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Sieve or Shield? High Tech Firms and Entrepreneurs and the Impacts of COVID 19 on North American Border Regions

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ABSTRACT



This study examines the role of international borders in the era of the Covid-19 pandemic, which led to unprecedented national decisions to close borders in order to contain the domestic contagion. The idea that borders act as shields conflicts with the needs of cross-border regions, as they rely on networks straddling the borders for goods and services' provisions. This paper explores different approaches at individual, local, and regional policy levels used to counterbalance such impacts. As evidenced by North American border closures to most non-citizens seeking entry (shield effects), it is important to understand how professionals, firms, and their networks exercised various forms of agency (sieve effects) to negotiate the border and its policies during this most unusual time. Drawing from a comparative study between two North American border regions distinguished for their thriving innovative business ecosystems – Cascadia (Seattle-Vancouver) along the Canada-U.S. border and Calibaja (San Diego-Tijuana) along the Mexico-U.S. border – we seek to understand how COVID-19 measures have influenced cross-border economies through unprecedented responses to crisis management.

KEYWORDS

Border regions; pandemic; cross-border integration; resilience; Cascadia; Calibaja

Introduction

The role of the border is discussed here, mobilizing the dualism of “sieve” and “shield.” The former refers to a gatekeeping function that limits, if not prevents, a foreigner’s access to a nation state. The sieve recalls the narrative of a “filter.” which allows a person, or goods, entry across the boundaries of a nation state. The idea of borders as sieves or shields concerning movements of people and goods crossing international borders has come to the forefront of discussion again as many nation-states seek to contain the spread of the recent COVID-19 pandemic. Throughout much of 2020, countries worldwide implemented a wide range of drastic border control measures that seek to minimize the spread of COVID-19 into their own territory in an effort to

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protect the health and welfare of their citizens and not overburden the country's health-care system. The U.S. national government issued an international border closure on March 21, 2020 to prevent all non-essential inbound travels due to the global pandemic. This had clear implications on the quality of life within North American border regions. From a scientific viewpoint, we seek to outline the effects of border closure in relation to the role of border regions as buffer zones where international trade agreements and proximity to the border create preconditions for economic development. We also consider local networks spanning international borders as they propel resilience in those border regions (Prokkola 2019; Korhonen et al. 2021), and have considerable capacity to react to a shock, such as the ongoing pandemic.

This article therefore delves into the juxtaposition between national-level decisions and policies to protect nation state's boundaries – wielding the international border as a shield by limiting non-essential inbound travel of peoples into a nation state – and local and regional actors playing an agentic role – working closely with their peers across the border on local and regional policies to maintain the border as a sieve that facilitates cross-border trade and economy. Specifically, this article seeks to outline the different approaches at the individual, local, and regional policy levels used to counter-balance the impacts of federal North American border closures. Our analysis focuses on a comparative case study between two North American innovative border regions: the Cascadia region along the Canada-U.S. border (Seattle-Vancouver) and Calibaja along the Mexico -U.S. border (San Diego-Tijuana). We seek to understand how COVID-19 measures have influenced these two cross-border region's economies and crisis response and management.

This study explores two major research questions: 1. How have the restrictions of North American international borders due to COVID-19 and the subsequent economic and political fallout impacted cross-border economic ecosystems, including innovation-driven high technology and medical life science firms and related institutions? 2. How do border management strategies and responses in an era of a global public health pandemic possibly redefine North American international borders? This analysis spans both long-standing cooperation, in the case of the Canada-U.S. relationship, and a more erratic relationship, in the case of the U.S.-Mexico relationship. While we acknowledge that some changes in cross-border collaboration stem from individuals altering their normal routines in terms of cross-border travel, we focus on the effects generated by policies that limited crossings.

The study draws from the scholarly literature on border regions and pandemics. The study's primary methodology includes qualitative analysis of 30 semi-structured interviews with firms, business organizations, research institutions, port-of-entry officers, and federal trade and foreign labor policy experts, textual analysis of relevant reports and news articles, and attendance and participation in several virtual conferences dedicated to regional cross-border innovation.

Border Regions

Historically, international borders functioned as barriers to limit a country's boundaries. At times, this “bordering effect” can be reinforced or scaled-down (Cassidy, Yuval-Davis, and Wemyss 2018). For example, Benedicto and Brunet (2018, 8) argue that stricter

border policies reinforce the collective imagination of a safe interior and an insecure exterior reminiscent of the medieval concept of the fortress. Laine (2021) argues that borders create an impression as protective yet vulnerable walls safeguarding the inside from a perceived threat from the outside. In fact, the notion of gatekeeping, which may be seen as a particularly intentional form of bordering, is based not only on the creation of difference but also on the notion of clear-cut exclusion (Laine 2020).

International borders have also been considered as a resource (Sohn 2014) granting salience to the role of “porous” place (Mendoza and Dupeyron 2020), which can enact different functions of the border as interface or gateway (Sohn and Licheron 2018). This framing is especially relevant when considering knowledge-intensive economies working in border regions.

For business professionals traversing borders, even in restrictive times, borders continue to operate as sieves and shields for these select sojourners (Richardson 2017). These types of foreigners and their professional activities can be highly desirable for a region’s economy and advancement, and thus, regional and federal sieve incentives and effects, such as favorable foreign labor mobility and immigration policies, help to facilitate these movements. Nevertheless, borders are used as a first line of defence regarding security and thus can simultaneously act as a shield. This article discusses the dualism of “sieve” or “shield” through analysis of the COVID-19 border restrictions along the US borders with Canada and Mexico.

Border functions also depend on a number of multi-level institutions, structures, and agencies, which have clear implications on the success of border regions. Regional and local actors often develop local cross-border alliances (Gualini 2003; Mendoza and Dupeyron 2020). These networks gather their members to pursue a common goal from both sides of the border (Ganster and Collins 2017). In fact, networks in border regions have received extensive attention from academic researchers and policy makers under the wide and multi-faceted umbrella of cross-border cooperation.

