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**Bio-Gentrification:**

**Vulnerability Bio-Value Chains in Gentrifying Neighbourhoods**

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**Abstract**

This paper develops the concept of “bio-gentrification” as a way to broaden critical theoretical debates on the relationship between gentrification and “social mixing” policies. Bio-gentrification weds urban Marxist political economic insights to the neo-Foucaultian notion of biopower. The former stresses spatial tactics of removal and displacement and value generated through land and property. The latter assesses a wider terrain of spatial tactics, their relationship to knowledge produced about humans as living beings, and their alignment with capitalist urbanization. The Vancouver example illuminates how social mixing “truths” and the practices to which they are tied generate value by naturalizing human insecurity in situ and turning the biological existence of disadvantaged peoples, and specifically “vulnerable populations,” into raw material for profit through, what this paper refers to as, a “vulnerability bio-value chain.” Bio-gentrification highlights the tension between removal and embedding of disadvantaged peoples and points to the need for a bio-gentrification politics that addresses this dynamic.

**Key words**

Gentrification, social mix, vulnerable populations, biopower, capitalism, Early Development Instrument

**Introduction**

Taking recent developments in capitalist urbanization in Vancouver as its empirical focus, this paper introduces the concept of “bio-gentrification” as a way to extend critical theoretical debates on gentrification. There are competing definitions of what is meant by gentrification, but among critical scholars, particularly those inspired by Marxist political economy, it is generally agreed that it “involves both the exploitation of economic value of real estate and the treatment of local residents as objects rather than subjects of upgrading” (Berg, Kaminer, Schoonderbeek and Zonneveld 2009, as cited in Lees, Slater and Wyly 2010). This definition brings into focus how gentrification is a process focused on maximizing land and property values at the expense of lower-income and disadvantaged people.

 Critical gentrification studies have begun to investigate the relationship between population removal techniques to increase land- and property-based profits and “social mix” policies aimed at producing more diverse neighbourhoods. At the heart of contemporary urban planning initiatives in numerous cites across North America and Europe, “social mixing” has been officially pitched in different ways, including as a way to promote a city’s brand as cosmopolitan and global, as a mechanism for fostering urban livability and urban well-being, as well as a means to reduce processes that divide cities along racial and class lines. The presumed merits of social mixing are contested both at the level of the street (Ley and Dobson 2008; Ley 2012) and within the scholarly literature (Bridge, Butler, and Lees 2012; Lees, Slater, and Wyly 2010; Rose 2004; Rose, Germain, Bacque, Bridge, Fijalkow, and Slater 2012), which has shown how social mixing has focused on de-concentrating poverty in a manner that treats lower income and disadvantaged groups as deficient; how social mixing operates as a technique to render presumed problem people docile through displacement, spatial dispersion, and regulation (August and Walks 2012; Bauder 2002; Darcy 2012; DeFilippis and Fraser 2010; Imbroscio 2008; Lipman 2012); and how social mixing policies ignore or downplay structural mechanisms that generate inequalities (Gotham 2003; Rose et al 2012; Slater 2013), thereby operating as ideological smokescreen (Madden 2014; Manley, van Ham, and Doherty 2011) for the violent processes of “accumulation by dispossession” (Harvey 2004) upon which gentrification rests (Marcuse 1985; Freeman 2006; Smith 1996).

 Despite the depth and breath of these assessments, crucial analytical blind spots remain in studies on the gentrification-social mix nexus. First, there is a tendency to take political subjectivities as a given, with the primary emphasis on class dynamics, albeit sometimes with recognition that these processes are overlaid with other cleavages, such as gender and race (Lipman 2012; Rose 2004; Van den Berg 2013; Walks 2009). For instance, emergent classificatory schemes, such as the increasingly predominant focus on “vulnerable” or “at-risk” populations (Murray 2004a), have not been systematically investigated within studies of the relationship between gentrification and social mixing. Second, there has been inadequate attention to forms of knowledge that underpin efforts aimed at the judicious blending of different groups; knowledge tends to be treated as an ideological construct that needs to be unveiled, rather than a domain of power in its own right. This leaves unaddressed a series of questions, including how social mixing became an authoritative policy discourse, the assumptions about which it is based, the urban milieus shaped through this sphere of knowledge production, and the relationship of all these processes to urban profitability. Third, the almost singular emphasis on land use and property (Ley 1996; Marcuse 1985; Smith 1996) defines low-income and disadvantages people as self-evidently hindrances to profitability. However, as the analysis to follow demonstrates, in the gentrification-intensive eastern districts of Vancouver, an area roughly traversing the administrative districts of the Downtown Eastside, Grandview Woodland and Strathcona (see Map 1), social mixing interventions are connected to processes that turn the biological existence of disadvantaged peoples into raw material for profit. Rather than operating simply under the logical of removal, social mixing also maintains and naturalizes poverty in situ. Bio-gentrification refers to this dynamic tension between the seemingly disparate logics of extrication and embedding.

 The term bio-gentrification weds the Marxist urban political economy emphasis on profits generated through land and property to the neo-Foucaultian emphasis on biopower. Paul Rabinow and Nikolas Rose, extending the work of Michel Foucault, define biopower as “a field comprised of more or less rationalized attempts to intervene upon the vital characteristics of human existence – human beings, individually and collectively, as living creatures who are born, mature, inhabit a body that can be trained and augmented, and then sicken and die and as collectivities or populations composed of such living beings.” Biopower rests upon authoritative truth claims about the “’vital’ character of living human beings,” entails “strategies for intervention upon collective existence in the name of life and health,” and, involves “modes of subjectification, in which individuals can be brought to work on themselves … in the name of individual or collective life or health” (Rabinow and Rose 2006, 196-197). Biopower has always been interlinked to capitalist dynamics. Foucault himself pointed this out, acknowledging that the emergence of biopower “was without question an indispensable element in the development of capitalism.” He went as far as to say that capitalism “would not have been possible without the controlled insertion of bodies into the machinery of production and the adjustment of the phenomena of population to economic processes” (Foucault 190, 140-41). At the same time, biopower has a spatial character. The promotion of ways of living and being that would align with capitalist exigencies goes hand-in-hand with the shaping of places and spaces – prisons, schools, factories, maternity homes and more recently an array of new institutions such as food banks, supervised injection sites, and children’s early learning programs (Murray 2011) -- consistent with these aims, with urbanization and industrialization being the background context for the emergence of these domains and biopower more generally (Joyce 2003; Murray 2004b; Rabinow 1982 and 1990). Whereas gentrification presupposes removal, the biopower lens does not assume that displacement is the sole or dominant spatial tactic. And whereas gentrification trains attention on land and property values, biopower allows an entry point to assess value-generating dynamics at the level of biological existence.

