. Furthermore, during the period 1998-2017, the overall number of cannabis users worldwide increased by about 30 percent. These trends have prompted several studies challenging the basis and efficacy of existing prohibitive legal frameworks governing the use of cannabis.

The findings from an increasing body of literature have led to a shift in global perceptions and sentiments surrounding the use and commercialization of cannabis.

⁵ Martin Booth. *Cannabis: a history*. Macmillan, 2015.

⁶ Harry G. Levine "Global drug prohibition: its uses and crises." *International Journal of Drug Policy* 14, No. 2 (2003): 145-153.

⁷ David Bewley-Taylor and Martin Jelsma. "Regime change: re-visiting the 1961 Single Convention on Narcotic Drugs." *International Journal of Drug Policy* 23, no. 1 (2012): 72-81

To date, over 35 countries, including Caribbean countries such as Jamaica, Grenada, St. Kitts and Nevis and Trinidad and Tobago, have amended their legislations to either i) decriminalize the recreational use of cannabis; and or ii) legalize the medical use of cannabis. In December 2013, Uruguay became the first country to legalize cannabis for recreational use followed by Canada in October 2018. In the United States (US), 11 States have legalized the non-medical use of cannabis for adults over the age of 21, and 33 States have legalized it for medical use⁸.

Amidst these recent reforms, the Caribbean Community (CARICOM) formed a regional Commission on Marijuana in 2014, to explore the social, economic, health and legal implications of cannabis use in the Caribbean. The Commission's 2018 report⁹ revealed that in the Caribbean, public support has grown in recent times for decriminalization and legalization of cannabis especially for religious and medical use. The report found the existing legal framework governing the use of cannabis to be "ineffective, incongruous, obsolete and deeply unjust". As such, the Commission presented a case for decriminalization and legalization of cannabis and recommended that member states move towards a new regulatory framework for cannabis that balances the economic benefits with public health and social concerns.

Further to the recent global and regional cannabis reforms, the Government of Saint Lucia has committed to implementing a new legislative and regulatory framework for the production, sale and distribution of cannabis, to be strategically placed to benefit from the opportunities in the cannabis industry. In pursuit of this objective, a Cannabis Commission was established in July 2019 with a mandate to:

- i) review the current laws on cannabis;
- ii) assess the social, economic and legal impacts of decriminalization and legalization; and
- iii) make recommendations for a new regulatory framework to inform the development of the cannabis industry in Saint Lucia.

⁸ *World Drug Report 2019*, prepared by United Nations Office on Drugs, and Crime (2019).

⁹ *Report to the Caribbean Community Heads of Government: Waiting to Exhale – Safeguarding our Future through Responsible Socio-Legal Policy on Marijuana*, prepared by CARICOM Regional Commission on Marijuana (2018).

2.2 OBJECTIVE

The objective of this report is to guide the work of the Cannabis Commission by undertaking an economic analysis of the costs and benefits of three (3) proposed models for cannabis regulation. The models under review are:

- i) Model 1: Decriminalization of Cannabis Use Only
- ii) Model 2: Full Legalization of Cannabis Production, Sale and Use (within a Competitive Market Framework)
- iii) Model 3: Full Legalization of Cannabis Production, Sale and Use (with State Control)

The scope of the study is detailed in the Terms of Reference in the Appendix.

3.0 ARGUMENTS FOR AND AGAINST REGULATORY REFORM

Arguments for the prohibition and criminalization of cannabis rest on the premise that cannabis is a dangerous drug without value and is associated with several adverse health, psychological and social effects. Tetrahydrocannabinol (THC), a main compound in cannabis has been shown¹⁰ to have psychoactive properties, which negatively affects cognitive, behavioral and psychomotor functions. Such impairment impacts the user's ability to drive or operate machinery leading to an increase incidence of accidents. Other concerns include the high risk of dependence¹¹ and psychotic symptoms such as anxiety, panic attacks, delusions and hallucination among users¹². Cannabis use has also been associated with increased antisocial behavior especially in children and teens resulting in higher dropout rates and job instability in adulthood¹³.

¹⁰ L. D. Chait and J. Pierri, "Effects of smoked marijuana on human performance: a critical review." In *Marijuana/Cannabinoids*, pp. 387-424. CRC Press, 2019.

¹¹ Robert S. Stephens, Roger A. Roffman, and Edith E. Simpson. "Adult marijuana users seeking treatment." *Journal of consulting and clinical psychology* 61, no. 6 (1993): 1100.

¹² Gurbakhsh S. Chopra and James W. Smith. "Psychotic reactions following cannabis use in East Indians." *Archives of General Psychiatry* 30, no. 1 (1974): 24-27.

¹³ Michael D. Newcomb and Peter M. Bentler. *Consequences of adolescent drug use: Impact on the lives of young adults*. Sage Publications, Inc, 1988.

The growing body of research on this topic has challenged many of the above arguments. Proponents of decriminalization and legalization argue that cannabis has valuable medical¹⁴ properties with low acute toxicity thus invalidating its classification as a dangerous drug of no value. Moreover, studies¹⁵ have found that the incidence of impairment and dependence¹⁶ from cannabis are similar to that experienced from alcohol use and therefore this argument should not be used in favour of prohibition and criminalization. Rather, the same regulatory treatment given to alcohol should also apply to cannabis use. Further research¹⁷ has found that many of the reported adverse consequences of cannabis use are correlated to dosage of use (THC content), prior medical history of the user, chronic or acute use and other underlying social issues such as poverty, which may be compounded by cannabis use.

While the debate on the health effects of cannabis is ongoing, there is consensus in the literature that prohibition and criminalization policies have not delivered on the intended outcomes and come at high enforcement, economic and social costs. Prohibition and criminalization have been found to create a conducive environment for cartels to operate and have led to an increase in drug related crimes.¹⁸ Criminalization has also led to high incarceration rates especially among marginalized groups.¹⁹

Given these unfavorable outcomes, several studies have concluded that alternative regulatory frameworks (ranging from decriminalization on one end of the spectrum to full legalization of cannabis on the other) redound to greater socio-economic benefits compared to the status quo. A more regulated approach allows for greater economic opportunities and value added from the medical and industrial uses of

¹⁴ Joan L. Kramer, "Medical marijuana for cancer." *CA: a cancer journal for clinicians* 65, no. 2 (2015): 109-122.

¹⁵ W. Hall, N. Solowij, and J. Lemon. "The health and psychological effects of cannabis use. National Drug Strategy Monograph." (1994).

¹⁶ James C. Anthony, Lynn A. Warner and Ronald C. Kessler. "Comparative epidemiology of dependence on tobacco, alcohol, controlled substances, and inhalants: basic findings from the National Comorbidity Survey." (1997).

¹⁷ Hall, W., N. Solowij and J. Lemon. "The health and psychological effects of cannabis use. National Drug Strategy Monograph." (1994).

¹⁸ Andrew J. Resignato, "Violent crime: a function of drug use or drug enforcement?" *Applied Economics* 32, no. 6 (2000): 681-688.

¹⁹ Harry G. Levine, "Global drug prohibition: its uses and crises."

cannabis. Furthermore, a regulated cannabis industry can generate additional government revenue from taxes, licenses and fees²⁰ and allow for the reallocation of public resources towards improved social services and the prevention and prosecution of serious crimes²¹.

4.0 REVIEW OF CURRENT LANDSCAPE IN SAINT LUCIA

4.1 LEGAL FRAMEWORK

Cannabis and other related products (Cannabis resin, Cannabinol and Cannabinol derivatives) are classified²² as controlled drugs under The Drugs (Prevention of Misuse) Act, Chapter 3.02 of the revised laws of Saint Lucia (2008). As a control drug, the Act prohibits and makes unlawful the possession, cultivation, production, supply, importation and exportation of cannabis. The contravention of these provisions is an offense that carries penalties ranging from three (3) years in prison or a fine of \$100,000 on summary conviction and up to fourteen (14) years in prison and a fine of \$200,000 on indictment.

Section 8(4) of the Act, makes it unlawful for a person to be in possession of more than 15 grams of cannabis or Cannabis resin. Possession of quantities greater than these stipulated amounts may be presumed to be drug trafficking unless the contrary is proved, with the burden of proof on the accused. According to section 25(1) of the Act, a person who commits the offense of drug trafficking faces a fine of \$100,000 and imprisonment of a term of five (5) to ten (10) years on summary conviction and imprisonment for life on indictment.

The existing laws governing the use of cannabis in Saint Lucia and the Caribbean have been described as draconian and disproportionate to the offence²³. Often

²⁰ Jacobi, Liana, and Michelle Sovinsky. "Marijuana on main street? Estimating demand in markets with limited access." *American Economic Review* 106, no. 8 (2016): 2009-45.

²¹ Adda, Jérôme, Brendon McConnell, and Imran Rasul. "Crime and the depenalization of cannabis possession: Evidence from a policing experiment." *Journal of Political Economy* 122, no. 5 (2014): 1130-1202.

²² See Part 1 (Class A Drugs), Schedule 2 of The Drugs (Prevention of Misuse) Act, Chapter 3.02 of the revised laws of Saint Lucia (2008)

²³ CARICOM 2018 Report, pg. 21-22

times, the people arrested for the possession of cannabis are typically from low income and marginalized groups and are imprisoned and criminalized because they are unable pay the high related fines. Moreover, the existing legal framework does not support Government’s policies to establish a cannabis industry. Initiatives towards the decriminalization and or legalization of cannabis requires a reclassification of cannabis in the existing legislation.

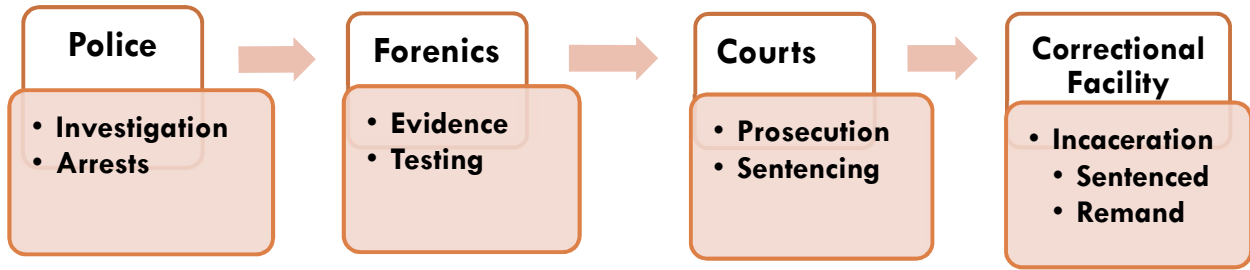
Table 1: Summary of Provisions and Penalties for Offense Under the Act

Section	Provision	Penalties for Offense
Section 5(1)	a) Prohibition of importation of controlled drug b) Prohibition of exportation of controlled drugs	a) Summary- 3 Years or \$100,000 b) On Indictment-14 Years and \$200,000
Section 6(1)	a) Produce a controlled drug b) Supply or offer to supply controlled drugs to another	a) Summary- 3 Years or \$100,000 b) On Indictment-7 Years or \$200,000
Section 8(1)	Possession of a controlled drug	a) Summary- 3 Years or \$100,000 b) On Indictment-7 Years or \$200,000
Section 8(3)	It shall not be lawful for a person to be in possession of a controlled drug with intent to supply to another	a) Summary- 3 Years and/or \$100,000 b) On Indictment-14 Years and/ or \$200,000
Section 9	It shall not be lawful for a person to cultivate any plant of the genus Cannabis	

4.2 ENFORCEMENT

In Saint Lucia, the Royal Police Force is at the forefront in the prevention, investigation and prosecution of cannabis related crimes and offenses. When a cannabis related offense is committed or reported, the offending party may be arrested and charged following investigation by the police. The Forensic Lab is responsible for drug testing and providing evidence to the Prosecution Unit in support of the case. Most cannabis related cases are tried within the First and Second District Courts; however high profile cases are tried at the level of the High Court. Following trial, the suspect maybe released if found innocent or if found guilty, sentenced to the Bordelais Correctional Facility (BCF).

Figure 1: Enforcement Framework



4.3 CANNABIS USE

Despite the existing laws prohibiting the use and possession of cannabis, as well as the above law enforcement framework, the annual prevalence of cannabis use in Saint Lucia in 2010 was estimated at 8.9²⁴. This means that almost 9 percent of the general population between the ages 15-64 used cannabis at least once in 2010. This number is high, relative to other countries in the Caribbean for the same year. The annual prevalence in 2010 in Trinidad, Guyana and Jamaica was estimated at 4.03 percent, 4.04 percent and 7.21 percent respectively.

Table 2: Prevalence of Marijuana Use Among Secondary School Students (%)

Indicators	Saint Lucia	St. Vincent	Jamaica	Trinidad	Average
Prevalence:					
Life-Time	28.8	26.4	21.1	16.6	20.6
Past Year	17.2	19.4	11.9	10.7	13.7
Past Month	10.7	14	6.3	6.2	8.8
Past Year Use by Age:					
Male	22.7	24.8	14.5	13.8	17.5
Female	11.8	15.3	10.1	8.0	10.3
Past Year Use by Age					
14 or less	10.6	12.3	5.4	6.0	7.5
15-16	19.9	20.8	16.5	13.2	16.1
17+	25.5	30.4	12.2	12.5	19.8

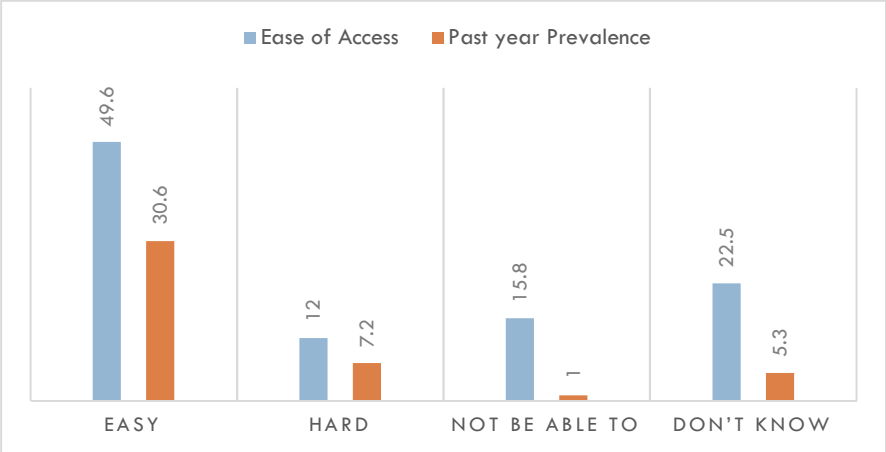
Data Source: Inter-American Drug Abuse Control Commission. Student's Drug Use Report (2016)

²⁴United Nations Office on Drugs and Crime, accessed 12 December, 2019, https://dataunodc.un.org/drugs/prevalence_table-2017

Furthermore, according to the 2016 Student’s Drug Use study²⁵ conducted in thirteen (13) Caribbean countries, Saint Lucia recorded the third highest lifetime prevalence of cannabis use at 28.8 percent among secondary school students. The past year and past month prevalence were 17.2 percent and 10.7 percent respectively. The past year prevalence among males (22.7 percent) was almost twice the prevalence among females (11.8 percent), indicating that young men had a higher incidence of cannabis use compared to young women. The age of first use in Saint Lucia was thirteen (13) years, with the highest past year prevalence (25 percent) among students seventeen (17) years and over. In all the reported indicators, the prevalence of cannabis use in Saint Lucia was higher than the group average.

The survey results also revealed a positive relationship between ease of access and prevalence of use. In Saint Lucia, 49.6 percent of the students surveyed reported that cannabis was easy to access. The past year prevalence of those who reported cannabis was easy to access was 30.6 percent. Twelve (12) percent of students reported that cannabis was hard to access and the past year prevalence of cannabis use among that group was 7.2 percent.

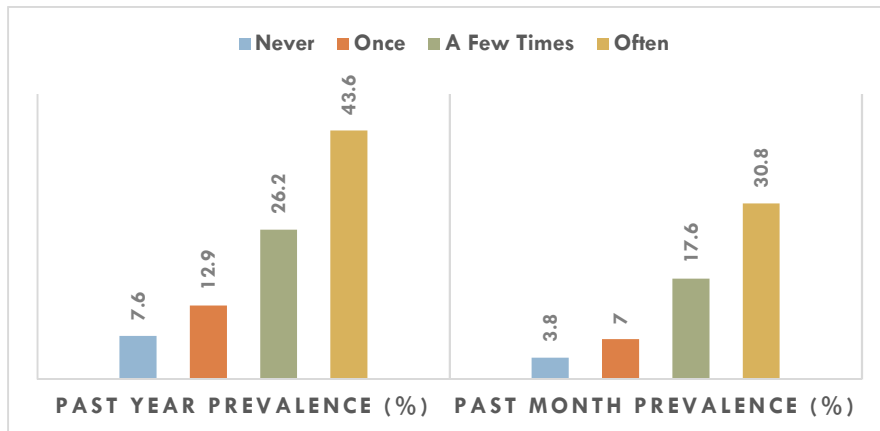
Figure 2: Saint Lucia: Ease of Access and Past Year Prevalence (%)



²⁵ "A report on students’ drug use in 13 Caribbean Countries: Antigua and Barbuda, The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Trinidad and Tobago, prepared by Inter-American Drug Abuse Control Commission (2016).

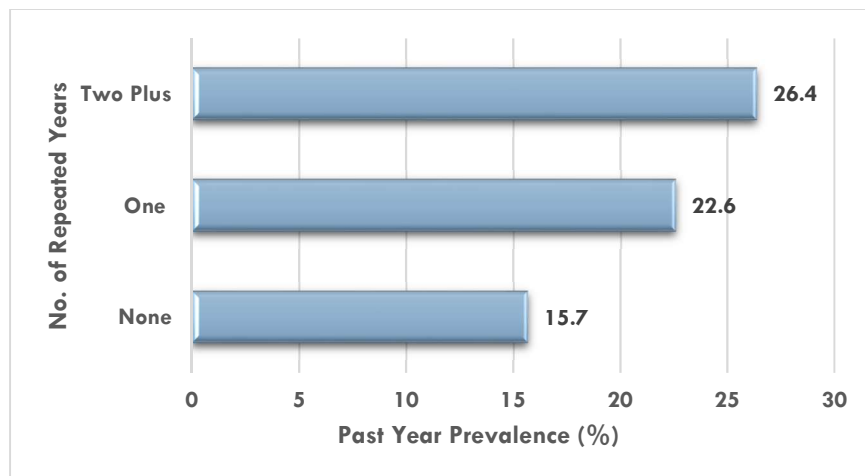
*Data Source for Figures 2-4: Inter-American Drug Abuse Control Commission. Student’s Drug Use Report (2016)

Figure 3: Saint Lucia: Prevalence (%) and Frequency of Behavioral Problems



A positive correlation was also found between past year prevalence and reported behavioral problems. A past year prevalence of 43.6 percent was associated with students that “often” displayed behavioral problems. Past month prevalence rates also exhibited a similar trend but at a lower rate compared to past year prevalence. Additionally, a higher rate of past year prevalence was reported for students repeating more than two years of school.

Figure 4: Saint Lucia: Past Year Prevalence (%) and No. of Repeated Years



It is important to note that while the data captures the correlation between the two variables, further investigation needs to be undertaken to prove causality. Cannabis use may be symptomatic of deeper underlying social and psychological issues such as poverty, poor family dynamics and low self-esteem.

4.4 HEALTH AND SOCIAL EFFECTS OF CANNABIS USE

Mental Health

Some studies²⁶ have associated cannabis use with a higher risk of dependency, psychosis and schizophrenia. A review of data from the National Mental Wellness Centre in Saint Lucia, revealed that for the period 2016-2018, an average of 7.5 percent of all admission were for mental conditions and disorders related to cannabis use. Men accounted for 90 percent of all cannabis related admissions during the period supporting the previous assertion of increased incidence of cannabis use in men.

