

UNDERSTANDING CREATIVE CANADA

CULTURAL POLICY, PUBLIC SENTIMENT,
AND DIGITAL TAX REFORMS

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AND DIGITAL TAX REFORMS

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ABSTRACT

In recent years, Canada legislated the most significant amendments to cultural policy in over a generation aimed at addressing a policy drift amid digital disruption. With wide criticism for these reforms, they are assumed have garnered negative reception in absence a digital tax; however, the legal intricacies of often inconsistent, and overlapping digital tax measures advocated for in Canada remain largely unexamined.

Against this background, the OECD/G20 are anticipated to implement the most fundamental overhauling of the international tax system in over a century, with a focus on addressing the tax challenges arising from the digitalisation of the economy. Recognizing that for a solution to be delivered in the coming year, there will need to be a consensus reached by OECD/G20 member countries by July 2021, this study considers the contingency of effective reforms, and alternative measures under consideration by the Government of Canada.

Evidence suggests that a solution to today's digital tax challenges is perhaps a caveat for addressing the issues of Canada's cultural policy that center upon its failure to keep pace with the digital creative economy. Observations consider the bearing equitable taxation has on the Canadian government's general tax revenues necessary to fund direct spending programs. In order to link industry-specific government spending with industry-specific behaviour, underlying ties between new Canadian media and digital taxation are investigated, so as to examine opportunities for sustainable cultural policy and funding in the Canadian context.

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LIST OF ABBREVIATIONS AND ACROYNMS

ALP	Arm's Length Principle
ASU	Accounting Standards Update
AV	Ad Valorem
ADS	Automated Digital Services
BEAT	Base Erosion and Anti-Abuse Tax
BEPS	Base Erosion and Profit Shifting
BoC	Bank of Canada
BTLR	Broadcasting and Telecommunications Legislative Review
CCPF	Creative Canada Policy Framework
CbCR	Country-by-Country Reporting
CFB	Consumer-Facing Businesses
CFC	Controlled Foreign Company
CIT	Corporate Income Tax
CHRC	Culture Human Resources Council
CMF	Canadian Media Fund
CMPA	Canadian Media Producers Association
CPTC	Canadian Film or Video Production Tax Credit
CRA	Canada Revenue Agency
CRTC	Canadian Radio Television and Telecommunications Commission
CODM	Chief Operating Decision Maker
DST	Digital Services Tax
ETR	Effective Tax Rate
FASB	Financial Accounting Standards Board
FDI	Foreign Direct Investment
FSI	Finance Secrecy Index
FP	Functional Programming
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
GST	Goods and Services Tax
HST	Harmonized Sales Tax
IFRS	International Financial Reporting Standards
IP	Intellectual Property
ISP	Internet Service Provider
IRS	Internal Revenue Services
MNE	Modern Monetary Theory
MMT	Multinational Enterprise
NLP	Natural Language Processing
OECD	Organization for Economic Co-operation and Development
OOP	Object-Oriented Programing
PBO	Canadian Parliamentary Budget Officer
PSTC	Film and Video Production Services Tax Credit
PE	Permanent Establishment
SEC	Quantitative Easing
SEC	Securities and Exchange Commission
SVOD	Subscription Video On-Demand
USTR	United States Trade Representative
VAT	Value-Added Tax
WHT	Withholding Tax

1. INTRODUCTION

1.1 RESEARCH DEVELOPMENT

1.1.1 STUDY BACKGROUND

In 2017, the Government of Canada's Department of Canadian Heritage, responsible for strategic policy associated with cultural affairs, legislated the most significant amendments to Canada's cultural policy in over a generation by launching the Creative Canada Policy Framework (CCPF) with the aim of addressing a policy *drift* amid digital disruption;¹ however, its failure to address the tax challenges arising from the digitalisation of the economy has resulted in the undertaking of this *gap* by the Organization for Economic Co-operation and Development (OECD)/G20 Inclusive Framework on Base Erosion and Profit Shifting (BEPS). Granted that the international tax system originated under the auspices of the League of Nation more than a century ago, similar to Canada's cultural policy, it has failed to keep pace the current digital economy.² For this reason, the Inclusive Framework brings together over 125 OECD/G20 member countries and jurisdictions to prevent BEPS, which refers to exploitative tax planning strategies, designed to artificially shift profits to low or no-tax regimes where there is little to no economic activity.³

While there remains little scholarly analysis of the implications of the CCPF, a thread that runs through existing scholarship is a preoccupation with the paralleled emergence of creative industries discourse, and dissemination of neoliberal rhetoric at the turn of the century. To suggest causality, close attention is paid to controversy surrounding the policy's lack of clarity in rationale for government support, regulation, and taxation; therefrom, Canada's adoption of a 'creative industries policy' is expressed in pejorative terms by critical accounts alleging it reflects the neoliberalization of Canadian 'cultural policy.'⁴ Conversely, this shift is in fact broadly distinguishable; by comparison to traditional cultural policy, creative industries polices are considered to place a greater emphasis on performance indicators, as opposed to concerns of representation and identity.⁵ That said, the degree to which policy objectives and rationale can be ascribed to *neo-liberal* ideology, an epithet reductively deployed, is unclear; furthermore, without evidence of public opinion, the assumption that reforms to Canadian cultural policy have garnered negative reception in absence of reforms to digital taxation implies a misconception of the roles that Heritage and Finance ministers play; namely, that tax changes are not a matter for the Minister of Heritage, but rather a key role of the Minister of Finance.⁶ Thus, not only do the issues addressed by literature on the CCPF remain unsolved, but legal intricacies continue to be overlooked, as evidence-based analysis of influential factors are yet to be examined.

1 Department of Heritage Canada 2017a (p. 6)

2 OECD 2018b (p. 24); Faulhaber 2019 ("Taxing Tech: The Future of Digital Taxation")

3 OECD 2020a (p. 3)

4 Aucoin 2019 (pp. 8-11); Bourcheix-Laporte 2019 (pp. 5-9); Davis and Zboralska 2019 (p. 14); Schnitzer 2019 (p. 98)

5 Flew 2012 (p. 9)

6 Government of Canada 1985c (*Financial Administration Act*, c. F-11, s. 15); Government of Canada 1995 (*Department of Heritage Act*, c. 11, s. 7)

That said, technological convergence has caused cultural policy to become unavoidably entangled with media and telecommunications policy by forcing it to address the production, distribution, and consumption of digital content;⁷ as a direct consequence of tensions between national and global media, the convergence of policies has acted as a catalyst for reevaluating the balance between antitrust law and sector-specific regulation, with particular regard to content and media ownership.⁸ In this context, non-resident digital businesses can sell their goods and services to Canadians without charging a Goods and Services Tax (GST)/Harmonized Sales Tax (HST), which puts the burden on Canadian consumers to remit the sales taxes directly to Canada Revenue Agency (CRA),⁹ and provides digital multinational enterprises (MNEs) without a permanent establishment an unfair advantage by undercutting the competitiveness of Canadian companies.¹⁰ As a result, precarious working conditions faced by Canadian stakeholders in the digital creative economy have been exacerbated by an increasingly unsustainable balance between raising revenues and fostering economic productivity in the context of global labour arbitrage; recognizing that the term precarity is defined in fundamental different ways, this study considers it to be a phenomenon characterized by dynamic instability, arising from insufficient income and a lack of job security, as well as the outcome of unfair tax evasion and avoidance.¹¹

Evidenced by the Inclusive Framework, the challenge of developing a neutral tax policy to collect sales tax on intangible goods and digital services by foreign-based vendors is not limited to Canada; however, digital taxation is perhaps one of Canada's most contentious and politicized controversies, with prospects of extending Canada's GST/HST emerging as an issue when the Conservative government raised the idea in Canada's Budget 2014 regarding the OECD's launch of BEPS in 2013.¹² Despite conservative and liberal opposition in the lead up to Canada's 2015 federal election, with fear of voter backlash over perceived increases to consumption taxes,¹³ the issue continues to resurface upon being raised by cultural groups as well as the Canadian Radio-television and Telecommunications Commission (CRTC), Canada's administrative tribunal with mandate to regulate broadcasting and telecommunications. With advocacy for a wide range of new enforcement or policy measures, the debate is often incoherent due to contradictory framings by Canadian politicians, creating considerable confusion. For example, references to a 'Netflix tax' have been used with regard to a digital sales tax on Netflix, income tax payable by Netflix, as well as mandated Canadian content contributions.¹⁴ In the present study, recent cases of these examples will be analyzed within the Canadian Context, and in connection with Canada's cultural policy.

7 Davis and Zboralska 2019 (p. 14); Flew 2012 (p. 11)

8 Iosifidis 2011 (pp. 88, 103, 240-242)

9 CRA 2011

10 Wyonch 2017 (C.D. Howe Institute, Commentary 847 p. 2)

11 Millar 2017 (p. 2)

12 Geist 2020b (p. 191); Department of Finance Canada 2014 (pp. 347-348)

13 CBC 2014b; CBC 2014a; Geist 2020b (p. 190)

14 Geist 2020b (p. 189)

1.2.1 LITERATURE GAPS

As has been discussed, literature on the CCPF routinely assumes public sentiment to be negative in relation to legislative commitments of the strategic framework, with significant controversy arising from its lack of financial support, and in absence of a 'Netflix tax';¹⁵ even so, there is no empirical evidence of public sentiment toward the CCPF that is necessary to demonstrate this assertion. Additionally, it is widely contended in recent literature that the marginal cost of Netflix and digital platforms alike is zero,¹⁶ which implies that the cost of producing one additional unit of intangible good or service is zero, and if such is the case then the burden of a digital tax should be borne in its entirety by digital platforms as a result; however, these claims are similarly misleading as they fail to acknowledge that the burden of a tax is determined by the price elasticity of demand as it denotes the willingness to pay by buyers and sellers, or consumers and vendors in the case of two-sided markets through digital intermediaries such as Netflix. More crucially, existing literature concerning the matter of marginal cost in connection with issues around pricing digital goods and services makes no attempt to determine the price elasticity of country-level segments for multinational digital platforms. With that said, bridging these two empirical gaps form the basis of this studies research questions, and complex hypothesis, in the sense that the latter is perhaps a caveat for addressing the former; or rather, revenue generated from imposing a digital tax on membership fees specific to the Canadian segment of Netflix, offers an opportunity for associated tax expenditures to be reallocated to direct spending programs that stimulate the Canadian audiovisual industry, with a view to address calls for financial support.

15 Aucoin 2019; Bourcheix-Laporte 2019; Davis and Zboralska 2019; Kim 2021; Schnitzer 2019

16 Cohen et al. 2020; Herzog 2018; Lozic 2020a; Lozic 2020b; Lozic 2021; Park 2019

1.2 RESEARCH SUMMARY

1.2.1 RESEARCH INQUIRY

Focusing on the digital tax measures under consideration by the Government of Canada, this study aims to establish linkages between a *drift* in Canada's cultural policy, and *gap* in international taxation. By means of analysing the underpinning economic fundamentals, alongside overarching public sentiment, the dynamic complexities by which they are connected will be explored. In doing so, this study aims to advance a nuanced discussion of particular challenges faced by Canadian cultural policymakers, through illustrating the ways in which the gap in international taxation is a caveat for addressing the drift in Canada's cultural policy. When examining the contingency of effective reforms to the international tax system, its bearing on a sustainable Canadian cultural policy, and capacity to improve precarious working conditions faced by cultural stakeholders, attention will be given to the audiovisual industry.

The reason for this is that debates on a so-called 'Netflix tax' are regarded as the most controversial aspect of public opinion on the CCPF and center around the digital intangibles of the audiovisual industry.¹⁷ To complicate the narrative of intractable conflict between Netflix and the CRTC,¹⁸ the following provides an economic analysis of financial information for the Canadian segment, which is Netflix largest foreign market jurisdiction,¹⁹ and accounts for more than half of Canadian Subscription Video On-Demand (SVOD) revenues.²⁰ In connection therewith, audiovisual is the fastest growing industry within the Canadian culture sector, and largest contributor per annum to GDP and employment among other industries in the sector;²¹ however, it is estimated to account for over half of the sectors lost future revenues due to labour shortages, with insufficient or unstable earnings reported as the greatest challenges qualified workers face.²²

17 Bourcheix-Laporte 2019 (p. 5); Davis and Zboralska 2019 (pp. 1, 14); Schnitzer 2019 (p. 98)

18 Wayne 2020

19 Netflix 2019 (p. 7); SEC 2020 (Netflix 2019 Annual Report)

20 CRTC 2020 (Figures 6.20-6.23 pp. 188-189)

21 StatCan 2020b (Table 36-10-0452-01)

22 CHRC 2019 (Tables 8.4.1-8.4.2 pp. 108-109)

PROBLEM STATEMENT

• Literature suggests the CCPF is defined by negative sentiment resulting in its lack of financial support and absence of a ‘Netflix tax.’ In connection with this, literature on BEPS contends that the marginal cost of Netflix and digital platforms alike is zero, implying that the burden of a digital tax should be borne in its entirety by digital platforms as a result. While such claims of public sentiment towards Canada’s cultural policy and the burden of a digital tax are misleading as neither are grounded in empirical evidence, they provide a basis for concern. Addressing the problem of taxing Netflix offers an opportunity for associated tax expenditures to be reallocated to direct spending programs that stimulate the Canadian audiovisual industry, with a view to address calls for financial support.

COMPLEX HYPOTHESIS

• The gap in international taxation is a caveat for addressing the drift in Canada’s cultural policy, such that effective reforms to the international tax system offer an opportunity for associated tax expenditures to be reallocated to direct spending programs, so as to stimulate the Canadian cultural industries.

TABLE 1. RESEARCH AREAS OF INQUIRY

	OBJECTIVES	QUESTIONS	METHODS	GOALS
1	EXAMINE THE DEGREE TO WHICH PUBLIC OPINION ALIGNS WITH VIABLE POLICY SCENARIOS	WHAT IS PUBLIC SENTIMENT TOWARDS THE EFFECTS THAT DIGITAL TAXATION COULD HAVE ON THE PRECARIOUS EARNINGS OF AUDIOVISUAL STAKEHOLDERS AND TAX BORNE BY CONSUMERS?	TWITTER SENTIMENT ANALYSIS SUBJECTIVITY/ OBJECTIVITY IDENTIFICATION	FILL (INFORM) CCPF LITERATURE GAP
2	IDENTIFY THE ECONOMIC MOTIVES OF CANADIAN CULTURAL POLICYMAKERS	WHAT ARE THE ECONOMIC COST-BENEFITS OF DIGITAL TAX MEASURES UNDER CONSIDERATION BY THE GOVERNMENT OF CANADA AIMED AT ADDRESSING THE GAP OF DIGITAL TAXATION IN CANADA’S CULTURAL POLICY?	ECONOMIC COST-BENEFIT ANALYSIS DEDUCTIVE ECONOMIC APPROACH	FILL (INFORM) BEPS LITERATURE GAP
3	EVALUATE THE RELATIONSHIP BETWEEN PUBLIC OPINION AND PUBLIC POLICY	WHAT IS THE CAPACITY OF A DIGITAL TAX IN FACILITATING THE DYNAMIC SUSTAINABILITY OF CANADA’S AUDIOVISUAL INDUSTRY?	EXPLORATORY DATA ANALYSIS MULTIVARIATE GRAPHICAL/ VISUALIZATION	BRIDGE (LINK) CCPF/BEPS LITERATURE GAPS

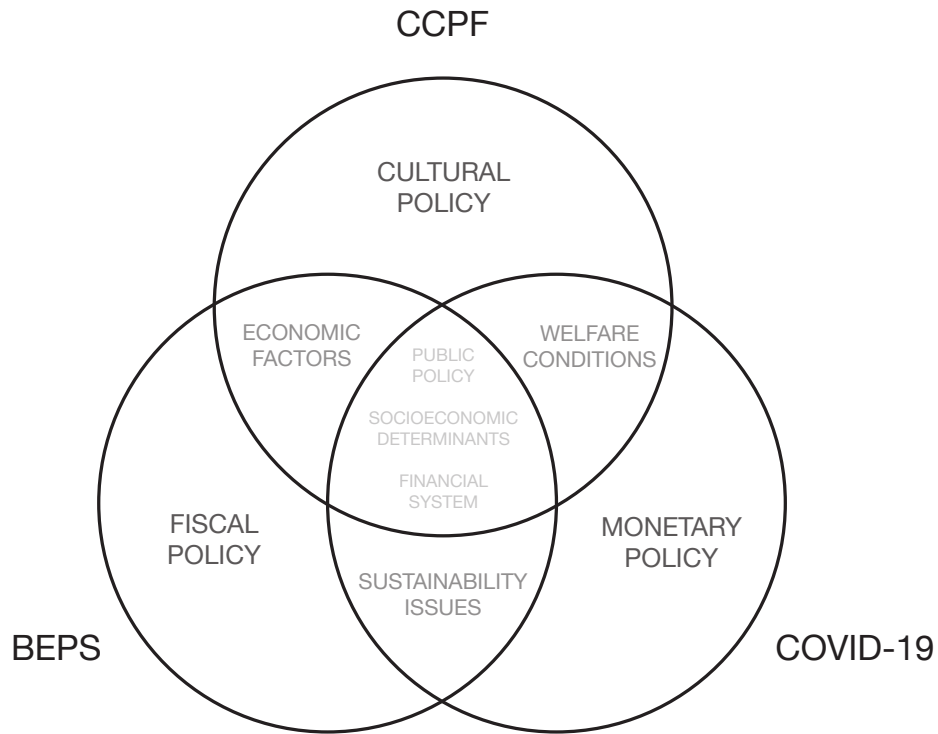
1.2.2 CHAPTER OVERVIEW

As previously noted, there exists advocacy for a wide range of measures on the subject of digital taxation. The scope of this study, however, will give attention to the latest models of action on both international and national scale by delegations with the authority to deliver multi- or unilateral implementation intentions, precluding their respective outcomes; in the context of Canada, this includes a multilateral consensus-based solution proposed by the OECD/G20 Inclusive Framework on BEPS, and a unilateral Digital Services Tax (DST) applied to sales by foreign-based vendors, proposed by the Canadian Minister of Finance on the account of the distinction between products and services becoming increasingly difficult to distinguish for tax purposes.²³ For simplicity, hereafter DST will be used to refer to Canada's federal GST/HST, which includes various provincial sales taxes harmonized by HST, as well as any Value-Added Tax (VAT), provided its use as the cross-border equivalent of GST for it is believed not to interfere with existing taxing treaties.

This paper provides a comprehensive analysis of the causal socioeconomic effects of forthcoming policy interventions in the Canadian culture sector and international tax system under unconventional monetary policy. The analysis centers around the use of fiscal policy to influence the economy through taxation and spending, coupled with inadequate financial support provided under Canada's cultural policy, amid monetary financing of government expenditures in response to COVID-19. It begins with an overview of existing literature which takes into account the main arguments informing hypotheses of digital deregulation and precarious creativity that position this research and aid in choosing appropriate methodologies. Using exploratory data analysis as a foundation, motive factors for cultural policy makers, multinational media services, and the public internet are engaged through a series of data visualizations. The final results lead to a discussion of ex-ante digital tax scenarios that demonstrate complex industry-specific sustainability issues which tie new Canadian media, digital taxation, and the creative economy.

²³ OECD 2019a; Department of Finance Canada 2020 (FES 2020 pp. 111-119, 188-199)

FIGURE 1. RELATIONAL DYNAMICS OF PUBLIC SECTOR REFORMS IN CANADA



Note: the relational dynamics of public sector reforms in Canada shown in the figure refer to uncertain *economic factors* ascribable to *fiscal policy*, precarious *welfare conditions* unresolved by *cultural policy*, and the intrinsic cause-effect in connection with *sustainability issues* arising from unconventional *monetary policy*; reason for the COVID-19 grouping is that the pandemic has led the Bank of Canada to engage in the unsustainable monetary policy lever ‘Quantitative Easing’ (QE), known for having adverse effects on social well-being, and which will be discussed in closing (section 6).

2. LITERATURE REVIEW

2.1 DISCERNING NEOLIBERAL AUSTERITY AND BASE EROSION

2.1.1 CULTURAL POLICY AND THE DIGITAL ECONOMY

Theoretical propositions about the neoliberalization of Canadian cultural policy are not new.²⁴ They illustrate the conceptual proliferation of neoliberalism that has advanced contradictory understandings and rendered the term incoherent. Initially used to describe a wave of market deregulation, privatization, and withdrawal from the welfare-state, over time neoliberalism became characterized as a more subtle and ubiquitous political and ideological phenomenon.²⁵ In particular, the tightening of monetary policy and consolidation of free trade that transpired at the turn of the century is considered to have served as a conditioning framework for Canada's adoption of neoliberalism.²⁶ With that said, whether the emergence of creative industries discourse was in response to the dissemination of neoliberal rhetoric as noted earlier, or particular challenges faced by cultural policymakers, reception of Canada's rendering outlined in the CCPF remains controversial for a number of reasons; one of the most contentious being the renewal of asymmetrical responsibilities imposed on broadcasters and content distributors.²⁷

The concept of creative industries was first attempted by the United Kingdom government in 1998 as a means to measure culture in economic terms. Growing interest in culture as a source of economic value-added has led a rise in cultural policymakers implementing generic and rent-seeking industrial policies; because of that, there is now clear evidence that without an in-depth understanding of the culture sector and its industries this approach leads to inconsistencies in terminology, and ambiguity around measurements.²⁸ Canada is no exception — soon after the liberals won a majority in Canada's 2015 federal election, Melanie Joly was named Minister of Canadian Heritage. In anticipation for Canada's 150th anniversary of Confederation occurring in 2017, Joly unveiled her vision for Canadian cultural policy in today's digital environment, beginning with the #DigiCanCon public consultation, and subsequent consultation report.²⁹ In conjunction with the release of the CCPF in September 2017, Joly announced an agreement to invest \$500 million dollars in Netflix over a five-year period, made under the *Investment Canada Act*, effectively omitting it from cultural mandate under the CCPF.³⁰

24 Gattinger and Saint-Pierre 2010; Milz 2007

25 Venugopal 2015

26 Druick and Deveau 2015; Mangset 2020

27 Aucoin 2019; Bourcheix-Laporte 2019; Davis and Zboralska 2019

28 Lee 2019 (pp. 554-555)

29 Department of Heritage Canada 2017a

30 Department of Heritage Canada 2017b

In line with objectives of the CCPF that are devoted to promoting rather than protecting or reclaiming market share of Canadian culture,³¹ the Netflix deal exemplifies growth imperatives of creative industries policies that have led public authorities to justify subsidies to the culture sector with reference to benefits external to the sector. While notions of precarious creativity have been framed as symptomatic of an austere stagnation in public finances,³² justification as such discredits cultural activities, further compounding precarity in the culture sector, and creative economy;³³ though, considering the absence of enforced digital antitrust laws it should come as no surprise that digital media companies, often monopolistic in nature, have expanded in a regulatory vacuum over recent decades.

For example, under CRTC *Broadcasting Distribution Regulations Subsection 34(4)*, licensed Canadian broadcasting companies termed Broadcasting Distribution Undertakings (BDU) are required to contribute 5% of their gross annual revenues to the Canadian Media Fund (CMF), which finances the development of Canadian audiovisual content.³⁴ As digital streaming services are not explicitly mentioned in the *Broadcasting Act*, the CRTC issued that they are outside the purview of such regulatory requirements, and ordered their exemption in 1999.³⁵ Contrary to these exemption orders, however, is *Broadcasting Act* section 3.1(a) which states, “the Canadian broadcasting system shall be effectively owned and controlled by Canadians.”³⁶ Nonetheless, a Supreme Court ruling over a decade later determined Internet Service Providers (ISPs) merely provide access to broadcasting, and by the same token should not be subject to regulatory and legislative requirements as such.³⁷ For this reason, until this decision is amended by the Parliament of Canada, the CRTC is prevented from regulating digital streaming services, and slowing the rate of foreign ownership takeovers.³⁸

Therewith, it is reported that as a result of digital streaming services, contributions by Canadian broadcasters to the CMF declined by 26% between 2014 and 2019, from \$254 to \$189 million, thus reducing mandated support for the production of Canadian content.³⁹ Additional to the Governments annual commitment to the CMF of \$134 million, the CMF was accorded \$172 million over the same five-years of the Netflix deal to mitigate the decline in contributions from Canadian broadcasters, though decline continues to outpace stabilization funds.⁴⁰

31 [Davis and Zboralska 2019](#)

32 [Bourcheix-Laporte 2019](#); [Druick and Deveau 2015](#)

33 [Druick and Deveau 2015](#); [Mangset 2020](#)

34 [CRTC 2012](#) (pp. 2012-392)

35 [CRTC 1999](#) (1999-197)

36 [Government of Canada 1991](#) (S.C. 1991, c. 11)

37 [Supreme Court of Canada 2012](#) (2012 SCC 4)

38 [Armstrong 2015](#) (p. 261)

39 [CMF 2019](#) (Figure 1 p. 5)

40 [Department of Heritage Canada 2017a](#) (p. 35); [CMF 2019](#) (Figure 1 p. 5)

2.1.2 THEORETICAL DISCOURSE ON DIGITAL TAXATION

“Few Canadian digital policy issues have proven as confusing as the ongoing debate over digital taxation. While there is general agreement that a neutral tax policy should apply to the online world, the issue has been muddled by both nomenclature and corporate efforts to use digital tax policy for competitive advantage. With politicians fearing voter backlash over the perception of increased taxes, Canadian digital tax policy has struggled to keep pace, leading to a predominately hands-off approach.”⁴¹

— Michael Geist, November 2020

The above-quote by Geist, law professor at the University of Ottawa, and Canada research chair in internet and e-commerce law, alludes to the Government of Canada’s reluctance to engage in the iterative process of reforming the international tax system; as an outcome, deregulation in Canada’s telecommunications market has both undermined Canadian competitiveness, and eroded provisions for the country’s audiovisual industry. Following Canada’s most recent federal election held in 2019, resulting in another victory for the liberals, Steven Guilbeault was appointed Minister of Canadian Heritage in the new cabinet; below outlines the positions of Guilbeault and former Heritage Minister Joly on the subject of digital taxation.

In November 2020, Guilbeault tabled Bill C-10, “an Act to amend the *Broadcasting Act* and make related and consequential amendments to other Acts.”⁴² Earlier that year, the Broadcasting and Telecommunications Legislative Review (BTLR), a panel initiative commissioned as part of the CCPF, released their final report involving 85 recommendations. Bill C-10 and the BTLR report share many of the same proposals; for instance, BTLR recommendation 85 “that the federal government require foreign media content undertakings to collect and remit the GST/HST,”⁴³ is akin to Bill C-10 section 1 which proposes amending the above mentioned *Broadcasting Act* section 3.1(a), and adding “online undertaking” to *Broadcasting Act* section 2.1.⁴⁴ By contrast, however, are Bill C-10 sections 17-23 which propose allowing the CRTC to impose Administrative Monetary Penalties (AMP) for failure to submit confidential information upon request, through amendments to sections 25 and 34 of the *Broadcasting Act*;⁴⁵ despite the potential such a proposal has for addressing legal issues regarding private sector privacy and confidentiality, a possible weaknesses is its potential for creating uncertainty in the Canadian telecommunications market, which could result in reduced spending on Canadian audiovisual productions.⁴⁶

⁴¹ Geist 2020b (p. 189)

⁴² Parliament of Canada 2020a (Bill C-10)

⁴³ BTLR 2020 (p. 174)

⁴⁴ Government of Canada 1991 (S.C. 1991, c. 11, s. 3.1(a): “the Canadian broadcasting system shall be effectively owned and controlled by Canadians”); Parliament of Canada 2020a (Bill C-10 pp. 1-3)

⁴⁵ Parliament of Canada 2020a (Bill C-10 pp. 15-20)

⁴⁶ Christians 2020; Geist 2020f

Additional to criticisms of Bill C-10 for its lack of detail, Guilbeault made several of dubious claims prior and subsequent to its tabling. For example, during a town hall hosted by the Canadian Media Producers Association (CMPA), he stated Bill C-10 would be a way to “get money... from web giants;”⁴⁷ following this, Guilbeault said the bill “will strengthen [Canadian] cultural sovereignty” and “generate almost \$1 billion in foreign investment per year in our films, television and music” during a House of Commons debate.⁴⁸ Contrary to these claims, Bill C-10 makes no reference to tax revenue thresholds or intellectual property (IP) ownership; revenue thresholds being necessary for the registration and collection of GST/HST, while an absence of IP ownership requirements risks foreign entities outspending Canadian producers in a bid for Canadian subsidies and credits, which favor Canadian IP ownership.⁴⁹ This is in sharp contrast to Joly’s repeated statements that, “there will be no Netflix tax” and that her efforts “would respect net neutrality;”⁵⁰ moreover, Joly openly stated “I’m in charge of culture” and “Mr. Morneau is finance minister and in charge of taxation.”⁵¹ Markedly, Guilbeault position signals a shift by the Liberal government toward digital taxation, with less emphasis on public consultation. Even so, if the focus of Guilbeault’s agenda is simply a matter of generating tax revenues as provision for the culture sector, recommending tax policy, and legislative changes to the tax code are a role and responsibility of the Minister of Finance;⁵² furthermore, tax revenues collected by the federal government would go towards general expenditures, which can then be spent in a transparent manner.