Map 1: City of Vancouver Administrative Districts

Source: Map created by Ed Cheng. Used with the permission.

 Vancouver offers an ideal focus for examining bio-gentrification. It is a place that provides stark examples of how social mixing has been harnessed as a mode of biopower that envisions, classifies and acts upon “vulnerable people” as biological forms deemed threatening to the health and welfare of neighbourhoods, the city and the nation at large. With barely a whisper of dissent, social mixing became a predominant policy discourse, in large part because it has been linked to the neurological science notion of *human development* as its core concern. Experts, trade unions, nonprofit organizations, politicians and public servants alike rallied around human development as a field of evidence-based knowledge justifying new forms of seemingly progressive governmental interventions. As this assessment will highlight, the terrain of human development knowledge shaped a *calculative milieu* that positioned the University of British Columbia as a global leader in human development science and policy analysis; and, it fashioned the eastern side of the city into a predominant *vulnerable milieu* amenable to interventions focused on resident populations. These spatial transformations were linked by a common and largely uncontested desire to identify and promote *normal* development according to neuro-scientific premises, while also presuming that, for certain populations, development could never be optimized. The calculative and vulnerable milieus were linked to profit making, whereby the former promoted urban value in a new human development knowledge economy, and the latter offered up the biological existence of “the vulnerable” as its grist. In this way, a *vulnerability bio-value chain* took form that aligned with gentrification efforts but also produced profitability beyond the spheres of land and property.

 The assessment to follow elaborates upon these arguments by delineating a partial *critical genealogy* of the emergence of human development knowledge and the milieus it has shaped in Vancouver. Genealogy is a form of historical analysis that evaluates how certain discourses -- ways of seeing, describing and acting upon people and places – emerge and become accepted as truthful. Genealogies start from the vantage point of the present, focusing on discourses that are so self-evident as to have become beyond debate. Human development is one such discourse. While the component qualities of what constitutes human development might be debated, its existence is assumed. Genealogy is critical, but not in the same way that some critical urban political economies are critical. Genealogy does not seek to be critical “in the sense of pronouncing guilty verdicts,” “de-legitimat[ing] the present …,” or “by exposing its past, and hence to write a different future;” it does not aim to reveal fallacies and omissions as a means to generate new tools that are more veracious and valid, or to expose knowledge as an ideological smokescreen for particular political agendas, be they class, gender, race, or other agendas; and, critical genealogies do not strive to explain causes and effects. Such critiques would seek to reveal the power functions of human development knowledge and their negative effects, in much the same way as much of t he critical gentrification literature seeks to expose the capitalist character of social mix policies.

 Genealogy is critical “in the sense of opening a space for careful analytical judgment” (Rose 1996, 105). It brings into visibility the anxieties and assumptions, the problematizations and proposed solutions, shaping human development as a presumed truthful way of thinking and acting upon people and places. So while the analysis hereing shows how capitalist urbanization was shaped in relation to human development knowledge production, it does so not by subsuming empirical research under the rubric of explanatory theory, but rather by assessing contextually specific dynamics as means to develop conceptually relevant analytic tools. To this end, it gathers together an eclectic array of primary source materials, including official policy reports, public statements, programmatic guidelines, and legal texts, some of which have been collected under British Columbia’s Freedom of Information and Protection of Privacy Act [RSBC 1996]. These sources were ordered diachronically in order to bring into visibility emblematic human development frames and assumptions, the authorities making such claims, the people and places they brought into view, and their political and governmental implications. These materials were then assessed in relation to the urban spatial forms and practices shaped in the name of human development. Finally, these findings were studied through the lens of capitalist urbanization as a way to identify the value chains linking street-level practices, knowledge production, and profitability.

 Among the limitations of this assessment, four must be noted. First, there is, self-evidently, no singular urban. As an almost iconic example in urban studies, researchers have shown the many ways that Vancouver has been shaped and reshaped in relation to, for instance, architecture, design, ideology, political economy, race, gender, colonial rule, policy mobilities, and many other facets (see for example Barnes and Hutton 2009; Berelowitz 2005; Blomley 2004; Boyle and Haggerty 2011; Elliott 2007; Holden 2012; Hutton 2007; Langford 2012; Ley 1980, 1987 and 1996; Ley and Dobson 2008; Mahon 2006; McCann 2008; Mendes 2007; Murray 2011; Pratt 2005; Punter 2003; Roe 2010; Smith and Derksen 2002; Sommers 2001; Stanger Ross 2008; Windsor-Liscombe 1997; Wynn and Oke 1992). Without doubt, these studies (especially those pertaining to the erosion of industrial manufacturing in the inner city) provide crucial insights into the conditions that set the stage for the rise of vulnerability bio-value chain dynamic. No one site of knowledge production or street-level practice singularly shapes urban space. The assessment herein makes only the modest assertion that human development knowledge is a significant, although as yet largely unexamined, field over which capitalist space is produced. Similarly, though the paper uses terms such as east end or eastern districts, these do not denote totalities. These labels are heuristic devices for shedding light on a specific aspect of capitalist urbanization traversed by complex dynamics and diverse histories, including colonial pasts and presents (Blomley 2004), which in the case of the eastern side of the city included intense gentrification as industrial manufacturing waned pressures in the latter years of the twentieth and into the twentieth century (Ley 1996).