Figure 5: No. of Admissions at the National Mental Wellness Centre (2016-2018)

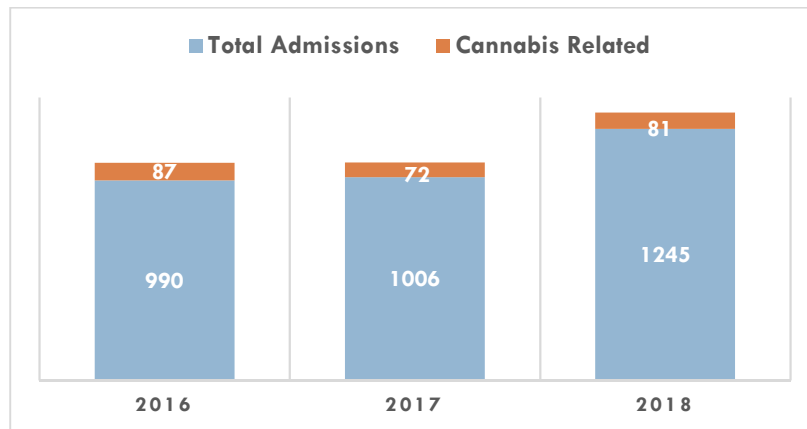
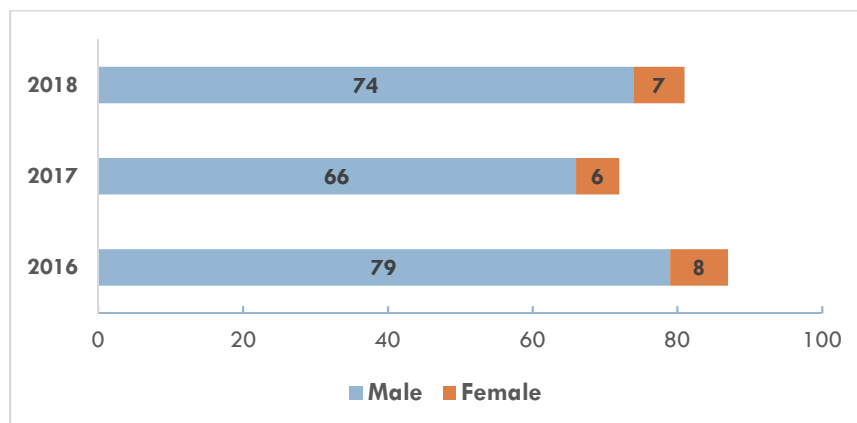


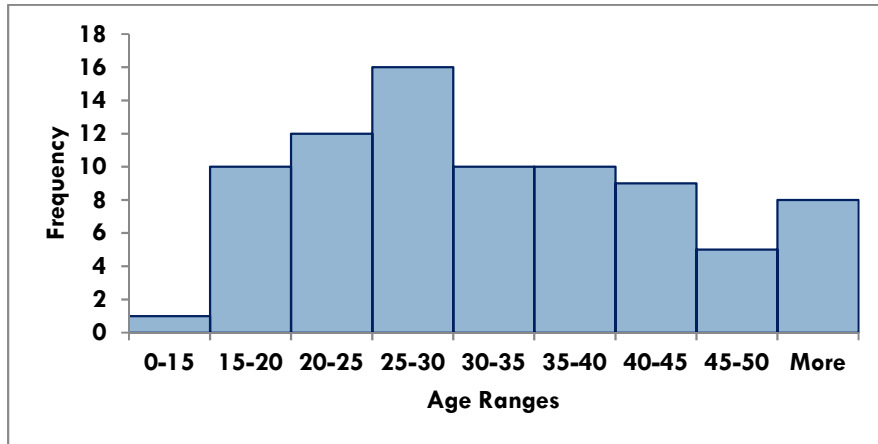
Figure 6: No. of Cannabis related Admissions by Gender (2016-2018)



²⁶ See studies referenced in footnotes 11 and 12

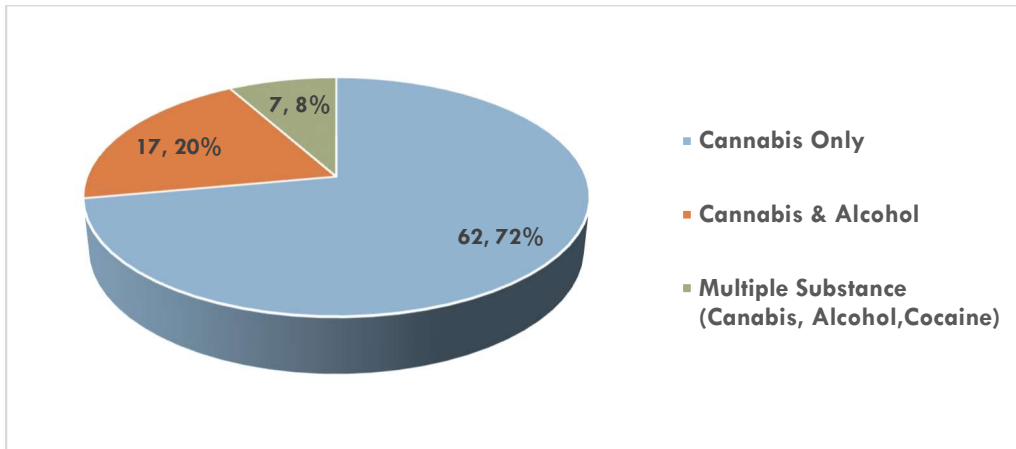
* Data Source for Figures 5-8: Saint Lucia National Mental Wellness Centre

Figure 7: Distribution of Cannabis related Admissions by Age (2018)



In 2018, 60.5 percent of all persons admitted for cannabis related conditions fell between the ages of 15-35 years. Seventy-two (72) percent of the diagnosed cannabis related mental conditions and disorders were associated with cannabis use only, 20 percent with cannabis and alcohol use and 8 percent with multiple substance use.

Figure 8: Mental Conditions and Related Substance Use (2018)



Of the ‘Cannabis Only’ cases in 2018, twenty-six (26) were admitted for Cannabis Induced Psychosis, twenty-five (25) for Schizophrenia and Cannabis Abuse and eleven (11) for Cannabis Use Disorder²⁷. This data suggests that cannabis use may

²⁷ Cannabis Dependency Syndrome and Cannabis Abuse were reclassified as Cannabis Use Disorder under the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DMS-5)

be associated with higher rates of mental disorders, however the direction of causality cannot be ascertain from this information only. It may be a case that people with a history of mental disorders are more prone to cannabis use. As such, further research and analysis is required for a conclusion.

Table 3: Related Diagnoses by Type of Substance Use (2018)

Diagnoses	Cannabis Only	Cannabis & Alcohol	Multiple Drugs (Cannabis, Alcohol, Cocaine)
Substance Use Disorder	11	6	3
Schizophrenia and Substance Abuse	25	7	2
Drug induced Psychosis	26	4	2
Total	62	17	7

Data Source: Saint Lucia National Mental Wellness Centre

4.4 IMPACT OF PROHIBITION AND CRIMINALIZATION

Cannabis Related Offences and Arrests

According to data from the Saint Lucia Royal Police Force, over the last five (5) years, the number of cannabis related crime reported²⁸ has increased by 140 percent, from 167 crimes in 2014 to 401 in 2018. However, the number of arrests have declined steadily from 129 persons arrested in 2014 to 22 in 2018, with men accounting for 90 percent of all arrest.

Of the cannabis related crimes reported in 2018, 61 percent of those were for Unlawful Possession of Cannabis, whereas 24 percent were for Intent to Supply. No drug trafficking arrests were reported in 2018.

²⁸ The figures for Crime reported reflects crimes reported, investigated and found not to be false

* Data Source for Figures 9-12 and Table 4: Saint Lucia Royal Police Force and Central Statistics Office

Figure 9: Cannabis Related Crime- Reports and Arrests

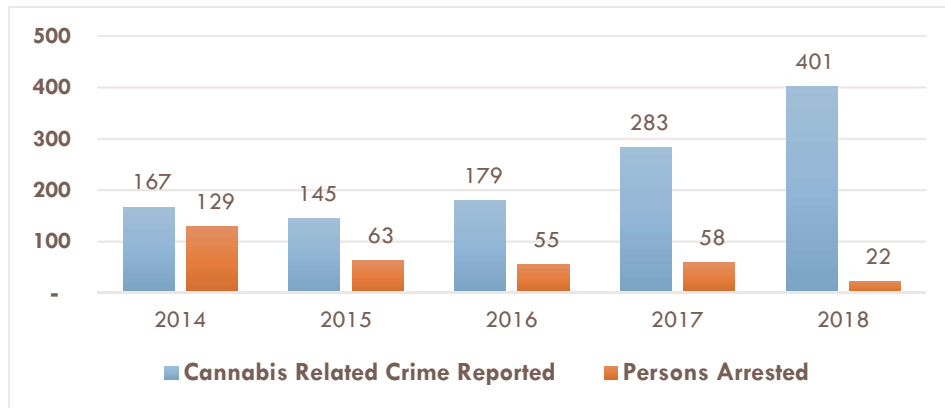


Figure 10: Cannabis Related Arrests by Gender

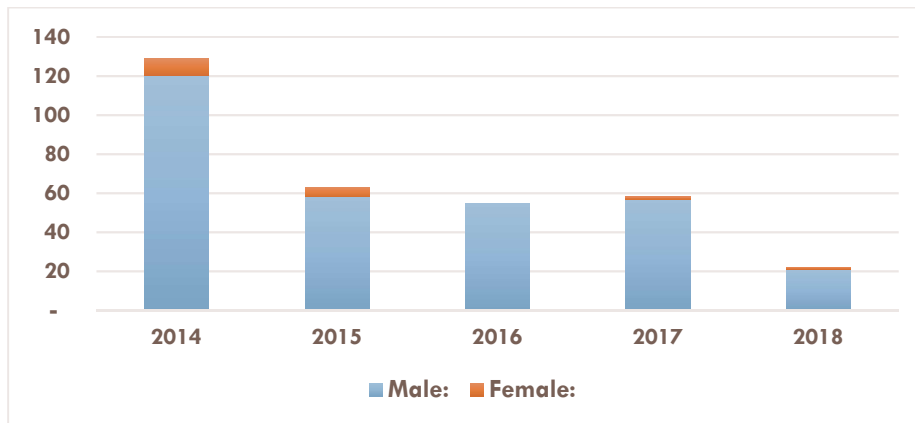
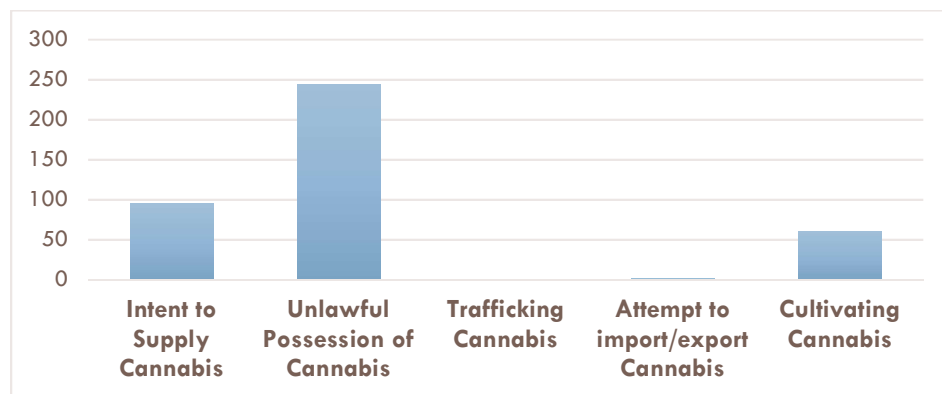


Figure 11: Cannabis Related Crimes by Type of Offense (2018)



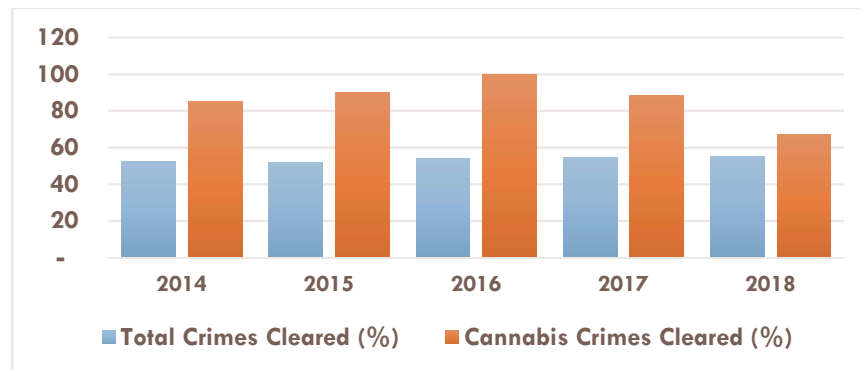
It must be noted however, that during the periods 2014-2017, on average, cannabis accounted for only 1 percent of total crime for the period but 10 percent of total arrests. Furthermore, 86 percent of all cannabis crimes reported were detected

meaning that the matter was investigated and persons were arrested, however only an average of 54 percent of total crimes reported were detected. This could indicate that more police resources are being spent on cannabis related crimes compared to other crimes. In that case, decriminalization of cannabis could lead to a reallocation of resources towards resolving more serious crimes.

Table 4: Cannabis Related Crime and Total Crime

Ratios	2014	2015	2016	2017	2018
Cannabis Related Crime/Total Crime (%)	0.8	0.8	1.0	1.5	2.1
Cannabis Related Arrests/Total Arrests (%)	11.4	11.3	10.1	6.0	1.6

Figure 12: Total Crimes Cleared Compared to Cannabis Related Crimes



Prison Population

As of October 2019, a total of 500 inmates were held in custody at the Bordelais Correctional Facility (BCF). Two (2) percent of the prison population were female, while ninety-eight (98) percent were male. One hundred and seventy four (174) prisoners have been sentenced while the remaining three hundred and twenty-six (326) were on remand awaiting trial and sentencing.

*Data Source for Figures 13-19: Bordelais Correctional Facility (BCF)

Figure 13: Distribution of Total Prison Population by Gender (Number)

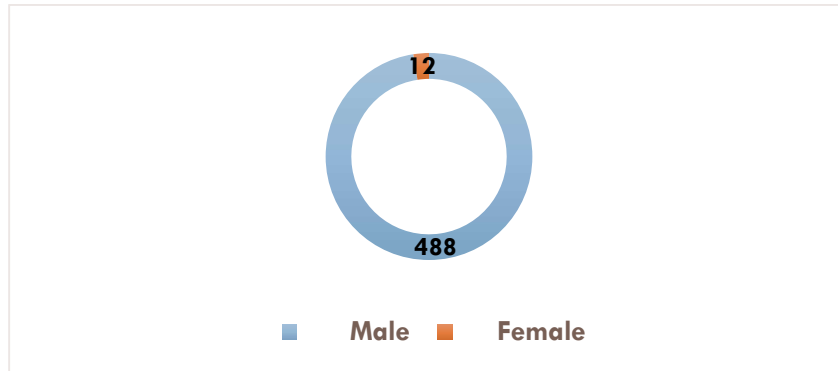


Figure 14: Total Prison Population Sentenced and on Remand (%)

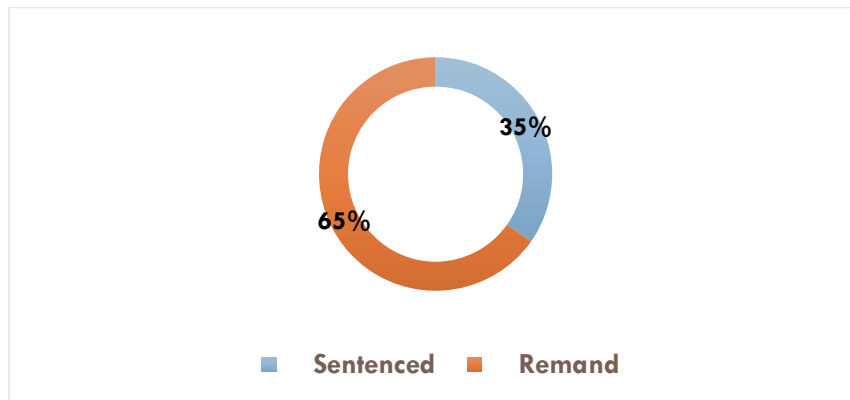
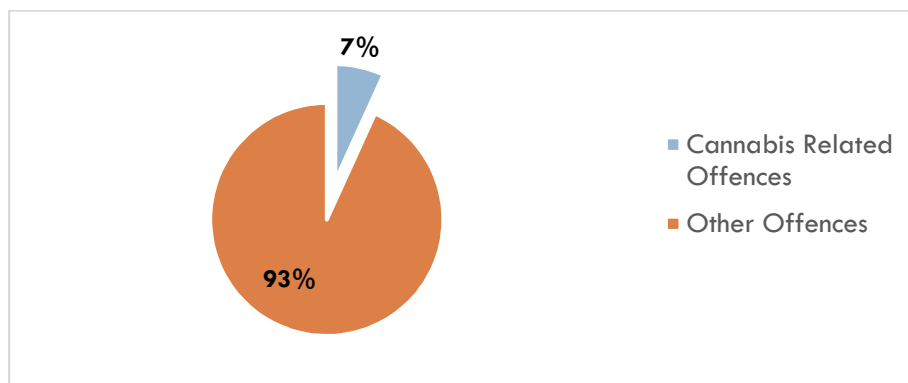


Figure 15: Inmates in Custody By Related Offences (%)



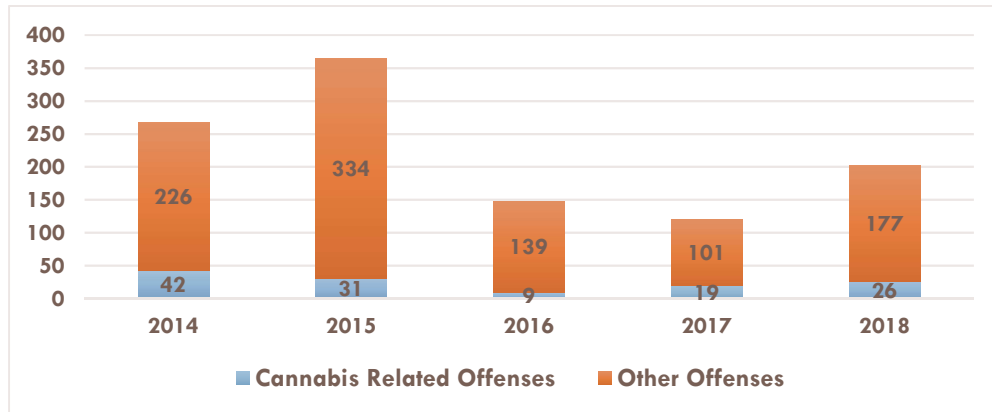
Of the total prison population as at October 2019, 7 percent or thirty-nine (39) inmates were in custody for cannabis related offences. Of those thirty-nine (39)

inmates, only seven (7) have been sentenced, while thirty-two (32) were on remand awaiting trial.

Prison Admissions

On average, 12 percent of prison admissions for the period, 2014-2018 were for cannabis related offences.

Figure 16: No. of Annual Prison Admissions (2014-2018)

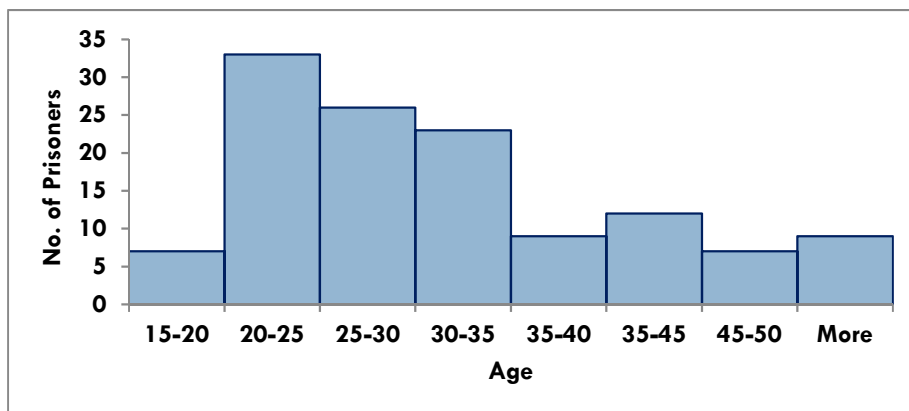


Prisoner's Profile

Age

The majority of the prisoners admitted at the BCF for cannabis related offenses during the period 2014-2018 fell between the ages of 20-35 years, revealing that the youth accounted for the majority of cannabis related incarcerations.

