

Historical Trauma and Indigenous ‘Deaths of Despair’: A Link Seen by the Lens of Economics

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August 2023

Abstract

I examine why the suicide rates among Indigenous Peoples in Canada and the United States are exceptionally high, a phenomenon that is often claimed to be caused by unresolved trauma. Drawing on earlier work, I develop a simple economic model of Indigenous communities incorporating two facts. The first is the importance of culture to Indigenous communities that stems from a sense of belongingness and the second is the empirical fact, based on evidence from psychology and neuroscience, of pain from historical trauma and its attendant effects. I identify a key feature of the economic and social organizations of Indigenous communities that is undermined by this trauma that seems to accompany settler colonialism. Historical trauma diverts resources from a commitment to collective activities—the traditional strength of Indigenous communities—to the alleviation of pain. Because of persistent effects due to its unresolved nature, this trauma is seen to undermine the cultural sense of belongingness. While increasing substance abuse (which independently increases suicides), by dismantling culture historical trauma also dismantles the traditional support systems of family and community that function as buffers against despair and substance abuse. The effect of this on the suicide rate is shown to be greater in the long run than in the short run. This paper provides the first formal justification from economics for the causal link from historical trauma to Indigenous ‘deaths of despair’, the link being the unravelling of culture. The theory’s predictions are consistent with a wide variety of empirical facts and are in alignment with the claims of Indigenous scholars and elders. I propose that exogenous variation in historical trauma levels across different Indigenous communities may explain the observed variation in the deaths of despair. Informed by my model, I offer some policy suggestions—which turn out to echo the views of Indigenous elders.

Key Words: Indigenous Peoples, suicide, culture, belongingness, deaths of despair

JEL Classification Nos.: J15, Z1, I12, I18

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** UBC acknowledges that the land on which we gather is the traditional, ancestral, and unceded territory of the xwməθkwəyəm (Musqueam) People.

Acknowledgements: This is a drastically revised version of the unpublished part of my earlier Working Paper entitled “The Wrongs of Property Rights: The Erosion of Indigenous Peoples’ Identity and its Health Consequences”. For very valuable comments on that paper, I would like to thank Curt Eaton, Nancy Gallini, Jonathan Graves, David Green, and David Scoones. I am grateful for the comments of the seminar participants of the Indigenous Economics Study Group (IESG) and the Association for Economic Research of Indigenous Peoples (AERIP).

“That colonialism is a fundamental determinant of health is inescapable.”

--Editorial Comment in “The Past is Not the Past for Canada’s Indigenous Peoples,” *The Lancet*, June 26, 2021.

1. Introduction

Indigenous Peoples of Canada and the United States rank the lowest among all demographic groups in terms of most of the socioeconomic and health statistics. In trying to understand why this is so, we are obliged to consider the history of Indigenous Peoples since European contact, the attitudes and actions of the settlers, the government policies that have been implemented and, as we shall see here, the special cultures of Indigenous Peoples. In this paper, I attempt to take a small step towards understanding how these features and events may have contributed and conspired to reduce the original inhabitants of North America to the present condition of committing suicide at alarming rates, either directly or indirectly through alcohol and substance abuse. (These deaths are referred to here as ‘Deaths of Despair,’ a term coined by Case and Deaton (2020) in their study of middle-aged non-Hispanic whites in the U.S.) This phenomenon was brought to light in an illuminating Canadian report of the *Royal Commission Report on Aboriginal Peoples* [RCAP] back in 1996. Yet, despite its urgency for public policy, this issue has received little attention from economists.¹ My focus here is on what economics can say on the effects of ‘historical trauma’ (unresolved trauma) experienced by North American Indigenous Peoples, and is claimed by many Indigenous scholars and elders to be responsible for contemporary Indigenous deaths of despair.

The disparities in health between Indigenous Peoples and the rest of the population in North America are startling [Gracey and King (2009), King, Smith, and Gracey (2009)]. In Canada, the life expectancy for First Nations Peoples is up to nine years less than that for non-Indigenous people; infant mortality rates are much higher in regions with high concentration of Indigenous Peoples [Tjepkema, Bushnik, and Bougie (2019), Feir and Akee (2019)]. In the United States, the life expectancy of Indigenous Americans is about 5 years less than that of non-Indigenous peoples. Serious diseases like heart disease, diabetes, respiratory disease, liver disease, alcohol-related disease, post-traumatic stress disorder (PTSD), and many others, occur with higher

¹ Notable exceptions are Blanchflower and Feir (2021) and Akee et al (2022).

frequency among Indigenous Peoples than among the rest of the populations in both countries² [Barnes et al (2010), Blanchflower and Feir (2021), Feir and Akee (2019), Espey et al (2014), and Walls and Whitbeck (2011)]. The suicide rate among Indigenous Peoples of Canada relative to non-Indigenous people for the period 2011-2016, was approximately three times higher for First Nations, twice as high for Métis, and nine times as high for Inuit [Kumar and Tjepkema (2019)]. In the United States, American Indian and Alaskan Native (AIAN) suicide rate in 2020 was 41% higher than for the non-Hispanic white population [Center for Disease Control and Prevention (2022)].³ The suicide rates among youth are even more concerning. For example, the suicide rate for First Nations youth in the age group 15-24 years is about 6.3 times that for the corresponding non-Aboriginal group [Kumar and Tjepkema (2019)], and would rank among the highest in the world. In the U.S., teen suicide rates among Native Americans is 3.5 times the national average.⁴

Hajizadeh et al (2021) compared the psychological stress levels and lifetime suicide ideation of off-reserve Indigenous Peoples and the non-Indigenous population in Canada and found a substantial gap, with the former being worse. Accounting for socioeconomic factors considerably reduced the gap in psychological distress but not by much in suicide ideation, suggesting that socioeconomic factors are not important determinants of Indigenous suicide ideation. For the United States, Akee et al (2022) further confirm that suicide rate of AIANs is substantially higher than that of non-Hispanic whites. More importantly for this paper, they find that, unlike suicides for whites and other demographic groups, AIAN suicide rates do not follow the same pattern: these rates are either impervious to local economic conditions (for men) or actually worsen when economic conditions improve (for women). This again suggests that Indigenous deaths of despair, as opposed to those of other demographic groups, are likely driven by non-economic factors. In this paper, I offer a parsimonious model that incorporates historical trauma and shows why it could be an important reason for Indigenous deaths of despair and identifies the mechanisms through which it operates.⁵ To my knowledge, this is the first theoretical

² <https://www.ihs.gov/newsroom/factsheets/>

³ A more detailed comparison between the deaths of despair among the middle-aged of Native Americans and non-Hispanic whites is made in Friedman, Hansen, and Gone (2023).

⁴ <https://www.cnay.org/suicide-prevention/>

⁵ I agree with Case and Deaton's (2020, p. 39) claim that it is tempting to consider the deaths from drugs, suicide, and alcohol as all deaths by suicide. Since Indigenous deaths by alcohol, drugs, and suicide all respond in the same qualitative way to historical trauma, as we shall see, their aggregation into the single concept "deaths of despair" is

framework that demonstrates a mechanism through which the dismantling of culture impinges adversely on the health of Indigenous Peoples. This is a novel contribution of this paper.

Both Canada and the United States have dozens of ethnic groups that have immigrated in the past two hundred years and faced various setbacks that could result in adverse health effects. Trovato (1998) finds that cultural support for immigrants to Canada tempers suicide rates; more specifically, greater ethnic cohesion among immigrants lowers suicide rates. This raises a natural question. Given the communal orientation of Indigenous Peoples that has been traditionally so important (see e.g. Walters, Simoni, and Evans-Campbell (2002)), why is this protective factor against suicide so weak now for the original inhabitants of North America?

It is well-documented that, since European contact, Indigenous Peoples of North America have suffered a series of traumatic setbacks over five centuries.⁶ Some of these will be described later in this paper. Briefly, Indigenous land was systematically appropriated; Indigenous Peoples were relocated, confined to reserves and were put under the federal government's jurisdiction; Indigenous traditions, ceremonies, rituals, and spiritual practices were banned; Indigenous religions were sought to be replaced by Christianity; government then mandated Indian children on reserves be removed from their families and put into boarding schools; Indigenous languages and kinship systems were seriously damaged; horrific crimes, sexual and otherwise, were committed against the children; and child welfare services started apprehending Indigenous children and relocating them in foster non-Indigenous homes when the residential schools were closing. These protracted events are well-documented. In effect, as Taylor and de la Sablonnière (2014, p. 87) trenchantly put it, "[T]he colonial process 'gutted' Aboriginal culture."

Indigenous scholars invoke the concept of 'historical trauma' to refer to the psychological effects that are the result of continuous and *unresolved* grief that has lasted generations [Brave Heart and DeBruyn (1998), Duran and Duran (1995)]. Historical trauma is a very debilitating form of human experience. It passes on from parents to children not only through manifest behavior and interactions but also through epigenetic changes in which gene expressions change in response to stressors [Matheson et al (2022), Conching and Thayer (2019)]. What is more, historical trauma

not problematic for my paper, despite the general reservations of Ruhm (2021) with regard to behavioral responses to economic conditions.

⁶ See e.g. Wesley-Esquimaux and Smolewski (2004), Wiechelt, Gryczynski, and Lessard (2019) for accounts.

can also exacerbate the effects of contemporary stressors, lowering current wellbeing even further [Loppie, Reading, and de Leeuw (2014)]. There is now a fair amount of evidence that suggests the long-term effects of events that have led to historical trauma (see e.g. Matheson et al (2022) for a recent survey).⁷ It is well-documented that PTSD, which is one of the characteristics of historical trauma, is correlated with chronic pain (psychological and physical), anxiety, depression, suicidal tendencies, among other symptoms [e.g. Brennstuhl et al (2015)].⁸

While there are numerous socioeconomic factors such as poverty, inequality, access to health care, poor housing—many of which are endogenous—that contribute towards an explanation of deaths of despair, my focus here is on the historical trauma experienced by North American Indigenous Peoples due to colonialism.⁹ Numerous Indigenous scholars and academics writing on Indigenous issues have attributed the ill-health and deaths of despair of Indigenous Peoples to historical trauma.¹⁰ I believe it is incumbent on economists to take this view seriously and to investigate its consequences using the conceptual tools of economics.¹¹ This paper makes an attempt in that direction. The findings complement the recently emerging empirical work on Indigenous deaths of despair and, together, they may be in a better position to inform policy.

In a survey of the evidence on historical trauma, Gone et al (2019) find that the evidence is complicated by the fact that different definitions of historical trauma are used in the studies. They suggest that historical trauma could be treated as a metaphor for the series and multilayered assaults on Indigenous Peoples rather than as a scientific concept that can be quantified. Waldram (2014) refers to historical trauma as an “idiom of distress”. I use the term ‘historical trauma’ as shorthand for various events leading to persistent trauma across generations but the

⁷ See Aguiar and Halseth (2015) for a very readable overview of the various physiological, psychological, and sociological mechanisms through which historical trauma is transmitted.

⁸ Bellamy and Hardy (2015, p. 9) report that, in a study of 127 residential school survivors in B.C., Canada, 64.2% met the criteria for PTSD. In the U.S., AIANs have PTSD ranging from 16% to 24% [Emerson (2017, p. 577)].

⁹ It must be noted right away that colonialism did not end with Confederation in 1867 and Independence in 1931 in Canada and Independence in 1776 in the United States. Colonial policies continued well into the 20th centuries till a few decades ago and some practices are still functioning [Kirmayer, Brass, and Tait (2000)].

¹⁰ See e.g. Brave Heart and DeBruyn (1998), Evans-Campbell (2008), Kirmayer et al (2007), Sinclair, C.M. (1998), Wesley-Esquimaux and Smolewski (2004), Wiechelt, Gryczynski, and Lessard (2019), Bombay, Matheson, and Anisman (2014).

¹¹ In economics, there is a literature that attributes contemporary outcomes to historic events. See Nunn (2009) for a review. Particularly relevant to the context of Indigenous Peoples is Feir, Gillezeau, and Jones (2023).

analysis would go through even with PTSD, for which there is ample and uncontested empirical evidence of elevated levels among Indigenous Peoples [Basset et al (2014)].¹²

Evidence shows that Indigenous Peoples of North America show high levels of substance abuse relative to the rest of the population [see Chansonneuve (2007) for Canada and SAMHSA (2020) for America].¹³ There is also evidence backing the claim of Brave Heart and DeBruyn (1998) and Brave Heart (2003) that loss of culture and historical trauma are linked to substance abuse [Ross et al (2015)]. In turn, substance abuse is strongly linked to deaths of despair [Jongbloed et al (2017)]. Dealing with Indigenous substance abuse is naturally recognized as a matter of utmost priority, but the most efficacious therapies for it are unclear. It has been frequently suggested that culturally sensitive therapies are likely to work best (see Sansone et al (2022) for a review), but the theoretical underpinnings of this claim are as yet obscure. It is imperative that researchers inquire whether there are good reasons to expect a causal connection between the fracturing of Indigenous cultures and substance abuse (and deaths of despair). This paper provides one such link with an economic model that explicitly incorporates a role for Indigenous cultures.