 Second, textual analysis reveal express purposes and overt implications, but not how such aims and results are undermined, thwarted, and subverted through everyday interactions (Gotham 2003) and alternative “hidden transcripts” (Scott 1990). Vancouver’s east end has an extensive network of progressive grassroots political activists whose activities are at the forefront of the production of urban space. No doubt, resistance extends to the micro-level subversions of front-end workers and the people brought into their remit (Klodawsky, Sitlanen, and Andrew 2013). Careful ethnographic study would expose struggles waged against social mixing in ways that the analysis herein could never bring to light. Third, a critical assessment invariably downplays what might be positive attributes linked to social mix policies programs. Without question, people might find vital and valuable support offered by such programs, but this should not dissuade us from asking serious questions about the kinds of people and places being produced through such them. Fourth, while drawing upon neo-Foucaultian analytics, space considerations limit the emphasis herein to the broad urban spatial characteristics of human development power relations, rather than on the specificities of different modes of power operating in these milieus (sovereign, disciplinary, security, etc.). Even with its limitations, the analysis herein shows that gentrification research can be significantly expanded by adding considerations of biopower, and by reflecting on the political ramifications that bio-gentrification suggests.

Insert Table 1 About Here

Vancouver’s Vulnerability Bio-Value Chain

**Vulnerable populations**

The classificatory scheme “vulnerable populations,” at the base of the vulnerability value chain (see Table 1), became predominant in Canada in large measure through the influence of human development as a field of research, policy, and programmatic experimentation, the birth of which traces back to two key documents: *The Learning Society: Proposal for a Program in Learning and Human Development* (Canadian Institutes for Advanced Research 1992) (hereinafter *The Learning Society*) and *Reversing the Real Brain Drain: Early Years Study Final Report* (McCain and Mustard 1999) (hereinafter *The Early Years*). The former was the founding statement of the Human Development Program of the Canadian Institute for the Advanced Research (hereinafter “CIFAR”), a “think tank” modeled after the Rockefeller Foundation and established in1982. The latter was a report commissioned by the Government of Ontario and penned by Fraser Mustard. Mustard was CIFAR’s founding president, who by the time of the publication of the *Early Years* had embarked upon a consultancy career promoting what was taking hold as the new science of human development, and early childhood development in particular (McMaster University 2009).

 The field of human development that shaped the category of vulnerable populations was closely aligned with government and corporate agendas aimed at privatization, deregulation, and marketization. First, the nascent network of human development scholars were expressly interested in how to adapt to public funding cuts in the field of mental health. Second, they desired to find ways to contribute to the development of Canada as a key node in the surfacing “knowledge economy.” Third, they hoped that their work would lead to intellectual discoveries about how best to foster a labour force capable of the task, while guarding against population pathologies that would be a drag on global competitiveness (CIFAR 1992, 16, 20, 53). The affinity between this field of study and political economic objectives was evident in the generous public funding channeled into the endeavour. CIFAR obtained generous government financing, including direct transfers, as well as indirect contributions from publically funded universities and tax-deductible donations. It also secured corporate financing, with The Royal Bank of Canada taking a particular interest in CIFAR’s human development initiative (Brown 2007, 118; Canada 2001 and 2005; and Calleja 2001). *The Early Years*, widely regarded as landmark in the field of human development research in Canada, was commissioned by the most ardent neoliberal government at the time, the Mike Harris Conservatives, and was penned jointly with Margaret McCain, member of the McCain foods family empire and former Lieutenant Governor of New Brunswick.

 At the heart of this surfacing sphere of research, policy and programming, was a central question that was succinctly put in *The Learning Society*: “What are the basic needs for positive human development?” This question presumed a divide between the optimal and the suboptimal human, the former the bedrock of wealth, stability and order, the latter a threat to the same. The optimal human had an “informed, lively, engaged mind” and was imbued with “rationality skill, intuition, civility character, [and] values” (CIFAR 1992, 3, 54). The suboptimal human was implicitly defined as the opposite: irrational, lacking intuition, uncivilized in character and values, and, importantly, a threat to future productivity.

 The line between the optimal and sub-optimal human that would render vulnerable populations tangible and therefore governable was overtly gendered and racialized. First, the increasing number of women in the paid labour force and the greater prevalence single-parent households were seen both as signs-of-the times and as ominous threats, particularly in relation to the issue of the bearing and raising of children, whose optimal development was placed in doubt. On the one hand, researchers saw the potential for humans to adapt to these changes. On the other, they feared that such adaptations had not kept apace, and all to the detriment of human development. Second, these problems were set against the backdrop of a set of racialized mentalities. This was clear in descriptions of the Agricultural Revolution having led “to the formation of urban centres and the cultures and civilizations,” shaped by “interplay[s] of social forces, technological changes and intergroup trade.” This narrative depicted non-Indigenous peoples as the drivers of “progress” and implicitly defined Indigenous peoples as uncivilized and pre-modern. Concerns were also articulated about how the United Kingdom and the United States had “poor-quality social environments” that were “damaging a substantial part of the next generation.” Canada, it was cautioned, would need to learn from places that had “major inner city problems” that led to “the worst economic decline.” Such race suicide arguments also occurred in depictions of immigrant Southeast Asian children, even materially disadvantaged ones, as performing “superbly in science and mathematics” because of “supportive [and] interactive” family settings. This evidence was taken as proof that “English speaking cultures” were losing their comparative advantage in the global economy (CIFAR 1992, 22; Keating and Mustard 1993, 97, 101).

 These sensibilities intersected with issues of class and urban space in diverse ways. First, the threat of sub-optimal development was depicted as a cross-class concern because poverty and disadvantage were not regarded as its primary cause. Poverty was seen as “a significant risk factor to family or neighbourhood violence, and for the development of aggressive behaviour patterns with lifelong developmental implications,” but the predominant threat was the conduct of people deviating from the traditional two-parent family form; their reproductive choices and parenting competencies were considered to be inherently suspect (CIFAR 1992, 2, 12, and 22; Keating and Mustard 1993, 97, 101). And the primary geographical consideration was the city. It was stated that the transformation from “nomadic hunting and foraging or collective settled foraging to agriculture” to “urbanization, global trade, the industrial revolution, and “the information revolution” had “occurred in the blink of an eye,” the result was inner-city congestion, high-rise developments, violence and crime. All of this, it was said, eroded the capacity of cities “to engender a sense of community and civic responsibility in their citizens,” while also diminishing “their capacity for supporting an adequate health and welfare system” (CIFAR1992,11, 22-28; Keating and Mustard 1993, 97, 101).