⁴⁷ [CMPA 2020a](#); [CMPA 2020b](#) (Vimeo 47:50-48:20); [Geist 2020a](#)

⁴⁸ [Parliament of Canada 2020b](#); [Geist 2020e](#)

⁴⁹ [Geist 2020c](#); [Geist 2020d](#); namely, direct subsidies by the CMF and Canadian Feature Film Fund (CFFF), along with indirect subsidies through the Film or Video Production Services Tax Credit (PSTC) and Canadian Film or Video Production Tax Credit (PSTC), discussed in section 4.1.2

⁵⁰ [Roberge et al. 2017](#) (pp. 305-306)

⁵¹ [Toronto Star 2017](#)

⁵² [Government of Canada 1985c](#) (*Financial Administration Act*, 1985, c. F-11, s. 15)

In the weeks prior to Guilbeault's tabling of Bill C-10, it was announced by the OECD Secretariat that a consensus solution from the Inclusive Framework on BEPS would be pushed from its initial 2020 year-end target to mid-2021.⁵³ As COVID-19 continues to increase the fiscal deficit and accelerate the digitalisation of the economy, later that month the newly appointed Minister of Finance Chrystia Freeland, in place of her predecessor Bill Morneau, expressed concerns about the delay in arriving at consensus; she stated, "retail e-commerce was up nearly 70 per cent in the first eight months of this year," and that Canada intends to impose a unilateral DST if a multilateral consensus by the Inclusive Framework cannot be reached by July 2021.⁵⁴ As compared to the Minister of Finance, the Minister of Heritage is responsible for facilitating financial assistance and the implementation of direct spending programs, so as to promote the Canadian cultural industries.⁵⁵ In view of the ministers' accountability to Parliament, and the fact that changes to the tax code are far more difficult to implement than direct program spending, different from Guilbeault's Bill C-10, Freeland's legislative proposal clearly outlines the necessary amendments for which she has the authority to deliver.⁵⁶ Salient measures include amending the *Income Tax Act* so that non-resident firms 'carrying on business' in Canada are explicitly required to register for the collection and remittance of GST/HST on behalf of Canadian consumers,⁵⁷ thus providing GST/HST interpretation, and grounds for amending subsection 123(1) of the *Excise Tax Act* to reflect international GST/VAT guidelines set by the OECD; in doing so, non-resident firms carrying on business in Canada without a permanent establishment would be required to register for collection and remittance of GST/HST, in kind to Canadian firms with a permanent establishment.⁵⁸

⁵³ OECD 2020d (p. 5)

⁵⁴ Department of Finance Canada 2020 (FES 2020 pp. 111-113)

⁵⁵ Government of Canada 1995 (*Department of Heritage Act*, c. 11, s. 7)

⁵⁶ Department of Finance Canada 2020 (FES 2020, Annex 4 pp. 189-191, "Legislative Proposals to Amend the Income Tax Act" pp. 200-209, "Legislative Proposals to Amend the Excise Tax Act" pp. 209-223)

⁵⁷ CRA 2011 (GST59); CRA 2005 (P-051R2); Government of Canada 1985d (*Income Tax Act*); in connection with the need for explicit business requirements as opposed to implicit consumer requirements under GST59

⁵⁸ Government of Canada 1985b (*Excise Tax Act*, c. E-15); OECD 2017

2.2 TAX CHALLENGES OF THE DIGITAL ECONOMY

2.2.1 ADDRESSING BASE EROSION AND PROFIT SHIFTING

At present, tax treaties are based on the notion of permanent establishment,⁵⁹ a concept developed in the nineteenth century to coordinate residence and source taxation to prevent both double taxation and double nontaxation.⁶⁰ After continuous attempt to coordinate residence and source taxation, the Inclusive Framework on BEPS appears to have unveiled what had been hidden by stateless income rhetoric; in particular, that countries apart from the United States and China had sought a revenue shift away from the jurisdictions where the largest digital companies are headquartered, or IP was created. Against this background, the Inclusive Framework on BEPS was established for the purpose of implementing a multilateral tax treaty to prevent BEPS. Composed of two central proposals, Pillar One and Pillar Two, the first seeks to design a new taxing right that would allow countries to tax non-resident firms carrying on business without a permanent establishment,⁶¹ while the second aims to establish a global minimum tax intended to operate as a top-up tax when income of controlled foreign companies (CFCs) is taxed below the global minimum effective tax rate (ETR).⁶² Pillar One scoping activities comprise automated digital services (ADS) and consumer-facing businesses (CFB) with revenues exceeding €750 million euros, or roughly \$900 million dollars; following through with her statement that Canada will be consistent with consensus measures, should a multilateral agreement be reached in her 2020 Fall Economic Statement,⁶³ Freeland's latest proposal outlined Budget 2021 is in accordance with both OECD international GST/VAT guidelines, as well as the Country-by-Country Reporting (CbCR) standards of BEPS.⁶⁴

⁵⁹ Parliament of Canada 2018

⁶⁰ Jogarajan 2011 (p. 707)

⁶¹ OECD 2020b (BEPS Pillar One Blueprint, Figures 1.1-1.2 pp. 7-16)

⁶² OECD 2020c (BEPS Pillar Two Blueprint, Sections 1.1-1.2 pp. 14-19)

⁶³ Department of Finance Canada 2020 (FES 2020 p. 113)

⁶⁴ Department of Finance Canada 2021 (Budget 2021, Annex 7 pp. 731-737)

In light of this foreign revenue sourcing threshold, these measures will predominantly impact large and profitable MNEs in digital-oriented and intangible intensive sectors;⁶⁵ as reported by the OECD Secretariat, “although the DST is not included in the set of standard trade policy measures, it can be incorporated in a stylized way as an ad valorem [AV] tax on the share of digitally delivered intermediate sales.”⁶⁶ While the debate over ‘Netflix taxes’ includes discussion as to whether the company be required to pay corporate income tax (CIT) in Canada,⁶⁷ the following analysis prioritizes comparing Freeland’s proposal to that of BEPS Pillar One, as they serve the same purpose. Although Canada’s unilateral tax measure would be imposed on the *total value* of a transaction at the *point of sale*, while the OECD’s multilateral tax treaty would be imposed on the *assessed value* of transactions *per annum*, both take the form of indirect consumption taxes; this is because Freeland’s DST proposed at a rate of 3% generates tax revenues indirectly from consumers through intermediaries on a *per unit* basis, making it equivalent to a VAT, while that of BEPS Pillar One modeled as 20% does so at a *fixed percent*, rendering it similar to an AV.⁶⁸

⁶⁵ OECD 2020a (BEPS Impact Assessment, pp. 3-4, 10-11)

⁶⁶ OECD 2020a (BEPS Impact Assessment pp. 185)

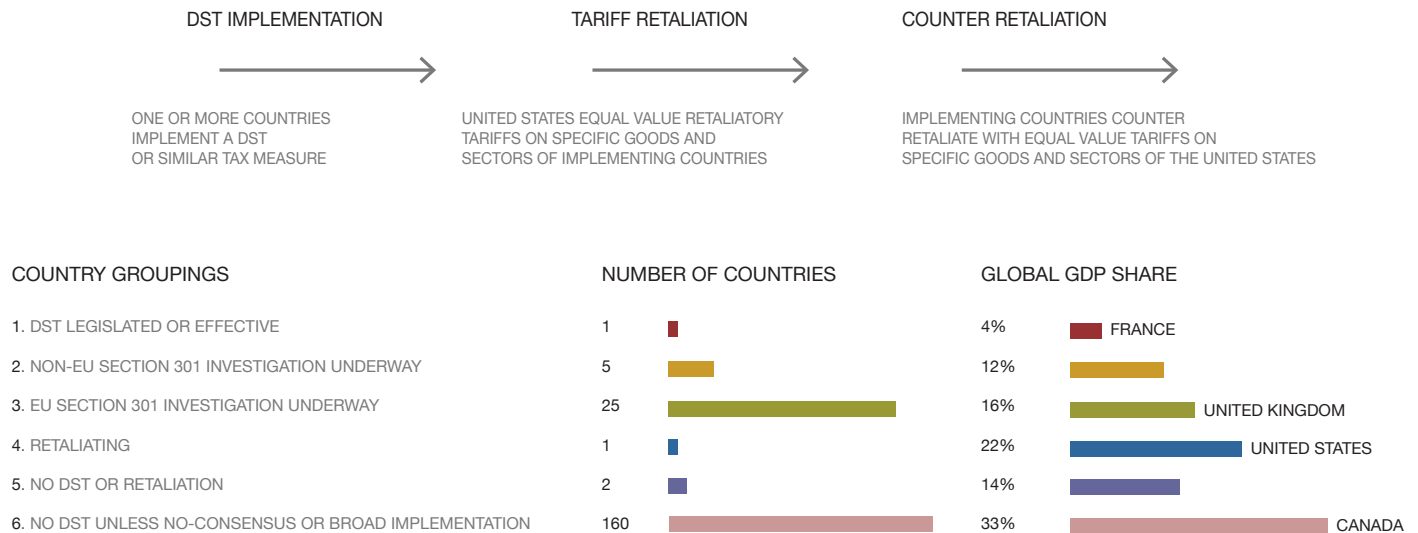
⁶⁷ Geist 2021 (p. 195)

⁶⁸ Department of Finance Canada 2020 (FES 2020 Annex 4, pp. 189-191); Department of Finance Canada 2021 (Budget 2021 Annex 7, pp. 732-737); OECD 2020b (BEPS Pillar One Blueprint, Figure 1.1 and 1.2 pp. 7-16); OECD 2020c (BEPS Pillar Two Blueprint, Section 1.1 and 1.2 pp. 14-19)

2.2.2 RISKS ASSOCIATED WITH UNCOORDINATED DIGITAL TAX MEASURES

In view of the foundation BEPS provides for taxing MNEs within the scope of ADS and CFB, the OECD Secretariat has cautioned against broad implementation of uncoordinated DSTs given they are shown to result in a trade retaliation sequence. As illustrated below, without a consensus-based solution, the risk of retaliatory sanctions in response to broad implementation of uncoordinated digital tax measures becomes exponential. For example, France (Fig. 2, 1) became the first country to legislate a 3% DST in July 2019, when the French Senate passed a bill targeting ‘digital services,’ effective December 2020.⁶⁹ As many of the largest and most dominate MNEs in digital-oriented and intangible intensive sectors are headquartered in the United States (fig. 2, 4), the US responded by launching a Section 301 Investigation into whether the tax was discriminatory against American companies, which lead the United States Trade Representative (USTR) to propose, “additional duties of up to 100 percent on certain French products.”⁷⁰ In January 2021, however, the USTR suspended the proposal,⁷¹ following the announcement that BEPS would be delayed;⁷² in advance of these developments, the Parliamentary Budget Officer (PBO) of Canada (fig. 2, 6) tabled several proposals to replicate preliminary DST inquires by France and the United Kingdom (fig. 2, 2).⁷³

FIGURE 2. TRADE RETALIATION SEQUENCE



Note: the sequence shown is illustrative of the impact of unilateral digital tax measures.⁷⁴

⁶⁹ USTR 2019b

⁷⁰ USTR 2019b

⁷¹ USTR 2020

⁷² OECD 2020d (p. 5)

⁷³ PBO 2019a (32633031); PBO 2019c (33232566); PBO 2019d (32977970)

⁷⁴ OECD 2020a (BEPS Impact Assessment, Table 4.1 p. 181, Figure 4.15 p. 185)

Bearing this in mind, the global financial and economic crisis that began in 2008 marked a watershed moment in the evolution of the international corporate tax regime. Before then, the most significant attempt to overhaul the international tax system was the G7/OECD project on Harmful Tax Competition (HTC) launched in 1996. In response to international requests for developing measures to counter the distortionary effects of harmful tax competition on national tax bases, the OECD Committee on Fiscal Affairs submitted a report in 1998 that identified two categories of harmful tax practices: *tax havens*, characterized as jurisdictions with low to no-tax that lack transparency, and *preferential tax regimes*, defined as those with low to no-tax that meet transparency standards.⁷⁵ As the harm of such tax practices persists, the international tax system faces growing challenges in the wake of digitalisation and globalization, which highlight further vulnerabilities in the existing framework. While the OECD/G20 BEPS project represents unparalleled efforts to address profit shifting, many issues over the allocation of taxing rights remain unresolved, principally on the basis permanent establishment. In this context, jurisdictions have increasingly taken uncoordinated and unilateral actions, resulting in a rise of tax disputes, and heightened tax uncertainty.⁷⁶

All things considered, creating a global sales tax system that requires foreign-based vendors to register and remit sales is fraught with complexity. Provided that registration requirements alone elicit costs small businesses are unwilling or unable to bear, the OECD BEPS Pillar One proposal aims to set a revenue threshold for businesses that fall within the scoping rules, consequently impacting large and profitable MNEs in digital-oriented and intangible intensive sectors.⁷⁷ Bearing this in mind, better aligning taxation with value creation is believed to prevent or financially disincentivize cross-border tax planning schemes, restoring both source and residence taxation in cases where cross-border income would otherwise go untaxed or taxed at very low rates; thus, it is expected that this should level the playing field for domestic Small and Medium-sized Enterprises (SMEs) and MNEs by ensuring fair and equitable tax treatment.⁷⁸

⁷⁵ OECD 1996 (HTC pp. 1-3)

⁷⁶ OECD 2020a (BEPS Impact Assessment p. 12)

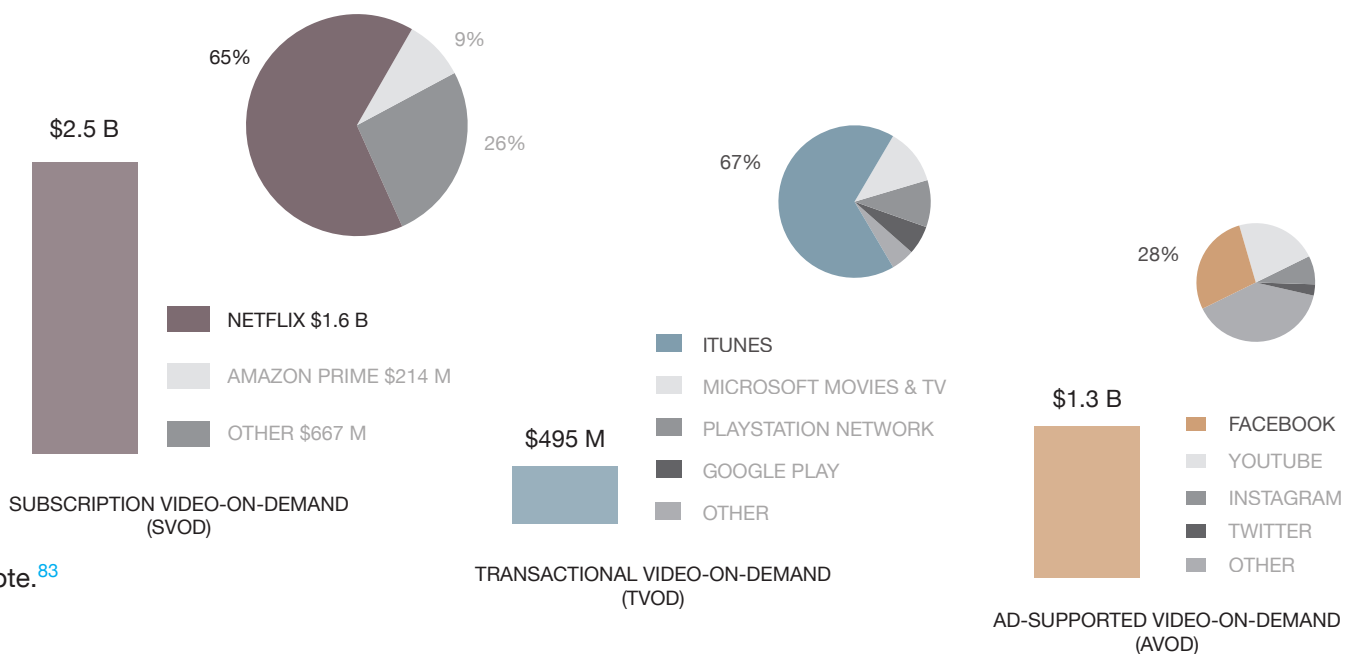
⁷⁷ OECD 2020a (p. 3)

⁷⁸ OECD 2018b (p. 106)

As has been noted, the international tax system is under pressure from digital MNEs, which have altered governments fiscal grip on income taxation, and eroded tax-based expenditures.⁷⁹ By way of example, CIT accounted for between 15-16% of Canada’s federal budgetary balance in 2019 and 2020, while PIT made up between 50-57% of expenditures (appx. A, table A1). As in the present case, artificial avoidance of permanent establishment by Netflix, the digital streaming service with the largest estimated revenues in Canada (fig. 3), has diminished the Government of Canada’s general tax revenues; thus, in a broader sense curtailing expenditures to Canada’s audiovisual industry, which is the largest contributor to GDP and employment among other industries within the culture sector (fig. 4).⁸⁰ Withal, in the 2017 essay collection by Canadian public policy think tank Frasier Institute, “Zero to 50 in 100 Years: The History and Development of Canada’s Personal Income Tax”, PIT is reported to have accounted for 2.6% of total federal revenue in 1918; moreover, the *efficiency cost*, or cost of raising one additional dollar of tax revenue, is believed to exceed \$2 dollars in all provinces.⁸¹ On this account, provincial PIT bases as a whole are said to be -3.5%, implying that a 1% increase in the provincial marginal income rate reduces province’s PIT base by an average of 3.5%.⁸²

FIGURE 3. CANADIAN STREAMING REVENUES

ESTIMATED CANADIAN STREAMING REVENUES BY BUSINESS MODEL, 2018



Note.⁸³

79 Christians 2018b (McGill Faculty of Law p. 1)

80 Department of Finance Canada 2020b (Fall Economic Statement 2020, Table A1.6 p. 127); Department of Finance Canada 2021 (Budget 2021, Table A1.5 p. 329)

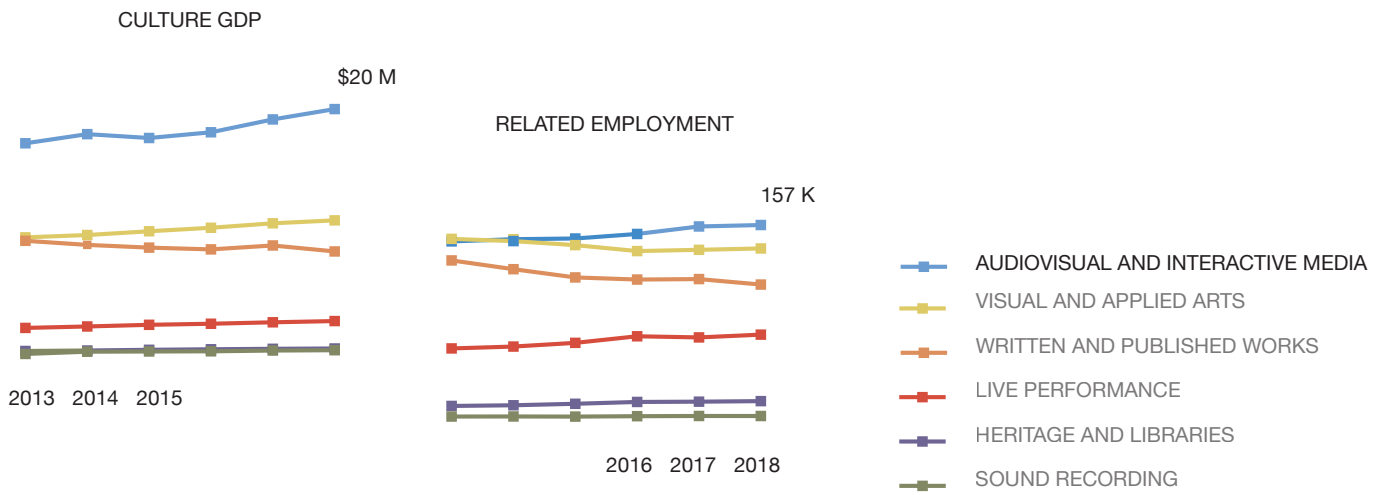
81 Frasier Institute 2017 (pp. i-iii)

82 Frasier Institute 2017 (pp. 42-43)

83 CRTC 2020 (CMR 2019, Figures 6.20-6.23 pp. 188-189; 2018 ‘internet-based video services estimated revenues,’ \$4,328 million: SVOD \$2,523, TVOD \$495, AVOD \$1,310; Netflix \$1,643); see CRTC 2021 for the latest Communications Monitoring Report (CMR 2021, Figure 3.8 pp. 74-75; 2019 ‘internet-based video services estimated revenues,’ \$4,795 million: SVOD \$2.623, TVOD \$542, AVOD \$1,360; Netflix, +9.2%Δ = \$1,749)

FIGURE 4. KEY CANADIAN CULTURE INDICATORS

CONTRIBUTION TO CULTURE GDP AND RELATED EMPLOYMENT BY CULTURE INDUSTRY



Note.⁸⁴

3. RESEARCH DESIGN

3.1 METHODOLOGICAL APPROACH

3.1.1 MIXED METHODS

This study charts the tensions between provisions for equitable taxation in the digital economy and direct spending programs for the Canadian culture sector; in addition, it offers a multi-method framework for their analysis. A multi-method research design has been selected for the purpose of leveraging the strengths and reducing the limitations of single method approaches. With a focus on addressing interrelated uncertainties associated with in-scope legislative reforms, the variety of perspectives and richness of data offered by multi-method research is particularly suited to advance a more comprehensive understanding of forthcoming policy interventions in the Canadian culture sector and international tax system, as will be shown.⁸⁵

To understand the possible dissonance between theoretical and empirical research on cultural policy and the burden, or *incidence*, of digital taxation in the Canadian context this study brings together two distinct methods of analysis. First, Twitter sentiment analysis (TSA) is used to extract social media data from Twitter as a means to identify and evaluate public sentiment on the CCPF, as well as BEPS, provided the DST proposed by Canada's Minister of Finance is said to be an interim measure that will be replaced once multilateral agreement is reached. As opposed to the traditional collection of public opinion that typically include in-person consultations and written submissions, as well as polling and survey data used in consultations for the CCPF, TSA circumvents issues related to temporarily that prevent policymakers from understanding online policy debates, needed for government intervention in processes of rapid and dynamic change.⁸⁶

Next, a deductive approach to economic cost-benefit analysis (CBA) is applied to determine the tax base and corresponding revenues from the proposed digital taxes should they be imposed on the Canadian segment of Netflix. Unlike methods used in related literature such as *discourse analysis*, involving propositions and simple assumptions based on inductive reasoning, this approach to CBA of policies under consideration offers quantitative evidence and groundings for legislation based on deductive reasoning;⁸⁷ as a point of clarification, deductive and inductive denote the broad methods of reasoning in logic, whereby deductive works from general considerations to specific facts, while inductive moves from specific observations to broader generalizations and theories.

⁸⁵ Mele and Belardinelli 2019 (pp. 334-335)

⁸⁶ Adams-Cohen 2020 (pp. 612-615); Chen et al. 2020 (pp. 1-3)

⁸⁷ Aucoin 2019 (pp. 8-11); Bourcheix-Laporte 2019

3.2 RESEARCH PROCESS

3.2.1 DESIGN FRAMEWORK

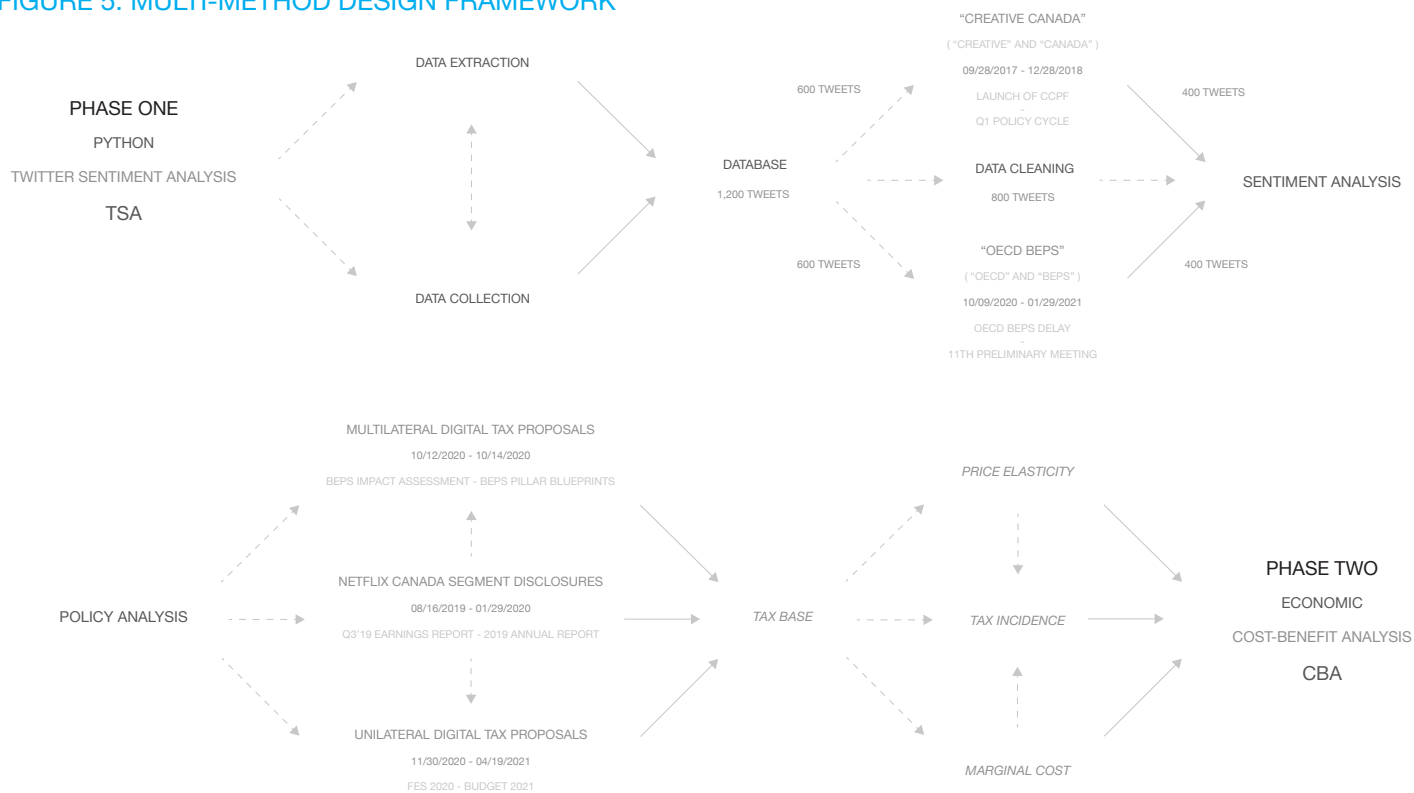
Given the above considerations, previously stated empirical gaps provide a rationale for the selection of a multi-method approach and a basis for the framework of research methods as follows: Twitter sentiment analysis (TSA), coupled with cost-benefit analysis (CBA), in addition to exploratory data analysis (EDA) throughout. The select methods are organized into economic, social, and socioeconomic components that form the conceptual research framework; in doing so, research components are linked to methods of data analysis, with associated processes of design guiding the connection of phases, and integration of findings. This approach assumes an embedded design; therefore, it establishes primary data as quantitative (QUANT), and qualitative (QUAL) as secondary. As shown below (fig. 5) the chosen framework is typical of *exploratory sequential mixed methods design*, a two-phased approach characterized by a sequence of QUAL, then QUANT phases of data collection and analysis, with a final phase in which the two separate strands of data are integrated; however, QUAL and QUANT methods were conducted in parallel suchlike *convergence design*, in its approach of two parallel phases wherein QUAL methods are used to understand subjective aspects, alongside QUANT measures of objective aspects. To complicate matters further, complementary QUAL and QUANT data in this study serve to facilitate a holistic interpretation, akin to *triangulation design*, whereby convergent results are integrated, and interpreted in final analysis.⁸⁸ In light of this, the present study presupposes a ‘multi-method design framework;’ reason for this is that *mixed-method* research designs incorporate various QUAL and QUANT strategies as supplementary, and dependent to a core method, whereas *multi-method* research designs involve conducting and combining two or more methods that are complete on their own, wherefore results are triangulated to form a complete whole.⁸⁹ In the present study, TSA was conducted with Python; thus, this section begins by briefly addressing its syntax and semantics, with the syntax referring to the set of rules that defines how the Python program language is to be written, and semantics relating to how it should be interpreted. As will be discussed, there are many advantages of Python over other programming languages; key factors considered when selecting Python for this study were that it is an *interpreted language*, as opposed to a *compiled language*, and that it is *dynamically typed*, rather than *statically typed*. In short, programming languages that are compiled involve direct machine code undecipherable to humans, whereas those that are interpreted are read and executed indirectly in an integrated development environment (IDE); likewise, with static type code is reviewed upon compiling, in contrast to dynamic type, whereby code is reviewed upon being run.

⁸⁸ Almedia 2018 (pp. 139-140)

⁸⁹ Ohlen 2010 (p. 1, 4)

Common programming paradigms include *functional programming (FP)* and *object-oriented programming (OOP)*. Simply put, FP places emphasis on results, or procedures, while OOP gives prominence to processes, or objects; examples of FP languages include Structured Query Language (SQL) and Haskell, as compared with OOP languages such as C++ and Python. In the case of OOP, *objects* refer to a collection of data and methods, commonly called *variables* and *functions*; for Python objects are simply a collection of data, or variables, which are acted upon by methods, or functions to form a *module*. Thus, Python *scripts* are the executable files, which modules are intended to be imported into, such that a *package* contains a collection of modules with a common goal. By comparison, a variable is a name that can refer to any value, whereas a *string* is a value representing text; moreover, a function works under a *mutable sequence*, as opposed to a *class*, which uses a *static method*. With this in mind, see the appendix (appx. C) for Python scripts created for the present study; color prompts of Jupyter Notebook, the IDE used, are as follows: black (variables), red (strings), green (built-in keyword functions), blue (built-in type functions), purple (operations), turquoise (comments).⁹⁰

FIGURE 5. MULTI-METHOD DESIGN FRAMEWORK



Note: unlike *GetOldTweets3* and *Tweepy*, *searchtweets Premium* AND logic type boolean operators match the syntax of single query text strings containing two keyword conditions.⁹¹

⁹⁰ Python 2021 (Python Documentation); W3Schools 2021 (Python Tutorial)

⁹¹ Almedia 2018 (pp. 139-140); Reyes-Menendez et al. 2018 (Figure 1 "Development of the Methodological Process" p. 10); see developer.twitter.com: /en/docs/twitter-api/tweets/search/integrate/build-a-query; /en/docs/twitter-api/enterprise/rules-and-filtering/building-a-rule; /en/docs/twitter-api/enterprise/rules-and-filtering/operators-by-product; /en/docs/twitter-api/v1/data-dictionary/object-model/tweet (Twitter API v1.1; v2, August 2020)

Given the complex nature of this study, the research framework described above is designed such that multiple data sources can facilitate a multi-level analysis of micro- and macroeconomic dimensions, together with socio- and socioeconomic contexts of cultural stakeholders, suchlike Canadian audiovisual content creators and consumers. With that said, the analysis of this study seeks to answer the research questions listed above through the following:

RESEARCH QUESTION 1, SECTION 4 (TSA)

TSA, PYTHON MODULES

1. *Web scraping*, as a means of data extraction, for text from Twitter;
 - [searchtweets](#), as a ‘wrapper’ for the Twitter application programming interface (API).⁹²
2. *Data cleaning*, as a means of processing data retrieved to smooth or remove ‘noisy data’;
 - [spaCy](#), as a mean to filter out ‘stop words’ before natural language processing (NLP).⁹³
3. *Sentiment classification*, as a means of determining the dimensions of valence, within the dataset;
 - [VADER](#), (Valence Aware Dictionary and sEntiment Reasoner) as a lexicon and rule-based sentiment analysis tool specifically attuned to sentiments expressed in social media.⁹⁴
4. *Data analysis*; exploratory data analysis (EDA):⁹⁵
 - [matplotlib.pyplot.pie](#)
 - *graph*
 - [sns.distplot](#), [matplotlib.ax.scatter](#)
 - *plot*
 - [nltk.stem.WordNetLemmatizer](#), [nltk.util.ngrams](#), [wordcloud.py](#)
 - *visualize*

RESEARCH QUESTION 2, SECTION 5 (CBA)

• Subsequently, attention is given the disparity in tax treatment towards MNE vendors of digital goods and services, together with consequent tax implications of their compliance to collect and remit federal sales taxes in Canada. By doing so, economic motives of Canadian cultural policymakers are identified, after which economic cost-benefits of digital tax measures under consideration by the Government of Canada aimed at addressing the gap of digital taxation in Canada’s cultural policy are examined.

⁹² [GitHub 2020](#) ([searchtweets](#); [searchtweets 1.7.6](#))

⁹³ [SpaCy 2021](#) ([spaCy/STOP_WORDS.py](#))

⁹⁴ [GitHub 2019b](#) ([vaderSentiment.SentimentIntensityAnalyzer](#); [vader-sentiment 3.2.1.1](#))

⁹⁵ [Matplotlib 2021b](#) ([matplotlib.pyplot.pie](#)); [Seaborn 2021](#) ([sns.distplot](#)); [Matplotlib 2021a](#) ([matplotlib.ax.scatter](#)); [NLTK 2021b](#) ([nltk.stem.WordNetLemmatizer](#)); [NLTK 2021a](#) ([nltk.util.ngrams](#)); [GitHub 2018](#) ([wordcloud.py](#))

CBA, ECONOMIC VARIABLES

1. *Price elasticity* (ϵ)
2. *Marginal cost* (MC)
3. *Tax incidence*
4. *Tax revenue*

RESEARCH QUESTION 3, SECTION 6 (SECTIONS 1-5; EDA)

• Finally, the results of exploratory data analysis throughout this study are triangulated to form a holistic interpretation, in view of qualitative evidence related social media sentiment serving to supplement the effectiveness of quantitative research on related economic models, for the purpose of context and confirmability, together with a focus on responsive solutions grounded in identified priorities.