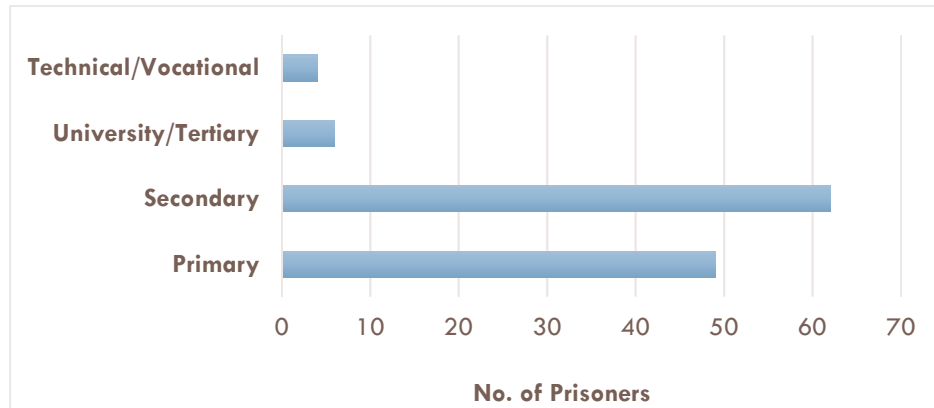
Figure 17: Age Distribution of Prisoners Admitted for Cannabis Related Offences (2014-2018)



Education

Of the prisoner's admitted at BCF for cannabis offenses during the period 2014-2018, 41 percent had primary level education, 51 percent secondary level, 5 percent tertiary and the remaining 3 percent, technical/vocational education.

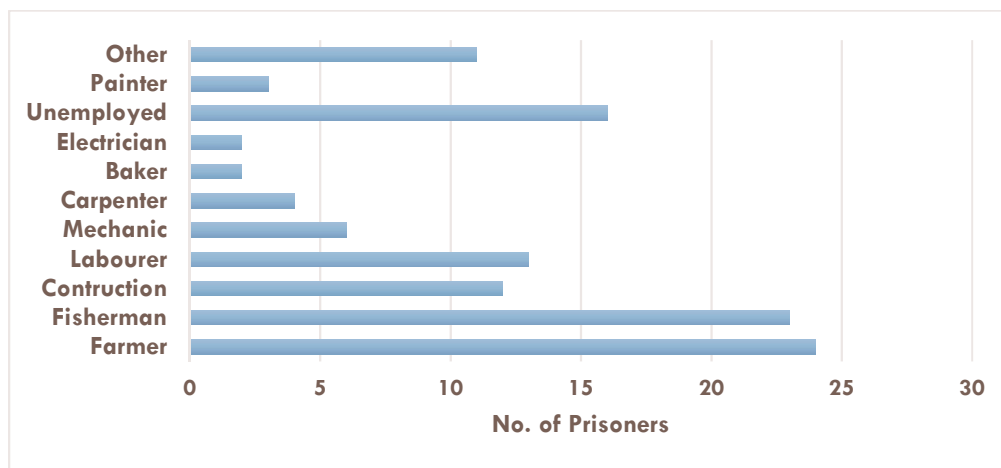
Figure 18: Educational Profile of Prisoners Admitted for Cannabis Related Offences (2014-2018)



Occupational Profile

A review of the occupational profile of the prisoners incarcerated for cannabis offences revealed, 51 percent, worked as fishermen, farmers or laborers, 10 percent reported a skilled or technical occupation (electricians, mechanics and carpenters) while 13 percent reported being unemployed.

Figure 19: Occupation of Prisoners Admitted for Cannabis Related Offences (2014-2018)



Prison Sentences for Cannabis Related Offenses

The data indicated that prison sentences for cannabis related crimes and offenses were not consistent across the board. Possession of Cannabis could carry a sentence from a fine of \$100,000 or 2 years to a sentence of only 30 days. This variation in sentences could be due to factors such as, the quantity of cannabis in possession of the offender or whether this was a repeated offence. In 2019, sentencing guidelines²⁹ were issued by the Eastern Caribbean Supreme Court (ECSC) to allow for consistent and just sentencing for drug related offenses across the courts in the Eastern Caribbean.

Table 5: Variation in Sentences³⁰ for Cannabis Related Offences (2014-2018)

Possession	Cultivation	Intent to Supply	Export or Import
<ul style="list-style-type: none"> ▪ \$100,000 or 2 years ▪ \$70,000 or 3 years ▪ \$30,000 or 12 months ▪ \$10,000 or 24 months ▪ \$10,000 or 12 months ▪ \$2,800 or 11 months ▪ \$750 or 6 months ▪ \$250 or 1 month ▪ 30 days 	<ul style="list-style-type: none"> ▪ \$10,000 or 2 years ▪ \$3,000 or 3 months ▪ \$2,500 or 8 months ▪ \$1,000 or 4 months ▪ \$400 or 50 days ▪ \$500 or 6 weeks 	<ul style="list-style-type: none"> ▪ \$50,000 or 2 years ▪ 4 years ▪ \$15,000 or 6 months ▪ \$3,000 or 6 months ▪ 6 months ▪ 30 days ▪ 1 Week 	<ul style="list-style-type: none"> ▪ 4 years ▪ \$26,000 or 318 days ▪ \$10,000 or 9 months ▪ \$4,500 or 9 months

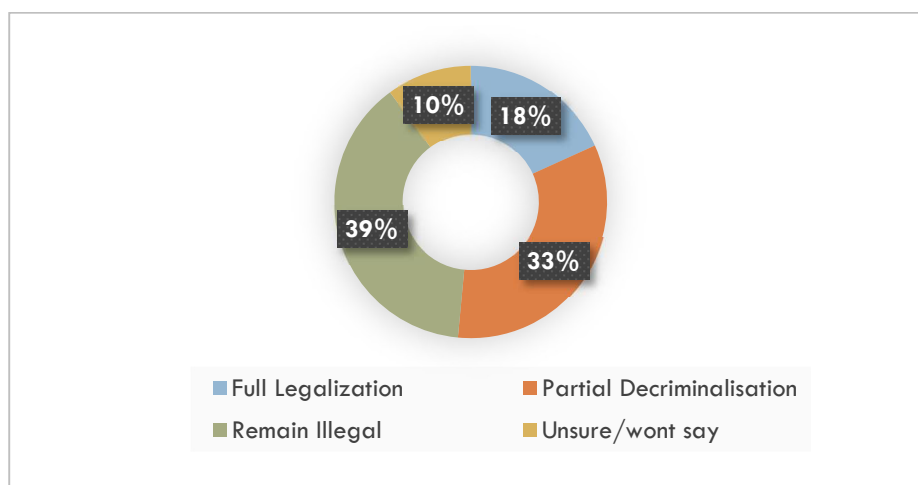
²⁹ <https://www.eccourts.org/wp-content/uploads/2019/09/7-Drugs-sentences-SAC-guideline-proposed-final-09.09.19.pdf>

³⁰ Table 5 was collated using data from BCF on inmates who were sentenced for cannabis related offences for the period (2014-2018).

4.5 PUBLIC OPINION ON CANNABIS DECRIMINALIZATION

According to the results of a 2017 survey conducted in Saint Lucia by the Caribbean Development Research Services (CADRES)³¹, 56 percent of respondents supported an alternative to the existing illegal treatment of cannabis. Of those, 33 percent supported partial decriminalization while 18 percent were in favour of full legalization of cannabis. For the remaining 48 percent of respondents, 38 percent supported cannabis remaining illegal.

Figure 20: Public Opinion on Cannabis Decriminalization in Saint Lucia



Males represented 21 percent, while female 15 percent of the respondents in support of full legalization. A marginally higher proportion of female (34 percent) were in favour of legalization for medical and religious purposes compared to 32 percent of men. Those in favour of cannabis remaining illegal were evenly split between male and female at 38 percent.

When distributed by age, support for full legalization was highest among the group 18-30 years at 29 percent and lowest (10 percent) among 51 years and over. Accordingly, the group 51 years and over were the majority (52 percent) in favour of cannabis remaining illegal.

³¹ *Public Opinion on Marijuana Decriminalisation in St Lucia*, prepared by Caribbean Development Research Services (CADRES) (2017).

5.0 ALTERNATIVE REGULATORY MODELS

The high fiscal, economic and social costs of the existing regime of prohibition and criminalization have motivated many countries to explore alternative legislative and regulatory frameworks for governing the use, production and sale of cannabis. Some countries have decriminalized small quantities of cannabis for personal use while others have legalized cannabis for medical use only. Two date, only Canada, Uruguay and some US States have fully legalized the personal use, production and sale of cannabis. This section presents an overview of the three (3) regulatory models under consideration.

Model 1: Decriminalization of Cannabis use only

Under this regulatory model, possession of cannabis remains illegal but small amounts of cannabis for personal use is no longer considered a criminal offence. Offenders do not face the possibility of arrest or incarceration but are rather subject to a civil or administrative sanction, such as a fine, mandatory treatment assessment and confiscation. However, the possession of more than the minimum amounts, the production, and sale of cannabis remains a crime. The definition of the minimum quantities and implementation design may differ across countries.

Table 6: Selected Country Cases of Cannabis Decriminalization

Country	Effective Date	Personal Possession Quantity	Home Cultivation	Minimum Age	Penalty
Jamaica	2015	2 ounces (56.6 grams)	5 plants	18	Administrative fine of J\$500
Portugal	2001	25 grams	Prohibited	NA	Referred to a panel of psychologist, social worker and legal advisor for appropriate treatment
Antigua and Barbuda	2018	15 grams	4 Plants	18	Administrative fine similar to traffic ticket

Source: UN Drug Report (2017, 2019)

In Jamaica, legislation was passed in 2015, where the possession of 2 ounces or 56.6 grams of cannabis for personal use was no longer subject to arrest, charges or court appearance but rather the issuance of an administrative fine of J\$500. Additionally, the use of cannabis for medical and religious purposes is now regulated in Jamaica. In Antigua, the personal allowable quantities are lower than in Jamaica and Portugal and reflects what currently exists in Saint Lucia’s legislation. In Portugal, offenders are referred to an expert panel for treatment.

Model 2: Full Legalization of Cannabis Use within a Competitive Market Framework

In this case, the possession, production and sale of cannabis is fully legalized. The selling price of cannabis and quantity produced and sold are determined by market dynamics. Nonetheless, the industry faces regulation by the government with respect to personal quantity restrictions, minimum age requirements, taxes and licensing arrangements. Several US States including Colorado, Washington State and California have legalized the non-medical use of cannabis, however the regulatory provisions are not uniform across all States.

Table 7: Selected Country Cases of Cannabis Legalization (Market Based)

State	Effective Date	Personal Possession Quantity	Home Cultivation	Min. Age	Tax	Average Retail Price (after tax)
Colorado	December 2012: Personal possession, consumption, cultivation January 2014: Retail Sales	28.5 grams	6 plants, 3 of which can be flowering	21	-15% excise tax on cultivation -8% retail sales tax -2.9 % State sales tax -3.5% local sales tax	\$14.60/gram

Washington State	December 2012: Personal possession, consumption, cultivation July 2014: Retail Sales	28.5 grams	Not Allowed	21	-25 % at each stage (production, processing, retail) July 2015: -37% Sales Tax	Medium quality \$11.15/gram
California	2018	1 ounce flower 8 gram concentrate	6 Plants away from view	21	-15% excise on retail -\$9.25 per dry weight ounce on flower after harvest -\$2.75 drug weight ounces on leaves	\$21.20/gram

Source: UN Drug Report (2019)

Model 3: Full Legalization of Cannabis Use with State Control

Model 3 is similar to model 2 in that the use, production and sale of cannabis is legalized, however in this model the Government controls the supply side of the industry. The Government controls prices and quantity by placing restrictions on quantity cultivated, produced and sold. This regulatory model is currently used in the Canadian provinces and Uruguay.

Table 8: Selected Country Cases of Cannabis Legalization (State Control)

State	Effective Date	Personal Possession Quantity	Home Cultivation	Min. Age	Tax	Average Retail Price (after tax)
Uruguay	August 2014: Personal cultivation October, 2014: Grower's club 2017: pharmacy sales	40 grams per month	6 plants in flower	18	No Tax at present	200 pesos per 5 gram (approx. US\$1.4 per gram)

Canada	October 2018	30 grams or equivalent	Up to 4 plants are permitted in most provinces except in Manitoba and Quebec where home growing is not permitted	19	-Flower: \$0.75/gram -Trim: 0.22/gram -Seed: \$0.75/seed *with some variation across provinces	Varies across province -Alberta: \$9.24 /gram -Manitoba: \$12/gram -Ontario: \$7.95-\$13.25/gram
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Source: UN Drug Report (2019)

It is important to note that even in the cases where cannabis is legalized whether under market or State control, some common restrictions have been implemented to regulate the use of cannabis and safeguard against the adverse effects. In most cases smoking is prohibited in public places or places where smoking tobacco is prohibited. In other cases, smoking is illegal everywhere except in private property. There are also restrictions on advertising and promotion of cannabis. In the case of Canada and Uruguay the maximum THC content have been regulated, however in most of the US States where cannabis has been legalized maximum THC limits were not initially set.

6.0 ECONOMIC ASSESSMENT

This section provides an economic assessment of the impact of the proposed regulatory models on selected indicators drawing from economic theory and empirical evidence from country studies.

6.1 ECONOMIC THEORETICAL MODEL

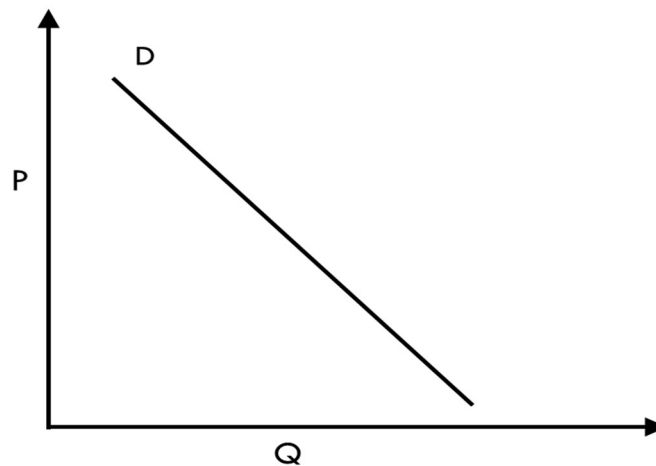
One of the main arguments opposing the decriminalization and or legalization of cannabis is the expected increase in the prevalence of use especially among the youth. The expected price and consumption effects from changes in policy may be assessed within a simple theoretical-based economic model. Using static analysis, the effects under the various regulatory models (after all market adjustments) can be compared.

Theory of Competitive Markets

Demand

The quantity of a good demanded by Buyers at different price levels can be represented by a demand curve (D). There is an inverse relationship between prices and quantity demanded. This means that as the price (P) of the good increases the quantity (Q) demanded decreases.

Figure 21: Demand Curve



The slope of the demand curve is determined by the price elasticity of demand for the good. The price elasticity of demand (ϵ_d) is a measure of the responsiveness of the quantity demanded to small changes in price.

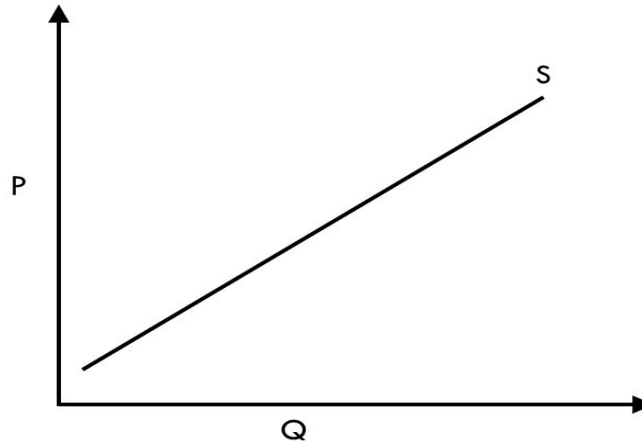
$$\epsilon_d = \frac{\Delta Q}{\Delta P} * \frac{P}{Q}$$

Where, Δ represents the change in the variables. If the price elasticity is more than $|1|$, then the good is elastic which means that small changes in prices are met by large changes in quantity. If price elasticity is less than $|1|$, then the good is inelastic and quantity is not very responsive to changes in prices.

Supply

On the Seller's side of the market, the supply curve (S) tells us how much of the good the Seller is willing to supply at various prices. If the Seller is willing to supply greater quantities of the good at higher prices, then the supply curve will be upward sloping.

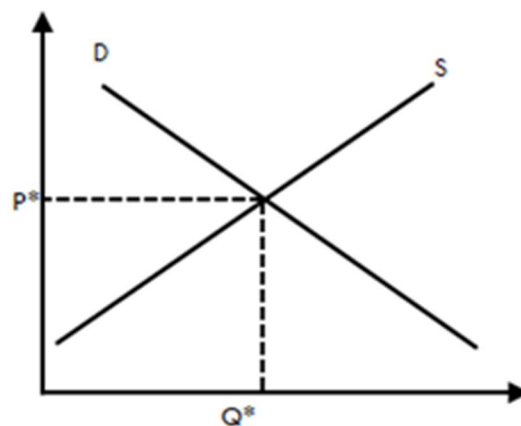
Figure 22: Supply Curve



If we assume that Sellers seek to maximize profit, then a Seller will only supply the product if its market price covers the costs of production and other indirect costs. The costs of production (C_p) includes the price of inputs such as material, labour, capital and other direct expenses.

Market Equilibrium

Figure 23: Graphical Representation of Market Equilibrium



Equilibrium in the market is the price and quantity at which both buyers and sellers are satisfied. At equilibrium, no reallocation is possible that will improve the outcome for some without making it worse for others. If the price is above the equilibrium price then the quantity supplied is greater than the quantity demanded. Sellers will have an incentive to lower prices to sell the excess goods. This puts downward pressure on prices until the price reaches the equilibrium price. If price is below equilibrium then

the quantity demanded is higher than the quantity supplied, giving Sellers an incentive to raise prices until the equilibrium price is reached.

Estimated Price and Consumption Effects

Using the theoretical framework above, the expected price and quantity of cannabis can be estimated under the different regulation models. The results of the analysis may vary according to the assumptions made about:

1. The type of market in which the goods are traded, whether perfectly competitive, monopolistic or oligopolistic markets.
2. Assumptions of the price elasticity of demand and supply of the goods.

The analysis below draws on the methodology employed by Becker et al. (2004)³² on the economic theory of illegal goods. Similarly, it was assumed that the supply of cannabis is traded in a perfectly competitive market with constant unit costs (the costs of producing an additional unit does not vary with the level of production). In perfectly competitive markets, there are many buyers and sellers and no individual seller or buyer has market power to control price. Furthermore, since there are no barriers to entry, any increase in price above marginal cost will draw additional sellers into the market, thus increasing supply. Given market dynamics, at equilibrium the Seller's price is equal to marginal costs. As such, to simplify the analysis, it was assumed the supply for cannabis is perfectly elastic.

Model 0: Prohibition and Criminalization

Under prohibition and criminalization both buying, producing and selling cannabis is illegal. Given the addictive nature of cannabis, it was assumed that the demand curve is relatively inelastic so small changes in prices may not lead to large changes in demand. The final price to the buyer (P_b) is the seller's price (P_s) plus the additional premium associated with the risk to the buyer (r_b) of purchasing an illegal product. This includes the risk of personal stigma, arrest, imprisonment and fines.³³

³² Gary S. Becker, Kevin M. Murphy, and Michael Grossman. The economic theory of illegal goods: The case of drugs. No. w10976. *National Bureau of Economic Research*, 2004.

³³ Buyers may face other risks such as health and psychological risk. However, these were kept constant to simplify the analysis and only the risks associated with consuming an illegal product were considered.