In approaching the subject matter, I invoke modeling assumptions based on the *lived experience* of Indigenous Peoples, whose manner of knowledge acquisition differs from the highly conceptual method of gaining knowledge that characterizes western scholarship.¹⁴ I begin with the premise that communal orientation is of utmost importance to Indigenous societies; it is a central feature of life and culture and is inextricably tied to Indigenous land. And importantly, the ownership of land is communal, not individual. Not only land ownership, but the main cultural activities that are undertaken in Indigenous communities are also communal. This community-orientation is a core feature of my model, in line with what the literature emphasizes. Culture provides a buffer against external shocks and the existential anxiety they produce [Salzman (2001), Walters et al (2011)]. The belongingness characterizing communal cultural activities constituted the strength of Indigenous societies, but that strength became vulnerability

¹² It has been suggested, following Herman (1992), that people who have been subjected to traumatic events repeatedly and continuously show more symptoms than are covered by PTSD and hence called complex PTSD. But the American Psychiatric Association's latest *Diagnostic and Statistical Manual 5* does not include it as a separate category since its definition of PTSD covers most of the symptoms of complex PTSD.

¹³ Over 80% of First Nations adults expressed alcohol and drug abuse as a challenge in a recent survey [FNGIC (2018, Vol.2, p. 135)].

¹⁴ As Elder Vee Whitehorse of Standing Buffalo Dakota Nation remarked "[W]isdom cannot be given, it has to be experienced on your own." (Quoted in Field (2022, p. 127))

when European settlers sought to erase Indigenous cultures. To demonstrate how this may have come about, I borrow and adapt from Eswaran (2023) who models these activities as the production a ‘cultural good’.

Here, I take as given the adverse psychological consequences of the history of North American Indigenous Peoples, as established by scholars in other disciplines. My modest contribution in this paper is in providing an economic framework to understand the mechanisms by which historical trauma facilitates the dismantling of cohesion within Indigenous communities and how this impinges on Indigenous deaths of despair. I follow Eswaran (2023) in modeling an Indigenous person’s concern for others through other-regarding preferences, for reasons that are spelled out in that work. This enables one to conceive of an individual’s self-concept as comprising the standard egoistic (‘me’) component and the somewhat non-standard, other-regarding (‘us’) component. These two aspects of an individual’s self are well-established in social psychology (see e.g. Tajfel and Turner (1979) and Tajfel (1982)). A stronger sense of belonging to a community enhances the weight given to the ‘Us’ component of preferences.

Case, Deaton, and Cutler (2017) find little support for economic models of suicide but find *pain* to be consistently correlated with suicide, in accordance with the findings in psychology (see Verrocchio et al (2016) for a review). Therefore, a model dealing with deaths of despair has to seriously contend with the role of pain. Ill-health, taken here to follow exogenously from the trauma, is attenuated in the short run by an endogenous response in which attention is drawn to pain and resources are compelled to be diverted for managing it.¹⁵

Bentham (1789) claimed that pleasure and pain are our sovereign masters and that when the difference between them is maximized utility is at its optimum. Psychological trauma is a special form of pain in that it is *durable*, akin to what economists call a stock. That being the case, it informs an individual’s decisions in the present and also across time, sometimes to a point beyond volition, until it is addressed and neutralized. Specifically, unresolved trauma lowers a person’s wellbeing at each instant in time and, at the same time, calls forth resources to diminish the felt pain. This effect of trauma lowers wellbeing and diverts attentional resources away from

¹⁵ As Douglas George-Kanentiio, Mohawk-Iroquois, said when speaking of his pain and that of other Indigenous children on being forcibly removed to residential schools, “This singular act of removing children by design, by federal policy, from their homes to institutions that were nothing short of penal colonies, *laid them wide open to substance abuse*.” [Smith (2005, p. 80), emphasis added]. See Chansonneuve (2007) for more on Indigenous pain.

other productive uses (for oneself, for family, and for community). This is the mechanism through which historical trauma in my model unravels Indigenous Peoples' organizations and devastates Indigenous wellbeing, individually and collectively. The passage of time does not ameliorate the effects of historical trauma, which seems to be consistent with what is observed.¹⁶

More specifically, in warding off pain, historical trauma draws resources away from the production of cultural activities, which are communal activities. This weakens and fragments the lived experience of family and communal participation, which in the eventual equilibrium reduces the sense of belongingness to the community in the long term. This, in turn, compromises the buffering role of these institutions against external shocks. The weakened family and community capacity contribute to the ill-effects of the colonial experience, consistent with the empirical evidence. The combined effects of historical trauma lead to an excessive consumption of drugs and alcohol and to suicides, that is, to deaths of despair. These effects are worse in the long run than in the short run. This paper brings home the exorbitant opportunity cost of pain to Indigenous Peoples. The model shows why and how settler colonialism is seriously implicated in these poor health outcomes.

The theory presented here suggests why some policies which promote the restoration of traditional Indigenous *collective* activities would help reduce deaths of despair. These bolster the sense of communal solidarity that formed the backbone of Indigenous communities but was undermined by settler colonialism, in line with the views of Indigenous elders.

The rest of the paper is as follows. In the next section, I adapt the model from Eswaran (2023) to address the issue of historical trauma and its effects on the cohesion of an Indigenous community. This simple adaptation shows how a community can be trapped in a bad equilibrium characterized by diminished family and community structures. The context generating historical trauma of Indigenous communities is reviewed in Section 3. The contribution of this paper to understanding Indigenous deaths of despair is discussed in Section 4. In Section 5, I bring out the relevance of this paper for public policy. I offer some concluding thoughts in Section 6.

¹⁶ This approach, we shall see, also reconciles, as a byproduct, Durkheim's (1897/1951) well-known general theory of suicide with that of Chandler and Lalonde (1998) and Chandler et al (2003) for Indigenous Peoples.

2. A Model Incorporating Culture

The intention here is not to derive sophisticated theoretical results from standard (neoclassical) premises that do not comport well with the context of Indigenous cultures. The purpose, rather, is to articulate in the simplest manner what is implied for Indigenous health when we adopt premises that conform to the lived experience of Indigenous Peoples. I address this in a tractable but greatly simplified version of Indigenous culture by adapting the model introduced in Eswaran (2023).¹⁷ Then I derive some results that are theoretically straightforward to derive but are important in their implications because they go some distance towards explaining the present health condition and deaths of despair of Indigenous Peoples.

I write down the utility function, $u(c, G, \ell, p)$ of a typical person in a hypothetical Indigenous community as a function of their consumption of food (c), their group cultural activity (G), their private leisure activity (ℓ), and the amount of substances (p) devoted to alleviating the pain and anxiety caused by the historical trauma prevalent in the Indigenous community. The crucial additions to Eswaran (2023) here are the historical trauma and the consumption of substances for pain and anxiety alleviation. I model the former as exogenous and the latter in terms of the time spent acquiring substances used for dealing with these. An important correlate of trauma, especially PTSD, is chronic pain, both physical and psychological.¹⁸ And pain is found to be strongly associated with suicides [Case, Deaton, and Cutler (2017)], even more strongly than with depression [Shneidman (1993), Verrocchio et al (2016)]. Since a vast literature in neuroscience documents that pain increases with negative emotions (see Wieser and Pauli (2016) for a review), we would expect that emotions like those accompanying the experience of discrimination would exacerbate pain.

Group cultural activity, a core aspect of Indigenous community life, is very important for the issues under investigation. Here, G is an aggregate that stands for collective activities such as religious rituals, healing ceremonies, storytelling, etc. The activities transmit Indigenous culture

¹⁷ There is a great deal of variation among the Indigenous bands. In Canada itself, for example, the Indigenous languages come from 11 different language families. But there are commonalities, which is what I focus on. As Kirmayer, Macdonald, and Brass (2001, p. 6) point out, despite the great linguistic and genetic differences, they “share a common social, economic, and political predicament that is the legacy of colonialism”. For tractability, I shall not consider variation except when the discussion warrants it.

¹⁸ Brennstuhl et al (2015) review evidence showing that PTSD and chronic pain occur together, possibly with mutual causation, but both occur invariably in response to trauma. They suggest that PTSD and chronic pain may be two alternative responses to trauma.

by allowing children and youth to imbibe the values, norms, traditions, beliefs of the community and inculcate a strong sense of identity in children [Wexlar (2009)], which in turn creates a strong sense of self-esteem and resilience [Phinney (1991), Heid (2022)]. By their very nature, such cultural activities create bonds between community members which offer social support known to have many benefits and, specifically, are protective against anxiety, depression, PTSD, and other mental illnesses [Salzman (2001), Southwick et al (2005), Ozbay et al (2007), Bellamy and Hardy (2015)]. The enculturation they produce has a moderating effect on alcohol abuse and so promotes resiliency [Whitbeck et al (2004)]. It also produces connectedness with the (extended) family, which is seen to serve as a protective factor against suicide attempts by AIAN youth [Borowsky et al (1999)]. Spirituality has been causally shown to be a buffer against depression [Fruehwirth, Iyer, and Zhang (2019)]. The collective contribution to the cultural good may also be interpreted as the community's social capital, an aspect of Indigenous communities emphasized by Mignone and O'Neil (2005). Yet another important aspect of the cultural good is that cultural activities are deemed to cement Indigenous identities [Maracle (2021)]. The Indigenous scholar Lyons (2010, p. 40) says, "Indian identity is something they do, not what they are..." (Also quoted by Maracle (2021)) The incorporation of the cultural good in the model, then, equips it to investigate the potential effects of historical trauma on Indigenous identity and wellbeing.

For tractability, I shall work with the following simple Cobb-Douglas form, $u(c, G, \ell, p)$, of the utility function:

$$(1) \quad u(c, g, \ell, p) = B(\tau) c^\alpha G^\beta \ell^\gamma p^\tau,$$

The multiplicative factor $B(\tau)$ (> 0) in the utility function depends on an exogenous factor, τ , which denotes a long-term measure of the events generating historical trauma. Trauma, of course, is the result of exogenous traumatic events, and τ is a measure of the intensity of these events. Higher τ implies greater trauma and τ is scaled so that 0 denotes no trauma and 1 denotes the maximum possible trauma, that is, $0 \leq \tau < 1$. This parameter may be informally taken to also represent the stock of unresolved historical trauma mentioned in the Introduction. I posit the derivative $B'(\tau) < 0$; greater historical trauma reduces an Indigenous community member's

wellbeing. The other exogenous parameters in the exponents in (1) are presumed to satisfy $0 < \alpha < 1, 0 < \beta < 1, 0 < \gamma < 1$, restrictions that ensure diminishing marginal utility.

I assume that each person has up to 1 unit of time endowment. Let t denote the amount of time she devotes to food production, g that devoted to the group cultural activity, ℓ to the private leisure activity, and p the amount of time devoted to acquiring pain and anxiety reducing substances.¹⁹ When the parameter τ increases, the exogenous utility of an Indigenous community's member declines, but by way of an endogenous response the person can consume drugs to alleviate the pain and anxiety associated with the trauma. This pain is not only psychological but also physical, as noted. The exponent τ also measures the efficacy with which this substance reduces pain and anxiety; an increase in τ raises the utility and marginal utility derived from the substance, holding $B(\tau)$ constant. In this model, the pain-reducing substances consumed may be taken as an inverse measure of the health of an individual.²⁰ When the amounts consumed of these substances reach high levels, the chances of death by drug overdose or alcohol poisoning increases [Jongbloed et al (2017)], the death being willed in some cases. So, high levels of the consumption of pain- and anxiety-numbing substances will be taken here as a contributor to deaths of despair, of which suicides are a direct component.^{21,22} The utility related to trauma of a band member may be viewed informally as the sub-aggregate $B(\tau)p^\tau$, which combines the exogenous and the endogenous effects of trauma on health.

The function in (1) will be referred to as the “egoistic” utility function of a typical community member in order to distinguish it from one that incorporates other-regarding preferences (to be introduced below). The individual's time constraint may be written as $t + g + \ell + p = 1$ in the absence of historical trauma. The psychological evidence on trauma and depression, especially

¹⁹ The resources used to reduce pain is modeled here as a “choice,” as is done in rational choice models of utility maximization. In some sense, it may be objectionable to couch the consumption of pain-numbing substances as a voluntary “choice” of an Indigenous person subjected to historical trauma. I am severely handicapped here by the paucity of the formal framework of economics. However, in modeling it as such, I take my cue from Indigenous scholars. Brave Heart (2003), for example, has suggested that Indigenous members of the Lakota band take substances as a way of avoiding the pain of historical trauma.

²⁰ I do not incorporate the dynamic effects of the consumption of drugs and alcohol here because the technicalities will dominate the more substantive issues under consideration. In any case, including them will only strengthen the results of this paper and add little by way of insight.

²¹ For the link between intentional drug overdose and suicide in the United States, see Han et al (2022). For Canada, see the CCSA (2016).

²² Durkheim (1897/1951), in his classic work on the subject of suicide, eschewed drawing a link between suicide and a decisive action intended to end life.

PTSD, clearly suggests that they are disabling; they have numerous effects that effectively reduce the productive capacity of the individual [Kessler and Frank (1997), Berndt et al (1998), Jellestad et al (2021)]. This is captured here as reducing the time endowment from 1 unit to a fraction $e(\tau)$ of 1 unit, consistent with the manner in which the World Health Organization computes effective loss of life due to disability. I posit that $e(0) = 1$, $e(1) = 0$, and $e'(\tau) < 0$. When the collective trauma of the band is τ , a fraction $1 - e(\tau)$ of productive time is lost. Thus an individual's time constraint can be written

$$(2) \quad t + g + \ell + p = e(\tau).$$

I shall refer to the economic activity of the community (say, hunting/gathering/farming, but not by any means restricted to these) as food production. Assume there are $n \geq 2$ people in the Indigenous band. I posit that the output, Q , of food is given by the production function

$$(3) \quad Q = AH^{1-\mu}T^\mu,$$

where H and T denote, respectively, the land area and total effort applied, and A the total factor productivity of the technology, and $0 < \mu < 1$. The total amount of land, H , in the economy is hereafter normalized to 1 unit.