4. SENTIMENT ANALYSIS

4.1 TWITTER SENTIMENT ANALYSIS

4.1.1 ANALYSIS OF POLICY SENTIMENT ON TWITTER

Social media plays an important role in capturing the expressions of social networks and their influence on others' opinions; as such, sentiment analysis provides the opportunity to consider the dimensions of valence, or polarities of sentiment, in order to measure public opinion in social media with respect to a specific topic.⁹⁶ Consequently, this study gives priority to the social media platform Twitter, as it is widely regarded as an established news source, and by reason of this, Twitter sentiment analysis is a prominent focus area of research in natural language processing (NLP).⁹⁷ In essence, *sentiment analysis* of social media data is a method of retrieving mentions or comments pertaining to a specific subject, so as to identify and evaluate opinions expressed in text by means of NLP;⁹⁸ hence, *web scraping* is used to extract data from a website that application programming interfaces (APIs) provide access, which contrasts *text mining* in its aim to identify patterns from text data across different websites, as web scraping is aimed at parsing content in the context of a specific website. Particularly significant to methods of sentiment analysis are processes of *sentiment classification*, which involve the use of NLP, and text analytics to discern sentiments and opinions; core examples include *supervised learning*, which is a *machine learning* (ML) based approach whereby ML algorithms are used to train data for sentiment classification, as compared with *lexicon-based*, in which a *rule-based* approach is taken by way of lexicons of words weighted with sentiment orientations, as in the VADER lexicon utilized for this study.⁹⁹

The CCPF query used (“Creative” AND “Canada”), is an aggregate of every tweet made during the first quarter of the policy cycle, and highlights how an absence of a Netflix tax drives negative sentiment towards domestic cultural policy. Additionally, the query related to BEPS (“OECD” AND “BEPS”), forms an aggregate of every tweet between the OECD/G20 Saudi Arabia submit in which it was announced that BEPS would be delayed, up until the 11th meeting of the Inclusive Framework that involved consultation on BEPS Pillar One from Netflix head of tax; the results of the BEPS query used highlights public opinion on the socio-economic issues and opportunities of the Pillar One proposal.¹⁰⁰ Phase two, concerning the accompanying economic cost-benefit analysis, will be further elaborated in section 5.

96 Gaspar et al. 2016 (p. 181); Ramachandran and Pavathi 2019 (p. 245); Dasa et al. 2019 (“Extracting Patterns from Twitter to Promote Biking”)

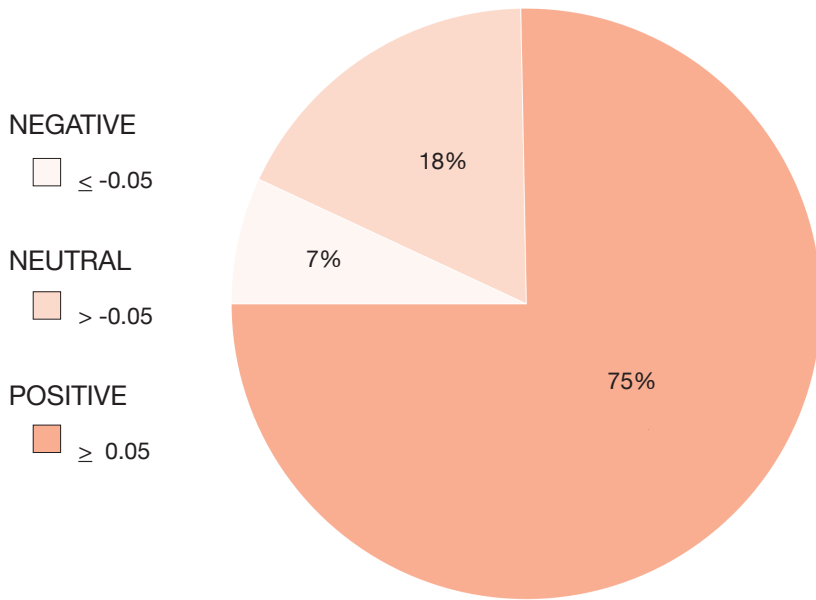
97 Fondevila-Gascon 2016 (“Sentiment Analysis as a Qualitative Methodology to Analyze Social Media”); Lalji and Deshmukh 2016 (“Twitter Sentiment Analysis Using Hybrid Approach”); Zimbra et al. 2018 (p. 3)

98 Zimbra et al. 2018 (p. 3)

99 Saif et al. 2015 (p. 5)

100 OECD 2020d (Saudi Arabia, October 9, 2020: “the G20/OECD Inclusive Framework... agreed to continue working to resolve the remaining issues quickly with a view to bringing the process to a successful conclusion by mid-2021” p. 5); OECD 2021b (Italy, July 9, 2021: “participants in the negotiation have set an ambitious timeline for conclusion of the negotiations... includes an October 2021 deadline for finalising the agreement... as well as a framework for effective implementation in 2023” p. 5)

FIGURE 6. TWITTER SENTIMENT ANALYSIS: CCPF



Note: depicted on the upper left is a Matplotlib pie chart (appx. B, table B3-B4.1) representing the outputs and standardized thresholds of the VADER lexicon: negative ($neg \leq -0.05$), neutral ($neu > -0.05$), and positive ($pos \geq 0.05$) from the searchtweets query (appx. B, table B1) described above; novel representations of text data form the word clouds depicted on the lower right (appx. B, table B4.4-B4.5), and correspond to positive, negative, and neutral sentiment classifications from top to bottom; word clouds are a data visualization technique used for representing text data in which size indicates frequency or prominence.



Note: *distplots* (`sns.distplot`) compare distributions of a variable across multiple categories as is shown in the upper right ([appx. B, table B4.2](#)); by contrast, *histograms* (`matplotlib.pyplot.hist`) overlap bars causing issues of readability; illustrated in the bottom right is time-series data that form a sequence of data points collected over roughly four month periods for both CCPF and BEPS ([fig. 7](#)) queries stated above ([appx. B, table B4.3](#)), with a rolling (yellow) and expanding (red) mean of the distribution of sentiment polarity scores (blue).

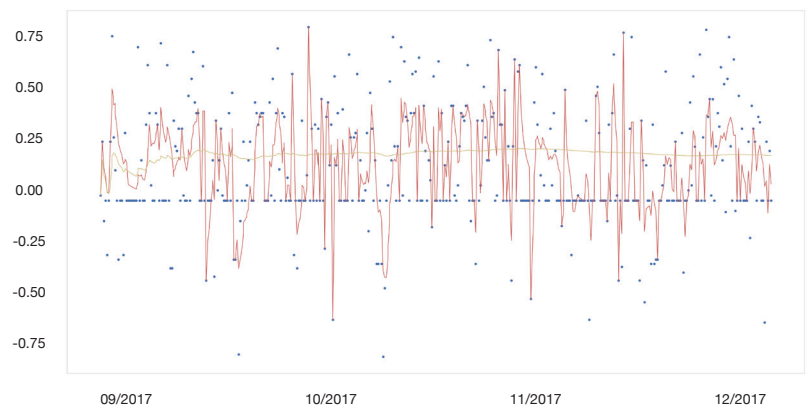
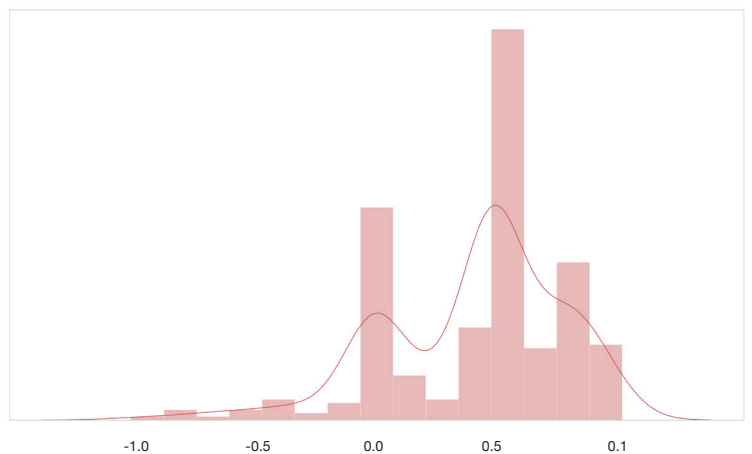
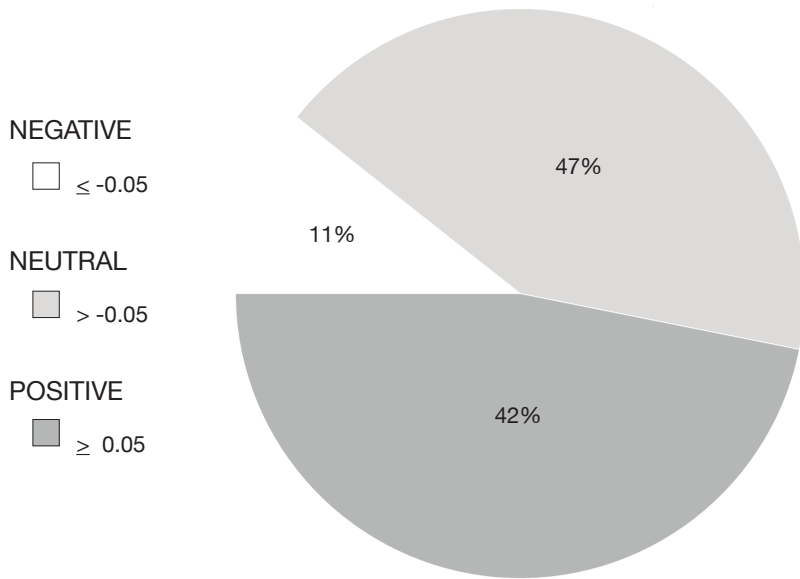
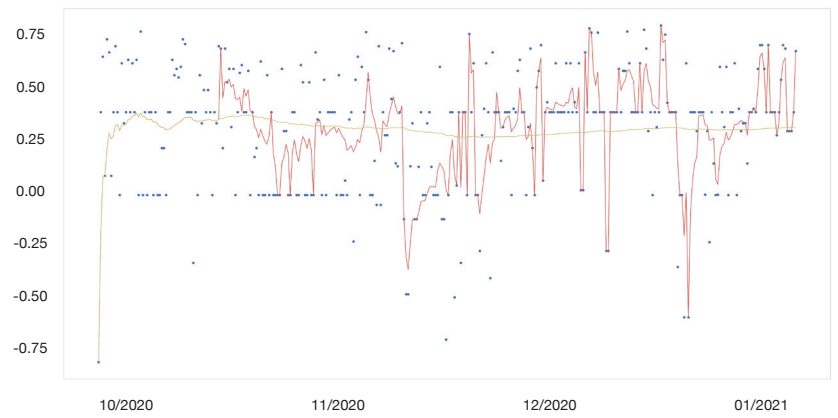
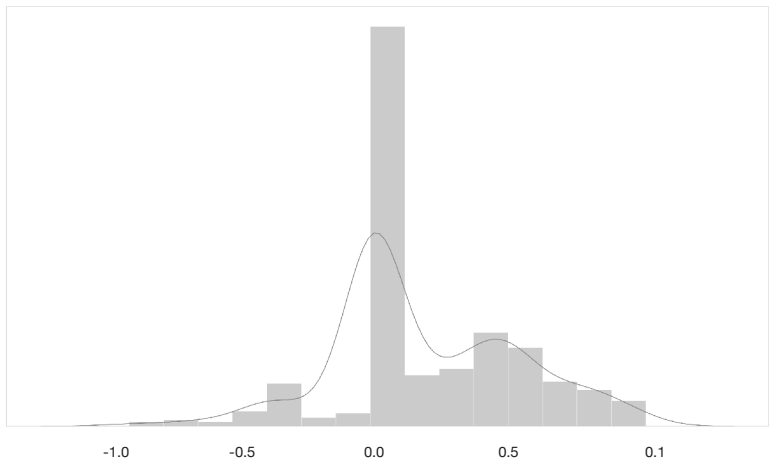


FIGURE 7. TWITTER SENTIMENT ANALYSIS: BEPS





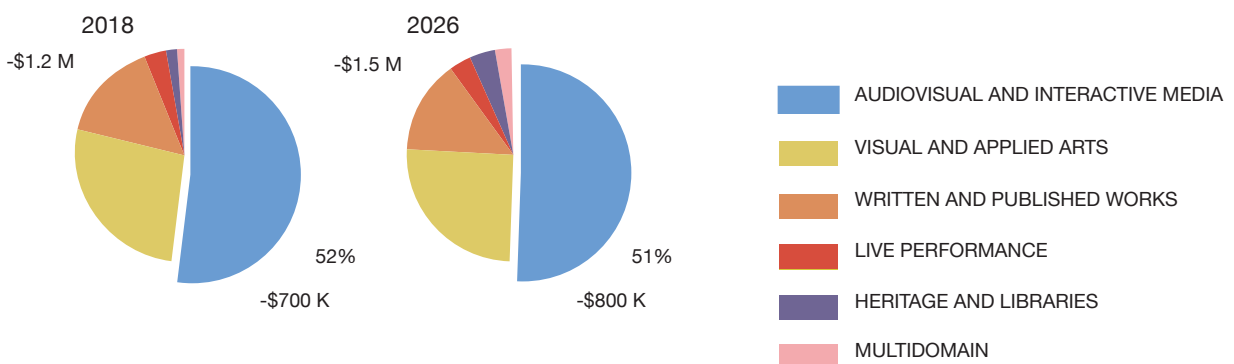
4.2 LABOUR CONDITIONS

4.2.1 LABOUR ISSUES IN THE DIGITAL CREATIVE ECONOMY

As already indicated, Canada’s budgetary balance for the fiscal years of 2019 and 2020 bring to light a sharp contrast between the share of revenues from CIT and PIT (appx. A, table A1). To fill gaps in the preceding Twitter sentiment analysis, below presents some of the recent statistics from the Cultural Human Resources Council (CHRC); in a survey of the Canadian cultural labour force, it is projected that the impact of labour shortages on Canadian culture sector revenues will increase 25% by 2026, with the audiovisual industry accounting for more than half of lost revenues, and insufficient or unstable earnings reported to be the greatest challenge in attracting and retaining qualified workers (fig. 8).

FIGURE 8. CANADIAN LABOUR FORCE INFORMATION

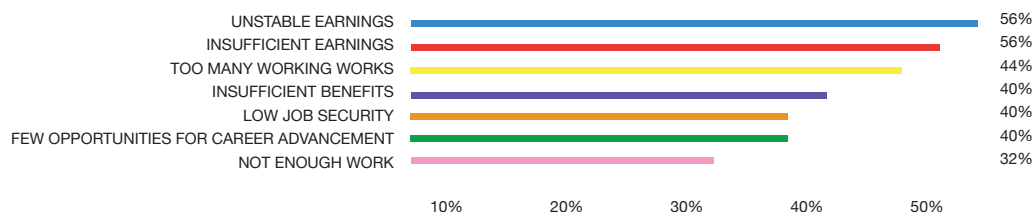
IMPACT OF LABOUR SHORTAGES ON CULTURE SECTOR REVENUES BY INDUSTRY



JOB CHALLENGES IN THE CULTURE SECTOR



CHALLENGES IN ATTRACTING AND RETAINING QUALIFIED WORKERS IN THE AUDIOVISUAL INDUSTRY



Note.¹⁰¹

101 CHRC 2019 (Tables 8.4.1-8.4.2 pp. 108-109, Charts 7.2.1F-7.2.2F, pp. 70-74)

Governments commonly seek to reduce inequality through tax redistribution for normative or practical expressed purposes such as social justice or socio-economic welfare.¹⁰² For instance, government subsidies can assist industry stakeholders by offsetting the cost of production for a good or service through direct or indirect forms of cash transfers, such as grants or tax credits; likewise, governments may choose to assist consumers with the cost of a particular good or service, directly or indirectly, through offsetting the price or by offering reimbursement. Simply put, producers and their willingness to create is believed to be the catalyst for economic growth in *supply-side economic policy*, whereas consumers' willingness to pay is considered to be the key economic driver in *demand-side economic policy*.

Government incentives typically take the form of direct or indirect subsidies, where direct subsidies involve monetary 'cash-transfers,' while indirect subsidies are termed non-monetary, or payments 'in-kind.' Streamlining the application process for audiovisual tax credits was an objective pursued under the CCPF;¹⁰³ namely, the modernizing the Film and Video Production Services Tax Credit (PSTC) and Canadian Film or Video Production Tax Credit (CPTC). By comparison, the PSTC provides a refundable tax credit of 16% of Canadian labour expenditures upon meeting sections 125.5 and 9300 of the *Income Tax Act*, while the CPTC offers a refundable tax of 25% of labor expenditures upon meeting sections 125.4 and 1106 of the *Income Tax Act*.¹⁰⁴ The point system for productions was adopted by the CRTC in 1984 and has been utilized by the Canadian Audiovisual Certification Office (CAVCO) since 1995. Direct subsidies are mandated by Canadian Heritage and administered by Telefilm Canada, while indirect subsidies are co-administered by the CAVCO and CRA.¹⁰⁵

¹⁰² Christians 2018a (McGill p. 6)

¹⁰³ Department of Heritage Canada 2017b (p. 16)

¹⁰⁴ Department of Heritage Canada 2020 (Application Guidelines, PSTC and CPTC)

¹⁰⁵ Department of Heritage Canada 2020 (Application Guidelines, PSTC and CPTC); Globerman 2014 (Fraser Institute pp. 7-8); Government of Canada 1985d (*Income Tax Act*)

5. ECONOMIC ANALYSIS

5.1 MARKET CONDITIONS

5.1.1 BASE EROSION, PROFIT SHIFTING, AND TAX AVOIDANCE

As indicated earlier, the consensus-based solution to tax challenges arising from digitalisation by the Inclusive Framework on BEPS is comprised of two pillars; Pillar One proposes a new taxing right that the OECD has termed *Amount A* and which the following section will focus. By design, Amount A would lead to a portion of the tax base of in-scope *MNE groups* from the location of *residual profit*, to *market jurisdictions*; such that, MNE groups denote the geographical segments of a MNE, with residual profit calculated by subtracting operating expenses from gross revenues at a country-level, and market jurisdictions as the country's included under the aggregate of a specific geographical segment.¹⁰⁶

Under the prevailing circumstances of the international corporate tax system, discrepancies in data traditionally presented according to the locations of direct investors and investments, such as in the case of data on foreign direct investment (*FDI*), have become clouded by foreign investors who channel investment through companies in countries other than those of the ultimate investor.¹⁰⁷ Focusing on recent efforts by the CRA and Statistics Canada (StatCan), the following discusses data limitations arising from segment reporting, with reference to disclosure requirements of MNE operating segments accounting for 10% or more of total revenues, and the accompanying financial statements of those market jurisdictions.

Between 2016 and 2020, the CRA published a series of reports examining the 'tax gap' resulting from tax non-compliance, with the latest report estimating Canada's total payment gap across various income and consumption taxes to have declined by 59% to \$2.19 billion as of 2020; however, the aggregate data used by the CRA does not include non-residents.¹⁰⁸ To further examine the issue of profit shifting by MNEs operating in Canada, a recent analysis by StatCan follows the methodologies established in the OECD's Action 11 report on measuring and monitoring BEPS, which recommends a number of indicators, and criteria for the assessment of existing data sources relevant for BEPS analysis.¹⁰⁹ For the purpose of examining the disconnect between real and financial economic activity within the country, StatCan collected data from Form T1134 returns, which are required under the *Income Tax Act* in order to obtain financial information relevant to determining the tax liability of foreign affiliates 'income or profits tax paid or payable' by the 'related person,' or shareholders of corporation non-resident in Canada.¹¹⁰

¹⁰⁶ OECD 2020a (p. 15)

¹⁰⁷ StatCan 2017c

¹⁰⁸ CRA 2021b; CRA 2020 (Tax Gap Reports)

¹⁰⁹ OECD 2015a (Action 11, Data Analysis); OECD 2015c (Action 11, Public Discussion Draft); OECD 2015d (Action 11, Final Report); StatCan 2019

¹¹⁰ CRA 2021a (Form T1134); CRA 2021c (Form T1134, Q&A); Government of Canada 1985d (*Income Tax Act*); StatCan 2019

Similarly ambiguous, the study by StatCan concludes that, “results suggest that investment in countries with favorable corporate tax rates by the subsidiaries of MNEs operating in Canada is not driven by real economic factors.” As a point of reference, while GDP is used as a measure of real economic activity, or that which generates income reported and taxable in the source jurisdiction, FDI is commonly used as a proxy for financial economic activity despite including both real and financial activity; thus, FDI is defined by the OECD as the cross-border investment in a ‘direct investment’ enterprise by a resident ‘direct investor’ with at least 10% ownership. In essence, this allows the owner of an enterprise or MNE to choose a permanent establishment on taxation grounds, and as such outward FDI is empirically associated with the jurisdiction of a corporation, and its effective tax rate (ETR).¹¹¹ When compared to a government’s budgetary balance (appx. A, fig. A1), which indicates the sum of a country’s expenditures on final goods and services before policy actions and investments,¹¹² GDP demonstrates the total goods and services produced within that country; and so, when measured at basic prices, GDP expresses the total of market prices, less taxes and subsidies. Bearing this in mind, in 2018 foreign MNEs accounted for 15% of Canada’s GDP at basic prices and 13% of employment in the Canadian economy, with the combined contributions to GDP and employment from foreign and Canadian MNEs accounting for roughly 1/3 of total GDP and 1/4 of employment.¹¹³

Exemplary of data limitations resulting from geographical rather than country segment disclosures are changes made to the representation of Canadian FDI statistics by StatCan; as can be seen in Table 36-10-0008-01, formerly CANSIM 376-0051, by which geographic segment aggregation has replaced country segment disclosures.¹¹⁴ Having said that, this follows Financial Accounting Standards Board (FASB) 131 effective December 1997,¹¹⁵ as well as International Financial Reporting Standards (IFRS) 8 issued in January 2006, which led to a decrease in the number of segments disclosed in reporting. In connection therewith, research has shown there to be a positive association between geographic segment aggregation and tax haven involvement;¹¹⁶ additional to geographical reporting providing the ability to obfuscate tax haven activities, evidence indicates that ‘profit shifting intensity’ is higher among jurisdictions with lower income tax rate differentials, with the tax rate differential corresponding to a jurisdiction’s ETR applicable to corporate (CIT) and personal (PIT) income (fig. 9).¹¹⁷ Accordingly, BEPS Pillar One and Pillar Two are estimated to increase global revenues from CIT by roughly 1.9-3.2%, or \$50-80 billion US dollars annually.¹¹⁸

¹¹¹ StatCan 2019; StatCan 2012a (GDP, Table: 36-10-0104-01)

¹¹² Department of Finance Canada 2020 (Table A1.7 p. 129); Department of Finance Canada 2021 (Budget 2021, Annex 1 pp. 321-347); StatCan 2021e (Table: 36-10-0450-01)

¹¹³ StatCan 2020a (Table 36-10-0620-01)

¹¹⁴ StatCan 2021f (Table 36-10-0008-01, formerly CANSIM 376-0051)

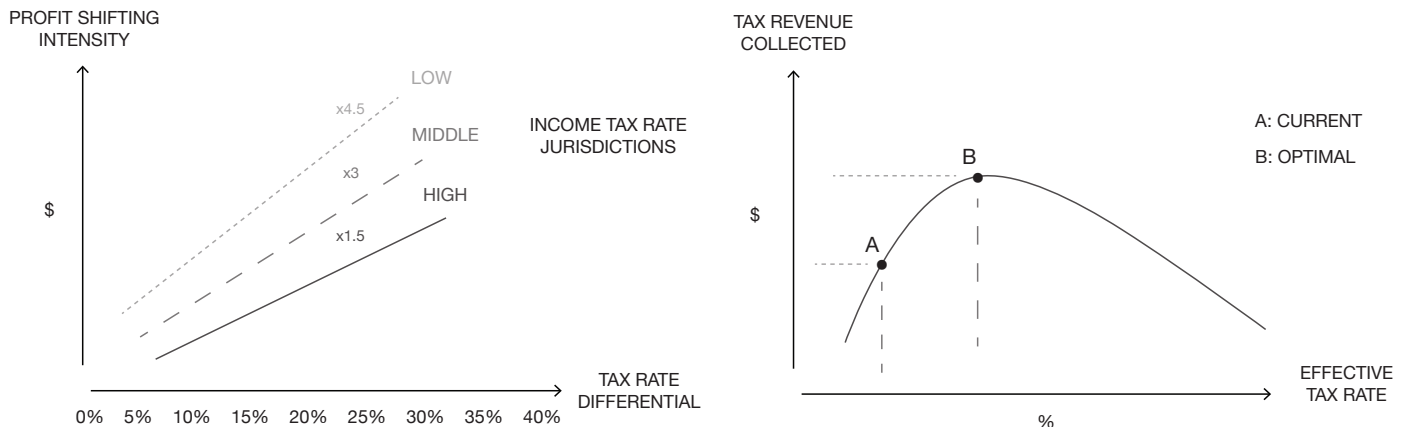
¹¹⁵ Hope et al. 2013; FASB 1997 (FASB 131)

¹¹⁶ Brown et al. 2019; IFRS 2006 (IFRS 8)

¹¹⁷ OECD 2020a (p. 105)

¹¹⁸ OECD 2020a (pp. 10-11)

FIGURE 9. RELATIONSHIP BETWEEN CORPORATE TAXATION AND REVENUES



Note.¹¹⁹

It is against this background that international corporate tax competition creates perverse incentives for countries to lower corporate tax rates, so as to encourage FDI from investors who seek low or no tax jurisdictions, and thereby attract secretive investments for tax evasion or avoidance purposes; as such, arrangements for these purposes are made politically sustainable through financial secrecy.¹²⁰ Thus, the Finance Secrecy Index (FSI),¹²¹ which is regarded as the most comprehensive assessment of the impact of financial secrecy on global financial flows, acts in response, and is shown to identify the probability of profit shifting through FDI than CIT rates (appx. A, table A1);¹²² among the 20 indicators that comprise the aggregate FSI rank, qualitative measures include the following: recorded company ownership [3], limited partnership transparency [5], corporate tax disclosure [9], and bilateral treaties [19].¹²³

¹¹⁹ OECD 2020a (p. 105)

¹²⁰ Cobham et al. 2015; Christians 2018c (p. 5); Laffitte and Toubal 2019 (CEPII; “A Fistful of Dollars? Foreign Sales Platforms and Profit Shifting in Tax Havens”)

¹²¹ Tax Justice Network 2020 (FSI)

¹²² KMPG 2021 (CIT Table); OECD 2021a (Table II.1); Tax Justice Network 2020 (FSI 2020 Results, 2015 Archive); as regards StatCan 2021f (Table 36-10-0008-01, formerly CANSIM 376-0051); for further detail concerning changes from census divisions to geographical regions by StatCan: StatCan 2016a (GR, “Geographic Assets & Liabilities Booked Outside Canada”), StatCan 2017 (SCCAI, “Standard Classification of Countries and Areas of Interest”), and StatCan 2016b (SGC, “Standard Geographical Classification”)

¹²³ Tax Justice Network 2020 (FSI Methodology)

Notwithstanding, various issues on the scope of Amount A remain to be resolved, in spite of unprecedented multilateral efforts in addressing profit shifting; as a case in point, Netflix rejected the Pillar One Blueprints during a virtual consultation in January 2021, asserting that it would create a political ring fence. Notably, Netflix Head of Tax Lisa Wadlin stated that the company supports the introduction of a new taxing right under Pillar One's Amount A, but believes it should be contingent upon objective finance metrics, and recommended that there be a "reduction of technical complexities;" in addition, she argued that if the scope of Amount A continues to comprise of ADS and CFB, digital streaming should be considered CFB rather than ADS, stating that Netflix doesn't "monetize user data" therefore making it "akin to the sale of goods and services."¹²⁴

In addition to technical issues on the scope of Amount A, decisions on quantum, or the formula for determining profit reallocation to market jurisdictions, and thus the tax base and rate, remains a subject of negotiations; as currently drafted, however, the Pillar One Blueprints confirm a number of broad principles on Amount A. In particular, its application to MNEs exceeding aforementioned revenue threshold, through business activities categorized as ADS and CFB, on account of unspecified industrial classifications should definitions be agreed upon by the Inclusive Framework;¹²⁵ for illustrative purposes, see the appendix ([appx. A, table A2](#)), which matches cultural activities, and associated industrial classifications of the Canadian audiovisual industry.¹²⁶

¹²⁴ [OECD 2020f](#) (YouTube 01:56:00-02:03:00)

¹²⁵ [Department of Finance Canada 2020](#) (p. 113); [Department of Finance Canada 2021](#) (Budget 2021, Annex 7 "Proposed Measure" pp. 731-737); [OECD 2020b](#) (BEPS Pillar One, Figure 1.2 "Process Map for Amount A" p. 16)

¹²⁶ [CHRC 2019](#) (Tables A.5 p. 128); [OECD 2020a](#) (Table 2.2 pp. 32-34); [StatCan 2011](#) (Canadian Framework for Culture Statistics 87-542-X); [StatCan 2017e](#) (NAICS); [UNCAD 2002](#) (SITC Rev 3)

5.1.2 TAXING NETFLIX IN THE CANADIAN CONTEXT

In view of the foregoing, it is stipulated that the current financial accounting model cannot capture the principal value of digital MNEs, which is characterized by increasing return to scale on intangible investments, such that balance sheets and income statements fail to capture the value of intangible digital goods and services; additional to a disparity in tax treatment towards MNE vendors of digital goods and services, this is attributable to the fragmentation of digital physical and business activities. As such, value judgments based upon earnings are unsuited for evaluating digital companies that aim to create network effects and command a winner-take-all profit structure.¹²⁷ While it is possible that such features of business models in the digital economy have more to do with simplification of global logistics than tax evasion or avoidance, aggressive tax planning through use of intra-company transactions would suggest otherwise; the corporate structure of Netflix is no exception, as it is shown to artificially avoid collecting revenues in the country where they are made.¹²⁸

Despite claims by Netflix that it would comply with the collection and remittance of federal sales taxes in Canada should it be enforced,¹²⁹ prevalent taxing rights are principally on the basis of physical presence,¹³⁰ as was demonstrated following an investigation into Netflix corporate structure and scale of tax avoidance carried out by the United Kingdom based think tank TaxWatch;¹³¹ that is, by cause of TaxWatch's investigation the Digital, Culture, Media and Sport (DCMS) Committee of the UK Parliament requested Netflix respond to its inquiry into the company's tax affairs.¹³² Upon responding to the allegations in September 2020, Netflix confirmed that revenues from its UK subscribers are collected in the Netherlands. Although, TaxWatch reports a broader scale, with reference to Netflix International BV, which is believed to account for the majority of Netflix profits outside the US;¹³³ extrapolating from these findings, the following illustration (fig. 10) assumes a singular corporate structure and transfer pricing model for Netflix, in consideration of membership fees being reported to be the primary source of revenues for Netflix.¹³⁴

¹²⁷ Govindarajan et al. 2018

¹²⁸ Wyonch 2017 (pp. 6-10)

¹²⁹ The Star 2020

¹³⁰ OECD 2020a (BEPS Impact Assessment p. 12)

¹³¹ Tax Watch 2020b

¹³² Note: the DCMS serves the same purpose as the Canada's Department of Heritage; additionally, 'creative industries' policy were first conceived of with the Creative Industries Mapping Document by the DCMS in 1998 (Flew 2012 p. 9).