Borderlands scholars are increasingly examining border regions as sites of unexploited potential for technological innovation-led economic development (OECD 2013; European Commission 2017).

While there is no commonly agreed-upon evaluation system to assess the networks of agents in cross-border regions (Leibenath and Knippschild 2005), these networks do exchange information and inform decision making in a number of key policy areas (Brunet-Jailly 2008). This includes public transport (Walther and Reitel 2012; Durand and Nelles 2014), spatial planning processes (Fricke 2015; Zimmerbauer 2018; Cappellano, Richardson, and Trautman 2020), environmental protections (Alper and Salazar 2005; Lara-Valencia 2011), and economic development (Cappellano and Makkonen 2020a, 2020b; Mendoza and Dupeyron 2020).

Although hampered by a degree of uncertainty (Leibenath and Knippschild 2005), the participatory and less hierarchical nature of policy-making processes in border regions (Plangger 2019) require networks of diverse actors playing a first-tier role in cross-border governance. This may be defined as “the act to govern the process” (Wong Villanueva, Kidokoro, and Seta 2020, 3) when addressing border-related problems (Lara-Valencia 2011). In addition, networks of diverse agents are found to spur social capital throughout the region (Nshimbi 2015), substantiating the cross-border regionalization process (Lundquist and Tripl 2013).

The interplay of diverse networks is pivotal for governance in cross-border regions. For example, in Calibaja – name created to join the U.S. California and the Mexican Baja California, the City Governments of San Diego and Tijuana, as resting on a long standing sistership relation (Ganster and Collins 2017), have created a framework for easing/allowing business organizations to team up and spur economic development in the bi-national regions (Cappellano and Makkonen 2020a). In Cascadia, several multinational companies based in the Seattle, Washington region have recently established development offices in Vancouver, Canada; approximately 150 miles from Seattle headquarter operations. Importantly, these firms’ operations span across the Canada-U.S. border, and Microsoft Corporation has initiated an effort to support public and private actors in an attempt to coalesce around a common strategic innovation and development vision: namely, the Cascadia Innovation Corridor (Cappellano, Richardson, and Trautman 2020; Cappellano and Makkonen 2020b). In Calibaja, local actors in cross-border regions are found to form a less-hierarchical policy making process where a self-governed structure mobilizes different agents resting on a network culture spread throughout their regions (Cappellano and Makkonen 2020a).

More in general, scholars have noted that cross-border networks can help determine the capacity of a region in regards to coping with sudden events such as the pandemic and the notion of “cross-border regional resilience” (Prokkola 2019; Korhonen et al. 2021). In fact, cross-border alliances that address public health in border regions are not completely new in border studies (Collins-Dogrul 2013). However, the COVID-19 pandemic has generated unprecedented burdens to border regions, which have faced sudden border closures around the world.

United States Borders and the COVID-19 Pandemic

International borders have long been used as a tool in an attempt to control and mitigate newcomers from bringing potential communicable diseases into the territory of a nation state.

Collins-Dogrul (2013) stresses that for the first half of the twentieth century, the *modus operandi* for public health along the U.S. and Mexico border was characterized by containment and quarantine over communication, exchange, and mutual aid. Early public health campaigns along the U.S.-Mexico border reflected larger nation-building projects, and were in many ways local manifestations of a broader troublesome relationship between Mexico and the United States (62).

The relationship between the U.S. and Mexico at the start of the COVID-19 pandemic was therefore already uneven, and pandemic policies saw the U.S. government restricting all but essential travel for Mexican citizens and foreign nationals seeking entry into the U.S. through Mexican ports-of-entry (U.S. Department of Homeland Security 2020). In contrast, entry into Mexico for U.S. citizens and other foreign nationals at Mexican ports-of-entry during the COVID-19 pandemic is considered one of the most facilitative globally by the general press (Cable News Network 2021). Indeed, the only Mexican federal policy requirement relating to COVID-19 for foreign nationals seeking entry into Mexico is the completion of a health declaration form and the scanning of the QR code at a Mexican port-of-entry upon entering Mexico. ¹

In contrast to the seemingly strained and uneven relationship between the U.S. and Mexican federal governments, Canada and the U.S. have had what many may consider a “special relationship” since World War II (Burney 2020). This is especially true when it comes to preferential treatment and the integration of economic and security institutions between the two countries, which has frequently affected how the Canada-U.S. border is managed between the two countries (Dawson and Speer 2016). However, the former Trump administration’s erratic management of the COVID-19 epidemic – ranging from efforts of trying to block personal protective equipment (PPE) exports to Canada to possibly stationing U.S. troops at the Canada-U.S. border during the height of the pandemic – has given rise to serious questions about the special Canada-U.S. relationship after the pandemic (Nimijean and Carment 2020). In fact, Canada, its provinces, and local and regional health authorities were viewed as supportive and united regarding a reasonably cohesive national response to COVID-19 compared to the U.S. The U.S., on the other hand, appeared driven by partisan politics; not following the recommendation of key U.S. public health officials; and its former President not setting a good example by following basic COVID-guidelines such as wearing a facemask and practicing social distancing (Merkley et al. 2020).

Considering the U.S. border management during this unprecedented time, some have argued a time of extreme unpredictability along the Canada-U.S. border on the U.S. side due to the U.S. Senate’s absence of a confirmation for then Acting Secretary of the Department of Homeland Security, Chad Wolf (Jones 2020; Rose 2020). Brunet-Jailly and Carpenter (2021) stressed that closing international borders did not significantly prevent the spread of COVID-19. What such closures did inspire was the dramatic and constant change of daily life globally in an effort to contain the virus. The authors noted that policies around border management varied greatly, and, in fact, the mobility of “essential workers” and “goods” remained robust across borders even at the height of the COVID-19 pandemic. Brunet-Jailly and Carpenter (2021) stressed that this initial evidence indicates that borders are not just instruments of closure, but also *filters* of mobilities and flows (9).