As in Eswaran (2023), I take the land of an Indigenous band as communally owned and food production is jointly undertaken. Denoting the production effort of individual i by t_i , $i = 1, 2, \dots, n$, we may write the total effort as $T = \sum_{i=1}^n t_i$. With an ethic of equal sharing, the consumption, c_i , of person i will be $c_i = Q/n$. (See Eswaran (2023) for evidence on this ethic.)

The group input for ‘cultural production’ is posited to be given by

$$(4) \quad G = g_1 + g_2 + \dots + g_n.$$

An individual who contributes effort to the production of the cultural good benefits from it, and so do all the other and members. It is a pure public good.²³ An exogenous decline in food by 1 unit reduces the consumption of each member by only $1/n$, but an exogenous decline in the cultural good reduces the consumption of every member by 1 unit. The decline in the latter is far

²³ Iannaccone (1992) refers to this as a club good. Following this influential paper, the literature in the economics of religion views much of religion as a club good.

more serious, not merely because it is a public good but especially because of the importance of culture to Indigenous communities, as captured by the parameter β in the utility function in (1).

What prevents the standard moral hazard in teams from making the model's hypothetical Indigenous community dysfunctional is the attitude of the members towards land. This is the key cultural concept that Indigenous Peoples often speak of, stated as “The land does not belong to us; we belong to this land.” [Akiwenzie-Damm (1996, p. 21)] It was argued in Eswaran (2023) that the very nature of Indigenous cultures implies that other regarding preferences and altruism are important to an Indigenous community. A person is not concerned exclusively with their own consumption of various goods, as captured by the egoistic utility function in (1), but also places some importance on those of others in the group. Subscripting the individual-specific consumptions of person i by i , as before, we may write the utility of this person with other-regarding preferences, $v_i(\vec{c}, G, \vec{\ell}, \vec{p})$, as given by

$$(5) \quad v_i(\vec{c}, G, \vec{\ell}, \vec{p}) = u_i(c_i, G, \ell_i, p_i) + \sigma \sum_{j \neq i}^n u_j(c_j, G, \ell_j, p_j),$$

where \vec{c} , $\vec{\ell}$, and \vec{p} denote the vectors of consumption levels of the production output, private leisure, and (private) substance consumption of the entire community, respectively. The functions $u_i(c_i, G, \ell_i, p_i)$ are assumed to retain the form given in (1). The parameter σ , with $0 \leq \sigma \leq 1$, captures the extent of a community member's culture of concern for all the others who also belong to and work on the same land. This would also include adult family members and, of course, one's spouse.

Following Eswaran (2023), I refer to σ as ‘belongingness,’ a cultural parameter that captures altruism towards other community members. For simplicity, σ is assumed to be the same for all individuals in the community, with its magnitude being determined by the specific culture. The first term on the right hand side of (5) captures person i 's egoistic concern for oneself, and the remaining terms capture the person's concern for others in the band. When $\sigma = 0$, the preferences would be purely egoistic. At the other extreme when $\sigma = 1$, each member places the wellbeing of every other member on par with their own, and (5) would be identical to the Benthamite welfare function. Free-riding in the application of effort towards food and cultural good production is tempered when $\sigma > 0$ because each member of the community puts some weight on the utilities of other members. A more important implication of (5) for this paper's

subject is how traumatic events impinge on a person's wellbeing. The trauma due to individual assaults like rape or physical harm will affect the 'me' component of self. Collective assaults like dispossession, discrimination, and cultural denigration will affect not only the 'me' component but also the 'Us' component when $\sigma > 0$. This implication fits well with the view of the traumatologists [e.g. Kira (2010)]. We may also interpret the magnitude of σ as the extent to which community and kin are important to Indigenous identity [Maracle (2021)]. A decline in σ can also be interpreted as a fracturing of Indigenous identity.

The hypothetical model here is one of a self-governed Indigenous community. If it is not self-governed and is, say, overseen by *The Indian Act*, for example, the value of σ would be lower than it otherwise would be because the sense "I belong to the land" would be diluted when the state exercises control on the land. So, a move towards self-determination can be modeled as an exogenous increase in the parameter σ . Also, Indigenous communities are understandably deeply distrustful of state governments, given the past history. So self-government would also be accompanied by an increase in trust and, therefore, the willingness to put oneself out on behalf of other community members, that is, once again the parameter σ would increase.

Person i has control only over their own decisions, and so under Nash conjectures will maximize (5) by their choice of t_i , g_i , ℓ_i , and p_i subject to the time constraint $t_i + g_i + \ell_i + p_i = e(\tau)$.²⁴ This constraint can be used to eliminate ℓ_i and perform an unconstrained optimization with respect to t_i , g_i , and p_i . Taking the derivatives of (5) with respect to these three variables, simplifying the corresponding expressions after invoking symmetry and dropping the subscripts, solving the three first order conditions and using the time constraint we obtain the solution for the "belonging equilibrium", denoted by the quartet $(\tilde{t}^*, \tilde{g}^*, \tilde{\ell}^*, \tilde{p}^*)$, as²⁵

²⁴ The Nash (non-cooperative) behavior understates the effect of "belongingness" on equilibrium wellbeing.

²⁵ The three first order conditions obtained after symmetry is invoked are:

$$\begin{aligned} e_i: \quad & \frac{\alpha\mu\rho}{nt} = \frac{\gamma}{1-e(\tau)-g-p}, \\ g_i: \quad & \frac{\beta\rho}{ng} = \frac{\gamma}{1-e(\tau)-g-p}, \\ p_i: \quad & \frac{\tau}{p} = \frac{\gamma}{1-e(\tau)-g-p}, \end{aligned}$$

where $\rho = 1 + (n - 1)\sigma$. The second order sufficient conditions for a maximum are assumed to hold. With some manipulation of the above first order conditions and the time constraint, we can easily derive the allocations in (6).

$$(6) \quad \begin{aligned} \tilde{t}^* &= \frac{\alpha\mu\rho}{(\alpha\mu+\beta)\rho+n(\gamma+\tau)} e(\tau) ; \quad \tilde{g}^* = \frac{\beta\rho}{(\alpha\mu+\beta)\rho+n(\gamma+\tau)} e(\tau) ; \\ \tilde{\ell}^* &= \frac{n\gamma}{(\alpha\mu+\beta)\rho+n(\gamma+\tau)} e(\tau) ; \quad \tilde{p}^* = \frac{n\tau}{(\alpha\mu+\beta)\rho+n(\gamma+\tau)} e(\tau) , \end{aligned}$$

where $\rho = 1 + (n - 1)\sigma$.²⁶

It must be emphasized that, although this derivation was for a typical member of the community, it was applied to *all* individuals in the community by invoking symmetry because the trauma parameter τ is common to all members. This is what separates historical trauma from other traumas like PTSD; the events that generate historical trauma are a *shared* experience for the community, a feature that is important in what follows in this paper.

2.1 Short Run Effects of Historical Trauma

When the parameter denoting the intensity, τ , of events driving historic trauma changes, we shall soon see that it ultimately must also change the belongingness parameter, σ . But, for the moment, taking both as exogenous, the appropriate derivatives of the expressions in (6) immediately yield the following proposition for the short run.

Proposition 1:

- (a) An increase in the intensity of events, τ , inducing historical trauma for the community decreases the absolute and relative amounts of time devoted to food production, cultural production, and leisure, and increases the relative amount of time devoted to pain alleviation.
- (b) An increase in cultural belongingness, σ , of the community increases the absolute and relative amounts of times devoted to food and cultural production, and reduces the absolute and relative amounts of times devoted to leisure and pain alleviation.

The distinction between the absolute and relative amounts of time is made because trauma reduces the total time available to an individual. When the community's historical trauma is

²⁶ This parameter ρ captures the effect that, when $\sigma > 0$, an increase in group size, n , incentivizes a person to apply more effort towards collective because the other-regarding preferences incorporate more members. When belongingness, σ , increases, the associated increase in ρ is $(n - 1)$ times larger. Elsewhere in the expressions in (6), the appearance of n captures the standard incentive to free-ride in food production, an incentive that gets magnified when n increases. The standard free-riding problem of larger group sizes, however, overwhelms the belongingness effect when $\sigma < 1$. When $\sigma = 1$, the Benthamite welfare of the community is maximized for all n , as expected.

more severe, the attendant pain accompanying it is higher. To alleviate this, the endogenous response is to devote more time to pain reduction by the increased consumption of substances at the expense of other activities. The prediction that higher trauma levels reduce food output and increase substance abuse is consistent with the observation of Bombay, Matheson, and Anisman (2009, p. 23). Spillane et al (2022) in their recent review paper document the evidence showing a positive correlation of substance use with historical trauma and also with lived (contemporary) trauma. The diversion of resources to numb pain, by itself, is rather mundane theoretically and that is not the point. Rather the point to note here is that the activity of substance consumption to alleviate pain detracts from the time devoted to all communal activities.²⁷ Pain, as we know from experience, has the unique ability to contract our attention to focus on the egoistic self at the expense of other things. There is empirical evidence for this general phenomenon.²⁸ Part (a) of the above proposition is consistent with these findings. Historical trauma reduces food and cultural production and makes the Indigenous band less functional. This explains part (a) of Proposition 1. The withdrawal of other-oriented effort also impinges adversely on families—spouses, children, and the extended family members. In general, the insight is that historical trauma compromises the *family and community orientation* within the Indigenous community. In particular, the decline in the cultural good will dilute the passing on of Indigenous culture to children.

When cultural belongingness, σ , exogenously increases, it induces greater concern for other community members. The greater community-orientation increases a member's time devoted to the team activities (food and cultural production). This occurs despite the fact that I am invoking Nash (non-cooperative) behavior in the equilibrium concept. The reason is that stronger other-regarding preferences indirectly induce more cooperation through altruism, thereby reducing the time devoted to leisure and pain reduction. This explains part (b) of Proposition 1.

Members of an Indigenous community that moves towards self-government would be predicted to display more engagement with the band's affairs because there is less interference from outside and, so, belongingness is higher. This is seen in the recent work of Nikolakis and Nelson

²⁷ The fact that leisure also declines in response to trauma exposes the lie in the offensive trope of “lazy Indians”.

²⁸ See Agerström et al (2019) and Mancini et al (2011) for evidence from two very different contexts. William James is said to have remarked “[D]isease makes you think of *yourself* all the time...” (emphasis in original), quoted in Leary (1990, p. 104).

(2018), in which they compare the degree of trust that prevails in three First Nations in British Columbia, Canada. They find that trust in political institutions and the social trust levels is highest in the First Nations that undertook the self-government reforms outside the *Indian Act*. This would correspond to an increase in the belongingness parameter σ , which according to Proposition 1 (b) will improve the equilibrium outcome because of the endogenous response on collective activities; even the egoistic utility of a member will be higher. In the U.S., the Indian Reorganization Act of 1934 allowed tribes to exercise more autonomy, within the Act or without the oversight of the Act. Frye and Parker (2021) find that in 2016, the per capita income was between 12% to 15% higher in tribes that opted to be more autonomous outside the Act. This is consistent with my claim in Proposition 1(b) that greater self-determination elicits a higher degree of belongingness and, therefore, higher food output, which may be taken as a proxy for income.

2.2 Historical Trauma and Community Solidarity

The sense of belongingness induces an endogenous response in the time devoted to collective activities, here food and cultural production. If C denotes this manifested or empirical measure of endogenous belonging or community-orientation, we can quantify it by defining $C = t^* + g^*$, where clearly $0 < C < e(\tau)$. If I denotes the time devoted to individualistic activities (pain reduction and leisure), it follows that $0 < I < e(\tau)$, with $I + C = e(\tau) \leq 1$. Using the expressions in (6), we can write

$$(7) \quad C = \frac{(\alpha\mu+\beta)\rho}{(\alpha\mu+\beta)\rho+n(\gamma+\tau)} e(\tau); \quad I = \frac{n(\gamma+\tau)}{(\alpha\mu+\beta)\rho+n(\gamma+\tau)} e(\tau) .$$

An increase in historical trauma τ , (i) directly reduces the wellbeing exogenously through the multiplicative parameter B in (1), (ii) reduces the time devoted to collective activities by reducing the time endowment, $e(\tau)$, available to an individual, and (iii) endogenously reduces the amount to time devoted to collective activities by diverting time to acquiring substances to relieve the pain of trauma. If individuals functioned in a world where all activities were privatized, effect (iii) would be absent. In this view, it is the collective nature of Indigenous communities that makes them particularly vulnerable to historical trauma.

We may now identify the ways in which historical trauma impinges on the cohesiveness or solidarity of the hypothetical Indigenous community modeled here. The ratio C/I may be construed as a measure of the equilibrium level of ‘community solidarity’ relative to individual orientation, which, using (7), is given by

$$(8) \quad \frac{C}{I} = \frac{(\alpha\mu + \beta)\rho}{n(\gamma + \tau)}.$$

Recalling that $\rho = 1 + (n - 1)\sigma$, we see from (8) that the equilibrium group orientation relative to individual orientation is an increasing function of the exogenous component σ characterizing belongingness and a decreasing function of the historical trauma τ . If there were no endogenous response to trauma (that is, if pain alleviation were not a possibility), the only effect of historical trauma would be to reduce the maximum productive time available for each member from 1 to the fraction $e(\tau)$, as noted. As we can see from (6), all activities would be scaled down proportionately. This reduces the absolute level of collective activities undertaken, which is damaging in itself, but the relative community solidarity C/I would be invariant with respect to level of trauma. However, the inevitable endogenous response of pain alleviation reduces C/I by necessitating individual attention at the expense of the collective. This is an important route through which historical trauma has persistent and pervasive effects: it attacks the collective activities (especially cultural) that are at the heart of Indigenous societies.