¹³³ Tax Watch 2020a; Tax Watch 2020b

¹³⁴ SEC 2020 (Netflix 2019 Annual Report, Business "Business Segments" Item 1: "our revenues are primarily derived from monthly membership fees for services related to streaming content to our members")

In the tax code, corporations are legally separate from the individuals who own them, as opposed to pass-through businesses, which are legally synonymous with their owners; thus taxes are paid by entities at both the parent level, and again when transacting with subsidiary shareholders, which report the distributed income to the Internal Revenue Service (IRS) on an individual basis if connected American corporations such as Netflix. Therefore, better aligning taxation with value creation, would prevent issues of multinational taxation and digital value creation, suchlike those outlined by the OECD as follows:

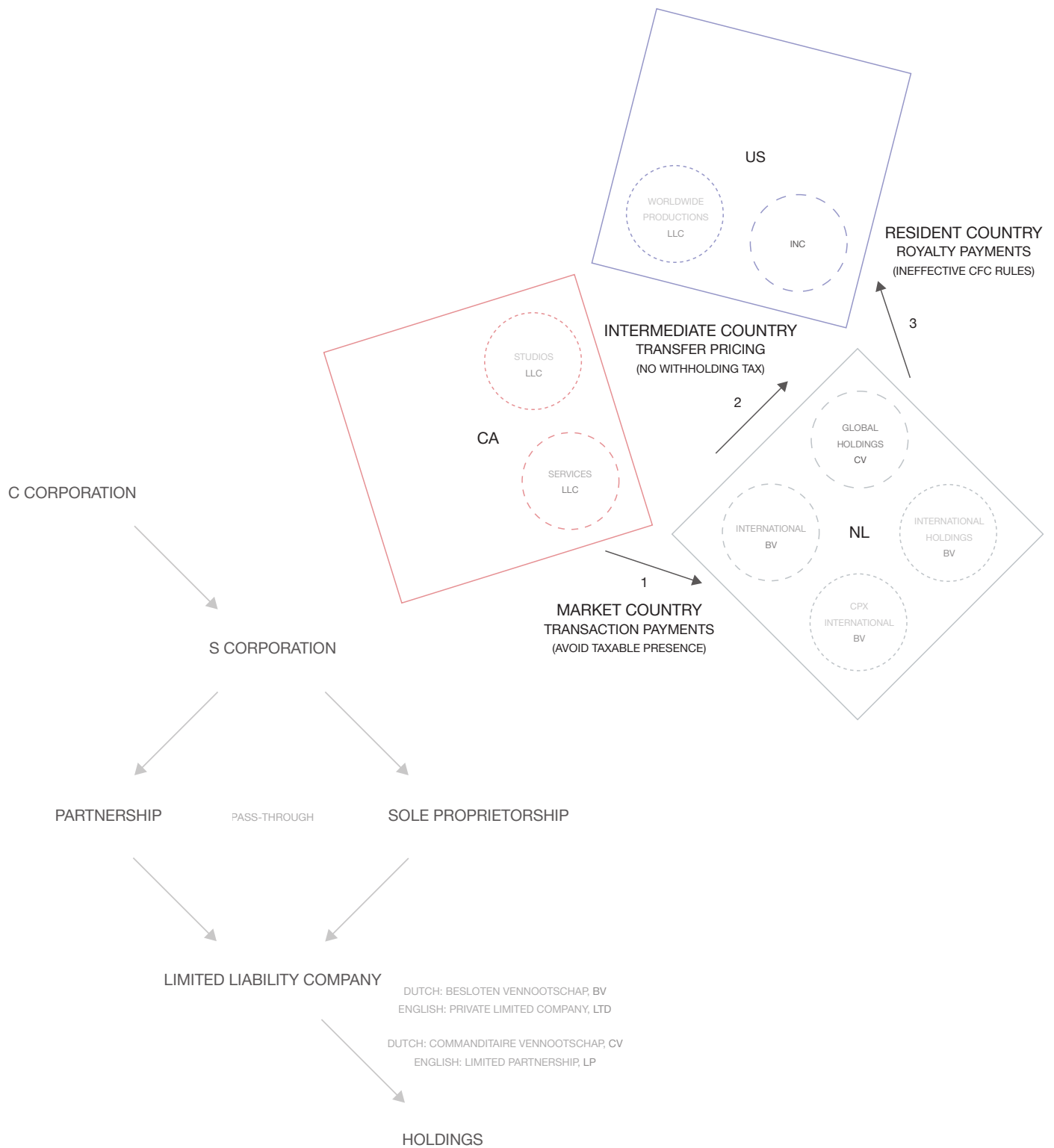
- ‘Intellectual property regimes,’ through which holding companies located in low or no tax jurisdiction;
- ‘Treaty shopping structures,’ such as non-resident entities without a permanent establishment that attempt to indirectly access tax treaty benefits between jurisdictions;
- ‘Cash boxes,’ with reference to capital-rich entities with little to no economic activity in low or no tax jurisdiction;
- ‘Remote sales trade structures,’ whereby permanent establishment in a market jurisdiction is avoided by a resident entity.¹³⁵

At its core, Netflix is characteristic of the sum of these issues pertaining to MNEs; furthermore, the United Nations conceptual framework for measuring illicit financial flows attests to these same criterion, as ‘aggressive tax avoidance’ activities are considered to include the following: artificial avoidance of permanent establishment, abuse of tax treaties, strategic location of intangible assets, and transfer pricing manipulation.¹³⁶

¹³⁵ OECD 2018b (Figures 3.1-3.3 pp. 93-99, 106-107, Annex Figure 3.A.1-3.A.3 pp. 111-114)

¹³⁶ UNODC-UNCTAD 2020 (“Conceptual Framework for the Statistical Measurement of Illicit Financial Flows” pp. 14-16)

FIGURE 10. CORPORATE STRUCTURE AND TRANSFER PRICING MODEL OF NETFLIX



Note.¹³⁷

¹³⁷ Components are derived from the following sources: OECD 2015b (Figure 5.1 p. 79); OECD 2017 (Examples 1-3 pp. 8-102); OECD 2018b (Figures 3.1-3.3 pp. 93-99, 106-107); OECD 2020a (p. 93); Wyonch 2017 (Figures 1-4 pp. 6-10); Jones and Temouri 2016 (Figures 239-240 pp. 239-240)

In view of the above (fig. 10), Corporations in the US are considered either C- or S- under chapter one, subchapter C and S, of the Internal Revenue Code administered by the IRS. While the tax structure of C- corporations separates the taxation of a business from its owner(s), S- entities allow C- corporations to ‘pass-through’ corporate income tax, credits, and deductions to unincorporated partnerships and sole proprietorships. Unlike C- corporations, S- entities are not subject to corporate income tax or other entity-level taxes; by comparison, *partnerships* are governed and hold owners liable for debts and obligations related to business, whereas *sole proprietorships* are ungoverned and do not hold individual entrepreneurship or proprietorship liable for debts and obligations related to business. Within this framework, Limited Liability Company (LLC) are integral to the business structure of partnerships and sole proprietorships; in particular, a Private Limited Company (LTD, Dutch: BV), and Limited Partnership (LP, Dutch: CV), such as in the case of Netflix.

With a lower corporate tax rate and financial secrecy ranking than Netflix parent jurisdiction of the US, ETR aside, motivation for choosing the Netherlands is perhaps due to the country’s absence of a *withholding taxes* (WHT) on interest and royalty payments;¹³⁸ as a point of clarification, withholdings taxes are a form of income tax imposed on earnings from payments within a group of companies, or MNE. Further to this, for American MNEs like Netflix, the IRS requires both foreign and domestic *partnerships* which have income ‘effectively connected’ with trade or business in the US to pay WHT on that taxable income allocable to its foreign partners.¹³⁹ That being said, in the months that followed TaxWatch’s investigation of Netflix, the Netherlands announced they would be introducing a conditional WHT, effective January 2021;¹⁴⁰ however, optimal transfer pricing remains based upon the arm’s length principle (ALP), which is the *condition* that transactions between related companies should be valued as if they had been carried out between unrelated parties. Therefore, to combat international tax evasion and aggressive tax avoidance, BEPS Pillar One proposes to replace the longstanding transfer pricing method ALP with new profit allocation rules, in order to allocate a portion of MNEs profits to the jurisdiction of its customers.

¹³⁸ KMPG 2021 (CIT Table); Tax Justice Network 2020 (FSI 2020 Results); for 2020, the corporate tax rate in the Netherlands was 25%, and the country ranked #8 on the FSI, whereas US CIT was 35%, with an FSI rank of #2 (appx. A, table A2)

¹³⁹ IRS 2021 (Publication 515)

¹⁴⁰ PWC 2021 (Netherlands)

5.2 NETFLIX CASE STUDY

5.2.1 REPORTING STANDARDS AND TAX GAP ESTIMATIONS

“The economic impact of the proposals will also depend on who bears the economic ‘incidence’ of the additional taxes. In theory, the cost of additional taxes can ultimately fall on MNE shareholders (in the form of lower dividends), workers (in the form of lower wages) or consumers (in the form of higher prices). In practice, the incidence may be split between these three categories in proportions depending on the specific situation of each firm.”¹⁴¹

— OECD Secretariat, October 2020

On behalf of the Inclusive Framework on BEPS, the OECD Secretariat reports that the economic impact of BEPS Pillar One and Pillar Two proposals will depend on who bears the economic *incidence* of the additional taxes; note, incidence is an economic term for understanding the division of the tax burden between sellers and buyers, or in this instance, vendors and consumers. Taken from the impact assessment on BEPS, the passage above stresses that in the context of digitalized markets, optimal prices do not necessarily correspond to marginal costs; subsequently, the Secretariat goes on to explain that “empirical research on tax incidence is not conclusive due to the scarcity of disaggregated firm-level data.”¹⁴² As previously noted, the CbCR initiative aims to solve this issue, so long as ALP transfer pricing guidelines are replaced with the profit allocation rules under Pillar One; consequently, MNEs would be required to report aggregate data on the global allocation of income, profit, and taxes paid according to its economic activity among the tax jurisdictions in which it operates. Further to this point, the Secretariat states, “only a few empirical papers directly investigate these theoretical insights” and that “the academic literature on this particular topic is still limited;” thereafter, Cui, professor of law at the University of British Columbia, is cited with reference to notable authors in the existing literature.¹⁴³ In Cui’s conceptual defense for a DST, attention is given to the Canadian context when discussing the marginal costs of digital platforms, during which he argues “many casual claims that have been made about the DSTs undesirable incidence effects are incorrect.”¹⁴⁴

¹⁴¹ OECD 2020a (BEPS Impact Assessment p. 22; “Investment Impacts” pp. 142-188, 4.5.3 “Tax Incidence” pp. 153-157)

¹⁴² OECD 2020a (BEPS Impact Assessment pp. 153-154)

¹⁴³ OECD 2020a (BEPS Impact Assessment pp. 153-154)

¹⁴⁴ Cui 2018 (UBC School of Law pp. 5-6)

In view of this, the following section presents a framework for the economic analysis of Netflix Canadian segment to proxy *marginal cost* and *price elasticity of demand* at the jurisdiction level for the purpose of identifying the incidence of digital tax proposals should they be imposed on Netflix; on account of this, tax gap estimates are formed in the event that no measures are taken. Within these conditions, marginal cost represents the cost for Netflix to ‘produce’ one additional Canadian membership, while the price elasticity of demand denotes the degree to which Canadian members are willing to pay for a membership in response to changes in price, resulting from for instance the levying of a per unit or fixed percentage tax passed on to consumers.

As recent as January 2020, Netflix disclosed financial information for the four geographical segments in which it operates, dating back to 2017.¹⁴⁵ Upon announcing the news in the months prior, Netflix stated that, “UCAN is roughly 90% US and 10% Canada.”¹⁴⁶ Cause for this announcement relates to the reporting standards of Netflix consolidated financial statements, as is reflected in the following quote from its annual report for 2019: “Effective in the fourth quarter of 2019, the Company operates as one operating segment. The Company’s chief operating decision maker (‘**CODM**’) is its chief executive officer, who reviews financial information presented on a consolidated basis for purposes of making operating decisions, assessing financial performance and allocating resources.”¹⁴⁷ In other words, as the transition to one segment Netflix introduced the four reportable segments: UCAN, EMEA, LATAM, and APAC exhibited below ([fig. 11](#)); by way of contrast, former segments were identified by Domestic Streaming, International Streaming, and Domestic DVD. Provided that subsequent reports by Netflix have included both historical and current segments, because just the US and Canada makeup the region UCAN, Netflix statement establishes Canada as the first and only international country among segments to have its jurisdictional market share disclosed.¹⁴⁸

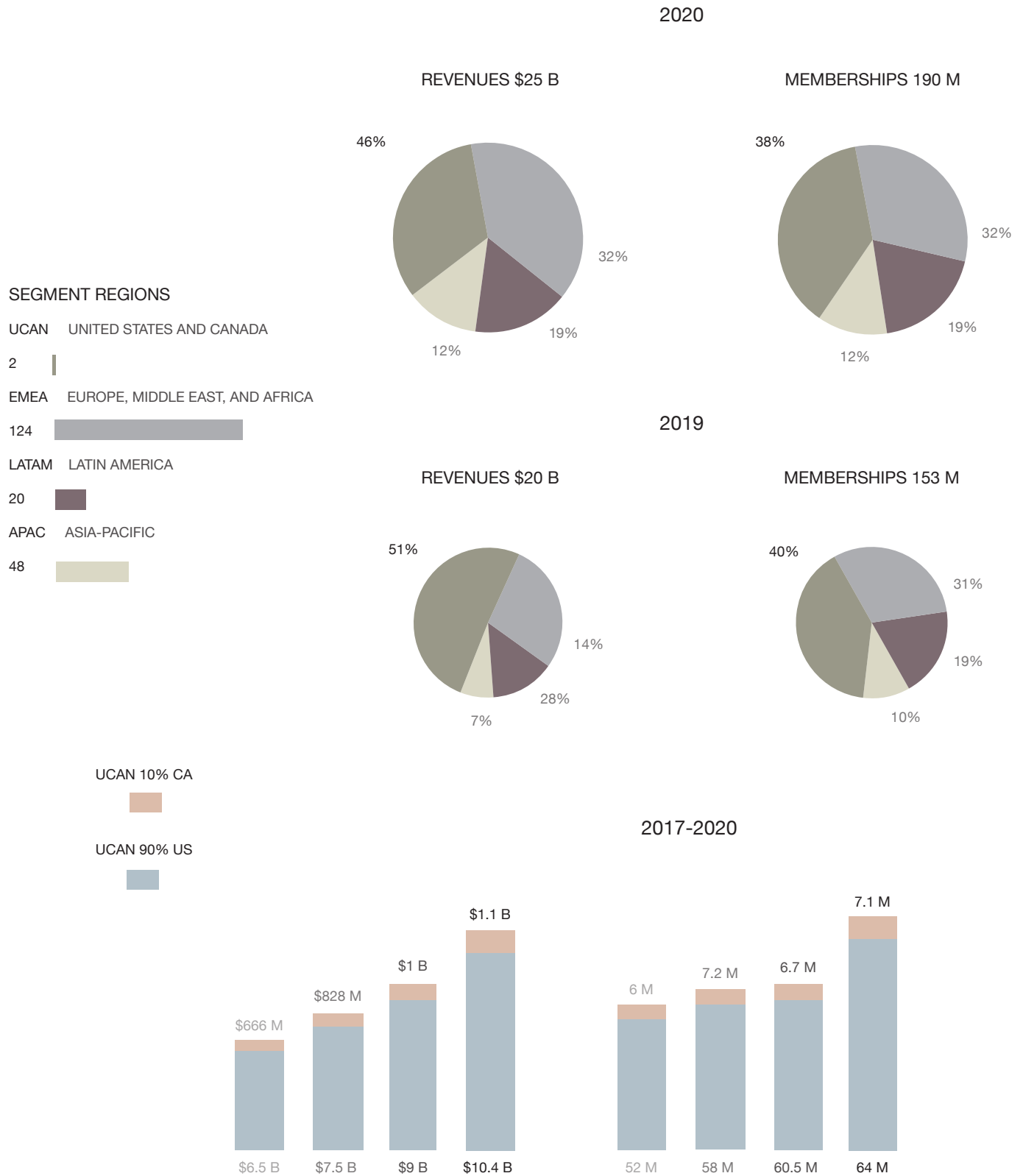
¹⁴⁵ SEC 2020 (Netflix 2019 Annual Report); SEC 2021 (Netflix 2020 Annual Report)

¹⁴⁶ Netflix IR 2019 (Investor Relations, Q3’19 Shareholders Letter p. 7)

¹⁴⁷ SEC 2020 (Netflix 2019 Annual Report, Notes to Consolidated Financial Statements “Segment and Geographic Information” 10)

¹⁴⁸ SEC 2020 (Netflix 2019 Annual Report); SEC 2021 (Netflix 2020 Annual Report)

FIGURE 11. NETFLIX SEGMENT BREAKDOWN



Note.¹⁴⁹

¹⁴⁹ SEC 2020 (Netflix 2019 Annual Report, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7); SEC 2021 (Netflix 2020 Annual Report, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7)

Considering the above, international requirements of operating segments under aforementioned IFRS 8 provides an interpretive lenses for understanding the underlying reason that prompted Netflix disclosure of geographical segments, and estimate of Canada's market share. Most notably, IFRS 8.13 requires information is to be disclosed for 'reportable segments' that contribute 10% or more to a businesses total sales, profits, and assets; however, IFRS 8.23 only mandates the disclosure of a segments profitability and assets, whereas operating and non-operating expenses are required to be disclosed only if the information is regularly reported to the CODM. Further, IFRS 8.33 prescribes the disclosure of revenues and non-current assets by geographical area, with the expanded requirement to disclose the same information for individual countries, but only "if material."¹⁵⁰

Inconsistencies in Netflix reporting are attributable to differences between international and American financial reporting standards. In particular, Netflix consolidated statements of operations and income are audited by the Securities and Exchange Commission (SEC) to determine whether they conform with the Generally Accepted Accounting Principles (GAAP), while the FASB is responsible for generating rulings under GAAP to be enforced by SEC, such that a Accounting Standards Update (ASU) is issued to communicate changes to the FASB Codification applicable to non-government entities. More notably, a key difference between international and American financial reporting standards with respect to Netflix are those that pertain to the amortization of intangible assets, such as follows:

INTERNATIONAL

International Accounting Standards Board (IASB)

- International Accounting Standards (IAS), International Financial Reporting Standards (IFRS)

"A rebuttable presumption that a revenue-based amortisation method for intangible assets is inappropriate... however, there are limited circumstances when the presumption can be overcome... [if] it can be demonstrated that revenue and the consumption of economic benefits of the intangible asset are highly correlated" [IAS 38];¹⁵¹
"if you include an expense in the cost of goods sold, you cannot deduct it again as a business expense" [IRS P535].¹⁵²

AMERICAN

Financial Accounting Standards Board (FASB)

- Generally Accepted Accounting Principles (GAAP), Accounting Standards Update (ASU)

"Amortization of content assets makes up the majority of cost of revenues" [SEC Form 10-K, Netflix];¹⁵³
"content amortization [is] included in cost of revenue and broken out in our cash flow statement" [Netflix, IR].¹⁵⁴

¹⁵⁰ Brown et al. 2019 (p. 108); IFRS 2006 (IFRS 8 "Operating Segments")

¹⁵¹ IAS 2020 (IAS 38 "Intangible Assets")

¹⁵² IRS 2020 (P535, "Business Expenses and Cost of Goods Sold")

¹⁵³ SEC 2020 (Netflix 2019 Annual Report, "Segment and Geographic Information" Item 10)

¹⁵⁴ Netflix IR 2020 (Investor Relations, Overview of Content Accounting pp. 5-17)

Illustrative of discrepancies in Netflix reporting under American standards are the company's adoption of ASU 2019-2 and ASU 2016-13 in Q1 of 2019 and 2020, which led to a significant increase in *free cash flow* reported, discussed below.¹⁵⁵ First, according to Netflix, "on average, over 90% of a licensed or produced streaming content asset is expected to be amortized within four years after its month of first availability;"¹⁵⁶ Netflix defines the *amortization* of content as the spreading of payments on intangible assets over multiple periods. This allows the cost of its productions to be spread across their lifespan, such that Netflix is able and willing to spend more than it earns year over year. A crucial issue that arises from Netflix use of this accounting method is the ability to earn monopoly of over-the-top (OTT) media services through returns to scale, in that greater content offerings promise higher profitability, with which the company is shown to reference when justifying arbitrary increases to prices; for instance, in April 2021, Netflix made the following remark in a report to its investors: "In addition to our record financial results, engagement per member household grew solidly year over year in Q1'21. We're also seeing how much members value Netflix with Q1'21 *churn* below Q1'20 levels, demonstrating that as we improve the service, we can charge a bit more."¹⁵⁷

Research suggests that grounds for Netflix revenue-based amortisation method is perhaps to offset the decline in monthly memberships and associated revenue, following its release of original series; however, this matter is brought into question by two notable case studies. The first concerns a quantitative framework to value software as a service (SaaS) companies on the basis of user data, rather than traditional financial performance metrics, and focuses on the acquisition and churn rates of Netflix; specifically, *acquisition rates* denote the number of gross members acquired in a given period, while *churn rates* represent the percentage of total members lost between two periods. Bear in mind, at no point has Netflix disclosed its acquisition rates,¹⁵⁸ and stopped disclosing churn rates in 2010; that said, there is agreement about the average churn rate of OTT media service companies amounting to 35%, as well as that among these companies Netflix has the lowest churn rates, believed to be roughly 10%.¹⁵⁹ Considering that the net growth rate is found by subtracting the churn rate from the acquisition rate, one study shows that by using the mean of a one-year rolling window of acquisitions rates, Netflix acquisition rate between Q3 2019 to Q2 2020 is estimated to be 38%, assuming a constant churn rate of 10%; as such, the study observes that Netflix higher acquisition rates and lower churn rates result from its relatively larger number of users, *ceteris paribus*.¹⁶⁰

¹⁵⁵ FASB 2020 (ASU 2019-2 "Accounting for Costs of Films and License Agreements"); FASB 2020 (ASU 2016-13 "Measurement of Credit Losses, Financial Instrument"); NASDAQ 2021: "in 2020 Netflix turned cash flow positive for the first time in almost nine years"; see "non-current content assets, net" [ASU 2019-2] and "[current] content assets, net" [ASU 2016-13] in SEC 2020 and SEC 2021

¹⁵⁶ Netflix IR 2021c (Investor Relations, Q4'20 Shareholders Letter p. 7); conversely, research consultancy Behind the Balance Sheet 2020 demonstrates that between 2011-2019, Netflix rate of amortization over four years is closer to 70%, which is consistent with estimations of this study calculated from 2017-2020 found in the appendix (appx. C, table C5)

¹⁵⁷ Netflix IR 2021a (Investor Relations, Q1'21 Shareholders Letter p. 3)

¹⁵⁸ Kvick 2019 (p. 26)

¹⁵⁹ Schneider and Imai 2020 (pp. 9-10)

¹⁶⁰ Schneider and Imai 2020 (p. 16)

Similarly, the second case study investigates the per user-related costs of Netflix members, by means of evaluating the *average revenue per user (ARPU)*, and corresponding *expected customer life-time value (E(CLV))*;¹⁶¹ according to the authors definitions in equations, *ARPU* shows the earnings per average membership in a given time period, while *E(CLV)* estimates the present value of existing members that subscribe within a specified period. These variables are considered important metrics for subscription-based companies such as Netflix, as they are telling of the potential monetization of users, and sustainability of a business.¹⁶² Important to note, Netflix reports content amortization as part of the *cost of goods sold* on its consolidated balance sheet, before cost of content amortized is expensed on the company's *cash flow* statement, so as to write-off the value of its intangible assets, thus reducing the company's taxable income;¹⁶³ as cash flow refers to the amount of money moving in and out of a business, the liquidity metric *free cash flow* indicates the net operating profits of a business, after provisions for taxes, less net investment in operating capital, such as for instance spending on content. As compared to Netflix estimate of content amortization composing the "majority of the cost of revenues,"¹⁶⁴ the study determines that content amortization amounts to between 75 to 80% of cost of goods sold for Netflix global market between 2009 to 2018;¹⁶⁵ accordingly, results as such align well with the evaluation specific to Netflix Canadian market jurisdiction between 2017 to 2020 that will be discussed in section 5.2.2, in which the average ratio of content amortization against cost of goods sold for a given reporting period is estimated to be 75%, relative to 90% when content amortization from the previous period is substituted (appx. C, table C5). Thus, a critical point of intersection between the study under consideration and the present case is the question as stated by the author, "at what period should the cash flow related to content costs that are associated with the current period be measured,"¹⁶⁶ resulting from a preceding estimation that "the accumulated amortization of streaming content assets is roughly lagging 18 months to the accumulated acquisition of streaming content assets during the period 2009 to 2018."¹⁶⁷ In essence, this begs the question of whether content associated costs being amortized can be measured on a unit economic level, and if not, how might direct user costs be assessed when content is at the core of user adoption by use of Netflix service.¹⁶⁸

161 Kvick 2019 (pp. 7-15)

162 Kvick 2019 (pp. 7-15)

Figure 2.10, "shows how much the company is earning per average user during a certain time period" p. 7:

$$ARPU_T \text{ [Average Revenue Per User (Time)]} = R_T \text{ [Total Revenue (Time)]} / U_T \text{ [Average Number of Users (Time)]}$$

Figure 2.31, "to value the present value of the existing users" pp. 14-15:

$$E(CLV) = \sum [\text{Sum}] CFPU \text{ [Cash Flow Per User]} \times (1 - \text{churn})^T / (1 + R)^T = CFPU \times (1 + R / R + \text{churn})$$

163 Netflix IR 2020 (Investor Relations, Overview of Content Accounting pp. 5-17)

164 SEC 2020 (Netflix 2019 Annual Report, "Segment and Geographic Information" Item 10)

165 Kvick 2019 (pp. 55-56)

166 Kvick 2019 (p. 59)

167 Kvick 2019 (Figure 3.7 p. 24)

168 Kvick 2019 (p. 59)

5.2.2 PRICE ELASTICITY, MARGINAL COST, AND TAX INCIDENCE

All things considered, the following analytical framework offers a deductive approach to economic cost-benefit analysis, made possible by Netflix statement of Canada's market share, as well as the quality and standards reflected by the company's annual reports identified above. As has been discussed, the focus of economic analysis in this study is to advance quantitative evidence of demand specifications pertaining to the Canadian market jurisdiction of Netflix; by doing so, the research seeks to assess the implications of digital tax measures under consideration by the Government of Canada that aim to address the gap of digital taxation, and by extension controversy concerning the ongoing debate of a 'Netflix tax,' which is believed to have cast a shadow on Canada's newly introduced cultural policy the CCPF.

The specific problem in existing literature on the issue, much like the general framing of the debate, is that neither put forward the empirical evidence necessary to weigh the opportunity costs and social benefit of policy actions; therefore, the significance of the case study is to facilitate what is needed to make an informed opinion on the matter, and in turn foster meaningful engage in the iterative process of interactive taxation, such as in the case of the collaborative efforts of the Inclusive Framework on BEPS.

For this purpose, attention is given to identifying the **cost of tax incidence** associated with the proposed digital tax measures, should they be imposed on Netflix and applicable to Canadian membership fees, as well as the **benefit of tax revenue** connected to Netflix Canadian market; following from this, the incidence of taxation is contingent on the *price elasticity of demand*, while revenue generated through taxation is contingent on *marginal cost*. In this context, theoretical economic models are used to represent complex economic processes, and seek to derive verifiable implications about economic behaviour under the following fundamental assumptions, which serve as the basis for the assessment:

PRICE DETERMINATION

- Foremost, economic models consider both *endogenous* and *exogenous* variables, with the value of endogenous variables being explained by a theory and therefore *dependent* on the model, as opposed to exogenous variables which take values from outside the theory and *independent* of the model; accordingly, the variables *price (P)* and *quantity (Q)* are considered exogenous since their values or coefficients, are defined outside the theory and model, such that they may change to create various responses.

LAW OF SUPPLY AND DEMAND

• In view of this, P is understood to be determined by Smith's foundational 'law of supply and demand;' that is, the *supply* (S) of production and *demand* (D) for consumption are expressed on a finite horizon, whereby the *cost* (C) of S yields *revenue* (R) from D , with the P and C of S affecting the Q and R from D . Because of this, S and D are believed to have an inverse relationship to P , supposing that one changes and the other remains constant; this implies that P decreases if the S of Q increases while the D for Q remains constant, and in consequence of decreases in P the D for Q is expected to increase, thus the same holds for the inverse.¹⁶⁹

PRICE ELASTICITY OF LINEAR SUPPLY AND DEMAND FUNCTIONS

• In line with the preceding principles, price elasticity of S and D describes the use of *elasticity* ($\epsilon > 1$) and *inelasticity* ($\epsilon < 1$) as measures of the responsiveness of S and D to changes in P , such that elasticity refers to the relative *sensitivity* of S or D to changes in P , while inelasticity refers to that which is relatively *insensitive* to changes in P ; therefore, when there is *perfect elasticity* ($\epsilon = \infty$) or *perfect inelasticity* ($\epsilon = 0$), the responsiveness of S or D to changes in P tends towards infinity or zero (fig. 12), such as the standard willingness-to-pay criteria in Hick's nascent concept of 'compensating or equivalent variations.'¹⁷⁰

MARKET MODELS

• When comparing markets, those that are *competitive* are characterized by a large number of small firms, as opposed to an *oligopoly* which describes a market dominated by a small number of interdependent firms that may collude to set P or quotas on Q . In contrast, a *monopsony* refers to the market condition in which there is a single dominate buyer, much like a *monopoly* (M) market structure that is distinguished by having one seller with no close substitute; consequently, a *natural monopoly* arises from *economies of scale*, which are defined by high *fixed costs* (FC) and decreasing *variable costs* (VC), as a result of increases to scale illustrated by Q , such as in the case of Netflix.

¹⁶⁹ Smith 1776 (*The Wealth of Nations*)

¹⁷⁰ Hick 1939 (*Value and Capital: An Inquiry into Some Fundamental Principles of Economic Theory*); Miklos-Thal and Shaffer 2019 (pp. 1-2)

MARGINAL COST PRICING RULE

• By convention, the vertical axis denotes P , so that Q is expressed on the horizontal axis, as per the Marshall's formative 'supply-and-demand curve.'¹⁷¹ As such, *marginal cost (MC)* represents the C of *producing* one additional unit of Q , while *marginal revenue (MR)* corresponds to the R generated by *selling* one additional unit of Q ; thus, *average cost (AC)* indicates the average C of each unit *produced* within a given period, whereas *average revenue (AR)* equates to the average R generated by each unit *sold* within the same period.¹⁷² This is in reference to 'marginal cost pricing,' a doctrine which stems from Kahn's influential concept of 'allocative efficiency and marginal benefit.'¹⁷³

OPTIMAL TAXATION

• With this in mind, when a government levies a tax that is imposed *per unit (VAT)* or as a *fixed percent (AV)* of prices,¹⁷⁴ the 'economic principle of incidence' is understood as determining the burden of taxation borne by producers and consumers, with the incidence of taxation dependent on the relative price elasticity of S and D ; in effect, when S is *relatively inelastic* producers are thought to bear most of the tax incidence, while consumers are expected to bear most of the tax incidence when D is *relatively inelastic*. In other words, when D is inelastic (*insensitive to P*), producers are incentivized to shift the burden of a tax onto consumers by passing it through prices; on this premise, the 'inverse elasticity rule of monopoly pricing' proposes that for linear demand, the more D becomes elastic (*sensitive to P*) the lower a monopolist will set P (fig. 13).