Writing in the same collection of articles as Brunet-Jailly and Carpenter (2021), Delmas and Goeur (2021) noted that cross-border arrangements present many exceptions to the closure of borders for health reasons bolstering the notion of borders as filters. For example, in considering North American border flows between February and May 2020, the dynamics of the two North American borders were very different. For the Canada-U.S. border, truck traffic declined by approximately 30 percent, whereas passenger travel by private vehicle fell by over 95 percent. The U.S.-Mexico border, on the other hand, experienced about 35 percent of the normal flows for passenger travel by private vehicle and 25 percent of the normal flows for people crossing by foot (United States. Department of Transportation 2020 in Delmas and Goeur 2021). Delmas and Goeur (2021) stressed that Mexicans working in the agriculture and manufacturing sectors in the U.S. were deemed as essential workers, and their labor was continuous during the pandemic. In sum, Brunet-Jailly and Carpenter (2021) emphasized the overarching need to determine what the role of border policy is in confronting infectious disease.

Building on this literature, this article examines how national-level decisions and policies to protect nation state’s boundaries (the international border as shield) influenced

the North American innovative cross-border regions of Cascadia and Calibaja. The article also analyses how local and regional actors work closely with their peers across the border in an effort to protect and possibly even advance cross-border networks (acting as sieve) in these adverse times. Specifically, the article contributes to the border literature by shedding light on how different approaches at the individual, local, and regional policy level were used to counterbalance the federally led North American select borders closures due to COVID-19.

Methodology

There is a paucity of information on the in-depth experiences of firms, institutions, auxiliary professionals, and business organizations that have experienced select border closures due to COVID-19. Study subjects for the Cascadia region spanning the U.S.-Canada border included Seattle- and- Vancouver-based high tech and biotechnology firms, related university and research institutes, auxiliary professionals, business organizations, and Canada-U.S. border port-of-entry officials, as well as Canada-U.S. federal trade and foreign labor policy experts. The authors also attended and participated in three virtual conferences in late 2020 and early 2021 sponsored by the Cascadia Innovation Corridor initiative (CIC), which is a cross-border regional innovation advancement effort initiated and sponsored by Microsoft Corporation, Challenge Seattle, and the B.C. Business Council. See Cappellano, Richardson, and Trautman (2020) for an in depth discussion on this emerging cross-border innovation and cultural initiative. These CIC sponsored virtual conferences focused on innovating international travel in a time of COVID-19; sustainable growth and agriculture in a time of COVID-19; and biotechnological developments and COVID-19.

In the Calibaja U.S.-Mexican border region, the authors conducted interviews with San Diego and Tijuana regional policy makers, local authorities and key representatives within its cross-border ecosystem, including business organizations, firms, research institutes, incubators, accelerators, and start-ups.

In total, 30 semi-structured interviews were conducted. The semi-structured in-depth interview format was chosen due to the lack of consistent quantitative data on the subject matter and to allow interviewees to add other dimensions to the interview that could not be captured by the original questions developed by the researcher. The participant-observer methodology regarding conference attendance and participation was important in order to gain insights into regional efforts dedicated to advancing the cross-border Cascadia region during the height of COVID-19. Textual analysis was also used as a methodology, which included the reviewing and analysis of materials, primarily reports and regional and national news articles, which focused on the experience and conditions of the North American border regions between Vancouver-Seattle and San Diego-Tijuana during the time of COVID-19.

The study may be considered qualitative in its approach. A purposive sample was used when selecting subjects for interviews. Thus, eligible subjects for the study were considered part of an expert panel and selected through a convenience sample. Study subjects were selected through various business journals and through the authors' memberships and connections with various professional associations located within Vancouver, Seattle, San Diego, and Tijuana. Each possible participant was contacted in

advanced, and the authors explained the merits of participating in the study, and assured confidentiality and so on before beginning the interview. Eight to ten questions were asked of each study participant directed at the following themes: 1. Has the select closure of the Canada-U.S. border or U.S. Mexico border due to COVID-19 impacted you and/or the organization that you work with?; 2. What are the best practices/coping strategies that you and/or the organization that you work with are using during COVID-19 and the select border closure?; 3. Did these best practices/coping influence cross-border collaborations and if so, in what ways?; and 4. How might these new regional practices in response to COVID-19 balance federal border policy responses?

All interviews were transcribed and analyzed using a thematic approach. Interviewees were subject to a follow-up interview if more information was needed.

Case Study

The two border regions considered in this study highlight similarities in their role as growing cross-border tech hubs with global resonance (Cappellano and Rizzo 2019). Moreover, these regions have enjoyed evolving degrees of engagement with their cross border counterparts for over the past century. For example, Canada and the U.S. have what might be seen as an ongoing open border relationship when considering North America border relationships broadly. In fact, since 2016 a public-private initiative termed the Cascadia Innovation Corridor (CIC), initiated by Microsoft Corp. and now led by Challenge Seattle and the B.C. Business Council (two powerful business groups that promote the interests and needs of leading firms in Seattle and Vancouver, B.C.) has provided a platform to inform local and regional policy, and to increase the degree of innovation in the Cascadia cross-border region (Cappellano, Richardson, and Trautman 2020). The CIC arranges a broad spectrum of activities, which includes sponsoring innovative cross-border transportation infrastructure plans, facilitating collaborative cross-border cancer research, and lobbying federal governments to ease cross-border flows and movement (Cappellano, Richardson, and Trautman 2020).