Taking the logarithm of C/I in (8) and then differentiating totally with respect to σ , we can verify that the elasticity of community solidarity C/I with respect to σ is increasing in n . That is, a marginal increase in belongingness increases the community solidarity more steeply for larger groups. This brings out the importance of belongingness for larger groups as a counter to the usual moral hazard in teams. Finally, taking the cross partial of (8) we can verify that $\frac{\partial^2(C/I)}{\partial\tau\partial\sigma} < 0$, that is, trauma dilutes the marginal benefit of belongingness by reducing the resources available for belongingness to produce its salutary effects.

Encounters with various forms of violence can result in extreme trauma but not always. However, historical trauma resulting from extended assaults on the Indigenous Peoples has been shown to be very persistent [Matheson et al (2022)]. These assaults were on the very fabric of the collective cultures. Eswaran (2023) showed that, when a sense of belongingness is high,

privatizing the communal land of the Indigenous Peoples reduces their equilibrium level of wellbeing. We see here that historical trauma accomplishes the same end in an even more damaging manner because it also undermines health, individually and collectively.

Apart from the effects of historical trauma, the model also has something to say about the effects of current discrimination against Indigenous Peoples. There is a long and ongoing history of discrimination against Indigenous Peoples; persistent discrimination is likely to have an adverse effect on the targeted groups if they are internalized [Shaw (2001), Loppie, Reading, and de Leeuw (2014), Harding (2006), Allan and Smylie (2015)]. Even minor acts of day-to-day prejudice or discrimination (called ‘micro-aggressions’) can generate in the targets what has been dubbed “racial battle fatigue” over time, which dissipates a person’s mental and emotional resources (see Smith, Allen, and Danly (2007) for African American students in the U.S. and Currie et al (2012) on Indigenous students in Canada). Furthermore, the effect of current trauma is magnified by historical trauma, as shown by Bombay, Matheson, and Anisman (2014).

These effects can be broadly captured in my model. Discrimination has three effects: (a) it undermines the self-esteem of an Indigenous person and also the pride in Indigenous culture and practices. This will essentially reduce the parameter β that captures the importance in preferences for the cultural good. (b) Persistent derision of Indigenous culture would also lower the belongingness parameter σ because of the shame associated with it. (c) The dissipation of mental and emotional energy due to ‘racial battle fatigue’ will lower the productive time, $e(\tau)$, available to the individual. It can readily be seen from the expressions in (6) and (7) that all these exogenous changes will induce a reduction in the time devoted to collective cultural activities. Even though (c) would merely scale down all activities proportionately, the overall result of the three effects will be to reduce the relative time devoted to the ‘Us’ component of Indigenous preferences and raise that devoted to the ‘me’ component—thereby gradually contributing to the erosion of the cohesion of the community.

Because of the public good externalities built into them, the communal orientation of Indigenous culture is very sensitive to the perceived importance of these activities to community members and the shared sense of belonging. As a result, discrimination and negative stereotyping can have

sharply adverse effects on Indigenous communities.²⁹ Racial discrimination in the model, then, not only affects the outcome for the Indigenous community but also within the family by reducing the sense of belongingness. This is what Thibodeau and Peigan (2007) find. Based on interviews done with social workers and health care workers in some First Nations communities, they report that members of First Nations communities lack trust at four levels; trust in oneself, trust in family, trust in community, and trust in outsiders.³⁰

Due to the lack of empirical evidence for the prediction on Indigenous families, I cite some relevant findings for African Americans, another minority that experiences considerable discrimination. Lavner et al (2018) found that, among African American couples, men and women reported greater aggression towards each other after experiencing racial discrimination; men also reported greater relationship instability. Murry et al (2001) found that increased racial discrimination magnified the effects of other stressors, which has damaging effects on parent-child and intimate relationships. Doyle and Molix (2014) find that perceived discrimination by African Americans strains personal relationships through psychological and physiological routes.

2.3 Long Run Effect of Historical Trauma on Belongingness

When adverse conditions persist, the degree of belongingness within a community will be endogenous and cannot be taken as given. If the belongingness manifested in actuality persistently falls short, say, of that indicated by σ , the deficit in collective activity will induce a downward move in σ . In the long run, the belongingness as *manifested* in the equilibrium must match the posited level of belongingness, σ . Suppose we spell out the argument of the endogenously induced level of collective activity, C , defined earlier that can be construed as the manifested measure of belongingness. Given what we have seen above, we may write it as the function $C(\sigma, \tau)$, with $\frac{\partial C(\sigma, \tau)}{\partial \sigma} > 0$ and $\frac{\partial C(\sigma, \tau)}{\partial \tau} < 0$, as can be verified using (7); all else constant, collective activity increases with belongingness and decreases with historical trauma. Over time, the endogenous and exogenous measures of belongingness must match. Therefore, in a steady-

²⁹ And this is so even though the negative stereotyping is without any basis in facts. Vowel (2016) shows that the stereotypical stories about Indigenous Peoples are uninformed and prejudiced myths.

³⁰ A historical precedent from a different context is provided by the work of Nunn and Wantchekon (2011). They found that those countries in Africa that were more heavily raided during the slave trade era still exhibit lower trust levels today.

state equilibrium we would expect this value of σ , call it $\sigma^*(\tau)$, will be determined by the equation:

$$(9) \quad C(\sigma, \tau) = \sigma.$$

Using the expression in (7) in equation (9), the relevant solution, $\sigma^*(\tau)$, is readily determined.³¹ This is the level of the belongingness parameter that the band will gravitate towards $\sigma^*(\tau)$ for a given level of historical trauma, τ . When $\sigma = \sigma^*(\tau)$, the belongingness manifested in the associated equilibrium level of collective activity, $C(\sigma^*(\tau), \tau)$, coincides with $\sigma^*(\tau)$. Taking the total derivative of equation (9) with respect to τ at the solution and rearranging, we obtain

$$(10) \quad \left(1 - \frac{\partial C(\sigma, \tau)}{\partial \sigma}\right) \frac{d\sigma^*}{d\tau} = \frac{\partial C(\sigma, \tau)}{\partial \tau}.$$

Assuming the long-run steady state solution is interior and stable, it bracket on the left hand side of (10) must be positive, and so it follows that

$$(11) \quad \frac{d\sigma^*(\tau)}{d\tau} < 0.$$

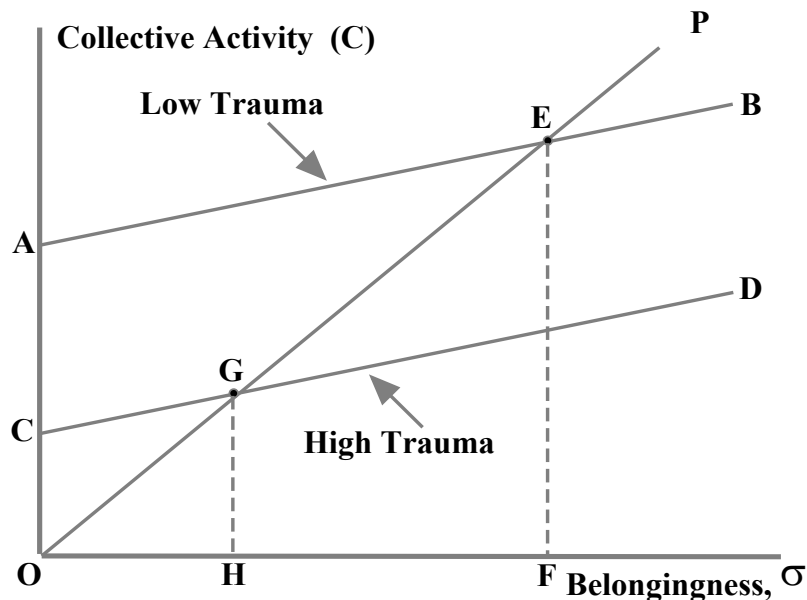
Thus we have this paper's second theoretical result:

Proposition 2: When events induce a higher level of historical trauma, the steady state level of belongingness in an Indigenous community will be lower.

The nature of the steady state solution is intuitively seen by consulting Figure 1. In the Figure, as functions of σ , the left hand side of (9) is shown as the schedule AB for a given level of trauma ("low") and the right hand side as the 45° line, OP. The schedule AB is increasing because the time devoted to collective activities increase with belongingness.³² The steady state solution to (9) occurs at the intersection E and the steady state value of σ is given by OF. When the given trauma level is "high", the left hand side shifts down to the position CD because less time is devoted to collective effort for each value of σ . The steady-state value of σ is now given by OH.

³¹ Standard adjustment equations would specify that σ would change over time at a rate proportional to the difference $(C(\sigma, \tau) - \sigma)$. The steady state is determined by the fixed point of $C(\sigma, \tau)$, as in (9). Since $C(0, \tau) > 0$, $C(1, \tau) < 1$, and $C(\sigma, \tau)$ is increasing and strictly concave in σ , it follows that there exists a unique solution, $\sigma^*(\tau)$.

³² The fact the slope of AB must be less than 1 (that of OP) stems from the assumption that the steady state be dynamically stable, that is, the tendency will be to reestablish the steady state value after small deviations from it.



The above proposition reveals the central mechanism in my model through which historical trauma serves to dismantle the cohesiveness of Indigenous families and communities in the long run. By diverting attention and resources to addressing the immediacy of pain and further incapacitating the abilities of the Indigenous Peoples, trauma undermines the core collective activities that constitute the social organizations. Collective activities that are in the nature of public goods, of course, are undersupplied unless offset by a sense of belongingness that facilitates cooperation. In this model, historical trauma undermines the sense of belongingness, which is the unique feature of Indigenous identities and communities that ensure success in collective action. Proposition 1 (a) tells that, even when belongingness is held constant, historical trauma undermines communal activities. Proposition 2 informs us that events generating historical trauma also undermine belongingness when it is endogenous, and so has a double-barreled effect on Indigenous communal living in the long run. The durability of unresolved trauma persistently exerts its influence (by diverting resources away from communal activities), undermining belongingness in the Indigenous communities. This is how historical trauma devastates culture and identity, according to this model. In proposing that historical trauma is responsible for the current ills of the Indigenous peoples of North America, Brave Heart and DeBruyn (1998) and Duran and Duran (1995) were right and the model spelled out here reveals the perniciousness of the mechanism.

A decline in σ would also reduce concern for one's spouse, which implies that in the new equilibrium, family ties will be loosened. The investment in children that would otherwise have been forthcoming through the cultural good will not take place to the same extent, and this neglect clearly will have consequences for subsequent generations. This is suggestive of one way in which the family becomes a vehicle of intergenerational trauma. Evans-Campbell (2008, p. 325) notes, "[S]cholars have suggested that among historically oppressed peoples, intergenerational trauma can become an organizing concept for family systems...". She also points out that an important issue that has been neglected in discussions of historical trauma is the effect at the community level. It is precisely the importance of community that my model brings out. In fact, the rendition of historical trauma in my model shows the functioning of the *individual*, the *family*, and the *community* all get disrupted in proportion to the intensity of the trauma.

Proposition 2 helps us understand an insight of Murray Sinclair, who later chaired Canada's *Truth and Reconciliation Commission*. Writing about the effect of racist attitudes of colonialism while perpetrating cultural genocide through policies based on the presumed inferiority of Indigenous Peoples, he wrote "In a strange sort of way, this state of affairs—an almost direct result of the ethnocidal policies mentioned—reinforced the unspoken belief that Indian people were inherently inferior. The result of the practice confirmed its premise—a *true self-fulfilling prophesy*." [Sinclair, C.M. (1998, p. 174), emphasis added]

In communities where the events were not very traumatic, the Indigenous sense of identity and belongingness—which can be viewed as engendering social capital—will show greater cooperativeness and collective action. This may be dubbed a "good" equilibrium, as at point E in Fig. 1 On the other hand, after the events that were highly disruptive, relentless, and traumatic, the community would show a low level of belongingness and a greater degree of fragmentation at the individual, family, and community levels. The low level of belongingness and fractured identity will result in low levels of cooperativeness and collective action. Such an outcome can be deemed to be a "bad" equilibrium, as at point G in Fig. 1.³³ Being stuck in this equilibrium is

³³ As has been succinctly put by Methot (2019, p. 2) in her description of the condition of contemporary Indigenous communities, "The social structures that hold families and communities together —trust, common ground, shared purpose and direction, a vibrant ceremonial and civic life, co-operative networks and associations —have broken down, and in many families and communities, there are only a few people working for the common good."

one reason—arguably the main reason—for why the “past is not the past” for Indigenous Peoples, as *The Lancet* editorial observed, and is a legacy of colonialism. The historical case for that is discussed in the next section.

Being trapped in a bad equilibrium implies that unresolved trauma can have consequences over the long haul. Before leaving this section, I draw out an illustration of Proposition 2 that may be relevant to a recent and important finding. Feir, Gillezeau, and Jones (2023) investigated the effects of the near-extinction of the bison in the late 19th Century on the wellbeing of the bison-dependent Indigenous nations in the Plains of North America. They found that nations which were bison-dependent had adverse long-term health consequences and still have income levels that are 25% below that were not dependent on the bison. The entire trajectory of economic development was seen to be different for the bison-dependent nations compared to the bison-independent ones. Also, the marginal effect on income of a bank failure during the Great Depression was higher in regions exposed to more bison slaughter. The authors provide an economic explanation, backed by evidence, based on access to capital. Proposition 2 above offers a complementary explanation by suggesting that nations that saw greater destruction of the 10,000-year bison-dependent livelihoods with little or no alternative means for subsistence would have experienced more trauma and more drastic unraveling of functionality at the individual, family, and community levels. And this would have made it more difficult to recover on the path of economic development, even holding constant the access to credit. This consideration, in other words, would have exacerbated the effect on Indigenous wellbeing based on differential access to credit.