PROFIT MAXIMIZATION RULE

• Against this background, prevailing economic thought supposes that the 'socially efficient' Q for linear demand occurs where $P = MC$ under perfect competition, and that 'profit-maximization' for a monopolist is where $P = MR = MC$; reasoning behind this relates to Leibniz's 'marginal rate of transformation' (MRT), which measures the trade-offs along the 'production possibility frontier' (PPF), used to demonstrate the optimal Q for two products that are dependent upon the same finite resources.¹⁷⁵

171 [Aspromourgos 2020](#) ('Marshall cross' p. 194); Marshall 1890 (*Principles of Economics*)

172 [Sidak 2015](#) (AC, AR; "for a monopolist with decreasing marginal costs, as the profit maximizing quantity for the monopolist decreases, the marginal cost at that quantity increases" p. 658)

173 [Greer 2010](#) ('marginal cost pricing doctrine' p. 14); Kahn 1970-1971 (*The Economics of Regulation*)

174 [Jean and Valerio 2020](#) (Figures 1-2 pp. 8-13; unit and ad valorem monopoly taxation); [Li 2020](#) (York; taxation of intangibles); [Adachi and Fabinger 2020](#) (Figure I p. 4; pass-through and welfare measures under imperfect competition)

175 [Ning 2016](#) ('marginal rate of transformation' pp. 5, 11)

Formulas and proxies used in the marginal and average cost functions, along with definitions and values in equations for *expected variables* ($E(x)$) below can be found in the appendix ([appx. C, table C1-C4](#)). Similar to variables and functions written in Python previously described, *economic variables* refer to quantitative economic units of measurement, while *economic functions* serve as a means to describe the relationships between those under consideration. The economic variables applied in this study are countable, and thus of the *discrete* statistics class; moreover, numerical outcomes result from random phenomenon with mutable values, making them characteristic of *discrete random variables*.

That said, variables for Netflix global operating segment are taken from the company's consolidated balance sheets between 2017 to 2020.¹⁷⁶ Following this, the approach outlined in the OECD Pillar One blueprints is implemented to proxy *marginal cost* and *price elasticity of demand* at the jurisdiction level for Netflix Canadian market; this is done by using the percentage deemed as foreign revenues in-scope for Canada, which is 10% of Netflix UCAN region, to calculate the ratio between country-level variables and Netflix single reportable operating segment.¹⁷⁷

¹⁷⁶ [SEC 2020](#) (Netflix 2019 Annual Report, "Selected Financial Data" Item 6, "Management's Discussion and Analysis of Financial Condition and Results of Operations" Item 7); [SEC 2021](#) (Netflix 2020 Annual Report, Item 6, Item 7)

¹⁷⁷ [OECD 2020a](#) (BEPS Impact Assessment, "Simplified Formula Summarizing the Approach on Pillar One (Amount A)" Figure 2.1 p. 29, "Approach to Proxy CFB Destination-based Sales" Figure 2.4 p. 40, "Approach to Proxy ADS Destination-based Sales" Figure 2.8 p. 45)

As will be shown, the *price elasticity of demand* for Netflix Canadian segment was found to be *relatively inelastic* ($\epsilon_D < 1$) when compared with that of the company's global segment that is estimated to be *relatively elastic* ($\epsilon_D > 1$). In addition, evidence contests theoretical presumptions that the *marginal cost* of Netflix and digital platforms alike are zero,¹⁷⁸ as empirical results for its global and Canadian segments prove variant; this can be seen when comparing segment specific *MC* by means of the following three measures listed below (appx. C, table C2).

MC	↘	-36%Δ	π	\$9 \bar{x}	-4%Δ
MC_{CA}	↘	-13%Δ	π_{CA}	\$29 \bar{x}	+128%Δ

• *marginal cost* (MC) [$\Delta TC (VC + FC) / \Delta Q$] considers traditional variable costs (VC) and fixed costs (FC), while *economic profit* (π) [$MR - MC$] denotes resultant economic profit at the monopoly equilibrium ($P = MR = MC$);

$MC_{(COGS-1GCA)}$	↗	+12%Δ	$\pi_{(COGS-1GCA)}$	\$9 \bar{x}	-23%Δ
$MC_{(COGS-1GCA)CA}$	↗	+607%Δ	$\pi_{(COGS-1GCA)CA}$	\$36 \bar{x}	-58%Δ

• in addition to traditional costs (MC), $MC_{COGS-1GCA}$ [$\Delta TC + \Delta COGS_{-1GCA} / \Delta Q$] involves costs associated with the *cost of goods sold* ($COGS$), excluding *gross content amortization* (GCA) less one year, and $\pi_{COGS-1GCA}$ [$MR - MC_{COGS-1GCA}$] as a result;

$MC_{(COGS)}$	↘	-13%Δ	$\pi_{(COGS)}$	\$3 \bar{x}	+11%Δ
$MC_{(COGS)CA}$	↗	+152%Δ	$\pi_{(COGS)CA}$	\$12 \bar{x}	+78%Δ

• lastly, MC_{COGS} [$\Delta TC + \Delta COGS / \Delta Q$] reflects the aggregate of traditional (MC), additional ($MC_{COGS-1GCA}$), and content (GCA) costs with π_{COGS} [$MR - MC_{COGS}$] coming after.

178 Cohen et al. 2020 (Figures 1 p. 1):

“in all of these examples, marginal cost is known and constant... *it is zero for software downloads and music or video downloads or streaming;*”

Herzog 2018 (Figures 1 pp. 4-5):

“*optimal pricing of platform services is characterized by high fixed costs and a low—almost zero—marginal cost (MC)...* hence, in the early stage of platform companies, the pricing is similar to a natural monopoly”

Koethenbuerger 2020 (p. 7):

“in the absence of taxes, internal prices of a two-sided platform do not only reflect marginal costs (if at all, since *marginal costs are close to zero* in two-sided digital platforms);”

Lozic 2021a (p. 78):

“according to the cost structure, [Netflix] *uses zero marginal cost models;*”

Lozic 2020b (Tables 1-3, Figures 1-3 pp. 128-133):

“digitizing the production and distribution of media content... directly affected the variable costs of each of the following units... [and] the development of a *marginal production cost near to zero;*”

Wu et al. 2019 (Figures 1-3 pp. 12-14):

“bundling is particularly profitable in their case because *their marginal production cost is zero.*”

Bearing in mind the fundamental economic assumptions described earlier, newly available data shows that Netflix marginal cost is neither zero, nor declining (\searrow) in some cases (\nearrow). This finding echoes a recent study on rationalising the apparatus of Marshall's above cited supply-and-demand curve,¹⁷⁹ in which the author argues, "there is no plausible basis for a general presumption in favor of the conventional rising supply function;" this is because, "the use of scarce natural resources in consumption or production," as the author states, "is the only potential systematic source of RSP [rising supply price]" (fig. 14.3). Important to note, the 'rising supply function' equates to the 'marginal cost function' (appx. C, table C2); this implies that

$S = MC$ in a perfectly competitive market

due to the assumption that MC is equal to P at equilibrium (E^*) for competitive firms. Reason for this is that when MC is made explicit, the function is assumed to signify a non-negative value for all levels of Q , and thus certain conditions can give rise to a constant or zero value, as per Cournot's Nash Equilibrium and *Duopoly* Theory.¹⁸⁰

As compared to perfect competition, market imperfections arising from monopolies or monopolistic competition have been shown to lead to *price discrimination*, which refers to the practice of charging different prices for the same good or service, and is typically grouped into the following varying degrees:

- *First-degree* (personalized pricing, perfect),
wherein the maximum price per unit is charged, so as to maximize profits;
- *Second-degree* (quantity discounts, bundle),
involving different prices based on different quantities;
- *Third-degree* (consumer groups, segment),
by means of which prices differ according to consumer sections.¹⁸¹

¹⁷⁹ Aspromourgos 2020 ('Marshall cross' p. 194); see 'Marginal cost pricing rule' p. 47

¹⁸⁰ Aspromourgos 2020 (pp. 194-197); Tremblay and Tremblay 2019 (Figures 1-6 pp. 1556-1563)

¹⁸¹ Shiller 2014 (case study on first-degree price discrimination by Netflix pp. 1-2, 4, 6, 12)

That said, this study considers Netflix a monopoly, as opposed to a duopoly (one of *two* dominate firms in a market), or oligopoly (one of *few* dominate firms) for two central reasons. First, in the latest Communications Monitoring Reports by the CRTC, Netflix is reported to account for 65% (\$1.6 billion dollars) of Canadian SVOD (subscription video-on-demand) streaming revenues, which is roughly 38% (\$1.6-1.7 billion) of estimate revenues from ‘internet-based streaming video’ in Canada;¹⁸² in addition, Netflix successfully differentiates itself from competing SVOD services by way of its long-established brand, efficiency of scale, and accelerated production of original content through its aforementioned revenue-based amortisation method.

On account of this, Netflix supply curve ($S = MC$) has been modeled as *perfectly elastic* ($\epsilon = \infty$), rather than *relatively elastic* ($\epsilon > 1$), implying that the price *elasticity of demand* is *relatively inelastic* ($\epsilon < 1$), irrespective of price elasticities; reason for this is that when a monopolist firm sets both P and Q , through a profit maximizing quota for Q and price for P , S is constant, in the sense that the price *elasticity of supply imposes* must be met to ensure the minimum. So then

perfect price discrimination corresponds to $MR = D = AR$

such that for both Netflix global (fig. 15) and Canadian segments (fig. 16), *vendor surplus* (VS) from *normal profit* ($E(\pi^*)$) at the *fair-return price* (P), which denotes ‘average-cost pricing,’ is equivalent to the sum of areas **b** and **c**; thus, if a ‘price maker’ monopoly able to influence prices, such as Netflix, chooses to set the price at the *monopolistic price* ($E(P)$) resultant *supernormal profit* ($E(\pi)$) is indicated as the total of areas **a** and **b** (fig. 15, fig. 16).

¹⁸² CRTC 2020 (CMR 2019, Figures 6.20-6.23 pp. 188-189; 2018 ‘internet-based video services estimated revenues,’ \$4,328 million: SVOD \$2,523, TVOD \$495, AVOD \$1,310; Netflix \$1,643); CRTC 2021 (CMR 2020, Figure 3.8 pp. 74-75; 2019 ‘internet-based video services estimated revenues,’ \$4,795 million: SVOD \$2.623, TVOD \$542, AVOD \$1,360; Netflix, +9.2% Δ = \$1,749)

In light of these factors, this study considers Netflix explicit acceleration in production of original content through revenue-based amortization as the main premise for its capacity to set a profit maximizing quota for Q given the normalization of targeted ads facilitated by Big Data;¹⁸³ thus,

$$\text{marginal cost is constant at monopoly profit maximization } MR = MC = P$$

denoting that Netflix marginal cost curve ($S = MC$) is *constant* (i.e., perfect elasticity, $\epsilon = \infty$) at monopoly profit maximization as a result of economies of scale at all levels of Q.¹⁸⁴ As regards E(P), estimations of tax revenues generated by the proposed tax measures assessed in this section found in the appendix (appx. C, table C6), and bearing on the Canadian government’s general tax revenues necessary to fund direct spending programs will be discussed in closing.

TABLE 2. ILLUSTRATIVE MONOPOLY PROFIT MAXIMIZATION RATIO

P	Q	TC	TR	MR	MC	ATC	AVC	ε	π
						[AC]	[VC]	[PED]	[PBT]
\$925	1	\$600	\$925	\$925	\$100	\$600.0	\$300.0	25.67 ε	\$325
\$850	2	\$650	\$1,700	\$775	\$50	\$325.0	\$175.0	7.89 ε	\$1,050
\$775	3	\$710	\$2,325	\$625	\$60	\$236.7	\$136.7	4.33 ε	\$1,615
\$700	4	\$790	\$2,800	\$475	\$80	\$197.5	\$122.5	2.81 ε	\$2,010
\$625	5	\$900	\$3,125	\$325	\$110	\$180.0	\$120.0	1.96 ε	\$2,225
\$550	6	\$1,040	\$3,300	\$175	\$140	\$173.3	\$123.3	1.42 ε	\$2,260
\$475	7	\$1,220	\$3,325	\$25	\$180	\$174.3	\$131.4	1.05 ε	\$2,105

Note: the table above demonstrates how a monopolist with decreasing marginal costs (MC) is assumed to select quantity (Q) and price (P) in order for profit maximization; extraneous data is used for illustrative purposes in absence of a sufficient sample size for input variables relevant to this study; see formulas for variables listed below (table 3) and in the appendix (appx. C); π indicates PBT, i.e. profits before tax [EBIT (GP - VC) - FC].

183 Du 2021 (“Price Customization and Content Provision in Media Markets”); Fagerjord and Kueng 2019 (“What Netflix Can Tell Us About these New Media Networks”); Maddodi and Prasad 2019 (“Netflix Bigdata Analytics: The Emergence of Data Driven Recommendation”); Nielsen 2021 (“Netflix and (Tax) Bill: Retail Sales Taxation of Services”); Shiller 2014 (“First, since purchases occur online, Netflix could easily implement tailored pricing based on web data. Second, Netflix can effectively price discriminate, as evident from its use of second-degree PD [Price Discrimination; bundled subscriptions]. Third, unlike in most contexts, hypothetical personalized pricing can be empirically studied. Doing so requires individual level data on both web-browsing histories and all purchases of a particular item, data which rarely appear together. However, Netflix subscription can easily be imputed from web-browsing histories.” p. 2)

184 Adachi and Fabinger 2020 (pass-through and welfare measures under imperfect competition; fig. I “Marginal Change in Deadweight Loss (MCDL) Under a New Scheme for Commodity Taxation” p. 4; note: increasing MC is figured, since the production of tangible commodities cause FC and VC to increase, whereas the network effect of intangible digital goods and services accelerate economies of scale, resulting in decreasing, or constant MC); Miklos-Thal and Shaffer 2019 (output and welfare effects of third-degree price discrimination in monopoly markets); Weyl and Fabinger 2008 (“For a monopolist, however, the elasticity of demand determines the level, rather than the comparative statics, of price. The slope of elasticities therefore takes the place of its level in imperfectly competitive markets.” p. 2); Weyl and Fabinger 2013 (determinants of tax pass-through and division of surplus under imperfect competition)

TABLE 3. EXPECTED VALUE OF DISCRETE RANDOM VARIABLES

<i>profit maximizing price</i>	<i>quantity</i>	<i>total revenue</i>	<i>marginal revenue</i>	<i>total cost</i>	<i>marginal cost</i>	<i>average cost</i>	<i>price elasticity of demand</i>
$P = MR = MC$	$Q = Q \times 12$	$TR = P \times Q$	$MR = \Delta TR / \Delta Q$	$TC = VC + FC$	$MC = \Delta TC / \Delta Q$	$AC = TC / Q$	$\epsilon = \% \Delta Q / \% \Delta P$
E(P)	E(Q)	E(TR)	E(MR)	E(TC)	E(MC)	E(AC)	E(ϵ_D)
\$11.25	2,800	\$31,500	\$10.25	\$7,700	\$1.25	\$3.00	$\bar{x} \epsilon > 1$
+3% Δ Y/Y	+23% Δ Y/Y	+25% Δ Y/Y	-9% Δ Y/Y	+18% Δ Y/Y	-36% Δ Y/Y	+7% Δ Y/Y	$\bar{x} = 6.75 \epsilon$
E_{CA}(P)	E_{CA}(Q)	E_{CA}(TR)	E_{CA}(MR)	E_{CA}(TC)	E_{CA}(MC)	E_{CA}(AC)	E_{CA}(ϵ_D)
\$14.50	125	\$1,450	\$60.00	\$125	\$0.75	\$1.50	$\bar{x} \epsilon < 1$
+9% Δ Y/Y	+5% Δ Y/Y	+18% Δ Y/Y	+100% Δ Y/Y	+12% Δ Y/Y	-13% Δ Y/Y	+7% Δ Y/Y	$\bar{x} = 0.75 \epsilon$
<i>monopolist profits</i> [supernormal]	<i>fair-return profits</i> [normal]	<i>fair-return price</i>	<i>equilibrium price</i>	<i>unilateral tax</i>	<i>multilateral tax</i>		
$\pi = TR - TC$	$\pi^* = TR - TC$	$P = AC$	$P^* = MC$	$T_1 = T\% \times P$	$T_2 = T\% \times P$		
[MR - MC] [E(P) - P*]	[AR - AC] [P - P*]						
E(π)	E(π^*)	P	P*	E(T₁)	E(T₂)		
\$10.00	\$1.75	\$3.00	\$1.25	\$0.25	\$2.25		
+2% Δ Y/Y				3% VAT	20% AV		
E_{CA}(π)	E_{CA}(π^*)	P_{CA}	P*_{CA}	E_{CA}(T₁)	E_{CA}(T₂)		
\$13.75	\$0.75	\$1.50	\$0.75	\$0.50	\$3.00		
+10% Δ Y/Y				3% VAT	20% AV		

Note: *delta* (Δ) represents ‘the change;’ forecasts are calculated using the *sample mean* (\bar{x}), which is referred to as the *expected value* (E(x)) of a given variable (x), as is shown in the appendix (appx. C, table C1-C2). This it is consistent with the sample variance (s^2) due to the limiting range of 2017-2020 for segment specific values; moreover, this method parallels Netflix use of percentage growth year-over-year in the company’s investor reports, such as for example, Netflix reports that in Q1’21 the average price of memberships for the region UCAN (US and Canada) was \$14.25. Additionally, \bar{x} and s, or the *sample deviation* (s), are used as opposed to the *population mean* (μ) and *standard deviation* (σ) due to the nature of time series data; related formulas are as follows: sample mean [$\bar{x} = (x) / \Sigma n$], *sample variance* [$s^2 = (x - \bar{x})^2 / \Sigma n$], *sample deviation* [$s = \sqrt{s^2}$].¹⁸⁵

185 Department of Finance Canada 2020 (p. 113); Department of Finance Canada 2021 (Budget 2021, Annex 7 “Proposed Measure” pp. 731-737); OECD 2020b (BEPS Pillar One, Figure 1.2 “Process Map for Amount A” p. 16); SEC 2020 (Netflix 2019 Annual Report, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7); SEC 2021 (Netflix 2020 Annual Report, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7); Netflix IR 2021b (Investor Relations, Q2’21 Shareholders Letter p. 8)

FIGURE 12. PRICE ELASTICITIES OF INVERSE LINEAR SUPPLY AND DEMAND CURVES

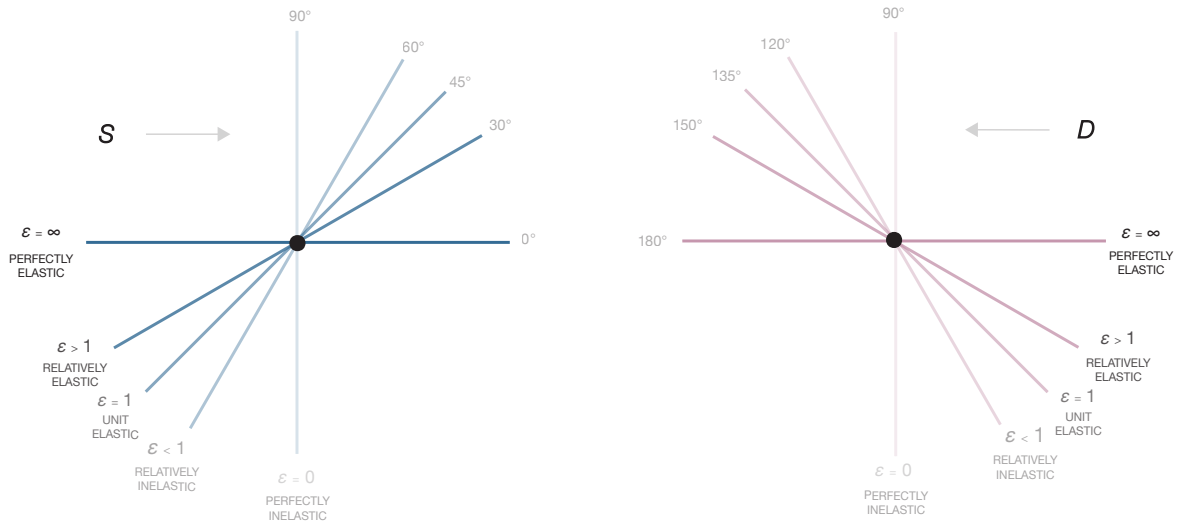
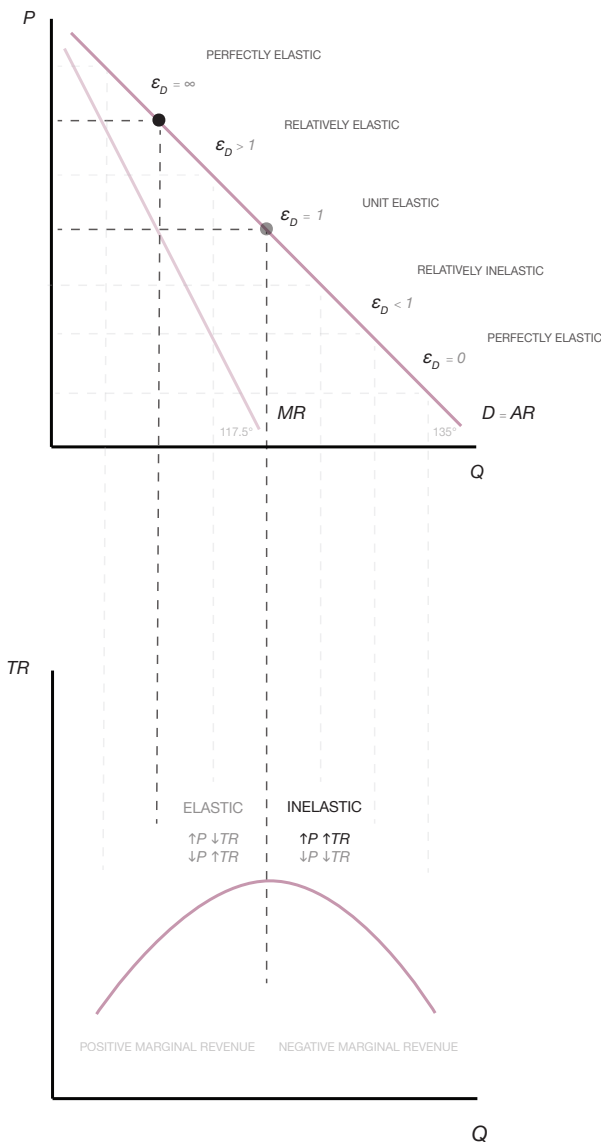


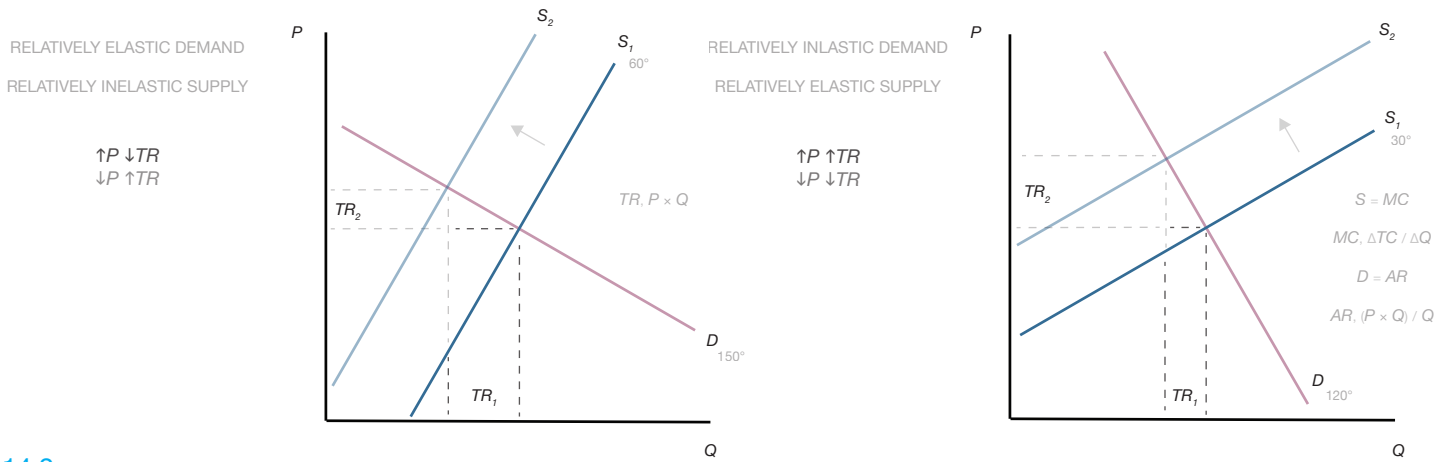
FIGURE 13. COMPETITIVE VERSUS MONOPOLIST PRICING WITH LINEAR DEMAND



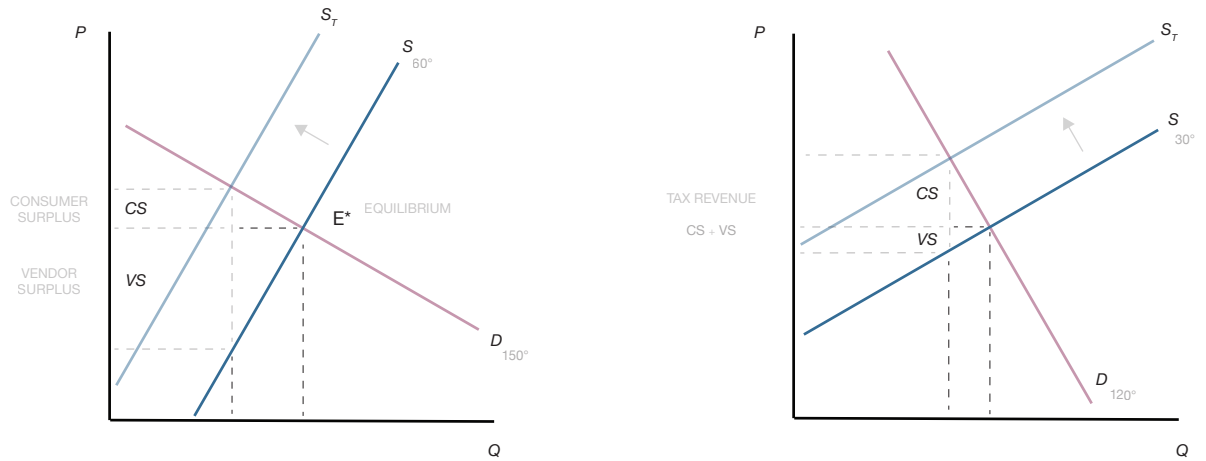
Note: the equilibrium at *unit elasticity* ($\epsilon_D = 1$) represents the price (P) for *competitive firms*, while the point at *perfect elasticity* ($\epsilon_D = \infty$) is representative of where *monopolist firms* are expected to produce, which is on the elastic region of demand curve; monopolists typically produce in the elastic portion of linear demand curves because when D is elastic, *total revenue* (TR) increases when P decreases, denoting a point of profit maximization; ceteris paribus, that is why the *inverse elasticity rule of monopoly pricing* proposes that the more D becomes elastic, the lower a monopolist will set P .