 As they sought to find answers to these problems, this new cohort of link-minded researchers turned to studies of Rhesus Macaques, hoping for inspiration on how to understand and ameliorate pressures working against optimal human development. They were inspired by a subset that had “offspring consistently showing a tendency to react more adversely to stressful situations,” as well to more passively “react in novel learning situations.” What made them different from their “normal counterparts?” *The Learning Society* explained that “[t]his tendency seem[ed] to be genetically determined,” and yet hope remained. Experiments “manipulating the quality of familial relations in early life show[ed] that this genetic tendency [could] be largely overcome” by providing the vulnerable monkeys with a very supportive social environment in their first several months of life” (CIFAR 1992, 9, 27, 28, 33). Analysts embraced the potential that behavioural modifications observed in monkeys could be mimicked in humans and that by creating conditions for such imitation among human populations Canada could produce a labour force capable “at a more advanced technical level” (CIFAR 1992, 16, 20, 53).

 There was an affinity between these ideas and those that inspired Head Start programs that were launched in the 1960s. However, Head Start had trained attention on the psychological development of children, whereas this emergent cadre of human development experts was grounded in neuro-science. Their focus was on the brain. The brain they saw as a field of heightened elasticity in the early years of life, the form of which would have implications for a host of problems, crime, high school drop out rates, teenage pregnancies, and so on (Rose and Abi-Rached 2012, 193); but it was not an indeterminate field of opportunity – people could miss out on their chance at optimal development – there was always the chance that people would live their lives in the state of permanent sub-par development. As well, human development researchers were careful to distance themselves from advocating for any sustained public investment in “the social” field, stressing instead environmental implications of the biological “truths” of development – a terrain of study that would come to be known as “epi-genetics,” meaning roughly “in addition to genetics.” The essence of the task was to understand environmental-biological linkages in order to alter the former for the betterment of the latter. To the extent that public agencies would take a role in the area, it would be legitimate as long as the goals was promoting the scientific propensities of normal development. *The Early Years,* for instance, said that the goal was not “social planning [as a] highly control-oriented” activity geared towards aligning society to some preconceived structure.” Rather, it was to decipher the “basic needs of human development” from the vantage points of “the linkage between the neural system and the immune system,” the relationship between “the person and the environment” on cognitive growth, and population developmental histories and their effects on “the conditions for the development of competence in succeeding generations” (McCain and Mustard 1999, 161).

 Looming large over these endeavours was, of course, the central object of consideration: vulnerable populations, for while the goal was optimal development, the problem to be studied was its opposite. *The Early Years* sounded the alarm that civilized society ignored the problem at its peril:

The potential consequences of not acting are troublesome. Our society, like most of the Western world, is in a critical period. We are undergoing a major technological, economic and social change, which is placing new demands and strains on people and institutions. During such periods of substantial change, history shows that the most *vulnerable group* is often the child-rearing generation, especially mothers, as well as children (emphasis added).

As they asserted the discovery of the problem of vulnerable populations, as the next sections elaborate upon, these analysts were also opening up a field of value, bio-value, where the minds, bodies, and souls of the vulnerable would become not only the raw material for study, but also the basis upon which research milieus would be reoriented towards human development questions in a competitive knowledge economy, while geographical spaces would be envisioned in new ways according to their placement on scales of vulnerability.

**The calculative milieu**

The discovery of the problem of vulnerable populations shaped a key hinge upon which the University of British Columbia would become a major human development research milieu: The Early Development Instrument (EDI). The EDI was designed as a survey tool to measure children’s development vulnerabilities (Janus and Offord 2007, 2010). It was formalized in 1997 (copyrighted in 2000, see Janus 2010) and comprised roughly 104 questions relating to “physical health and well-being; social competence; emotional maturity; language and cognitive development; and communication skills and general knowledge in relation to developmental benchmarks rather than curriculum-based ones” (Offord Centre for Child Studies, nd). These five fields were defined as the “core areas of child development that are known to be good predictors of adult health, education, and social outcomes” (Human Early Learning Partnership, nd).

 The EDI was normatively directed at promoting “social mixing” policies and programs in relation to neighbourhood effects theoretical premises, which define human conduct, good or bad, as contagious. It was aimed at finding “the one number,” the child vulnerability rate. This rate was contrived as having a statistical ebb and flow in relation to a norm of 10 percent. Deviations were brought into view through counting, tracking, and mapping. Densely clustered deviations, such as those that might appear in an urban locale were regarded as especially problematic (Kershaw, Anderson, Warburton, and Hertzman 2009, 14, 28). By definition, such places were understood as lacking the requisite epigenetic conditions to promote “normal” development. The solution to this problem would be, in part, interventions aimed at reducing negative and promoting positive neighbourhood effects.

 The creation of the EDI also took form in relation to the urban considerations woven through human development sensibilities. First, the instrument was the product of Mustard and his associates attempt to gather together “world class developmentalists, educators, cognitive scientists, and neuroscientists” in common cause to advance human development studies (CIFAR 1992, 53). This plan had been set out in *The Early Years*, which made the case for “an independent, non-political body, with academic affiliation” to spearhead the human development research agenda (McCain and Mustard 1999, 161). Such a milieu would need to be urban based because the requisite experts would be overwhelming located in Canada’s major cities. Second, EDI surveying would bring urban space into visibility in new ways because densely clustered vulnerability rates would only be apparent in densely populated areas, such as cities. Third, the policy and programmatic recommendations and activities generated through this field of study would further reinforce this emphasis on cities, as cities would be the major field for programmatic innovations.

 The EDI’s creation emerged from CIFAR’s human development research activities and in large measure from the personal influence Mustard wielded in advancing this area of study. As head of CIFAR, he had secured approval from the federal government to link Statistics Canada databases for the purposes of analysing child development indicators, leading to the establishment of the National Longitudinal Survey on Children and Youth, an intellectual tool itself shaped by human development thought. Sixty-percent of the National Longitudinal Survey’s base set of questions would be incorporated into the EDI (Janus and Offord 2007). The EDI official co-creators, David Offord and Magdalena Janus, were recruited by Mustard. As the Vice President of Health Sciences and Dean of Medicine at McMaster University, he approved Offord’s appointment to the Department of Psychiatry and Behavioural Neuroscience and suggested to him “the idea of an EDI.” Mustard also sought out Janus to support the initiative. She was an ideal fit, having completed a doctorate on Rhesus monkey behaviour under the supervision of renowned Zoologist Robert Hinde (Mustard 2010).