3. The Context for Indigenous Historical Trauma in North America

To demonstrate the relevance of the proposed model 2 to the lived experience in Indigenous communities, I briefly outline the background events that led to Indigenous historical trauma. This would lend credibility to reasonably identifying the pre- and post-colonial outcomes as the “good” and “bad” equilibria, respectively. Since the literature on this, mostly outside economics, is quite vast, I restrict myself to events within the past 150 years or so.

3.1 The Residential School System

The American and Canadian governments started building boarding schools for Indigenous children in 1860 and 1883, respectively, because it was decided that the most efficacious way to assimilate Indigenous Peoples was through education. This led to the Indian Residential School system (IRS) to which Indigenous children were taken from their families and forcibly sent. In these schools, the children were forbidden to speak their language, dress in the traditional attire, were taught English (and/or French in parts of Canada), were forbidden to perform traditional rituals and to practice traditional religions, prevented from seeing their families except in the summers. In effect, the attempt made was intended to completely erase Indigenous identity and instill white European identity. The students were malnourished, kept in overcrowded conditions, and illnesses were not speedily attended to. In addition, many children were physically and sexually abused. A large number of Indigenous students died in the residential schools. These historical events are comprehensively documented (see Milloy (2017) for Canada and Adams (1995) for the U.S.).

Since the children grew up with little exposure to Indigenous cultures, without maternal and paternal care and that of the traditional extended family, and were exposed to apathy and abuse, they developed serious problems associated with a fragmented identity and traumas that has led to subsequent problems with coping [Sinclair, C.M. (2015)]. Since IRS affected several generations of Indigenous children, the trauma-driven behavior of the attendees when they became adults and the lack of the manifest experience by example of parenting skills passed on dysfunction to the children. The continued adverse effects of IRS spanning generations have been substantiated by evidence (see Wilk et al (2017)).

In a pioneering paper offering causal evidence on some of the effects of the IRS, Feir (2016) has shown that going through a boarding school increased the rates of graduation of Indigenous students and employment in the labor market. However, while it produced greater economic integration, it also reduced connections with the Indigenous communities, with the attendees being less likely to participate in traditional ceremonies or speak an Indigenous language. Feir (2016) also finds suggestive evidence that, for students who went through residential schools which were abusive, even the economic benefits did not materialize.

Since historical trauma is linked to many devastating effects, it is important to address some potential objections to the pervasiveness of the putative link. First, attendance in IRS was

required only of status Indian children and, later, of the Inuit. But the record suggests that even by the 1930s only around 30% of First Nations, school-age children were enrolled in IRS.³⁴ In the United States, the corresponding figure that is usually cited is 83% of the Native American children were enrolled in 1926 [Adams (1995, p. 27)]. This raises a question for Canada: If only a third of status Indian children attended IRS, how can it be claimed that historical trauma has pervasive and enduring effects down to current times? The answer lies in the fact that, even if the 30% figure remains relevant in other decades after the 1930s, there were many generations that passed through IRS. The children of those who attended are not necessarily the only children who attend in subsequent generations. Consequently, the proportion of Indigenous people who were affected by IRS would have been increasing over time. There were in all around 150,000 Indigenous students who went through IRS [Sinclair, C.M. (2015, p. 3)].

A second issue is this: Métis are not covered by the Indian Act and so were not required to attend IRS. So, how could Métis historical trauma be attributed even partly to IRS? As it turned out, according to Aboriginal Peoples Survey of 1991, around 9% of the enrolment in IRS comprised students who identified as Métis [Chartrand, Logan, and Daniels (2006, p. 12)]. The federal government had no constitutional responsibility to provide education for Métis children because that was a provincial responsibility. Even so, Métis children were admitted into the IRS. As the RCAP (1996, p. 335) put it, “Métis children would be invisible, rarely mentioned in the records, they were nevertheless there and were treated the same as all the children were.” (Quoted in Logan (2006, p. 62)) This may have been partly because of mixed European-Indigenous parentage, Métis were familiar with Catholicism—disposing the Church to look favorably on Métis children. It was also partly because school funding depended on enrolment and Métis children were enrolled to increase the numbers [Logan (2006)]. As a result, Métis were also exposed to intergenerational trauma from IRS attendance. In addition, Métis children were heavily overrepresented in the CWS between the 1960s to the 1990s—to the point that Justice Kimelman commenting on Manitoba’s treatment of Métis children in the CWS referred to it as “cultural genocide” (reported in Barkwell, Longclaws, and Chartrand (1989, p. 44)).

³⁴ U. of Manitoba, <https://web.archive.org/web/20160420012021/http://umanitoba.ca/centres/nctr/overview.html> . Fournier and Crey (1997, 61), however, put this percentage at 75% by 1930.

Yet another objection pertains to Inuit Peoples. The Indian Act was expanded to include Inuit only in 1939 and so Inuit children had a much shorter period of exposure to IRS, and yet the putative contemporary effects on Inuit are huge. How is this possible? The experiences of Inuit were certainly unique but they seem to have been no less traumatic than of First Nations and Métis. There were many changes forced upon Inuit which required adjustments within a short period of time (like a single generation). One of these entailed a somewhat disingenuous relocation by the government of many Inuit families from northern Quebec to the High Arctic in order to establish Canadian sovereignty in the region. This relocation had a very traumatic effect on the Inuit especially because of deep attachment to traditional land and environment and home for 5,000 years (see the Royal Commission Report [RCAP (1994)]). There were also systematic killings of sled dogs of Inuit over the period 1950-1975 by the RCMP, ostensibly for health reasons but alleged by Inuit to force relocation near military camps by eliminating the traditional ways of life [Qikiqtani Truth Commission (2014)]. The sled-dogs were crucial to the livelihood of Inuit because they provided not only transportation but were also an indispensable help in hunting.

The historical record, therefore, suggests that First Nations, Métis, and Inuit all experienced substantial traumas even if over periods of different lengths and in non-identical ways.

3.2 The Child Welfare System

Indian residential schools were only one means that separated Indigenous children from parents. By the 1930s in the U.S. and the 1950s in Canada, the governments began curtailing the use of IRS. The last such school closed in the 1960s in the U.S and in the 1990s in Canada. But from the 1950s on, the child welfare system (CWS) in both countries began removing Indigenous children from their parents and putting them in foster care [Fournier and Crey (1997), Blackstock (2007), Evans-Campbell (2006)]. From the 1960s onwards till the nineties in Canada—in what has been called the “Sixties Scoop”—this was done in the “best interests of the children” at such an alarming rate that Indigenous children were greatly over-represented (relative to their population) in the CWS. For example, even in 2019 the rate of placement of First Nations children in Canada in formal out-of-home care was 14.2 times that of non-Indigenous children [Fallon et al (2021, p. 47)]. According to Statistics Canada, the 2021 Census of children below the age of 14 years shows Indigenous children comprised 7.7% of the Canadian population but

constituted 52.2% of all children in foster care. The reason for the removal of Indigenous children from homes was to prevent maltreatment, which covered a range of categories such as neglect, physical abuse, emotional abuse, sexual abuse, among others. The majority of the children removed fell in the ‘neglect’ category, which in turn covered criteria like poverty, poor housing, overcrowding, etc.

A significant fraction of Indigenous children taken from their families in Canada were placed in non-Indigenous foster homes up until the 1990s. Feir (2016) finds suggestive evidence that the IRS may have preserved Indigenous cultural connectedness *within* the schools because Indigenous children were not separated from other Indigenous children (even though they were separated from their families). Fournier and Crey (1997, Ch. 3) point out, the CWS was more isolating than the IRS because the CWS also separated Indigenous children from one another. In some cases, the foster parents adopted the children. The literature on transcultural adoptions finds that the outcomes are usually good [e.g. Silverman (1993)], some mixed [Godon-Decoteau and Ramsey (2018)]. However, Indigenous children in transcultural adoptions do not seem to fare well; in fact, up to 50% of these adoptions break down [Bagley (1991)]. Sinclair, R. (2007) offers some plausible reasons for why this is so. Indigenous adoptees discriminated outside their adopted homes cannot fall back on the adopting family for help because the family may not perceive the discrimination. This leads to difficulties in the formation of the identities of Indigenous adoptees during adolescence, which brings on a host of psychological problems [Kim (1978)]. A substantial proportion of Indigenous children were not adopted but were placed in foster care. But foster care, which is less permanent than adoption, also leads to serious psychological issues for these children. Kaspar (2014a) found, for example, that Métis children who came out of foster care were more likely to have mental depression and suicidal thoughts than children who have never been in foster care.

Child welfare placement of Indigenous children has been criticized for neglecting the possibility of placing the children within Indigenous communities themselves. There is a strong extended family system in Indigenous cultures where grandparents, uncles and aunts and, in fact, the entire community confer attention and affection of children [Red Horse (1997), Hudson and McKenzie (1981), Johnson (1983), KILLSBACK (2019)]. The CWS was informed by a well-established theory in child psychology called “Attachment Theory” that says, for normal development, the child

needs to attach itself quickly in a stable relationship with a caretaker, usually birth mother or substitute if the mother is deemed unavailable, and that the window for this bond to form is fairly short. Attachment theory is based on a particular cultural view in which dyadic relationships between mother and child are typically observed. It has been persuasively argued that this view is based on empirical work done exclusively in Eurocentric cultures and does not apply to Indigenous cultures, where the norm is the extended family and there are usually many caretakers. As Keller and Chaudhuary (2017) argue in their survey, many cultures practice alloparenting (that is, parenting by aunts, grandparents, older siblings, and even non-related individuals) and a child benefits from attachment to the many alloparents.

Carriere (2005) emphasizes the importance of ‘connectedness’ to birth families and ancestral culture as being crucial to the health of Indigenous adoptees via the sense of identity that this engenders. Sinclair, R. (2016, p. 12) states, “For children who are members of racialized minorities, the insulation of same-race siblings, families, and communities cannot be underestimated in terms of belonging and a sense of safety in the world.” Furthermore, even if an Indigenous child forms a bond with a non-Indigenous family, at the crucial stage of adolescence when a child has to form an individual identity as a separate self, the bond can break as the children see that they are distinctly different from their adopted parents [Richard (2007)]. When this happens, the adoptees tend to run away and neither return to their adopted homes nor to their birth homes; many end up homeless in urban areas.³⁵ Tait, Henry, and Walker (2013) identify and describe a litany of challenges that confront children when they come off the CWS—homelessness, mental health issues, unwanted pregnancies, encounters with the criminal justice system, to name a few—and they view the CWS itself as a social determinant of health. Sinclair, R. (2016) argues that what may be perceived to be in the best interests of the children in the short run may not be so in the long run and what should matter in child placements is the latter.

Colonial powers found it expedient to attempt to erase Indigenous cultures by separating children from parents. The *Truth and Reconciliation Commission* declared this to be “cultural genocide” [Sinclair, C.M. (2015, p. 1)]. In early and insightful work on this subject, Hudson and McKenzie (1981) and Johnson (1983, esp. Ch. 3), suggested that this policy of child removal by the CWS

³⁵ For example, in 2006 the ratio % of homeless Aboriginal People as a proportion of the city’s homeless population to the % of Aboriginal People as a proportion of the city’s population is 12 for Vancouver, 40 for Montreal, and 32 for Toronto (from Table 1 of Belanger et al (2013)).

was a continuation of the colonial strategy of assimilation, and subsequent scholarship has forcefully reiterated this claim [Sinclair, R. (2007), Rocha Beardall and Edwards (2021)].³⁶

It must be noted that the overrepresentation of Indigenous children in the CWS is lower in the U.S. than in Canada. In 2015, the ratio of the % of American Indian and Native Alaskan (AIAN) as a proportion of all children in foster care to that of AIAN children in the entire population was 2.7 [NCJFCJ (2017)]. The corresponding figure for Indigenous children in Canada in 2021, from the Statistics Canada figures given earlier, is 6.8. This dramatic difference in the overrepresentation of Indigenous children in the CWS in Canada is due to the fact that the U.S. passed legislation in 1978 called the Indian Child Welfare Act (ICWA) that gave American Indian tribes exclusive jurisdiction over Indigenous children. The analogue of ICWA in Canada is Bill C-52, which came 44 years later in 2022. The tardiness of Canada's recognition of Indigenous Peoples' jurisdiction over Indigenous children may explain differences that I later discuss in some of the adverse effects (e.g. suicide rates) of IRS and CWS in the two countries.