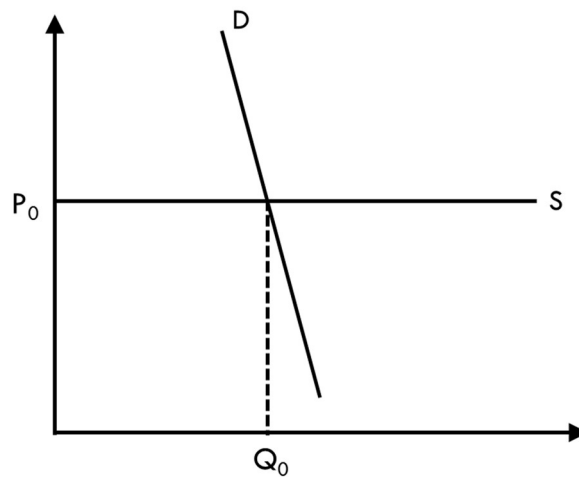
$$P_{b0} = P_{s0} + r_b$$

When the supply of cannabis is illegal then other indirect costs will must be incurred due to the risks (r_s) faced by the seller of producing, distributing and selling the product within an illegal market. These include the risks of product seizures, arrests, fines and imprisonment. The price charged by the supplier (P_{s0}) includes an additional markup over production costs to compensate for these associated risks.

$$P_{s0} = (C_p) + (r_{s0})$$

When cannabis is illegal, the total price to the buyer, (P_{b0}) is higher than the price charged by the seller price (P_{s0}). Therefore the equilibrium quantity (Q_0) under criminalization is less than what would have been demanded if the price faced by the Buyer did not include the risk premium.

Figure 24: Price and Quantity under Prohibition and Criminalization (Model 0)



Model 1: Decriminalization Only

Under a model of decriminalization, (based on the implementation design) the buyer no longer faces the risk of arrest and imprisonment for small quantities of cannabis but rather may face the payment of a fine. This eliminates the risk premium³⁴ to the

³⁴ The Buyer may still have to pay fines, however to simplify the analysis, only the criminalization risk is considered.

Buyer. However, under a policy of decriminalization, the supply of cannabis is still illegal, hence the Seller's price remains unchanged. Therefore the final price to the Buyer is now;

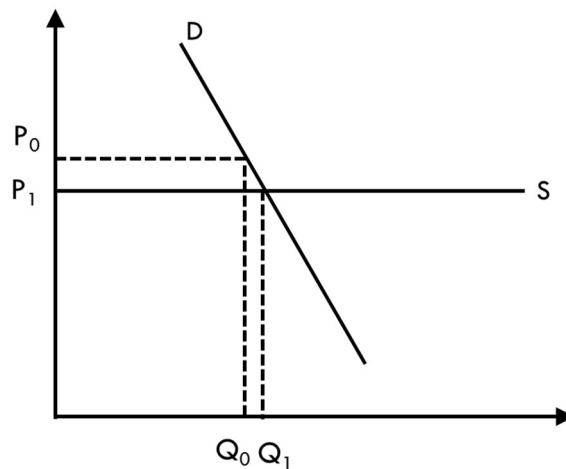
$$P_{b1} = P_{s1}$$

Where $r_b = 0$ and $P_{s1} = P_{s0}$

$$P_{b1} < P_{b0}$$

Given that the final price to the Buyer under decriminalization (P_{b1}) is lower than the price under criminalization (P_{b0}), the equilibrium quantity demanded under decriminalization is expected to increase to (Q_1) from (Q_0) under criminalization.

Figure 25: Price and Quantity Under Decriminalization (Model 1) Vs Model 0



Model 2: Full Legalization (Competitive Markets)

In this model the use, production and sale of cannabis is legal and is produced and sold in a competitive market framework. In this scenario, both the Buyer and Seller no longer face the risk premium³⁵ associated with prohibition and criminalization.

$$(r_{b0}) = (r_{s0}) = 0$$

³⁵ The seller and buyer may still face regulatory costs such as licenses or taxes depending on how the regulation is implemented.

Therefore, the costs to the Seller under legalization will fall compared to the two previous scenarios, so the new selling price (P_{s2}) will be;

$$P_{s2} = C_p$$

Therefore $P_{s2} < P_{s1}$

The price to the Buyer under legalization is even lower than under decriminalization as the Seller's price has also decreased.

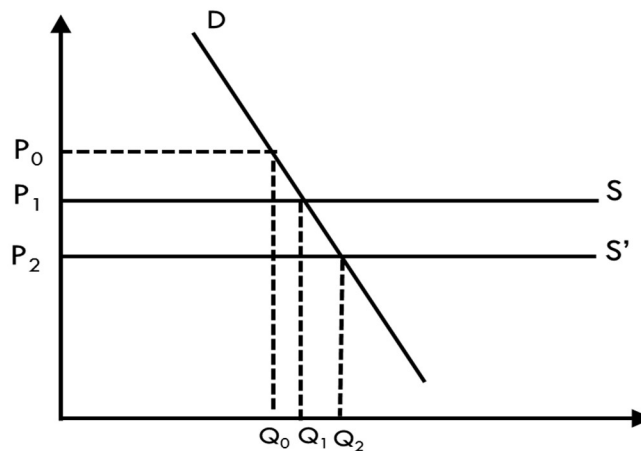
$$P_{b2} = P_{s2}$$

So, $P_{b2} < P_{b1} < P_{b0}$

With a fall in the price to both the Buyer and Seller, the quantity demanded under Model 2, (Q_2) is even greater than under both Model 0 (Q_0) and Model 1, (Q_1).

So, $Q_0 < Q_1 < Q_2$

Figure 26: Price and Quantity Under Full Legalization (Competitive Markets) (Model 2) Compared to Model 1 and Model 0



Model 3: Full Legalization (State Control)

Model 3 is similar to Model 2 with respect to the analysis of risk and prices. However, an important distinction is that the production, distribution and sale of cannabis would be controlled by the State. As a monopoly in the market, the

government has the power to set prices or control quantities supplied. Similar to Model 2, legalization will lead to lower prices for both the Buyer and the Seller and therefore the equilibrium quantity will be higher than under prohibition and criminalization (Model 0). Nonetheless, given its market power the Government can control consumption by placing restrictions on quantity supplied, thereby raising prices or indirectly increasing the price to the consumer by taxing consumption.

In summary, drawing from the theoretical models above, an increase in consumption is projected under all three regulatory models. However, the impact on prevalence is lower under decriminalization (Model 1) compared to full legalization in competitive markets (Model 2). The case of legalization with State control (Model 3), the Government may put restrictions on the quantity supplied and or the price level to mitigate the expected increase in prevalence of use.

Effect on the Black Market

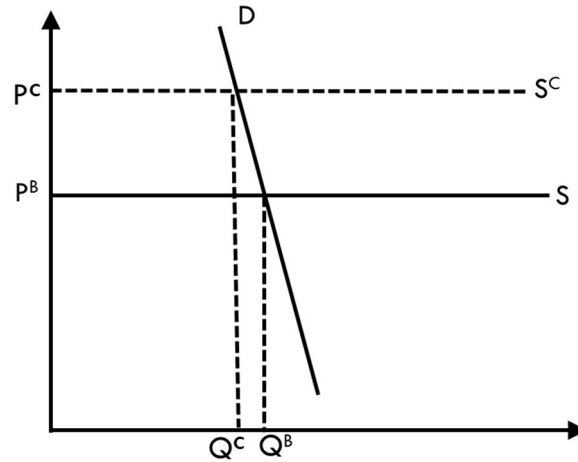
One of the Governments' objectives with the legalization of cannabis is to reduce the size of the black market and associated crime through cartel operations and gang violence. The size of the black market is conditional on the variance in the price in the legal market and the price offered by Sellers in the illegal market. Drawing on the theoretical framework above, the price set by a Seller in the Black Market will be a function of the cost of production and the risk premium of selling in the illegal market. If the price set by the Government P^C , is higher than the price offered by the Seller in the black market P^B , then Buyers will have an incentive to purchase cannabis in the black market if the final price to the Buyer is lower in the illegal market than in the legal market. The final price to the buyer P^F , in the illegal market is the black market price plus the risk associated with an illegal purchase.

Condition for Purchase in the Black Market:

$$P^C > P^R = P^B + r_b$$

At P^C , the quantity supplied is restricted to Q^C , however at the black market price consumers demand quantity Q^B . Buyers will purchase the quantity $(Q^M - Q^C)$ from the illegal black market.

Figure 27: Impact of Price Control



Sellers are profit maximizers and are not willing to provide a good if the selling price of the good falls below the related costs. To control the size of the black market, the government must ensure that the legal price is lower than the price Sellers are willing to offer in the illegal market.

$$P^C < P^B \text{ where } P^B = (C_p) + (r_b)$$

If Government set prices below the price offered in the black market, this will have the effect of reducing or eliminating the black market at the cost of an increase in the quantity demanded by the consumer.

The analysis is similar for estimating the effect of taxes. A tax has the effect of raising the price for the Buyer, whether it is levied on the Seller or Buyer. A tax on the Seller has the effect of raising the Seller's cost of production. Given the relative inelasticity of demand for cannabis, this cost will be passed on to the Buyer through higher prices. Similarly, if the tax is levied on the Buyer, it artificially raises the price above the market price. If the legal price after tax is higher than the illegal price, then consumers will have an incentive to evade the tax and purchase in the black market.

Therefore, in setting prices and taxes Government must balance the social and fiscal objectives of curbing the consumption of cannabis and raising revenue with the corresponding effects on the size of the black market.

6.2 DECRIMINALIZATION AND LEGALIZATION: COUNTRY EXPERIENCES

The 2018 CARICOM report presented a literature review of country experiences under the various regulatory models³⁶. The report examined the impact on selected variables such as prevalence, prices, accidents, crime, enforcement costs and government revenue. The implementation of the different models positively affected some variables and had negative effects on others. An overview and discussion of the results is presented below.

Table 9: Summary of Legalization and Decriminalization Experiences

Summary of Legalization and Decriminalization Experiences			
Area of Impact	Impact		
	Model 1	Model 2	Model 3
Price	No significant impact on price.	↑ US\$1 per gram in 2013 to US\$1.30 per gram in July 2017 to US\$1.40 per gram in January 2018. (URY)	↓8.9% within one year of legalization: Flowed marijuana (CO). ↓7.4% per year until 2020 is predicted (CO). ↓72% within one year of legalization (WA). ↑25% from its 2015 low of US\$8 (WA).
Arrests/Fines/ Referrals	↑ 10% points each, in year 1 and year 2 after decriminalization: Referrals for cannabis possession. (PRT).	↓20%: drug related crimes since legalization (2018 report) (URY) ↑drug related crimes increased from 538 in 2014 to 739 in 2015 to 1233 in 2016. (URY)	↑63% between 2012 and 2015: marijuana-related incidence (WA). ↓ 30 percent between 2013-2014:marijuana charges (CO).
	↑ by 53% and 48% in year 1 and year 2 of decriminalization: cannabis expiations (AUS).		
	↓ 60 percent: Drug related-arrests (PRT)		

³⁶ Model 2 in the above table is referred to as Model 3 in this report and Model 3 in the table is Model 2 in this report.

Summary of Legalization and Decriminalization Experiences			
Area of Impact	Impact		
	Model 1	Model 2	Model 3
Adult Prevalence	↑ 0.03% points, over the first 6 years of decriminalization (PRT) ↑ 10 % points (14-40) over 20 years (AUS).	↑ 7.5% in by the second year of legalization: Habitual users (URY). ↑ 16.7% between 2001 and 2014: marijuana smoking prevalence (URY).	↑ 2.58% points between 2012 and 2014 (WA). ↑ 4.52% points between 2011 and 2014 (CO).
Youth Prevalence	↑ 5.69% points (16-18 years) in the first 4 years of decriminalization (PRT).	↑ 8.6 % points between 2001 and 2014, 1 year after legalization (URY).	↑ 9.45% (12-17 years) in 2012 to 10.06% in 2014 (WA). ↑ 10.57% (12-17 years) in 2012 to 12.56% in 2014 (CO).
Vehicular Accidents/ Fatalities	↑ 190 percent: the number of fatal accidents where the driver tested positive for marijuana. (Various US States).	↓ 4.51% between 2011 and 2015, 2 years after legalization: Vehicular accidents (URY). ↓ 5.11%, 1 year after legalization: Traffic fatalities (URY).	↑ 105%, from 10.8% in 2013 to 22.19% in 2014, the year of legalization: proportion of traffic fatalities where driver tested positive for recent marijuana use (WA). ↑ 300% from 2% in 2013 to 8% in 2014: proportion of traffic fatalities where driver tested positive for recent marijuana use (CO).

Summary of Legalization and Decriminalization Experiences			
Area of Impact	Impact		
	Model 1	Model 2	Model 3
Black Market		<ul style="list-style-type: none"> 60% of marijuana consumed was bought in the black market in 2014, 1 year after legalization (URY). 	<ul style="list-style-type: none"> The black market makes up between 35 and 50 percent of the total marijuana market (WA). And about 30 percent in Colorado. In Oregon, large quantities of legal marijuana are funneled out of the state through the black market.
Gov't Revenues	↓ 1.9%: law enforcement expenditure (MA).	<ul style="list-style-type: none"> Marijuana activity fees: US\$128,192 in 2016. Projected to reach US\$665,412 by 2019 (URY). Estimated license fees of US\$1.3 million between 2017-2019 (URY). 	<ul style="list-style-type: none"> US\$102.3 million (2014/2014) and US\$156.7 million (2015/2016): revenues collected from sale and excise taxes (CO). US\$65.7 million (2015, US\$189.2(2016) US\$319.1(2017): tax revenues collected (WA).
Cost of Implementation/ Enforcements		<ul style="list-style-type: none"> Cost of running IRCCA was US\$650,000 in 2016 and estimated to grow to US\$1.2 million by 2020 (URY). 	<ul style="list-style-type: none"> US\$ 5.1 million (2014/2015), US\$ 8.06 million (CO) US\$34 million, US\$42 million in 2016 and 2017, resp. (WA) .

Source: *Waiting to Exhale -Safeguarding Our Future Through Responsible Socio-Legal Policy on Marijuana; Report of the CARICOM Regional Commission (2018)*

Prevalence of Use

Model 1: Decriminalization Only

The impact of decriminalization on cannabis use varies according to the measure of use examined. According to the CARICOM report, life time prevalence³⁷ of cannabis use among adults ages 15-64 in Portugal increased marginally by 0.03 percentage points over the first six (6) years of decriminalization; from 3.3 percent in 2001 to 3.6 percent in 2007. For student's ages 16-18 years, lifetime prevalence increased from 9.5 percent in 1999 to 19 percent in 2003. However regular use of cannabis between 2001 and 2007 remained stable. In Australia, there was a 10 percentage point increase in the lifetime prevalence of persons ages 14-40 from 40 percent in 1985 to 50 percent in 2007. However, past year prevalence³⁸ fell from 19.9 percent in 1998 to 10 percent in 2016. The evidence indicates that while lifetime prevalence rose after decriminalization, regular use decreases or remains stable over time. This rise in lifetime prevalence maybe associated with an increase in experimentation after the policy change.

Model 2: Legalization (Competitive Markets)

In Colorado, overall prevalence of use in the general population rose by 4.5 percentage points from 10.4 percent (2011-2012) to 14.9 percent (2013-2014). Among students ages 12-17 years, use increased by 2 percentage points from 10.6 (2011-2012) to 12.6 (2013-2014). The increases in use in Washington State were lower compared to Colorado, with an increase in adult and student (ages 12-17) usage of 2.6 and 0.6 percentage points respectively.

Model 3: Legalization (State Control)

Some estimates indicated that the prevalence of use in Uruguay rose by 16 percent during the period 2001 and 2014. However according to The National Drug Council's National Household Survey, past year prevalence rose by 7.9 percentage points from 1.4 percent in 2001 to 9.3 percent in 2014 while past month prevalence increased from 1.4 percent to 6.5 percent (5.1 percentage point increase) over the

³⁷ Life-time prevalence refers to the percentage of the population that have used Cannabis at least once in their lifetime.

³⁸ Past year prevalence refers to the percentage of the population that have used Cannabis at least once in the past year.

same period. The past year prevalence for student increased by 8.6 percentage points from 8.4 percent in 2003 to 17 percent in 2014.

Prices

Model 1: Decriminalization Only

Studies³⁹ revealed that there were no significant increases in price in Portugal following decriminalization.

Model 2: Legalization (Competitive Markets)

Prices in Washington State, dropped by 72 percent from US\$29 per gram in August 2014 to US\$8 in July 2015. Prices rose to US\$10 in June 2016 but remained significantly lower than the price point in 2014. It was reported⁴⁰ that prices in Colorado fell by 8.9 percent within one year of legalization.

Model 3: Legalization (State Control)

The Government sets the price of cannabis in Uruguay. In 2003, retail prices were first set at US\$1 and have since increased to US\$1.40 per gram as of January 2018.

Crime/Arrest/Fines/Referrals

Model 1: Decriminalization Only

According to an article from the Jamaican Gleaner⁴¹, data from the courts revealed that since decriminalization, arrests for Marijuana possession in Jamaica dropped by 14,000 arrests and cases reaching the courts decreased by 3,096 cases or 90 percent.

³⁹ Marysia Ogrodnik, Pierre Kopp, Xavier Bongaerts, and Juan M. Tecco. "An economic analysis of different cannabis decriminalization scenarios." *Psychiatr Danub* 27, no. Suppl 1(2015):S309-14.

⁴⁰ Miles Light, Adam Orens, Jacob Rowberry, and Clinton W. Saloga. "The economic impact of marijuana legalization in Colorado." Marijuana Policy Group (2016): 25.

⁴¹ The Gleaner, 26 January 2016; <http://jamaica-gleaner.com/article/news/20160126/14000-fewer-persons-arrested-ganjachanges-changes-law-bunting>

Drug⁴² related arrests in Portugal fell by 60 percent following discrimination. However, cannabis possession referrals rose from 47 percent of total drug referrals in 2001 to 67 percent in 2003 but declined to 65 percent in 2005. The number of cannabis related administrative sanctions also increased from 52 percent in 2001 to 60 percent in 2002. These seemed to be driven by the rising trend in cannabis offenses and convictions that preceded the decriminalization policy suggesting that other factors other than decriminalization may be driving cannabis use and related sanctions.

Model 2: Legalization (Competitive Markets)

Studies⁴³ show that total number of charges for marijuana possession, distribution, and cultivation in Colorado fell by 80.1 percent from 10,236 in 2010 to 2036 in 2014. Accordingly, the number of individual court cases for possession, distribution and cultivation dropped by 84 percent from 9,749 in 2010 to 1,537 in 2014. Furthermore, a study⁴⁴ on the effects of Marijuana legalization on neighborhood crime in Denver Colorado, revealed that an additional Marijuana dispensary in the neighborhood led to a reduction of 17 crimes per month per 10,000 residents, which computes to a 19 percent decline relative to the average crime rate over the sample period.

Model 3: Legalization (State Control)

In Uruguay, an article⁴⁵ claimed that drug related crime decreased by 20 percent since legalization, while another⁴⁶ reported that drug related crimes have been on

⁴² All legalized drugs

⁴³ Gettman J. Colorado Marijuana Arrests After Amendment 64 [Internet]. New York; 2015.

Available from:

http://www.drugpolicy.org/sites/default/files/Colorado_Marijuana_Arrests_After_Amendment_64.pdf

⁴⁴ Jeffrey Brinkman and David Mok-Lamme. "Not in my backyard? not so fast. the effect of marijuana legalization on neighborhood crime." *Regional Science and Urban Economics* 78 (2019): 103460.

⁴⁵ Crime Rate Drops but Uruguay Struggles with Illicit Sale of Cannabis to Tourists | News | teleSUR English [Internet]. 2018. [cited 2018 May 17]. Available from: <https://www.telesurtv.net/english/news/Crime-Rate-Drops-but-Uruguay-Struggles-with-Illicit-Sale-of-Cannabis-to-Tourists-20180113-0015.html>

⁴⁶ G. Ramsey "Getting Regulation Right": Assessing Uruguay's Historic Cannabis Initiative. Washington DC, 2016.

an increasing trend from 2014 to 2015. According to the reports most of the crime were gang related which is correlated to the high level of organized crime and black market activity that still existed in Uruguay on year after decriminalization.

Drug Related Accidents

Model 2: Legalization (Competitive Markets)

In Washington State, the proportion of traffic fatalities where the driver tested positive for recent cannabis use have increased from 10.8 percent in 2013 to 22.19 percent in 2014. In Colorado, that percentage moved from 14.8 percent in 2013 to 21 percent in 2015, while the number of cannabis-related traffic deaths climbed from 55 deaths in 2013 to 125 in 2016.