 Vancouver’s emergence as a major center of EDI research and experimentation took shape under the direction of Clyde Hertzman in his role as head of the Human Early Learning Partnership, a research consortium for the study of early development in British Columbia. Hertzman was Mustard’s former student, a medical doctor, epidemiologist, a former key player in CIFAR’s Population Health Program, and also one of the “unofficial” architects of the EDI (Brown 109; McMaster University 2009). In the late 1990s, he had received generous financial support from Human Resources Development Canada and from the Vancouver-Richmond Health Department for EDI mapping in Vancouver. *The Vancouver Sun* published some of these maps, which showed the east end as a hot bed of EDI-based child vulnerability (Gram 2001). Hertzman was reported to have said that “all hell broke loose. No one had ever seen a neighbourhood-by-neighbourhood map on the state of children’s physical, social and emotional development or their language and cognitive skills” (Canadians for Health Research 2011). *University Affairs* quoted him as saying that the publication of the first EDI maps “created a huge response because people could see the information so clearly, and it represented their children in their neighbourhoods, rather than a random sample of the population in a hypothetical neighbourhood.” He added that the response of “parents, the school officials, the neighbourhood planners, the politicians was way beyond normal.” Before the maps, Hertzman and his colleagues “had to beg the school board to let [them] to the research.” After, “all of the school boards in the province wanted him to examine their schools and neighbourhoods” and began offering them money to do so (Mullens 2004).

 This “discovery” of the properties of population-level child vulnerabilities aligned with the provincial government’s priorities to generate value through globally acclaimed university research (British Columbia 2010), and this was the context within which a university-government research agreement was struck facilitating Hertzman’s research to expand province-wide. The mapping project required a specialized labour force to undertake methodological honing, data collection, analysis, writing, knowledge translation and consultancy, as well as activities aimed at developing knowledge networks and promoting the merits of EDI surveying and its governmental uses. The research agreement expressly stated that it would enhance UBC’s status as a cutting edge university (UBC 2010), which as a matter of practice would include attracting external funds (fellowships, grants and endowments) and international students paying higher tuitions (British Columbia 2009a, 37). International students were “a potential pool of candidates for labour force participation and permanent residence...” (Canada 2011), and contributed an estimated $878,807,000 to the provincial economy, most of which was generated in Vancouver where the province’s two largest universities were based (Roslyn Kunin & Associates 2012).

 In its first ten years, beginning in 2001, Hertzman’s provincial-wide mapping study received from the provincial government $27 million earmarked exclusively for EDI surveying. During this time, British Columbia began mounting the most ambitious EDI-based research program in the world with fully government funded, province-wide, periodic sampling. This augmented UBC’s status as a high-ranked university in Canada and abroad, a status heightened by Hertzman’s citation record, purportedly the highest in the field of early childhood development (Canadian Institutes of Health Research 2011). By 2005, HELP’s reach became decidedly worldly when the World Health Organization’s Commission on the Social Determinants of Health designated HELP the Global Knowledge Hub for Early Child Development (Einboden, Rudge, and Varcoe 2013). By 2011, roughly thirty countries had adopted, considered for adoption, or in the process of adopting the survey as a performance measure tool. This was in addition to Canada, where, since 1999, every province and territory had undertaken EDI surveying, all but one pan-territorially, and in five cases (Alberta, British Columbia, Manitoba, Ontario, Yukon) more than once (McCuaig 2003). In short, by the new millennium, UBC was at the center of a globalized value-generating human development calculative network.

 Public funding comprised, however, only one part of the contributions made by the provincial government. Public officials also facilitated access to kindergarten teachers who were recruited to complete the EDI checklist (UBC Request for Decision, 2). Provincial authorities also ensured the seemingly endless expansion of the mapping program by permitting analysts to link child vulnerability rate findings to other data sets -- crime rates, voter turnout, and children’s services, as well as to birth, dental, medical, education, and child protection data -- some of which had been hitherto privileged (British Columbia and the University of British Columbia 2009). And, when the provincial government adopted the survey findings as a performance measure (British Columbia 2003; Abbott 2011), it simultaneously secured a market for EDI research findings. The EDI research agenda had shaped a new terrain of value, and as the next section shows, this terrain required a level of human insecurity for its continuance.

**The vulnerable milieu**

As they took hold in Canada, human development mentalities hinged on four key express and implicit premises, each of which would contribute to the production of new urban forms trained on vulnerable populations in Vancouver’s east end. First, regulating reproduction and parenting were key problem fields because “responsible” reproductive choices could never be assumed, particularly where sub-optimally developed humans were concerned. Promoting human development would therefore require the direct involvement of women who might become pregnant or parents (usually mothers) who had young children. The question of normal child development was therefore uncoupled from the needs of working parents for childcare (McKeen 2009; Wiegers 2002). Second, neighbourhood effects premisess served as a guiding policy frame. Hertzman once said, for instance, “[w]e are not only disadvantaging the kids who are disadvantaged. We are also disadvantaging the non-disadvantaged kids in the same communities because we’re basically creating environments in which expectations are low” (Gram 2001). As this quote suggested, threats to human development were defined as undermining the conditions needed to produce the knowledge workers of the future. Even the otherwise potentially “high performers” of the tomorrow (Kershaw et al 2009) could not escape the neighbourhood effects contagion where it lurked. Hertzman relied on such mentalities when he made an explicit case for manipulating Vancouver’s demographic mix:

In two neighbourhoods where middle class and non-market housing have been carefully mixed together, developmental outcomes are better for all children. It would seem that children whose family backgrounds put them at risk, but who live in mixed-income neighbourhoods, tend to be protected compared to their counterparts in low socio-economic segregated neighbourhoods (Hertzman 2004, 8).

As this quote indicates, the centrality of poverty and low-come was a paramount matter, despite the otherwise frequent professions to children’s vulnerability as a cross-class problem. A third premise related to the presumed benefits to be gained by harnessing public-private partnerships in the creation of early childhood development service hubs. *The Early Years* insisted that a “centralized, bureaucratic model” would not suffice and that universal entitlement programs were out-of-date. Collaborative for- and non-profit private sector interventions were seen as allowing for flexible, locally sensitive strategies. Such flexibility required perpetual mapping to ascertain the location of high-need areas, and also where the participation of racial, “cultural, ethnic, [and] linguistic” groups could be best secured. Racialized spatial profiling was therefore a fourth aspect of this frame (McCain and Mustard 1999, 3, 6, 20, 38, 151).