Having children taken away by the CWS naturally has an extremely traumatic effect on Indigenous parents [Evans-Campbell (2008)]. Wall-Wieler et al (2018), using data from Manitoba, found that mothers who had a child taken away by the CWS had twice the rate of attempted and completed suicide compared to mothers who did not. Thumath et al (2021) find that, compared to non-Indigenous women in Canada who did not have a child removed, the removal of a child significantly increases the odds of unintended overdose but this increase is more pronounced for Indigenous women, after controlling for potential confounders. In a study of young Indigenous women in British Columbia who use drugs, Ritland et al (2021) found that women who experienced child apprehension by the CWS were more likely to attempt suicide than women who did not have a child removed. We would expect that, given the strength of the maternal bond, mothers who use drugs would be extremely motivated to break the habit in order to regain custody of their children. The evidence suggests that the trauma of separation may actually lead to attempted suicide in some mothers. This is but one example of the child removal

³⁶ Rocha Beardall and Edwards (2021) have argued that, after appropriating Indigenous land via *terra nullius* ("nobody's land"), the governments were appropriating Indigenous children via *filius nullius* ("nobody's child") through IRS and the CWS. Gwendolyn Point of the Sto:lo community of British Columbia, Canada, said, "Ever since the Europeans first came, our children were stolen from our embrace. First the priests took our children away, to churches, schools, and even back to Europe. Then the residential schools took three or four generations away; then the social workers took our children and put them in non-native foster homes." (Quoted in Fournier & Crey (1997, pp. 8-9))

policy of the CWS aggravating the already-operating dysfunction caused by historical trauma. As Sinha et al (2021, p. 2), say, “The removal of children by the child welfare system has, in many ways, perpetuated the destruction of Indigenous community ties and local decision-making.”

Evidence shows that the disproportionate representation of Indigenous children in the CWS is driven by the risk factors present in households in which the parents have issues with substance abuse and mental health [Trocmé et al (2006)]. Bombay, Matheson, and Anisman (2014) have shown that these conditions are linked to the parents or grandparents having attended IRS. Recently, Bombay et al (2020) demonstrated that there is a statistical link between children being involved with CWS and having parents or grandparents who attended IRS. McQuaid et al (2022) found that, compared to Indigenous youths who had neither parents nor grandparents who attended IRS, youths who had either a parent and/or grandparent who attended had higher odds of not living with either biological parent. The latter also experienced higher levels of psychological distress.

3.3 Some Evidence on Historical Trauma

Having provided a brief survey of the context, I now I cite some correlational evidence for the concept of historical trauma [Brave Heart and Debruyn (1998), Duran and Duran (1995)], the case for which has been made in the above two sub-sections. A test of historical trauma requires data across generations and is provided by the relatively recent phenomenon of Indigenous residential schools (1880s to 1990s) in Canada. Since IRS was a very disruptive institution imposed on Aboriginals that ended relatively recently, Bombay, Matheson, and Anisman (2014), who also review the literature, have used IRS data to examine the issue of intergenerational trauma. Drawing on families in which none, one, or two of the parents went through IRS, the authors tested for depressive symptoms and suicidal ideation among children who did not attend IRS. The results are consistent with those implied by historical trauma. Furthermore, the authors showed an interaction effect with contemporary stressors, like discrimination, stigmatization, assaults, etc., whereby historical trauma magnified their negative effects. In other words, the negative effects of the ill-treatment of children in Indigenous residential schools are intergenerational and they are pervasive.

Using 2006-2007 Aboriginal Peoples Survey, in a multivariate regression analysis Kaspar (2014b) found that lifetime attendees of IRS had lower self-perceived health than non-attendees. When socioeconomic factors (education, income, employment, and housing) were accounted for, the difference between the two declined but remained significant. IRS attendance had adverse effects on the socioeconomic variables. Kaspar (2014b) found that, while the effect of IRS attendance was mediated by socioeconomic variables, it also had an independent effect. The effect of IRS attendance on health remained even when community adversity variables (suicides, alcohol and drug abuse, sexual violence, family violence, and unemployment) were included in the regression.

3.4 Conclusions on the Case for Historical Trauma

The very brief summary above of the evidence (with more forthcoming in the subsequent sections) strongly suggests that attendees of IRS subsequently suffered serious mental and psychological problems and the CWS that quickly followed in a wake of the declining IRS has essentially perpetuated the same outcome of separating Indigenous children from their parents. The effects of IRS became the causes of the withdrawal of Indigenous children by the CWS. The intergenerational transmission of the ill-effects, in turn, continue to inflict psychological problems on future generations of fragmented Indigenous families. Serious attendant conditions like PTSD and, more generally, historical trauma, that have arisen from the attempted erosion of Indigenous cultures, have left Indigenous individuals, families, and communities in a deeply fractured state.

These outcomes are compelling indications of a persistent “bad” equilibrium of the previous section, which is my formal rendition of the claims of many Indigenous and non-Indigenous scholars. Some of the diverse and serious health consequences are pursued next.

4. Application to Indigenous Mental Health and Suicide Rates

In this section, I spell out the explanatory contributions of this paper to Indigenous deaths of despair. The model offers plausible reasons for many related empirical observations.

High levels of substances ingested to numb the pain that accompanies historical trauma may be reasonably construed in my static model as synonymous with greater substance abuse. Given the well-documented evidence on the much higher levels of trauma experienced by Indigenous Peoples relative to non-indigenous people, the results of Section 2 offer a theoretical step towards one explanation of the poor health conditions and deaths of despair of Indigenous Peoples. These conditions are documented in the literature. In a recent study of mortality among First Nations Peoples in Canada, Park (2021) finds the age-standardized suicide rates per 100,000 person years at risk was 33.1, 17.4, and 8.0, respectively for on-reserve, off-reserve, and non-Indigenous individuals. The rates for chronic liver disease and cirrhosis were 22.3, 17.3, and 3.8, respectively. These dramatic differences in death rates are qualitatively analogous to those in overall mortality rates documented by Feir and Akee (2019) and by Akee et al (2022). For the United States Native Americans, Spillane et al (2020) document excessive alcohol-related deaths relative to other groups during the period 2000-2016; Barnes et al (2010) on poorer health and higher levels of risky behavior; and with Espey et al (2014) on the higher mortality and risky behaviors. Blanchflower and Feir (2021) have documented that Native Americans experienced significantly more physical pain and depression than the other races.

4.1 Implications for Indigenous Deaths of Despair

A theory in psychology attributes to “thwarted belongingness” and “perceived burdensomeness” (the perception that one is a burden to family and others) very important roles in suicide in general populations [Joiner (2005), Van Orden et al (2010)].³⁷ The idea of belongingness draws on the well-established need to belong as a fundamental human drive [Baumeister and Leary (1995)]. When this need is thwarted, it can lead to suicidal thoughts and sometimes to actual suicide. Shneidman (1993) viewed the pain from unmet psychological needs as the prime cause of suicide. Meta-analyses of many studies in the literature provide evidence of this theory [Chu et al (2017), Hatcher and Stubbersfield (2013)]. The application of this theory to Indigenous Peoples per se has not yet been formally tested in the literature (see O’Keefe et al (2014) for some weak and tentative evidence), but there is good reason to believe that, since belongingness is so crucial to Indigenous cultures, the effect would be much stronger in Indigenous societies. I

³⁷ Joiner (2005) argues that attempted suicides facilitate the completion of suicides later. Among the Indigenous Peoples, attempted suicides, too, are much higher than among the rest of the population in North America.

argue that the effect runs far deeper in Indigenous Peoples of settler colonies because what has been lost is far greater. However, belongingness at the *individual level* does not apply straightforwardly to Indigenous communities. When the community that one wants to belong to is itself fragmented and its culture is falling apart, what is an Indigenous person to identify with? This is why suicide is a *collective* issue in this context. The loss of identity is seen by Indigenous elders as crucial to the phenomenon of the Indigenous suicides crisis.³⁸

Why does the undermining of identity have ill-effects on health, the most drastic of which is suicide? In their landmark research on Indigenous suicides, Chandler and Lalonde (1998) attribute suicides to disruptions in the development of the self-concept.³⁹ For adolescents to develop a sense of self, they argue, there needs to be stable cultural background that forms the support during the inevitable upheavals in the difficult process [Chandler and Ball (1990), Chandler and Proulx (2006)]. When this process is blocked or fails, suicide can result. When cultural continuity is undermined, as in the case for Indigenous Peoples, the process of self-development is even more traumatic. This, the authors argue, is why the burden of suicide is disproportionately borne by Indigenous youth.

The Sami, for example, who are Indigenous people of Scandinavia, exhibit elevated levels of suicide relative to the general Danish, Swedish, and Norwegian populations. Silviken, Haldorsen, and Kvernmo (2006) investigate suicides among the Sami indigenous People in arctic Norway in the last three decades of the 20th century, during which period there was a spurt in Indigenous suicides. Interestingly, they found that there was no increased risk among the Sami who engaged in the traditional practice of reindeer herding, from which the Sami derived the sense of identity. This gives some credence to the claim that it is deviation from tradition and the attendant loss of identity are related positively to the risk of suicide. In an investigation into the reasons for Sami suicides in Scandinavia, Stoor et al (2015) suggest that when herding reindeer, which is the traditional occupation, was disappearing, the Sami saw suicide as a way out of the “existential void” following the loss of identity. Given the far more egregious offenses against the

³⁸ Murray Sinclair, while speaking on the issue of youth suicides attributed the tragedy to lack of lack of identity. “Part of the problem of suicide among young people is the loss of hope they feel because they do not know who they are. We are responding to the suicide rate by giving them drugs, but this won’t give them a sense of who they are.” [First Nations Health Authority, April 26, 2019]

³⁹ The importance given to the self-concept is in line with a long tradition in psychology, starting with William James (1890), who made it the central concept of classic work. Identity was introduced into economics first by Akerlof and Kranton (2000) in a very different context than what is under consideration here.

Aboriginals in Canada and the United States, where expunging Indigenous identities were deliberate goals, there can be little doubt that the erosion of identity is one of the factors contributing to Indigenous suicides.

Case, Deaton, and Cutler (2017) find that suicide rates are inconsistently correlated with subjective wellbeing measures [Layard (2005), Helliwell (2007)]. They find that, even after controlling for income inequality and religious denomination, *pain* is strongly correlated with suicide rates.⁴⁰ This underlines the importance of accounting for pain, as I have done here. The results of my model can be seen as being consistent with the findings on Indigenous suicides.

Durkheim (1897/1951) posited that the greater the strength of social integration within a society, the lower should the suicide rate be.⁴¹ The definition of belongingness here, as in Eswaran (2023), is precisely this notion of social integration, so Durkheim's theory is directly relevant here. May and Van Winkle (1994) applied the theory to Indigenous bands in the southwestern United States and found that the suicide rates were inversely correlated with the level of social integration. Although Chandler and Lalonde (1998) do not link their work to Durkheim's, my model links their theories by bridging the gap between historical trauma and the dismantling of collective activities of Indigenous communities.

One of the clinically established facts about Indigenous trauma is PTSD [Basset et al (2014)], which is known to be associated with chronic pain, anxiety, depression, suicidal thoughts, inability to sustain relationships, among other effects. It has also been found that PTSD reduces the time horizon of interest, that is, it increases the discount rate of the person [Bryan and Bryan (2021)]. If I were to construct an intertemporal version of my model, the higher discount rate would readily be seen to result in higher alcohol and drug consumption, increasing the chances of death due to drug overdoses and alcohol poisoning. Since drugs show diminishing returns in suppressing pain, sensitivity to pain ultimately increases with drug use [Nakajima and al' Absi (2016)], which would tend to increase drug use and the possibility of overdosing. More generally, in a dynamic framework, it would be readily inferred that any investment in one's

⁴⁰ Duran and Duran (1995, p. 180) point out that, in their clinical experience with Native Americans, suicidal patients' common theme is "I don't want to hurt anymore."

⁴¹ Durkheim referred to this type of suicide as "egoistic". He also posited that there could be what he called "altruistic" suicide if the degree of social integration is very high, where people commit suicide for others. This latter type is less relevant to the context of Indigenous Peoples because suicide was historically not a tradition among the First Nations and Inuit Peoples [Kirmayer et al (2007, p. 59), RCAP (1996, p. 10)].

human capital (not just health but also education and work experience) in general will be undermined by historical trauma. Short-term pain relief will be traded off against long-term wellbeing that would have been feasible through higher human capital.

Not finding evidence supporting the purely economic models of suicide in the literature,⁴² Case, Deaton, and Cutler (2017) propose that suicide may be impulsive and depends on how one feels right now, without future considerations. This claim fits well with a theory from psychology that views suicide as basically an escape from a suffering sense of self [Baumeister (1990), Shneidman (1993)]. And it also accords well with my claim, at least for Indigenous Peoples, that historical trauma increases the discount rate and narrows the focus to the suffering in the present. This would be an economic interpretation of Chandler and Lalonde's (1998) psychological insight that disruptions in the continuity of the self-concept promotes Indigenous suicides.

4.2 A Formal Statement

Let me relate the model of Section 2 to Indigenous deaths of despair more formally. Suppose we denote the rate of deaths of despair in an Indigenous community of given size by D . Given what we have seen in the paper thus far, we may claim that D is given by a mortality function, say $M(\tau, \sigma, p, C)$, with four arguments. We may posit the following partial derivatives: (i) $M_\tau > 0$, capturing the direct effect of trauma on deaths of despair, (ii) $M_\sigma < 0$, since belongingness reduces deaths of despair, (iii) $M_p > 0$ since pain-reducing substances increase deaths indirectly through overdoses, etc., and (iv) $M_C < 0$, since collective activity reduces deaths of despair by increasing community support. Of the four arguments of $M(\tau, \sigma, p, C)$, only the first, historical trauma, is truly exogenous in my model. The second is exogenous in the short run but not in the long run; belongingness ultimately responds to the level of trauma (Proposition 2). The remaining two variables are endogenous in both the short run and the long run. Substance use is endogenous at the individual level but the collective communal activity, C , is exogenous to the individual but endogenous to the community in aggregate.