San Diego and Tijuana as two U.S. – Mexican border cities have historically been linked by a cross-border “sibling city” relationship for over a century (Ganster and Collins 2017). Recent studies (Cappellano and Makkonen 2020a) highlight that this tight binational relationship extends to businesses organizations in the San Diego-Tijuana cross border region. This is the case for the San Diego Economic Development Corporation and the Tijuana Economic Development Corporation, which work together to promote economic development throughout the cross-border region. Both these business organizations are mostly concerned with landing binational foreign direct investments in the cross border region, understanding that it would be mutually beneficial for the interconnected economies between San Diego and Tijuana. Moreover, the two organizations team up frequently to lobby federal governments to ease trade and labor agreements across the U.S. and Mexico. While the two organizations operate in the two different countries, their relationship is tight and solid as envisaged in the sistership between the two City Governments (for details see Cappellano and Makkonen 2020a).

The purpose of the binational investment driven by the San Diego and the Tijuana Economic Development Corporations is two-fold: 1) to exploit the differences in national policy when it comes to the U.S. and Mexico; and 2) to also take advantage of the close physical proximity between San Diego and Tijuana, which historically has bolstered a just-in-time values commodity chain. Both of these directives have subsequently propelled a strong cross-border culture and ecosystem of professionals who commute regularly between the two cities for work ranging from production engineering to medical services. However, in light of the select closure of the U.S.-Mexico border due to COVID-19, this advanced cross-border commodity chain and subsequent cross-border regional ecosystem is possibly under threat.

We focus on key drivers in these two regions, which include the development and growth of high technology and biotechnology firms in Seattle, Washington and Vancouver, British Columbia, the northern Cascadia region, and the area's budding cross-border regional innovation ecosystem (Richardson 2017; Cappellano and Makkonen 2020a). For the San Diego-Tijuana cross-border region, we focus on the advanced values commodity production chain and a growing cross-border medical research network. Both of these key U.S.-Mexico activities require professionals who commute regularly across the international border in the San Diego-Tijuana cross-border corridor. Importantly, for both regions, a growing number of their firms are dependent on the free (and predictable) movement of skilled peoples across the international border who are essential in responding quickly to the ever changing needs of these firms and related institutions, such as universities and research institutes (Richardson 2017).

Pandemic Impact, Border Management and Reaction

Evidence from the study suggests that there are complex advancements and responses for firms, research institutions, and their larger ecosystems in these two North American cross-border regions. The impacts assessed in the two border regions differ strongly, as border closures for the Canada-U.S. border did not follow the same measures as the U.S.-Mexico border. Within the same border regions, the size of the firm was found to be critical to overcome implications generated by the pandemic. The reactions to the pandemic closure were very diverse and illuminated what has been termed as cross-border regional resilience (Prokkola 2019; Korhonen et al. 2021). Finally, the importance of border regions was confirmed as primary hubs for technological innovation, and proved to host important advancements regarding the vaccine rollout.

Border Management

Two Vancouver firm executives noted that their firms have saved considerable monies in travel costs, but both noted that it was extremely important to be able to visit firm partners and clients in the U.S. One noted, "The virtual thing is wearing thin." Thus, he made what the U.S. Department of Homeland Security has deemed an "essential trip" to the U.S. in light of the select closure of the U.S. border due to COVID-19. The executive noted that he was questioned for approximately one hour and had to show a considerable amount of paperwork regarding his position and his firm at the U.S. Peace Arch Border Crossing between Canada and the U.S. at Blaine, Washington. He was finally allowed

entry into the U.S. for a week, but was not told to quarantine by U.S. port-of-entry officers. When he returned to Canada, he had to swear an oath that he would quarantine for 14 days. The Canada Border Services Agency Port of Entry Officer sternly told him that if he broke the oath and failed to quarantine, he would be subject to a \$1million (CAD) fine and three years in a Canadian correctional facility. He noted that the B.C. Ministry of Health then phoned him on one occasion to make sure that he was quarantining. Overall, he found the experience to be very time consuming and unnerving. He exclaimed at the end of the interview,

Yes, the B.C. Ministry of Health actually did call me at home to make sure that I was quarantining. This whole thing makes you see the absolute benefit of open borders and meeting in person!

Conversely, the U.S. – Mexican border has remained open to U.S. citizens and to U.S. permanent residents – those entitled to live in U.S. – while Mexican citizens were forbidden to cross the border unless required for work reasons. One interviewee who ran a company in Tijuana, Mexico, but lived in San Diego, California, shared a blunt consideration on the differences concerning border management between the North and South U.S. international borders:

If the same U.S.- Canada regulations would apply to U.S.-Mexico it would have been a nightmare. Certainly, we feared that at some point the border could get closed. As I like to say, there was a diffuse fear, uncertainty, and doubt about border closure.

However, the restrictions to Mexican citizens influenced the waiting time at the U.S. Mexico border, which dropped significantly, allowing smoother commuting for Americans driving southwards into Mexico. Some interviewees noted that it was a remarkable convenience for U.S. patients traveling to Tijuana for medical treatments. Nevertheless, companies in the medical devices sector, which participated in this study, received a letter of support from the U.S. federal government, which also allowed managers from Tijuana to enter into the U.S. for working reasons during the height of the pandemic. Nonetheless, firms interviewed stressed that a majority of their employees crossed over the U.S.-Mexico border much more frequently before the pandemic.

Small Firms Versus Large Multinational firms

The one thing that all high tech firms interviewed stressed was that larger multinational firms, such as Microsoft Corporation and Amazon, both based in the greater Seattle area with development operations in Vancouver, B.C., were experiencing record profits as a result of COVID-19 mandated virtual workplaces, which led to a dramatic increase in demand for Microsoft and Amazon products. These advancements during the pandemic could also be found with a number of tech firms in both Seattle and Vancouver, B.C. generally, that created high demand goods and products, which enabled or supported a complete shifting of work and lifestyle induced by COVID-19. Two smaller high tech firms interviewed were in need of highly skilled talent by the mid-summer of 2020. Overall, the smaller firms based in Cascadia interviewed for the study that focused on high tech products catering to remote work and home entertainment were able to continue selling a high quantity of products, also managing to escape the ravages of COVID-19 with minimal layoffs. All of this during a time when unemployment levels, overall, were at

their highest levels in almost a decade for both the greater Vancouver, B.C. and Seattle areas. In fact, the local Vancouver press revealed that both Amazon and Microsoft Corporation were actively expanding their operations in the greater Vancouver, B.C. and Seattle cross-border areas even in light of the COVID-19 pandemic and the select closure of the Canada-U.S. border.