 These four interlocking premises, based as they were on the Mustard-Hertzman understanding of human development, influenced the clustering in Vancouver’s east end of new set of federal, provincial, and municipal early development programs and policies, oftentimes with non-profit organizations as partners and collaborators (see Table 2). The federal government took the lead, in 1993, not long after Mustard’s influence in government policy circles was becoming widely apparent. In that year, the flagship human development undertaking under the rubric of the Children and the Community Action Program for Children (targeting parents of children up to six years of age), which was also the model for the federal government’s Canadian Prenatal Nutrition Program (1994) (for parents with newborns and toddlers) and the Aboriginal Head Start program (1995) (which had an urban component). The provincial government, in 2002, by then already deeply involved in the EDI research agenda, also collaborated on many federal initiatives, and established provincially specific programs, including the Aboriginal Infant Development Program (2002) (focused on children from birth to the age of three), Strong Start BC (2006) (a program for pre-Kindergarteners that included strategies for targeting Aboriginal people and other at risk groups and dedicated Aboriginal Strong Starts), and full-day kindergarten. Non-profit organizations sometimes independently launched endeavours with a clear affinity to human development approaches, as was the case with the Home Instruction for Parents of Preschool Youth (HIPPY) program, which began in Canada in Vancouver. HIPPY was incorporated in 2001, expanded to include an urban Aboriginal program in 2005, and obtained $3.5 million from the federal government in 2009.

 Officially pitched as pan-territorial, in Vancouver, apart from full-day kindergarten, which was mounted in every school in the province, these early development programs were overwhelming clustered in the east end (British Columbia 2008; Canada 2010; HIPPY Canada 2010; Office of the Provincial Advisor for Aboriginal Infant Development Programs 2013; Tarbell 1999). As Table 2 shows, four out of five times, these initiatives were located in the eastern districts exclusively. In some cases, they were the first of their kind in Canada, including the HIPPY. The east end’s environs had a high proportion of the city’s nineteen Strong Start BC programs, and a front-line endeavor of each of the Urban Aboriginal Hippy and Canadian Prenatal Nutrition Program. This centering of human development services augmented the east end’s long established position as a dominant milieu for human service delivery in the city, comprising more than thirty percent of services offered in Vancouver (Ley and Dobson 2008).

Insert Table 2 about here

Human Development Programs in Vancouver

and the East End as at 2013, by Year of Creation

and Lead Organization

 The City of Vancouver, through its urban planning, design, and land use policies, played a role in how the east end came to be defined and acted upon as a vulnerable milieu. This was particularly apparent in relation to the early child development programmatic sphere. The organizational template articulated in human development research, namely the preference for early childhood development service hubs, aligned one of the municipal government’s plans developed in the early 1990s during an acute childcare crisis fostered by provincial and federal funding cuts (Mahon 2006; Pratt 2003). At the time, municipal officials declared that they wanted to face the “new reality” of the “majority of Canadian women with children from birth to twelve years of age employed outside of the home.” It was in this setting that a Civic Childcare Strategy focusing on the “development and support of licensed childcare” was mounted in 1990. The strategy elucidated the importance of focusing on “high need areas,” but this spatial mentality was expressly intertwined with the objective of securing childcare services to assist parents in the workforce (City of Vancouver 1990a and 1990b). Within two years, by1992, the importance of securing childcare for working parents had receded. Human development through the creation of early learning centres aimed at parental training had come to the fore. This was evident in *A Children’s Policy and Children’s Agenda* (City of Vancouver 1992), which laid a blueprint for privileging “public policies to strengthen and protect the ability of families and communities to care for their children” by ensuring “that neighbourhoods [were] planned and maintained in a manner that provide[d] safe, secure and supportive environments.” The report proper never used the word “childcare,” and when Mayor Gordon Campbell, one of Canada’s most faithful neoliberal ideologues, spoke about “childcare” in announcing the new vision, he was sure to clarify that he was not referring to supports for working parents, but rather to a “a continuum of choices in each neighbourhood.” Emblematic of the difference, his definition of childcare included in-kind subsistence programs, specifically “school-based hot lunch program[s].” The next year, in 1993, city council formalized the human development hub model in *Childcare Design Guidelines*. The guidelines favoured clustered services as a means “to create safe and secure urban childcare facilities that [would] provide a range of opportunities for the social, intellectual and physical development of children.” Over a decade on, in 2005, the city council approved *Moving Forward Childcare: A Cornerstone of Child Development Services*. By then, the writings of Hertzman and Mustard were front-and-centre in rationales for further formalizing children’s services hubs (City of Vancouver 2005). A few years on, as the first decade of the new millennium came to a close, EDI findings were integrated into the city’s planning process. These findings were offered up as scientific proof for designating one eastern part of the inner city, Grandview Woodland, a high-priority planning area (City of Vancouver 2012a and 2012b).

 Through a mix of programs, planning, design, and land use policies, the vulnerable neighbourhood was being brought into visibility in the heart of the gentrification landscape. Indeed, gentrification pressures emerged contemporaneously with the shaping of human development policies and programs in the city’s eastern side, an area deemed attractive for middle-class gentrifiers and land speculators because of its proximation to the financial district, large “stock of attractive heritage structures,” and abundance of ocean and mountain vistas. “Land prices in the area, according to David Ley (2012 66), were “anomalously low.” Importantly, grassroots groups offered up intense struggles against gentrification, but their resistance did not extend to the spaces shaped by human development knowledge. Not only was there a lack of resistance to these programs, but also there was a broad-based embracing of human development research, policies, and practices as sites for progressive change. The Community Action Program for Children in the Downtown Eastside and Strathcona even cited Mustard on its webpage:

It is recognized that providing supports to vulnerable parents of very young children reduces the risk of those children developing physical, mental and social health issues, or problems in school, later in life. For every dollar spent in the early years, it saves $7.00 down the road (DTES 2008).