Consider the effect of historical trauma on deaths of despair, D . Taking the total derivative of D with respect to τ , and evaluating the function $M(\tau, \sigma, p, C)$ at the steady state equilibrium of the community, we obtain

⁴² See Hammermesh and Soss (1974). Chen et al (2012) offer a review of the literature in economics and sociology.

$$(12) \quad \frac{d}{d\tau}D = \left\{ M_{\tau} + M_p \frac{dp}{d\tau} + M_C \frac{dC}{d\tau} \right\} + \left\{ \left[M_{\sigma} + M_p \frac{dp}{d\sigma} + M_C \frac{dC}{d\sigma} \right] \frac{d\sigma}{d\tau} \right\},$$

where the terms in the first set of curly braces capture the effects in the short run (when σ is constant) and the terms in the second set of curly braces must be added for the long run, when σ responds to τ . Using the results of Propositions 1 and 2, expression (7), and the posited partials of $M(\tau, \sigma, p, C)$ above, we obtain the signs of the various terms on the right hand side as follows:

$$\begin{aligned} \frac{d}{d\tau}D &= \{ (+) + (+)(+) + (-)(-) \} + \{ [(-) + (+)(-) + (-)(+)] (-) \} \\ &> 0. \end{aligned}$$

The signs of all the terms in both sets of curly braces are unambiguously positive. It follows that the deaths of despair increase with historical trauma, but more so in the long run. I record this below as the third and final theoretical result of this paper.

Proposition 3: An increase in the severity of historical trauma,

- (a) increases the rate of Indigenous deaths of despair in the short and the long runs, and
- (b) this rate is higher in the long run.

The first two terms in the curly braces for the short run in (12) capture the deaths by deliberation and, indirectly, through overdoses. This response to trauma would hold for Indigenous Peoples as well as for the rest of the population. What is different for Indigenous communities in the short run is in the third term, which compounds the effect through a decline in social support by the dismantling of communal activities. In the long run, as shown by the additional second set of curly braces in (12), matters are worse. The steady undermining of communal bonds results in a decline in the sense of belongingness in the steady state, and this erosion of Indigenous identity further increases substance abuse and a fragmentation of the community. This additional feature, along with the high levels of historical trauma, I submit, is an important reason why the rates of Indigenous deaths of despair in the data are so much higher than those for the rest of the population, as documented by Akee et al (2022) and by Friedman, Hansen, and Gone (2023). Proposition 3 brings out the core mechanism that reveals what effect the destruction of Indigenous identity has on deaths of despair over the long haul.

At the center of the effect of exogenous changes to belongingness on Indigenous wellbeing is the fact that the most important production activities (food and culture) are communal and, therefore, entail team production. The nature of both these activities is that the action of one member impinges on others and their incentives. Since historical trauma is a shared community phenomenon, an induced reduction in team effort across the board can have a very deleterious effect on the equilibrium outcome. This belongingness aspect of identity makes Indigenous communities at once stronger than organizations based on purely egoistic cultures but also more vulnerable to negative shocks to culture. Thus, the compounded effect of a series of shocks—the loss of land, the loss of traditional customs, the loss of language, the loss of identity, the loss of self-determination, the loss of kinship system, the loss of spirituality, to name a few—would have profoundly adverse effects on the wellbeing of Indigenous Peoples. This offers some insight from economics into why the net effect of what psychologists have labeled as ‘historical trauma’ is so detrimental. It would also explain the fact, alluded to in the Introduction, that ethnic group size, which proves to be a protective factor for immigrant groups to Canada, does not necessarily protect highly traumatized Indigenous communities. Historical trauma, by Propositions 1 and 2, reduces the extent of social integration and support within an Indigenous community in the short run and reduces them by more in the long run.

4.3 Explanations for Some Observed Patterns

Given the cascading effects of historical trauma at the individual, family, and community levels, my model may also contribute towards an understanding of why the effects of this trauma are so all-encompassing—alcoholism, drug abuse, PTSD, family violence, lack of motivation, the inability to sustain relationships, domestic violence, broken homes, child abuse, rash driving, substance abuse, and criminal behavior (assault, robbery, etc.) listed by Brave Heart (2003).

My argument may be seen as possibly providing a theoretical underpinning for some recent empirical findings. Using contemporary data, Akee et al (2022) unearth facts that are very startling. They find that, in contrast to the deaths of despair of non-Hispanic white males which respond counter-cyclically with local economic conditions, those of Native Americans males seem relatively impervious to economic conditions. The deaths of despair of Native American women, they find, can be procyclical with economic conditions. Recognizing that Indigenous deaths of despair in the U.S. may be unrelated to economics, they venture that it may be the

“legacy of centuries of racism and deprivation”, a view that is fully endorsed by my theory. Furthermore, Akee et al (2022) find that the modal age of suicides is very different for non-Hispanic whites and Native Americans: it is in the mid-50s for the former and in the late teens and early 20s for the latter. Both these facts are consistent with the effects that Native American deaths of despair are driven by historical trauma and that this, as shown by my theory, undermines the cultural support that protects adolescents, in line with Chandler et al (2003).

The theoretical framework provided in this paper may also go some distance in explaining the reason for an important difference in suicide rates between Canadian and American Indigenous communities. Indigenous suicide rates in Canada are higher than those in the United States, which themselves are elevated relative to the rest of the population. Between 2010-2016 the suicide rate among the First Nations Peoples in Canada was 24.3 deaths per 100,000 of the population compared to 8.0 deaths for the rest of the population [Kumar and Tjepkema (2019)]. The corresponding figures for 2020 of American Indian and Alaskan Natives were 16.9 deaths compared to 12.1 for Non-Hispanic whites of the population [Center for Disease Control and Prevention (2022)]. In fact, the real difference between suicide rates would be even higher if we recognize, as Raifman, Sampson, and Galea (2020) have done, that if gun ownership was hypothetically at Canadian levels, U.S. suicide rates for the general population would fall by as much as a quarter (and this, even after accounting for the fact that other methods of suicide can be substituted for guns). If the difference is not entirely explained by socioeconomic variables, the putative higher suicide rate in Canada warrants an explanation.

One possibility may be that this difference is due to the difference in the intensity of historical trauma. The federal residential schools in the US were shut down in the 1960s. In Canada, the residential schools were not reformed till the 1970s and they finally shut down only in the mid-1990s. The fact that residential schools were operating as virtually colonial institutions for assimilation for several more decades in Canada seems important in the light of the contribution of these schools to historical trauma [Bombay, Matheson, and Anisman (2014)]. For reasons given in Section 3, the disproportionality of Indigenous children in the CWS was also far higher in Canada. We may reasonably infer that the traumatic effects of residential schools and the CWS were more extensive in Canada than in the U.S. Propositions 1 and 2 would then explain the higher Indigenous suicide rates in Canada relative to those in the U.S.

The theory in this paper may also tentatively suggest why there are gender differences in the suicide rates and mental health statistics of Indigenous men and women. A formal analysis is outside the scope of this paper, but an intuitive and informal hypothesis is possible given what the model captures. May and Van Winkle (1994) pointed out that men's suicide rates exceeded women's in almost all Indigenous communities. They argued that Indigenous men are less well adapted to American society than Indigenous women because the former's traditional roles are less available to them than the latter's.⁴³ This is also the perspective of Indigenous psychologists Duran and Duran (1995). If we accept this view, which does not seem unreasonable given the limited scope of jobs available on reserves, then it would follow that the impact of historical trauma should be greater on Indigenous men than Indigenous women and the intuitive logic of Section 2's Proposition 1 (a)—though not the formal analysis, because the model does not permit heterogeneity within a community—would imply greater dysfunction among Indigenous men. This seems to be supported by contemporary data. For example, between 2011 and 2016, the age adjusted suicide rate per 100,000 First Nations persons in Canada was 29.6 for men and 19.5 for women [Kumar and Tjepkema (2019)].⁴⁴

Note that the health consequences shown above obtain even in a model that does not incorporate the addictive behavior that frequently occurs when a person deals with PTSD and chronic pain; they obtain even from a simple static model. In reality, matters would likely be much worse because many of the affected are compelled by addictions. To consider issues of addiction, one would of course need a dynamic model, which would take us outside the scope of this paper.

Historical trauma disrupts a person's sense of self. The most suggestive evidence on the connection between the strength of self and suicide risk is provided by the work of Chandler and Lalonde (1998), alluded to earlier. They use data from the 196 Indigenous bands in British Columbia, but were aggregated into few tribal groups because many of the bands had very small

⁴³ Specifically, they say "The warrior, farmer, hunter, and protector role of the male is no longer as viable in traditional or modern Indian societies, while the child-bearer and home-maker role of the female has changed less. Further, Indian females are more likely than males to enter the modern wage work labor system in education, clerical, administrative, social service, and other service sector jobs, jobs which are quite dominant on and around most Indian reservations in the West..." May and Van Winkle (1994, pp. 308-309)

⁴⁴ The ratio of Indigenous to non-Indigenous suicide rates were 2.4 for men and 5.0 for women. Indigenous women seem to face harsher current environments compared to non-Indigenous women than do Indigenous men compared to non-Indigenous men. Missing and murdered Indigenous women is a case in point (see McDiarmid (2020)), as Akee et al (2022) have recently suggested. This is an issue that warrants more research. Burnette (2015) suggests that additional trauma for women can come from intimate partner violence.

population sizes. For each aggregate group they computed six binary variables that measured cultural continuity (initiation of land claims, initiation of self-government, control over education, control over police and healthcare, and cultural centers), and summed them to produce a variable on a scale that ranged from 0 to 6. They found that this aggregate measure was inversely correlated with suicide rate in the group, a correlation that is very noteworthy. In their review of the literature on the risk and protective factors pertaining to Indigenous youth suicides, Harder et al (2012) find that some activities (like spiritual ones) are protective, but the factors that have a most pronounced effect when cultural activities are captured as a “group process” as in Chandler and Lalonde (1998, 2008). It is not an accident, in my view, that the pertinent institutions and activities (like making land claims, Indigenous education, demanding self-government, etc.) were not individual-based but required collective action.

4.4 On the Role of Settler Colonialism

The specific role of settler colonialism in the outcomes being discussed needs to be emphasized. The elevated suicide rates of Indigenous peoples relative to the rest of the population are seen not only in Canada and the United States but also in Australia and New Zealand (see Dudgeon et al (2018)). By collating the sparse extant evidence from across the world, Pollock (2018) has shown, however, that Indigenous suicide rates are not uniformly elevated in all countries.

Hatcher (2016) attributes the high suicide rates of Canadian Indigenous Peoples to being colonized. I suggest that it is not merely colonialism but *settler colonialism* that may be partly responsible for these elevated rates of Indigenous suicides because this is tied to the loss of land. Economists have largely been silent on this subject, but this hypothesis is assumed to be true in the literature that exists in disciplines outside economics [e.g. Czyzewski (2011), RCAP (1996)]

The model of this paper suggests reasons for why settler colonization is intimately related to elevated Indigenous suicide rates. Settlers desired land, and this land was then to be converted to private, fee simple property. This requires the erasure of Indigenous culture because of the special nature of the cultures, because the communal land can no longer be claimed by the original owners, as powerfully argued by Wolfe (2006). It is this that ultimately motivated the repeated attempts made to erase Indigenous culture—relegation to reserves, inducements for enfranchisement, residential schools, banning of Indigenous languages, the attempted purging of

Indigenous spirituality, to name a few.⁴⁵ In terms of the model, settlers' desire for land was ultimately responsible for perpetrating the historical trauma (increasing the parameter τ) and the loosening the bonds of belongingness (lowering the parameter σ). Had the colony merely been, in the terminology of Acemoglu, Johnson and Robinson (2001), an 'extractive' colony—one from which resources were extracted but with no significant settlement by people from the colonizing country—there would have been little need for a continuing assault on Indigenous cultures and identities. (For example, the cultures of India during British colonialism were not assaulted like those of Indigenous Peoples of North America, Australia, and New Zealand.)

5. Relevance of the Theory to Public Policy

According to the theory of this paper, Indigenous communities that were less exposed to events that led to historical trauma would be more functional. Of the members' time and attention, more time would be devoted to the 'Us' aspect of self and less to the 'me' aspect, that is, more applied to collective activities. The communities can thus organize better, govern better, plan better, and be more capable of offering community support, and will be more available to pass on cultural values to youth. In general, such communities would display greater resilience in the face of contemporary adversities and have fewer deaths of despair.

The reliance of Indigenous communities on collective activities, as we have seen, also made them vulnerable to destruction of the cultural edifices that sustain them. But, on the upside, for the same reason related to communal (team) production, Indigenous bands are also more amenable to positive measures that restore them. Any boost to communal capacities generated by tempering the effects of historical trauma will have a salutary effect on the collective equilibrium. Thus, there is strong reason from economics to believe that it is possible for collective endeavors to undo the damage of historical trauma, at least partly, and this is consistent with the insistence of Indigenous scholars and leaders.

If recovery from historical trauma requires community development, as it seems to, my model says that a highly traumatized community may not be able to internally mobilize the needed initiative. This is especially so because community building is a collective action and a sufficient

⁴⁵ These attempts severely undermined the identities of Indigenous peoples, but they failed to expunge them. In a different context, Fouka (2020) showed that when some states in the U.S. banned the teaching of German after WWI, the bans actually hardened the identity of German Americans.

degree of belongingness is required to overcome the moral hazard in teams. Thus, there is a natural role for government to play in the building of the community but *along the lines of Indigenous societies*. It is the adherence to traditions emphasizing collective activities that has been the source of Indigenous resilience over the centuries. Seen through the lens of economics, the case for public funding of collective healing traditions is very strong. This is in sharp contrast to the claims of the neoliberal view dominant in western countries, which emphasizes the role of the individual while minimizing that of the government.