The smaller firms interviewed noted that they were not seeing the record profits that the larger firms such as Microsoft and Amazon were experiencing. Two executives of the smaller firms interviewed stressed that they do not have the army of professional staff, a reserve of in-house attorneys, the diversity of products, the federal lobby efforts, or the financial reserves to respond to the pandemic and “stay on top of it and take advantage of it” like large multinationals. Some of this may be attributed to the decision of former U.S. President Trump on October 6, 2020 to limit the issuing of new U.S. H1-B visas to highly skilled foreigners seeking employment in the U.S. Three executives interviewed for the study noted that this was most likely being done in order to still be able to carry on and advance firm operations with critical foreign talent since Canada remains relatively more facilitative towards the hiring of foreign talent even during the select closure of the Canadian border due to COVID-19. Two executives went on to stress that they, as smaller firms, were not in a position to be expanding, especially into a foreign country during the pandemic since they did not have the financial reserves to risk during such an uncertain time. Nevertheless, the smaller firms noted that they hoped to benefit from the foreign talent that was brought into Vancouver, and eventually Seattle, by these larger multinationals.²

In the same vein, only a few small firms interviewed that were based in San Diego were in need of U.S. federal aid during the pandemic. None of the larger firms based in the U.S.-Mexican border region reported applying for U.S. federal aid monies due to COVID-19 disruptions. Almost all interviewees experienced a slightly positive business season during the pandemic. Only the smaller businesses struggled financially related to shortened cash flow, but they noted, for the most part, they could diversify their businesses in order to take advantage of the new financial opportunities generated by the pandemic. For example, firms interviewed initiated the distribution of safety protection devices while others started telemedicine services, as discussed in the following sections.

The relevance of this comparison between smaller and larger firms has its implications in border regional settings. In fact, the salience of smaller firms interviewed accrued as they took part in cross-border networks during the time of the pandemic, which tightened the two parts of the border regions. While the multi-national companies have global outreach, smaller businesses targeted local and regional markets on one or both sides of the border.

Interviewees on both sides of the Canada-U.S. border stressed that what started out as an attempt at a loose-joint effort to harmonize border management for federal authorities in both Canada and the U.S. seemed to fall apart as COVID-19 restrictions wore on in North America. For example, the Canadian government on the B.C. side of the cross-border region maintained stringent controls and protocols regarding ports of entry into Canada, whereas the U.S. government on the Seattle, Washington side of the cross border region initially seemed to take a more *laissez faire* approach, especially during the last nine months of the Trump Administration. Although a new initiative,

the Cascadia Innovation Corridor began to take a leadership role regarding regional vision during this difficult and isolating time for many. For example, the CIC provided forums and platforms to promote refined and innovative approaches for better cross-border flows in a COVID-19 era; regional health and growth during COVID-19; and communicating the advanced innovations made towards finding vaccines for COVID-19 made by biotechnology firms in the Cascadia corridor.

In Calibaja, the two business organizations – the Economic Developments corporations in San Diego and Tijuana – included in the study were responsible for economic development in the border region including San Diego and Tijuana. The interviewees from those organizations sketched out how the select border closure effects due to Covid-19 had impacted the cross-border region. Heavily oriented towards attracting foreign direct investments in the bi-national region, these two organizations needed to pause touring activity around facilities, and shifted their showcase events to digital meetings. Overall, they emphasized how the impact on their cross-border collaborations was minimal, but it could prevent growing new development opportunities on the other side of the border. In 2020 the two organizations had hoped to initiate solid cross-border developments regarding the life science industry, but this was also paused due to COVID-19. Moreover, the shift to digital urged firms and employees to quickly adapt to this situation, whether along the Canada-U.S. border or the U.S.-Mexico border. Finally, interviewees reported differences between the U.S. and Mexican federal governments regarding financial support for firms during the COVID-19 crisis. Importantly, the Mexican government did not offer aid to eligible firms whereas the U.S. government provided some form of financial assistance and support to U.S.-based firms.

Impacts Due to the Pandemic-Issued Border Closure

All biotechnology firms interviewed had difficulties and considerable delays when it came to getting research equipment and supplies across the Canada-U.S. border and shipments, generally. Two firm executives noted that everything slowed down since even FedEx and Canada Post had to follow strict procedures with their workers, and the need and demand for shipping things, generally, had increased dramatically since COVID-19. The impact on global supply chains became a serious issue in both Canada and the U.S. – an issue likely to intensify or at least continue. The other important point that came about as a result of COVID-19 was that all firms interviewed had to, “stop, think, and act” regarding how to set up protocols for lab and research space so that it complied with British Columbia and Canadian or State of Washington and U.S. federal regulations. Firms emphasized that all of this took time and slowed down productivity and the process of work. An important finding from the interviews revealed that the biotechnology firms interviewed all had committed long term funding for the current phase of research being conducted, so there were not the mass layoffs found in other sectors. However, by mid-summer 2020, several of the Vancouver biotechnology firms were in need of highly skilled personnel and, despite the facilitative nature of Canadian foreign labor policy and practice, found it difficult to hire foreigners for needed positions due to the general “COVID slowness” of the provincial and Canadian Federal Government. This included a number of governmental employees also working from home,

and the added complication of a federal mandate that all people entering Canada must quarantine for 14 days or be subject to serious fines and imprisonment.