This support extended to the public sector teacher’s union, which backed the mounting of StrongStart BC programs in every school (British Columbia Teachers’ Federation nd). Many childcare advocates regarded EDI findings as tools to advanced egalitarian aims. Studies of street-level bureaucracy show that official policy and programmatic expressions are never straightforwardly adopted (Lipsky 2010). Organizations seeking public funding were expressly required to accept human development norms, including, when available, EDI survey results; and, no doubt, many people working and politically active in the east end were “enlightened reactionaries” seeking to adapt to conditions privileging markets over people (Polanyi 1957 [1944], 165-166). The field of early childhood development services promised a source of significant job creation, particularly for women. Human development services offered a modicum of support to poverty-related initiatives. Nevertheless, the consensus around human development research and programs, hinging as it did on a valorization of the “science” that transcended ideological position, ran deep. To challenge claims that the EDI research agenda contributed to rational investments to support parents raising children was tantamount to dismissing the truth. Regardless of motives, the actions of street-level agencies entrenched the east end as a vulnerable milieu linked directly to the value generated through the calculative milieu on the other side of the city and indeed capitalist urbanization more generally. The next section examines more fully the character of this “vulnerability bio-value chain.”

**The vulnerability bio-value chain**

The previous sections have discussed elements of the vulnerability bio-value chain, depicted in Table 1, with respect to how the human development research agenda aligned with government and corporate goals of privatization, deregulation, and marketization, as well as how the calculative milieu generates a demand for knowledge that requires and attracts a highly skilled labour force and urban consumption. This section rounds out the argument by discussing further aspects of the vulnerability bio-value chain that link the calculative and vulnerable milieus together.

 As Table 1 shows, a crucial node in the vulnerability bio-value chain is the existence of conditions of poverty and disadvantage as key risk factors for vulnerability. In this context, it is easy to understand why depictions of the east end as an archetypical “at risk” neighbourhood focused so much of the human development research agenda. The east end was the ideal research laboratory. Overrepresented by Census-defined single parents (usually mothers), low-income groups, new immigrants, and Indigenous peoples, it fit perfectly the human development vulnerability profile (City of Vancouver 2002, 2012a, 2012b, and 2012c). In the first few years of EDI surveying, it was clear that improvements in the east end’s vulnerability profile would be a compelling validation of the human development research agenda, while any decline would prove the need for more research. Thus, in the first years of surveying, Hertzman routinely drew upon findings from the first sampling periods. Astonishingly, between the year 2000 and 2004, 18 of 23 (see Map 1) “social planning neighbourhoods showed a reduction in [early childhood development] vulnerability,” while five districts saw an increase. The “most compelling” part of the story, he would say, were results from two of the eastern districts: the Downtown East Side and Grandview Woodland. Initially, each area’s vulnerability rates were almost identical, but, in 2004, rates spiked in the Downtown Eastside to 75 percent while dropping in Grandview Woodland to 37 percent. The “fundamental difference,” he would argue, was that Grandview Woodland had a community centre that was “one of Canada’s best multi-service [early childhood development] hubs” (Hertzman 2005). A few years on, this compelling comparison evidently lost its appeal, perhaps because the underlying assumptions about Grandview Woodland were not supported by evidence about the effect of broad based institutional changes that had taken shape in the area (Murray 2011). At the same time, it was becoming apparent that EDI surveying was producing often wildly contradictory results. These inconsistencies were not taken as an indictment against the research or its methodology. They were taken as proof of the need for new research activity, fine toning methodological tools, and greater attention to education and training of EDI surveyors. The mapping project not only allowed for failures, but embraced shortcomings as evidence of the need for more data, more maps, more analyses, and so on. Such data limitations did not, however, dissuade Hertzman from using the east side results to make the case for more EDI surveying and programming. He would sometimes show audiences graphics depicting male icons as symbols of concentrations of vulnerable children. “You can see,” he would say, “an army of the vulnerable marching towards you, a cause to not sleep at night” (Hertzman 2011). This mentality captured how vulnerable people (namely racialized mothers singled out as poor and otherwise disadvantaged) were, as was the case from the earliest days of the human development research agenda, almost synonymous with dangerous, threatening, and insecure places.

 Contrary to gentrification studies that emphasize dislocation and removal of disadvantaged peoples, the form of biopower produced through human development research both inspired and promoted new institutions whose raison d’être required the existence of densely clustered vulnerable populations, even, and perhaps especially, in areas marked by heightened gentrification pressures. In Vancouver, the east end street-level milieu created under the mantel of human development operated in large measure through exchanging program participation for what might best be called “poverty knowledge” geared towards directing people towards the basic necessities of life. The Canada Action Program for Children, for instance, posed a series of questions to participants in a program review. Had they learned how to “plan and make nutritious low cost meals?” Had they exercised frugality in food purchasing? Had they learned how to find “low cost or free food?” (Children Need Care Now CAPC Coalition nd). Were they now making healthier food choices? Were they using herbs in cooking? Poverty, as these questions suggested, could be lived better, properly, and, importantly, seemingly without end. The aim of the program was not poverty amelioration, of course, but rather parental training and remediation. Echoing the assumptions of the founders of the human development research agenda, these street-level practices assumed that children’s vulnerabilities were most heavily determined by parental conduct.

 Another example of this dynamic was evident in the work of Sheway, a program partially funded by the Canadian Prenatal Nutrition Program, which harnessed poverty conditions for administrative and legal purposes (Sheway nda). With a mandate to provide services to women who were “pregnant or parenting children less than 18 months old” and “experiencing current or previous issues with substance use,” Sheway offered the basic necessities of life, including “daily nutritious lunches, food coupons, food bags, nutritional supplements, formula, and clothing.” Once brought into the service remit, participants would be asked to affirm in writing that they were “open to outreach” (Sheway ndb), thereby allowing front-line workers to seek out seek out people, usually racialized women, deemed at risk. Essentially, this consent was akin to submitting to racial profiling, the purpose of which was no doubt linked to legal obligations of organizations as stipulated under the *Child, Family and Community Service Act* [RSBC 1996]. Under the act, anyone with knowledge about a potential threat to children’s wellbeing would be obligated to report these concerns to officials. This obligation applied even “if the information on which the belief [of harm was] based [was] privileged (other than solicitor-client privilege) or confidential and its disclosure is prohibited under another Act.” Reaching out to potential clients without consent might be construed as entrapment, particularly since the target group was already defined as suspect concerning their ability to bear and raise healthy children. The line between voluntary participation and coercion was, however, already blurred because of the inability of many of those served to meet the basis necessities of life.