FIGURE 14. TAX INCIDENCE AND NATURAL MONOPOLIES IN DIGITAL PLATFORM MARKETS

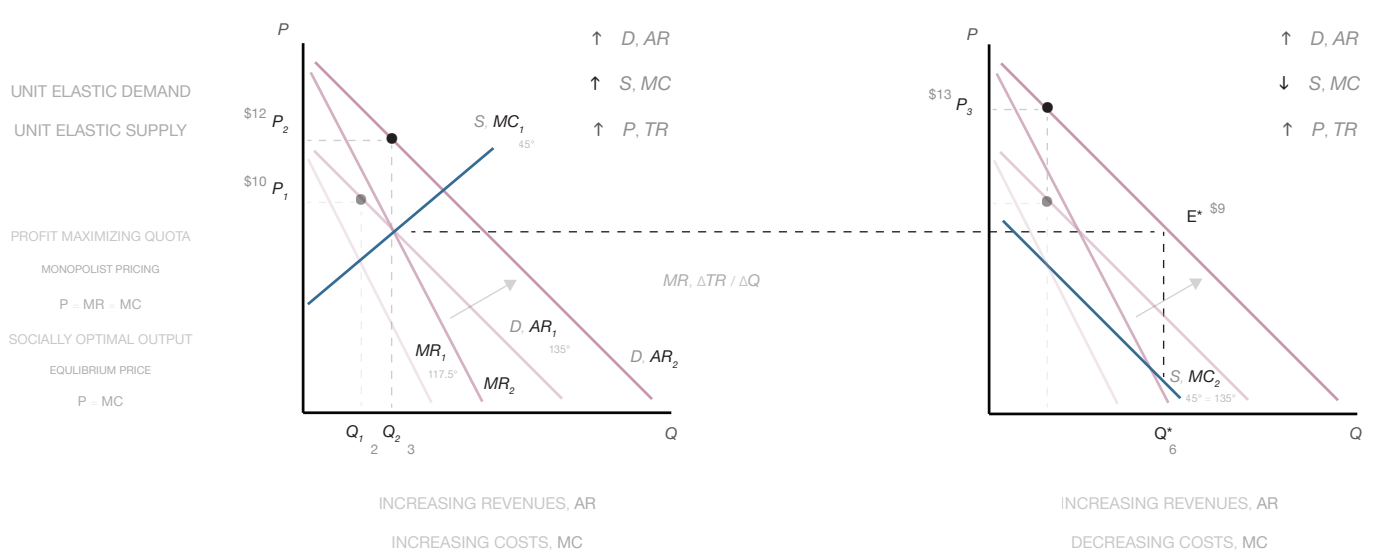
14.1



14.2

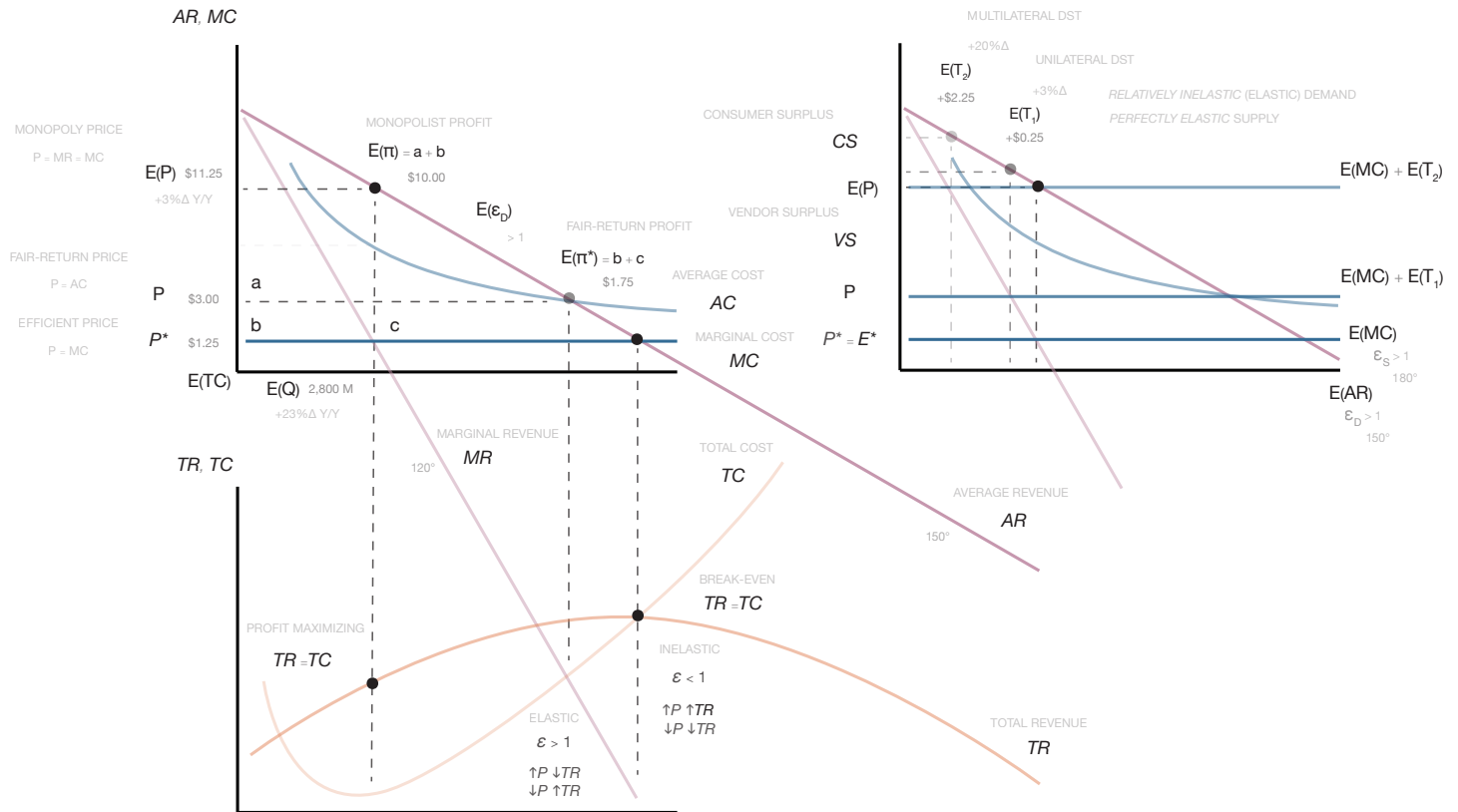


14.3



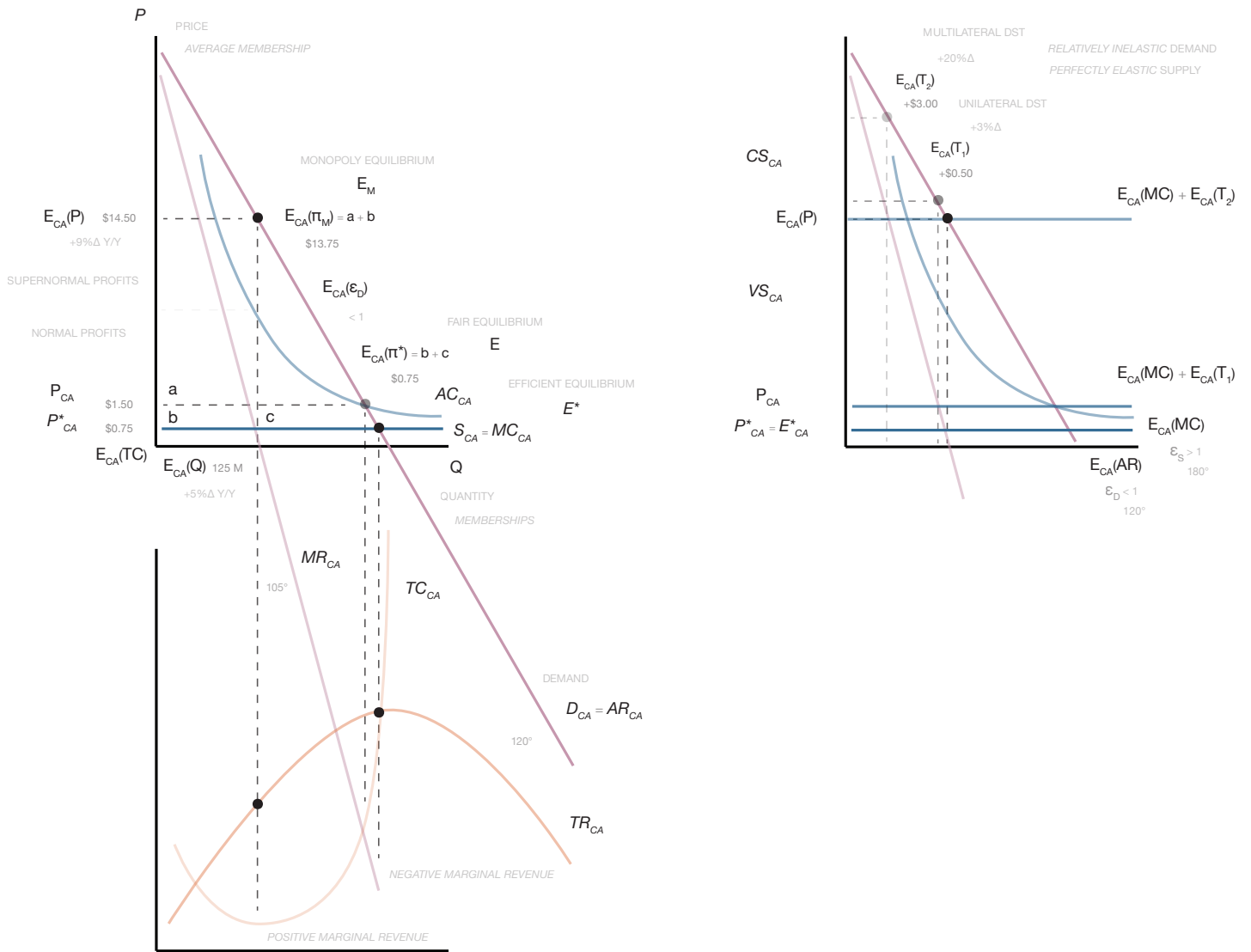
Note: for linear demand curves, D is equal to average revenue (AR); decreases in P are assumed to increase total revenues (TR) when D is elastic ($\epsilon_D > 1$) or decrease TR when D is inelastic ($\epsilon_D < 1$); as such, under ‘perfect competition’ $TR (P \times Q)$ is maximized at unit elasticity ($\epsilon_D = 1$), as it occurs where marginal revenue (MR) is zero. For this reason, a monopolist is expected to produce in the elastic region of the demand curve, which is where $MR = MC$.

FIGURE 15. NETFLIX GLOBAL OPERATING SEGMENT PRICING



Note: for monopolist firms, the relevance of the relationship between the *elasticity of demand* (ϵ_D) and *total revenue* (TR) as shown above is that *natural monopolies* arise from *economies of scale*, whereby barriers to entry emerge due to high *fixed costs* (FC) and decreasing *variable costs* (VC), leading to unfair competition by virtue of scalability, and in turn diminishing *total cost* ($TC = FC + VC$) such as in the previous figure (fig. 14.3); accordingly, a monopolist is expected to produce the lowest level of Q with the highest possible *profit* ($\pi = TR - TC$), so as to infer a point of *profit maximization* ($TR = TC$), which is typically found half-way between the equilibrium (P^*) and monopolist price ($E(P)$) in the case of linear demand.

FIGURE 16. NETFLIX CANADIAN MARKET SEGMENT PRICING



6. CONCLUSION

6.1 RESEARCH CONTRIBUTION

6.1.1 RESEARCH FINDINGS

The main objective of this study is to identify social and economic factors related to the sustainability of cultural policy in the Canadian context, so as to provide a holistic interpretation of the socio-economic impact of forthcoming policy reforms in the Canadian culture sector and international tax system under *unconventional monetary policy*. Regarding the issue of unconventional monetary policy, this is important because the COVID-19 pandemic has led the Bank of Canada to engage in *quantitative easing (QE)*, which is a monetary policy lever known to have adverse socio-economic effects, as it is shown to trade-off industrial sustainability and social well-being for ‘price stability;’¹⁸⁶ however, due to the time constraint of this study, the matter will be mentioned in brief with reference to the implications of social (TSA) and economic (CBA) components of analysis.

KEY QUALITATIVE FINDINGS, PHASE ONE: TWITTER SENTIMENT ANALYSIS (TSA)

• Given that many of the queries tested proved to be ambiguous within the search rules and restrictions of *searchtweets*, this study assessed a relatively small sample of tweets pertaining to both the CCPF and BEPS, so that through stated queries noting again below ([table 4](#)), sentiment analysis was based on query specific datasets of roughly 400 tweets after preprocessing ([fig. 5](#)). While the findings indicate a large portion of the tweets as expressing positive sentiment toward the topics in focus, results have been supplemented by various statistics on the Canadian cultural industries; in doing so, these results serve as a complement to claims made in the existing literature, with further detail in that regard discussed in the following section.

TABLE 4. N-GRAM REPRESENTATIONS OF TWITTER SENTIMENT

Note: as a supplement to the word clouds exhibited earlier (fig. 6 , fig. 7), whereby size indicates the frequency or prominence of text within query and sentiment specific datasets, <i>tri-grams</i> (N-3) in the table shown represent co-occurring common words among individual tweets specific to those same datasets, and were created with the NLP Python library NLTK through use of the code found in the appendix (table B4.4).		CCPF	BEPS
		(“creative” AND “canada”)	(“oecd” AND “beps”)
		09/28/2017 - 12/28/2018	10/09/2020 - 01/29/2021
	<i>negative</i>	(netflix, deal, horribly)	(disruptive, impact, multinational)
	≤ -0.05		
	<i>neutral</i>	(netflix, canadian, productions)	(instrument, ratification, multilateral)
	> -0.05		
	<i>positive</i>	(new, creative, canada)	(address, tax, challenge)
	≥ -0.05		

¹⁸⁶ [Ambler and Kronick 2020](#) (October 2020 p. 16); [Bacchetta et al. 2020](#) (December 2020 p. 1); [Kumari 2020](#) (February 2020 p. 34); [Batman 2021](#) (April 2021 pp. 1, 30-33); [Cross 2021](#) (March 2021 p. 1); [Grimaldi et al. 2021](#) (March 2021 p. 1); [Nsafoah 2021](#) (April 2021 p. 1)

KEY QUANTITATIVE FINDINGS, PHASE TWO: ECONOMIC COST-BENEFIT ANALYSIS (CBA)

BENEFIT FROM REVENUE

- Netflix **revenue-based amortisation** method whereby content spending is reported as both cost and expense significantly reduces Canada's associated tax base of **foreign in-scope revenues**, which is the approach of *tentative multilateral DST* proposal Pillar One Amount A by the OECD Inclusive Framework on BEPS, and that the latest *interim unilateral DST* proposal by Canadian Finance Minister Chrystia Freeland is in accordance with.¹⁸⁷

- By way of illustration, this study models Freeland's proposal as a 3% *value-added tax* (VAT) on Netflix *total revenue* (TR_{CA}) from Canada while the OECD proposal is modeled as a 20% *ad valorem* (AV) after the Pillar One Blueprints, and applied to *profits before tax* (PBT_{CA}) as well as *profits before interest, taxes, depreciation and amortization* ($PBTDA_{CA}$) for Netflix Canadian market jurisdiction; when compared to Canada's Budget 2021 DST estimate of budgetary revenue for 2022 (\$700 million), the first scenario [$TR_{CA} \times 3\%$ VAT] amounts to 11% (**\$76.8 million**), the second [$PBT_{CA} \times 20\%$ AV] is estimated to be 21% (**\$144.3 million**), and the third [$PBTDA_{CA} \times 20\%$ AV] 59% (**\$415.3 million**) when *gross content amortization* (GCA) is excluded from the *cost of goods sold* (COGS).¹⁸⁸

COST OF INCIDENCE

- Through quantitatively analysing data collected from Netflix consolidated balance sheets since disclosure of Canada's jurisdictional market share (2017-2020), this study provides evidence demonstrating there to be a **constant marginal cost curve** ($S = MC, \epsilon_S = \infty$) irrespective of geographical and country-level segmentation; thereby, elasticity of demand ($D = AR, \epsilon_D \leq \geq 1$) determines the level, **and not comparative statics** of price, with reference to the dynamic impact of change (Δ) within the parameters of an economic model.

- As contrasted with fundamental assumptions about **optimal taxation** and **tax incidence**, which posit the *division of surplus* in excess of the incidence of sales taxes suchlike a VAT (T_1) and AV (T_2) as given, on account of Netflix constant *MC* curve and position for monopoly price discrimination, evidence indicates it is expected to *pass through* changes in unit costs should the proposed digital tax measures be imposed and applicable to Canadian membership fees (Q_{CA}); furthermore, by reason of the *sample mean* and *expected value* for price ($E_{CA}(P)$) and quantity ($E_{CA}(Q)$), this study models the shift in Netflix marginal cost caused by the proposed taxes as approximately the average annual increase in price upon the exogenous shift in demand.

¹⁸⁷ Department of Finance Canada 2021 (Budget 2021, Annex 7 pp. 731-737); OECD 2020b (BEPS Pillar One Blueprint, Figures 1.1-1.2 pp. 7-16)

¹⁸⁸ Department of Finance Canada 2021 (Budget 2021, "Outlook for Budgetary Revenue" Table A1.5 p. 329); OECD 2020b (BEPS Pillar One Blueprint, Figures 1.1-1.2 pp. 7-16); see the appendix for tax gap estimates as well as related formulas for approaches one and two (appx. C, Table C6, C3, C4)

6.1.2 IMPLICATIONS OF ANALYSIS

Empirical gaps in the literature concerning sentiment toward Canada's newly introduced cultural policy the CCPF, and burden of digital taxation tentatively proposed by the OECD BEPS initiative, have been explored in consideration the hypothesis of this study; that is, the *gap in international taxation* being a caveat for addressing the *drift in Canada's cultural policy*, in the sense that effective reforms to the international tax system offer an opportunity for associated tax expenditures to be allocated to direct spending programs, so as to stimulate the Canadian cultural industries. As is summarized above, the results of Twitter sentiment analysis confirm that even with the large major of the sample being classified as positive, an absence of a Netflix tax drives negative sentiment towards domestic cultural policy, which is in line with calls for financial support described in related literature; however, this study further specifies the case that a portion of tax revenues collected from Netflix as *Canada's largest streaming service* (in terms of market share and total revenue) should be allocated to the audiovisual industry as *Canada's largest cultural industry* (on the basis of culture GDP and related employment) *by way of association* (fig. 3, fig. 4). On account of aforementioned survey by the Cultural Human Resources Council (CHRC), which reports 'unstable earnings' as the greatest challenge in attracting and retaining qualified workers in the Canadian audiovisual industry (fig. 8), reallocation as such offers the possibility of greater financial stability for industry stakeholders, and the industry as a whole *by way of extension*; furthermore, establishing a connection between cultural industries and tax revenues as grounds for program spending could be useful to remark in responding the previously mentioned growth imperatives of creative industries policies, which have led public authorities to justify subsidies to the culture sector with reference to benefits external to the sector.

That said, the amount of financial support sought by cultural stakeholders is not well defined. For reference, annual contributions to Canada's audiovisual industry are estimated to be \$348 million dollars. This includes \$134 million from the Government of Canada, CMF funding of roughly \$180 million, as well as \$172 million accorded to the CMF over five years (2018-2024) to mitigate a decline in contributions from Canadian broadcasters due to digital streaming services; however, the decline in contributions continues to outpace stabilization funds.¹⁸⁹ Furthermore, labour shortages in Canada's audiovisual industry are reported to increase 25% by 2026, causing a further deficit in revenues (-\$800 thousand dollars, fig. 8),¹⁹⁰ together with sustained growth in foreign financing of Canadian audiovisual productions; for example, from 2018-2019 they accounted for 85% of both investment (\$4.9/5.7 billion) and total revenues (\$1.3/1.5 billion) related to the industry (fig. A3, fig. A4).¹⁹¹

189 Department of Heritage Canada 2017a (p. 35); CMF 2019 (fig. 1 p. 5)

190 CHRC 2019 (tables 8.4.1-8.4.2 pp. 108-109, charts 7.2.1F-7.2.2F, pp. 70-74)

191 CMPA 2019 (exhibit 1-2 pp. 4-8, exhibit 1-5 p. 11)

In terms of government actions to reduce the market power of a natural monopoly like Netflix, conventional policy prescriptions such as *cost-plus regulation* (i.e., average cost pricing; e.g., price ceiling regulating profits, $P = AC$), and *price cap regulation* (i.e., allocative efficiency pricing; e.g., price ceiling regulating revenues, $P = MC$) are unenforceable those when companies operate internationally, similar to the enforcement of cross-boarder taxation. Even so, Competition Bureau Canada, which is the law enforcement agency responsible for enforcing Canada's *Competition Act*, is in advocacy of a free market system; as for instance, the Bureau's stance on the matter of balancing regulation and competition is that, "regulation should not be designed to meet other goals, such as ensuring that industry participants earn a certain level of income, or that consumers can purchase products at low prices."¹⁹² That said, whether a digital services tax is implemented in Canada will be decided by Canada's finance minister, while allocation decisions regarding how the country's tax revenues are spent will be made by the Parliament of Canada, as they specify in the following quote: "To spend public funds, the government must request Parliament's authorization through the review and approval of appropriation bills. To help Parliament understand and scrutinize its spending plans, the government prepares and presents main and supplementary estimates."¹⁹³

¹⁹² [Government of Canada 1985a](#) (*Competition Act*); [Competition Bureau Canada 2016](#) ("Balancing Regulation and Competition"); [Competition Bureau Canada 2016](#) ("Preventing Abuse of Market Power")

¹⁹³ [Parliament of Canada 2017](#) ("Chapter 18: Finance Procedures," *House of Commons Procedures and Practice*)

With that being said, management of budgetary expenditures by the Parliament of Canada and Canadian Government have been called into question following the COVID-19 pandemic. In short, the ability of central banks to be stimulative through *expansionary monetary policy* (i.e., putting downward pressure on the federal funds rate and other interest rates in order to encourage borrowing) ends when the central bank loses its ability to produce money and credit growth that pass through the economic system to produce real economic growth (GDP), and instead increase financial asset prices more than actual economic activity (e.g., the current asset bubbles in stocks and real estate);¹⁹⁴ thus, full employment is the upper bound of non-inflationary government spending, such as *modern monetary theory* (MMT) posits. This occurs once the central bank reaches the ‘zero lower bound’ of its federal funds rate, which for Canada is currently 0.25%, and thereby risks a ‘liquidity trap,’ characterized by low-interest rates, low inflation as well as slow or negative economic growth.¹⁹⁵ In such a scenario, interest rates fall, yet the rate of savings rise, which tends to bring about ineffective expansionary monetary policy aimed at boosting demand in the economy; in view of Canada’s current federal funds rate, since QE was first implemented following the great recession of 2008, MMT has led to a deeper liquidity trap by increasing the money supply and reducing interest rates in the absence of expected inflation ([table A3](#)).¹⁹⁶

¹⁹⁴ As regards the use of MMT and QE to suppress expectations of inflation, both circumventing and exacerbating the depth of a ‘liquidity trap,’ see [Dalio 2021](#), **The Changing World Order: Where We Are and Where We’re Going**; for the *disconnect between asset prices and economic growth* (ch. 1 s. 1, fig. 2); on how such circumstances *lead to asset bubbles, growing wealth inequality, and populism* (ch. 9 s. 4 fig. 1); and that during such times *governments have typically ban the flow or made it difficult to invest money into inflation-hedge assets and alternative currencies* (e.g., cryptocurrencies; i.e., ‘flight back into hard money,’ ch 2, s. 4, ch 2, s. 6, fig. 1)

¹⁹⁵ [Ambler and Kronick 2020](#); [Bacchetta et al. 2020](#); [Batman 2021](#); [Cross 2021](#); [Grimaldi et al. 2021](#); [Grimaldi et al. 2021](#); [Kumari 2020](#); [Nsafoah 2021](#)

¹⁹⁶ [BoC 2021a](#) (B1, “Bank of Canada Assets and Liabilities”); [OSFI 2021](#) (M4, “Consolidated Balance Sheet”); [BoC 2020](#) (C8, “Historical Chartered Bank Assets and Liabilities”); [BoC 2021b](#) (K-12, “Chartered Banks Classification of Deposit Liabilities”); [Gnann and Kaya 2019](#) (table 1 “Liquidity Classification of Bank Activities Adjusted to Canadian Financial Properties”, p. 3); [StatCan 2012c](#) (table: 36-10-0580-01 “National Balance Sheet Accounts”)

For reasons of time, additional research conducted on Canada’s macroeconomic outlook precludes the scope of this study.

As a point of reference, the following causal relations are worth considering with respect to the discussion of future work below: foremost is Canada’s *velocity of near money* (M2, see [table A3](#)), and by proxy the *consumer price index* (CPI [$\pi = (\text{CPI} - \text{CPI}_{-1}) / \text{CPI}_{-1}$]), then in addition, the correlation between *declining rates of unionization* and *growing wealth disparity* tied to MMT and QE;

for statistics on rates of unionization in Canada, see [Galarneau 1996](#) (StatCan “Unionized Workers,” p. 46) and [StatCan 2013](#) (table: 14-10-0132-01 “Union Status by Industry”);

as for data on income inequality, see [StatCan 2017a](#) (table: 36-10-0587-01); [StatCan 2017b](#) (table: 36-10-0585-01); [PBO 2019c](#) (“Estimating the Top Tail of the Family Wealth Distribution in Canada,” table B-1 p. 20, and table 4-2 p. 9);

additionally, the following provides figures for the ‘shelter’ grouping of the CPI: [StatCan 2017c](#) (New Housing Price Index (NHPI), table: 18-10-0205-01); [StatCan 2017k](#) (Resale Residential Property Price Index (RRPPI), table: 18-10-0169-02); (Building Construction Price Index (BCPI), table: 18-10-0135-02); [StatCan 2021](#) (table: 34-10-0133-01 “Average Rents for Areas with a Population of 10,000 and Over”)

In essence, monetary policy concerns the management of *money and credit*, while fiscal policy relates to the legislation of *taxation and expenditures*. As such, the Bank of Canada (BoC) conducts monetary policy by way of *treasury securities* that consist largely of short-term (treasury bills) and long-term (government bonds) debt obligations. In effect, treasury securities are used to influence the transmission of expansionary or contractionary monetary policy, whereby buying treasury securities puts downward pressure on interest rates in order to encourage *expansionary borrowing*, while selling securities puts upward pressure on interest rates in an effort to promote *contractionary saving*; on account of this, monetary policy levers for debt management include **debt monetization** (i.e., central bank lending to the government as provision for public spending), **quantitative easing** (QE; i.e., central bank issuing of treasury securities intended for purchasing debt obligation from the government and private sector), as well as ‘**helicopter money**’ (MMT; i.e., central bank printing of money in order to facilitate direct payments by the government to the public).

By comparison, fiscal policy is carried out through the use of tax policies and government expenditures in order to induce expansionary or contractionary economic conditions. Accordingly, decreases in taxation or increases in spending are employed as a means for *expansionary aggregate demand* with the objective of increasing investment and decreasing unemployment, whereas increases in taxation or decreases in spending are applied when *contractionary aggregate demand* is sought, so as to decrease the governments budgetary deficit or increase its surplus; this is why the debt management policy levers of fiscal policy consist of **income redistribution** (i.e., expansionary increases in taxation), **austerity spending** (i.e., contractionary decreases in spending), and **currency devaluation** (e.g., the 1970s break-down of the Bretton Woods System under which today's global reserve currency of the US dollar was convertible to gold at a fixed exchange rate).

For these reasons, the issuing of treasury securities under **QE** leads to **asset price inflation** due to the creation of new reserves (i.e., treasury securities), while the treatment of money printing under **MTT** causes **consumer price inflation** resulting from the creation of new money (i.e., fiat currency), with liquid financial liabilities provided to institutions in the form of **bank reserves** and for the public as **bank deposits**.

Beyond this, since 1992 Canada has been one of the only countries without a *reserve requirement*, which refers to the amount of liabilities a bank must hold, and implies a 0% reserve ratio;¹⁹⁷ grounds for doing so are alluded to in the early version of forthcoming book by Dalio, billionaire manager of the world's largest hedge fund (Bridgewater), by indicating, "history has shown that there very large risks in holding interest-earning cash currency as a storehold of wealth especially late in debt cycles."¹⁹⁸ Notwithstanding, a recent study investigating the constitutional position of central banks in managing fiscal debt through direct and indirect monetary financing of fiscal deficits highlights that, "explicit regulation of the conditions under which monetary finance appears in the Bank of Canada Act... **permits the Canadian central bank to provide monetary finance to the national treasury, albeit to the limit of one-third of the 'estimated revenue of the Government of Canada for its fiscal year', and any monetary finance 'must be repaid before the end of the first quarter after the end of the fiscal year of the government that has contracted the loan'.**"¹⁹⁹

¹⁹⁷ Clinton 1992 (BoC, "reserve requirements were phased out over a two-year period starting June 1992... as of that month, fractional requirements applied to chartered bank deposits were abolished," p. 14; "Hierarchy of Variables in the Transmission of Monetary Policy," p. 1); OECD 2018a ("Reserve Requirements: Current Use, Motivations and Practical Considerations," annx. a, p. 10)

¹⁹⁸ Dalio 2021 (ch. 3 s. 8, "The Value of Currencies in Relation to Goods and Services;" reference is also made to *coordination between fiscal and monetary policy whereby government debt-financing is facilitated by central banks* in ch. 5 pt. 2 s. 8, "1990-2008: Globalizing, Digitalizing, and Booming Financed by Debt;" and for what is referred to as the 'long-term debt cycle,' see ch 8 s.1 fig. 1 "The Typical Big Cycle Behind Empires' Rises and Declines;" long-term debt cycles are estimated to last 50 to 75 years and roughly 8 years for short-term debt cycles)

¹⁹⁹ Batman 2021 ("The Law of Monetary Finance Under Unconventional Monetary Policy," p. 36)

Given the above considerations, this begs the question of whether monetary finance (i.e., money creation by the central bank to fund public expenditure) will maintain its concentrated focus on consumer price inflation that has prevailed since the introduction of inflation targeting in 1991, and thus persist to compromise almost all other economic objectives (e.g., industrial stability and social well-being).²⁰⁰

[200 Ambler and Kronick 2020](#) (October 2020 p. 16):

“keeping interest rates artificially low to reduce debt service costs could easily jeopardize the Bank’s credibility and independence... it also suppresses any market signals with respect to the riskiness of government debt;”

[Bacchetta et al. 2020](#) (December 2020 p. 1):

“quantitative easing leads to a deeper liquidity trap... higher expected inflation helps exiting the trap but worsens inter-temporal allocation of resources”

[Batman 2021](#) (April 2021 pp. 1, 30-33):

“monetary finance [quantitative easing] (money creation by central banks to fund public expenditure) is a high-profile part of economic, political and policy debates concerning the legitimacy of central banks in liberal economies and democracies [p. 1]... the fact that central banks have engaged in monetary finance challenges the rationales for their sui generis [‘of its own kind’] constitutional position... providing financial accommodation to national governments entangles central banks in the exercise of fiscal authority [pp. 30-33];”

[Cross 2021](#) (March 2021 p. 1):

“in turn, sharply higher interest payments would act as a major incentive for the federal government to curtail its spending and borrowing, if it has not already done so earlier... exactly the position the federal government found itself in during the debt crisis in 1994 that led to years of austerity for all levels of government;”

[Grimaldi et al. 2021](#) (March 2021 p.1):

“the deterioration in the level of market liquidity from quantitative easing via the scarcity effect is significantly larger than the improvement from the demand effect;”

[Kumari 2020](#) (February 2020 p. 34):

“too much emphasis on only one economic objective (price-stability) has been traded-off with almost all other objectives... in the process, the debt-asset duo has increased the financial vulnerabilities besides the lower social outcomes broadly... aren’t macroeconomic, financial, exchange rate, employment, industrial, or social stability as necessary as price stability;”

[Nsafoah 2021](#) (April 2021 p. 1):

“there are diminishing returns to QE in terms of its effects on both the US and Canadian real variables.”

6.2 REFLECTIONS AND DISCUSSION

6.2.1 LIMITATION OF STUDY

Apart from the time constraint of this study, there were a number of limitations worth noting. Above all, continual updates and delays to both in-scope digital tax proposals created significant obstacles to analysis, and added further complexities to the particular cases. With respect to conducting the Twitter sentiment analysis with Python, a major challenge was identifying unambiguous queries within the search rules and restrictions of *searchtweets*; despite clear advantages of the module by virtue of being the official Python client for the Twitter API, drawbacks concerning its search operations remain. Most notable, location object attributes and operations were found to be either inconsistent (e.g. ‘coordinates’ and ‘place’) unless either Premium (*paid tier*, not *sandbox tier*) or Power Track API (*enterprise tier*) developer environments are used (e.g. ‘bio’, ‘bio_location’, ‘from:’, ‘has:geo’, ‘has:profile_geo’, ‘is:reply’, ‘profile_country’, ‘profile_locality’, ‘profile_point_radius:[lon lat radius]’, ‘profile_region:’, and ‘profile_subregion:’); and yet, even paid and enterprise operations appear to have obvious restrictions, as in the case of the ‘has:geo’ and ‘profile_region’ which rely on users to divulge information related to their geographical location (i.e., latitude and longitude).²⁰¹

In terms of the Netflix cost-benefit analysis, there is a fundamental disconnect in the economic tools used to analyze digital monopolies, coupled with information asymmetries in private sector information sharing and privacy laws, as has been shown; one particular issue for which not enough data could be found relates to the impact of intangible assets on profit shifting. Despite that high intangible asset value in MNEs is shown to increase profit-shifting intensity, as the cost of shifting profits is reduced when the return is on intangible assets, the value of these assets is considered difficult to measure due to the lack of market prices, in addition to their highly mobile nature when compared to fixed capital. That said, cause for interest on the subject arose from a question of whether or not Netflix is compliant with SEC Exhibit 21, in accordance with the IRS regarding disclosure of subsidiaries; a question that remains to be answered.²⁰²

²⁰¹ see [developer.twitter.com: /en/docs/twitter-api/v1/rules-and-filtering/overview/operators-by-product](https://developer.twitter.com/en/docs/twitter-api/v1/rules-and-filtering/overview/operators-by-product) (filtering operations); developer.twitter.com/en/docs/twitter-api/v1/data-dictionary/object-model/tweet (geo objects); [/en/docs/twitter-api/tweets/search/integrate/build-a-query](https://developer.twitter.com/en/docs/twitter-api/tweets/search/integrate/build-a-query); [/en/docs/twitter-api/enterprise/rules-and-filtering/building-a-rule](https://developer.twitter.com/en/docs/twitter-api/enterprise/rules-and-filtering/building-a-rule); [/en/docs/twitter-api/enterprise/rules-and-filtering/operators-by-product](https://developer.twitter.com/en/docs/twitter-api/enterprise/rules-and-filtering/operators-by-product); [/en/docs/twitter-api/v1/data-dictionary/object-model/tweet](https://developer.twitter.com/en/docs/twitter-api/v1/data-dictionary/object-model/tweet) (Twitter API v1.1; v2, August 2020)

²⁰² Dyreng et al. 2020 (Strategic Subsidiary Disclosure, “*what is not clear from prior research is whether the incentives to conceal subsidiary information are sufficient to induce firms to violate SEC disclosure rules... one challenge in evaluating the possibility that firms withhold required information is that it is often difficult to observe the counterfactual—what has been disclosed is observable, but what should have been disclosed is not disclosed*” p. 650); SEC 2021 (see Netflix Annual Report 2020, Exhibit 21.1: List of Significant Subsidiaries, as regards Netflix transfer pricing model illustrated in [fig. 10](#) of this study; “*the names of other subsidiaries of Netflix Inc. are omitted because, considered in the aggregate, they would not constitute a significant subsidiary as of the end of the year covered by this report*”)

6.2.2 FUTURE WORK

Regarding future work, when doing research on suitable methods for this study, *system dynamics* emerged as a compelling tool for understanding complex nonlinear systemic issues; while it is beyond the scope of the present study, the following provides a short description of its relatedness, with reference to several papers worth mentioning.