Model 3: Legalization (State Control)

National Road Safety Unit in Uruguay adopted a “zero-tolerance” policy for driving under the influence of cannabis in 2014. Drivers faced the penalty of having their licenses suspended for six (6) months to one (1) year on the first offense, and for two (2) years or revocation after the second offense. Since then, the number of traffic accidents fell by 4.51 percent from 24,400 in 2011 to 23,300 in 2015. The number of vehicle accidents fatalities also declined by 5.11 percent from 567 in 2013 to 538 deaths in 2014.⁴⁷

Black Market Operations

Model 2: Legalization (Competitive Markets)

The black market accounted for 35 to 50 percent of the total market for cannabis in Washington State and 30 percent in Colorado in 2015. The share of the black market is contingent on the alignment of the legal price of cannabis with the illegal price.

Model 3: Legalization (State Control)

It was reported that 60 percent of marijuana consumed in Uruguay one year after legalization was bought on the black market.

⁴⁷ Ibid.,22

Government Revenue

Model 2: Legalization (Competitive Markets)

According to the Department of Revenue in the State of Colorado, Government revenue from marijuana taxes, licenses, and fees have grown from US\$130.4 million in 2015 to \$US 302.5 million in 2019.

Model 3: Legalization (State Control)

According to official projections, the revenue from fees from the Institute for the Regulation and Control of Cannabis (IRCCA) in Uruguay is expected to climb annually, from an estimated US\$138,192 in 2016 to US\$656,412 in 2019⁴⁸. Statistics Canada⁴⁹ reported that the Canadian Government collect C\$186 million from taxes during the first five and a half months following cannabis legalization.

Cost of Implementation

Model 2: Legalization (Competitive Markets)

The Marijuana industry in Colorado is regulated by the Marijuana Enforcement Division (MED). The operating costs of the division was US\$8.06 in 2015 fiscal year was estimated at US\$ 15.8 million⁵⁰ in fiscal year 2019.

Model 3: Legalization (State Control)

The 5 year projected budget for the IRCCA is expected to grow from about \$US 650,000 in 2016 to US\$1.2 million in 2020⁵¹.

⁴⁸ Ibid.,11

⁴⁹ <https://www150.statcan.gc.ca › daily-quotidien>

⁵⁰ Financial Impact of Legalizing and Regulating Cannabis for Adult Use. Marijuana Policy Project. 2019. (access on 10 January, 2020) <https://www.mpp.org/issues/legalization/financial-information-on-states-with-adult-use-legalization/>

⁵¹ G. Ramsey, “Getting Regulation Right”

7.0 COUNTRY ASSESSMENT

7.1 METHODOLOGY AND DATA

In this section, the three (3) regulatory model options will be assessed within a Cost Benefit Analysis (CBA) framework using country level data to derive the optimal regulatory model in the case of Saint Lucia. The CBA will be evaluated at a macro-economic level, meaning that the costs and benefits will be aggregated for the economy as a whole rather than at the individual level. The country assessment for Saint Lucia will cover the categories of costs and benefits listed in Table 10. The costs and benefits listed below are not exhaustive but based on the availability of data.

Table 10: Categories of Cost and Benefits

Category	Costs	Benefits
Fiscal	<ul style="list-style-type: none">• Enforcement Costs: Police, Forensics, Courts, Prisons• Implementation Costs	<ul style="list-style-type: none">• Government Revenue: Taxes, Licenses, Fees and Fines
Social	<ul style="list-style-type: none">• Health and Treatment Costs: Mental Health Costs	
Economic	<ul style="list-style-type: none">• Employment and Wage Loss due to Incarceration	<ul style="list-style-type: none">• Increase in Employment and Wages• Value Added

The analysis will consider the marginal costs and benefits from implementing the specific model. The Net Benefit (NB) will be calculated as the sum of the benefits (b) minus the sum of the costs (c)

$$NB = \sum (b) - \sum (c)$$

The models will be ranked according to their NB with the preferred option being the model with the highest NB. Model 1 (M_1) is preferred to Model 2 (M_2) if and only if;

$$NB_{M_1} > NB_{M_2}$$

Calculations and estimations will be made based upon a recommended regulatory framework and implementation design. The proxy variables, estimation formulas and assumptions used in the calculations will be presented in the Appendix. Costs and

benefits will be evaluated in (EC) dollar amounts to allow comparison and ranking across the different models.

Costs and benefit calculations will utilize the latest available data collected from government and other agencies. Where the required data does not exist, estimates will be made using the results from country case studies and or drawing from economic theory.

7.2 REGULATORY FRAMEWORK

Drawing on the cannabis frameworks presented in the Saint Lucia Social and Economic Lab Report⁵² (with some amendments), the suggested regulatory parameters for models of decriminalization and regulations are presented in Table 11. Under decriminalization, individuals 18 years and older will no longer face criminal penalties for possession of up to 30 grams of cannabis and home cultivation of up to 6 cannabis plants. However, commercial production, distribution and sale will still be prohibited.

The second option is a model of legalization where the minimum age, personal possession quantity and home cultivation restrictions are the same as under decriminalization, however possession within the set limits will now be legal and not subject to a fine. A Cannabis Statutory Body (CSB) would regulate the production, distribution and sale of cannabis through licenses and provide guidelines for the maximum THC content and other restrictions.

Table 11: Proposed Regulatory Framework for Decriminalization and Regulation of Cannabis in Saint Lucia

Parameters	Decriminalization	Legalization
Regulatory Authority	Ministry of Health	Cannabis Statutory Body
Minimum Age	18	18
Personal Possession Quantity	30 grams	30 grams

⁵² Saint Lucia Social and Economic Lab Report- Agriculture Key Results Are, prepared by PEMANDU (2019).

*Revised from 5 plants to 6 plants following consultation with the Cannabis Commission

**Author's suggestion

Home Cultivation	6* organically grown plants per household within perimeter of residential area	6* organically grown plants per household within perimeter of residential area
Fine	EC\$100**	Not Applicable
Interpersonal Sharing	30 grams	30 grams
Retail Transaction Limit	Prohibited	30 grams per person
Retail Pricing Structure	Prohibited	To be Determined by Cannabis Statutory Body/ Market
Average retail price per gram after tax	Prohibited	To be Determined by Cannabis Statutory Body/Market
Maximum THC Content	Not Applicable	Subject to Use -Retail for Personal Use: Maximum 15% -Commercial Use: Varies
Commercial Production	Prohibited	Licensed Producers
Commercial Distribution	Prohibited	Licensed
Restrictions on Edibles	Prohibited	None
Drugged Driving	Prohibited and Strict Enforcement Policy	Prohibited and Strict Enforcement Policy
Public Smoking	Prohibited	Prohibited
Advertising	Prohibited	Prohibited
Taxation	Prohibited	Tax rates are determined by the Government

Implementation Design

In the proposed implementation design for the legalization models, it was assumed that the cannabis industry would be operated within three economic sectors: agriculture (cultivation), manufacturing (production) and retail. The farmers would produce and cultivate the cannabis plants. The cleaned and dried cannabis⁵³ would then be sold to the cooperative. The cooperative would monitor demand and supply and would be the sole intermediary between the farmers and the wholesale and retail market. The cooperative would provide technical guidance to the farmers on what cannabis strains to produce and ensure good agricultural practices for sustainability.

⁵³ The farmer or the cooperative may be responsible for cleaning and drying.

The regulatory framework may be designed in several ways, however the following three options were considered in this assessment. The first option (Option 1) would represent regulation under competitive markets (Model 2). Under Option 1, the Government/State would only be responsible for regulating the industry, issuing licenses and collecting taxes. The cooperative would be owned by the farmers and privately operated, similar to the structure and operation of a Credit Union or other agricultural cooperative. **The cooperative would have the exclusive rights to distribute and sell cannabis. The price of cannabis under this model is determined by the market.**

Under the second option (Option 2), which mimics Model 3 (State Control), a CSB would be responsible for regulating all industry activities such as licensing, enforcement and taxation. **Additionally, the CBS would own and operate the cooperative. The price of cannabis would be determined by the CSB.**

A third option (Option 3) may be a hybrid between Option 1 and Option 2. In this option, similar to option 2, the CSB would be responsible only for regulating industry activities such as licensing, enforcement and taxation. However, similar to Option 1, the farmers would sell to the cooperative, which would be owned by the farmers and privately operated. Under Option 3, the price may be determined by the market or by the CSB.

Figure 28: Implementation Design: Option 1

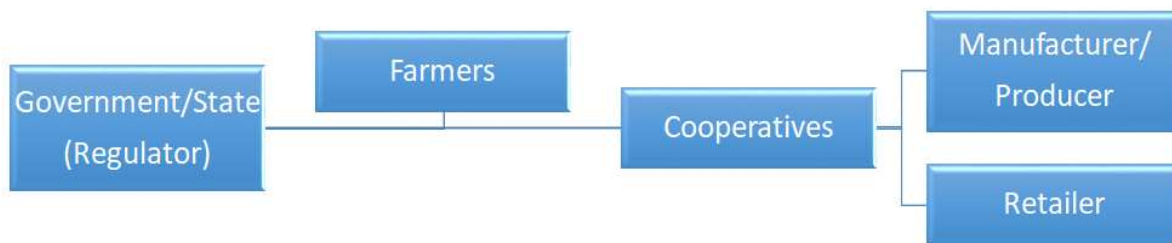


Figure 29: Design Implementation: Option 2

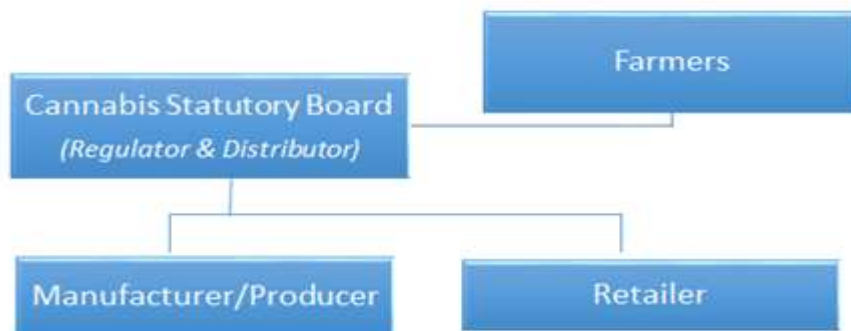


Figure 30: Implementation Design: Option 3

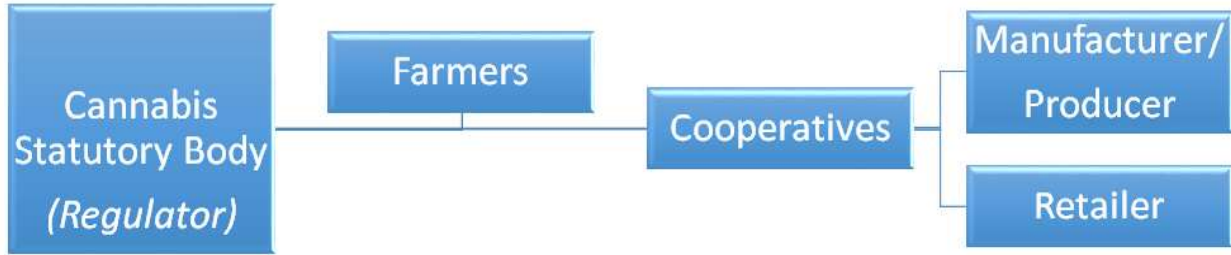


Table 12: Regulatory Models- Implementation Design Framework

	Option 1: Competitive Market (Model 2)	Option 2: State Control (Model 3)	Option 3: Quasi State
Regulatory Authority	1. Cannabis Regulatory and Enforcement Division within A related Ministry: <ul style="list-style-type: none"> - Issue licenses similar to alcohol licenses - Enforce Regulations 2. Inland Revenue Department <ul style="list-style-type: none"> - Tax Administration 	1. Cannabis Statutory Body (CSB) <ul style="list-style-type: none"> - Regulates all industry activities - Issues Industry guidelines - Issues Licenses - Enforce Regulations - Collects Taxes - Operates Cooperative 	1. Cannabis Statutory Body (CSB) <ul style="list-style-type: none"> - Regulates all industry activities - Issues Industry guidelines - Issues Licenses - Enforce Regulations - Collects Taxes
Cultivation	Licensed Farmers	Licensed Farmers	Licensed Farmers
Cooperative	<ul style="list-style-type: none"> - Farmers Sell to a licensed Cooperative - Cooperatives are a private companies partly owned by the farmers - Sells wholesale to manufacturers and retailers 	<ul style="list-style-type: none"> - Farmers sells to Cooperative - Cooperative is owned and operated by the Cannabis Statutory Body - Act as a single interface for all Cannabis related transactions 	<ul style="list-style-type: none"> - Farmers Sell to a licensed Cooperative - Cooperatives are a private companies partly owned by the farmers - Sells wholesale to manufacturers and retailers
Prices	Derived by the Market	Fixed by CSB	Fixed by CSB or Market

Revenue

The Government would collect revenue from across the value chain. The farmers would pay annual license fees and farm gate duties on cannabis supplied to the cooperative. The manufacturer would pay an annual license fee, corporate income tax and excise duties on the export of cannabis and cannabis by-products such as CBD oil. The consumer would pay VAT and or a Cannabis Sales Tax on commercial sales and employees would pay Personal Income Tax on wages and salaries. Some suggested tax rates are presented in Table 13. In choosing tax rates, the government should ensure that the tax burden on the cannabis sector is not excessive as to encourage black market operations. While both VAT and a Cannabis Sales Tax is suggested the government may choose to implement only one of those options or both.

Table 13: Proposed Taxes and Rates

	Farm gate Duties	Corporate Tax	Personal Income Tax	Annual License Fees	Excise Duties	VAT	Cannabis Sales Tax
Rates	EC\$50 ⁵⁴ /kg of cleaned and dried Cannabis leaf	Current rate of 30% of Profits	Current Rates specified by the Income Tax Act	<ul style="list-style-type: none"> Farmer:\$500/acre Retailer: \$1,000/annum Cooperative: \$2,000/annum Manufacturer: \$5,000/annum 	EC\$3.49 ⁵⁵ per litre of CBD oil	12.5%	15%
Tax Burden	Farmer	Manufacturer	Employees	<ul style="list-style-type: none"> Farmer Retailers Manufacturer 	Manufacturer	Domestic Consumer (Locals and Tourists)	Domestic Consumer (Locals and Tourists)

⁵⁴ Proposed by Author. Revised downwards from \$100 kg proposed in the PEMANDU Agriculture Lab Reports

⁵⁵ Excise duty similar to what is paid on rum

7.3 COST BENEFIT ANALYSIS (CBA)

A. Costs

In this section, the costs incurred under the various regulatory models will be estimated. These include enforcement costs, health and treatment costs and implementation costs.

Enforcement Costs

Model 0: Prohibition and Criminalization

One of the largest cost areas under prohibition and criminalization is the costs of enforcement. In this study, enforcement costs is defined as policing costs for crime detection⁵⁶, costs of forensics services for evidence testing, the court costs for prosecution and sentencing and the prisons costs for incarceration. Using the selected proxy variables and estimation formulas,⁵⁷ the total annual estimated cost of enforcement in St. Lucia was about \$2.42 million. This comprised of an annual cost for Policing of \$1.13 million, Courts \$0.733 million, Forensics \$0.568 million and Prisons \$0.654 million.

Table 14: Annual Enforcement Costs under Prohibition and Criminalization

Enforcement Costs	Total
Police Detection Cost for Cannabis Offences	\$1,128,908
Court Related Costs	\$73,302
Forensics Costs	\$567,802
Prison Costs for Cannabis related Offenders	\$654,170
Total Enforcement Costs	\$2,424,181

Model 1: Decriminalization Only

In estimating enforcement costs under Model 1, it was assumed that police detection costs would increase due to an expected increase in the prevalence of cannabis use.

⁵⁶ Crime Detection is defined as crimes investigated where persons have been arrested or charged

⁵⁷ Proxy variables and estimation formulas are detailed in Tables 24-25 in the Appendix

Nevertheless, other enforcement costs such as court, forensics and prison costs were projected to decline, as they would only apply to other cannabis related charges other than Unlawful Possession.

In 2018, Unlawful Possession offences detected stood at 142 cases, accounting for about 53 percent of all cannabis related crimes. Assuming a 2 percentage point increase in the usage of cannabis if decriminalized, then the number of Unlawful Possession offences is estimated⁵⁸ to increase to 179. Hence, the total number⁵⁹ of cannabis related offences detected rises to 305, thereby increasing Police Costs to \$1.28 million. The total estimated enforcement cost under Model 1 is estimated at \$1.91 million, which represents a 21 percent decline in enforcement costs compared to Model 0.

Table 15: Enforcement Cost under Model 1

Enforcement Costs	Total
Police Detection Cost for Cannabis Offences (<i>with projected increase in Unlawful Possession Offences</i>)	\$1,283,436
Court Related Costs (<i>less Unlawful Possession Offences</i>)	\$34,452
Forensics Costs (<i>less Unlawful Possession Offences</i>)	\$289,483
Prison Costs for Cannabis related Offenders (<i>less Unlawful Possession Offences</i>)	\$307,460
Total Enforcement Costs	\$1,914,830

Legalization: Model 2 (Competitive Markets) and Model 3 (State Control)

Under legalization while persons would no longer be arrested or fined for the allowable personal quantities, there will be costs incurred in ensuring that the regulations are enforced. It would still be an offence to be found in possession of more than the allowable personal limits, or cultivating or selling cannabis without a license. The expected enforcement costs under legalization was calculated similarly

⁵⁸ See Table 26 in the Appendix for estimation and assumptions.

⁵⁹ Cannabis related offences other than Unlawful Possession remain illegal Under Model 1 and are assumed to remain unchanged at 2018 levels

to decriminalization with adjustments in policing costs as possession of allowable quantities would no longer be fined. The annual enforcement costs was estimated at \$0.627 million.

Table 16: Enforcement Costs Under Model 2 and Model 3

Enforcement Costs	Total
Police Detection Cost for Cannabis Offences (<i>less Unlawful Possession Offences</i>)	\$101,096
Court Related Costs (<i>less Unlawful Possession Offences</i>)	\$27,122
Forensics Costs (<i>less Unlawful Possession Offences</i>)	\$256,337
Prison Costs for Cannabis related Offenders (<i>less Unlawful Possession Offences</i>)	\$242,043
Total	\$626,598

Health and Treatment Costs

Model 0: Prohibition and Criminalization

In 2018, 1245 patients⁶⁰ were admitted and treated at the National Mental Wellness Centre. Of this total, 81 patients were admitted for cannabis related mental disorders. The Government of Saint Lucia covers the total cost of admission and treatment at the National Mental Wellness Centre. The annual budget allocations for operational costs to the National Mental Wellness Centre in 2018 was \$5.97 million. This amounts to a costs of \$4,794 per patient treated. Accordingly, the total costs for treating patients for cannabis related mental disorders was estimated⁶¹ at \$0.388 million.

Models 1-3

In determining the projected mental health costs for cannabis related mental disorders, it was assumed that prevalence would increase by 2, 10 and 5 percentage points under Models 1, 2 and 3 respectively. These increases were projected based on the existing high prevalence rate in Saint Lucia coupled with expected increases predicted by the theoretical model and country experiences. Accordingly, the mental

⁶⁰ Mental health was used as the proxy to estimate health and treatment costs in Saint Lucia.

⁶¹ See Table 24 in the Appendix for Estimation Formula

health costs were estimated⁶² under Model 1 at \$0.486, Model 2 at \$0.847 million and Model 3 at \$0.623 million. Mental health costs were the highest under Model 2. The costs estimates are sensitive to the assumptions made on the prevalence of use under the different models.

Table 17: Summary of Assumptions and Estimated Costs Under Models 1-3

Models	Assumptions	Estimated Health Costs for Cannabis Related Mental Disorders
1	2 Percentage Increase In Prevalence	\$488,631
2	10 Percent Increase in Prevalence	\$847,258
3	5 Percent Increase in Prevalence	\$623,116

Implementation Costs⁶³

Model 2: Legalization (Competitive Markets)

Under the competitive market framework, it was assumed that the Government would be responsible for only licensing, tax administration and regulatory enforcement. These functions would be executed through an additional department or staff within an existing Ministry. This approach would incur an increase in only variable costs such as wages and salaries, supplies and materials and travel and would lead to costs savings through shared resources within the Ministry.