 A third example concerns the operation of StrongStart BC, which used legal tools and poverty conditions in an even more coercive manner. The *School Act* (1996) legally obligated a parent (or loco in parentis) to accompany a child participating in the program. Parents had to register and provide proof of identification, such as an Aboriginal Status Card, passport, or visa. Since the programs typically ran mid-day, this parent-child requirement, as a matter of practice, ensured that participants would be overwhelming drawn from non-working people, including people on public income assistance (British Columbia 2011). Strong Start’s promotional materials highlighted the provision of “healthy snacks” (British Columbia 2009a). This would be more of an enticement to the low-income, racialized populations, the program’s overwhelming concern. Access to this subsistence hinged on participants willing submission to the legal conditions of the program, which similarly had potential ramifications relating to the *Child, Family and Community Service Act* [RSBC 1996].

 This circularity -- studying vulnerability as a means to reduce it while contributing to the policy discourses that promote policies and programs that ensure the maintenance of the conditions of its existence – also meant that the images of “normal” reproduction and parenting would always be visible in relation to what it is not, namely the world of the vulnerable. Responsible reproduction and good mothering were indistinguishable from an ideal of self-reliance, autonomy and productivity that was the emblem of the “optimally developed.” Images of vulnerable mothers and their children clustered in the city’s east end potently highlighted these norms. Those unwilling or unable to abide by such ideals were the primary focus of efforts to assess, regulate, and coerce, even, at times to the point of child relinquishment. Be productive, capable, and responsible through self-sufficiency. Do not hope for collective support for bearing and raising children. The vulnerable milieu and its pronounced visibility made clear this message, not by design, but in effect. And by doing so, it supported and justified privatization, deregulation and marketization.

 Of course, it is readily apparent that while this paper began by juxtaposing gentrification with biopower, but they are not so easily disentangled. The forms of biopower produced through human development research, policies, and programs supports gentrification through regulating people deemed diseased, disruptive, and disorderly, but rather than operating on a logic of removal from space, they operate according to a different logic of a removal. Anthropologist Gordon Roe refers to the condition of disadvantaged people in the eastern districts being “fixed in place.” We can add that many people are “fixed in time” and therefore removed from the future of the neighbourhood, city and nation at large. This is not a physical removal, but rather a practical dislodging from any hope of creating a different kind of existence outside of the net of regulation, supervision and coercion shaped by human development programming, at least that seems to be the case for those individuals whose optimal development has already been called into doubt, such as the women and mothers whose reproductive and parenting choices have brought them within the authoritative gaze.

**Conclusion**

This paper has argued that critical gentrification studies can be significantly extended by including assessments of urban biopower as an integral part of capitalist urbanization. Such a task requires more systematic investigations into knowledge production and the milieus they help to shape, with specific attention paid to the ways in which populations are singled out for analysis and interventions. The findings herein raise questions about gentrification struggles trained solely on questions of land and property. As this evaluation has shown, gentrification pressures in the east end have been met, as is the case in many parts of the world, with sustained resistance against corporate and state interests, but these struggles have not extended to human development milieus. And yet, as the example of Vancouver points out, the latter have been, at least in one case, integrated into a fully funded state-funded and corporate friendly research endeavour. Even more problematic, human development research has remained almost completely beyond critique and embraced in a manner transcending ideological differences.

 The disruption of the hierarchies of power shaped through bio-gentrification would require attention to human development lexicons, practices, and milieus – both within and beyond the state -- that have become so ordinary as to be beyond concern. Such a task would train attention on human development domains for governing reproduction and parenting that have taken shape in tandem with gentrification; it would also more thoroughly examine spheres of urban biopower relating to food relief and medical interventions, which similarly target populations as biological beings, as well as the cottage industry of research on the urban disadvantage that flanks these activities (Elliott 2007; Fairbanks 2009; Murray 2011; Willse 2010). The vulnerability bio-value chain comprises a broad set of practices that assign value to people’s minds, bodies, and souls in complex ways. To investigate these in depth is to take up fundamental questions about the types of humans we are collectively becoming when whole swaths of people are not only or necessarily threatened with physical removal but also with the much quieter and less visible techniques that turn their very humanity into raw material for profit. To ignore urban biopower and its relationship to gentrification is not only to miss a fundamental aspect of capitalist urbanization, but also to entrench its naturalization and the profiteering it creates.

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| **Table 1****Vancouver’s Vulnerability Bio-Value Chain** |  |  |
| **Value** |  |  |
| |Attracts highly skilled labour force needed for knowledge production, while promoting urban consumption. | |Reinforces ideal of responsible reproductive choices and good parenting based upon individual self-sufficiency, thereby supporting limited public funding for collective goals in alignment with privatization, deregulation and marketization. | |Renders gentrification and its attendant land and property value feasible not exclusively through displacement, but also through regulating people deemed diseased, disruptive, and disorderly |
| **Production** |  |  |
| **|**Calculative milieu produces knowledge about people and places | |Vulnerable milieu produces and reproduces conditions of poverty and disadvantage |  |
| **Raw Material** |  |  |
| **|**Clustered Vulnerable Populations- Racialized -- Gendered -- Classed - |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Table 2Selected Human Development Programs, Totals for Vancouver and East End as at 2013, by Year of Creationand Lead Organization |  |  |  |
| Federal Government | **Vancouver** | **East End** |  |
| **1993** | Community Action Program for Children | 5 | 5 |
| **1994** | Canadian Prenatal Nutrition Program | 2 | 1 |
| **1995** | Aboriginal Head Start | 2 | 2 |
| Provincial Government |  |  |  |
| **2002** | Aboriginal Infant Development Program | 3 | 3 |
| **2006** | StrongStart BC | 19 | 6 |
| Non-profit Agencies |  |  |  |
| **2001** | HIPPY Canada | 1 | 1 |
| **2005** | Urban Aboriginal HIPPY | 2 | 1 |
| TOTALS | 35 | 19 |  |
| **Sources: Table compiled from British Columbia 2008; Canada 2010; HIPPY Canada 2010; Office of the Provincial Advisor for Aboriginal Infant Development Programs 2013; Tarbell nd.** |  |  |  |