System dynamics modeling is formed from *causal loop diagrams*, which provide an overview of the dynamic complexities in a systems structure and behaviour through causal links denoting *polarities (+/-)* and *time delays (||)* of interconnected variables, together with *stock and flow diagrams* that distinguish between the accumulation and depletion of those variables.²⁰³ Unlike other established approaches to policy analysis that are based on traditional scientific reductionism, whereby complex realities are separated into specialized disciplines focused on specific truths, *systems thinking* is proven to offer a more integrated perspective for improving our understanding of complex systemic issues through a range of tools; for case in point, *systems analysis* enables the disaggregation of critical linkages in the behaviour of complex dynamic systems, to assess and manage risks, and ultimately identify synergies and trade-offs generally treated as separate in order to reduce unintended consequences.²⁰⁴

²⁰³ [Morris et al. 2014](#) (“Modeling Culture with Complex, Multi-dimensional, Multi-agent Systems;” approaches culture from a holistic perspective, framing it as an intangible social construct, and emergent property); [Sterman 2000](#):

for introductory elements of system dynamics modeling see fig. 5-1 “causal loop diagram notation” p. 138; fig. 1-8 “single-loop learning” p. 16; fig. 4-4; fig. 5-3 “label link and loop polarities” p. 143; fig. 5-16 “make the goals of negative loops explicit” p. 155; fig. 5-15 “make intermediate links explicit to clarify a causal relationship” p. 154; fig. “causal links must have unambiguous polarity” p. 154; fig. 6-8 “stocks change only through their rates” p. 206; “goal seeking structure and behavior” p. 110; fig. 4-2 “exponential growth structure and behavior” p. 109;

for principles of system dynamics modeling used for economic analysis see fig. 5-17 “*distinguish between actual and perceived conditions*” p. 157; fig. 10-17 “*monopoly power over customers, suppliers, and works is self-reinforcing*” p. 375; fig. 10-12 “*spreading fixed costs over a larger volume lowers prices and leads to larger volume*” p. 367; fig. 10-1 “*path dependence arises in systems with locally unstable equilibrium*” p. 351; fig. 15-1 “*an intendedly rational pricing policy can lead to an inadvertent price war*” p. 604

²⁰⁴ [OECD 2019b](#) (OECD-IIASA, **Systems Thinking for Policy Making: The Potential of Systems Analysis for Addressing Global Policy Challenges in the 21st Century**, “*systems thinking is not simply a means to improve multidisciplinary, cross-sectoral collaboration* [p. 3]... *we are faced with a system which is increasingly complex and interdependent* [p. 11];” fig. 2 “*systems map of labour market interactions with technology*” p. 90; fig. 3 “*labour market feedback loops*” p. 91)

With this in mind, the literature on system dynamics is broad in scope and includes a diverse range of case studies, suchlike the examination of policy measures in response to negative externalities,²⁰⁵ as well as the blending of social media sentiment analysis and system dynamics modeling with a focus on policy intervention.²⁰⁶ Following from this, and also the way in which Python has been integrated in the current study, the relatively new library *PySD* deserves mention, as it allows for system dynamics models (assigned equations in the simulation software *Vensim*) to be run with datasets in Python (and translates the visual model constructs so that they can be imported back into *Vensim*).²⁰⁷ That being said, among the literature on system dynamics, the most prominent to this study was a paper in which system dynamics modeling is used to represent the implementation dynamics of a tax, so as to propose efficient allocation of associated revenues for a related cause.²⁰⁸

All things considered, there is an evident need for further discussions on the rationales for public cultural policy. As such, the observations and analysis of this study can be meaningfully used to develop analysis strategies for larger datasets on emerging policy initiatives, and could be expanded upon by means of a system dynamics approach.

²⁰⁵ Choi et al. 2019 (fig. 2-5 pp. 4-6)

²⁰⁶ Song et al. 2018 (fig. 2 “causality for the media” p. 637; fig. 4 “causality for the public,” fig. 5 “causality for the government p. 638; fig. 6 p. 639); Xiea et al. 2020 (fig. 4 “causal loop diagram of media module” p. 1137; fig. 5 “causal loop diagram of netizen module” p. 1138; fig. 6 “causal loop diagram of government module,” fig. 7 “SD stock and flow diagram model of the nuclear public sentiment system” p. 1139)

²⁰⁷ Glass-Husain 2016; Houghton and Siegel 2015; GitHub 2021 (PySD)

²⁰⁸ Liu et al. 2016 (pp. 711-715)

APPENDIX A. AUXILIARY

FIGURE A1. BUDGETARY BALANCE OF CANADA

TOTAL BUDGETARY REVENUES (BILLIONS, \$CAD)

INCOME TAXES

2019-20
\$227.2, 68%

2020-21
\$222.9, 75%

2019-20, \$334.3

2020-21, \$296.1

PERSONAL INCOME TAX (PIT)

2019-20: \$167.6, 50%
2020-21: \$168.2, 57%

CORPORATE INCOME TAX (CIT), RESIDENT

2019-20: \$50.1, 15%
2020-21: \$46.2, 16%

CORPORATE INCOME TAX (CIT), NON-RESIDENT

2019-20: \$9.5, 3%
2020-21: \$8.5, 3%

CONSUMPTION TAXES

2019-20
\$53.9, 16%

2020-21
\$44, 15%

GOODS AND SERVICES TAX/HARMONIZED SALES TAX (GST/HST)

2019-20: \$37.4, 11%
2020-21: \$29.8, 10%

AD VALOERM TAX/VALUE-ADDED TAX (AV/VAT)

2019-20: \$4.9, 1%
2020-21: \$3.7, 1%

OTHER

2019-20: \$11.6, 3%
2020-21: \$10.5, 4%

OTHER REVENUES

2019-20
\$53.3, 16%

2020-21
\$29.2, 10%

CARBON PRICING (ETS)

2019-20: \$2.7, 1%
2020-21: \$4.5, 2%

EMPLOYMENT INSURANCE PREMIUM (EI)

2019-20: \$22.2, 7%
2020-21: \$22.2, 7%

ENTERPRISE CROWN CORPORATION (GOC)

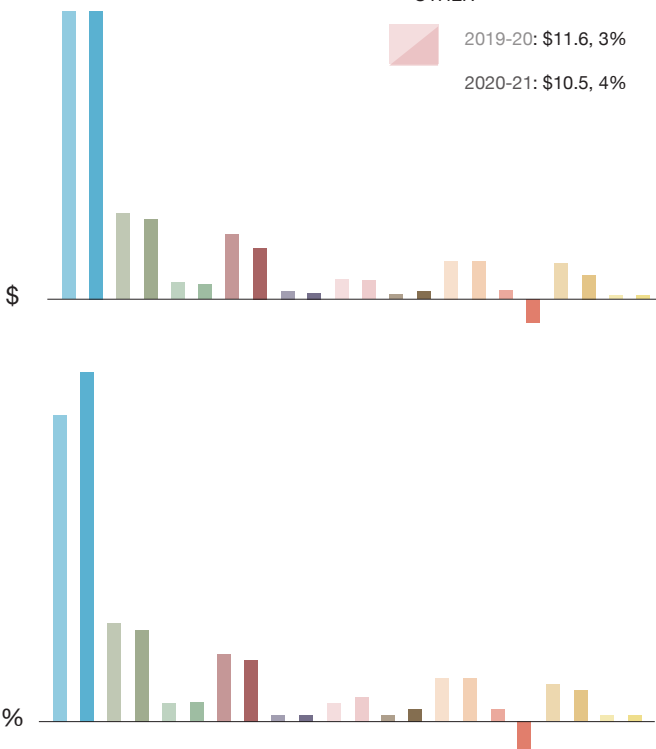
2019-20: \$5.1, 2%
2020-21: \$-13.9, -5%

OTHER PROGRAMS

2019-20: \$20.8, 6%
2020-21: \$14.2, 5%

NET FOREIGN EXCHANGE (FX)

2019-20: \$2.4, 1%
2020-21: \$2.2, 1%



Note.²⁰⁹

²⁰⁹ Department of Finance Canada 2020b (Fall Economic Statement 2020, Table A1.6 p. 127); Department of Finance Canada 2021 (Budget 2021, Table A1.5 p. 329, Annex 1 pp. 321-347)

TABLE A1. RELATIONSHIP BETWEEN FDI AND FSI

CANADIAN FDI OUTFLOWS (BILLIONS, \$CAD)

ECONOMY	BOOK VALUE		CIT RATE		FSI RANK	
	2014	2019	2015	2020	2015	2020
Table 36-10-0008-01: \$510						
NORTH AMERICA	\$510	\$854.8				
CANSIM 376-0051: \$350						
UNITED STATES	\$350		35%	21% (-)	#3	#2 (+)
	$\$350 / \$510 = 69\%$					
Table 36-10-0008-01: \$52.4						
SOUTH/CENTRAL AMERICA	\$52.4	\$67.1				
CANSIM 376-0051: \$167.2						
BARBADOS	\$71.2		25%	5.5% (-)	#22	#63 (-)
CAYMAN ISLANDS	\$36.6		0%	0%	#5	#1 (+)
CHILE	\$18.3		22.5%	25% (+)	#42	#82 (-)
BERMUDA	\$17.8		0%	0%	#34	#40 (-)
MEXICO	\$13		30%	30%	#52	#80 (-)
BRAZIL	\$10.3		34%	34%	#26	#73 (-)
	$\$167.2 / \$52.4 = 319\%$					
Table 36-10-0008-01: \$215.5						
EUROPE	\$215.5	\$351.7				
CANSIM 376-0051: \$166.6						
UNITED KINGDOM	\$68.8		20%	19% (-)	#15	#12 (+)
LUXENMBOURG	\$31.1		22.47%	18.19% (-)	#6	#6
AUSTRALIA	\$26.4		30%	30%	#44	#48 (-)
NETHERLANDS	\$17.5		25%	25%	#41	#8 (+)
IRELAND	\$15.3		12.5%	12.5%	#37	#29 (+)
HUNGARY	\$7.5		19%	9% (-)	#84	#75 (+)
	$\$166.6 / \$215.5 = 77\%$					
Table 36-10-0008-01: \$67.2						
AFRICA AND ASIA/OCEANIA	\$67.2	\$117.5				
CANSIM 376-0051: \$145						
ALL OTHER COUNTRIES	\$145		15%	15%	#19	#29 (-)
	$\$145 / \$67.2 = 216\%$					
Table 36-10-0008-01: \$845.1	\$845.2	\$1,390				
CANSIM 376-0051: \$828.8	\$828.8					
	$\$845.2 - \$828.8 = \$16.4$					

Note.²¹⁰

210 KMPG 2021 (CIT Table); OECD 2021a (Table II.1); Tax Justice Network 2020 (FSI 2020 Results, 2015 Archive); StatCan 2021f (Table 36-10-0008-01, formerly CANSIM 376-0051)

TABLE A2. IN-SCOPE ACTIVITIES AND AUDIOVISUAL INDUSTRY DEFINITIONS

OECD IDENTIFICATION AND CATEGORIES	STATCAN SUBDOMAINS	NAICS CODES AND TITLES
ADS	FILM AND VIDEO	414450 VIDEO CASSETTE WHOLESALERS
		512110 MOTION PICTURE AND VIDEO PRODUCTION
		512120 MOTION PICTURE AND VIDEO DISTRIBUTION
		512130 MOTION PICTURE AND VIDEO EXHIBITION
		512190 POST-PRODUCTION AND OTHER MOTION PICTURE AND VIDEO INDUSTRIES
CFB	FILM AND VIDEO	532230 VIDEO TAPE AND DISC RENTAL
		515110 RADIO BROADCASTING
		515120 TELEVISION BROADCASTING
OUT OF SCOPE	BROADCASTING	515210 PAY AND SPECIALTY TELEVISION
		517112 CABLE AND ANOTHER PROGRAM DISTRIBUTION
		451120 HOBBY, TOY, AND GAME STORES (VIDEO GAME RENTAL ONLY)
Note. ²¹¹	INTERACTIVE MEDIA	511210 SOFTWARE PUBLISHERS (VIDEO GAME DEVELOPMENT ONLY)

211 CHRC 2019 (Tables A.5 p. 128); OECD 2020a (Table 2.2 pp. 32-34); UNCAD 2002 (SITC Rev 3); StatCan 2017e (NAICS)

FIGURE A2. FINANCING OF CANADIAN AUDIOVISUAL PRODUCTIONS

GROWTH IN FOREIGN FINANCING OF CANADIAN AUDIOVISUAL PRODUCTIONS, 2018-2019

TOTAL VOLUME OF CANADIAN PRODUCTIONS BY SEGMENT

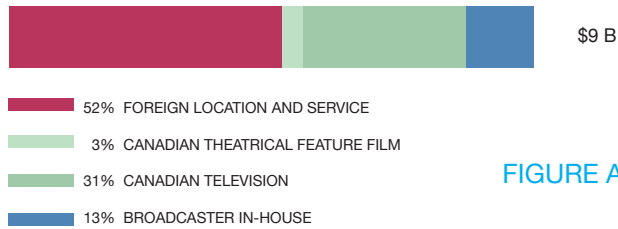
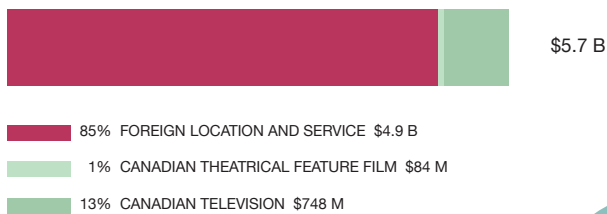


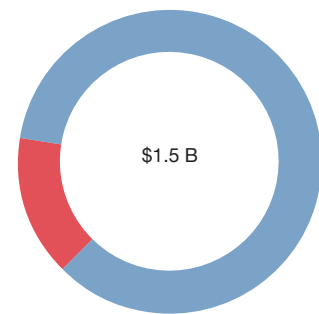
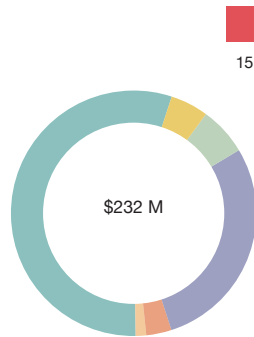
FIGURE A3. DISTRIBUTION OF CANADIAN AUDIOVISUAL REVENUES

CANADIAN AUDIOVISUAL INDUSTRY DISTRIBUTION OF TOTAL REVENUES, 2019

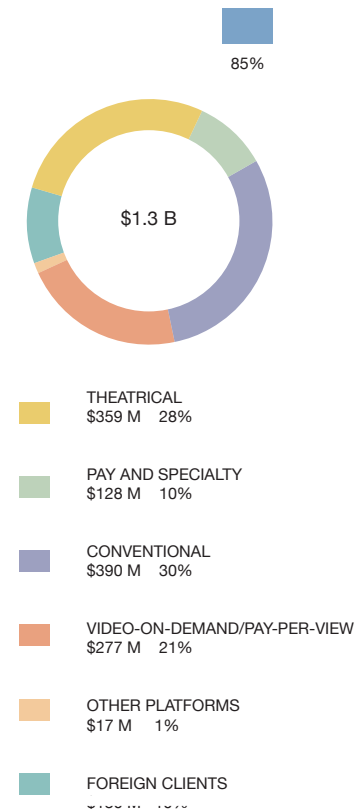
TOTAL FOREIGN INVESTMENT IN CANADIAN PRODUCTIONS



CANADIAN PRODUCTIONS BY MARKET



NON-CANADIAN PRODUCTIONS BY MARKET



Source.²¹²

Note.²¹³

²¹² CMPA 2019 (Profile 2019 Exhibit 1-2 pp. 4-8, Exhibit 1-5 p. 11)

²¹³ StatCan 2021c (Table 21-10-0074-01)

TABLE A3. CANADIAN MONETARY AGGREGATES

GROSS AGGREGATES		COMPONENTS	CANSIM SERIES
BASE	M0		V37145
		CURRENCY IN CIRCULATION	V36625
NARROW	M1		V37258
		CURRENCY OUTSIDE BANKS	B2001
	PERSONAL CHEQUABLE DEMAND DEPOSITS	B486	
	CB		
	M1+		V37258
		PERSONAL CHEQUABLE SAVINGS DEPOSITS	B452
		NON-PERSONAL CHEQUABLE NOTICE DEPOSITS	B472
	CB, TML, CUCP		
	M1++		V37259
		PERSONAL NON-CHEQUABLE SAVINGS DEPOSITS	B453
NON-PERSONAL NON-CHEQUABLE NOTICE DEPOSITS		B473	
CB, TML, CUCP			
NEAR	M2		V41552786
		PERSONAL FIXED-TERM SAVINGS DEPOSITS	B454
		NON-BANK DEPOSITS	B2038
	CB, TML, CUCP		
	M2+		V41552788
		LIFE INSURANCE INDIVIDUAL ANNUITIES	B2046
		MONEY MARKET MUTUAL FUNDS	B2048
	CB, TML, CUCP		
	M2++		V41552790
		CANADA SAVINGS BONDS	B2057
NON-MONEY MARKET MUTUAL FUNDS		B2058	
CB, TML, CUCP			
BROAD	M3		V36897
		NON-PERSONAL TERM DEPOSITS	B475
		FOREIGN CURRENCY DEPOSITS	B482
		CB, TML, CUCP	

Note: chartered banks (CB), trust and loan companies (TML), credit unions and caisses populaires (CUCP); non-bank deposits (M2) include funds which are held in interbank arrangements between CB, TML, and CUCP. Gross monetary aggregates are cumulative, with the latter derived from the former, plus additional components.²¹⁴

²¹⁴ BoC 2020 (C8, “Historical Chartered Bank Assets and Liabilities”); BoC 2021e (Monetary Aggregates); BoC 2021f (E1, Select Monetary Aggregates and Components); Gilbert 2015 (Package ‘CDNmoney’); Serletis and Moliik 2010 (table 1 “Bank of Canada Monetary Aggregates/Components,” p. 107); StatCan 2021b (table: 10-10-0116-01 “Chartered Bank Assets and Liabilities and Monetary Aggregates”)

APPENDIX B. PYTHON SENTIMENT ANALYSIS SCRIPTS

TABLE B1. WEB SCRAPING: SEARCHTWEETS

```
from searchtweets import load_credentials
import yaml

#load credentials
premium_search_args = load_credentials('.yaml',
                                     yaml_key = "",
                                     env_overwrite = False)

print(premium_search_args)
```

```
from searchtweets import load_credentials
from searchtweets import gen_rule_payload
from searchtweets import ResultStream
import json

api_key = ""
api_secret_key = ""
dev_environment_label = ""
api_scope = 'fullarchive'

#keyword operation: returns tweets with exact phrase when in double quotes as well as hashtags of phrase
#lang operation: returns tweets classified as a certain language
#'-is:retweet' operation filters retweets, but is only available in premium, not sandbox
search_query = "" lang:en'
results_per_call = 100
from_date = '0000-00-00'
to_date = '0000-00-00'

max_results = 100

#JSON lines is for storing structured data and processing one record at a time
filename = '.jsonl'
#script prints an update to command line every time it collects a tweet
print_after_x = 100

#define search rule
rule = gen_rule_payload(search_query,
                       results_per_call = results_per_call,
                       from_date = from_date,
                       to_date = to_date
                       )
rs = ResultStream(rule_payload = rule,
                 max_results = max_results,
                 **premium_search_args)
```

```

#filename is where tweets will be saved
with open('.jsonl', 'a', encoding = 'utf-8') as f:
    n = 0
    for tweet in rs.stream():
        n += 1
        if n % print_after_x == 0:
            print('{0}: {1}'.format(str(n), tweet['created_at']))
            json.dump(tweet, f)
            f.write('\n')
print("")

```

```

import pandas as pd
import json_lines

def load_jsonl(filename):
    tweets = []
    with open(filename, 'rb') as f:
        for tweet in json_lines.reader(f, broken = True):
            tweets.append(tweet)
    return(tweets)

tweets = load_jsonl(filename)

df = (pd.DataFrame(tweets, columns = ['created_at', 'user', 'text', 'id', 'id_str', 'source',
    'truncated', 'in_reply_to_status_id', 'in_reply_to_status_id_str',
    'in_reply_to_user_id', 'in_reply_to_user_id_str', 'in_reply_to_screen_name',
    'coordinates', 'place', 'quoted_status_id', 'quoted_status_id_str',
    'is_quote_status', 'quoted_status', 'retweeted_status', 'quote_count',
    'reply_count', 'retweet_count', 'favorite_count', 'entities',
    'extended_entities', 'favorited', 'retweeted',
    'possibly_sensitive', 'filter_level', 'lang', 'matching_rules'])
    .drop(columns = ['id', 'id_str', 'source', 'truncated', 'in_reply_to_status_id',
    'in_reply_to_status_id_str', 'in_reply_to_user_id', 'in_reply_to_user_id_str',
    'in_reply_to_screen_name', 'coordinates', 'place', 'quoted_status_id',
    'quoted_status_id_str', 'is_quote_status', 'quoted_status', 'retweeted_status',
    'quote_count', 'reply_count', 'retweet_count', 'favorite_count',
    'entities', 'extended_entities', 'favorited', 'retweeted',
    'possibly_sensitive', 'filter_level', 'lang', 'matching_rules'])
)

print(df.shape)
df.head(0)

```

```

from datetime import datetime

#convert datetime
df['date'] = pd.to_datetime(df['created_at'], infer_datetime_format = True)

df.head(0)

```

```
#normalize JSON attributes from user object dictionary
df2 = df['user'].apply(pd.Series).add_prefix('user.')

df2.head(0)
```

```
#concat dataframes
df3 = pd.concat([df, df2], axis = 1)

df3.head(0)
```

```
df4 = (df3[['created_at', 'date', 'user.screen_name', 'user.location', 'text']]
      .rename(columns = {'user.screen_name': 'username',
                        'user.location': 'location',
                        'text': 'tweet'})
      .drop(['created_at'], axis = 1)
      .drop_duplicates()
      )

df4.to_csv('.csv', sep = ',', index = False)

df4.head(0)
```

Note: *searchtweets* is the wrapper for the Twitter premium search APIs; the Python library returns Twitter data from newest or oldest with a 280 character limit for text retrieved, as per the Twitter policy for tweets, resulting in truncated text fields when tweets incorporate embedded media.²¹⁵

TABLE B2. DATA CLEANING: SPACY

```
import spacy
from spacy.lang.en.stop_words import STOP_WORDS
import re

#STOP_WORDS.add('') to add a single word
#STOP_WORDS |={} to add a list
#STOP_WORDS -={} to remove a list of words from corpus
STOP_WORDS |= {'', ""}

#make lowercase and remove stopwords
df['tweet_processed'] = df['tweet'].apply(lambda x: ' ' \
      .join(x.lower() for x in str(x)\
      .split() if x not in STOP_WORDS))
```

```

#remove punctuation, special characters, and fill whitespace
#n-gram and wordcloud don't capture punctuation or special characters
#keep non-ASCII values ('[\x00-\x7F]', '') because of diacritics and lang:en
#.str.replace('[^\w\s]', '') returns similar results to the following
df['tweet_processed'] = df['tweet_processed'].str.strip()\
    .str.replace('\"', '')\
    .str.replace('\"', '')\
    .str.replace('.', '')\
    .str.replace('!', '')\
    .str.replace(',', '')\
    .str.replace('&', '')\
    .str.replace('-', '')\
    .str.replace(':', '')\
    .str.replace('; ', '')\
    .str.replace('(', '')\
    .str.replace(')', '')\
    .str.replace('[', '')\
    .str.replace(']', '')\
    .str.replace('=', '')\
    .str.replace('+', '')\
    .str.replace('^', '')\
    .str.replace('<', '')\
    .str.replace('>', '')

```

#remove retweets and dup rows from .csv manually

```

df2 = df[['date', 'tweet_processed']]
df2.to_csv('.csv', sep = ',', index = False)

```

```

df2.head(0)

```

Note: for natural language processing in Python, when compared with the widely used Natural Language Toolkit (NLTK) library *stopwords*, the spaCy library *STOP_WORDS* allows for greater flexibility in defining corpora dictionary items to be filtered, as is shown. Approaches to cleaning web scraped data are highly variable, and such preprocessing may be excluded all together when using VADER, due to the nature of the analysis tool noted below.²¹⁶

TABLE B3. SENTIMENT CLASSIFICATION: VADER

```

from vaderSentiment.vaderSentiment import SentimentIntensityAnalyzer
analyzer = SentimentIntensityAnalyzer()

df = pd.read_csv('.csv')

#if float object attribute error because NaN split string
#vader score is the compound of positive, negative, and neutral subjectivity
df['vader_score'] = df['tweet_processed'].apply(lambda x: analyzer.polarity_scores(str(x))['compound'])

```



```

def classify_compound(x, threshold = 0.05):
    scores = analyzer.polarity_scores(str(x))
    score = scores['compound']

    if score >= threshold:
        return 'pos'
    elif score <= -threshold:
        return 'neg'
    else:
        return 'neu'

#vader sentiment is the polarity and intensity of subjectivity
#‘pos’: >=0.05, ‘neg’: <=-0.05, ‘neu’: >-0.05, ‘compound’: normalize(sum_sentiment)
df['vader_sentiment'] = df['tweet_processed'].apply(lambda x: classify_compound(str(x)))
df['vader_compound'] = df['tweet_processed'].apply(lambda x: analyzer.polarity_scores(str(x)))

df.head(0)

```

```

df2 = df[['date', 'tweet_processed', 'vader_score', 'vader_sentiment', 'vader_compound']]

#sep is a delimiter and \\\t are regret delimiters
#where False, replace with corresponding value from other
df2.to_csv('.csv', sep = ',', index = False)

df2.head(0)

```

Note: VADER (Valence Aware Dictionary and sEntiment Reasoner) is a lexicon and rule-based sentiment analysis tool that is specifically attuned to sentiments expressed in social media (i.e., polarity; e.g., slang, emoticons, emojis, capitalization, and meaningful punctuation).²¹⁷

TABLE B4.1. DATA ANALYSIS: MATPLOTLIB.PIE

```

#fivethrityeight and retina for resolution
import matplotlib.pyplot as plt
%matplotlib inline
plt.style.use('fivethirtyeight')

from IPython.display import set_matplotlib_formats
set_matplotlib_formats('retina')
%config InlineBackend.figure_format = 'retina'

import seaborn as sns
sns.set(font_scale = 1)
sns.set_style('whitegrid')

import matplotlib.ticker as ticker
import matplotlib.cm as cm
import matplotlib as mpl
from matplotlib.gridspec import GridSpec

```

217 [GitHub 2019b](#) (vaderSentiment.SentimentIntensityAnalyzer; vader-sentiment 3.2.1.1)

```

sentiment_labels = sentiment.vader_score.sort_values().index
sentiment_counts = sentiment.vader_score.sort_values()

plt.figure(1, figsize = (40, 30))
the_grid = GridSpec(2, 2)

cmap = plt.get_cmap('binary')
colors = [cmap(i) for i in np.linspace(0, 1, 8)]

#optional palette: 'Pastel1', 'Reds', 'binary'

plt.subplot(the_grid[0, 1],
            aspect = 1,
            title = 'sentiment')

#autopct for display of percent value string format
sentiment_vader_score = plt.pie(sentiment_counts,
                                labels = sentiment_labels,
                                autopct = '%1.1f%%',
                                colors = colors)

plt.show()

```

Note.²¹⁸

TABLE B4.2. DATA ANALYSIS: SEABORN.DIST

```

#distribution plot of sentiment polarity with mean line
fig = plt.figure(figsize = (25, 15))
ax = fig.add_subplot(111)

sns.distplot(df2['vader_score'], bins = 15, ax = ax, color = 'grey')
ax.set(xlabel = 'polarity', title = 'sentiment')

#ax.set_xticklabels([])
ax.set_yticklabels([])
ax.grid(False)

plt.show()

```

Note.²¹⁹

218 Matplotlib 2021b (matplotlib.pyplot.pie)

219 Seaborn 2021 (sns.distplot)

TABLE B4.3. DATA ANALYSIS: MATPLOTLIB.SCATTER

```

#scatter plot of sentiment with expanding (changes)/rolling (constant) means and date of sentiments on x-axis
import datetime
#from datetime import date
#from datetime import datetime, date
#from datetime import datetime as dt, date

#remove null value rows in .csv before running cell

#df can't contain index and column with same name
#if error "both an index level and a column label, which is ambiguous" for future versions (swap 'time_stamp'/'timestamp')
df2['time_stamp'] = df2['date']

df2.reset_index = pd.to_datetime(df2['time_stamp'])
df2.sort_values(by = 'time_stamp', inplace = True)
df2.sort_values('timestamp')
#df2.reset_index(df2['time_stamp'], inplace = True, drop = True)
#df2.reset_index = pd.to_datetime(df2['timestamp'])
df2.index = pd.to_datetime(df2['timestamp'])

df2['mean'] = df2['vader_score'].expanding().mean()
df2['rolling'] = df2['vader_score'].rolling('6h').mean()

fig = plt.figure(figsize = (25, 10))
ax = fig.add_subplot(111)

ax.scatter(df2['timestamp'], df2['vader_score'], label = 'sentiment')
ax.plot(df2['timestamp'], df2['rolling'], color = 'r', label = 'mean_expanding')
ax.plot(df2['timestamp'], df2['mean'], color = 'y', label = 'mean_rolling')

#if error "descriptor 'date' requires a 'datetime.datetime' object but received a 'int'"
#see pandas.pydata.org/docs/reference/window.html
#pandas.core.window.expanding.Expanding.mean
#pandas.core.window.rolling.Rolling.mean
#see matplotlib.org/stable/api/axes_api.html
#matplotlib.axes.Axes.axvline

#ax.set_xlim([dt.date(0000,00,00), dt.date(0000,00,00)])
#ax.set_xlim(['date'])
ax.set(xlabel = 'date', ylabel = 'polarity')
ax.legend(loc = 'best')
fig.tight_layout()
ax.set_xticklabels([])
#ax.set_yticklabels([])
ax.grid(False)

plt.show()

```

Note.²²⁰

TABLE B4.4. DATA ANALYSIS: NLTK.WORDNET

```
#value count (optional)
#df['vader_sentiment'].value_counts()
import collections
from collections import Counter

print(Counter(df2['vader_sentiment']))

sentiment = df2.groupby('vader_sentiment').agg('count')
print(sentiment)

Counter(''.join(df2['tweet_processed']).split()).most_common(0)
```

```
import nltk
from nltk import bigrams
from nltk.util import ngrams

def classify_tweets(tweet_processed):
    wnl = nltk.stem.WordNetLemmatizer()
    stopwords = STOP_WORDS
    tweet_processed = tweet_processed
    words = tweet_processed.split()
    return [wnl.lemmatize(word) for word in words if word not in stopwords]

tweet_words = classify_words(''.join(str(df2['tweet_processed']).tolist()))

(pd.Series(nltk.ngrams(tweet_words, 0)).value_counts()):0]
```

```
#bigram
tweet_ngrams = (pd.Series(nltk.ngrams(tweet_words, 0)).value_counts()):0]

tweet_ngrams.sort_values().plot.barh(color = 'red', width = .5, figsize = (12, 8))
#plt.title('ngram')
#plt.ylabel('bigram')
#plt.xlabel('occurrences')
plt.tick_params(bottom = False, labelbottom = True)
plt.grid(False)

plt.show()
```

```

df3 = pd.read_csv('.csv')

def classify_words(tweet_processed):
    wnl = nltk.stem.WordNetLemmatizer()
    stopwords = STOP_WORDS
    tweet_processed = tweet_processed
    words = tweet_processed.split()
    return [wnl.lemmatize(word) for word in words if word not in stopwords]
tweet_words = classify_words(' '.join(str(df3['tweet_processed']).tolist()))
(pd.Series(nltk.ngrams(tweet_words, 0)).value_counts())[0]

```

```

tweet_ngrams = (pd.Series(nltk.ngrams(tweet_words, 0)).value_counts())[0]
tweet_ngrams.sort_values().plot.barh(color = 'red', width = .5, figsize = (0, 0))
plt.tick_params(bottom = False, labelbottom = True)
plt.grid(False)
plt.show()

```

Note: *n-grams* predict the occurrence of a word based on the occurrence of its $n - 1$ previous words; when sentiment is broken into separate spreadsheets manually, the scripts above return ngrams of compound and specific sentiments; for example, unigrams, bigrams, or trigrams can be useful in visualizing common words.²²¹