In the same vein, companies at the U.S.-Mexico border experienced similar logistical problems. As reported from the CEO of a medical service company in Tijuana:

The Supply chain was very much affected by the pandemic. Picking-up supplies was difficult. Our business relies on two assets: human capital and goods. Human capital was kind of easy to cross the border. Most of our ecosystem could rely on individuals allowed to cross (U.S. citizens or U.S. Green Card holders). About goods, we depend on the port on the Mexican East Coast (e.g. Veracruz). Mexican shipping carriers were very much affected, more notably when dealing with European-sourced goods. I did not notice any substantial delay with US-sourced goods. Unexpectedly, I needed to manage the logistics of the company. This was a limitation for us. For instance, we waited for a Swiss-sourced medical good [sic] which took us two-weeks delay in shipping time.

Reactions to the Pandemic

The six Vancouver- and two Seattle-based high tech firms had similar issues as the biotechnology firms in as far as the “stop and think, and act” was essential for firms to continue safely operating during the time of COVID-19. However, of the eight high tech firms interviewed, six were smaller firms and found that they struggled to keep operations going and personnel employed since sales of firm products dropped 50 percent on average during the first phase of the pandemic. As noted in an earlier section, two of these firms began to notice a need for highly skilled personnel by mid-summer of 2020 as the economy began to adjust to remote work and technological products that supported this work. Thus, in addition to rethinking the workplace with much of the staff working from home, the two Seattle high tech firms noted that they had to put in a considerable amount of time applying for Federal emergency monies such as the Paycheck Protection Program and Economic Injury Disaster Loans offered through the U.S. Small Business Administration. One executive noted that this was a fulltime job in and of itself on top of everything else that was happening when the COVID-19 crisis began.

According to an interviewee from a Mexican business organization, the pandemic generated a rise of demand for industrial space in Tijuana:

Medical devices' manufacturing sites were allowed to continue to work during the pandemic. The rest of the companies had to shut their manufacturing plants. In April-May, there was a big race where medical services/devices increased their business by 3 percent. At this moment, we have only 1.8 percent available for manufacturing space. At the beginning of the year, was 2.5 percent. In general no industry has been hit by COVID-19 pandemic in Tijuana.

The interviewees stressed that telemedicine innovated the San Diego-Tijuana cross-border relationship between doctors and patients. Although US citizens could still cross the border, telemedicine allowed Mexican doctors to follow up with their U.S. clients remotely. In a broader sense, the medical services industry sector in the San Diego-Tijuana cross-border region reacted to the pandemic by reaping benefits through implementing a digitization process in supply chain and consumer goods. Several companies needed to expand their facilities to allow physical distancing between manufacturing lines. Where feasible, companies moved administrative and

management employees to remote work from home. Furthermore, companies were compelled to equip individual employees that were in contact with clients and the public with COVID-19 safety protection measures. In the same vein, companies interviewed credited the pandemic as a shock, which allowed shifting to digital work. However, companies interviewed stressed that COVID-19 measures did not seriously influence their firms in a negative way, overall. In fact, company earnings and employment rose during May 2020 – January 2021, which was during the height of the COVID-19 pandemic.

One executive explained,

We hired 99 people in Tijuana in 2020. The pandemic actually levelled the playing field as everybody around the world needed to shift to virtual. Moreover, [the notion of] leveling the playing field because there is a multi-generation living environments [*sic*] across San Diego and Tijuana. Typically, our San Diegan employees are 35 years old and have children to live with, while Tijuana's employees are younger in average (25 years old) but they live with their parents.

Another Tijuana-based medical service company's representative reported that the pandemic did not severely affect his business, as fiscal year 2020 was still a good year. Although the firm had to struggle with cash flow at the beginning of the pandemic, the firm launched a campaign to pre-pay for medical services that their customers appreciated. Interestingly, the company engaged in business diversification shifting to an e-commerce platform and offering training to doctors:

The pandemic accelerated the trend in Academic Institutional Development. Before the pandemic spread, we were already in a good position. We used to host monthly academic sessions (virtual meetings) to allow doctors from all over the world to train other doctors in a D2D (doctor-to-doctor) fashion.

In sum, organizations and the companies interviewed reported that the firms developed approaches and policies to reduce in-person meetings and favored virtual meetings and working from home. There was unanimous consensus with those interviewed regarding the fact that the pandemic did not significantly change the business relations with peers on the other side of the border, since meetings and engagements just shifted to a virtual or digital format.

Support the Race for the Vaccine

Importantly, three Vancouver-based biotechnology firms were seen as superstars in the approach to fighting COVID-19, including Acuitas Therapeutics, a biotechnology firm based in B.C., which provided critical technologies to Pfizer Pharmaceutical in its successful development of an effective vaccine against the coronavirus. Abcellera, a biotechnology firm also based in Vancouver, B.C., co-developed with Lilly Pharmaceutical antibody products for the treatment and future prevention of COVID-19. Finally, Stemcell Technologies, also based in Vancouver, produced medical products that were used in over 30 COVID-19 research studies worldwide. Although the collaborative partnerships between these Vancouver-based biotechnology firms reached beyond the Cascadia cross-border region to pharmaceutical companies and research institutions throughout the U.S. and the world, these regional success stories began to set an example and framework for future regional biotechnology collaboration between Vancouver, B.C., Seattle,

Washington, and Portland, Oregon as emphasized by the Cascadia Innovation Corridor's virtual conference on how Cascadia based biotechnology firms are leading in the fight against COVID-19 (Cascadia Innovation Corridor 2021).

In the Cascadia region, two Vancouver-based biotechnology firms responded by pivoting research priorities to actively engaging in primary research related to COVID-19 noting that there were immediate and dramatic increases in research funding from the Canadian Government regarding finding a vaccine for COVID-19 and related health management issues with the virus. For example, one firm interviewed received a substantial grant through the Canadian Digital Super Cluster Initiative in partnership with the University of British Columbia (UBC) and Microsoft Corporation to use artificial intelligence to predict future gene mutations of COVID-19. Although the massive infusions of research monies that were directed to urgent research around COVID-19 were intriguing for some firms interviewed, four Vancouver biotechnology firms and one Seattle based biotech firm included in the study realized that it was essential to focus on existing firm research rather than new areas of research that were not already part of their organization's mission.