Numerous policy recommendations have been offered in the literature for ameliorating the grave problem of Indigenous suicides (see e.g. RCAP (1996), Sinclair, C.M. (2015)). I restrict myself here to policy recommendations that are supported by the limited model in this paper. In particular, my focus is on policies that promote Indigenous collective activities. Gone et al (2019) have argued that more research needs to be done on what contributes to resilience. My theoretical framework leads me to suggest that the very things that were weakened by historical trauma (cultural institutions, self-determination, and spirituality, among others) should be the things that must be reconstituted to increase resilience. The question is how. The theory of this paper suggests three potential areas, which are consistent with a few of the 94 Calls to Action listed by the Report of Canada's *Truth and Reconciliation Commission* (2015).

Language Revitalization

Of the many uses of language, an important one is that it is instrumental in enabling individuals to form a robust self-concept, a notion of who they are. As many Indigenous scholars have affirmed, Indigenous languages are intimately tied to the land [Shaw (2001), Ferguson and Weaselboy (2020)] and land is intimately tied to Indigenous identity [Akiwenzie-Damm (1996), Noble (2008)]. When language is lost, one of the core features of Indigenous culture and identity is erased.⁴⁶ In terms of the model of Section 2, the belongingness parameter σ is dramatically reduced. This will have a deleterious effect on the equilibrium outcome of the community.

Language proves itself to be a powerful buffer against the effects of historical trauma. Hallett, Chandler, and Lalonde (2007) examined data from 152 Aboriginal bands in British Columbia,

⁴⁶ The Bishop of Avila is said to have remarked to Queen Isabella of Spain in 1492, "Your majesty, language is the perfect instrument of empire." (Quoted in Crawford (1995, p. 25))

Canada, in which youth suicide rates varied considerably across bands. They found that, relative to other markers of identity, knowledge of their heritage language had the most predictive power with regard to the suicide rate in the band. Bands in which only the minority of the people spoke the heritage language had six times the suicide rate of those in which the majority spoke the language. The results strongly suggest that being embedded in Indigenous culture through language is associated with lower youth suicide rates among Indigenous Peoples. Ritland et al (2021) find that that knowing an Indigenous language is a protective factor against suicide for Indigenous women using substances. This suggests that the very high suicide rates among youths of First Nations, Métis, and Inuit [Kumar and Tjepkema (2019), Park (2021)] and among Native Americans [Akee et al (2022), Friedman, Hansen, and Gone (2023)] may well be related to the rapid language loss among the Indigenous Peoples, an issue that could bear more investigation.⁴⁷

A policy that may be non-obvious to economists but which would improve the health of Indigenous Peoples is that of reinstating and revitalizing Indigenous languages. What is special here is that there is an important externality that pertains to its role in the reinstatement of identity: the language of an Indigenous community reinforces identity and improves wellbeing. So, revitalization of Indigenous languages cannot be left to individual initiative or to market forces; it requires a coordinating agent with funding, and that agent is clearly the government. The health implications of language revitalization are now recognized even by the health profession (see the reviews in *Lancet* by Gracey and King (2009) and King, Smith, and Gracey (2009)). But this paper's model offers what, to my knowledge, is the first theoretical justification for it from economics—by bringing out the importance of the Indigenous sense of belongingness and the role of language in restoring it.

Self-Determination

The results of Section 2 also speak to the issue of self-determination and Indigenous wellbeing. Chandler and Lalonde (1998) find that of the 196 bands in British Columbia, some had suicide rates that were 800 times the national average while others had none at all. The authors explain this partly in terms of the self-determination of the bands, as evidenced by features like the traditional institutions the bands had in place and the land claims that were being made. They

⁴⁷ Krauss (1992, p. 5) reports that children are no longer learning 149 of the 187 languages in the U.S. and Canada together, that is, 80% of the languages are heading for certain extinction unless reversed.

posit lack of self-determination to be one of the factors that undermine the continuity of self by the erosion of identity.

Evidence on the importance of self-determination also comes from non-Indigenous settings. Guiso, Sapienza, and Zingales (2016) have shown that those cities in Italy that were independent city-states (communes) in medieval times exhibit more civic or social capital today, as measured by such things as the number of nonprofit organizations per capita. Culture is seen to be the source of persistence even when, pace Acemoglu, Johnson, and Robinson (2001, 2002), the intervening institutions have long disappeared. This, they argue, is due to greater self-efficacy generated in independent city-states, whereby people come to rely on their own effort and are prone to less free-riding and greater trust. This culture is passed down through generations within families through socialization. These findings clearly have lessons for self-determination sought by Indigenous Peoples, especially given the importance of Indigenous cultures.

Self-determination requires commitment and effort. When historical trauma undermines belongingness, the needed team work for self-determination will not be forthcoming, and so the trauma needs to be addressed first or, at least, simultaneously. In my model, self-determination will enhance belongingness because the land will not be seen as being controlled by the government. It is through effects of this kind that, based on the results of the Proposition 1(b) and Proposition 2 in Section 2, we can expect greater self-determination to reduce deaths of despair.

Indigenous Healing Practices

This paper also offers some support from economics for the collective Indigenous practices that deal with healing trauma and substance abuse. The core feature that singles out Indigenous healing programs seems to be interconnectivity between members of the community (see Fleming and Ledogar (2008) for a review of the literature). McCormick (2000) offers a clear outline the philosophy behind the Indigenous treatments of substance abuse. Dependence on substances such as alcohol is seen as arising as coping mechanisms in the face of the powerlessness felt when traditional cultural and spiritual values have been abandoned. The Indigenous solution is argued to lie in restoring adherence to these values, which for Aboriginal spirituality is cast in terms of “getting beyond the self” [McCormick (2000, p. 26)]. This ties in

with my claim that suffering focuses attention on the ‘me’ aspect of self (to the detriment of belongingness) and the shift to cultural values broadens the focus. Lester (1999) found that, around the 1970s in the U.S., Indigenous communities exhibiting a higher degree of enculturation (traditional integration) were associated with lower suicide rates than those with more acculturation (assimilation with the dominant culture). The former acts as a buffer against stress, whereas the latter causes greater stress.⁴⁸

Since Indigenous healing procedures may be seen as increasing the belongingness parameter σ in the model, which then predicts less diversion of resources to pain-relieving substances, in accordance with Proposition 1(b). The model, therefore, is consistent with the view espoused by psychiatrists and Indigenous scholars that collective Indigenous healing procedures are efficacious [Duran and Duran (1995), Katz (2017)].⁴⁹ My economic model of Indigenous communities is thus in alignment with “culture as treatment” as one of the approaches to resolving Indigenous historical trauma espoused by scholars [Brave Heart (1998), Walters, Simoni, and Evans-Campbell (2002), Gone (2009), Matheson, Bombay, and Anisman (2018), and Wexler and Gone (2012)]. Since culture is a collective phenomenon, this treatment necessarily takes a collective approach as opposed to individual-by-individual therapy that is more appropriate in individualistic western cultures. There is some evidence to date for the efficacy of cultural treatments [e.g. Rowan (2014)]. That said, however, I must note that there is an absence of RCTs that demonstrate causality of the efficacy of Indigenous treatments for substance abuse.

6. Some Concluding Thoughts

The kinship system that prevails in a society is strongly correlated with the nature of the culture that evolves in it. As Shultz et al (2019) have shown, the change in the kinship system initiated by the forbidding of cousin marriages by the medieval Church in Western Europe led to an individualistic culture based on nuclear families that is very different from cultures around the

⁴⁸ A graphic illustration of the success of communal action accompanied by enculturation is illustrated by the Shuswap band on the Alkali Lake Reserve in British Columbia, Canada. Within a span of a decade, starting from the early 1970s, the community reduced its rate of alcoholism from 97% to 5% [Guillory, Willie, and Duran (1988)].

⁴⁹ Alcoholics Anonymous shares some of these characteristics such as invoking a ‘higher power’, as noted by Guillory, Willie, and Duran (1988). I interpret this as AA, one of the most successful organizations for dealing with alcoholism, also attempting to make the individual “go beyond self” by relinquishing the control exercised by ‘me’.

world that are based on extended families. The virtual destruction of the Indigenous extended family system by the colonialism of Europeans through means such as the Indian residential schools and the child welfare system unhinged Indigenous cultures and disabled the built-in buffering mechanisms against external shocks. Some of the destruction was by design and some of it was probably unintended, but the Indigenous Peoples of North America are still experiencing the consequences.

From a theoretical point of view, the innovation of the model in this paper is very simple. It is premised on the recognition of two facts: one is the importance of communal culture to Indigenous societies, and the other is the stark fact of pain as a consequence of historical trauma. The implications, which are important, then follow from the model in a straightforward way. They seem to explain a fair amount of the evidentiary patterns pertaining to Indigenous substance abuse and deaths of despair. But the two facts modeled here are what Indigenous scholars and elders have been pointing to for a long while. As a non-Indigenous academic with no lived experience of the subject, my contribution here, if any, comes only from reading and translating into the language of mainstream economics what I think I “heard” or what I have understood.⁵⁰ The attempt, I submit, may not be entirely misguided, for the theoretical analysis leads to a conclusion that echoes that of the 1996 *Royal Commission on Aboriginal Peoples*, which was based on extensive empirical observations: “The evidence before the Commission has led us to conclude that high rates of suicide among Aboriginal people are primarily the result of severe social and cultural disorganization.” [RCAP (1996, p. 76)]

There is a question that is as yet unanswered in the literature but which may be answered by the results in this paper. Chandler and Lalonde (1998) and Chandler et al (2003), as noted, have argued that Indigenous youth suicide is correlated with cultural continuity using variables like on-going land claims, extent of self-government, control over Indigenous education, etc. But these variables are endogenous and depend on the band’s ability to organize collective action. The question then is: “Why do Indigenous communities differ in their organizing ability?” My

⁵⁰ I have tried somewhat to heed the advice of Huston Smith, who used to urge his (non-Indigenous) audience to learn to listen to Indigenous Peoples, saying, “Listen, or your tongue will keep you deaf,” [Smith (2005, p. xiv)]

paper's model answers this by demonstrating why Indigenous communities vary in their *capacities* for self-government.⁵¹

The level of trauma is very likely to be *community-specific* because of the very different geographical environments, histories, treaties, provincial treatments, territorial encroachments, etc. The variation in the suicide rates across different communities, an important empirical fact [see Chandler and Lalonde (1998, 2008), Kirmayer et al (2007, pp. 14-20)], would be explained in my model by the variation in historical trauma of the communities. To my knowledge, Jacklin (2009) is the only piece of research (but based on a very small sample) that suggests on empirical grounds that differences in colonial exposure matters. Future empirical research could fruitfully identify common measures of historical trauma for each of the over thousand Indigenous communities in North America, along the lines of the indices suggested by Whitbeck et al (2004) and Walters et al (2011).

In the past few decades, the literature on economic development has established that having good institutions is of paramount importance for economic growth [North (1981)]. Acemoglu, Johnson, and Robinson (2001, 2002) demonstrated in the context of European colonization, the colonizers instituted good institutions that protected private property rights in settler colonies while implementing exploitative institutions in colonies that were meant merely for extractive purposes, and that this resulted in a 'reversal of fortunes' over time. Feir, Gillezeau, and Jones (2023) have recently compellingly documented a reversal of fortunes of the bison-dependent Indigenous communities in the Plains of North America. The virtual extinction of the bison took the communities from being the richest on the continent at the peak to being the poorest after the demise of the bison.

I suggest that the reversal of fortunes that worked to the benefit of European settlers and to the detriment of Indigenous peoples is even more general. In at least four settler colonies, namely, Canada, United States, Australia, and New Zealand, colonization has wrought devastation on the Indigenous Peoples. Given that suicide was not a traditional practice of Indigenous Peoples

⁵¹ There are, however, a few hints in the literature (e.g. see Kirmayer, Brass, and Tait (2000, p. 611), Bombay, Matheson, and Anisman (2014, p. 332)).

[Kirmayer et al (2007, p. 59), RCAP (1996, p. 10)], the very elevated rates of Indigenous deaths of despair in current times appears to be one such manifestation of this reversal in wellbeing.⁵²

The fact that Indigenous Peoples of North America have sustained a 500-year assault and have refused to fade into oblivion points to the fact that the resilience of Indigenous societies has come from some bedrock strengths. The results of this paper are aligned with the views of scholars and Indigenous elders in suggesting that the effects of historical trauma are best countered by fostering the original strengths of Indigenous societies rather than emphasizing the deficits.⁵³ Lyons (2010), as quoted earlier, claimed that “Indigenous identity is something they do, not what they are”, a view seconded by Maracle (2021). If we interpret this as saying that Indigenous identity tends to be a *verb*, not a noun, non-Indigenous people can appreciate the importance of communal activities to Indigenous cultures and perhaps glimpse the profound consequences of the disruption of these activities. Fostering Indigenous strengths, as this paper demonstrates, requires coordinated effort to facilitate the rebuilding of Indigenous identities with community-oriented cultural practices. These activities, as Indigenous elders maintain, will promote resilience while also healing the unresolved historical trauma.

⁵² To economize on space, I have not discussed the contribution of the rise in neoliberalism in the last decades, which coincides with when Indigenous suicide rates started to rise. Because the neoliberal ideology emphasizes individualism and private property, it represents the very antithesis of Indigenous cultures. As neoliberalism swept across the developed world, governments have been further encroaching on Indigenous territories and ways of life.

⁵³ See e.g. Red Horse (1997), van Uchelen et al (1997), Evans-Campbell (2008), NNAPF (2011), FNIGC (2020)

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