Wages and salaries under this Model was estimated at \$0.497 million annually. Using information from the 2018 Estimates of Revenue and Expenditure for a similar sized department, variable cost such supplies and materials, travelling, training were estimated at \$0.148 for a total annual costs of \$0.645.

Model 3: Legalization (State Control)

The proposed implementation design for this Model recommends a Cannabis Statutory Body (CSB). Assuming similar cost as IRCC in Uruguay, the annual

⁶² Details of the estimation assumptions and calculations found in Table 27 in the Appendix.

⁶³ Implementation Costs estimations only considered the administrative and regulatory costs to the Government. Costs to the private sector was not included in the calculations.

operational costs for the IRCC was projected at \$1.2 million in 2020, which is equivalent to EC\$3.24 million.

B. Benefits

There are a number of economic benefits that may be derived from the cannabis industry. These include employment generation and wages, increased government revenue and production value added.

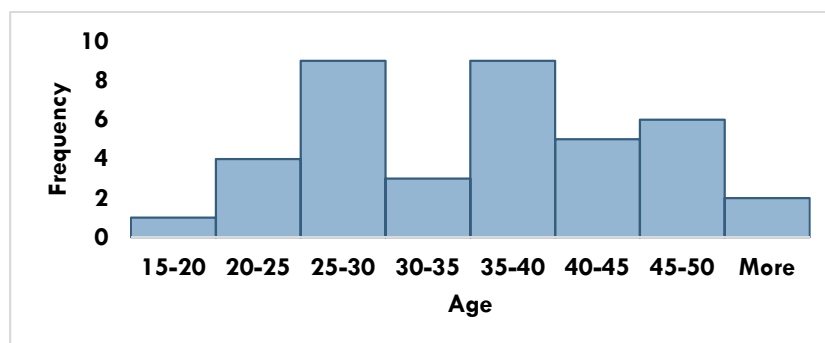
Employment and Wages

Model 0: Prohibition and Criminalization

A policy of criminalization comes at a cost to the economy in the form of wages foregone and loss in productive capacity. As of October 2019, there were 39 inmates incarcerated for cannabis related offences at BCF, of which 76 percent were between the ages of 20-45, 49 percent had attained a secondary school education and 46 percent a primary education. Prior to incarceration 92 percent of these inmates were employed in the farming, fishing, construction and service industry.

The annual wages foregone due to incarceration for cannabis related offences was estimated⁶⁴ using the occupational and educational profile of the inmates at BCF as at October 2019, together with average wage information by economic sector from the 2018 Saint Lucia Labour Force Survey. According to the estimates, the potential wages and salaries lost annually due to incarceration for cannabis related offences was \$0.837 million dollars (See Table 18 below).

Figure 31: Age Distribution of Inmates Incarcerated for Cannabis Related Offences



⁶⁴ See Table 24 for estimation formula

*Figures 31-33 are based on inmates in prison for Cannabis related offences as of October 2019

Figure 32: Educational Level of Inmates in Prison for Cannabis Related Offences

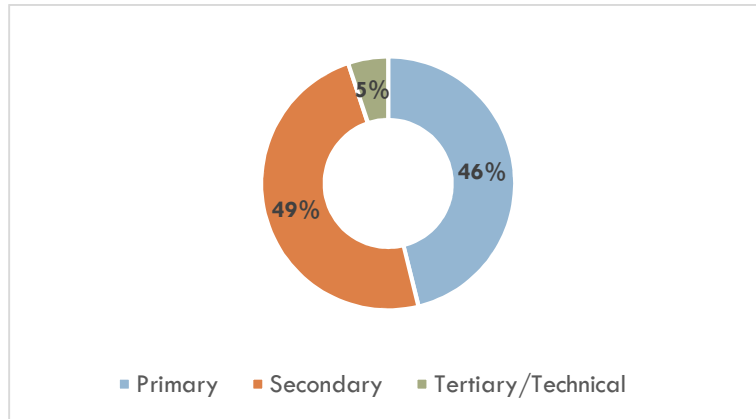


Figure 33: Occupational Profile of Inmates in Prison for Cannabis Related Offence

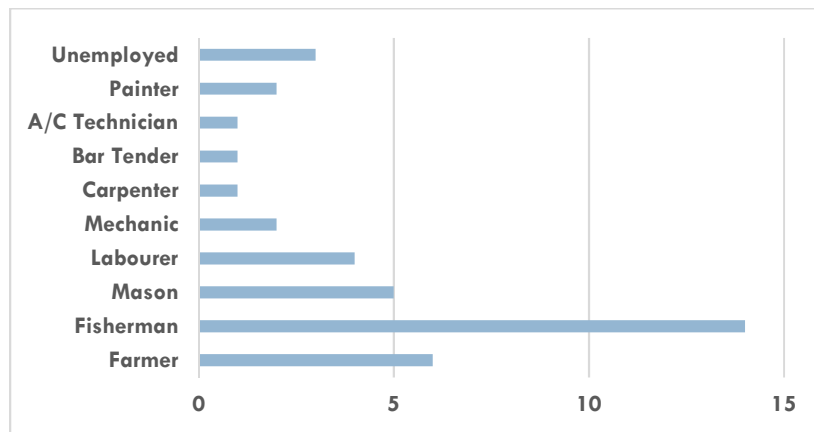


Table 18: Annual Wages Forgone due to Incarceration

Occupation	No. of Prisoners	Annual Wages	Total
Farmer	6	\$20,976	\$125,856
Fisherman	14	\$20,976	\$293,663
Mason	5	\$27,440	\$137,199
Labourer	4	\$20,976	\$83,904
Mechanic	2	\$31,650	\$63,300
Carpenter	1	\$27,440	\$27,440
Bar Tender	1	\$27,827	\$27,827
A/C Technician	1	\$23,189	\$23,189
Painter	2	\$27,440	\$54,880
Unemployed	3	\$0	\$0
Total	39		\$837,258

Model 1: Decriminalization Only

Of the inmates at BCF for cannabis related charges, 13 were incarcerated for possession only charges, 23 for possession with intent to supply and 3 for cultivation and possession charges. If the cannabis possession was no longer criminalized, then 13 of these inmates would no longer be in prison but part of the labour force. The value of their annual wages was estimated at \$0.295 million.

Figure 34: Cannabis Related Charges

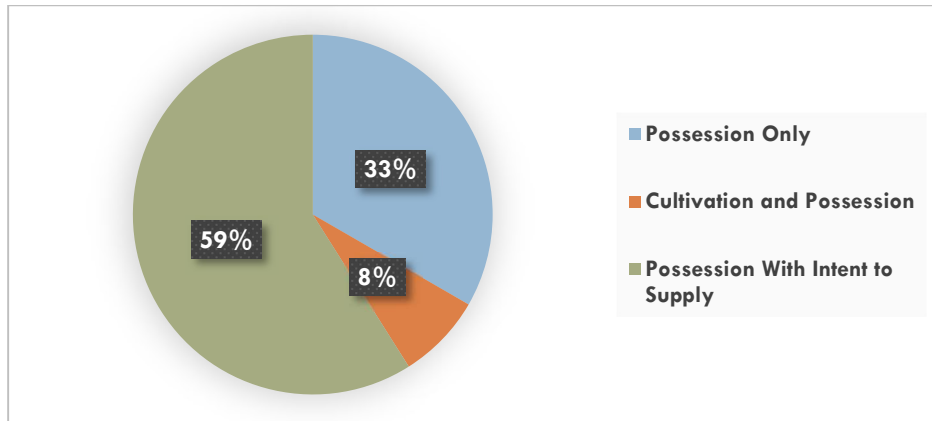


Table 19: Annual Potential Wages Under Decriminalization

Occupation	No. of Prisoners	Annual Wages	Total
Farmer	2	\$20,976	\$41,952
Fisherman	3	\$20,976	\$62,928
Mason	2	\$27,440	\$54,880
Labourer	1	\$20,976	\$20,976
Mechanic	1	\$31,650	\$31,650
Carpenter	1	\$27,440	\$27,440
Bar Tender	1	\$27,827	\$27,827
Painter	1	\$27,440	\$27,440
Unemployed	1	0	\$0
Total	13		\$295,092

Model 2: Legalization (Competitive Markets)

Unlike decriminalization, legalization offers the added benefit of generating employment from the cannabis industry. The estimates for employment and wages would be based on the implementation design used. Under Option 1, a Cannabis Regulatory and Enforcement Division within a related government ministry would be responsible for regulating the industry, while the Inland Revenue Department would administer taxation. The cooperative would be privately operated and be responsible for all cannabis sales. According to the assumptions and organizational structure outlined in Table 28, an estimated 2,032 jobs could be created and \$45.9 million generated from the cannabis industry in wages and salaries under Model 2 (Option 1).

Model 3: Legalization (State Control)

Using the structure outlined in Table 29, it was estimated that 2,039 jobs could be created and \$46.2 million earned from wages and salaries under Model 3 (Option 2). Model 3 provides seven (7) more jobs than Model 2 and \$0.288 million higher benefits in wages and salaries because of the establishment of the Cannabis Statutory Body. Another key difference between the two legalization models is that under Model 3, the cooperative would be operated by the CSB, while under Model 2 it would be privately operated.

Option 3: Legalization (Quasi State)

Under the Option 3, the total benefits accruing from employment and wages would be the same as under Option 2, however the wage costs borne by the CSB would be lower as the cooperative would be privately operated.

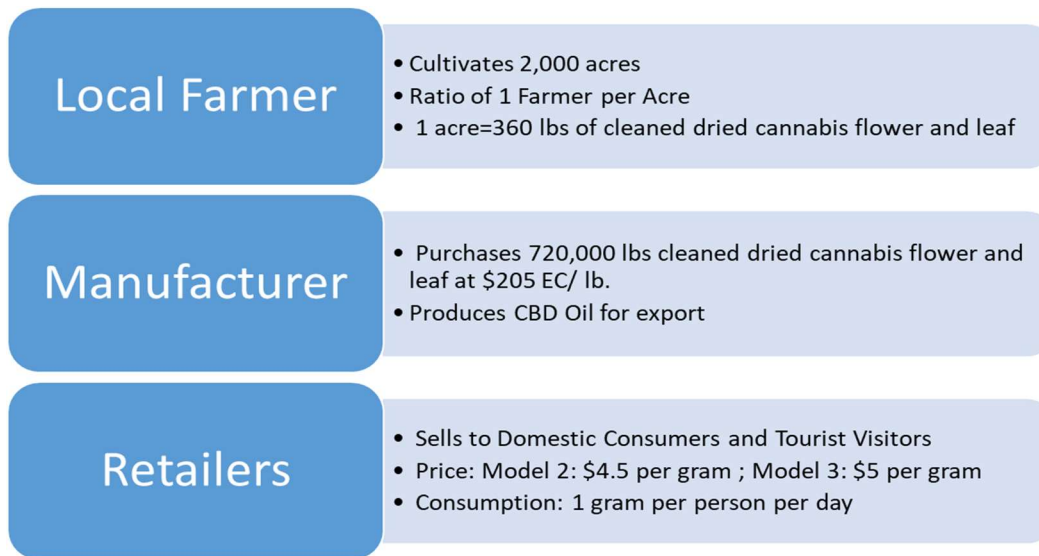
Government Revenue

A. Revenue from Fees, Licenses and Taxes (Excise, Sales, VAT)

Model 1: Decriminalization only

Under Model 1, possession of cannabis within the recommended limits is would now be subject to a fine. Using the previous stated assumptions, the number of unlawful possession offences was estimated to increase to 179 if prevalence increased by 2 percentage points. If fees were levied at \$100 the total estimated revenue under Model 1 would be \$17,900.

Figure 35: Implementation Design and Assumptions



The revenue estimates under the legalization models were derived based on the details of an investor proposal presented in the PEMANDU Agriculture Lab Report together with additional assumptions by the author. These are outlined in Figure 35 above and in Table 30 and 31 in the Appendix.

Model 2: Legalization (Competitive Markets)

The total annual revenue generated under Model 2 was estimated at \$82.2 million, with corporation tax as the largest contributor to revenue at \$47.6 million. Farm gate taxes were the next largest source of revenue at \$16.8 million annually. The Cannabis Sales Tax and VAT generated \$6.7 million and \$5.6 million respectively.

Model 3: Legalization (State Control)

Revenue collections under Model 3 was estimated at about \$80.0 million, 3 percent lower than the revenue collected under Model 2. Corporation tax would be the same under this model, while the farm gate tax is projected to raise \$16.6 million. The Cannabis Sales Tax and VAT are expected to raise \$5.5 million and \$4.6 million respectively. The variance in total revenue between the two Models was \$2.2 million. The differences in revenue under Model 2 and Model 3 is attributable to the differences in the price of cannabis and prevalence of use assumed under each model. A price of \$4.50 was assumed under Model 2 to capture the expectation of lower prices in competitive markets while it was assumed that under Model 3, the Government would set a price of \$5.00.

Table 20: Revenue Collection Under Model 2 and Model 3

Taxes	Model 2	Model 3	Variance
Farm Gate Tax	\$16,822,800	\$16,665,750	\$157,050
License Fees	\$1,012,000	\$1,005,000	\$7,000
Excise Tax	\$4,559,148	\$4,559,148	\$0
Corporate Tax	\$47,616,312	\$47,616,312	\$0
Cannabis Sales Tax	\$6,661,417	\$5,534,334	\$1,127,083
VAT	\$5,551,181	\$4,611,945	\$939,236
Total	\$82,222,857	\$79,992,488	\$2,230,369

B. Personal Income Tax

In addition to revenue generated from licenses and taxes on goods, taxes would also be collected on personal income over \$18,400 per annum received by resident or non-resident individuals who earn income in Saint. Lucia, whether those income sources are located in or out of St. Lucia. The current applicable income tax rates in Saint Lucia are listed in Table 21⁶⁵.

Table 21: Personal Income Tax Rates in Saint Lucia

Band	Taxable Income In Excess of Personal Allowance	Tax Rate (on Excess)
1	\$0-\$10,000	10%
2	\$10,001-20,000	15%
3	\$20,001-\$30,000	20%
4	Above \$30,000	30%

Model 2: Legalization (Competitive Markets)

Using the estimates of employment and wages from Table 28, and the applicable income tax rates above, the annual taxes on personal income generated under Model 2 were estimated at \$0.772 million. Details of the calculations can be found in Table 32 in the Appendix.

⁶⁵ Source: Inland Revenue Department <http://irdstlucia.gov.lc/>

Model 3: Legalization (State Control)

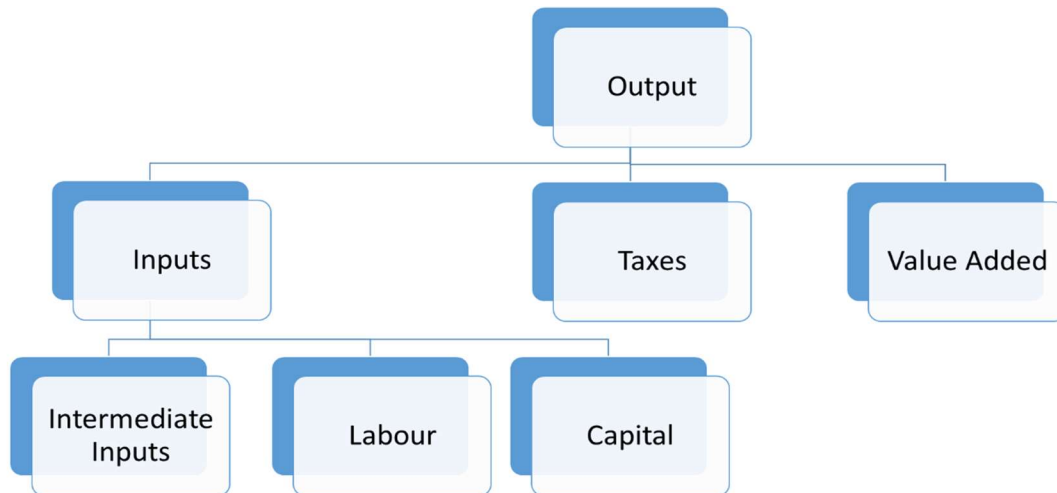
Estimated annual personal income tax collected under Model 3 was \$0.797. The personal income tax collections under Model 3 were three (3) percent higher than under Model 2 because the total amount for wages and salaries were higher under Model 3. Details of the calculations can be found in Table 33 in the Appendix.

Value Added

Using the production method and guidelines from SNA 2008, the value added derived from the cannabis industry was estimated for each economic sector. Value added for each sector was calculated as follows:

$$\text{Value Added} = \text{Value of Outputs} - \text{Value of Inputs} - \text{Taxes}$$

Figure 36: Distribution of Production Output



In the estimating value added it was assumed that labour was the only production input in the agricultural sector. Inputs in manufacturing included intermediate inputs such as dried cannabis leaves and flowers, labour and capital and in the retail sector; intermediate inputs and labour.

Model 2: Legalization (Competitive Markets)

In calculating value added, the annual total value of output was first estimated. According to the assumptions and calculations in Table 34, total value of output under Model 2 was estimated at \$725.5 million, of which the manufacturing sector

contributed the highest share at \$529.0 million. Agriculture and Retail accounted for \$152.1 million and \$44.4 million respectively. To derive total annual value added, intermediate inputs and taxes were deducted from total value of output and was estimated at \$426.9 million. (See Table 36 for details of calculations). Value added in the manufacturing sector was the highest at \$308.3 million.

Model 3: Legalization (State Control)

The value of output under Model 3 was estimated at \$716.6 million, \$8.9 million less than under Model 2. Value added was projected at \$421.6 million under that Model. The variance in value added under Model 2 and 3 can be attributed to the assumptions surrounding the prevalence of use and the price of cannabis under the two Models. Details of calculations and assumptions are outlined in Table 36 in the Appendix.

SUMMARY OF RESULTS OF COST BENEFIT ANALYSIS

Table 22: Summary of CBA Results

(Cost)/ Benefits	Model 0	Model 1	Model 2	Model 3
Cost	(\$2,812,476)	(\$2,403,461)	(\$2,119,209)	(\$4,489,714)
Enforcement Costs	(\$2,424,181)	(\$1,914,830)	(\$626,598)	(\$626,598)
Implementation Costs	\$0	\$0	(\$645,353)	(\$3,240,000)
Health and Treatment Cost	(\$388,295)	(\$488,631)	(\$847,258)	(\$623,116)
Benefits	(837,258)	312,992	555,762,593	548,619,023
Employment and Wages	(\$837,258)	\$29592	\$45,894,504	\$46,182,159
Government Revenue	\$0	\$17,900	\$82,994,799	\$80,789,398
License Fees and Taxes on Goods	\$0	\$17,900	\$82,222,857	\$79,992,488
Taxes on Income	\$0	\$0	\$771,941	\$796,910
Value Added	\$0	\$0	\$426,873,291	\$421,647,466
Net Benefit/(Costs)	(\$3,649,734)	(\$2,090,469)	\$553,643,384	\$544,129,309

The results of the costs benefit analysis indicated that the existing legal framework of prohibition and criminalization (Model 0) had the lowest net benefit, at an annual cost of \$3.6 million. The largest cost area was enforcement costs, which accounted for 66 percent of net costs. While the net benefit of decriminalization was 43 percent higher than the present regime, it stills presented net costs to the economy of \$2.1

million as it does not offer the added benefits of employment and revenue generation and value added that come with the options of legalization.

The total net benefits under Model 2 and Model 3 were \$553.6 million and \$544.1 million respectively. Value added was the largest contributor and represented about 77 percent of total benefits. The estimates of revenues were also significant under the both Models, with an annual total of \$83.0 million raised under Model 2 and \$80.8 million under Model 3.

Of the three models, Model 2 offered the highest net benefit of \$553.6 million, but also came at the highest health and treatment costs of 0.847 million. The total costs under Model 2 was \$2.1 million, however the added benefits to the economy from employment, wages and revenue and value added significantly exceeded those costs. Model 3, had the second highest net benefit of \$544.1 million, however it was associated with the highest costs levels driven by sizeable implementation costs.