Notions of Sieve and Shield Effects and Innovative North American Borders During a Pandemic

As discussed in the previous section, evidence has demonstrated the importance of innovative cross-border regions as places where first-tier knowledge is generated as argued by Moulart and Sekia (2003), Lundquist and Tripl (2013), Richardson (2017), and Cappellano and Makkonen (2020a, 2020b). Most notably, in the U.S-Canada Cascadia cross-border region, firms and companies jointly cooperated to take part regarding the development of the Covid-19 vaccine, which had global resonance and implications. The insights collected reveal that the select closure of the Canada-U.S. border, which remains in place at the time of the writing of this article, has generated limited economic impact on the companies interviewed. Minimal economic fallout appear to affect smaller firms, with such firms stressing the dearth of seasoned personnel and financial reserves needed to navigate successfully the pandemic compared to the larger multinationals. In fact, COVID-19 has created unprecedented opportuning for economic growth for several multinational companies located in the Cascadia cross-border region. A similar experience was found for firms in the San Diego-Tijuana cross-border region, which experienced some supply chain disruptions and initial cash shortages, but, overall, were able to carry on firm activities remotely. Pivoting to a digital format for these firms was seen as a game changer in "levelling the playing field" for firms based in Mexico, noting that this digital format allowed them to access cross-border clients and develop cross-border business opportunities that they had not explored before COVID-19. The pandemic represented an unprecedented opportunity to digitize regions that have historically lagged behind in technological endowment. Sohn's (2014) notion of borders being seen as a resource when considering cross-border knowledge intensive industries proved true even during the time of the pandemic. Indeed, the cross-border network withstood the pandemic through the shift to virtual meetings, confirming the literature on solid alliances that gather actors around common challenges (Ganster and Collins 2017).

There was a considerable effort on the parts of the Canadian, U.S., and Mexican federal governments to give a public impression to their respective citizens and residents of a fortress-like safe interior and insecure exterior (Benedicto and Brunet 2018), a practice known as gatekeeping. Despite this program, based on the notion of clear-cut exclusion (Laine 2020), the actual day-to-day operations of North American borders during the pandemic were much more ambiguous. For example, for most of the firms interviewed, their line of work was at such an advanced and elite level that the firm and employees were able to successfully pivot to continuing on with work remotely even during the height of COVID-19 and restrictive policy measures regarding entry for both the Canada-U.S. and the U.S.-Mexico border. Although many had relations that spanned across either border, firms and their employees had the individual luxury of responding to these restrictive federal policies of “negating the border” by not having to cross it for purposes of work. In many ways, these firms and their employees were able to avoid being subjected to a number of draconian federal policy measures designed to curtail the contagion, such as COVID-19 testing at ports of entry and quarantining for 14 days.³ Thus, these firms and their employees were part of an elite that could “shelter in place,” work from home, continue to earn a living, and ride out the pandemic. Thus, these remote technologies allowed local and regional cross-border networks to continue to operate in the time of the pandemic without the need of mobility across the actual border. At the same time, remote technologies – as operating globally – decreased the importance of geographical distance, enabling cooperation with other peers around the globe. What maintained cross-border networks operating were the advanced level of mutual trust between the actors in the cross-border innovation ecosystem, and the sharp intentionality to keep active cooperation with peers on the other side of the border. This demonstrated new notions of cross-border regional resilience and supported the work of Prokkola (2019) and Korhonen et al. (2021). Therefore, although the border represented a “shield” reinforced by the public health regulations issued during the pandemic and controlling and preventing cross-border mobility, it also continued to operate as a “sieve” by allowing actors in cross-border regions to continue team meetings and working jointly through remote working routines or through authorized border crossings.

Overall, border management for both Canada and the U.S. and the U.S. and Mexico appeared somewhat disjointed, despite the initial efforts to selectively close both borders in late March 2020. (See [Table 1](#)). This resulted in erratic “shield effects” such as the select closure of the border and required mandatory quarantining for persons entering Canada: only persons performing “essential business” were allowed into the U.S. from Canada and only “essential” Mexican workers were allowed into the U.S. during the pandemic. The inconsistent behavior stemming from the former U.S. Trump Administration regarding North American border management broadly has called into question both the U.S.-Canada relationship and the U.S.-Mexico relationship since there is deep concern that the U.S. may elect another unpredictable leader in the near future (Nimijejan and Carment 2020). There also remains the immediate question of how U.S. President Biden’s Administration will work with both Canada and Mexico regarding North American border management in a post Trump era.

At a regional scale, the new Cascadia Innovation Corridor (CIC) initiative has helped to create not only a platform for policy and innovation advancement in the Cascadia

Table 1. U.S.-Canada and U.S. Mexico Border Management During the COVID-19 Contagion.