TABLE B4.5. DATA ANALYSIS: WORDCLOUD.PY

```

#compound wordcloud with red color function
from wordcloud import WordCloud, STOPWORDS
from PIL import Image
import random

df3 = pd.read_csv('.csv', usecols = ['tweet_processed'])
tweet = df3['tweet_processed'].values

#use **kwargs to pass keyword argument list

#def red_color_func(word, font_size, position, orientation, random_state = None, **kwargs):
#    #return "hsl(10, 100%%, %d%%)" % random.randint(40, 100)

def grey_color_func(word, font_size, position, orientation, random_state = None, **kwargs):
    return "hsl(0, 0%%, %d%%)" % random.randint(40, 100)

stopwords = set(STOPWORDS)
#edit stopwords based on output
stopwords.update(['', ''])

#collocations False to return words not included in stopwords or stopwords update
wc = WordCloud(width = 1200,
               height = 800,
               background_color = 'white',
               max_words = 30,
               stopwords = stopwords,
               collocations = False,
               random_state = 4)\
               .generate(str(tweet))

#generate image from saved file: mask = np.array(Image.open('.png'))
#generate image from url: mask = np.array(Image.open(requests.get("", stream = True).raw))
#select font: font_path = '.ttf'

plt.figure(figsize = (20, 15))
#plt.title("")
plt.imshow(wc\
           .recolor(color_func = grey_color_func, random_state = 4),
           interpolation = 'bilinear')
#.to_file('.png')
plt.axis('off')

plt.show()

```

Note.²²²

APPENDIX C. ECONOMIC FORMULAS AND PROXIES

TABLE C1. AVERAGE COST FUNCTIONS

\$USD	P P	Q $Q \times 12$	AR $P \times Q / Q$	AC TC / Q	$AC_{(COGS)}$ $TC + COGS / Q$	PED, ϵ $\% \Delta Q / \% \Delta P$
2018	\$10.31	1,496	\$10.31	\$3.31	\$9.79	5.36ε
2019	\$10.82	1,836	\$10.82	\$3.08	\$9.85	4.59ε
2020	\$10.91	2,269	\$10.91	\$2.87	\$9.60	28.04ε
	$E(P)$	$E(Q)$	$E(AR)$	$E(AC)$	$E(AC_{COGS})$	$E(\epsilon_D)$
	\$11.25	2,800	\$11.25	\$3.00	\$10.00 (235%)	$\bar{x}_\epsilon > 1$
	\$11.23	2,795	11.23	\$2.67	\$9.54	6.75
	2.89%Δ Y/Y	23.15%Δ Y/Y	2.89%Δ Y/Y	-6.85%Δ Y/Y	-0.63%Δ Y/Y	$\bar{x} = Q\% \Delta / P\% \Delta$
	$\bar{x} = \$10.67$	$\bar{x} = 1,867$	$\bar{x} = \$10.67$	$\bar{x} = \$3.08$	$\bar{x} = \$9.74$	23.97 / 3.52 = 6.75ε

\$USD	P_{CA} P_{UCAN}	Q_{CA} $Q_{UCAN} \times \%_{CA} \times 12$	AR_{CA} $P_{CA} \times Q_{CA} / Q_{CA}$	AC_{CA} TC_{CA} / Q_{CA}	$AC_{(COGS)CA}$ $TC_{CA} + COGS_{CA} / Q_{CA}$	PED, ϵ_{CA} $\% \Delta Q_{CA} / \% \Delta P_{CA}$
2018	\$11.16	77.708	\$11.16	\$1.15	\$7.86	0.87ε
2019	\$12.57	81.194	\$12.57	\$1.31	\$8.99	0.35ε
2020	\$13.32	86.026	\$13.32	\$1.30	\$9.42	0.99ε
	$E_{CA}(P)$	$E_{CA}(Q)$	$E_{CA}(AR)$	$E_{CA}(AC)$	$E_{CA}(AC_{COGS})$	$E_{CA}(\epsilon_D)$
	\$14.50	125	\$14.50	\$1.50	\$9 (+500%)	$\bar{x}_\epsilon < 1$
	\$14.55	90.520	\$14.55	\$1.39	\$10.48	0.75
	9.30%Δ Y/Y	5.22%Δ Y/Y	9.30%Δ Y/Y	6.58%Δ Y/Y	9.58%Δ Y/Y	$\bar{x} = Q\% \Delta / P\% \Delta$
	$\bar{x} = \$12.35$	$\bar{x} = 80.48$	$\bar{x} = \$12.35$	$\bar{x} = \$1.25$	$\bar{x} = \$8.76$	8.82 / 12.31 = 0.71ε

NETFLIX OPERATING SEGMENT: AVERAGE COST FUNCTION, FORMULAS (\$USD)

VARIABLES	ITEM FORMULAS	2017	2018	2019	2020
P PRICE	AVG. MTHLY REVENUE PER PAYING MEMBERSHIP	\$9.84	\$10.31	\$10.82	\$10.91
Q QUANTITY	AVG. PAYING MEMBERSHIPS × 12 MONTHS	1,191	1,496	1,836	2,269
ϵ (PED) PRICE ELASTICITY (OF DEMAND)	$\% \Delta Q_{CA} / \% \Delta P_{CA}$	-	5.36ε	4.59ε	28.04ε $\bar{x} = 248.32\% \Delta$
AR AVERAGE REVENUE	$(P \times Q) / Q$	\$9.84	\$10.31	+\$10.82	\$10.91
AC AVERAGE COST	TC / Q	\$2.66	\$3.31	\$3.08	\$2.87
$AC_{(COGS-1GCA)}$ AVERAGE COST (COGS-1GCA)	$TC_{(COGS-1GCA)} / Q$	-	\$3.47	\$3.48	\$3.59
$AC_{(COGS)}$ MARGINAL COST (COGS)	$TC_{(COGS)} / Q$	\$9.40	\$9.79	\$9.85	\$9.60
π^A AVERAGE PROFIT	$AR - AC$	+\$6.77	+\$7.00	+\$7.74	+\$8.04
$\pi^A_{(COGS-1GCA)}$ AVERAGE PROFIT (COGS-1GCA)	$AR - AC_{(COGS-1GCA)}$	-	+\$6.84	+\$7.34	+\$7.32
$\pi^A_{(COGS)}$ AVERAGE PROFIT (COGS)	$AR - AC_{(COGS)}$	+\$0.03	+\$0.52	+\$0.94	+\$1.31

CANADIAN MARKET SEGMENT: AVERAGE COST FUNCTION, PROXIES (\$USD)

VARIABLES	ITEM PROXIES	2017	2018	2019	2020
P_{CA} PRICE	UCAN AVG. MTHLY REVENUE PER PAYING MEMBERSHIP	\$9.43	\$11.16	\$12.57	\$13.32
Q_{CA} QUANTITY	(UCAN AVG. PAYING MEMBERSHIPS × CA SHARE) × 12 MONTHS	66.792	77.708	81.194	86.026
ϵ_{CA} (PED) PRICE ELASTICITY (OF DEMAND)	$\% \Delta Q_{CA} / \% \Delta P_{CA}$	-	0.87ε	0.35ε	0.99ε $\bar{x} = 61.55\% \Delta$
AR_{CA} AVERAGE REVENUE	$(P_{CA} \times Q_{CA}) / Q_{CA}$	\$9.43	\$11.16	\$12.57	\$13.32
AC_{CA} AVERAGE COST	TC_{CA} / Q_{CA}	\$0.81	\$1.15	\$1.31	\$1.30
$AC_{(COGS-1GCA)}$ AVERAGE COST(COGS-1GCA)	$TC_{(COGS-1GCA)/CA} / Q_{CA}$	-	\$1.71	\$1.81	\$2.09
$AC_{(COGS)}$ AVERAGE COST(COGS)	$TC_{(COGS)/CA} / Q_{CA}$	\$7.69	\$7.86	\$8.99	\$9.42
π_{CA}^A AVERAGE PROFIT	$AR_{CA} - AC_{CA}$	+\$8.62	+\$10.01	+\$11.26	+\$12.02
$\pi_{(COGS-1GCA)}^A$ AVERAGE PROFIT (COGS-1GCA)	$AR_{CA} - AC_{(COGS-1GCA)/CA}$	-	+\$9.45	+\$10.76	+\$11.23
$\pi_{(COGS)}^A$ AVERAGE PROFIT (COGS)	$AR_{CA} - AC_{(COGS)/CA}$	+\$1.74	+\$3.30	+\$3.58	+\$3.90

Note.²²³

²²³ SEC 2020 (Netflix 2019 Annual Report, “Selected Financial Data” Item 6, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7); SEC 2021 (Netflix 2020 Annual Report, “Selected Financial Data” Item 6, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7)

TABLE C2. MARGINAL COST FUNCTIONS

\$USD	TC $VC + FC$	$TC_{(COGS)}$ $TC + COGS$	TR TR	MR $\Delta TR / \Delta Q$	MC $\Delta TC / \Delta Q$	$MC_{(COGS)}$ $\Delta TC + \Delta COGS / \Delta Q$
2018	\$4,684	\$14,651	\$15,794	\$13.49	\$4.96	\$11.33
2019	\$5,654	\$18,094	\$20,156	\$12.83	\$2.85	\$10.12
2020	\$6,520	\$21,797	\$24,996	\$11.17	\$2.00	\$8.55
	E(TC) \$7,700 \$7,694 18.00%Δ Y/Y $\bar{x} = \$5,619$	E(TC_{COGS}) \$26,592 (+245%) \$26,592 22.00%Δ Y/Y $\bar{x} = \$18,180$	E(TR) \$31,500 \$31,447 25.18%Δ Y/Y $\bar{x} = \$20,315$	E(MR) \$10.25 \$10.17 -8.92%Δ Y/Y $\bar{x} = \$12.49$	E(MC) \$1.25 \$1.28 -36.18%Δ Y/Y $\bar{x} = \$3.27$	E(MC_{COGS}) \$7 (+600%) \$7.43 -13.10%Δ Y/Y $\bar{x} = \$10.00$

\$USD	TC_{CA} $VC_{CA} + FC_{CA}$	$TC_{(COGS)CA}$ $TC_{CA} + COGS_{CA}$	TR_{CA} $TR_{UCAN} \times \%_{CA}$	MR_{CA} $\Delta TR_{CA} / \Delta Q_{CA}$	MC_{CA} $\Delta TC_{CA} / \Delta Q_{CA}$	$MC_{(COGS)CA}$ $\Delta TC_{CA} + \Delta COGS_{CA} / \Delta Q_{CA}$
2018	\$89.443	\$611.180	\$828.153	\$14.84	\$3.22	\$8.91
2019	\$106.945	\$730.120	\$1,005	\$50.76	\$5.02	\$34.11
2020	\$111.467	\$810.246	\$1,145	\$29.05	\$0.93	\$41.19
	E_{CA}(TC) \$125 \$124.73 11.90%Δ Y/Y $\bar{x} = \$102.62$	E_{CA}(TC_{COGS}) \$950 (+650%) \$933.57 15.22%Δ Y/Y $\bar{x} = \$717.18$	E_{CA}(TR) \$1,450 \$1,347.00 17.64%Δ Y/Y $\bar{x} = \$992.72$	E_{CA}(MR) \$60.00 \$58.00 99.64%Δ Y/Y $\bar{x} = \$31.55$	E_{CA}(MC) \$0.75 \$0.81 -12.79%Δ Y/Y $\bar{x} = \$3.06$	E_{CA}(MC_{COGS}) \$100 (+13,750%) \$103.71 151.79%Δ Y/Y $\bar{x} = \$28.07$

NETFLIX OPERATING SEGMENT: MARGINAL COST FUNCTION, FORMULAS (\$USD)

VARIABLES	ITEM FORMULAS	2018	2019	2020
MR MARGINAL REVENUE	$(\Delta TR) / (\Delta Q)$	\$13.49	\$12.83	\$11.17
MC MARGINAL COST	$(\Delta TC) / (\Delta Q)$	\$4.96	\$2.85	\$2.00
$MC_{(COGS-1GCA)}$ MARGINAL COST (COGS-1GCA)	$(\Delta TC_{(COGS-1GCA)}) / (\Delta Q)$	-	\$3.59	\$4.03
$MC_{(COGS)}$ MARGINAL COST (COGS)	$(\Delta TC_{(COGS)}) / (\Delta Q)$	\$11.33	\$10.12	\$8.55
π^M MARGINAL PROFIT	$MR - MC$	+\$8.83	+\$9.98	+\$7.92
$\pi^M_{(COGS-1GCA)}$ MARGINAL PROFIT (COGS-1GCA)	$MR - MC_{(COGS-1GCA)}$	-	+\$9.24	+\$7.14
$\pi^M_{(COGS)}$ MARGINAL PROFIT (COGS)	$MR - MC_{(COGS)}$	+\$2.16	+\$2.71	+\$2.62

CANADIAN MARKET SEGMENT: MARGINAL COST FUNCTION, PROXIES (\$USD)

VARIABLES	FORMULAS	2018	2019	2020
MR_{CA} MARGINAL REVENUE	$(\Delta TR_{CA}) / (\Delta Q_{CA})$	\$14.85	\$50.76	\$29.05
MC_{CA} MARGINAL COST	$(\Delta TC_{CA}) / (\Delta Q_{CA})$	\$3.22	\$5.02	\$0.93
$MC_{(COGS-1GCAICA)}$ MARGINAL COST (COGS-1GCA)	$(\Delta TC_{(COGS-1GCAICA)}) / (\Delta Q_{CA})$	-	\$0.98	\$7.55
$MC_{(COGSICA)}$ MARGINAL COST (COGS)	$(\Delta TC_{(COGSICA)}) / (\Delta Q_{CA})$	\$8.91	\$34.11	\$41.19
π^M_{CA} MARGINAL PROFIT	$MR_{CA} - MC_{CA}$	+\$11.63	+\$45.74	+\$28.12
$\pi^M_{(COGS-1GCAICA)}$ MARGINAL PROFIT (COGS-1GCA)	$MR_{CA} - MC_{(COGS-1GCAICA)}$	-	+\$49.78	+\$21.05
$\pi^M_{(COGSICA)}$ MARGINAL PROFIT (COGS)	$MR_{CA} - MC_{(COGSICA)}$	+\$5.94	+\$16.65	+\$12.47

Note: π^M denotes *marginal profits* (π) at equilibrium ($P = MR = MC$) in consideration of traditional variables and fixed costs; by contrast, $\pi^M_{(COGS-1GCA)}$ represents π from traditional costs plus additional costs associated with sales (COGS), excluding content amortization (GCA) less one year, as the expense of GCA that is written off is said to make up “the majority of cost of revenues” for a given year; additionally, $\pi_{(COGS)}$ reflects π from the aggregate of traditional, additional, and content costs.²²⁴

²²⁴ SEC 2020 (Netflix 2019 Annual Report, “Selected Financial Data” Item 6, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7); SEC 2021 (Netflix 2020 Annual Report, “Selected Financial Data” Item 6, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7)

TABLE C3. SIMPLIFIED FORMULAS SUMMARIZING APPROACH ONE

NETFLIX OPERATING SEGMENT: TAX BASE FORMULAS, APPROACH ONE (HUNDRED-THOUSANDS, \$USD)

VARIABLES	ITEM FORMULAS	2017	2018	2019	2020
<i>TR</i> TOTAL REVENUE	TOTAL REVENUES	\$11,693	\$15,794	\$20,156	\$24,996
<i>COGS</i> COST OF GOODS SOLD	COST OF REVENUES	\$8,033	\$9,967	\$12,440	\$15,276
<i>GM</i> GROSS MARGIN	$COGS / TR$	69%	63%	62%	61%
<i>GP</i> GROSS PROFIT	$TR - COGS$	\$3,660	\$5,780	\$7,716	\$9,720
<i>GPM</i> GP MARGIN	GP / TR	31%	37%	38%	39%
<i>VC</i> VARIABLE COST	MARKETING + TECHNOL. & DEVEL. + GEN. & ADMIN.	\$2,821	\$4,222	\$5,112	\$5,134
<i>EBIT</i> EARNING BEFORE INTEREST & TAX	$GP - VC$	\$838.679	\$1,558	\$2,604	\$4,585
<i>EBITM</i> EBIT MARGIN	$EBIT / TR$	7%	10%	13%	18%
<i>FC</i> FIXED COST	INTEREST EXP. + INTEREST & OTHER INCOME EXP.	\$353.358	\$378.768	\$542.023	\$1,386
<i>TC</i> TOTAL COST	$VC + FC$	\$3,174	\$4,684	\$5,654	\$6,520
<i>PBT</i> PROFITS BEFORE TAX	$EBIT - FC$	\$485.321	\$1,180	\$2,062	\$3,199
<i>PBTM</i> PBT MARGIN	PBT / TR	4%	7%	9%	13%
<i>NP</i> NET PROFIT	$PBT - PROVISION FOR INCOME TAXES$	\$558.929	\$1,165	\$1,867	\$2,761
<i>NPM</i> NP MARGIN	NP / TR	5%	7%	9%	11%
<i>ETR</i> EFFECTIVE TAX RATE	$PROVISION FOR INCOME TAXES / PBT$	15%	1%	9%	14%

CANADIAN MARKET SEGMENT: TAX BASE PROXIES, APPROACH ONE (HUNDRED-THOUSANDS, \$USD)

VARIABLES	PROXY FORMULAS	2017	2018	2019	2020
TR_{CA} TOTAL REVENUE	$TR_{UCAN} \times \%_{CA}$	\$666.086	\$828.153	\$1,005	\$1,145
$COGS_{CA}$ COST OF GOODS SOLD	$GM \times TR_{CA}$	\$459.599	\$521.736	\$623.174	\$698.779
GP_{CA} GROSS PROFIT	$TR_{CA} - COGS_{CA}$	\$206.487	\$306.417	\$381.946	\$446.760
VC_{CA} VARIABLE COST	$(GPM - EBITM) \times GP_{CA}$	\$49.556	\$82.732	\$95.486	\$93.820
$EBIT_{CA}$ EARNING BEFORE INTEREST & TAX	$GP_{CA} - VC_{CA}$	\$156.930	\$223.684	\$286.459	\$352.941
FC_{CA} FIXED COST	$(EBITM - PBTM) \times EBIT_{CA}$	\$4.708	\$6.711	\$11.458	\$17.647
TC_{CA} TOTAL COST	$VC_{CA} + FC_{CA}$	\$54.265	\$89.443	\$106.945	\$111.467
PBT_{CA} PROFITS BEFORE TAX MARGIN	$EBIT_{CA} - FC_{CA}$	\$152.222	\$216.974	\$275.001	\$335.294
NP_{CA} NET PROFIT	$PBT_{CA} - ((PBTM - NPM) \times PBT_{CA})$	\$149.178	\$216.974	\$275.001	\$328.588
ETP_{CA} EFFECTIVE TAX RATE	$(PBT_{CA} - NP_{CA}) / PBT_{CA}$	2%	0%	0%	2%

Note: using this formula, values are taken at margin for the percentage deemed as foreign revenues in-scope, which in the present case, for Canada is 10% of Netflix UCAN region.²²⁵

²²⁵ OECD 2020a (BEPS Impact Assessment, “Simplified Formula Summarizing the Approach on Pillar One (Amount A)” Figure 2.1 p. 29, “Approach to Proxy CFB Destination-based Sales” Figure 2.4 p. 40, “Approach to Proxy ADS Destination-based Sales” Figure 2.8 p. 45); SEC 2020 (Netflix 2019 Annual Report, “Selected Financial Data” Item 6, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7); SEC 2021 (Netflix 2020 Annual Report, Item 6, Item 7)

TABLE C4. SIMPLIFIED FORMULAS SUMMARIZING APPROACH TWO

NETFLIX OPERATING SEGMENT: TAX BASE FORMULAS, APPROACH TWO (HUNDRED-THOUSANDS, \$USD)

VARIABLES	ITEM FORMULAS	2018	2019	2020
$COGS_{(-1GCA)}$ COST OF GOODS SOLD (LESS GROSS CONTENT AMORT. PREVIOUS YEAR)	$COGS - GCA$ PREVIOUS YEAR	\$501 -95%	\$751 -94%	\$1,633 -89%
$GM_{(COGS-1GCA)}$ GROSS MARGIN (COGS-1GCA)	$COGS_{(-1GCA)} / TR$	3%	4%	6%
$GP_{(COGS-1GCA)}$ GROSS PROFIT (COGS-1GCA)	$TR - COGS_{(-1GCA)}$	\$15,293 +165%	\$19,405 +151%	\$23,362 +140%
$GPM_{(COGS-1GCA)}$ GP MARGIN (COGS-1GCA)	$GP_{(COGS-1GCA)} / TR$	96%	96%	93%
EBITDA EARNING BEFORE INTEREST, TAXES, DEPRECIATION, & AMORT.	$GP_{(COGS-1GCA)} - VC$	\$11,072 +611% EBIT	\$14,405 +453% EBIT	\$18,228 +298% EBIT
EBITDAM EBITDA MARGIN	$EBITDA / TR$	72%	71%	73%
PBTDA PROFITS BEFORE TAX, DEPRECIATION, & AMORT.	$EBITDA - FC$	\$10,693 +807% EBIT	\$13,751 +567% EBIT	\$16,842 +412% EBIT
PBTDA M PBTDA MARGIN	$PBTDA / TR$	70%	68%	67%
$NP_{(COGS-1GCA)}$ NET PROFIT (COGS-1GCA)	$PBTDA -$ PROVISION FOR INCOME TAXES	\$10,678 +817% PBT	\$13,556 +626% PBT	\$16,404 +494% PBT
$NPM_{(COGS-1GCA)}$ NP MARGIN (COGS-1GCA)	$NP_{(COGS-1GCA)} / TR$	70%	67%	66%
$ETR_{(COGS-1GCA)}$ EFFECTIVE TAX RATE (COGS-1GCA)	PROVISION FOR INCOME TAXES / $PBTDA$	0%	1%	2%
$TC_{(COGS-1GCA)}$ TOTAL COST (COGS-1GCA)	$TC + COGS_{(-1GCA)}$	\$5,185 +11% TC	\$6,405 +13% TC	\$8,154 +25% TC
$TC_{(COGS)}$ TOTAL COST (COGS)	$TC + COGS$	\$14,651 +182% TC _(COGS-1GCA)	\$18,094 +182% TC _(COGS-1GCA)	\$21,797 +167% TC _(COGS-1GCA)

CANADIAN MARKET SEGMENT: TAX BASE PROXIES, APPROACH TWO (HUNDRED-THOUSANDS, \$USD)

VARIABLES	FORMULAS	2018	2019	2020
$COGS_{(-1GCA)CA}$ COST OF GOODS SOLD (LESS GROSS CONTENT AMORT. PREVIOUS YEAR)	$GM_{(COGS-1GCA)} \times TR_{CA}$	\$24,844 -97%	\$40,205 -96%	\$68,732 -94%
$GP_{(COGS-1GCA)CA}$ GROSS PROFIT*	$TR_{CA} - COGS_{(COGS-1GCA)CA}$	\$803,309 +162%	\$964,916 +153%	\$1,077 +141%
EBITDA_{CA} EARNING BEFORE INTEREST, TAXES, DEPRECIATION, & AMORT.	$GP_{(COGS-1GCA)CA} - VC_{CA}$	\$720,576 +222% EBIT _{CA}	\$959,429 +235% EBIT _{CA}	\$982,988 +178% EBIT _{CA}
$PBTDA_{CA}$ PROFITS BEFORE TAX, DEPRECIATION & AMORT.	$EBITDA_{CA} - FC_{CA}$	\$713,865 +219% PBT _{CA}	\$947,971 +245% PBT _{CA}	\$965,340 +194% PBT _{CA}
$TC_{(COGS-1GCA)CA}$ TOTAL COST (COGS-1GCA)	$TC_{CA} + COGS_{(-1GCA)CA}$	\$114,288 +28% TC _{CA}	\$147,150 +38% TC _{CA}	\$180,199 +62% TC _{CA}
$TC_{(COGS)CA}$ TOTAL COST (COGS)	$TC_{CA} + COGS_{CA}$	\$611,180 +435% TC _{(COGS-1GCA)CA}	\$730,120 +396% TC _{(COGS-1GCA)CA}	\$810,246 +350% TC _{(COGS-1GCA)CA}

Note: in accordance with the effective (corporate) tax rate (ETR) of 10.5% under Global Intangible Low-Taxed Income (GILTI), or 12.5% in the case of BEPS Pillar Two, the difference between $NP_{(COGS-1GCA)}$ and NP from 2018-2020 amounts to roughly \$4 billion dollars, or \$3.6 to 4.4 billion ($NP_{(COGS-1GCA)}$) as opposed to \$648 million (NP) at the ETR .²²⁶

²²⁶ SEC 2020 (Netflix 2019 Annual Report, “Selected Financial Data” Item 6, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” Item 7); SEC 2021 (Netflix 2020 Annual Report, Item 6, Item 7)

TABLE C5. NETFLIX STREAMING REVENUES, CONTENT SPENDING, AND AMORTIZATION

NETFLIX OPERATING SEGMENT: CONTENT ASSETS, NET AMORTIZED (HUNDRED-THOUSANDS, \$USD)

	2018	2019	2020	%Δ
<i>NLC</i> <i>NET LICENSED CONTENT</i>	\$14,081 -	\$14,703 +4%	\$13,748 -6.5%	-1%
<i>NPC</i> <i>NET PRODUCED CONTENT</i>	\$6,021 -	\$9,801 +63%	\$11,636 +50%	+57%
<i>NET RELEASED CONTENT</i> <i>(LESS AMORTIZATION)</i>	\$2,404 -	\$4,383 +82%	\$5,810 +33%	+58%
<i>CONTENT IN PRODUCTION</i>	\$3,305 -	\$4,751 +44%	\$4,827 +2%	+23%
<i>CONTENT IN DEVELOPMENT</i>	\$311,842 -	\$667,866 +114%	\$999,207 +19%	+67%
<i>NCA</i> <i>NET CONTENT ASSETS</i>	\$20,102 -	\$24,505 +22%	\$25,383 +4%	+13%

NETFLIX OPERATING SEGMENT: CONTENT ASSETS, GROSS AMORTIZED (HUNDRED-THOUSANDS, \$USD)

	2017	2018	2019	2020	%Δ
<i>GLCA</i> <i>GROSS LICENSED CONTENT AMORTIZATION</i>	\$5,680 -	\$6,512 +14%	\$7,243 +11%	\$7,544 +4%	+9%
<i>GPCA</i> <i>GROSS PRODUCED CONTENT AMORTIZATION</i>	\$517,444 -	\$1,020 +97%	\$1,973 +93%	\$3,262 +65%	+85%
<i>GCA</i> <i>GROSS CONTENT AMORTIZATION</i>	\$6,198 -	\$7,532 +21%	\$9,216 +22%	\$10,806 +17%	+20%
<i>GCA/COGS</i> <i>GCA/COGS_(-1GCA)</i>	77% -	76% (2018/17) 93%	74% (2019/18) 92%	71% (2020/19) 86%	75% (+15%) 90%

NETFLIX OPERATING SEGMENT: OPERATING CASH FLOWS (BILLIONS, \$USD)

VARIABLES	ITEM FORMULAS	2017	2018	2019	2020	%Δ
<i>CAPEX</i> <i>CAPITAL EXPENDITURES</i>	ADDS TO CONTENT ASSETS + CHANGE IN CONTENT LIAB.	\$8.906 -	\$12.043 +35%	\$14.611 +21%	\$12.537 -14%	+14%
<i>OCF</i> <i>OPERATING CASH FLOW</i>	<i>NP - CAPEX</i>	-\$8.347 -	-\$10.879 +30%	-\$12.744 +17%	-\$9.775 -23%	+8%
	<i>GCA/CAPEX</i>	70%	63%	63%	86%	70%
	<i>COGS/CAPEX</i>	90%	83%	85%	122%	95%

Note: as illustrated above, the *gross content amortization (GCA)* amounts to between 75% and 90% of the total ‘cost of revenues,’ or cost of goods sold (*COGS*) at the end of period and less one period (*COGS_(-1GCA)*).²²⁷

TABLE C6. TAX GAP ESTIMATIONS

CANADIAN MARKET SEGMENT: TAX REVENUES, APPROACHES ONE & TWO (MILLIONS, \$USD)

	SCENARIO 1.1				SCENARIO 2.1				SCENARIO 2.2		
	UNILATERAL, APPROACH ONE: 3% VAT				MULTILATERAL, APPROACH ONE: 20% AV				MULTILATERAL, APPROACH TWO: 20% AV		
	TR_{CA}				PBT_{CA}				$PBTDA_{CA}$		
	2017	2018	2019	2020	2017	2018	2019	2020	2018	2019	2020
TAX BASE	\$666.086	\$828.153	\$1,005	\$1,145	\$156.930	\$223.684	\$286.459	\$352.941	\$713.865	\$947.971	\$965.340
TAX REVENUES	\$19.983	\$24.845	\$30.154	\$34.366	\$30.444 1.1: +52%	\$43.395 1.1: +75%	\$55.000 1.1: +82%	\$67.059 1.1: +95%	\$142.773 1.1: +475% 2.1: +229%	\$189.594 1.1: +529% 1.1: +244%	\$193.068 1.1: +462% 2.1: +187%

SCENARIO 1.2

UNILATERAL, COMPARATOR: 5 - 15% HST

FEDERAL GST (5%), PROVINCIAL PST (6 - 10%)

\$33.3,	\$41.4,	\$50.3,	\$57.2,
99.9	124.2	150.8	171.8

BUDGET 2021 CANADA: BUDGETARY REVENUES OUTLOOK (MILLIONS, \$CAD)

	2021 - 22	2022 - 23	2023 - 24	2025 - 26
3% DST	\$200	\$700	\$800	\$900
BUDGET 2021, DST ESTIMATES				
	IN-SCOPE REVENUES, UNILATERAL			
	REVENUES (2020) +19.75% (2017 - 2020 REVENUES Y/Y%)			
SCENARIO 1.1. 3% VAT, TR_{CA}	\$51.4 25%	\$76.8 11%	\$114.8 14%	\$110.2 12%
SCENARIO 1.2. 5 - 15% HST, TR_{CA}	\$85.5 - 205.7 43 - 102%	\$102.4 - 307.6 15 - 44%	\$122.6 - 368.3 15 - 46%	\$146.8 - 441.1 16 - 46%
	IN-SCOPE PROFITS, MULTILATERAL			
	REVENUES (2020) +31.27% (2017 - 2020 REVENUES Y/Y%)			
SCENARIO 2.1. 20% AV, PBT_{CA}	\$109.9 55%	\$144.3 21%	\$189.4 23%	\$248.6 28%
SCENARIO 2.2. 20% AV, $PBTDA_{CA}$	\$316.4 158%	\$415.3 59%	\$545.2 68%	\$715.7 80%

Note: the table above uses the average year-over-year percentage (Y/Y%) revenue growth from 2017 to 2020 in order to determine future growth over the following aggregate periods of 2021 to 2026 outlined in Canada's Budget 2021; by comparison, Toronto-based think tank C.D. Howe Institute estimated that Netflix accounted for 49% of uncollected GST/HST in 2017 with a total value of \$52 million dollars; further, the CRTC estimated Canadian revenues from Netflix in 2018 to be \$2.5 billion dollars, meanwhile Canadian Heritage Minister Guilbeault forecasts Canada's 3% DST will "generate almost \$1 billion in foreign investment per year in our films, television and music."²²⁸

²²⁸ CRTC 2020 (Communications Monitoring Report 2019, Figures 6.20-6.23 pp. 188-189); Department of Finance Canada 2021 (Budget 2021, "Outlook for Budgetary Revenue" Table A1.5 p. 329) Department of Finance Canada 2020 (FES 2020, "Outlook for Budgetary Revenue" Table A1.6 p. 127); Parliament of Canada 2020b; SEC 2020 (Netflix 2019 Annual Report, "Management's Discussion and Analysis of Financial Condition and Results of Operations" Item 7); SEC 2021 (Netflix 2020 Annual Report, Item 7); Wyonch 2017 (C.D. Howe p. 14)

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