Although, these estimates do not cover all related costs and benefits, they do provide an indication of the impact of each regulatory model on the economy. The estimates of cost and benefits are subject to the underlying assumptions driving the results. These estimates are subject to change if the underlying assumptions change. In choosing the optimal model, government must weigh the impact of the health and social costs against the economic benefits of growth in employment and revenue. However, the potential gain under legalization far exceeds the costs and provides additional resources to address current socio-economic challenges such as poverty and crime.

7.4 MACRO ECONOMIC IMPACT ASSESSMENT

The Saint Lucian economy currently faces a myriad of macro-economic challenges. These include; low economic growth, high unemployment especially among the youth, low revenue base, high fiscal deficits, small export base and large trade deficits. The results of costs benefit analysis confirm that the establishment of a cannabis industry, (whether under Model 2 or Model 3) offers significant economic benefits to Saint Lucia.

Table 23: Macro Economic Impact Summary

Macro-Economic Variables	Indicators	Model 0	Model 2	Model 3
GDP	Gross Value Added at Basic Prices (2018)	\$4,369,261,773		
	Value Added from Cannabis Industry		\$426,873,291	\$421,647,466
	Gross Value Added at Basic Prices With Cannabis Industry		\$4,796,135,064	\$4,790,909,239
	Increase in Gross Value Added (%)		9.8	9.7
Unemployment	Unemployed Labour Force (2018)	20,589		
	Unemployment Rate (%) (2018)	20.2		
	Employment from Cannabis Industry		2032	2039
	Unemployment with Cannabis Industry		18,557	18,550
	Unemployment Rate (%) with Cannabis Industry		18.19	18.19
Fiscal Balance	Total Revenue (2018/19)	\$1,202,233,700		
	Revenue from Cannabis Industry		\$82,994,799	\$80,789,398
	Total Revenue with Cannabis Industry		\$1,285,228,499	\$1,283,023,098
	Increase in Revenue with Cannabis Industry		6.9	6.7
	Overall Fiscal Balance (2018)	(\$57,335,890)		
	Overall Fiscal Balance (%) of GDP	-1.1		
	Overall Fiscal Balance with Cannabis Industry		\$25,658,909	\$23,453,508
	Overall Fiscal Balance (%) of GDP with Cannabis Industry		0.5	0.45
External Trade Balance	Total Exports (2018)	\$168,029,812		
	External Trade Balance	(\$1,397,351,037)		
	External Trade Balance (% of GDP)	-27.4		
	Exports from Cannabis Industry		\$529,070,130	\$529,070,130
	Total Exports with Cannabis Industry		\$697,099,942	\$697,099,942
	Increase in Exports		314.9	314.9
	External Trade Balance with Cannabis Industry		(\$868,280,907)	(\$868,280,907)
	External Trade Balance with Cannabis Industry (% of GDP)		-17	-17

Data Sources: Central Statistics Office, 2018 Economic and Social Review and Author Estimates

Impact on GDP

Nominal Gross Value Added (GVA) stood at \$4,369 million in 2018. The cannabis industry could contribute value added of \$426.9 million (under Model 2). This would spur economic growth and increase the size of the economy by about 9.8 percent.

Impact on Unemployment

According to data from the Central Statistics Office, the total number of people unemployed in Saint Lucia in 2018 stood at 20,589, which represents an unemployment rate of 20.2 percent. Out of these, 9,823 were unemployed youth.

Model 2 and Model could create 2,032 and 2,039 jobs respectively, which would reduce the unemployment rate to 18.2 percent all things being equal.

Impact on the Fiscal Balance

The overall fiscal deficit reported in 2018 was \$57.3 million, the equivalent of 1.1 percent of GDP. Model 2 has the potential to generate total additional revenue of total of \$83.0 million. This would increase current revenue intake by 6.9 percent and generate a fiscal surplus of \$25 Million or 0.5 percent of GDP. Under Model 3, total of \$80.8 million in revenue can be generated, for a fiscal surplus of \$23.5 million or 0.45 percent of GDP.

Impact on External Trade Balance

Traditionally Saint Lucia has run trade deficits as the value imports far outweigh that of exports. In 2018, total exports were valued at \$168.0 million for a trade deficit of \$1,397.4 million or 27.4 percent of GDP. If it is assumed that the CBD oil produced by the manufacturer is all exported, then this would expand exports by 315 percent and reduce the trade deficit to 17 percent of GDP.

8.0 CONCLUSION

The results of the economic analysis revealed that in Saint Lucia, despite legislation that classifies cannabis as an illegal substance, the prevalence of use in the general population and especially among students is higher than the regional average, with prevalence significantly higher for males than females. The number of cannabis related crime as a percentage of total crime is on an increasing trend and comes at higher police, court and prison related costs to the State. Also of concern is the higher incidence of behavioral problems, repeated school grades and drug related mental disorders associated with cannabis use especially among the youth.

This indicates that the current legal framework is ineffective at curtailing use and there are other factors driving the underlying trends. Given the high enforcement, economic and social costs associated with the existing regime, Saint Lucia, together with other CARICOM countries, are exploring alternative regulatory options. These include models of decriminalization (Model 1), legalizations within a competitive market framework (Model 2) and legalization with state control (Model 3). This study evaluated the costs and benefits on the various models to identify the optimal regulatory framework for implementation in Saint Lucia.

The first part of the analysis investigated the impact of the proposed models on consumption and prices within an economic theoretical framework. According to the results, the impact on consumption was the largest under Model 2 and the lowest under Model 1. Accordingly, prices were lower under Model 2 and higher under Model 1. Under Model 3, the Government can mitigate expected increase in consumption through price control or quantity restrictions. This objective may also be achieved through taxes on cannabis consumption. However, state control in the market may lead to an artificial inflation in prices, which may provide an incentive for consumers to purchase from the illegal market. Therefore, the Government must set prices and or taxes at an optimal level that minimizes the social costs of increased use especially among young people, while curtailing black market operations and the related negative effects on crime.

The evidence from country studies supported the results predicted by the theoretical model of an increase in consumption following decriminalization and legalization. However, there was no clear evidence that the increase in consumption was lower under decriminalization as compared to legalization. The experience with prices were also in line with the theoretical model. Decriminalization led to no significant change in prices because under this model supply would still be illegal. Therefore, there would be no change in the cost of production of the Seller, which heavily influences market prices. The dynamics of supply and demand led to significant decline in prices in US States where cannabis have been legalized.

The empirical data also seem to support the expectation that decriminalization and legalization would result in a lower number of cannabis related arrests and cases before the courts, however the impact on crime is still uncertain. Concerning the effect on vehicular accidents, a number of US States reported an increase in cannabis related traffic fatalities following legalization, however Uruguay reported a decline in accidents stemming from their strict policies and penalties for driving under the influence.

The results of the costs benefit analysis estimated annual total cost to the Saint Lucian economy from prohibition and criminalization at \$3.6 million, of which annual enforcement costs were \$2.4 million. If cannabis were legalized, this amount would be better reallocated to fight more serious crimes. The net benefits from decriminalization were 43 percent higher than the present regime, with a 21 percent reduction in enforcement costs. However, this model does not provide the significant

added economic benefits of employment, revenue generation and value added realized under legalization.

The study shows that the legalization models offer significantly higher benefits than the status quo and decriminalization. The results of the CBA found that Model 2 yielded the highest net benefit at \$53.6 million with value added, employment and wages and revenue generating \$426.9 million, \$45.9 million and \$83.0 million respectively. While the net benefits under Model 2 was the highest, it was also associated with the highest social and health costs of \$0.847 million. According to the results of the theoretical model and country studies, Model 2 also comes with higher prevalence of use and higher incidence of drug related accidents. However, the significant amount of revenue generated from this model can allow for the implementation of social programs to prevent and mitigate the adverse health and social effects of cannabis use.

The potential benefits from the legalization of cannabis for industry is especially significant given the context of the current macro-economic and fiscal environment in Saint Lucia. Legalization provides an opportunity to grow the economy by about 9.8 percent and reduce the unemployment rate from 20.2 percent in 2018 to 18.2 percent. It also allows the government to expand revenue collection by 6.9 percent and improve the fiscal balance from an overall deficit to a surplus of \$25 million. This allows more fiscal space to reduce the current high levels of public debt and to address socio-economic challenges such as poverty and crime. The establishment of a cannabis industry also allows Saint Lucia to expand its export potential and reduce its trade deficit for greater macro-economic stability on its external accounts.

As Saint Lucia advances a cannabis reform agenda, the implications for international conventions must be considered. The design of the regulatory should also be guided by evidence and framed within the country specific context. Data collection systems must be established to track processes and outcomes to inform policy formulation. In the case of Saint Lucia, the incidence of cannabis use is higher in males and in marginalized populations. These underlying socio-economic factors must be considered in the design.

Additionally, in choosing an optimal model, the Government must balance competing policy objectives as there are trade-offs to all the model options. Higher prices may lead to more government revenue but at the cost of increased black market activity and crime, while lower prices may lead to higher prevalence of use, higher social

costs but lower black market activity. However, regardless of the legalization model chosen, the regulatory framework should include the guidelines recommended in 2018 CARICOM report to minimize the adverse social effects. These include age limits to prohibit cannabis use among children and young people; public education programs to raise awareness of the associated risk of cannabis use; restrictions on public smoking; restrictions on advertising; limits of allowable THC content in products; and the introduction of drug driving regulations.

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APPENDIX

Table 24: Proxy Variables and Estimation Formulas

Costs/Benefits Proxy Variables	Data Variables	Estimation Formula	Data Sources
1. Enforcement			
Police (P)	Total No. of Crimes Detected (A)	$P = (C/A)*B$	Royal Police Force, 2018
	Total No. of Cannabis Related Crime Detected (B)		Royal Police Force, 2018
	Total Operational Cost of Police Services (C)		Estimates of Revenue and Expenditure (2018)
Courts (C)	Total No. of Crime Cases Processed Annually by District Courts (D)	$C = (F/D)*E$	Estimates of Revenue and Expenditure (2016)
	Total No. of Cannabis Related Cases Processed by the District Courts (E)		Authors Calculation
	Total Operational Costs of District Courts (F)		Estimates of Revenue and Expenditure (2016)
Forensics (F)	1. Total No. of Cases Processed Annually (G)	$F = (I/G)*H$	Estimates of Revenue and Expenditure (2016)
	2. Total No. of drug related cases Processed (H)		Estimates of Revenue and Expenditure (2016)
	3. Total Operational Costs of Lab(I)		Estimates of Revenue and Expenditure (2016)
Prison (Pr)	Total Prison Population (J)	$Pr = L/J*K$	Bordelais Correctional Facility
	Total No. of Prisoners for Cannabis related Offences (K)		Bordelais Correctional Facility
	Total Prison Operational Costs (L)		Estimates of Revenue and Expenditure (2018)
2. Health and Treatment Costs			
Mental Health (H)	Total No. of Patients Admitted (A)		National Mental Wellness Centre
	No. of Patients Admitted for Cannabis related mental disorders (B)		National Mental Wellness Centre
	Total Operational Costs of Mental Wellness Centre (C)	$H = (C/A)*B$	Estimates of Revenue and Expenditure (2018)
3. Employment and Wages			
Loss Wages due to Incarceration (WL)	No. of Prisoners for Cannabis related Offences		Bordelais Correctional Facility
	Employment Profile	Average Wage by Sector* No. of Prisoners employed by in Sector	Bordelais Correctional Facility
	Wages by Economic Sector		2018 Labour Force Survey

Table 25: Estimation of Enforcement Costs Under Model 0 (Status Quo)

Cost/Benefits Proxy Variables	Total
A. Police Costs	
Total No. of Crimes Detected	10767
Total No. of Cannabis Related Crime Detected	268
Total Operational Cost of Police Services	\$45,354,288
Total Police Cost for Cannabis Offences	\$1,128,908
B. Court Related Costs	
Total No. of Crime Cases Processed Annually by District Courts* (2016)	1164
Total No. of Cannabis Related Cases Processed by the District Court**	23
Total Operational Costs of District Courts (2016)	\$3,665,077
Total Court Related Costs	\$73,302
C. Forensics Services	
Total No. of Cases Processed Annually (2016)	128
Total No. of Cannabis drug related cases Processed (2016)	118
Total No. of Cannabis related Cases Processed*	97
Total Operational Costs of Lab (2016)	\$751,515
Total Forensics Costs For Cannabis Related Cases	\$567,802
D. Prison Costs	
Total Prison Population	500
Total No. of Prisoners for Cannabis related Offences	34
Total Prison Operational Costs	\$9,620,140
Prison Costs for Cannabis Offenders	\$654,170
Total Administrative and Enforcement Costs	\$2,424,181

*Most Cannabis related cases are processed by the First or Second District Courts

**Author Estimates based on ratio of Cannabis Related Arrests to Total Arrests

***Author Estimates of the ratio of Cannabis related offences to Total Drug Related Offences

Table 26: Estimation of Unlawful Possession Offences Under Model 1

Methodology and Assumptions	Values
Estimated Prevalence Rate in General population ages 15-64	8.9%*
No. of Unlawful Possession Crimes Detected at assuming Prevalence Rate of 8.9%	142
2018 Population (15-64)**	128,831
Estimated Prevalence in Selected Population at rate of 8.9%	11,466
Ratio: Unlawful Possession Offences / Prevalence in Selected Population (%)	1.24%
Assume 2 Percentage Point Increase In Prevalence	10.90%
2018 Population (20 and above)***	132,368
Estimated Prevalence in Selected Population at rate of 10.9%	14,428
Estimated Number of Unlawful Offences Detected Applying Current Ratio	179

*Source: 2010 estimate in UN Drug Report Database

** 2018 Labour Force Survey, Central Statistics Office

*** The age defined in the regulation was 18 years however the age groups in the Labour Force Survey are categorized in 5 year intervals

Table 27: Mental Health and Treatment Cost Estimates Under Models 1-3

		Assumptions		
Model	Variables	Details	Values	Total
1	1. Price per Patient Admitted	Assume price per patient remains the same		\$4,794
	2. Estimated No. of Cannabis Related Admissions	Cannabis Related Admissions at Prevalence Rate of 8.9 percent	81	
		2018 Population (15-64)	128,831	
		Estimated Prevalence in Population (15-64) at rate of 8.9%	11,466	
		Ratio: Cannabis Related Admissions / Prevalence in selected Population (%)	0.71%	
		Assume 2 Percentage Point Increase In Prevalence	10.9%	
		2018 Population (20 and above)	132,368	
		Estimated Prevalence in Selected Population at rate of 10.9%	14,428	
		Estimated No. of Cannabis Related Case at Prevalence Rate of 10.9%	102	
		Total Health and Treatment Costs (Model 1)		
2	1. Price per Patient Admitted	Assume price per patient remains the same		\$4,794
	2. Estimated No. of Cannabis Related Admissions	Assume 10 percentage point increase in prevalence	18.90%	
		Estimated Prevalence in Selected Population at rate of 18.9%	25,018	
		Estimated No. of Cannabis Related Case at Prevalence Rate of 18.9%	177	
		Total Health and Treatment Costs (Model 2)		

3	Price per Patient Admitted	Assuming price per patient remains the same		\$4,794
	Estimated No. of Cannabis Related Admissions	Assume 5 percentage point increase in prevalence	13.90%	
		Estimated Prevalence in Selected Population at rate of 13.9%	18,399	
		Estimated No. of Cannabis Related Case at Prevalence Rate of 13.9%	130	
	Total Health and Treatment Costs (Model 3)			\$623,116

Table 28: Employment and Wages Estimates Under Model 2

Value Chain	Employees	No. of Employees	Annual Wages	Total	Assumptions/ Comments
Cultivation	Farmers	2000	\$22,140	\$44,280,000	1 acre per farmer
					1 acre=360lbs of dry flowers and leaf
					Price=\$205 per pound
					Total Annual Earnings : 73,800
					Assume Wages is 30% of Total Earning
Cooperative	Manager	1	\$96,000	\$96,000	1 Cooperative
	Sale Clerk	2	\$22,918	\$45,836	
	Admin Clerk	1	\$24,910	\$24,910	
Manufacturing	General Manager	1	\$126,750	\$126,750	Earning based on Private Sector Salary Estimates
	Plant Manager	1	\$97,248	\$97,248	
	Machine Operators	2	\$54,000	\$108,000	
	Technicians	2	\$75,392	\$150,784	
	Labourers	4	\$16,119	\$64,475	1 Firm
	Sales and Marketing Manager	1	\$90,000	\$90,000	
	Human Resource and Admin Manager	1	\$84,000	\$84,000	
	Accountant Clerks	4	\$24,910	\$99,640	
Retail	Sale Clerks	2	\$22,918	\$45,836	5 Retailers
Enforcement:					
Cannabis Regulatory and Enforcement Division	Executive/Managerial	2	\$75,747	\$151,495	Earning based on Public Service Salary Data
	Technical	3	\$55,787	\$167,361	
	Admin Support	1	\$26,968	\$26,968	
Tax Administration:					
IRD Department	Tax Officers	2	\$55,788	\$111,576	
	Tax Inspectors	1	\$39,625	\$39,625	
Total		2032		\$45,894,504	

Table 29: Employment and Earning Estimates Under Model 3

Value Chain	Employees	No. of Employees	Annual Wages	Total	Assumptions/ Comments
Cultivation	Farmers	2000	\$22,140	\$44,280,000	1 acre per farmer
					1 acre=360lbs of dry flowers and leaf
					Price=\$205 per pound
					Total Annual Earnings : 73,800
					Assume Wages is 30% of Total Earning
Manufacturing	General Manager	1	\$126,750	\$126,750	Earning based on Private Sector Salary Estimates
	Plant Manager	1	\$97,248	\$97,248	
	Machine Operators	2	\$54,000	\$108,000	
	Technicians	2	\$75,392	\$150,784	
	Labourers	4	\$16,119	\$64,476	1 Manufacturing Firm
	Sales and Marketing Manager	1	\$90,000	\$90,000	
	Human Resource and Admin Manager	1	\$84,000	\$84,000	
	Accountant	1	\$84,000	\$84,000	
	Clerks	4	\$24,910	\$99,640	
Retail	Sale Clerks	2	\$22,918	\$45,836	5 Retailers
Statutory Body	General Manager	1	\$103,194	\$103,194	
	Human Resource and Admin Manager	1	\$63,772	\$63,772	
	Accountant	1	\$63,772	\$63,772	
	Regulations Supervisor	1	\$71,755	\$71,755	
	Regulators	3	\$54,163	\$162,489	

	Taxation Supervisor	1	\$71,755	\$71,755	
	Tax Officers	2	\$54,163	\$108,326	
	Clerks	3	\$26,969	\$80,907	
	Admin Support	3	\$19,570	\$58,710	
Cooperative	Manager	1	\$96,000	\$96,000	1 Cooperative
	Sale Clerk	2	\$22,918	\$45,836	
	Admin Clerk	1	\$24,910	\$24,910	
Total		2039		\$46,182,160	

Table 30: Revenue Estimates for Licenses and Taxes Under Model 2

Tax Category	Rate	Total	Assumptions	Source
Farm Gate Tax	\$50 per Kg	\$16,822,800	Cannabis Production: 1. Manufacturing=720,000lbs/326,587 kg 2. Retail =9,869 kg Total=336,456 kg (See below for demand estimates for Local and Tourist markets in grams. Grams were converted to Kg)	Lab Report
License Fees			1 Farmer per acre	Lab Report
Farmers	\$500 per acre per Annum	\$1,000,000	2000 farmers	Lab Report
Retailers	\$1,000 per annum	\$5,000	5 Retailers	Author
Manufacturer	\$5,000 per annum	\$5,000	1 Manufacturer	Author
Cooperatives	\$2,000 per annum	\$2,000	1 Cooperative	Author
Excise Tax	\$3.49/ litre	\$4,559,148	1 gram of dried flowers and leaf produces about 4ml of CBD oil 720,000lbs=326,586,506 grams of cleaned and dried flowers and leaf , which produces 1,306,346 litres of CBD oil	Cannabinoid Information Platform Author's Calculation
Corporate Tax	30% of Profit	\$47,616,312	Expected Revenue: \$ 529,070,130 Estimated gross profit margin: 30 percent = \$158,721,039	Based on Sales (See Table 34) Benchmarked on Average Gross Profit Margin for CBD Unlimited
Cannabis Sales Tax				
Domestic Market	15%	\$6,163,810	Increase in prevalence by 10 percentage points due to legalization= 18.9%	Author
			2018 Population (20 and above) =132,368 people	Central Statistics Office
			Estimate of Usage at rate of 18.9%=25,018 people	
			Usage: 1 gram per person per day	
			Annual Demand= 9,131,570 grams	
Tourist Market	15%	\$497,607	Expenditure: \$4.5/gram	Lab Report
			Total Visitors (2018): 1,228,662	2018 Social and Economic Review
			Usage: 5% Visitors (61,433)	Lab Report
			Expenditure: US\$20 per visitor	
		Annual Demand=737,196 grams	Lab Report	
VAT				
Local Market	12.50%	\$5,136,508	Same As above	
Tourist Market		\$414,673		
Total		\$82,222,857		