	March 2020	August 2020	August 2021
U.S. – Canada	U.S. and Canadian federal governments launched a joint initiative on March 21, 2020 that restricted all non-essential travel (tourism and recreational) across both borders. Essential commerce and trade was unaffected ^a .	U.S. and Canada continue to restrict all non-essential travel while allowing essential commerce and trade to continue across both borders. Cross-border experiences for essential persons varied considerably when seeking entry into the U.S. or Canada. Canada was deemed as much more thorough and cautious regarding testing for and mandating quarantining for persons entering Canada versus the U.S. ^b	Canada opens its border to American travelers on August 9, 2021, which allows non-essential travelers to enter Canada under certain guidelines. The U.S. continue to restrict all non-essential travel coming from Canada until September 21, 2021 in an effort to contain the contagion. ^c
U.S. – Mexico	U.S. and Mexican federal governments launched a joint initiative on March 21, 2020 that restricted all non-essential travel (tourism and recreational) across both borders. Essential commerce and trade was unaffected. ^d	U.S. and Mexico continue to restrict all non-essential travel while allowing essential commerce and trade to continue across both borders. Mexico has not imposed any legal restrictions on passengers or vehicles entering Mexico by land from the U. S. ^e Study subjects noted that American citizens are driving and walking into Mexico without hindrance. A large cross-border travel insurer stressed that their clients seeking entry into Mexico has not been asked to provide proof of essential travel. ^f	The U.S. continues to restrict all non-essential travel coming from Mexico until September 21, 2021 in an effort to contain the contagion. No COVID-19 negative test is required to cross the U.S.-Mexican land border. ^g

^aSource: U.S. Department of Homeland Security 2020, <https://www.dhs.gov/news/2020/03/20/joint-statement-us-canada-joint-initiative-temporary-restriction-travelers-crossing>, retrieved on 3rd Sept. 2021, and study interviews conducted between March 2020-August 2021.

^bSource: U.S. Department of Homeland Security 2020, <https://www.dhs.gov/news/2020/10/19/fact-sheet-dhs-measures-border-limit-further-spread-coronavirus>, retrieved on 3rd Sept. 2021, and study interviews conducted between March 2020-August 2021.

^cSource: U.S. Federal Register 2021, <https://www.federalregister.gov/documents/2021/08/23/2021-18060/notification-of-temporary-travel-restrictions-applicable-to-land-ports-of-entry-and-ferries-service>, retrieved on 3rd Sept. 2021, and study interviews conducted between March 2020-August 2021.

^dSource: U.S. Department of Homeland Security 2020, <https://www.dhs.gov/news/2020/10/19/fact-sheet-dhs-measures-border-limit-further-spread-coronavirus>, retrieved on 3rd Sept. 2021, and study interviews conducted between March 2020-August 2021.

^eSource: <https://www.mexperience.com/mexico-land-border-restrictions-closure-covid-19/> retrieved on 1st Sept. 2021.

^fSource: <https://www.bajabound.com/travelupdates/borderupdate>, retrieved on 1st Sept. 2021, and study interviews conducted between March 2020-August 2021.

^gSource: U.S. Embassy and Consulates in Mexico, <https://mx.usembassy.gov/travel-restrictions-fact-sheet/>, retrieved on 8th Sept. 2021.

cross-border region, but has also shaped a “brain team” of the region’s best and brightest when it came to better understanding cross-border flows and movements and innovative regional advancements in a COVID-19 and eventual post COVID-19 world. The San Diego Economic Development Corporation (SD EDC) and its Mexican twin, the Tijuana Economic Development Corporation (TJ EDC), served in a similar role in the San Diego-Tijuana cross-border region. Substantiating the work of Ganster and Collins (2017) and Cappellano and Makkonen (2020a), these efforts put forth by the CIC and the economic development corporations of both Tijuana and San Diego in the erratic times of COVID-19 provided evidence that an emerging strong cross-

border network of powerful local and regional actors in both the Cascadia and San Diego-Tijuana cross-border regions may eventually begin to balance the heavy, and seemingly disjointed, federal approach that frequently dominates North American border management, even in the best of times.

Conclusion

While the long term influences of the pandemic on border regions remain inconclusive, this study attempts to contribute to the current literature by shedding light on the reaction of companies and organizations in the two regions assessed, namely the North American Cascadia and San Diego –Tijuana cross-border regions. Evidence from the study suggests that although there was a slight difference between firms in the two regions when responding to the pandemic, both regions used innovative technology to their advantage and were able to carry on and even enhance firm cross-border activities without actually having to traverse across the border.

The engagement of firms in the discovery of the vaccine against COVID-19 confirms the high degree of innovation in the Cascadia border region. While in Calibaja, medical firms turned the pandemic crisis into market opportunities, such as developing telemedicine practices. While remote working and technological advancement allowed a global cooperation outreach, the firms and organizations in those border regions heightened their collaborations with peers on the other side of the border thanks to the high level of trust and intentionality. As reported by interviewees, this helped to switch from meeting in person to remote working routines seamlessly.

Regional cross-border groups such as the Cascadia Innovation Corridor and the San Diego Economic Development Corporation/Tijuana Economic Development Corporation furthered the notion of facilitating sieve effects during COVID-19 by providing much needed leadership in these newly emerging innovative cross-border regions and furthering the mandate of North American integration, as directed by the U.S. Mexico Canada Agreement. Nevertheless, there remained an unresolved tension with federal concerns, namely shield effects, regarding the ongoing management of North American borders as the COVID-19 pandemic carries on even in light of the newly elected U.S. President Biden.

Notes

1. This Mexican federal policy process is managed by the Gobierno de la Ciudad de Mexico, a government agency that is part of the public administrative branch of the Government of Mexico (Dun and Bradstreet 2021).
2. It should be stressed that firms interviewed in the Cascadia region, for the most part, did not establish themselves in either the Seattle or Vancouver regions for the deliberate purpose of being close to the Canada-U.S. border. Cross-border regional synergistic opportunities for Vancouver and Seattle based firms are just beginning to be realized and explored, especially when it comes to access to high skilled talent and capital. See Richardson (2017) and Richardson, Florida, and Stolarick (2011) for an in-depth discussion on this topic.
3. Although some U.S. states and counties mandated quarantining and encouraged Covid-19 testing during the latter part of 2020 and early 2021 for visitors entering territory beyond a certain distance, this required quarantining was spottily enforced and managed for the most part. Thus, the weir-like nature of national ports of entry provided an opportunity at a

federal level to impose policy directly onto people seeking entry into a particular territory. A state or province, as a governing authority, seldom has access to the extreme powers and contact opportunities that are enabled through federal ports of entry at international borders (Richardson 2017).

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