Table 31: Revenue Estimates for Licenses and Taxes Under Model 3

Tax Category	Rate	Total	Assumptions	Source
Farm Gate Tax	\$50 per Kg	\$16,665,750	Cannabis Production:	
			Manufacturing=720,000lbs/326,587 kg Retail =6,728 kg Total=333,315 kg (See below for demand estimates for Local and Tourist markets in grams. Grams were converted to Kg)	
License Fees			1 Farmer per acre	Lab Report
Farmers	\$500 per acre per Annum	\$1,000,000	2000 farmers	Lab Report
Manufacturer	\$5,000 per annum	\$5,000	1 Manufacturer	Author
Excise Tax	\$3.49 litre	\$4,559,148	1 gram of dried flowers and leaf produces about 4ml of CBD oil	Cannabinoid Information Platform
			720,000lbs=326,586,506 grams of cleaned and dried flowers and leaf , which produces 1,306,346 litres of CBD oil	
Corporate Tax	30% of Profit	\$47,616,312	Expected Revenue: \$ 529,070,130	Based on Sales (See Table 35)
			Estimated gross profit margin: 30 percent = \$158,721,039	Benchmarked on Average Gross Profit Margin for CBD Unlimited
Cannabis Sales Tax				
Local Market	15%	\$5,036,726	Increase in prevalence by 5 percentage points due to legalization= 13.9%	Author
			2018 Population (20 and above) =132,368 people	Central Statistics Office
			Estimate of Usage at rate of 13.9%=18,399 people	
			Usage: 1 gram per person per day Annual Demand=6,715,635 grams	
			Expenditure: \$5 per gram	Lab Report
Tourist Market	15%	\$497,608	Total Visitors (2018): 1,228,662	2018 Social and Economic Review
			Estimated Usage: 5% Visitors (61,433)	Lab Report
			Expenditure: US\$20 per Visitor Annual Demand= 12,287 grams	Lab Report
VAT				
Local Market	12.50%	\$4,197,272	Same As Above	
Tourist Market	12.50%	\$414,673	Same As Above	
Total		\$79,992,488		

Table 32: Revenue Estimates for Personal Income Tax Under Model 2

Value Chain	Employees	No. of Employees	Annual Wages	Taxable Income After Deductible	Tax Collection Band 1 (10%)	Taxes Collection Band 2 (15%)	Taxes Collected Band 3 (20%)	Taxes Collected Band 4 (30%)	Taxes Collected/ Person	Total Annual Taxes
Cultivation	Farmers	2,000	\$22,140	\$3,740	\$374	\$0	\$0	\$0	\$374	\$748,000
Cooperative	Manager	1	\$96,000	\$77,600	\$1,000	\$1,500	\$2,000	\$14,280	\$18,780	\$18,780
	Sale Clerk	2	\$22,918	\$4,518	\$452	\$0	\$0	\$0	\$452	\$904
	Admin Clerk	1	\$24,910	\$6,510	\$651	\$0	\$0	\$0	\$651	\$651
Manufacturing	General Manager	1	\$126,750	\$108,350	\$1,000	\$1,500	\$2,000	\$23,505	\$28,005	\$28,005
	Plant Manager	1	\$97,248	\$78,848	\$1,000	\$1,500	\$2,000	\$14,654	\$19,154	\$19,154
	Machine Operators	2	\$54,000	\$35,600	\$1,000	\$1,500	\$2,000	\$1,680	\$6,180	\$12,360
	Technicians	2	\$75,392	\$56,992	\$1,000	\$1,500	\$2,000	\$8,098	\$12,598	\$25,195
	Labourers	4	\$16,119	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Sales and Marketing Manager	1	\$90,000	\$71,600	\$1,000	\$1,500	\$2,000	\$12,480	\$16,980	\$16,980
	Human Resource and Admin Manager	1	\$84,000	\$65,600	\$1,000	\$1,500	\$2,000	\$10,680	\$15,180	\$15,180
	Accountant	1	\$84,000	\$65,600	\$1,000	\$1,500	\$2,000	\$10,680	\$15,180	\$15,180
	Clerks	4	\$24,910	\$6,510	\$651	\$0	\$0	\$0	\$651	\$2,604
Retail	Sale Clerks	2	\$22,918	\$4,518	\$452	\$0	\$0	\$0	\$452	\$904
Enforcement:										
Cannabis Regulatory and Enforcement Division	Executive/Managerial	2	\$75,747	\$57,347	\$1,000	\$1,500	\$2,000	\$8,204	\$12,704	\$25,408
	Technical	3	\$55,787	\$37,387	\$1,000	\$1,500	\$2,000	\$2,216	\$6,716	\$20,148
	Admin Support	1	\$26,968	\$8,568	\$857	\$0	\$0	\$0	\$857	\$857
Tax Administration:										
IRD Department	Tax Officers	2	\$55,788	\$37,388	\$1,000	\$1,500	\$2,000	\$2,216	\$6,716	\$13,433
	Tax Inspectors	1	\$39,625	\$21,225	\$1,000	\$184	\$0	\$0	\$1,184	\$1,184
Total										\$964,927
Less Provision for Allowances (20%)										\$771,941

Table 33: Revenue Estimates for Personal Income Tax Under Model 3

Value Chain	Employees	No. of Employees	Annual Wages	Taxable Income After Deductible	Tax Collection Band 1 (10%)	Taxes Collection Band 2 (15%)	Taxes Collected Band 3 (20%)	Taxes Collected Band 4 (30%)	Taxes Collected/ Person	Total Annual Taxes
Cultivation	Farmers	2,000	\$22,140	\$3,740	\$374	\$0	\$0	\$0	\$374	\$748,000
Manufacturing	General Manager	1	\$126,750	\$108,350	\$1,000	\$1,500	\$2,000	\$23,505	\$28,005	\$28,005
	Plant Manager	1	\$97,248	\$78,848	\$1,000	\$1,500	\$2,000	\$14,654	\$19,154	\$19,154
	Machine Operators	2	\$54,000	\$35,600	\$1,000	\$1,500	\$2,000	\$1,680	\$6,180	\$12,360
	Technicians	2	\$75,392	\$56,992	\$1,000	\$1,500	\$2,000	\$8,098	\$12,598	\$25,195
	Labourers	4	\$16,119	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Sales and Marketing Manager	1	\$90,000	\$71,600	\$1,000	\$1,500	\$2,000	\$12,480	\$16,980	\$16,980
	Human Resource and Admin Manager	1	\$84,000	\$65,600	\$1,000	\$1,500	\$2,000	\$10,680	\$15,180	\$15,180
	Accountant	1	\$84,000	\$65,600	\$1,000	\$1,500	\$2,000	\$10,680	\$15,180	\$15,180
Clerks	4	\$24,910	\$6,510	\$651	\$0	\$0	\$0	\$651	\$2,604	
Retail	Sale Clerks	2	\$22,918	\$4,518	\$452	\$0	\$0	\$0	\$452	\$904
Statutory Body	General Manager	1	\$103,194	\$84,794	\$1,000	\$1,500	\$2,000	\$16,438	\$20,938	\$20,938
	Human Resource and Admin Manager	1	\$63,772	\$45,372	\$1,000	\$1,500	\$2,000	\$4,612	\$9,112	\$9,112
	Accountant	1	\$63,772	\$45,372	\$1,000	\$1,500	\$2,000	\$4,612	\$9,112	\$9,112
	Regulations Supervisor	1	\$71,755	\$53,355	\$1,000	\$1,500	\$2,000	\$7,007	\$11,507	\$11,507
	Regulators	3	\$54,163	\$35,763	\$1,000	\$1,500	\$2,000	\$1,729	\$6,229	\$18,687
	Taxation Supervisor	1	\$71,755	\$53,355	\$1,000	\$1,500	\$2,000	\$7,007	\$11,507	\$11,507
	Tax Officers	2	\$54,163	\$35,763	\$1,000	\$1,500	\$2,000	\$1,729	\$4,229	\$8,458
	Clerks	3	\$26,969	\$8,569	\$857	\$0	\$0	\$0	\$857	\$2,571
Admin Support	3	\$19,570	\$1,170	\$117	\$0	\$0	\$0	\$117	\$351	
Cooperative	Manager	1	\$96,000	\$77,600	\$1,000	\$1,500	\$2,000	\$14,280	\$18,780	\$18,780
	Sale Clerk	2	\$22,918	\$4,518	\$452	\$0	\$0	\$0	\$452	\$904
	Admin Clerk	1	\$24,910	\$6,510	\$651	\$0	\$0	\$0	\$651	\$651
Total										\$996,137
Less Provision for Allowances (20%)										\$796,910

Table 34: Calculation of Value of Output Per Sector Under Model 2

Sector	Price	Volume	Unit	Total	Assumptions/ Notes
Agriculture	\$205	741,757	lbs.	\$152,060,271	See Table 30 for Assumptions and Data Source
					Sells to Manufacturer:720,000 lbs.
					Sells to Retailers: 9,869 kg/21,757lbs (Demand from Locals and Tourist)
					Total lbs.=741,757lbs
Manufacturing	\$405	1,306,346	Litre	\$529,070,130	CBD Oil Extraction Facility
					The price of CBD Oil varies and are on average US\$150/Litre=EC\$405 (US\$1=EC\$2.7)
					https://naturalwellnesscbdOil.com/blog/average-cbd-oil-prices/
					See Table 30 for Volume Assumptions
Retail					
Local Market	\$4.50	9,131,570	Grams	\$41,092,065	Based on Demand. See Table 30 for details
Tourist Market	\$54	61,433	Visitors	\$3,317,382	Based on Demand. See Table 30 for details
Total				\$725,539,848	

Table 35: Calculation of Value of Output Per Sector Under Model 3

Sector	Price	Volume	Unit	Total	Assumptions/ Notes
Agriculture	\$205	734,833	lbs.	\$150,640,765	Cannabis Production
					See Table 31 for assumptions and data source
					Sells to Manufacturer: 720,000lbs
					Sells to Retailers: 6,728 kg/14,833 lbs (Demand from Locals and Tourists)
					Total=734,833lbs
Manufacturing	\$405	1,306,346	Litres	\$529,070,130	CBD Oil Extraction Facility The price of CBD Oil varies and are on average US\$150/Litre=EC\$405 (US\$1=EC\$2.7)
					https://naturalwellnesscbdoin.com/blog/average-cbd-oil-prices/
					See Table 31 for Volume Assumptions
Cooperative					
Local Market	\$5	6,715,635	Grams	\$33,578,175	Based on Demand. See Table 31 for details
Tourist Market	\$54	61,433	Visitors	\$3,317,382	Based on Demand. See Table 31 for details
Total				\$716,606,452	

Table 36: Value Added By Sector Under Model 2

Sector	Value of Output	Cost of Inputs	Taxes	Value Added	Assumptions
Agriculture	\$152,060,271	\$44,280,000	\$16,822,800	\$90,957,471	Value of Output: See Table 34
					Cost of Inputs= Wages and Salaries (See Table 28)
					Taxes: See Table 30
Manufacturer	\$529,070,130	\$168,604,897	\$52,175,459	\$308,289,774	Value of Output: See Table 34
					Cost of Inputs:
					1. Intermediate Inputs: 720,000lbs of Cannabis @\$205/lb=\$147,600,000
					2. Wages and Salaries= \$904,897 See Table 28
					3.Capital Costs= \$20.1 Million See Lab Report
					Taxes: See Table 30
					Excise Tax=\$4,559,148 Corporate Tax=\$47,616,312
Retail	\$44,409,447	\$4,570,803	\$12,212,598	\$27,626,046	Value of Output- Table 34
					Cost of Inputs:
					1. Intermediate Inputs: 21,757 lbs of cannabis @205/lb. lb.=\$4,460,185
					2. Wages and Salaries= \$212,582 (retail and cooperative) See Table 28,
				Taxes: Table 30	
Total				\$426,873,291	

Table 37: Value Added By Sector Under Model 3

Sector	Value of Output	Cost of Inputs	Taxes	Value Added	Assumptions
Agriculture	\$150,640,765	\$44,280,000	\$16,665,750	\$89,695,015	Value of Output: See Table 35
					Cost of Inputs= Wages and Salaries (See Table 29)
					Taxes: Table 31
Manufacturer	\$529,070,130	\$168,604,897	\$52,175,459	\$308,289,774	Value of Output: See Table 35
					Cost of Inputs:
					1. Intermediate Inputs: 720,000lbs of Cannabis @\$205/lb=\$147,600,000
					2. Wages and Salaries= \$904,897 See Table 29
					3. Capital Costs= \$20.1 Million See Lab Report
					Taxes: See Table 31
					Excise Tax=\$4,559,148 Corporate Tax=\$47,616,312
Retail	\$36,895,557	\$3,086,601	\$10,146,279	\$23,662,677	Value of Output: Page 35
					Cost of input:
					1. Intermediate Inputs: 14,833lbs of Cannabis @\$205/lb=\$3,040,765
					2. Wages and Salaries= \$45,836 (See Table 29)
				Taxes: Table 31	
Total				\$421,647,466	

TERMS OF REFERENCE

CONSULTANT FOR THE ECONOMIC ANALYSIS OF THE REGULATION OF THE CANNABIS INDUSTRY

SECTION 1: BACKGROUND

The Government of Saint Lucia is committed to regulating the laws on cannabis and to create a system with strict controls on the sale and production of cannabis. The government is equally committed to enable the country to produce and cultivate medicinal cannabis and to establish a cannabis industry which will provide relief for individuals suffering from a range of medical conditions and has the potential to positively impact rural livelihoods and communities. To this end, a Cannabis Commission was established by Cabinet on July 29, 2019 to review the laws on cannabis and make recommendations on a new legislative framework and the enabling environment, to guide the cannabis industry.

1.1 Main objectives of the Saint Lucia Commission for the Regulation of Cannabis:

- 1) Conduct rigorous enquiry into the social, health, economic and legal issues surrounding cannabis in Saint Lucia;
- 2) Engage governments, organizations, youth and experts in relevant fields with expertise in production, distribution and sales and seek their views on issues fundamental to a legislative and regulatory system for restricted access to cannabis;
- 3) Provide opportunities for all Saint Lucians to offer their views on key questions related to cannabis.
- 4) Recommend changes to the Drugs (Prevention of Misuse) Act Chapter 3.02 and other relevant legislation to create a regulated environment that minimizes harms and maximizes benefits associated with cannabis.

1.2 The Commission's Scope of Works is guided by the following:

Protect Saint Lucians by keeping cannabis out of the hands of children and youth.

1. Keep profits out of the hands of criminals, particularly gang-related.
2. Reduce the burdens on the police and the justice system associated with simple possession of cannabis offences.
3. Prevent Saint Lucians from entering the criminal justice system and receiving criminal records for simple possession of cannabis offences.
4. Protect public health and safety by strengthening laws and enforcement measures that deter and punish more serious cannabis offences particularly selling and distributing to children and youth, selling outside the regulatory framework and driving under the influence of cannabis.
5. Ensure Saint Lucians are well-informed and provide appropriate public health campaigns for youth in particular to understand the risks involved in cannabis use.
6. Establish a system of strict production, distribution and sales, taking a public health approach, with regulation of quality and safety, restriction of access and application of taxes with support for treatment, mental health and education programs.
7. Provide access to quality-controlled cannabis for medical and scientific purposes.

SECTION 2: OBJECTIVE

The overall objective of this consultancy is to undertake an economic analysis of the outcomes of various models of regulation of cannabis. The specific objective is to contribute toward the timely submission of the recommendation of the Cannabis Commission.

SECTION 3: SCOPE OF WORKS

Cognizant of the fact that costs, savings and potential revenues may be dependent on the model of regulation utilized, the consultant shall undertake the economic analysis with consideration for each model of regulation:

- Decriminalization of marijuana use only: In this model, the use/possession of large amounts, production, and sale of marijuana

remain illegal. Possession of small amounts will no longer be considered a criminal offence and offenders will be fined, rather than face arrest/possible incarceration.

- Full legalization of marijuana production, sale and use, with state control: Here, the government controls the marijuana industry i.e. cultivation, processing, and sale of marijuana. The retail price of marijuana is set by the state, which has strict control of all levels of the supply chain.
- Full legalization of marijuana production, sale, and use within a competitive market framework: Under this model, the price and quantity are determined by the forces of demand and supply, under the free market system, with some regulations.

In the formulation of the recommendations, the consultant should utilize sources including, but not limited to, the following:

- The Saint Lucia Social and Economic Labs -Agriculture Key Results Area Report
- Report of the CARICOM Regional Commission on Marijuana 2018
- Reports from the other Consultants engaged by the Cannabis Commission

The consultant may also undertake research not specified in the, however, is deemed necessary.

The consultant is expected to, at minimum:

- 1) Examine incarceration patterns in St. Lucia as a result of cannabis including the percentage of the prison population incarcerated for cannabis related offences (of a non-violent nature).
- 2) Examine the economic benefits, costs and net benefits that may accrue as a result of a regulated cannabis industry in Saint Lucia. The analysis should indicate, based on empirical evidence, which model would result in the greatest economic benefit. Results of costs and benefits should be

presented according to the three specific models. Evidence should be provided to compare the economic benefits of prohibition versus that of the three established models of regulation.

Specific categories of benefits should include, but not be limited to:

- Government revenues from cannabis related licence fees, taxes, charges.
- Employment and other relevant economic variables
- Averted costs
 - Police: cannabis related arrests for possession, cultivation and trafficking
 - Courts: costs incurred by the courts for cannabis related offences
 - Prison: incarceration of prisoners for cannabis related arrests
 - Lost wages from cannabis related arrests and incarceration

Specific categories of costs should include, but not be limited to:

- Impact on health costs: Additional cost of marijuana abuse treatment requests
- 3) Analyse costs of implementation and enforcement of the specific model of regulation; and the impact on price of cannabis and the black market
 - 4) Quantification of the introduction of industrial hemp as a commodity, differentiated from other forms of cannabis to a vibrant industry
 - 5) Where a data is not readily available (for example, marijuana related accidents), the consultant is expected to recommend a methodology to capture the data.

SECTION 4: PROCEDURAL MATTERS

- The consultant shall report to the Chair of the Cannabis Commission, Mr. Michael Gordon, for the acceptance and approval of the deliverables and invoice payments

- The Secretariat of the Cannabis Commission (Invest Saint Lucia) shall provide logistical and administrative support and shall be responsible for the coordination of activities under this consultancy. All written communication should be directed to the secretariat

SECTION 5: DELIVERABLES AND PAYMENT SCHEUDLE

6.1 SCHEDULE

Deliverable	Deadline
Inception report presented to the Cannabis Commission detailing the methodology/approach for the completion of time frame and the assignment of duties	One week from start date: December 10, 2019
Draft report submitted to the Cannabis Commission detailing key findings	December 17, 2019
Final report submitted to the Cannabis Commission detailing key findings, incorporating comments and suggestions from the Cannabis Commission	December 20, 2019

PAYMENT

Deliverable	Payment
Inception report submitted to the Cannabis Commission detailing the methodology/approach for the completion of time frame and the assignment of duties	10%

Draft report to the Cannabis Commission detailing key findings,	40%
Present a final report to the Cannabis Commission detailing key findings, incorporating comments and suggestions from the Cannabis Commission	50%
TOTAL	100%

SECTION 7: DURATION

The overall duration of the consultancy will run from 10 December to 20 December, 2019.